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Winter | 2005

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# Banco de Portugal

## Economic Bulletin

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## *Economic Research*

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## Foreword by the Governor



## THE MODERATE RECOVERY OF THE ECONOMY

*Vítor Constâncio*

1. As usual, this issue of the Economic Bulletin includes projections for the Portuguese economy for the next two years. These projections, which were prepared within the framework of the Eurosystem projection exercise in October and November, update some assumptions and incorporate the latest data available on economic developments.

According to projections, economic growth will stand at 0.3 per cent in 2005, 0.8 per cent in 2006 and 1 per cent in 2007. These figures translate a rather moderate recovery of the economy, but they reflect the influence of significant economic shocks, some of a more temporary nature and others with a more structural effect. For instance, the significant rise in oil prices in the past two years affected Portugal more than other countries and implies a 0.6 percentage point reduction in growth in 2005 and 2006. If we could exclude the effect of these shocks as well as the short-term impact of the fiscal adjustment measures, growth rates would stand at around 1.25 per cent in 2005 and 2 per cent in 2006. The coincidence of the most demanding phase of the required fiscal consolidation and the fact that oil prices virtually doubled, added to this slowdown in the current business cycle. However, the exclusion of these factors is not fully justified, since the new level reached by the price of oil - assuming that it will remain unchanged - does not produce a merely temporary effect and will continue to have adverse consequences for some time. On the other hand, the required fiscal consolidation will continue, despite the positive effect that it will have in the medium term and the confidence effects on economic agents that it may have from now on. In

parallel with these more lasting effects, the Portuguese economy faces other structural problems, which are difficult to overcome, such as those resulting from the competition from new countries that are currently integrated in the European and global markets. The economy will have to react, in order to adapt to these new competitive settings. However, medium-term changes in behaviour and structure are not easy to predict. Even forecasts for 2007 are naturally surrounded by a higher degree of uncertainty but it can be assumed that afterwards some of the most recent negative effects may unwind, allowing for a more normal economic growth.

2. The deceleration of the Portuguese economy in 2005 was due to a marked decline in the contribution of domestic demand to GDP growth, resulting in particular from a drop in investment (-3.1 per cent) and from a slowdown in public consumption. Despite the very slight rise in the net contribution of external trade (exports minus imports), export growth declined sharply from 5.4 per cent in 2004 to 1.8 per cent in 2005. Over the next two years, the projected moderate recovery is underpinned by the maintenance of domestic demand growth (at 0.6 per cent per year) and by an increasing contribution from external trade. The performance of domestic demand reflects the imbalances accumulated in the economy and the degree of indebtedness of economic agents, which has contributed to more sustainable growth of private expenditure. However, it should be noted that private consumption is projected to increase more than 1 per cent per year and the disposable income of Portuguese households will also rise in real terms over the projection horizon. In turn, ex-

ports will likely accelerate due to some pickup in exports of the automobile sector, translating into successively smaller losses in external market shares in the years ahead.

Two factors may lead to a sharper recovery towards the end of the projection horizon: stronger international growth and faster rebound in private investment than implied in the current projections. However, it should be recognised with realism that most risks associated with the current projections still point to the opposite direction. The high uncertainty surrounding the international economic environment will certainly affect the assessment of the risks associated with economic forecasts. Indeed, the international recovery may prove less buoyant than projected if the large imbalances in the world economy will adversely affect growth. On the other hand, it should be recalled that the Eurosystem staff projections are based on the technical assumption that interest rates and exchange rates will remain constant; this introduces an additional risk degree in the projections.

3. Turning to inflation, the current projection points to a rise in the average growth rate of prices of 2.1 per cent in 2005 and 2.5 per cent in 2006, falling to 2.3 per cent in 2007. The increase in the inflation rate projected for 2006, in particular in the early part of the year, is strongly influenced by the rise in energy prices in the second half of 2005. This trend is expected to change in the course of 2006. Another factor leading to a rise in the inflation rate in the first half of 2006 is the increase in indirect taxation (in particular, the rise in the standard VAT rate from 19 to 21 per cent in July 2005), whose impact will only unwind in the second half of the year. The year-on-year rate of change in the consumer price index will reach a peak in the first quarter of 2006 - as high as 3 per cent - followed by a gradual decline, standing at around 2.2 per cent towards the end of 2006.

With regard to external accounts, the external borrowing requirement of the Portuguese economy, after a significant reduction until 2003, rose sharply thereafter, increasing from 3.7 per cent of GDP to 5.9 per cent in 2004 and to an estimated figure of 8.2 per cent in 2005. According to the current projection, the external imbalance

of the Portuguese economy may reach 8.5 and 8.8 per cent in the next two years. These developments largely reflect the effects of the high rises in oil prices recorded since 2003. Excluding energy goods, the current account deficit would have recorded a downward trend over the whole period. The impact on terms of trade of the unfavourable trend of the energy component, by itself, seems to have translated into a deterioration of the goods and services account of approximately 1 per cent of GDP in 2005. The impact is projected to stand at -0.7 and -0.2 per cent of GDP in 2006 and 2007 respectively.

4. The economic situation, in addition to imbalances and temporary shocks, has also been affected by structural competitiveness problems, which clearly indicate that the basic problem consists in increasing the potential growth rate of the economy. The achievement of this goal, in a context of increasing competition due to the globalisation effect and the enlargement of the European Union, is a very demanding challenge. In particular, the structural weaknesses, the deficient educational level, the insufficient transformation of productive structures and the shortage of corporate initiative, make it difficult to respond to this challenge. Moreover, mentalities must also change: the defensive, corporative, attitude that paralyzes society must be abandoned and replaced with a culture of international openness, innovation and risk, on which the younger generations are willing to embark. It is necessary to keep in view a viable and more prosperous future, while at the same time difficult reforms must be implemented. Portuguese institutions are thus put to the test, now that it has become inevitable to face the problems of the country. The broad guidelines that should be followed are sufficiently identified:

First, macroeconomic stability should be ensured, i.e. the fiscal problem should be definitely solved and the sustainability of social security guaranteed. The correction of the mistakes of the initial 2005 budget and the realism of the budget approved for 2006 provide a positive indication about the possibility of meeting such objective. However, the difficult execution of the 2006 budget should be strictly complied with.



Second, a more selective social policy must be adopted, targeted at redistributing income and providing special support to the unemployed, with the substantial strengthening of active employment and professional requalification policies.

Third, investment in people is crucial, i.e. education and training efforts should be stepped up.

Fourth and last, resources and incentives should be concentrated on the promotion of technological innovation. Indeed, the current difficulties will only be successfully overcome with a significant increase in the technological content of Portuguese production and with the expansion of the internationally tradable goods and services sectors.

All in all, it is now imperative to maintain a rigorous financial realism, to support and invest in people and create new comparative advantages

for companies. The current phase of weak domestic demand growth curbs the expansion of indebtedness and puts pressure on companies to make a restructuring, increasing productivity and redirecting, to a larger extent, their production towards external markets. The resumption of significant economic growth depends basically on the adequate responsiveness of companies to the challenges of competition in a scenario of economic liberalisation.

We are not facing a permanent crisis, but the Portuguese economy must adapt to the new conditions of international competition. Determination and rigour in public finances and corporate dynamism are crucial so that the current phase of insufficient economic performance may be more rapidly overcome.

Lisbon, 4 January 2006



## Economic policy and situation



## OUTLOOK FOR THE PORTUGUESE ECONOMY: 2006-2007

### 1. INTRODUCTION

The projections for the Portuguese economy presented in this article are an update of forecasts made by Banco de Portugal within the framework of the December 2005 Eurosystem projection exercise<sup>(1)</sup>. The macroeconomic scenario for 2005 contains some discrepancies compared with that disclosed in the Autumn issue of the *Economic Bulletin* of Banco de Portugal. These discrepancies result from the incorporation of the latest available data, namely international trade data for the third quarter of 2005 released in early December. However, the incorporation of these data translated only into a change in the composition of expenditure, as the growth rate of economic activity projected for 2005 remained unchanged. Thus, after

0.3 per cent growth in 2005, the central scenario of the current projection foresees a limited recovery of economic activity over the projection horizon. According to forecasts, the Gross Domestic Product (GDP) growth will stand at 0.8 per cent in 2006 and 1.0 per cent in 2007 (Table 1).

- (1) The December 2005 Eurosystem staff macroeconomic projections were based on information available up to mid-November. The current projection incorporates information up to mid-December as well as the direct effects on the Portuguese economy resulting from the update of the technical assumptions regarding developments in oil prices, interest rates and exchange rates. For further details, see "Eurosystem staff macroeconomic projections for the euro area", in the December 2005 issue of the *Monthly Bulletin* of the European Central Bank.

Table 1

### PROJECTIONS OF BANCO DE PORTUGAL

Rate of change in percentage

	2004	Current projections			Memo:		
					EB Autumn 2005	EB Summer 2005	
		2005	2006	2007	2005	2005	2006
Private consumption .....	2.3	1.8	1.2	1.1	1.9	2.0	1.3
Public consumption .....	2.6	1.1	0.7	0.4	1.1	1.1	0.3
Gross Fixed Capital Formation .....	0.2	-3.1	-1.1	-0.8	-2.8	-1.5	0.9
Domestic demand .....	2.1	0.6	0.6	0.6	0.7	0.9	1.1
Exports .....	5.4	1.8	4.0	5.2	0.7	2.7	6.8
Overall demand .....	2.8	0.8	1.3	1.6	0.7	1.3	2.4
Imports .....	6.8	2.4	2.8	3.2	1.7	3.3	5.1
GDP .....	1.3	0.3	0.8	1.0	0.3	0.5	1.2
Current account + Capital account (percentage of GDP) .	-5.9	-8.2	-8.5	-8.8	-8.3	-7.0	-7.6
Harmonized Index of Consumer Prices .....	2.5	2.1	2.5	2.3	2.2	2.3	3.0

Note: Projections corresponding to the central scenario are shown for each variable (considered to be the most likely value of that variable, depending on the set of assumptions in question). As described in Section 4 of this article, probability distributions assigned to the possible values of the variable may be asymmetrical. Therefore, the probability of observing a value below central scenario may be different from the probability of observing a value above central scenario.

In a context of low trend output growth, the subdued recovery profile of economic activity is associated with various imbalances that have accumulated in the Portuguese economy, which will likely condition developments in domestic demand. Thus, private consumption and house purchasing expenditure are restrained by the high level of household indebtedness, while the growth of general government expenditure is restrained by the urgent need to correct the public finance imbalance, substantiated in the Stability and Growth Programme (SGP). These restrictions, in a context of lower growth of exports than of external demand due to the increased international competition and the persistence of unfavourable developments in unit labour costs in comparison with the main trading partners, may translate into the maintenance of growth below that projected for the euro area as a whole over the projection horizon, taking as reference the midpoint of the forecast ranges of the Eurosystem projection exercise.

The recovery of economic activity is based on a trend acceleration of exports, as domestic demand is projected to show in both 2006 and 2007 a pace of growth similar to that estimated for 2005. However, this stabilisation is based on the assumption of differentiated developments in its main components, namely: (i) deceleration of private consumption to levels more closely in line with developments in economic activity; (ii) less negative developments in Gross Fixed Capital Formation (GFCF), chiefly due to corporate investment, as, similarly to the past few years, projections point to a stagnation of investment in housing, while for public investment (excluding real estate sales) a virtual stabilization in 2006 and a negative rate of change in 2007 (in real terms) is forecast, in line with the evolution of transfers from the European Union (EU), under the Community Support Framework. Despite the weak pace of domestic demand growth, the central projection scenario foresees the maintenance of the external imbalance at a level around that projected for 2005, with external borrowing requirements of the Portuguese economy ranging between 8.2 and 8.8 per cent of GDP.

The current scenario implies a downward revision of the GDP growth projections disclosed in the Summer issue of the *Economic Bulletin* (Chart

1), chiefly due to the materialisation of some of the downside risks identified at that time.

First, in a context of deteriorating economic agents' confidence in the second half of 2005 and of some correction of the particularly high growth of durable goods consumption expenditure in the second quarter of the year, domestic demand is estimated to have decelerated in the course of 2005. This trend seems to have been counterbalanced by an increase in the contribution of net external demand, so that the current scenario envisages a relatively stable pattern for GDP growth between the first and second quarters of 2005, instead of the acceleration underlying previous projections<sup>(2)</sup>. This revision of the intra-annual profile in 2005 contributes to the downward revision of GDP growth projected for 2006, due to the dynamic effects resulting from lower growth than previously projected in late 2005.

Second, export growth was lower than projected in the Summer *Economic Bulletin*<sup>(3)</sup>. This seems to be related to a stronger-than-expected impact of international competition on the markets of destination of Portuguese exports. These effects, which seem to have been particularly strong in 2005, will continue to be felt over the projection horizon, together with less favourable prospects for exports of the automobile sector, and may imply additional losses in Portuguese export market shares. Moreover, there was a downward revision of external demand relevant for the Portuguese economy in 2006, resulting from a lower pace of growth foreseen for the main markets of destination of exports. These factors imply that the current projection foresees significantly more moderate export growth than assumed in the Summer *Economic Bulletin*.

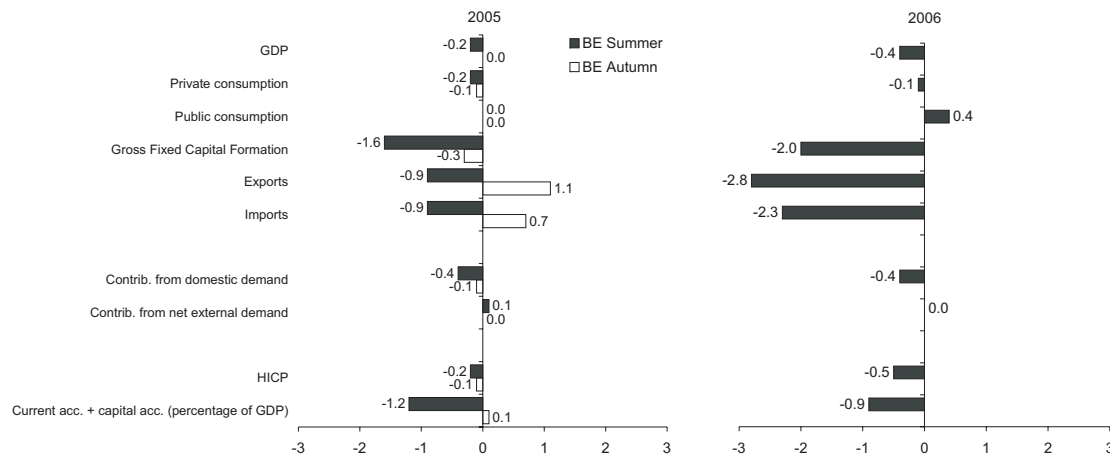
Finally, the significant rise in oil prices recorded since the cut-off date of the Summer *Economic Bulletin*, which according to expectations implied by futures markets will translate into higher prices over the projection horizon than those considered at that time, also contributed to a less favourable

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(2) See "Box 1: Intra-annual profile of the Portuguese economy in 2005".

(3) It should be noted that despite this downward revision, the growth of exports currently estimated for 2005 is slightly higher than forecast in the Autumn *Economic Bulletin*, reflecting more dynamic export developments in the third quarter of 2005, the same applying to imports.

Chart 1  
DIFFERENCE AGAINST THE CENTRAL SCENARIO OF THE SUMMER AND AUTUMN PROJECTIONS  
In percentage points



external environment for the Portuguese economy. The rise in oil prices has had a particularly significant impact on the Portuguese economy (-0.6 percentage points in 2005 and 2006 and about -0.5 percentage points in 2007)<sup>(4)</sup>.

Turning to inflation, the central scenario of the current projection points to an increase in the average annual rate of change of the Harmonised Index of Consumer Prices (HICP) from 2.1 per cent in 2005 to 2.5 per cent in 2006, followed by a reduction to 2.3 per cent in 2007. The temporary rise in the inflation rate projected for 2006 is closely related to the pattern of acceleration of prices seen throughout 2005, from 1.8 per cent in the first half of the year to 2.5 per cent in November, which was chiefly related, on the one hand, to the rise in the standard Value Added Tax (VAT) rate from 19 to 21 per cent in July and, on the other hand, to the rising profile of energy prices. The unwinding of the impact of the VAT rise on the increase in consumer prices in year-on-year terms, as well as the stabilisation of oil prices and the limited growth of import prices of non-energy goods will probably favour a price deceleration from the second half of 2006 onwards. This projection is also based on a lower pace of wage increases than in the past few years, although still higher than the one expected for the euro area as a whole.

Current inflation projections represent a downward revision from the Summer *Economic Bulletin*, despite the materialisation of risks associated with a rise in oil prices and a depreciation of the euro exchange rate. This downward revision chiefly reflects the dynamic effect resulting from lower-than-expected price increases in the second half of 2005. On the one hand, the growth of import prices of non-energy goods was smaller, in a context of increasing integration in international trade of countries with reduced production costs and, on the other hand, the risk identified in the Summer *Economic Bulletin* relating to the impact of the rise in VAT materialised. In that issue of the *Economic Bulletin* it was referred that part of the rise in VAT could be absorbed through the squeeze in profit margins, which was not taken into account in the central scenario. This seems to be confirmed by recent price developments, which translated into a lower-than-expected impact of the rise in the standard VAT rate.

## 2. ASSUMPTIONS UNDERLYING PROJECTIONS

The current projection relies on a series of technical assumptions about interest rates, exchange rates and commodity prices. These technical assumptions were based on data available until mid-December and as usual assumed that short-term market interest rates and the euro exchange rate will remain constant at the prevailing

(4) See "Box 2: The impact of the recent increase in oil prices on economic activity developments in Portugal".

levels, while long-term interest rates and commodity prices are estimated to be in line with the expectations implied by futures markets.

Developments in external demand directed to Portugal assumed in the current exercise are based on projections prepared by the respective national central banks within the framework of the December 2005 Eurosystem projection exercise, as well as on a series of common assumptions for the growth of non-euro area economies. Finally, in addition to these assumptions, a series of specific assumptions was taken into account for the Portuguese economy, namely with regard to developments in public finances and prices subject to administrative regulations.

### 2.1. Interest rates and exchange rates

The central scenario of the current projection assumed that three-month money market interest rates will remain constant at the levels prevailing in mid-December, until the end of the projection horizon. This assumption, which already incorporates the rise in the key interest rates decided by the European Central Bank (ECB) in early December, implies a slight rise in annual average terms in short-term interest rates in both 2006 and 2007, compared with the historically low levels recorded in the past few years.

With respect to long-term interest rates, developments are estimated to be in line with expectations implied by futures markets, which envisage a slight rise in these rates in both 2006 and 2007, following a reduction in 2005.

The technical assumption made about euro exchange rate developments is that these rates will remain constant over the projection horizon, at the levels prevailing in mid-December, translating into a depreciation of the euro in annual average terms in 2006. These developments, both in nominal effective terms and against the US dollar, result from the trend depreciation of the euro in the course of 2005.

### 2.2. International prices

The technical assumptions with regard to developments in international commodity prices reflect the expectations implied by the respective futures markets. Based on these assumptions, annual

average oil prices will increase from around USD 55 per barrel in 2005 to relatively stable values around USD 60 per barrel in both 2006 and 2007. Thus, the rise in oil prices in 2006, in annual average terms, chiefly reflects the rising trend recorded throughout 2005. With regard to non-energy commodity prices in US dollars, assumptions point to growth rates of 3.8 and 5.2 per cent in 2006 and 2007 respectively (5.8 per cent in 2005).

According to the December 2005 Eurosystem projection exercise, the average annual rate of change of the euro area HICP is estimated to range between 2.1 and 2.3 per cent in 2005, between 1.6 to 2.6 in 2006 and between 1.4 to 2.6 per cent in 2007. These projections reflect, inter alia, the relative stability of oil prices over the projection horizon, in line with the technical assumptions for the exercise (implying a gradual reduction, in year-on-year terms, in the contribution of the energy component of the HICP)<sup>(5)</sup>. Wage increases are also expected to be moderate, in parallel with a slight rise in productivity. Finally, projection ranges are also based on expectations that inflationary pressure associated with developments in non-energy commodities import prices will remain subdued.

### 2.3. Economic activity abroad and external demand

Assumptions with regard to developments in external demand directed to Portugal were made on the basis of the December 2005 Eurosystem projection exercise and have not been updated subsequently. Underlying these projections there is a series of assumptions about the growth of GDP and imports of non-euro area countries, which acts as a basis for national central banks' projections regarding euro area countries. The consistency of trade flows of goods and services between the economies of euro area Member States is subsequently ensured.

The euro area external environment is estimated to remain favourable over the projection horizon and the pace of economic growth is projected to stand at 4.8 per cent in 2006 and 4.5 per cent in 2007, compared with an estimate of 4.9 per cent in 2005. In the United States, economic

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(5) These projections also take into account the assumption of a VAT increase from 16 to 19 per cent in 2007 in Germany.



growth will continue at a robust pace, notwithstanding some moderation in comparison with the growth rates observed in 2004. In non-Japan Asia, economic growth is expected to remain above the global average, decelerating only slightly when compared with the recent past. The countries that joined the EU on 1 May 2004 are expected to continue to record strong growth rates of economic activity.

As to the euro area as a whole, GDP growth is estimated to range between 1.2 and 1.6 per cent in 2005, and in the two following years is projected to range between 1.4 and 2.4 per cent. These projections are largely conditioned by export growth, which reflects the maintenance of strong external demand over the projection horizon, in parallel with some pick-up in domestic demand, which includes an acceleration of GFCF, as a result of a favourable environment for the expansion of corporate investment. Import growth is projected to accelerate from a range between 3.4 and 6.0 per cent in 2005 to a range between 4.2 and 7.6 per cent in 2006, with a more moderate pace of growth in 2007, between 3.5 and 6.9 per cent.

In this context, external demand relevant for Portugal is projected to show rates of change close to 6 per cent in the next two years (5.9 per cent in 2006 and 5.6 per cent in 2007, compared with a 5.4 per cent growth in 2005). The acceleration of external demand projected for 2006 chiefly reflects stronger growth of imports of goods and services by euro area countries.

#### 2.4. Specific assumptions for Portugal

The current projection is also based on a series of specific assumptions for the Portuguese economy, namely on developments in public finances and prices subject to administrative regulations.

The projection for developments in public consumption in real terms in both 2006 and 2007 basically assumes that the behaviour of its components will be identical to that estimated for 2005.

Turning to public investment excluding revenue from real estate sales, the current projection points to a virtual stabilisation in real terms in 2006 and to a reduction in 2007. Indeed, in 2006, the foreseeable reduction in transfers from the EU, recorded on an accrual basis, will be offset by a rebound in public investment that is not co-financed

by the EU. In 2007, despite the persistence of the latter effect, the strong decline in transfers from the EU, in line with the performance generally observed in the first year of implementation of a new Community Support Framework, will imply a decrease in public investment in real terms.

With regard to indirect taxation, the current projection, in addition to the effect from the rise in the standard VAT rate from 19 to 21 per cent, incorporates increases in the taxes on tobacco and oil products in both 2006 and 2007, in line with those included in the 2006 State Budget and with the measures announced in the SGP. As to other prices subject to administrative regulations, the current projection assumes overall developments closely in line with previous years.

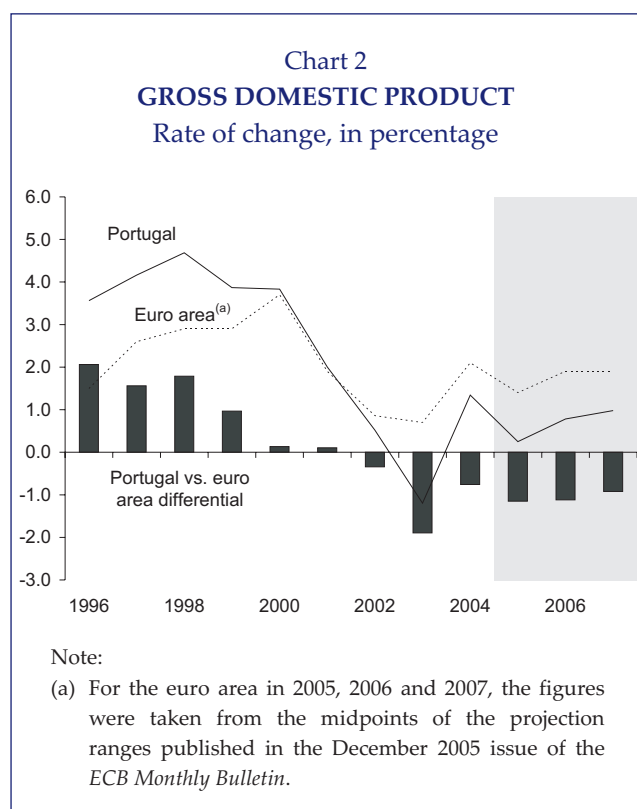
### 3. THE PORTUGUESE ECONOMY: 2006-2007

#### 3.1. Economic activity

The central scenario of the current projection points to a slowdown in output growth to 0.3 per cent in 2005 (1.3 per cent in 2004), followed by a sluggish recovery in activity, which should translate into GDP growth of 0.8 and 1.0 per cent in 2006 and 2007 respectively.

The current projection thus points to the maintenance of a negative growth differential of the Portuguese economy vis-à-vis the euro area, as it has happened since 2002 (Chart 2). Taking as a reference the midpoint of the projection ranges published by the ECB in early December, the current projection points to an unfavourable growth differential for Portugal of approximately 1 percentage point per year in the period 2005-2007. This evolution has been determined by the context of reduced productivity growth, by the imbalances that have accumulated in the Portuguese economy and by the consequent loss of competitiveness of domestic output in the domestic and external markets.

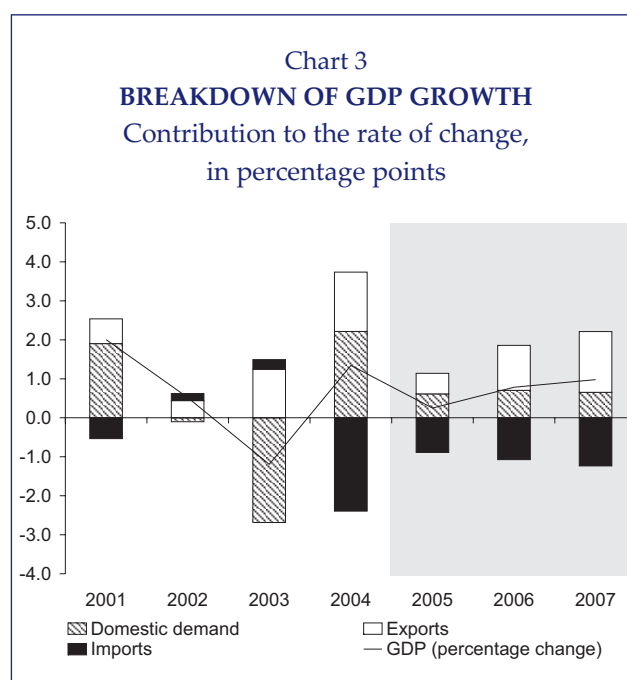
The slowdown of the Portuguese economy in 2005 reflected a marked reduction in the contribution of domestic demand to GDP growth, which more than offset the slight increase in the contribution of external trade. The reduction in the contribution of domestic demand resulted from a very steep fall in GFCF and from a deceleration in public consumption and, to a lesser extent, in private



consumption, which nonetheless maintains a relatively strong pace of growth in annual average terms, albeit with a clear deceleration trend in the course of the year. The contribution of external trade increased very slightly, despite the disappointing trend of exports, translating a reversal in the substantial growth of imports in 2004.

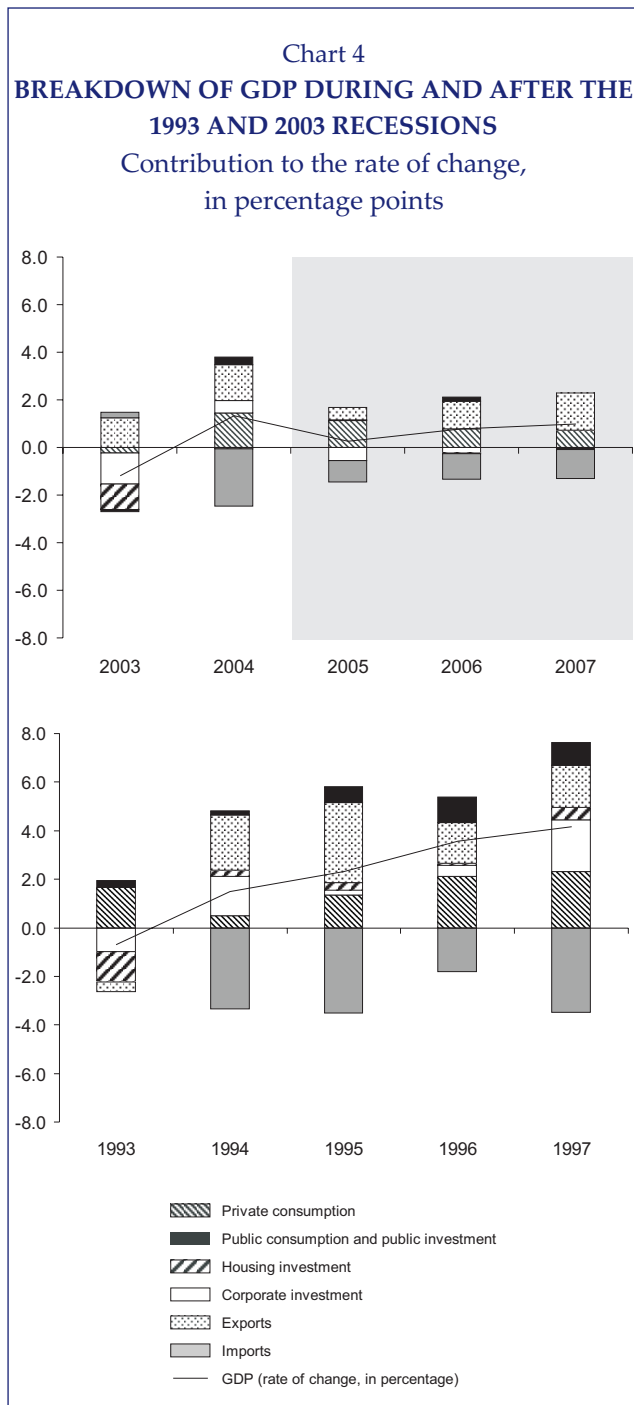
Over the projection horizon, the sluggish recovery currently projected is based on the maintenance of the contribution of domestic demand to output growth and on a progressive increase in the contribution of external trade, resulting from a rebound in the pace of export growth, which is projected to exceed import growth (Chart 3). The maintenance of the contribution of domestic demand reflects a marked deceleration in the pace of growth of private consumption and progressively smaller falls in GFCF, which considering the higher import content of GFCF in comparison with private consumption, implies some acceleration in imports. In turn, exports are estimated to accelerate, reflecting in particular some pick-up in exports of the automobile sector, which will likely translate into successively smaller losses in external market shares.

As mentioned in previous issues of the *Economic Bulletin*, the pattern of the current economic



recovery is subdued and irregular, compared with the recovery recorded after the 1993 recession (Chart 4), evidencing the impact of macroeconomic imbalances on the growth prospects of the Portuguese economy. First, according to projections, domestic demand is expected to play a quite different role in these two periods. While in the aftermath of the 1993 recession, domestic demand played a key role in the rebound in economic activity, in the current recovery period, a contribution of the same magnitude has not taken place nor is it estimated to take place. This smaller contribution reflects: (i) the situation of the public sector, related to the existence of an excessive deficit and to the urgent need of fiscal consolidation; (ii) the level of Portuguese household indebtedness, which not only limits the possibility to resort to credit to finance additional consumption expenditure, but also induces increased uncertainty about future debt servicing payments; (iii) the perception by economic agents that the recovery may be slower and more irregular than in previous business cycles, which will tend to restrict consumption expenditure – chiefly due to expectations about developments in the labour market → without creating favourable conditions for an increase in investment and employment.

Second, the role of exports in the relaunching of the economy is estimated to be quite different in comparison with the recovery period following the 1993 recession. While exports contributed sig-



nificantly to GDP growth in the period 1994-1997 (Chart 4), the unfavourable developments in the competitiveness of Portuguese exports implies a cumulative contribution of exports to annual GDP growth in the 2004-2007 period of approximately half the figure recorded in 1994-1997. These developments are only partly explained by a slightly lower increase in external demand and by a less favourable trend of the usual price-competitiveness indicators.

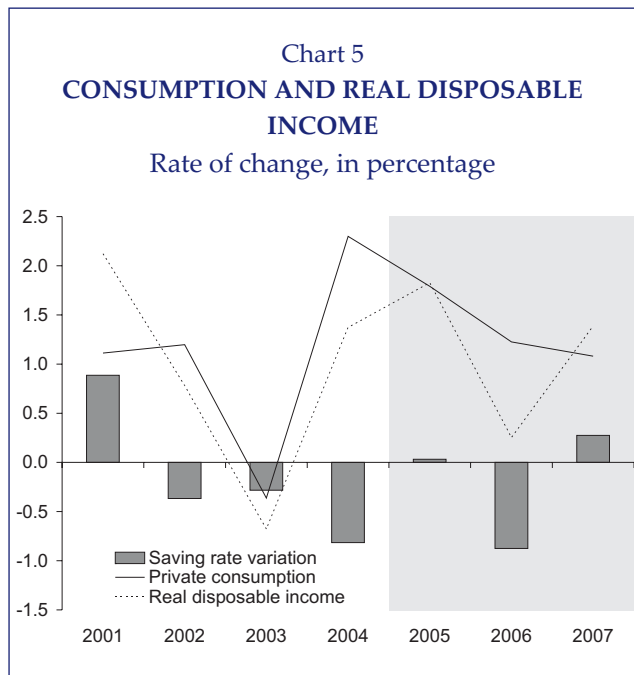
### 3.2. Private consumption, disposable income and household savings

Private consumption increased sizably in 2004 and 2005 (2.3 and 1.8 per cent respectively), recording higher annual growth rates than those of the economic activity. These developments interrupted the process of adjustment of household expenditure seen between 2000 and 2003, having been driven not only by historically low interest rates but also by new types of contracts that involve the lengthening of loan maturities. Thus, the increased competition in the banking sector made it possible to ease the liquidity restrictions of households, notwithstanding their high indebtedness level, and to channel the increased liquidity to finance additional consumption expenditure. Moreover, the low level of interest rates reduced the real return on financial assets, giving an additional boost to private consumption.

The central scenario of the current projection points to subdued private consumption growth over the projection horizon, with average annual growth rates slightly above 1 per cent in both 2006 and 2007 (Table 1 and Chart 5). According to data available – in particular, the coincident indicator of private consumption of Banco de Portugal and the consumer confidence indicator of the European Commission –, a moderation in private consumption seems to have already started in the second half of 2005<sup>(6)</sup>. The moderation in the growth of private consumption over the projection horizon should reflect not only a smaller growth of household disposable income, but also the effects resulting from the increased uncertainty associated with the evolution of labour market conditions, in particular of the unemployment rate.

The current projection incorporates an unstable pattern for the average annual growth rates of real household disposable income chiefly due to the impact of fiscal policy measures in 2006. Real disposable income will increase by only 0.3 per cent in 2006, followed by an increase of 1.3 per cent in 2007, returning to a growth closer to that estimated for 2005 (1.8 per cent). The growth projected for 2006 reflects the impact of a series of fiscal policy measures, namely: (i) the end of the tax

(6) See "Box 1: Intra-annual profile of the Portuguese economy in 2005".

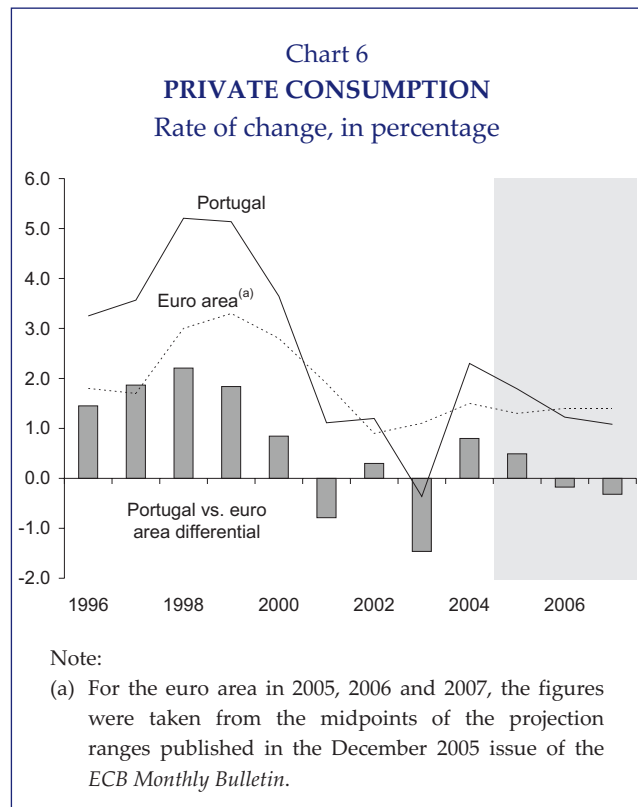


benefits included in the 2005 State Budget, the creation of a new income bracket in the personal income tax for high income levels and a rise in the taxation of pensions considered in the 2006 State Budget, which will likely translate into higher growth of household direct taxes in 2006; (ii) the impact of the rise in indirect taxes<sup>(7)</sup> on consumer prices; and (iii) the freezing of automatic career progress for civil servants until the end of 2006, reflected in smaller growth of public sector wages in the current year.

In view of the evolution projected for disposable income and notwithstanding the high level of indebtedness, the current projection regarding private consumption estimates that the consumption pattern of households will flatten out, in a context of maintenance of historically low interest rates. Thus, the saving ratio is expected to mirror the pattern of deceleration of real disposable income and therefore is projected to decline, albeit temporarily, to 9.0 per cent in 2006 (9.9 per cent in 2005), followed by a slight recovery in 2007 to 9.3 per cent of disposable income.

Taking as a reference the midpoint of the projection ranges published by the ECB in the begin-

(7) The rise in the standard VAT rate from 19 to 21 per cent in July 2005, as well as the rise in the tax on oil products will have a significant impact on the private consumption deflator and thus will bring about a reduction in household real disposable income. The tax on oil products was raised in July 2005 and further rises are expected in the beginning of 2006 and 2007.



ning of December, the growth foreseen for private consumption in Portugal was, on average, higher than that of the euro area in the period 2004-2005 (Chart 6), despite the lower pace of growth of the Portuguese economy. Notwithstanding the dramatic easing of liquidity restrictions resulting from Portugal's participation in monetary union and from the process of increasing financial integration of the Portuguese economy, which enabled households to increase their indebtedness level, the strong expansion of consumption is not expected to be sustainable over the medium term.

The deceleration in consumption projected for 2006 and 2007 in the central scenario of the current projection, already indicated by the trend of consumption in the second half of 2005, shows an evolution more in line with economic activity developments in Portugal and, thus, more sustainable over time. These developments will translate into a growth rate of private consumption lower than projected for the euro area in 2006 and 2007.

### 3.3. Gross fixed capital formation

The central scenario of the current projection points to a fall in GFCF throughout the projection horizon, which implies that this expenditure ag-



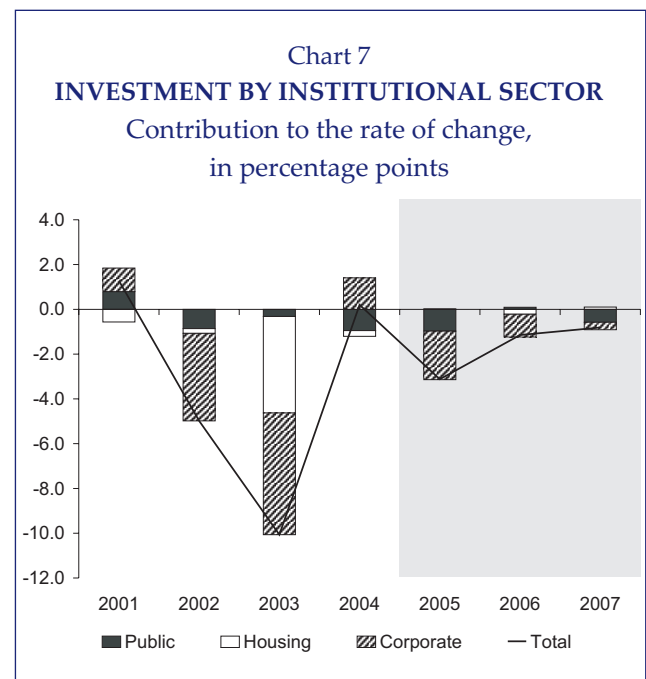
gregate will not make a significant contribution to the recovery of economic activity, unlike after the 1993 recession.

Following strong reductions in 2002 and 2003 and marginal growth in 2004 (0.2 per cent), this expenditure aggregate is estimated to drop by -3.1 per cent in 2005. This behaviour is broadly based across all institutional sectors with the exception of residential investment by households, whose growth is estimated to be close to zero. Chart 7 depicts the contribution from investment by institutional sector to the annual rate of change in total investment. The central scenario of the current projection points to further reductions in GFCF in both 2006 and 2007, albeit at successively lower rates (annual rates of change of -1.1 and -0.8 per cent respectively).

Developments in public investment (excluding real estate sales), which is expected to remain virtually stable in 2006 and to fall in 2007, are strongly conditioned by the expected evolution of capital transfers from the EU under the Community Support Framework. Moreover, the need to correct the imbalance in public accounts does not seem to allow for significant growth of public investment that is not co-financed.

In turn, housing investment is expected to narrow somewhat in 2006 (-1.1 per cent) and to record a slightly positive change in 2007 (0.5 per cent), following a stagnation in 2005. Developments in this aggregate over the next few years will likely continue to be conditioned by the high degree of household indebtedness and by the level of resources required to service the respective debt, as well as by developments in the Portuguese economy and, in particular, of its effects on employment.

Finally, the projection regarding corporate investment reflects, on the one hand, the dynamic effects derived from the behaviour recorded in the first three quarters of 2005, and on the other hand, its historical relationship with private sector GDP (accelerator effect), in a context of interest rate stability. Hence, after an estimated drop of 3.2 per cent in 2005, this variable is projected to fall gradually less in 2006 and 2007. Notwithstanding the maintenance of favourable financing conditions, developments in corporate investment may be strongly conditioned by expectations regarding the evolution of demand. In fact, the current pro-

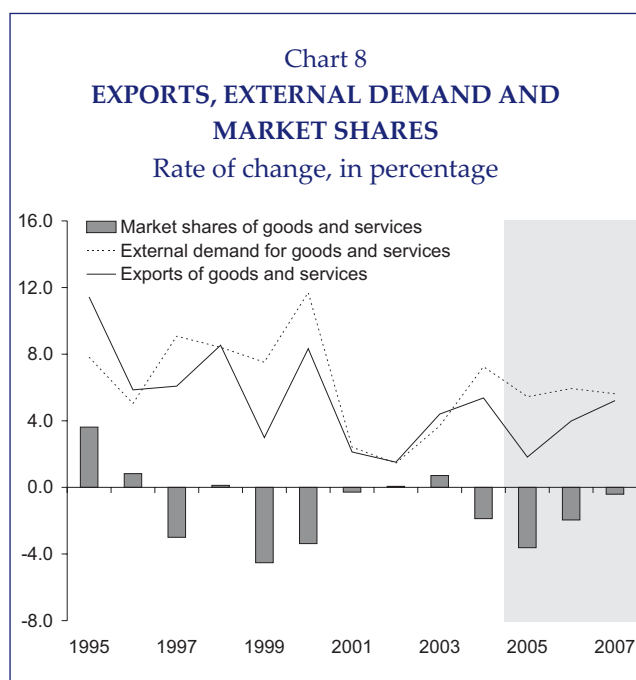


jection points to incipient growth of domestic demand over the projection horizon, while at the external level, there are uncertainty factors associated with growing competition in international markets with direct competitors that have low production costs.

### 3.4. External trade

Over the projection horizon, the growth of exports will be lower than that of imports from destination markets, translating into a continued loss of market shares (Chart 8). These developments largely reflect the unfavourable evolution of the competitiveness of Portuguese exports against an international background of increased competition.

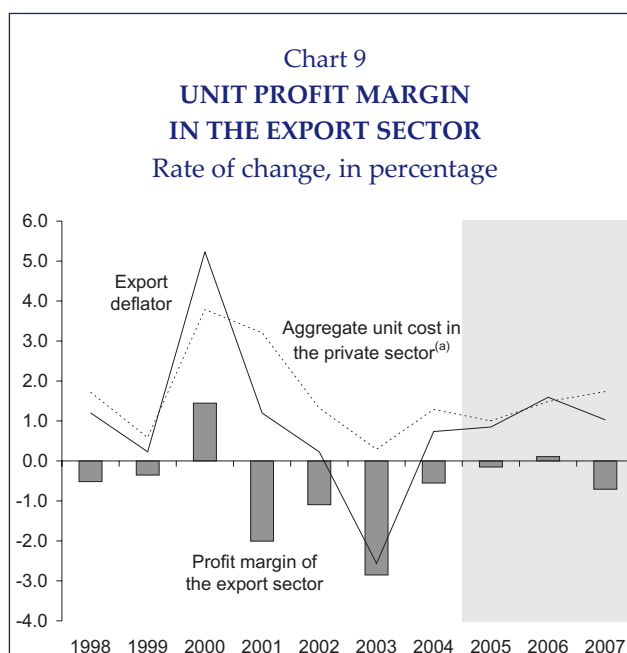
Following an increase of 5.4 per cent in 2004, exports are estimated to have decelerated to 1.8 per cent in 2005, reflecting the continuation of the slowdown which had already started in the second half of 2004. These developments represented a market share loss of approximately 3.6 per cent in 2005, after a drop of around 2 per cent in 2004. It should be noted that in the case of tourism exports, this deceleration seems to have been strongly influenced by the high growth recorded during the European Football Championship, held in Portugal in the end of the second quarter of 2004.



The central scenario of the current projection incorporates an acceleration of Portuguese exports to 4.0 per cent in 2006 and to 5.2 per cent in 2007. These developments embody additional market share losses in the markets of destination of Portuguese exports in both years, albeit more moderate than in 2005.

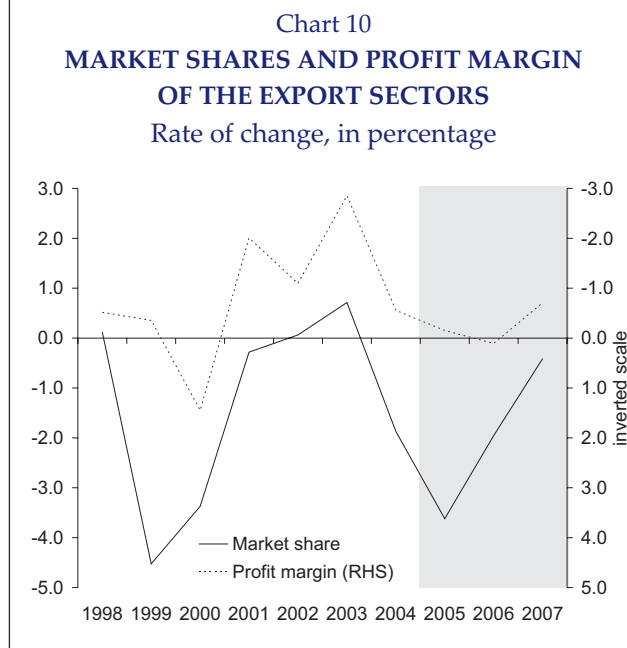
The marked loss in Portuguese export market shares in 2005 reflects a number of factors, whose effects probably will not unwind rapidly over the projection horizon, giving rise to additional market share losses. Among these factors, emphasis should be placed on: (i) the unfavourable trend of the competitiveness indicators of Portuguese exports, in particular regarding the trend of unit labour costs when compared with euro area countries; (ii) the increasing integration in the international trade of countries with low unit labour costs, whose exports compete directly with Portuguese exports in sectors with reduced technological and human capital content, such as textiles, clothing and footwear; (iii) the difficulty in attracting new foreign investment or increasing the profitability of foreign direct investment already made in the past, in favour of other geographical regions with lower wage costs, higher stock of human capital and more favourable geographical locations and/or corporate tax systems.

In the recent past, the evolution of unit profit margins in the export sector has been negatively correlated with the trend of market shares (Charts



Note:

- (a) The aggregate unit cost corresponds to an aggregation of unit labour costs in the private sector and the import deflator of goods (excluding energy), where the corresponding weights reflect the import content of exports of goods and services.



9 and 10). In particular, the maintenance of market shares in 2001-2003 seems to have been associated with a marked squeeze of the profit margins of the export sector. The latest developments in profit margins suggest that those effects were temporary and will not likely be repeated in a significant way in the course of the projection horizon.

Developments in imports over the projection horizon are expected to be in line with their historical relationship with global demand weighted by the import content of its components, after the high growth recorded in 2004. The central scenario of the current projection points to an increase in imports of approximately 2.4 per cent in 2005, 2.8 per cent in 2006 and 3.2 per cent in 2007. This acceleration pattern over the projection horizon reflects not only a moderate recovery of economic activity, but also the composition of growth. Thus, activity growth supported by a rebound in exports and corporate investment and by a gradual deceleration in private consumption, fuels global demand with higher import content and, hence, an acceleration of imports slightly stronger than that projected for global demand.

Like in the past, the growth of imports is higher than that of global demand weighted by the import content, giving rise to the maintenance of losses in the market share of domestic production in the domestic market (Chart 11). These developments correspond to a gradual loss of competitiveness of domestic production in the domestic market, brought about by a growth of cost indicators of domestic production systematically higher than that of the import deflator<sup>(8)</sup>.

### 3.5. Current and capital account

After a significant reduction recorded until 2003, the net external borrowing requirements of the Portuguese economy (as measured by the combined current and capital account deficit as a percentage of GDP) have increased sizably from 3.7 per cent of GDP in 2003 to 5.9 per cent in 2004 and to an estimated figure of 8.2 per cent in 2005. According to the current central scenario, the external imbalance of the Portuguese economy is not expected to decrease over the projection horizon, remaining between 8.2 and 8.8 per cent of GDP (Chart 12).

These developments mirror the effects of the rise in oil prices seen since 2003, which will not unwind over the projection horizon, given the technical assumption regarding the maintenance of oil prices at high levels, according to the path

(8) The conclusion remains unchanged whether these costs are measured by the GDP deflator or by unit labour costs.

Chart 11  
IMPORTS, OVERALL WEIGHTED DEMAND AND  
IMPORT PENETRATION  
Rate of change, in percentage

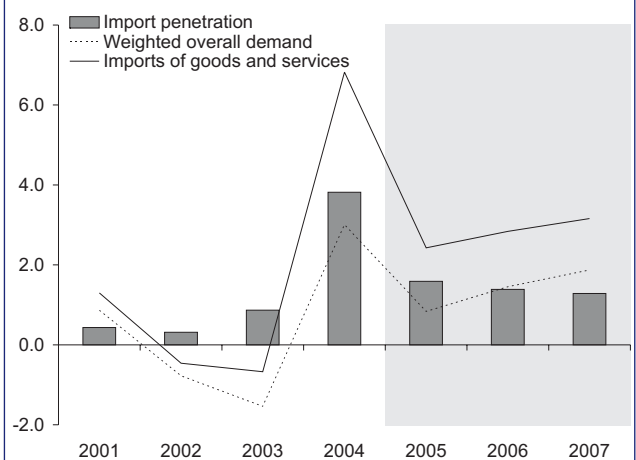
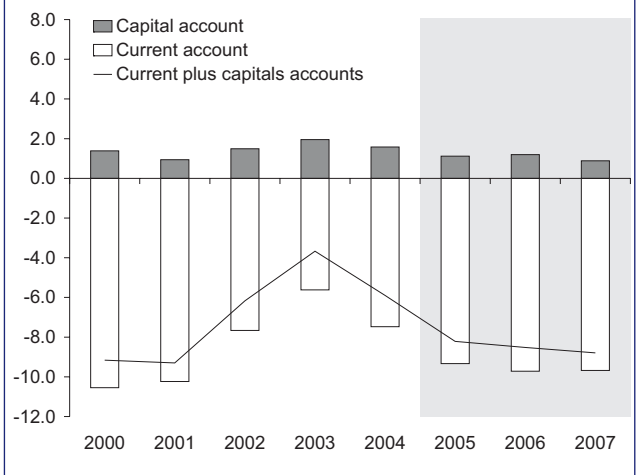


Chart 12  
CURRENT AND CAPITAL ACCOUNTS  
As a percentage of GDP



implied by futures markets. Thus, an adjustment path of the external imbalance over the current projection horizon would imply an even more moderate trend of domestic demand, in a context of low growth and given the expected developments in oil prices.

The goods and services deficit is projected to stand at 8.8 per cent of GDP in 2005, accounting for a deterioration compared with the past two years (6.6 and 7.7 per cent in 2003 and 2004 respectively). The current central scenario incorporates a slight deterioration of the trade deficit to 9.1 per cent in 2006, followed by a slight improvement to

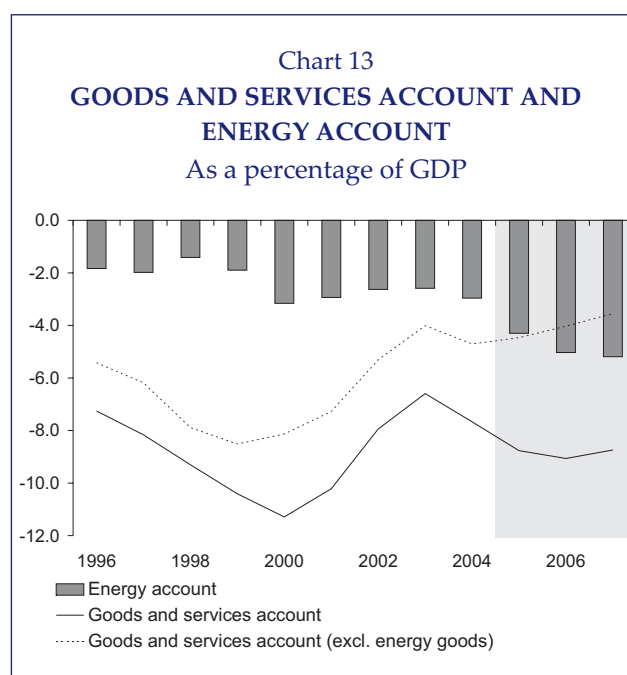
8.7 per cent in 2007. These developments chiefly reflect an unfavourable behaviour of the terms of trade, due to the rise in oil prices recorded since 2003. The impact on terms of trade of unfavourable developments in the energy component seems to have translated by itself into a deterioration of the goods and services account of approximately 1 per cent of GDP in 2005, with a projected impact of -0.7 and -0.2 per cent of GDP in 2006 and 2007 respectively.

Excluding energy exports and imports, the deterioration of the goods and services account has been significantly smaller since 2003 and a gradual improvement is projected over the horizon (Chart 13). These developments reflect, on the one hand, the favourable performance of terms of trade excluding energy, due to the impact of the increasing integration in international trade of countries with very low production costs, which tends to favour the maintenance of moderate price developments in non-energy industrial goods. On the other hand, the current projection foresees a gradual pick-up in exports, while the growth of imports will continue to be conditioned by the moderate evolution of domestic demand.

The current account deficit, which increased from 7.5 in 2004 to 9.3 per cent in 2005, will widen further to 9.7 per cent in 2006, remaining unchanged in 2007. These developments, in addition to the evolution of the goods and services account, reflect the worsening of the income account, which is projected to deteriorate gradually from 1.8 per cent in 2004, to 2.3 per cent in 2005 and 2.7 per cent at the end of the projection horizon. This projection is determined by the deterioration of the net external position of the Portuguese economy, resulting from the accumulation of successive current and capital deficits, which implies an increase in income outflows, in order to remunerate non-resident holders of national assets.

The evolution of capital transfers is chiefly due to the trend of public transfers. Following a reduction from 1.6 to 1.2 per cent of GDP between 2004 and 2005, the current projection incorporates a further reduction in public capital transfers – to 0.9 per cent in 2007 –, reflecting the profile expected for transfers under the Community Support Framework.

The rise in the net borrowing requirements of the Portuguese economy mirrors an increase in



private sector borrowing requirements that more than offsets the reduction in borrowing requirements projected for the public sector. These developments in the financial situation of the private sector comprise a reduction in the financing capacity of households and an increase in corporate borrowing requirements resulting from a higher fall in savings than the reduction in investment projected for both institutional sectors.

### 3.6. Employment

In 2005 developments in the labour market in Portugal were characterised by a significant rise in the unemployment rate in line with developments in economic activity. Contrary to the previous recessive phase of the Portuguese economy, this rise in the unemployment rate rather than resulting from net job losses – which recorded only a marginal reduction in 2005, owing to a decrease in self-employment – was due to a labour force expansion, accompanied by a significant increase in long-term unemployment.

The central scenario of the current projection incorporates reduced employment growth, in aggregate terms, in both 2006 and 2007. This projection is based on an average historical relationship between economic activity and employment in the private sector and also on evidence of a stable Non-Accelerating Inflation Rate of Unemployment (NAIRU)<sup>(9)</sup> for the Portuguese economy, which in

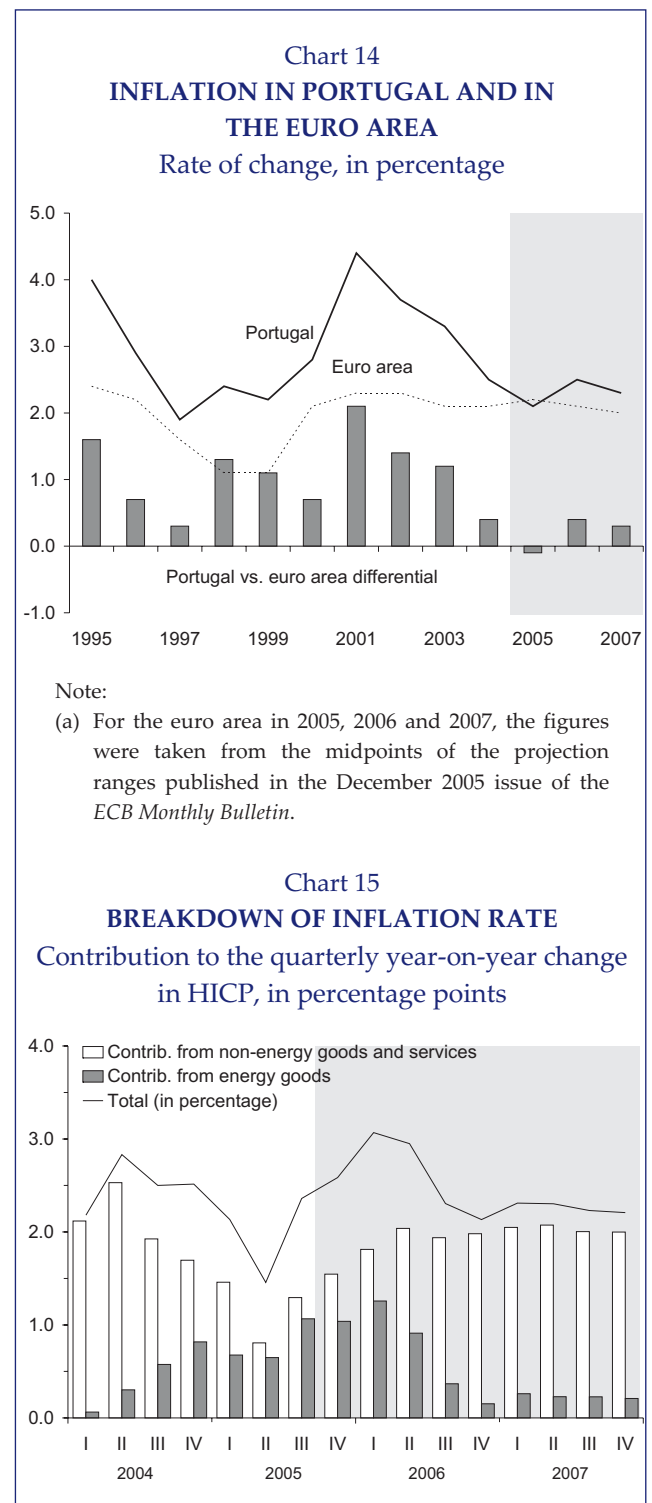


the past translated into temporary increases in the unemployment rate during cyclical slumps.

### 3.7. Inflation

The central scenario of the current projection points to an increase in the average annual rate of change in the HICP from 2.1 per cent in 2005 to 2.5 per cent in 2006, declining to 2.3 per cent in 2007. Taking as a reference the midpoint of the projection ranges regarding euro area inflation of the December 2005 Eurosystem projection exercise, the current projection implies the widening of the inflation differential vis-à-vis the euro area from approximately -0.1 p.p. in 2005 to 0.5 p.p. in 2006 (Chart 14)<sup>(10)</sup>. This differential is estimated to narrow further in 2007. In this year, the average annual rate of change in the HICP of the euro area as a whole is conditioned by the impact of the announced VAT increase from 16 to 19 per cent in Germany.

The increase in the inflation rate in 2006 embedded in this projection is closely related to the upward trend of energy prices recorded in the second half of 2005, which will tend to decelerate in the course of 2006. Emphasis should also be put on the effects arising from the rise in indirect taxes (in particular, the rise in the standard VAT rate from 19 to 21 per cent in July 2005), whose impact will only unwind during the second half of 2006. The increase in the inflation rate in 2006 is in addition partly related to the effect of the rise in indirect taxes – in particular, in the tax on oil products and in the tax on tobacco – announced in the 2006 State Budget, which is expected to take effect in the beginning of 2006. The year-on-year rate of change in the HICP is estimated to reach a peak in the first quarter of 2006 (Chart 15), declining gradually thereafter, notwithstanding the fact that further increases in the two above-mentioned taxes



(9) See the article by Dias, F., Esteves, P. and Félix, R. entitled "Revisiting the NAIRU estimates for the Portuguese economy", in the June 2004 issue of the *Economic Bulletin* of Banco de Portugal.

(10) Contrasting with what happened in the June 2005 Eurosystem projection exercise, the statistical effect resulting from the health care reform in the Netherlands, which translated into a contribution to the annual average rate of change in the euro area HICP of 0.2 p.p. in 2006, is no longer incorporated in the current projections.

are expected to be implemented in the beginning of 2007, in line with what is stated in the SGP.

Turning to the components, the current projection points to a strong year-on-year deceleration in the energy component of consumer prices in the course of 2006, since the stability of oil prices assumed in the current projection for the period 2006-2007 contrasts with the strong growth observed in 2005. Hence, the contribution of energy

goods to inflation in Portugal is assumed to decrease considerably in the course of 2006, remaining virtually unchanged in 2007 (Chart 15). With regard to the non-energy component of consumer prices, the contribution of this aggregate to inflation is projected to increase until mid-2006, remaining relatively stable thereafter. These developments, in particular in 2006, not only reflect the trend of indirect taxes mentioned above but also expectations of some acceleration in non-energy import prices, in line with the trend expected for export prices of Portugal's main suppliers. This projection is also based on a lower pace of wage increases than in the past few years and on a virtual stabilisation of unit labour costs (although at a higher level than expected for the euro area as a whole).

#### 4. UNCERTAINTY AND RISKS ANALYSIS

The eventual non-materialisation of the technical assumptions presented in Section 2, as well as the occurrence of specific factors that may affect the macroeconomic variables that are the object of this projection exercise determine the existence of risk and uncertainty elements surrounding the central scenario of the current projection, namely regarding GDP growth and the inflation rate<sup>(11)</sup>.

A quantified analysis of the risk and uncertainty surrounding the current projections implies the identification of a set of risk factors. At the level of the technical assumptions, the following risks should be taken into account: (i) interest rates may be raised gradually over the projection horizon, in line with expectations implied by financial markets, instead of remaining unchanged over the

projection horizon; (ii) external demand directed to the Portuguese economy may increase more moderately than assumed in the current projection. In terms of the specific factors that may affect the variables that are the object of the projection (iii) the possibility of a more moderate growth of employment was considered to be an additional risk.

The result of the quantified analysis of the risks that involve the central scenario of the current projection is summarised in Chart 16. Thus, the balance of risks to economic activity points to more than a 50 per cent probability of GDP growth being lower than assumed in the central scenario (59 and 63 per cent in 2006 and 2007 respectively). As regards the inflation rate, risks are balanced.

##### 4.1. Risk factors

Projections are based on the technical assumption that the short-term market interest rate will remain constant over the horizon of the projection. However, expectations implied by futures markets point to gradual interest rate hikes, totalling approximately 75 basis points over the projection horizon (Chart 17). The materialisation of the path implied by futures markets would certainly have a visible influence on corporate investment and housing, as well as on private consumption, resulting from the effect of the increase in debt service.

The second risk factor identified in this analysis is related to the possibility of external demand growth directed to the Portuguese economy being more moderate than assumed in the current projection. This risk is due to: (i) the high external imbalance of the US economy, whose correction would certainly imply a contraction of domestic demand in the United States with adverse effects on the growth of the world economy and, in particular, of the euro area economy; (ii) the rise in oil prices in the course of 2005, which may have a stronger impact on euro area economic activity (particularly in 2006) than implied by the series of assumptions underlying the current projection. Considering that the growth of external demand directed to the Portuguese economy is intrinsically linked to economic activity developments in the euro area, the combination of the phenomena identified above may result in lower growth in the

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(11) The definition of confidence intervals for the main macroeconomic variables emphasizes the degree of uncertainty of macroeconomic projections whose central scenario should be interpreted as indicative. The identification of differentiated probabilities of variables standing above or below the central scenario, in turn, may be an indication of the direction of the revisions to be taken into account in the projection exercises of Banco de Portugal. For technical details, see Novo, A. and Pinheiro, M. (2003) "Uncertainty and risk analysis of macroeconomic forecasts: Fan Charts Revisited", *Working Paper* of Banco de Portugal No 19/2003. For a simplified explanation of this procedure, see the article by Esteves, P. and Novo A., entitled "Uncertainty and risk analysis: an application to the projections for the Portuguese economy in 2004", in the December 2003 issue of the *Economic Bulletin* of Banco de Portugal.

Chart 16  
PROJECTION RANGES

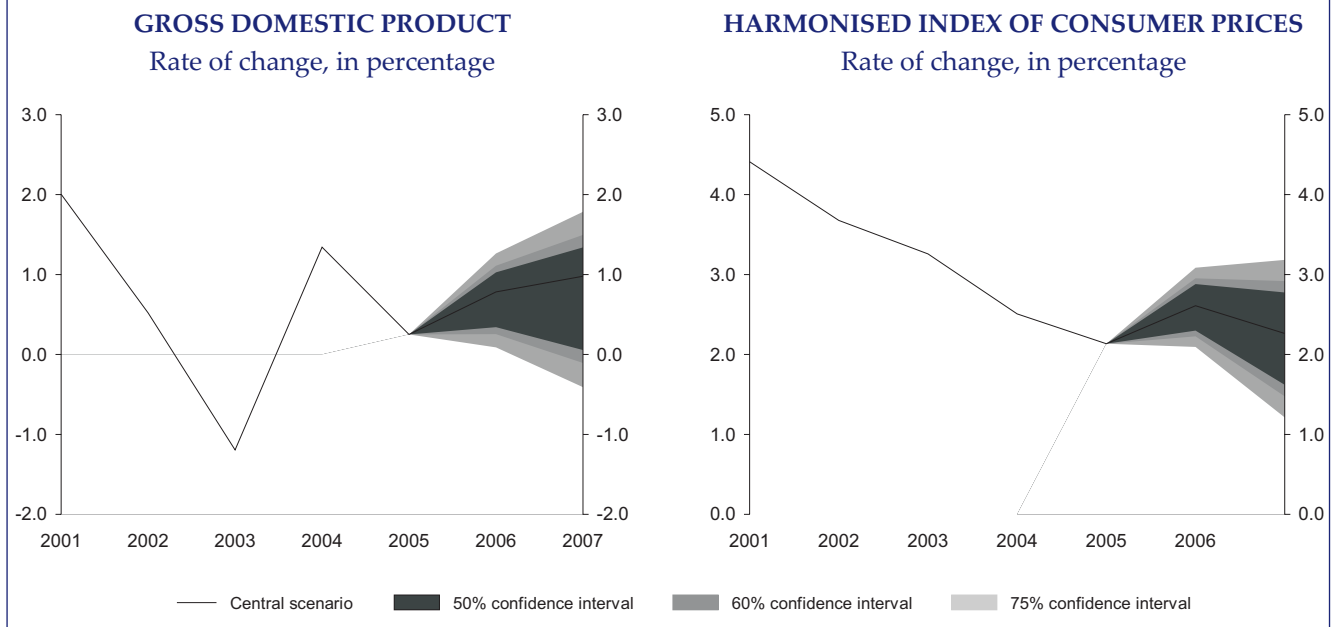
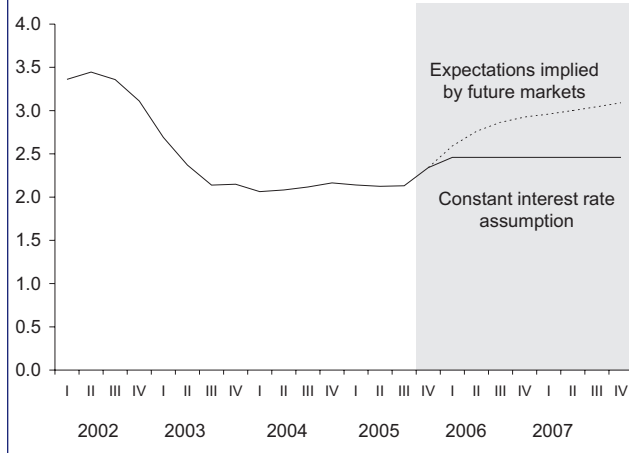


Chart 17  
3-MONTH MONEY MARKET INTEREST RATE  
In percentage



euro area and, thus, more moderate developments in the external markets relevant for the Portuguese economy.

Finally, the current international environment, which is characterised by increased competition, may trigger a restructuring process of the tradable goods sector, leading to more persistent unemployment situations, in the absence of a higher labour market adjustment capacity. Such a restructuring process would give rise to lower employment growth than assumed in the central scenario and might condition the current projection.

#### 4.2. Quantification of the risk factors

Table 2 shows a quantified assessment of the risk factors previously identified, through the definition of a subjective probability for the non-materialisation of the technical assumptions or for the materialisation of specific impacts that affect the projected variables.

Table 3 summarises the main findings of the uncertainty and risks analysis, showing the results for GDP, expenditure components and inflation rate. The probabilities of materialisation of figures lower than those included in the central scenario reflect not only the direct effects resulting from the direct impact of specific factors on the variable itself, but also indirect effects regarding the risks identified for the remaining variables.

Turning to economic activity, the balance of risks points to a higher probability of figures falling short of those projected in the central scenario, chiefly in 2007, reflecting the fact that all the risks previously identified have an adverse impact on GDP. In particular, the risk regarding the evolution of the interest rate in line with expectations implied by futures markets, which point to higher interest rate levels in both 2006 and 2007, will likely induce a more significant risk on economic activity developments in 2007, in so far as the im-

Table 2

### SUBJECTIVE PROBABILITIES OF RISK FACTORS

In percentage		
	2006	2007
<i>Conditioning variables</i>		
External demand .....	60	55
<i>Endogenous variables</i>		
Employment .....	55	55

Note: Conditioning variables refer to external assumptions and affect endogenous variables only indirectly. Figures lower (higher) than 50 per cent indicate that the variable growth rate has lower (higher) probability of standing below the rate considered in the central scenario and therefore identify the risk of the variable in question standing above (below) the central scenario of the current projections.

Table 3

### PROBABILITY OF A LOWER VALUE THAN OF THE CENTRAL SCENARIO

In percentage		
	2006	2007
GDP .....	59	63
Private consumption .....	58	64
GFCF .....	57	64
Exports .....	58	55
Imports .....	59	60
HICP .....	52	53

Impact of interest rates on economic activity is typically felt with some lag. In turn, the materialisation of the risk of lower external demand, particularly in 2006, largely determines the downside risk to economic activity identified for this year.

With regard to inflation, risks are relatively balanced in both years, as the risks identified do not have a very significant direct or indirect impact. Thus, the figures presented only reflect the risk of the inflation rate being marginally lower than projected, due to less favourable developments in economic activity than incorporated in the central scenario of the current projection.

## 5. CONCLUSION

The current projection for the Portuguese economy points to a rather subdued recovery of eco-

conomic activity over the projection horizon, confirming the maintenance of the real divergence vis-à-vis the euro area observed since 2002. The recovery pattern is determined by an increasing contribution from external trade, as domestic demand is likely to maintain a moderate pace of growth, similar to that recorded in 2005. According to the central scenario of the current projection, the inflation rate may increase temporarily in 2006, returning in 2007 to levels close to those recorded in 2005.

The evolution projected for the economic activity, in particular the rather subdued growth of domestic demand and the increasing contribution of external trade, are not likely to materialise in a reduction of net external borrowing requirements of the Portuguese economy. In the current context, a reduction in the external imbalance of the Portuguese economy would require an even more moderate growth of domestic demand, particularly given the risk of external markets growth being lower than assumed in the central scenario of the current projections, namely associated with an adjustment of global macroeconomic imbalances. In addition, a stronger effect of the recent rise in oil prices on the activity of the main trading partners would certainly pose larger difficulties to Portuguese exports' developments. In the same vein, the materialisation of a trend of short-term interest rate hikes implied by the futures markets and a higher and more persistent increase in the unemployment rate also contribute to the risk of the growth rate of the Portuguese economy falling short of that projected in the current central scenario.

In a context of low potential growth of the Portuguese economy, the existence of various imbalances that have been accumulating condition the evolution of domestic demand over the projection horizon. Moreover, notwithstanding the accelerating trend of exports, the contribution from external trade to growth remains moderate, as losses in Portuguese export market shares are expected over the projection horizon. These market share losses are associated with the evolution of the price-competitiveness of exports recorded in the recent past, in particular as regards unit labour costs, as well as with a larger participation of new partners in international trade. The increasing integration in the world economy of some countries

from Eastern Europe and Asia, whose export structure competes strongly with the current pattern of specialisation of the Portuguese economy, will tend to continue in the years ahead, particularly because these countries have managed to attract large foreign direct investment flows to export-oriented sectors. This process of increased international competition will tend to imply a higher degree of import penetration, with a positive impact on consumers' welfare.

Even if the increasing globalisation paves the way for a medium-term increase in welfare and

growth, its materialisation will require a larger flexibility of the economy that facilitates a faster and more efficient adjustment to the new operating conditions of the world economy. Thus, it will be possible to generate productivity gains that enable an increase in the potential growth of the Portuguese economy to levels significantly higher than those observed in the past few years and underlying the current projections.



### Box 1: INTRA-ANNUAL PROFILE OF THE PORTUGUESE ECONOMY IN 2005

The current central projection of a 0.3 per cent annual rate of change in GDP in 2005 assumes a relatively stable intra-annual profile between the first and second quarters of the year, which corresponds to the interruption of the deceleration profile of GDP recorded since the second half of 2004.

The reversal of the previous slowdown trend might have been more noticeable, were it not for the particularly high growth of expenditure on durable goods in the second quarter. This was related in particular to the acquisition of motor vehicles, due to the bringing forward of purchase decisions, following the announcement in advance of an increase in the standard VAT rate, which took place in July. This anticipation seems to have contributed to the deceleration of domestic demand in the second half of the year and, consequently, to the relatively stable intra-annual profile of GDP growth between the first and second quarters of 2005, instead of the acceleration profile underlying projections published in the Summer issue of the Economic Bulletin.

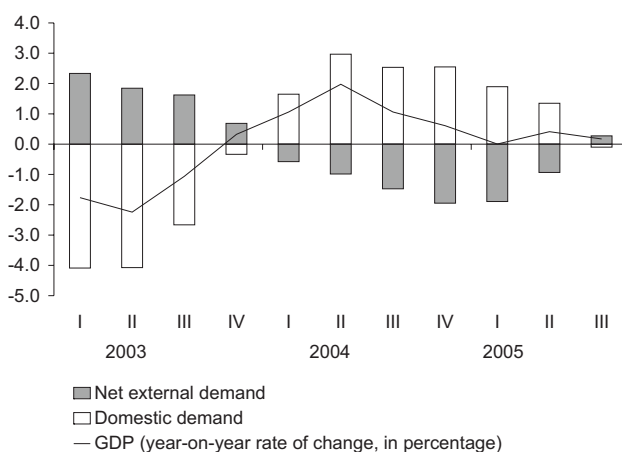
In addition to this effect, the materialisation of the risk of a deterioration in the economic agents' confidence also contributed to a higher-than-expected deceleration of domestic demand in the second half of 2005. However, these developments seem to have been counterbalanced by the higher contribution of net external demand in the second half of the year. As projected in the Summer Economic Bulletin, the unwinding of the base effect related to the very negative contribution of external trade to developments in activity in the second half of 2004, understood as a less pronounced loss in export market shares and some reversal of the marked import growth, seem to have enabled a positive contribution of net exports to GDP growth in the second half of 2005.

On the basis of Quarterly National Accounts data of the National Statistical Institute (INE), it is possible to assess the intra-annual profile implied in the current estimate for GDP growth in 2005. However, these results should be interpreted with caution given that, in addition to the existence of methodological differences between the construction of the Quarterly Accounts and of the Annual National Accounts estimates, the quarterly figures are often subject to revisions<sup>(1)</sup>. In the first quarter of 2005, the year-on-year rate of change in GDP was nil, strengthening the trend deceleration recorded from the second quarter of 2004 onwards, which was interrupted in the two following quarters, when the year-on-year rate of change in GDP stood at 0.4 and 0.2 per cent respectively (Chart 1). This profile was associated with an increase in the contribution of net external demand to year-on-year GDP growth, which recorded a positive value of 0.3 p.p. in the third quarter (-1.9 and -0.9 p.p. in the first and second quarters respectively), as a result of both the deceleration of imports in 2005 and higher export

growth in the third quarter (Chart 2). These developments in external trade seem to have offset the deceleration in domestic demand over the year, whose contribution to year-on-year GDP growth was slightly negative in the third quarter, -0.1 per cent, compared with 1.9 and 1.3 per cent in the first and second quarters of the year, respectively.

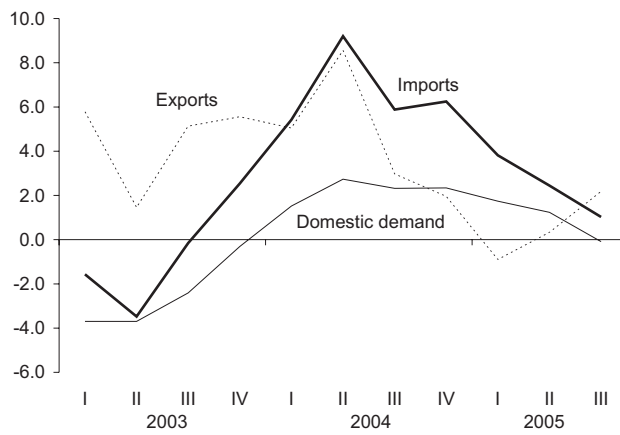
The current estimate for 2005, as well as projections for 2006 and 2007, rely on signs of some recovery seen in 2005, due to a more favourable contribution of external trade, in particular some acceleration in exports, which may have offset the slowdown in domestic demand. Therefore, the gradual recovery of economic activity is not risk-free, given that

Chart 1  
**BREAKDOWN OF GDP GROWTH - QUARTERLY NATIONAL ACCOUNTS OF INE**  
 Contribution to the year-on-year rate of change, in percentage points



(1) For details on revisions of Quarterly National Accounts, see the article by José, Catarina, entitled "Real-Time Quarterly National Accounts", published in the December 2004 issue of the Economic Bulletin of Banco de Portugal.

Chart 2  
**QUARTERLY NATIONAL ACCOUNTS OF INE**  
 Year-on-year rate of change, in percentage



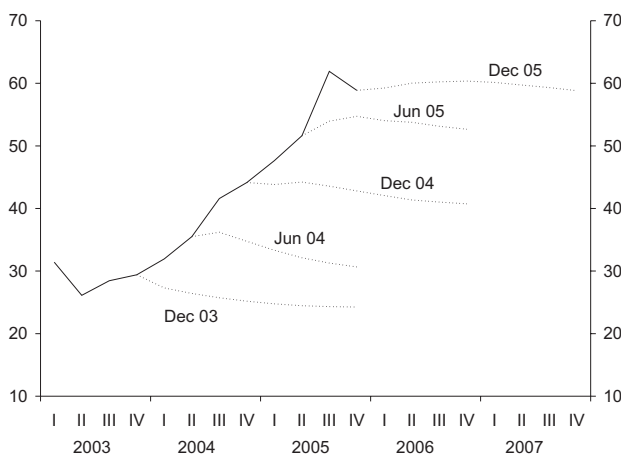
*signs of recovery are still weak and based on recent developments in external trade, which, in addition to the traditional short-term volatility, is likely to be particularly vulnerable to future developments in the international environment.*

**Box 2: THE IMPACT OF THE RECENT INCREASE IN OIL PRICES ON ECONOMIC ACTIVITY DEVELOPMENTS IN PORTUGAL**

Oil prices recorded a very significant increase over the past two years, which contributed to moderate economic activity growth in most euro area countries. In annual average terms, oil prices rose from USD 29 per barrel in 2003 to USD 55 in 2005. Such developments translated into systematically higher prices than those assumed in the various projection exercises of Banco de Portugal, which are based on the technical assumption of developments in line with the trend implied by the futures market (Chart 1). In contrast to previous years, futures market developments suggest expectations that such increases shall be more permanent in the future.

**Chart 1  
OIL PRICES**

Observed values vs. futures markets  
(USD per barrel, quarterly average figures)



This box presents an estimate of the effect of the increase in oil prices on recent developments in Portuguese economic activity, which, however, should be interpreted with caution. Overall, macroeconomic models reflect the past average behaviour and economic agents' expectations and monetary and fiscal policy reactions are determinant to results. In the case of oil, such models tend to underestimate the impact on economic activity developments, given that they do not take into account the mechanisms through which oil prices permanently affect GDP, namely their role as an intermediate production factor<sup>(1)</sup>. Moreover, the impact associated with the increase in oil prices is typically independent from the level of these prices. Overall, these models do not take into account the non-linearity resulting from the poor substitution between oil and other production factors, which explains why a percentage increase in oil prices can lead to more sizeable effects when the initial price level is higher.

These factors, which added to the risk that the recent rise in oil prices may have a stronger-than-expected impact on developments in the main destination markets of Portuguese exports, lead to the fact that the weight of net oil exports on GDP is frequently used as an indicator of the loss of long-term income associated with the deterioration in terms of trade due to the increase in oil prices.

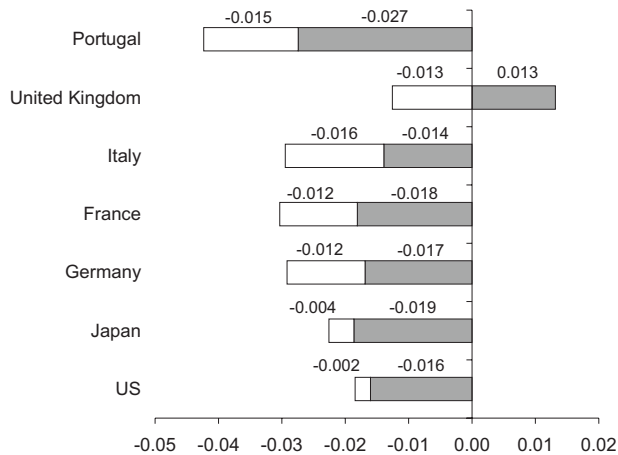
Chart 2 shows this indicator based on 2004 data for Portugal as well as for a group of developed countries. Results show that the Portuguese economy tends to be more affected by the increase in oil prices given that it has a higher energy dependence than the other countries. Chart 2 also presents an estimate of indirect effects related to the interaction of external trade flows between the various economies considered. Also in this case, results suggest that economic activity in Portugal will tend to be more affected by the effects of increasing oil prices on the international economic environment, reflecting the high degree of openness of the Portuguese economy.

The use of this rule, based on values recorded in 2004, suggests that a 100 per cent increase in oil prices may lead to a decline in the GDP level in the long run of around 4 per cent, compared with around 3 per cent for the main euro area economies, close to zero for the United Kingdom (an oil-producing country) and around 2 per cent for Japan and the United States.

(1) An article published in the November 2004 issue of the ECB Monthly Bulletin (pp. 51-63) describes the effects of an increase in oil prices on the euro area derived from simulation results of various macroeconomic models, which are overall lower than those obtained in more specialised literature (e.g. Jiménez-Rodríguez, R. and Sánchez, M. (2004), "Oil price shocks and real GDP growth: empirical evidence for some OECD countries", ECB Working Paper No 362).

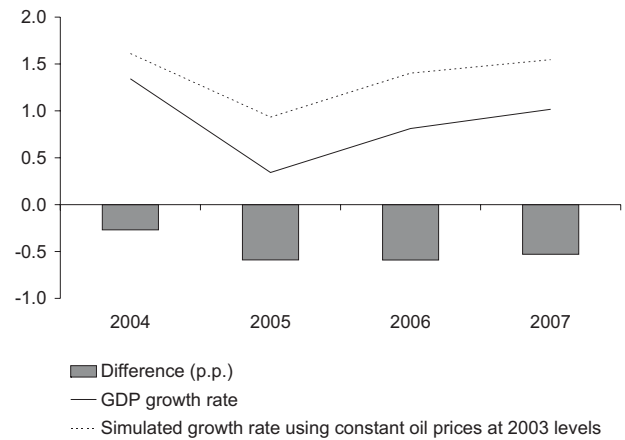


Gráfico 2  
OIL PRICES AND TERMS OF TRADE (2004)



■ Net oil exports as a percentage of GDP  
□ Spillover effects through external trade flows caused by a shock in each of the countries as measured by net oil exports as a percentage of GDP. Calculations based on the methodology presented in Esteves, P. and Neves, P. (2004), "Oil prices and economy", in the December 2004 issue of the *Economic Bulletin* of Banco de Portugal.

Chart 3  
IMPACT OF THE INCREASE IN OIL PRICES  
SINCE 2003 ON  
THE PORTUGUESE ECONOMY<sup>(a)</sup>



Note:

(a) Simulation using the multipliers presented in Esteves, P. and Neves, P. (2004). The effect of a 100 per cent increase in oil prices on the GDP level converges in the long run to a figure close to 4 per cent, which is in line with the practical rule illustrated in the previous chart.

A more detailed quantification of the effects on Portuguese economic developments brought about by the recent increase in oil prices can be obtained through the model usually used in projection exercises, which incorporates oil as an intermediate factor in the production function. Chart 3 presents a quantification of such effects, taking as a reference the increase in oil prices seen since 2003 and developments assumed for the projection horizon.

In average terms, if oil prices had remained constant at the level prevailing in 2003, the annual growth rate of GDP in 2004 and 2005 is estimated to have been around 0.5 percentage points higher, and the same is likely to occur over the projection horizon. It should be noted that the effects on economic activity in 2006 and 2007 of the increase in oil prices seen since 2003 mainly reflect the lagged effects of the price increase recorded up to 2005, given that the futures market points to a stable profile of oil prices over the projection horizon.



## Articles



## MEASURING EXPORT COMPETITIVENESS: A VIEW ON THE PORTUGUESE EFFECTIVE EXCHANGE RATE WEIGHTS\*

*Paulo Soares Esteves  
Carolina Reis*

### 1. INTRODUCTION

An Effective Exchange Rate (EER) measure is an indicator that aggregates several bilateral exchange rates of a specific currency, and its computation is widely used in the evaluation of the price-competitiveness of economies. The indices usually published by central banks and international institutions are synthetic indicators, measuring simultaneously the competitiveness of domestic firms against foreign producers both in the domestic and external markets. Moreover, a number of assumptions are usually made in order to allow for a quick update of the indicator, in particular when it is necessary to obtain information on prices to compute the Real Effective Exchange Rate (REER)<sup>(1)</sup>.

This article addresses the competition faced by Portuguese exporters as a particular motivation to compute an effective exchange rate, discussing some important implications of the simplifying assumptions usually made regarding the selection of competitors and the differences in product spe-

cialisation. The way the effective exchange rate is computed, namely the weights chosen for each country, is a crucial factor to evaluate exports competitiveness. Since the adoption of the euro, a higher weight for the euro area will decrease the variability of the effective exchange rate, reducing therefore the competitiveness effects on Portuguese exports associated with the fluctuation of the euro exchange rate. Furthermore, a higher exposure to countries that are recently increasing their presence in the world market (such as some Asian and Eastern European countries) may explain some competitiveness problems in Portuguese exports that are not accounted for by the usual methods used to compute the EERs.

This paper is organised as follows. Section 2 briefly presents the standard methodology used to compute the EERs, considering in particular the double weighted scheme to account for competitors from third economies in export markets.

Section 3 extends this double weighted approach. Firstly, the selection of competitors is not constrained to the countries initially chosen according to their share in exports. Secondly, competition in third markets is evaluated in order to account for the different product specialization of each country.

Section 4 presents the major results for Portugal and for the average of the euro area countries, emphasizing the effects of not imposing the simplifying assumptions mentioned above.

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\* This article follows closely Esteves and Reis (2006), which presents detailed results for each of the euro area countries.

(1) Recently, the Banco de Portugal started to publish a new effective exchange rate for the Portuguese economy following the methodology presented in Gouveia and Coimbra (2004), that corresponds to an updated and enlarged version of the previous one presented in Vidal and Reis (1994). The results of a common methodology both for the euro area as a whole and for each of the 12 members were presented in Buldorini et. al. (2002).

Finally, Section 5 summarizes the main conclusions.

## 2. THE STANDARD EER METHODOLOGY

An EER of a given country corresponds to a weighted ( $w_i$ ) average of their bilateral exchange rates against each country  $i$  ( $E_i$ ),

$$TCE = \sum_i w_i E_i \quad (1)$$

The selection of the countries to be included in this average and their respective weights are the two main problems to be addressed.

As the usual EER indicators attempt to measure the competitiveness of domestic firms both in the internal and external markets, the countries' weights correspond to an average of import and export shares  $[w_i = (w_i^m + w_i^x)/2]$ . The import-based weights are easily computed considering the share of each selected country in total imports. When dealing with exports, it is usual to consider a double weight scheme in order to account for competition in third markets.

The simple weights approach embodies an assumption that exports of country  $j$  to country  $i$  compete only with domestic production of country  $i$ , and thus its weight is the share of exports of country  $j$  to market  $i$  ( $x_j^i$ ) in the overall exports of country  $j$  ( $X_j$ ). The double weight scheme considers the competition with the other countries that are also exporters to that market<sup>(2)</sup>. In this case, the weight of country  $i$  in the export oriented EER of country  $j$  is given by:

$$w_i^x = \left( \frac{x_j^i}{X_j} \right) \left( \frac{\gamma}{\gamma_i + \sum_{h \neq j} x_h^i} \right) + \sum_{k \neq i} \left( \frac{x_j^k}{X_j} \right) \left( \frac{x_i^k}{\gamma_k + \sum_{h \neq j} x_h^k} \right) \quad (2)$$

where  $\gamma_i$  is the production of country  $i$  oriented to domestic market. In this case, the share of exports to country  $i$  is discounted by the relative importance of its domestic production in relation to imports arriving from other countries. This term is added to the share of its exports to each one of the other countries (weighted by the respective share

in total exports of country  $j$ ) in order to obtain the weight in the ERR.

Usually, the selection of markets is based on their importance for exports, and quite often a Rest of the World (ROW) aggregate is considered as a residual export market. This approach is built on the assumption that exporters compete against each other in this ROW aggregate but not with the ROW producers. Thus a caveat to this approach is that the competition is limited to the countries initially selected according to their importance for exports.

## 3. A DIFFERENT APPROACH TO EXPORT WEIGHTS

### 3.1. Increasing the number of competitor countries

An extension of this double weight scheme comes from considering additional competitor countries, besides those chosen in accordance to the previous criterion – the countries' importance in exports. This extension may produce important differences. For instance, consider a country that presents exports fully concentrated on one market, in which its sole competitor is not a domestic producer, but one from a third country. In this case, the adoption of the usual country selection criterion excludes the only relevant export competitor. This effect can be particularly significant when considering some developing countries from Eastern Europe and South-East Asia that are becoming increasingly competitive in third markets but do not represent important export markets<sup>(3)</sup>.

In this article, we expand the number of countries competing in the main export markets, by considering countries whose weight does not reflect the importance of their domestic markets for exports but only their competition in other markets. This corresponds to a different view of the relevance of the ROW variable. In fact, contrary to the conventional approach, it is now considered that those countries are more important in competing in the main export markets than as a mar-

(2) A very intuitive view of this double weight scheme is given in Turner and Van't dack (1993)

(3) A concrete example could be given for the Portuguese economy. The exclusion of some countries could explain why the competitiveness indicators are not usually able to explain the loss of market shares for Portugal following the international financial crisis in 1997 in some South-East Asia countries [on this issue, see Cabral (2004)].

ket where the countries initially selected compete against each other.

### 3.2. Accounting for differences on product specialization

Another natural extension of the previous analysis is to account for the production specialization of each country. Two countries can both export to the same market but with very different products, and thus they are not competing against each other as the analysis based on aggregate data would suggest.

This step forward involves a triple weighting scheme: first the double weights are computed for each product individually; then the results are aggregated according to the country's exports structure. This approach may have the additional advantage of computing a different effective exchange rate for each of the sectors considered, which may help to analyze the evolution of exports in each sector.

## 4. AN APPLICATION FOR PORTUGAL

This section presents, firstly, an overview of both the geographical and product structures of Portuguese exports of manufacturing against the other euro area countries, using the figures from the World Trade Atlas (WTA) database for 2004.

Secondly, it presents several alternatives for computing the EER concerning the selection of countries and the respective weights, reflecting their importance in competing with Portuguese exports:

- i. simple weights based on a sample of 21 countries where each weight corresponds to its share on Portuguese manufacturing exports (EER<sub>1</sub>);
- ii. a double weight scheme allowing for competition across the 21 countries initially selected, both in their markets and in the rest of the world aggregate (the most usual approach) (EER<sub>2</sub>);
- iii. a double weight scheme allowing for competition of all the other countries in the 21 export markets considered (EER<sub>3</sub>);

- iv. approach iii but allowing for differences in product specialization (EER<sub>4</sub>).

### 4.1. Geographical distribution

Regarding the observed geographical distribution of manufacturing exports in the euro area countries, some important differences arise (Figure 1)<sup>(4)</sup>.

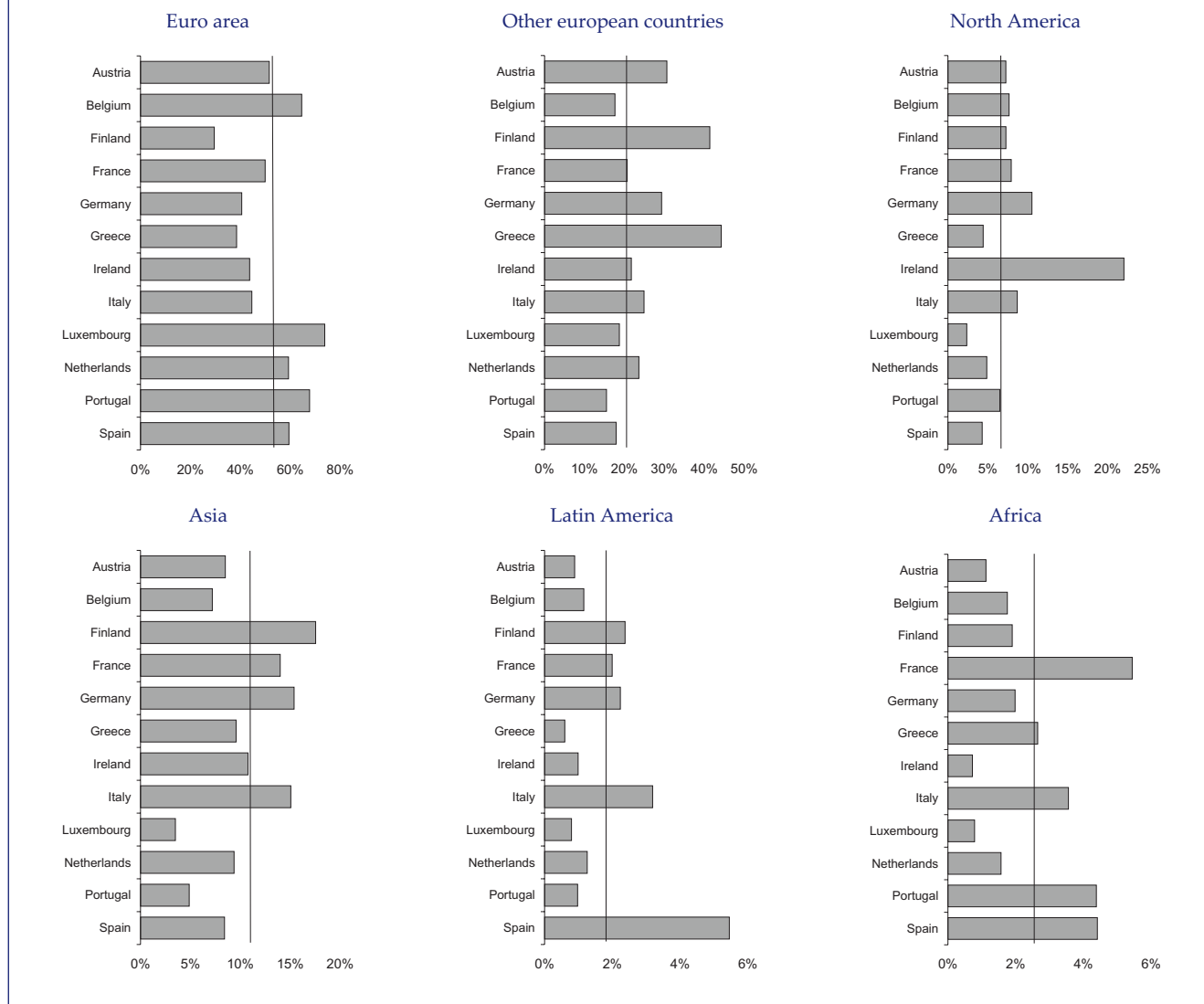
The importance of the euro area market is not the same for all the member countries. Portugal, like Luxembourg and Belgium, presents a share of manufacturing exports to the euro area close to 70 per cent, clearly above the average (52 per cent), while the euro market is less important especially for Finland (30 per cent), Germany and Greece (approximately 40 per cent).

Those differences diminish as other European countries are considered. The non-euro area European markets are particularly important to Greece and Finland, representing more than 40 per cent of their total exports. This structure is particular influenced by the relevance of Cyprus and several Eastern European countries for Greek exports (Bulgaria, Cyprus and Romania account for almost 20 per cent of total manufacturing exports), while for Finland this structure is mainly influenced by the importance of the Swedish and Russian markets (a share of almost 20 per cent). Austria and Germany also exhibit more concentrated exports in those markets, which is basically explained by the special relevance of several East European countries. On the other hand, the Portuguese exports are clearly less concentrated in those non-euro area European markets (around 15 per cent, against an average of the euro area countries close to 25 per cent).

Considering the other markets, mention should be made of the (i) importance of the Northern American market for Irish exports (representing

(4) The United Nations conversion rule between the Harmonised Commodity Description and the WTA Coding System was employed in order to obtain results for manufacturing trade. Moreover, this rule at a six digits desegregation in the Coding System classification allows for estimates of 72 aggregates in the WTA Coding System at a two digit level, covering only the respective subcomponents classified as manufacturing. This information was the one used in the computation of the EER<sub>4</sub> indicator. Finally, it should be mentioned that Oceania countries have been included in the Asian group.

Figure 1  
GEOGRAPHICAL DISTRIBUTION OF EXPORTS IN THE EURO AREA COUNTRIES  
(In percentage of total exports of manufactures)



more than 20 per cent of manufacturing exports against a value of 5 per cent both for Portugal and the average for the euro area countries); (ii) the significance of the exports to Asian countries for some countries (10 per cent in average terms against a share of only 5 per cent for Portugal); (iii) some specialization of the Southern European Countries regarding the African economies; (iv) the clearly higher weight of Spanish exports to Latin America.

#### 4.2. Product structure

An overview of the product structure of manufacturing exports for each euro area country is pre-

sented in Figure 2. This was undertaken through an aggregation from the WTA coding system at a two digit level considering only the subcomponents classified as manufacturing. Some noticeable differences arise when comparing Portugal with the other euro area countries.

On textiles, clothing and footwear sectors, Portugal is the country with the highest share of total exports (26.4 per cent), followed by Greece (23.7) and Italy (16.7), against an average of around 6 per cent for the euro area countries. Italy and Portugal are also the two countries where furniture exports are more important (shares of 4.2 and 3.4 per cent, respectively, against an average close to 1 per cent).



Portugal also has higher export shares in “wood and paper”, and here a clear specialization is found for Finland, where these exports account for more than 20 per cent of total exports. The same is true for vehicles – this sector is particularly important for Spain where the automobile sector represents around 1/3 of the total manufacturing exports. Germany and France are the other two countries where transport material clearly has a higher share of exports than in the other euro area countries. Besides the automobile sector, this share in France is also explained by other transport material related with the aircraft industry.

Portuguese exports show a lower specialization in all the other sectors.

Chemicals and pharmaceutical products are particularly important to Belgian and, to Irish exports, especially the latter – they represent, respectively, around 25 and 45 per cent of total manufacturing exports. The countries that exhibit a lower specialization in these sectors are Luxembourg (1.4 per cent), Finland (3.0) and Portugal (4.5).

Where plastics products are concerned, Belgium is the country with the highest specialization (almost 10 per cent of total manufacturing exports). Portugal, Finland and Ireland have the lowest export shares of these products.

The item called “metals”, which represents on average around 10 per cent of manufacturing exports across the euro area countries, is particularly important in Luxembourg and Greece (shares close to 20 per cent). Portugal, like many other countries, has a share below the average, while in Ireland these products represent almost zero per cent of total manufacturing exports.

In terms of machinery (both electrical and non-electrical), shares in total manufacturing exports above 40 per cent are registered for Luxembourg (3/4 of non-electrical machinery is explained by computers and related components) and Finland (reflecting the importance of telecommunications products). Austria, Germany, Ireland and the Netherlands are the remaining countries where the machinery sectors make a more significant contribution to total exports. On the other hand, Belgium, Greece, Portugal and Spain are the countries displaying lower shares of machinery exports.

### 4.3. Computing the Effective Exchange Rates weights

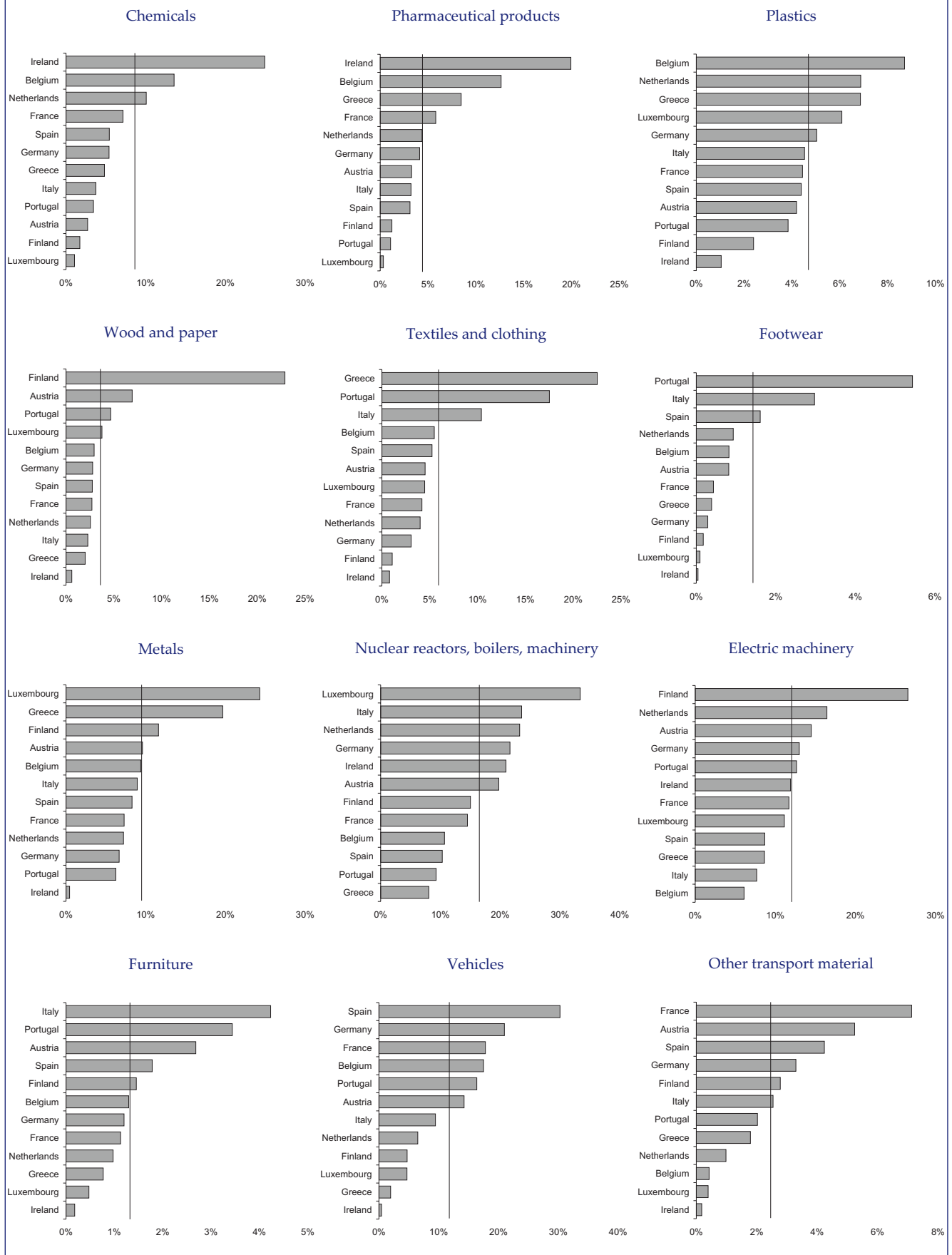
#### 4.3.1. Main assumptions

Using data from the World Trade Atlas for 2004, it was possible to consider 248 countries as potential competitors in 72 different manufacturing products. As usual, a number of assumptions are made in order to compute the above-mentioned effective exchange rates. The first step concerns the selection of countries. Besides the remaining 11 euro area countries, 10 more countries were considered, covering the main relevant markets of manufacturing exports of the euro area: the United Kingdom, the USA, Switzerland, China, Sweden, Poland, Russia, Turkey, Japan and the Czech Republic.

The second issue concerns the distribution of the simple weights across the sample considered, in order to assure that they add up to 100 per cent. Considering the  $EER_1$ ,  $EER_3$  and  $EER_4$  indicators, the usual procedure of a proportional distribution of the weights within the entire sample might artificially increase the weight for the euro, reflecting a high concentration of exports to some euro area countries while the extra-euro area exports are distributed across a larger number of markets. Therefore, the simple weights were computed maintaining both the observed weights of intra and extra-euro trade, through a proportional distribution across the two groups of countries selected - this implies that the weight of the euro area in the simplest indicator ( $EER_1$ ) is equal to the observed share. The exception was the case of the designated  $EER_2$  where the inclusion of the ROW aggregate as an export market avoids this distribution weight problem.

Finally, following a traditional hypothesis, domestic production in each country was obtained using an estimation of the value added for manufacturing sector from the OECD (National Accounts of OECD Countries – Detailed Tables) plus the inputs used (measured by the value of imports) and excluding the value of exports in order to calculate the production sold internally. For non-OECD countries, a share of manufacturing sector in GDP equal to the average of the other countries was assumed. When the product disaggregated approach is considered ( $EER_4$ ), it was assumed that the value of production is dis-

**Figure 2**  
**EURO AREA COUNTRIES DISAGGREGATED EXPORT SHARES**  
 (In percentage of total exports of manufactures)



tributed by each product according to the weight of each sector in total exports.

#### 4.3.2. Results

The results for Portugal are reported in Table 1, where in the first column there is also a presentation of the simple share of each market in total manufacturing exports. Considering these results, the difference of weights from the simple exchange rate that does not account for competition in third markets ( $EER_4 - EER_1$ ) may be seen as an indicator of the effects associated with the methodological changes introduced in the computation of the effective exchange rate. Furthermore, this effect could be decomposed into a “geographical distribution” effect ( $EER_3 - EER_1$ ) that measures the effect of allowing all the 248 countries to compete in the main export markets, and a “product specialization” effect ( $EER_4 - EER_3$ ) measuring the impact of considering the specialization of each country’s exports. These effects both for Portugal and the simple average of the euro area countries are presented in figure 3.

First of all, there is a reduction of the weight of the other euro area partners in the export competitiveness indicators both for Portugal and the average of the euro area countries. This result is dominated by the so called “geographical distribution” effect, related with the effects of allowing all the other countries to compete in the main export markets. On average, the effect of considering each country product specialization tends to increase the weight of the other euro countries in national EER, which means that euro area countries often compete in the same product markets. However, this effect is negative for Portugal, flagging a different product specialization of Portuguese exports. It should be mentioned that the reduction of the euro area weight also emerges when considering a comparison with the most traditional indicator that accounts for competition in third markets ( $EER_2$ ).

This reduction of the weight attributed to the other euro area countries means that the euro area countries’ exports are more sensitive to external developments than the observed intra-trade shares may suggest, in particular to fluctuations of the euro exchange rate. In the case of the Portuguese economy, the weight attributed to the competition

of the other euro area countries on Portuguese exports decreases from 68 to 55 per cent [(a weight of 63 per cent is attributed by the most common indicator ( $EER_2$ ))].

Considering the non-euro area countries of the EU, the weight attributed to these countries is higher (both for Portugal and the average of the euro area countries) than the observed shares despite the negative effects presented in figure 3. This result is much influenced by the countries initially chosen as being the relevant export markets for computing the several effective exchange rates, as the high concentration of exports to some non-euro area countries of the European Union tends to increase the weight of this set of countries. Concerning product specialization, this effect decreases the weight of these countries in the Portuguese ERR – this is basically determined by the United Kingdom, indicating a different specialization relative to the British economy.

Concerning the non-EU European countries, their weight in the Portuguese ERR is higher than the observed share or than the simplest indicator ( $ERR_1$ ), despite a negative contribution of the product specialization effect – related with the decrease of competition attributed to Swiss exports.

Although Canada is not considered as one of the relevant export markets, the weight of North America, both for Portugal and the average of the euro area countries, is higher than the observed shares in exports to that region, emphasizing the important competition of US products in third markets. However, the weights of this region in the euro area countries effective exchange rates are lower than the ones obtained with the traditional indicator  $EER_2$ , as new countries with a product specialization closer to the ones of the euro area are allowed to compete in those markets.

In terms of Latin America and Africa, it should be stressed their small weight in the exchange rate indicators, and the observed increase is fully explained by the exclusion of those regions from the traditional indicators. Portugal is one of the few countries (with Greece and Italy) where product specialization increases the level of competition from those economies in the main export markets.

Finally, where Asia is concerned, some noticeable results appear. On the one hand, the competition of Japan with the euro area countries exports is basically explained by its presence in third mar-

Table 1

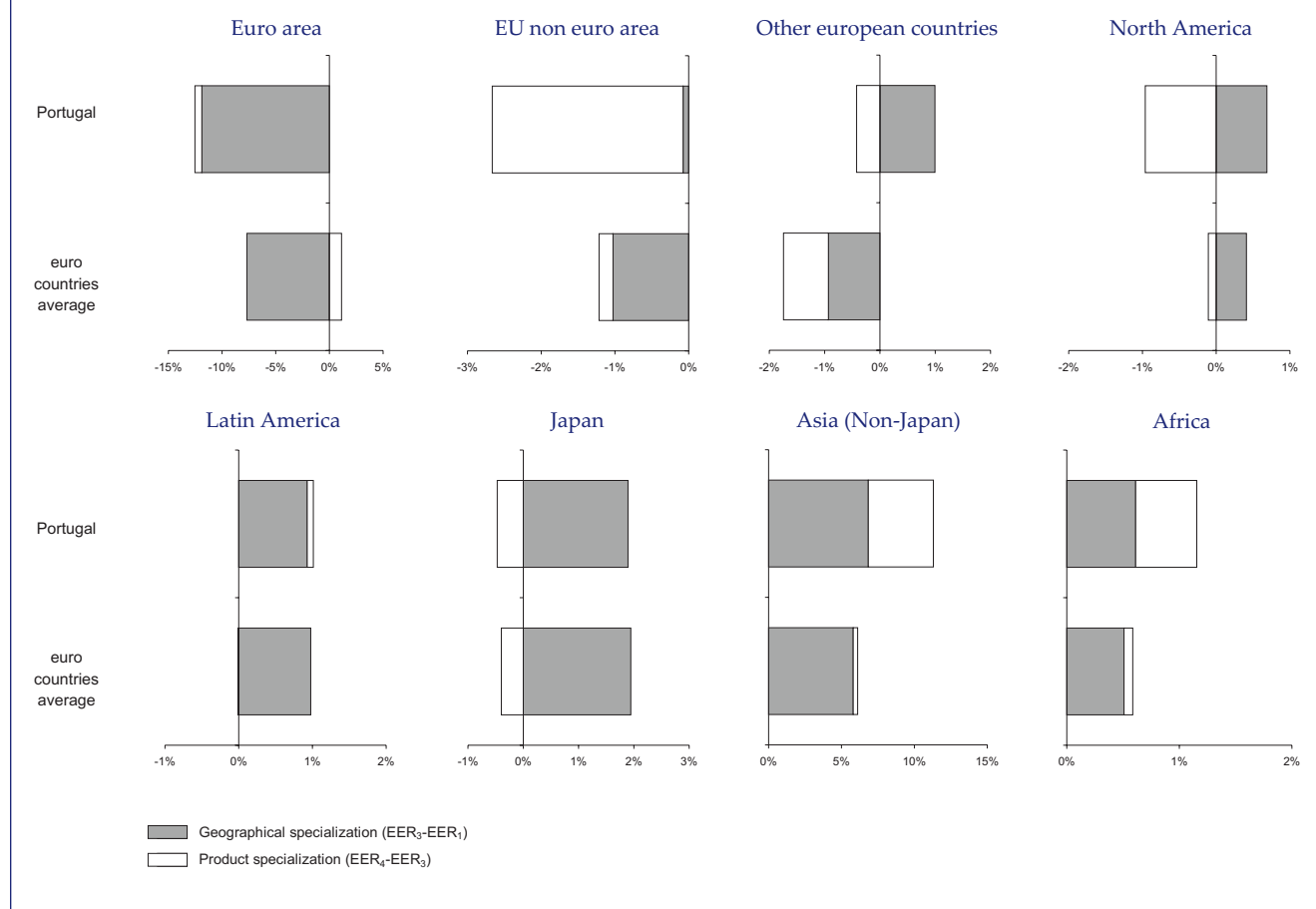
**WEIGHTS OF THE EFFECTIVE EXCHANGE RATES ORIENTED TO MEASURE  
THE PORTUGUESE EXPORTS COMPETITIVENESS**

	Observed shares	EER <sub>1</sub>	EER <sub>2</sub>	EER <sub>3</sub>	EER <sub>4</sub>		Observed shares	EER <sub>1</sub>	EER <sub>2</sub>	EER <sub>3</sub>	EER <sub>4</sub>
Euro area	67.8%	67.8%	63.1%	55.9%	55.2%	Spain	24.1%	24.1%	15.4%	14.4%	15.6%
						Germany	14.9%	14.9%	15.5%	13.6%	12.7%
						France	14.9%	14.9%	13.6%	12.4%	11.1%
						Italy	4.0%	4.0%	6.4%	5.4%	6.8%
						Netherlands	3.4%	3.4%	4.3%	3.6%	3.2%
						Belgium	4.3%	4.3%	3.9%	3.2%	3.0%
						Austria	0.6%	0.6%	1.4%	1.1%	1.1%
						Finland	0.5%	0.5%	0.8%	0.6%	0.6%
						Ireland	0.6%	0.6%	1.2%	1.2%	0.6%
Greece	0.4%	0.4%	0.4%	0.3%	0.4%						
EU	13.5%	19.0%	14.7%	18.9%	16.4%	United Kingdom	9.9%	15.7%	10.6%	13.4%	10.7%
						Sweden	1.3%	2.0%	2.0%	2.2%	1.9%
						Poland	0.5%	0.8%	1.2%	1.1%	1.2%
						Czech Republic	0.3%	0.4%	1.0%	0.8%	0.9%
						Hungary	0.3%			0.5%	0.5%
						Denmark	0.8%			0.4%	0.5%
						Slovakia	0.1%			0.2%	0.3%
Other european countries	2.0%	1.9%	2.4%	2.9%	2.4%	Switzerland	1.0%	1.6%	1.8%	1.7%	1.1%
						Romania	0.2%			0.2%	0.5%
						Russia	0.2%	0.3%	0.5%	0.5%	0.3%
North America	6.5%	9.5%	11.1%	10.2%	9.2%	United States	6.0%	9.5%	11.1%	9.6%	8.8%
						Canada	0.5%			0.6%	0.4%
Latin America	1.0%			0.9%	1.0%	Mexico	0.3%			0.4%	0.4%
						Brazil	0.2%			0.2%	0.3%
Asia	4.9%	1.8%	8.7%	10.6%	14.6%	China	0.3%	0.4%	3.8%	3.3%	4.9%
						Japan	0.3%	0.4%	3.9%	2.3%	1.9%
						Turkey	0.6%	1.0%	1.0%	1.0%	1.7%
						India	0.1%			0.3%	0.8%
						South Korea	0.1%			0.8%	0.8%
						Vietnam	0.0%			0.1%	0.6%
						Taiwan	0.1%			0.6%	0.6%
						Bangladesh	0.0%			0.1%	0.5%
						Indonesia	0.0%			0.2%	0.4%
						Thailand	0.1%			0.3%	0.4%
						Malaysia	0.5%			0.3%	0.4%
						Pakistan	0.0%			0.1%	0.3%
						Hong Kong	0.2%			0.2%	0.3%
						Singapore	1.0%			0.4%	0.2%
Africa	4.4%			0.6%	1.2%	Morocco	0.5%			0.2%	0.4%
						Tunisia	0.2%			0.1%	0.3%

kets, explaining why the weight of the Japanese economy in the several effective exchange rate indicators is clearly higher than the observed shares of exports to Japan. However, its weight is lower than the one estimated using the traditional meth-

odology to account for competition in third markets (EER<sub>2</sub>). This occurs mainly because other economies are also competing in those markets with a product specialization more similar to the euro area countries. In fact, with the exception of

Figure 3  
**ACCOUNTING FOR THIRD COUNTRIES COMPETITION IN EXPORTS MARKETS**  
 (Changes of weights of the effective exchange rate for Portugal and the euro area countries average)



Germany, the product specialization effect decreases the weight attributed to Japan across the effective exchange rates of the euro area countries.

On the other hand, non-Japan Asia is a region particularly affected by the methodological changes, which lead to an increase in its weight in the export competitiveness indicator of the euro area countries, both against the observed share and the traditional  $EER_2$  indicator. Considering the simplest effective exchange rate  $EER_1$ , the average increase of the non-Japan Asia weight is about 6 per cent. Moreover, the final average weight of about 11 per cent is negatively influenced by the initial selection of countries. As the euro area exports to that region are distributed across a high number of countries, this initial selection decreases its weight from 9 to 5 per cent, indicating that the weight of this region will be even higher than 11 per cent. The increase in com-

petition from the non-Japan Asia is particularly important to Portugal (followed by Greece and Italy). One reason is the product specialization effect, as Portugal has an export structure that is especially vulnerable to some Asian economies, which during the recent years have been gaining importance in international trade flows. Considering that the initial selection of the relevant export markets reduced the weight of this region (from near 4.5 to around 3 per cent), the weight of those countries in the competitiveness indicator for Portuguese exports of around 13 per cent would be even higher.

## 5. CONCLUSIONS

The price-competitiveness of exports is commonly addressed by computing specific effective exchange rates. This article discusses some impor-

tant implications of the simplifying assumptions usually made regarding the selection of competitors and the differences in product specialisation, presenting results both for Portugal and the average of the 12 euro area economies.

The most usual export-oriented effective exchange rates tend to overestimate the weight of the other euro area countries, thus minimizing the competition of the other countries against Portuguese exports. Firstly, the simplest indicator based on the main export markets increases the weight of the euro area as the exports to that area are highly concentrated while the extra-area exports are typically scattered across a large number of countries. Secondly, this overestimation also occurs when the traditional method of considering competition from third markets is considered. When dealing with exports, the most usual effective exchange rates select the competitors according to their importance as export markets. After this selection, it assumes that those economies compete against each other not only in those markets but also in the rest of the world.

The effective exchange rate weights presented in this article takes a different approach, not imposing such restriction in the selection of export competitors. It is assumed that the rest of the world is more relevant in competing in the identified main export markets than as an additional market where the countries initially selected compete against each other. Furthermore, the product specialization of each country is also considered, as the fact that two countries export to the same market does not mean that they are competing because they may be selling very different products.

The first important result is a reduction of the weight of the other euro area partners in the usual Portuguese export competitiveness indicators. This means that Portugal is more sensitive to developments outside the euro area than the observed share of exports to the euro area may suggest. In particular, the Portuguese exports should be more reactive to fluctuations in the euro exchange rate than the usual competitiveness indicators are able to measure.

Secondly, considering the traditional indicator that accounts for competition in third markets, there is also a decrease in the weight attributed to competitors from North America, Japan and the non-euro area European countries. This result re-

flects the fact that there are many other countries competing in third markets with a specialization of exports more similar to Portugal. Contrarily, this product specialization effect tends to increase slightly the weight of the Latin America and Africa regions.

Finally, there is an important increase of the weight attributed to the competitors from the non-Japan Asian countries, especially as concerns Portuguese exports. Accounting for competition from third competitors in the main export markets may increase the weight of this region in the export-oriented competitiveness indicators by more than 5 and 10 percentage points, for the average of the euro area countries and Portugal, respectively. This difference is related with the product specialization of Portuguese exports, which are more concentrated in sectors such as textiles, clothing and footwear than the other euro area countries. Those sectors seem to be particularly vulnerable to some Asian economies that during recent years have been gaining importance in international trade flows. This factor cannot be accounted for through the traditional competitiveness indicators but should be taken into consideration to explain the big Portuguese export market shares losses observed in recent years.

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## A SURVEY OF LITERATURE ON THE EQUILIBRIUM REAL EXCHANGE RATE AN APPLICATION TO THE EURO EXCHANGE RATE\*

Sónia Costa \*\*

### 1. INTRODUCTION

The two major purposes of the present article are, first, to describe and compare the approaches for determining the equilibrium real exchange rate mostly used in literature and, second, to present some results to the euro exchange rate. Since the concept of exchange rate equilibrium is not uniformly accepted nor clearly defined in the economic literature, the differences between the several approaches are not always easily understandable and thus the discussion of the methodological issues is important. In addition, the results for the euro exchange rate assume particular relevance since the euro has observed significant fluctuations over recent years and it is important to ascertain whether these movements were caused by changes in euro's fundamental determinants or not.

This article is organised as follows: Section 2 discusses the equilibrium exchange rate concept, highlighting its different horizons in empirical applications. Section 3 presents a description of the different approaches for determining the equilibrium exchange rate, starting with the PPP - Purchasing Power Parity, the simplest and traditional method. Subsequently, it describes several approaches for determining time-varying equilibrium real exchange rates, namely FEER - Fundamental Equilibrium Exchange Rate, BEER - Behav-

oural Equilibrium Exchange Rate, PEER - Permanent Equilibrium Exchange Rate and NATREX - NATural Rate of Exchange. These are the methods mostly used in empirical applications since the early 1990s. The comparison between these latter approaches is made in Section 4. The first part of Section 5 describes the results of different applications of these approaches to the euro exchange rate. Since the results available in literature do not include the most recent period, the second part of Section 5 presents an application of the BEER/PEER approach to the euro effective exchange rate and to the euro/US dollar exchange rate, covering data up to the end of 2004. Section 6 presents the final conclusions.

### 2. EQUILIBRIUM EXCHANGE RATE CONCEPT

The usefulness of the calculation of the equilibrium real exchange rate is not unanimously recognised. According to Isard and Faruquee (1998), opinions on this subject may be divided into three groups. The first group considers that exchange rates are always in equilibrium, given that they clear the foreign exchange market and that their level reflects the current and expected macroeconomic situation. A second view recognises that exchange-rate misalignments may exist (persistent deviations of the exchange rate from a medium/long-term equilibrium situation, signalling imbalances in the economy), but acknowledges that, in practice, these deviations cannot be quantified. Finally, the third view, which is shared by those estimating equilibrium exchange rates, con-

\* The opinions of this paper are those of the author and not necessarily those of Banco de Portugal.

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siders that the evaluating the level of exchange rates is useful, even though deviations from the medium/long-term equilibrium may or may not reflect an exchange-rate misalignment. Therefore, detecting exchange-rate misalignments cannot be merely the result of comparing the current values of the exchange rate with long-term equilibrium levels, but should also take into account that the exchange rates may deviate from that equilibrium level, due, for instance, to different cyclical situations in the domestic economy and abroad. Against this background, the following notions of equilibrium exchange rate are often found in the literature<sup>(1)</sup>:

- short-term equilibrium exchange rate - exchange rate compatible with the current economic situation, excluding purely financial shocks;
- medium-term equilibrium exchange rate - exchange rate prevailing when its fundamental determinants are at sustainable medium-term values. Usually, this situation is characterised by the simultaneous existence of internal balance (i.e., a situation in which output is at its potential level and there are no inflationary pressures) and external balance (a situation in which the existing capital movements are sustainable in the sense that they are justified by the adjustment of the capital stock towards its long-term equilibrium level);
- long-term equilibrium exchange rate - exchange rate consistent with a situation of internal balance, in which there are no reasons for changes in capital movements and in which the ratio of net foreign assets to GDP remains constant.

These short and medium-term equilibrium concepts have the problem of reflecting subjective notions. Indeed, the definition of an equilibrium exchange rate as an exchange rate consistent with a situation of full employment of productive factors and the fulfilment of the inter-temporal external

budget constraint, only allows a unique definition to be made for the real exchange rate in a stationary situation, which is consistent with different adjustments for that long-term equilibrium value.

### 3. DESCRIPTION OF DIFFERENT APPROACHES

#### 3.1. Purchasing Power Parity (PPP)

The traditional and simplest method to determine the equilibrium real exchange rate is based on the PPP theory. The relative PPP considers that the equilibrium real exchange rate is constant over time. Therefore, there is a real exchange-rate misalignment when, compared to a given base period when the global economy is considered to be in general equilibrium, the change in the relative price (or in the relative cost) differs from the change in the nominal exchange rate.

The PPP as a theory of real exchange rate behaviour in the long run has been widely tested. A number of papers can be found in the literature that survey the results (for instance, Froot and Rogoff (1995) and MacDonald (1995)). Since the 1990s, these tests have chiefly covered less demanding interpretations of the PPP, which assume two alternative types. The first one considers that the real exchange rate will likely revert to its mean in the long run, although it may depart from it for a long period (i.e., testing the stationarity of the real exchange rate). The second one only considers that there is a long-run relationship between the nominal exchange rate and prices in both economies (i.e., testing the existence of a cointegration relationship among the nominal exchange rate, domestic prices and external prices). The results obtained reveal, in most cases, a very slow speed of reversion of the exchange rate towards the PPP value<sup>(2)</sup>. The PPP theory points therefore, at best, to equilibrium values of the real exchange rate in the very long run, i.e., a longer horizon than that typically relevant for economic policy, and does not explain the existence of protracted deviations from that equilibrium value.

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(1) See, for instance, Driver and Westaway (2004).

(2) For instance, according to MacDonald (2000), even the studies that use long time span data sets (with approximately 100 years of data) or panel data for the recent floating period obtain a half-life of approximately 4 years (period of time, following a shock, for the real exchange rate to adjust half the deviation from the constant level corresponding to the PPP).

### 3.2. Approaches determining time-varying equilibrium real exchange rate

The methods mostly used to determine the equilibrium exchange rates over recent years implicitly consider that even protracted deviations from the PPP may reflect adjustments of the fundamental relationships between economies, and thus are not necessarily associated with exchange-rate misalignments. In general terms, these approaches can be divided into two groups: structural approaches and direct approaches. Structural approaches are explicitly based on a given macroeconomic model, and the equilibrium real exchange rate is obtained as a solution of that model in a situation of internal and external balance. In direct approaches, the equilibrium exchange rate is obtained by estimating an ad-hoc specified equation for the real exchange rate as a function of its fundamental determinants, or by decomposing, with statistical or econometric techniques, the behaviour of the real exchange rate into equilibrium components and deviations from equilibrium. FEER can be included in structural approaches, while BEER and PEER correspond to direct approaches. NATREX is not clearly included in any of such categories, given that, although it is based on a specific macroeconomic model, its empirical applications consist, in most cases, and similarly to BEER, in the estimation of a reduced form equation for the real exchange rate.

#### 3.2.1. Fundamental Equilibrium Exchange Rate (FEER)

The fundamental equilibrium exchange rate (FEER) introduced by Williamson (1983) intends to determine the real exchange rate path that is consistent with the existence of internal and external macroeconomic equilibrium. In this approach, external equilibrium is obtained by imposing a balanced fundamental account, which is defined as the sum of the current account and net inflows of stable capital. Therefore, this approach takes into consideration that when domestic saving is different from domestic investment opportunities evaluated at the global interest rate, countries may observe capital imports or exports over a number of years, and thus maintain lasting current account imbalances.

FEER is usually considered a medium-term approach. In effect, on the one hand, it ignores short-term disturbances and cyclical factors and, on the other hand, it takes into account the existence of capital flows among the different economies. As mentioned in Section 2, the medium-term equilibrium corresponds to a subjective concept, as it is not uniquely defined. Theoretically, the existence of external equilibrium only requires net external debt to be sustainable, so that the economy may be able to comply with its liabilities and does not overaccumulate assets. This is consistent with the different paths for the fundamental account. Therefore, the imposition of a permanently balanced fundamental account reflects a strict notion of external equilibrium, which may be justified by concerns about the behaviour of the current account in the short run. In this sense, FEER is a normative concept.

In most cases, FEER is determined on the basis of a partial equilibrium model, in which an equation is estimated for the current account (or for the trade account). This equation is solved for the real exchange rate that makes the trend current account (i.e., the current account corresponding to a situation in which its other determinants are at their "equilibrium" levels proxied by trend values) equal to its exogenously determined target level (i.e., stable net capital outflows). This approach does not require the existence of stock-flow equilibrium and it does not take into account the interaction between deviations from equilibrium and the equilibrium path itself. As a result, FEER is subject to a hysteresis effect.

The results obtained with the FEER approach reveal high sensitivity to the hypotheses considered - for instance, the trade elasticities and the level of stable capital flows. Therefore, it is only possible to identify with some certainty very significant misalignments. Major differences among the different applications of this methodology are related to the manner in which stable capital flows are determined, given that in most cases a large judgement component is involved. Theoretically, stable capital flows should correspond to capital flows responding to differentials between the yields of long-term domestic and external investments, or reflecting changes in portfolio preferences, that may persist for a number of years before a new portfolio equilibrium is reached. In sev-

eral applications, stable capital flows are determined on an ad-hoc basis, corresponding to the values of the capital account items with more structural characteristics (frequently, direct investment net flows)<sup>(3)</sup>.

### 3.2.2. Behavioural Equilibrium Exchange Rate (BEER)

The BEER approach is based on the estimation of an equation for the real exchange rate, as a function of its fundamental determinants. In this approach, the equilibrium path of the exchange rate corresponds to the fitted values of that equation, using the observed values of the economic fundamentals assumed to have long run effects.

In general, the BEER is estimated using the Johansen's cointegration analysis. The differences between the several empirical applications of this approach consist mainly in the exchange rate determinants considered. These variables are usually selected on an ad-hoc basis, and are motivated by different theories of determining the exchange rate, often including the Balassa-Samuelson productivity hypothesis, the uncovered interest rate parity theory and/or the assets model developed by Frenkel and Mussa (1984). Thus, the real exchange rate is often expected to appreciate in the long run if, all other things being equal, the productivity in the tradable goods sector, when compared to that of the non-tradable goods sector, increases more in the domestic economy than abroad, if net foreign assets increase, if there is a persistent improvement in terms of trade (most often proxied by the real oil price) or if there is a greater permanent improvement of the public finance situation in the domestic economy than abroad. In addition, a widening of the real interest rate differential between domestic and foreign

economies, or an increase in the relative demand for non-tradable goods to tradable goods is deemed to cause a real appreciation of the exchange rate in the short/medium term. This latter effect may be due to the short-term positive impact on demand associated to an increase in public consumption.

### 3.2.3. Permanent equilibrium exchange rates (PEER)

The BEER determines an exchange rate trajectory that reflects the observed behaviour of its determinants. This does not necessarily mean that it defines sustainable levels for the exchange rate. In this sense, BEER is sometimes referred to as "current equilibrium exchange rate". A number of articles are intended to compute the BEER for a situation in which the exchange rate determinants stand at their sustainable equilibrium levels. In these cases the exchange rate obtained would be referred to as BEER/PEER.

The BEER/PEER has assumed alternative forms in the literature. A simple solution used, for instance, by Faruqee (1994) consists in considering the exchange rate determinants at their long-term values, computed on the basis of filters or estimated trends. The disadvantage of this approach is that, when determining the long-term equilibrium, it disregards the information contained in the estimated cointegration relationship. In order to overcome this limitation, most recent articles resort to the decomposition of Gonzalo and Granger (1995), which breaks down the cointegration relationship into a non-stationary permanent component and a stationary transitory component. In this context, the permanent component of the real exchange rate is deemed to describe its equilibrium path and the transitory component is considered to reflect the deviations from equilibrium.

The PEER denomination has also been used in other than BEER approaches. In a survey of the literature by MacDonald (2000), these applications are grouped in two classes. The first group includes the studies that use the univariate or multivariate Beveridge and Nelson decomposition to decompose real exchange rates into permanent and transitory components. These studies are based on the statistical properties of the real exchange rate, and are often called APPER (Atheoretical Permanent Equilibrium Exchange

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(3) The IMF developed a methodology to evaluate deviations of the exchange rates from their equilibrium values. It reflects an extension of FEER, which intends to introduce more rigour in determining stable capital flows (Isard and Faruqee (1998)). In practice, this approach formalizes the methodology to determine stable capital flows followed by Williamson (1991). In effect, it explicitly considers that the current account can be viewed as the difference between domestic saving and investment, and that these, in the medium/long-term, are determined for instance by factors associated with life-cycle and debt-cycle theories. Therefore, in such applications, the target level for current account corresponds to the estimated level of net savings in a medium-term situation.



Rate) due to the absence of any specific economic theory on the behaviour of the exchange rate. The second group includes the studies following the methodology proposed in Clarida and Gali (1994), which is based on the estimation of structural VAR models. This method allows the change in the real exchange rate to be broken down into a number of components associated with different types of shocks. In these studies, the real exchange rate component that is determined by supply shocks is sometimes interpreted as its permanent component.

### 3.2.4. NATural Rate of EXchange (NATREX)

The NATREX approach determines the medium-term equilibrium exchange rate and its adjustment towards long-term equilibrium, based on modelling the stock-flow interaction in dynamic growth models for open economies, whose specifications vary according to the characteristics of the economies in question (Stein et al (1995)). Similarly to FEER, the theoretical framework of NATREX is based on the medium-term macroeconomic equilibrium defined as a situation in which the current account is equal to the sustainable capital flows determined by net savings in a context of internal equilibrium. The models incorporate structural equations for the current account, savings and investment. The major factor behind savings is the rate of time preference, whereas the major factor behind investment is Tobin's  $q$  ratio, which is determined by productivity. These models are more general than the macroeconomic equilibrium models used in FEER. On the one hand, the flows are explained by the capital stock and net foreign assets (i.e., investment depends on the capital stock while saving depends on wealth stock, defined as the sum of net foreign assets and capital stock). On the other hand, the flows determine the endogenous movements of the stocks in the transition to the long run (the current account corresponds to the rate of change of net foreign assets, whereas investment corresponds to the change in the capital stock). Similarly to the models frequently used to motivate the selection of exchange-rate determinants in BEER studies, the flow-stock interaction ensures the consistency of the medium-term equilibrium with a notion of long-term equilibrium in which net external debt

is stable and the capital stock has converged to the stationary level. Thus the theoretical framework of NATREX approach overcomes one of the limitations of FEER.

According to NATREX, the real exchange rate is determined in the long run by the rate of time preference and by productivity in the domestic economy and abroad and in the case of small economies, also by terms of trade and by the real interest rate. In the medium-term, in addition to these variables, the exchange rate also depends on the capital stock and on net foreign assets, variables that are endogenous in the long run. According to the NATREX models, a rise in the time preference rate (i.e., a decline in savings) determines an appreciation of the real exchange rate in the medium term and its depreciation in the long term, whereas an increase in productivity (i.e., a rise in investment) induces an appreciation in the medium term and has an ambiguous effect in the long run.

There are some attempts to estimate the structural model underlying NATREX. However in most empirical applications, only a reduced form is estimated for the real exchange rate with cointegration techniques. This makes the NATREX approach similar to the approaches previously defined as direct methods.

## 4. COMPARISON OF THE DIFFERENT APPROACHES

As mentioned in Section 3, the BEER is often referred to as a short-term or current equilibrium exchange rate, FEER as a medium-term equilibrium rate, PEER as a medium/long-term equilibrium rate and NATREX as a methodology that, being centred on the transition from medium to long term, makes it possible to determine both types of equilibrium rates. In effect, the classification of the different approaches according to the time horizon is not simple. For instance, the fact that when determining FEER only sustainable capital flows are included means that this approach implicitly has a notion of long-term equilibrium, in which some capital inflows or outflows will never be reversed. In addition, the equilibrium notions implied in different approaches for the same horizon are not always equivalent. In the theoretical models motivating BEER, BEER/PEER and NATREX, the real

exchange rate adjusts so that the current account is voluntarily financed by wealth holders. Reflecting this, empirical applications of these approaches estimate a cointegration relationship between the real exchange rate and its determinants, instead of imposing “equilibrium values” for the current account, as happens in FEER. The estimates obtained reflect exchange rate values that are justified by the behaviour of the fundamental variables identified as relevant in economic models, but that do not necessarily represent the behaviour of the exchange rate in a situation of medium/long-term macroeconomic equilibrium. This situation is all the more apparent in BEER applications, where the observed values of the variables are used. However, even the transformation of variables into moving-averages in NATREX and the use of the permanent component of the estimated exchange rate in BEER/PEER do not unquestionably ensure the existence of external equilibrium, perceived as the sustainability of the rate of accumulation of net foreign assets. The medium-term equilibrium rates determined in BEER/PEER and in NATREX are therefore not directly comparable to FEER exchange rates. This is even more apparent if we consider atheoretical PEER, or PEER obtained from structural VAR models.

In addition to differing in terms of equilibrium concepts, the different approaches can also be distinguished by the type of variables used. These differences, however, do not reflect conflicting views on the theory of determining the exchange-rate, but are chiefly the result of differences at the level of complexity of the models underlying each approach. In simple terms, FEER, BEER and NATREX can be considered to have the same type of formalisation for the external equilibrium, which is more simplified in FEER than in BEER and in BEER than in NATREX. In effect, whereas in FEER the equilibrium exchange rate is the exchange rate which makes the underlying current account equal to an exogenously determined sustainable value, in BEER and NATREX that value is determined by the behaviour of different variables, such as the stock of net foreign assets, which is considered exogenous in BEER and endogenous in the long run in NATREX. In turn, internal equilibrium is defined in a more simple way in FEER and NATREX than in BEER. Indeed, in BEER, a distinction is usually made between

tradable and nontradable goods. In this case the internal equilibrium is defined as the equilibrium in the nontradable goods market, which depends on factors that affect the relative supply and demand of both types of goods. In FEER and in most cases in NATREX, no distinction is made among the different types of domestically produced goods, and therefore factors such as the Balassa-Samuelson effect are not explicitly taken into account.

## 5. EMPIRICAL APPLICATIONS TO THE EURO EXCHANGE RATE

### 5.1. Some recent results

Table 1 presents a summary of the results obtained in different studies for the euro equilibrium exchange rate, grouped by type of approach. Most of these studies refer to the euro effective exchange rate, but some of them estimate equilibrium rates for the euro/US dollar and the euro/yen exchange rates.

Some of these studies estimate trends for the euro equilibrium exchange rate that are very similar to the observed exchange rate, suggesting that they may reflect a notion of current equilibrium rather than a notion of medium/long-term equilibrium. As one might expect, this behaviour is most frequently found in the results obtained with BEER and BEER/PEER, approaches in which the variables used in determining the equilibrium are selected according to their power to explain the exchange rate.

Reflecting the dominant weight of the United States in the euro area external relationships, the results obtained are similar in the cases of the euro effective exchange rate and of the euro/US dollar exchange rate. Some results point to an equilibrium appreciation of the euro effective exchange rate in the second half of the 1980s. There are no clear indications about the direction of the equilibrium trajectory for the other periods, because even in applications using the same approaches and identical explanatory variables, the results obtained are mixed. Nevertheless, in the latter years of the 1990s and in 2000, most results point to the stability of the equilibrium exchange rate, or at the best to its appreciation, while the euro actually depreciated in that period.

In terms of the deviations from the equilibrium, most results suggest that the euro was increasingly underappreciated from the early 1980s to mid-1980s and was somewhat overappreciated, albeit less markedly, in some sub-periods from the end of the 1980s to the early second half of the 1990s. These situations coincide with the strengthening of the dollar before the 1985 Plaza agreement and with its subsequent depreciation. As regards the most recent period, evidence suggests that the euro was underappreciated in 1999, and that such underappreciation became more marked in 2000, apparently assuming a higher magnitude in the euro/US dollar exchange rate than in effective terms. As presented in Table 1 the available studies point to a very wide range for the degree of euro underappreciation in this period, which shows the high uncertainty associated with the calculation of the equilibrium exchange rate, even when similar approaches are used. This uncertainty would be even more apparent if the confidence intervals of the results were considered. In general terms, as stressed in Detken et al (2002), larger deviations from equilibrium seem to be found in approaches in which higher economic structure is imposed in estimation (approaches that might be interpreted as determining the equilibrium for a longer horizon) than in approaches that estimate reduced forms for the exchange rate. At the end of 2000, the euro effective exchange rate deviations from equilibrium were higher than 20 per cent in FEER and NATREX studies<sup>(4)</sup> and stood at approximately 10 per cent, on average, in BEER, BEER/PEER and PEER. The fact that the underappreciation of the euro tends to be smaller in the results for a shorter-term equilibrium concept is consistent with the possibility that the euro was experiencing a more unfavourable cyclical position in this period (assessed by the deviations of output from the potential level) than its major trading partners.

According to the BEER and BEER/PEER approaches the main factors behind the behaviour of the real euro exchange rate<sup>(5)</sup> are relative produc-

tivity<sup>(6)</sup>, long-term real interest rate differential, real oil price, and, chiefly in the case of the euro/US dollar exchange rate, also relative public consumption. Net foreign assets are frequently excluded from estimation<sup>(7)</sup>. As expected, an increase in relative productivity, in the interest-rate differential favourable to the euro area or in net foreign assets determine an appreciation of the euro exchange rate. In turn, an increase in real oil price or in relative public consumption contributes to its depreciation. This seems to reflect, in the former case, the higher dependence of the euro area economy on oil imports, when compared to the economies of its major trading partners and, in the latter case, the predominance of the negative effect expected in the long run over the short run positive effect determined by the increase in demand.

## 5.2. Estimation of BEER/PEER for the euro exchange rate using recent data

For the purpose of obtaining estimates for the euro equilibrium exchange rate in the most recent period, the BEER/PEER methodology was applied to the real euro effective exchange rate and to the real euro/US dollar exchange rate. The BEER/PEER was selected for reasons of its simplicity and because it is a methodology widely used in the literature and is therefore a natural way of extending the existing results. The sample consists of quarterly data for the 1981-2004 period, in the case of the effective exchange rate, and for the 1980-2004 period, in the case of the euro/US dollar exchange rate. The explanatory variables were: the ratio of net foreign assets to GDP, productivity (proxied by the average labour productivity or by

(4) The NATREX computed in Detken et al (2002) results from the estimation of a small structural model, which contrasts with most applications of NATREX that consist in the estimation of a reduced form equation.

(5) In the other approaches, the factors explaining the real exchange rate are defined a priori.

(6) In most cases, an indirect measure of productivity in the tradable goods sector, vis-à-vis the nontradable goods sector was included. This measure consists of the internal relative price (nontradables vis-à-vis tradables), and, in general, corresponds to the ratio of consumer prices to wholesale prices. In some studies, as an alternative it was included labour productivity, which is computed as the ratio of GDP to employment.

(7) As highlighted in several of these studies, this result may be influenced by the fact that net foreign assets are measured by accumulated current account positions, which disregards the effects from debt reduction and debt forgiveness, reinvested earnings, valuation issues and, in the case of the euro area, it may reflect not only net assets against countries outside the region.

Table 1

SUMMARY OF SOME EMPIRICAL APPLICATIONS FOR THE CALCULATION OF THE EQUILIBRIUM EURO EXCHANGE RATE

Study	Estimated exchange rate <sup>(a)</sup>	Sample period used in the estimation	Determinants of the equilibrium rate(b)(c)	Other tested variables <sup>(b)</sup>	Deviation of the euro from the equilibrium (reference period) <sup>(d)</sup>
<b>FEER</b>					
Wren-Lewis and Driver (1998) <sup>(e)</sup>	EUR/USD	-	Trend current account and target level for the current account; elasticity of imports and exports to the exchange rate	-	0-22% (1995); -20 to -34% (2000)
Detken <i>et al</i> (2002)	REER	-	Simulation of a macroeconomic model for the euro area steady-state solution consistent with a balanced trade account	-	-24% <sup>th</sup> (4 <sup>th</sup> Q 2000)
<b>BEER</b>					
Clostermann and Schnatz (2000) <sup>(e)</sup>	EUR/USD	1975-98 (Quart.)	LT: int; pet; g-g* ST: rlp-rlp*	f	LT: -7% (3 <sup>rd</sup> Q 1999) ST: -13% (3 <sup>rd</sup> Q 1999)
Koen <i>et al</i> (2001)	REER	1981-99 (Sem.)	LT: dep-dep*; pet ST: rlp-rlp*; ypc-ypc*; int; pet	f; g-g*; pexp/pimp	LT: -9% (2 <sup>nd</sup> Sem. 2000) ST: -5% (2 <sup>nd</sup> Sem. 2000)
Maeso-Fernandez <i>et al</i> (2001)	EUR/USD	1976-99 (Sem.)	LT: g-g*; pet ST: rlp-rlp*; g-g*; pet	f; pexp/pimp; int; dep-dep*; ypc-ypc*	LT: -15% (2 <sup>nd</sup> Sem. 2000) ST: slightly more underappreciated than in the LT (2 <sup>nd</sup> sem. 2000)
Maeso-Fernandez <i>et al</i> (2001)	REER	1975-00 (Quart.)	4 specifications for LT	rcp-r*cp; pref temp; f	LT: Underappreciated in 2000 -5% to -20% (4 <sup>th</sup> Q 2000)
Detken <i>et al</i> (2002)	REER	1973-00 (Quart.)	(1) yemp-yemp*; pet; (2) yemp-yemp*; rlp-rlp* (3) int; pet; g-g*; (4) int; rlp-rlp*; g-g*	rcp-r*cp; pref temp; f	LT: Underappreciated in 2000 -5% to -20% (4 <sup>th</sup> Q 2000)
Osbat <i>et al</i> (2003)	EUR/JPY	1975-01 (Quart.)	LT: int; rlp-rlp* LT: pet; f*; g-g*; yemp-yemp*	yemp-yemp*; wr-wr*; ca-ca*; f*; s-s* rlp-rlp*; int	LT: underappreciation in 1999-2000 (-10% (4 <sup>th</sup> Q 2000)) LT: underappreciated (1999-00); close to balance (4 <sup>th</sup> Q 2001)
<b>BEER/PEER (Gonzalo and Granger decomposition)</b>					
Alberola <i>et al</i> (1999)	REER	1980-98 (Quart.)	LT: int; f	-	LT: REER: from -3.8% to 5.1% (4 <sup>th</sup> Q 1998) LT: EUR/USD: -7.5% (4 <sup>th</sup> Q 1998)
Hansen and Roeger (2000)	EUR/USD EUR/JPY	1980-99 (Quart.)	LT: int; f	-	LT: EUR/JPY: 6.2% (4 <sup>th</sup> Q 1998) LT: -15% (3 <sup>rd</sup> Q 1999)
Maeso-Fernandez <i>et al</i> (2001)	REER	1975-00 (Quart.)	4 specifications for LT (1) yemp-yemp*; pet; (2) yemp-yemp*; rlp-rlp* (3) int; pet; g-g*; (4) int; rlp-rlp*; g-g*	rcp-r*cp; pref temp; f	LT: Underappreciated in 2000 -2% a -10% (4 <sup>th</sup> Q 2000)
<b>PEER (structural VAR)</b>					
Detken <i>et al</i> (2002)	REER	1970-00 (Quart.)	Labour supply, productivity and public consumption shocks	-	-5 a -12% (4 <sup>th</sup> Q 2000)
<b>NATREX</b>					
Detken <i>et al</i> (2002)	REER	1970-00 (Quart.)	Different variables determining consumption, investment and trade account	-	LT: -2.3% (4 <sup>th</sup> Q 1998); -27.7% (4 <sup>th</sup> Q 2000) MT: -0.7% (4 <sup>th</sup> Q 1998); -25.4% (4 <sup>th</sup> Q 2000)
Stein (2001)	EUR/USD	1971-00:1 (Quart)	LT: yemp-yemp*; pref. temp. MT: LT determinants + error correction term	-	LT: underappreciation since 1997; MT: underappreciation since early 1999 (-10% (1 <sup>st</sup> Q 2000))

Notes:

- (a) The exchange rates differ in the various works. Excluding Wren-Lewis and Driver (1998), the exchange rates used in the estimations result from the aggregation of the currencies of the countries that joined the euro. In Wren-Lewis and Driver (1998), the equilibrium EUR/USD exchange rate results from an aggregation of the equilibrium DEM/USD, FRF/USD and JTL/USD exchange rates, based on the weights of these currencies in the ECU in 1995. In the calculation of the REER index, in Maeso-Fernandez *et al* (2001), Alberola *et al* (1999) and Hansen and Roeger (2000), Koen *et al* (2001) and Detken *et al* (2002) 12, 11, 6 and 4 trading partners were considered, respectively. Nominal rates were deflated on the basis of consumer price indices, excluding Detken *et al* (2002) and Hansen and Roeger (2000), where the GDP deflators were used.
- (b) The acronyms are described in table 2, where x-x\* is the differential between x in the domestic economy and x abroad.
- (c) The acronyms LT and ST in the BEER and BEER/PEER applications mean that the variables were included in the cointegration relationship or in the short-term dynamics, respectively, and that the estimated rates were calculated using the cointegration relationship or of the dynamic equation, respectively, and do not necessarily correspond to the equilibrium estimates identified in these studies for such horizons. The acronyms LT and MT in the NATREX applications mean the estimates identified in the studies in question with long and medium-term, respectively.
- (d) A positive (negative) value corresponds to an overappreciation (underappreciation) of the euro.
- (e) Deviations from equilibrium were calculated on the basis of the euro/dollar equilibrium rates presented in these studies.



Table 2

**DESCRIPTION OF THE EXPLICATIVE VARIABLES AND THEIR EFFECTS ON THE REAL  
EURO EXCHANGE RATE**

Explicative variables	Estimated effects on the euro exchange rate <sup>(a)</sup>
<b>tnt:</b> Domestic relative price (nontradable goods vis-à-vis tradable goods) in the domestic economy vis-à-vis abroad. ....	+
<b>yemp:</b> Output per worker .....	+
<b>ypc:</b> Output per capita .....	+
<b>wr:</b> Real wage .....	+
<b>f:</b> Net foreign assets as a % of GDP .....	+
<b>dep:</b> Dependency ratio (non-working age population/working age population) (savings negative determinant) .....	-
<b>pref. temp:</b> Rate of time preference (total consumption/GDP) .....	-
<b>s:</b> Savings rate .....	+
<b>ca:</b> Current account as a % of GDP .....	+
<b>g:</b> Ratio of public expenditure to GDP .....	- except in Osbat et al (2003)
<b>rlp:</b> Real long-term interest rate .....	+
<b>rcp:</b> Real short-term interest rate .....	+
<b>pexp/pimp:</b> Ratio of export prices to import prices .....	+
<b>pet:</b> Real price of oil .....	- in the case of the REER index and EUR/USD; + in the case of EUR/JPY

Note:

(a) + (-) corresponds to an appreciation (depreciation) of the euro.

the ratio of prices in the non-tradable goods sector to prices in the tradable goods sector), the ratio of public consumption to GDP, the long-term real interest rate and the real oil price. All variables, except the real oil price and, in the case of the estimation of the effective exchange rate, net foreign assets, were defined in relative terms in comparison with abroad<sup>(8)</sup>.

Both the graphical behaviour of the variables and the unit root tests suggest that the series are integrated of order 1. Therefore the estimation was based on cointegration techniques using Johansen methodology. BEER/PEER corresponds to the permanent component of the estimated exchange rate, which was computed using the estimated coefficients and the decomposition of Gonzalo and Granger (1995)<sup>(9)</sup>.

(8) See the Annex for a description of the method of construction of variables.

(9) Alternative specifications of the vectorial autoregressive (VAR) model were estimated including different sets of explanatory variables. The VAR order was selected, so that the models would not show autocorrelation in residuals. Autocorrelation was tested with the Lagrange multiplier test for autocorrelation of order four. The existence of cointegration was tested with the maximum eigenvalue test and with the Johansen trace statistics adjusted for a small sample size. After determining the number of cointegration vectors, both the exclusion of the variables from the cointegration relationship and its weak exogeneity were tested.

In the case of the euro real effective exchange rate, the best specification obtained suggests that in the long run the appreciation of the euro is determined by an increase in the ratio of the euro area net foreign assets to GDP<sup>(10)</sup>, by an increase in productivity (measured as the ratio of prices in the nontradable goods sector to prices in the tradable goods sector) in the euro area vis-à-vis abroad and by a rise in the ratio of public consumption to GDP in the euro area vis-à-vis abroad (Table 3). The signs of the estimated effects on the real exchange rate are in line with those theoretically expected and described in Section 3.2.2., in the case of net foreign assets and productivity. In the case of public consumption the signal of the estimated coefficient suggests that, in the sample period, the positive short/medium-term effect dominates the negative long-term effect. According to the coefficient of the error-correction term in the exchange-rate equation, after a shock, the deviation of the exchange rate from its long-term value determined by the cointegration relationship will take one year to be reduced by one half. This adjustment speed, which is in line with the estimates

(10) The inclusion of net foreign assets in the long-run cointegration relationship is unusual in literature and this might be justified by the way this variable was measured. Here the series used was built using annual values of net foreign assets, instead of the proxy more commonly used which is computed as the accumulation of current account balances.

Table 3

**RESULTS OF THE ESTIMATION OF THE VECM MODEL FOR THE REAL EFFECTIVE EXCHANGE RATE**

(t-ratios in brackets)

	Long-term coefficients		Adjustment terms	
	reer <sup>(a)</sup> .....	1	-	-0.18
f .....	-2.86	(-6.00)	-	
tnt .....	-0.11	(-2.25)	-	
g-g* .....	-1.24	(-3.34)	0.11	(4.70)
rlp-rlp* .....	-		-3.42	(-3.35)
Half-life .....			-4.14	
Number of lags in VAR .....			4.00	
Restriction tests (p-value) <sup>(b)</sup> .....			0.49	
AR (1-4) (p-value) .....			0.52	
	Cointegration tests (p-value)			
	Without small-sample correction		With small-sample adjustment	
	Trace	Max. eigenvalue	Trace	Max. eigenvalue
0	0**	0.001**	0.017*	0.038*
1	0.018*	0.135	0.211	0.451
2	0.083	0.155	0.326	0.412

Notes:

(a) An increase (decrease) corresponds to an appreciation (depreciation) of the euro.

(b) Null hypothesis that the rlp-rlp\* does not belong to the cointegration relationship and that f and tnt are weakly exogenous.

Table 4

**RESULTS OF THE ESTIMATION OF THE VECM MODEL FOR THE EURO/US DOLLAR REAL EXCHANGE RATE**

(t-ratios in brackets)

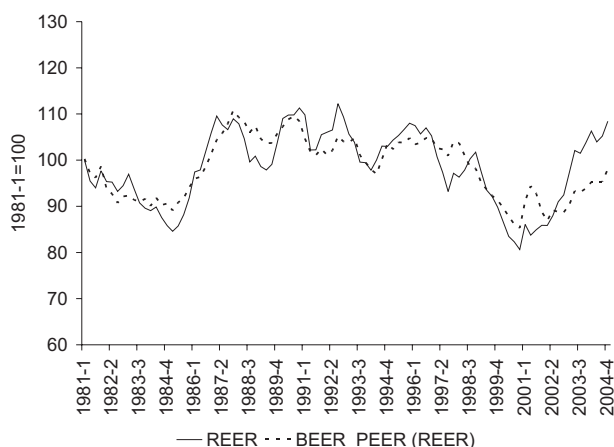
	Long-term coefficients		Adjustment terms	
	EUR/USD real <sup>(a)</sup> .....	1.00	-	-0.16
f-f* .....	-1.45	(-5.82)	-	
yemp-yemp* .....	-5.28	(-5.49)	0.03	(3.95)
Half-life .....			-4.57	
Number of lags in VAR .....			5.00	
Restriction tests (p-values) <sup>(b)</sup> .....			0.90	
AR (1-4) (p-value) .....			0.75	
	Cointegration tests (p-value)			
	Without small-sample correction		With small-sample adjustment	
	Trace	Max. eigenvalue	Trace	Max. eigenvalue
0	0.010**	0.001**	0.053	0.006**
1	0.936	0.921	0.964	0.954
2	0.642	0.642	0.670	0.670

Notes:

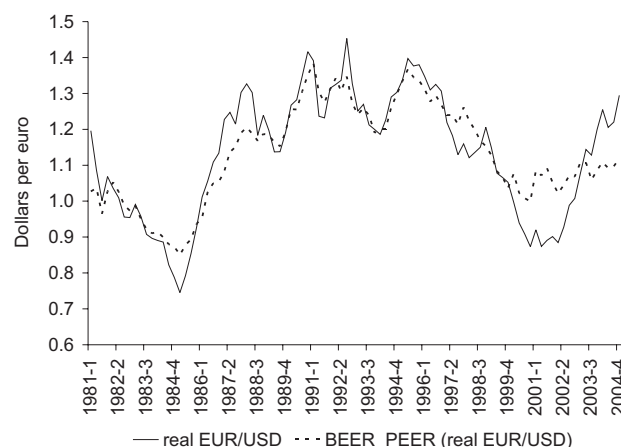
(a) An increase (decrease) corresponds to an appreciation (depreciation) of the euro.

(b) Null hypothesis that the f-f\* is weakly exogenous.

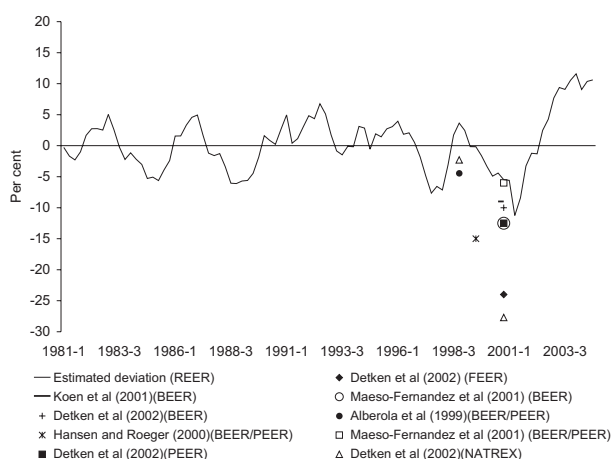
**Chart 1**  
**REER OF THE EUR AND BEER/PEER**



**Chart 2**  
**REAL EUR/USD AND BEER/PEER**

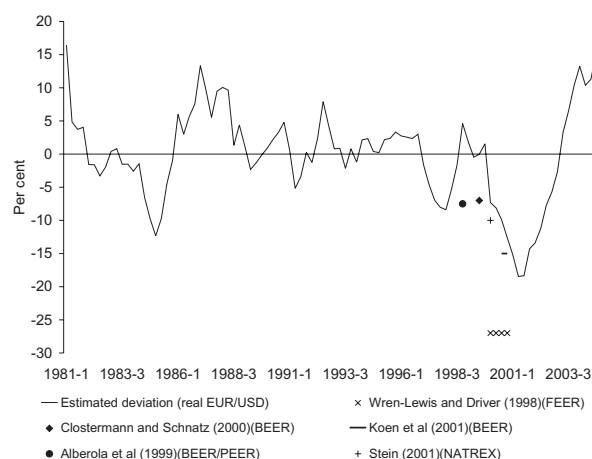


**Chart 3**  
**ESTIMATES FOR THE EUR REER DEVIATIONS FROM EQUILIBRIUM<sup>(a)</sup>**



Nota: (a) The values shown correspond to a simplified version of the results presented in table 1. In the cases in which there are equilibrium estimates for different time horizons, only those referring to the longer horizon are considered (ex: LT instead of ST) and in the cases in which the same study presents different estimates for the same time horizon the mean of such results is considered.

**Chart 4**  
**ESTIMATES FOR THE REAL EUR/USD DEVIATIONS FROM EQUILIBRIUM<sup>(a)</sup>**



Nota: (a) The values shown correspond to a simplified version of the results presented in table 1. In the cases in which there are equilibrium estimates for different time horizons, only those referring to the longer horizon are considered (ex: LT instead of ST) and in the cases in which the same study presents different estimates for the same time horizon the mean of such results is considered

usually found in this type of model, is, as expected, rather faster than that associated with PPP theory.

In the case of the real euro/US dollar exchange rate, some specifications included the real oil price, the real interest-rate differential and/or relative public consumption in the long-run relationship. However, in such cases the econometric results were unsatisfactory, namely in terms of sta-

bility of the parameters. In the best specification obtained, the real euro/US dollar exchange rate is determined by relative productivity (measured by the average labour productivity) and the ratio of net foreign assets to GDP in the euro area compared to the United States (table 4). In the long-run relationship both variables are quite significant and, as in the case of the effective exchange rate, the estimated coefficients are positive

as expected. The speed of the exchange rate adjustment towards the long-term equilibrium is similar to that estimated for the effective exchange rate.

Charts 1 and 2 compare the current values for the exchange rates with the estimated BEER/PEER. Charts 3 and 4 show the estimated deviations jointly with the results mentioned in the previous section for the late 1990s and for the year 2000. In general terms, the results obtained in this section are in line with the results in literature, pointing in particular to a possible underappreciation of the euro in 2000, of a higher magnitude in the case of the euro/US dollar exchange rate than in effective terms. This underappreciation seems to have been sharper in the first half of 2001, reaching approximately 11 per cent in effective terms and around 18 per cent against the dollar. From late 2001 to late 2002 (from mid 2002 to mid 2003) the euro effective exchange rate (the euro/US dollar) was relatively close to the levels justified by the long-term behaviour of its determinants. The continued appreciation of the euro has nonetheless contributed to the recent emergence of signs of a possible overappreciation, both in effective terms and against the dollar. In the fourth quarter of 2004, the estimated deviations stood at 11 and 16 per cent in the case of the effective exchange rate and of the euro/US dollar, respectively. In this period, the estimated equilibrium rates present an appreciating trend, that can be partly explained by the more favourable behaviour of net foreign assets in the euro area than in its trading partners and, in the case of the effective exchange rate, also by the higher growth of the ratio of public consumption to GDP. However the appreciation of the equilibrium rate has been more moderate than the appreciation actually observed.

## 6. FINAL CONCLUSIONS

The PPP (Purchasing Power Parity) is a good proxy for the equilibrium exchange rate in a situation where monetary shocks predominate. However, given the protracted deviations of the real exchange rate from the PPP, the usefulness of such concept to evaluate the exchange rate is small. Therefore, most empirical applications estimate trends for the equilibrium real exchange rate that are determined by the behaviour of the real vari-

ables. The difficulties in defining the equilibrium exchange rate, in a situation in which the real variables are non stationary, contributes to the emergence of different approaches to this issue in the literature. These approaches generate results that are difficult to compare among each other and that are subject to criticism, due to the fact that they are the result of normative solutions (such as FEER - Fundamental Equilibrium Exchange Rate) or because it is not clear that they ensure the existence of internal and external equilibrium (such as BEER - Behavioural Equilibrium Exchange Rate, PEER - Permanent Equilibrium Exchange Rate and NATREX - NATural Rate of EXchange). The distinction among the different approaches based on the equilibrium time horizon is too simplistic, since the equilibrium notions implied in different approaches for the same time period are not equivalent.

The comparison of the different methods for determining the equilibrium exchange rate does not lead to a consensual conclusion as to the best methodology to be adopted. FEER is a useful approach to quantify possible deviations from the equilibrium in situations in which there are concerns about the external equilibrium, but it has a limited capacity to explain the factors underlying changes in the equilibrium trend, such as, for instance, the existence of Balassa-Samuelson effects. BEER and BEER/PEER are more flexible, making it possible that factors associated with different theories of determining the exchange rate may be tested simultaneously. An atheoretical PEER is a simple approach, in the sense that it is less demanding in terms of data. Structural VARs allow the relative importance of different shocks to be evaluated in explaining the exchange rate behaviour. Finally, NATREX introduces more economic rationality in the distinction between different equilibrium notions, than does the decomposition into permanent and transitory components, used in PEER. In addition to these motivations, the choice among the different methods depends obviously on the availability of data.

Irrespective of the methodology adopted, the estimates obtained are subject to a high degree of uncertainty, due to the econometric uncertainty, to the variable measurement problems and, in the case of the structural approaches, such as FEER, to the sensitivity of the results to changes in the as-

sumptions. In effect, studies with the same methodology gave often rise to very different results in terms of magnitude and of sign of the deviations from equilibrium. This uncertainty is amplified by the lack of consensus on the adequate equilibrium exchange rate concept. In these circumstances, the conclusion that a deviation of the exchange rate from equilibrium exists is usually based on obtaining deviations in the same direction, and of a significant magnitude with different approaches.

In the case of the euro, the results available in literature seem, in general, to indicate that in 2000 it was undervalued both in effective terms and against the dollar. The results obtained in this article confirm such conclusion and suggest that the appreciation of the euro in the last two years was sharper than would be justified by the fundamental determinants, leading to a possible overappreciation, chiefly against the dollar, but also in effective terms. This evaluation is not expected to change much when considering 2005 data, since the magnitude of euro depreciation in 2005 was small, when compared with the estimated deviations in this article. These conclusions may, however, be induced by the fact that changes in the euro exchange rate in this period have reflected factors that are not included in this type of approach, or structural breaks. Indeed, it is possible that there may be structural breaks associated for instance with the launch of the euro area.

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## ANNEX

## DESCRIPTION OF THE VARIABLES USED IN THE ESTIMATION OF BEER/PEER

Every series, except on net foreign assets and on interest rate differentials, were defined in logarithms for estimation purposes.

- **Euro real effective exchange rate**

Real effective exchange rate index (deflated by consumer prices) calculated by the ECB for the narrow group of countries (12 trading partners, representing approximately 60 per cent of manufacturing trade in the area do euro: Australia, Canada, Denmark, Hong Kong, Japan, Norway, Singapore, South Korea, Sweden, Switzerland, United Kingdom and United States of America). The weights used in the construction of the index are calculated as a weighted average of export double weights and import simple weights, on the basis of manufacturing trade data. The index is based on 1995-1997 weights up to 1998, and on 1999-2001 weights after 1999.

- **Real euro/US dollar exchange rate**

Nominal euro/US dollar exchange rate deflated by consumer prices. The index used for the euro area was the harmonised index of consumer prices and for the United States was the consumer price index (sources: for the euro area, EUROSTAT data retropolated for the period prior to 1990:I with ECB data; for the United States, Department of Labour). Prior to 1999, the nominal exchange rate corresponds to the exchange rate of the ECU (source: ECB).

- **Ratio of net foreign assets to GDP**

In the construction of quarterly series of net foreign assets for the euro area and for the United States, the value in dollars considered for net foreign assets in the last quarter of each year was the annual value for these series (which are available up to 2003)<sup>(1)</sup>. The values for the other quarters were obtained assuming for each year the same quarterly structure of the accumulated current account in dollars. The values for 2004 are the result of the accumulation of current account values in dollars. The current account series of the euro area corresponds, up to 1996, to the sum of the current

accounts in dollars of euro area countries (source: International Financial Statistics of the IMF) and, since 1997, to the ECB series for the current account converted into dollars. In the case of the United States, data for the current account correspond to those published by the Department of Commerce. In the estimation of the euro effective exchange rate (euro/US dollar exchange rate) the explanatory variable used was the ratio of net foreign assets to GDP in the euro area (the differential between the ratios of net foreign assets to GDP in the euro area and in the United States). Nominal GDP corresponds, in the case of the United States, to that published by the Department of Commerce and, in the euro area, to the series published by EUROSTAT, retropolated with year-on-year rates of change of ECB data.

- **Productivity**

Two alternative productivity measures were considered: a direct measure corresponding to the average labour productivity and an indirect measure corresponding to the ratio of prices in the nontradable goods sector to prices in the tradable goods sector. The direct measure was calculated as the ratio of GDP in volume to employment, and the indirect measure as the ratio of consumer prices to producer prices. The explanatory variable used in the estimation of the euro effective exchange rate (euro/US dollar exchange rate) was the ratio of the productivity measure in the euro area to the productivity measure abroad (in the United States). Direct and indirect productivity measures abroad were calculated as geometrical averages of such measures in the countries whose

(1) These data were kindly supplied by Milesi-Ferretti and correspond to an updated preliminary version for 2003 of Milesi-Ferretti and Lane's database (1999) for net foreign assets of euro area countries, of the euro area as a whole and of the United States. These data reflect the net value of the international investment position less the value of gold assets. The euro area series is only available for the period after 1999, and was retropolated, on the basis of the annual changes of the series resulting from the sum of net foreign assets of euro area countries.

currencies are included in the calculation of the real effective exchange rate (excluding Hong Kong in the case of the indirect measure and Hong Kong and Singapore in the case of the direct measure, due to lack of data). The weights of the euro effective exchange rate index were used in these calculations. In the case of the euro area, data for GDP, employment and the harmonised index of consumer prices correspond to the EUROSTAT series retroplated with the year-on-year rates of change of ECB series, whereas data for the producer price index correspond to the series calculated by the EUROSTAT. For the United States, data from the Department of Commerce were used for GDP, from OECD for employment and from the Department of Labour for the consumer and producer price indices. In the cases of countries belonging to the euro effective exchange rate index, data from the Main Economic Indicators of the OECD were used for GDP, from the Economic Outlook of the OECD for employment and from International Financial Statistics of the IMF for price indices .

- **Ratio of public consumption to GDP**

The explanatory variable used in the estimation of the euro effective exchange rate (euro/US dollar exchange rate) was the ratio of public consumption to GDP in the euro area and abroad (in the United States), calculated in nominal terms. The ratio of public consumption to GDP abroad was obtained as a geometric average of this measure in countries whose currencies are included in the calculation of the real effective exchange rate index (excluding Singapore, due to lack of data). The sources used were EUROSTAT and ECB for the euro area, the Department of Commerce for the United States and International Financial Statistics of the IMF for countries included in the calculation

of this variable abroad, except Denmark, which resorts to EUROSTAT data.

- **Long-term real interest rate**

Nominal interest rates of long-term government bonds deflated by the year-on-year rate of change of the consumer price index. The explanatory variable used in the estimation of the euro effective exchange rate (euro/US dollar exchange rate) was the differential between the long-term real interest rate in the euro area and abroad (in the United States). The long-term real interest rate abroad was obtained as an arithmetic average of this measure in countries whose currencies are included in the calculation of the real effective exchange rate index (excluding Singapore and Hong Kong, due to lack of data). The sources used for the nominal interest rates were the ECB for the euro area, Bloomberg for the United States and the International Financial Statistics of the IMF for the countries that are included in the calculation of this variable abroad.

- **Real oil price**

The explanatory variable used in the estimation of the euro effective exchange rate (euro/US dollar exchange rate) was the ratio of the oil price in euros to the harmonised index of consumer prices in the euro area (the ratio of the oil price in dollars to the producer price index in the United States). After 1989:I, the oil price in dollars corresponds to the series of the oil price in the London market (Brent) (source: Thomson Financial Datastream), which was retrapolated with the quarter-on-quarter rates of change of the average oil price in dollars published in the International Financial Statistics of the IMF.



## THE CHINESE ECONOMY AND ITS INTEGRATION IN THE WORLD ECONOMY\*

*Carlos Martins\*\**

### 1. INTRODUCTION

The growing importance of the Chinese economy is a striking feature of global economic developments in the last quarter of a century. This increasing importance translates into the higher contribution to world economic growth, the significant strengthening of China's weight in international trade flows and the significant amounts of foreign direct investment attracted by this country (Table 1). In 2004 the world economy grew by 5.1 per cent, around a quarter of that growth being attributable to China. On the other hand, growth in Chinese imports accounted for around 15% of the world trade expansion between 2000 and 2004. In 2004 China was the third largest recipient of foreign direct investment in the world.

The Chinese economy still has a high growth potential. China continues to be a relative poor country, where per capita GDP is far lower than in the main advanced economies or in other Asian economies. On the other hand, the process of structural reforms observed in China since the late 1970s is likely to continue, in particular in the context of the accession to the World Trade Organisation (WTO) in December 2001. Considering that China concentrates around 20 per cent of the world population, the maintenance of its economic growth and integration with the exterior process will naturally continue to influence significantly the world economy.

\* The views expressed are those of the author and do not necessarily coincide with those of Banco de Portugal. The author thanks Nuno Alves, Ana Cristina Leal, Mário Centeno, João Sousa, Marta Abreu, Cristina Manteu and José Ferreira Machado for comments and suggestions.

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In this context, the objective of this paper is to present the key elements that characterise the Chinese economy and its integration in the international economy. Section 2 briefly describes economic growth factors and some structural changes seen since the launching of economic reforms in the late 1970s. Section 3 focuses on China's integration in the world economy, namely on its growing importance in international trade flows. These are largely related to the strong comparative advantage of China regarding the production and assembly of goods, where labour costs are decisive. Section 4 outlines recent macroeconomic developments, given that over the past few years concerns have arisen about an eventual "overheating" – and the consequent slowdown in the Chinese economy – and the possible impact of such developments on other economies. In turn, Section 5 presents the outlook for the Chinese economy and a number of economic policy challenges, namely as regards the financial situation of the banking and public sectors and the conduct of the monetary and foreign exchange policies. Finally, Section 6 concludes.

### 2. ECONOMIC GROWTH FACTORS

Since the beginning of the process of economic reforms in the late 1970s, economic growth in China has been remarkable (Table 2). Between 1980 and 2004, the annual average growth rate of the Gross Domestic Product (GDP), in real terms, was 9.5 per cent, i.e. much higher than world economic growth in the same period. Given that population growth was moderate, economic expansion translated into significant growth in per capi-

Table 1

## GROWING INFLUENCE OF THE CHINESE ECONOMY

	Unit	1980	1990	2000	2004
Population . . . . .	Million	987	1143	1267	1300
Share in world population . . . . .	Per cent	22.1	21.6	20.9	20.6 <sup>(a)</sup>
Share in world GDP					
GDP at market exchange rates . . . . .	Per cent	2.6	1.7	3.4	4.0
GDP measured in PPP . . . . .	Per cent	3.2	5.7	10.9	13.2
Per capita GDP (United States = 100)					
At market exchange rates . . . . .	Per cent	2.5	1.5	2.5	3.2
Measured in PPP . . . . .	Per cent	3.5	5.8	11.2	14.3
Share in world trade (goods)					
Exports . . . . .	Per cent	0.9	1.8	3.9	6.6
Imports . . . . .	Per cent	1.0	1.5	3.4	6.0
		1980-89	1990-99	2000-04	
Share in world FDI flows					
Total . . . . .	Per cent	1.7	7.2	6.2	
Directed to emerging market and develop- ing economies . . . . .	Per cent	9.8	25.7	26.7	

Sources: International Monetary Fund and United Nations Conference on Trade and Development.

Note:

(a) Figures for 2003.

ta income. These developments, in parallel with the considerable improvement in other human development indicators, led to a substantial reduction in poverty indicators.

Based on a neoclassical growth model, several empirical studies have tried to identify the factors behind the rapid economic growth in China during the period of economic reforms (Table 3). In this approach, the GDP growth rate may be broken down into the contributions from the several factors of production - namely labour and capital - and from the growth in total factor productivity. The contribution from each factor depends on its growth rate and on the elasticity of output with respect to such factor. In turn, the contribution of total factor productivity to output growth is calculated as the difference between output growth and the contribution from the factors of production considered. The latter term includes the effects of technological progress and institutional changes namely due to economic reforms.

The results suggest that capital accumulation was the factor of production that most contributed to GDP growth in China between 1979 and 1998. This contribution is related to both the mainte-

nance, over the last decades, of a significant pace of investment in physical capital and the high capital elasticity of output. The weight of fixed capital investment in GDP increased from around 29 per cent in 1980 to 44 per cent in 2004. Both studies shown in Table 3 estimate at around 65 per cent the capital elasticity of output. Assuming constant returns to scale, the labour elasticity of output shall only be 35 per cent. This seems to be related to the relative abundance of labour in China, where there are still very poor and low productivity regions. In this context, the contribution of the labour factor to economic growth was relatively low, although this factor recorded an annual average growth of 2.8 per cent between 1978 and 1998.

Despite the key role played by capital accumulation, the faster pace of growth of GDP from 1979 onwards is largely explained by the higher contribution of total factor productivity. The breakdown of this effect shows that, although the labour migration from the agricultural sector to sectors with higher productivity was a key factor, evidence seems to indicate that this was already observed prior to 1979. Therefore, the rise in the contribu-

Table 2  
GROWTH OF THE CHINESE ECONOMY

	Unit	1980	1990	2000	2004
Real GDP (in RMB) .....	1980=100	100	243	637	889
Per capita GDP					
Real (in RMB) .....	1980=100	100	210	496	675
Nominal (at market exchange rates) .....	In USD	305	339	853	1272
Per capita GDP (United States = 100)					
At market exchange rates .....	Per cent	2.5	1.5	2.5	3.2
Measured in PPP .....	Per cent	3.5	5.8	11.2	14.3

Source: International Monetary Fund.

Table 3  
GDP GROWTH FACTORS IN CHINA<sup>(a)</sup>

As a percentage of GDP <sup>(b)</sup>	Chow (2002)			Heytens e Zebregs (2003)				
	1952-98	1952-78	1979-98	1971-78	1979-89	1990-98		
Actual growth .....	7.3	5.8	9.3	5.4	9.1	9.5		
Potential growth: .....	7.2	5.5	9.5	4.9	9.3	9.5		
Capital accumulation .....	5.1	4.6	5.8	4.8	5.7	6.4		
Labour-force growth .....	0.9	0.9	1.0	0.7	1.0	0.5		
Total factor productivity growth .....	1.2	0.0	2.7	-0.5	2.5	2.6		
				1971-78	1979-84	1985-89	1990-94	1995-98
Total factor productivity growth: .....				-0.5	2.8	2.1	2.8	2.3
Structural reforms <sup>(c)</sup> .....				0.4	0.9	0.8	0.8	0.4
Agricultural exodus .....				2.3	2.0	1.5	2.2	2.1
Exogenous trend <sup>(d)</sup> .....				-3.3	-0.2	-0.2	-0.2	-0.2

Sources: Chow (2002) and Heytens and Zebregs (2003).

Notes:

(a) Estimates are based on models with constant returns to scale. For example, Chow (2002) concludes that this hypothesis is plausible for the 1952-98 period.

(b) Period average.

(c) Measured on the basis of four indicators: the share of the industrial product resulting from the non-governmental sector, the ratio of total external trade to GDP, the level of urbanisation and the pace of capital accumulation.

(d) Residual, where technological progress is included.

tion of total factor productivity after 1978 was due to the higher contribution of the structural reforms and the residual component. The latter moved from a significantly negative value in the 1970s<sup>(1)</sup> to close to zero as from 1979, probably reflecting the technological progress and aspects of structural reforms not captured by the corresponding indicator used.

(1) This period was marked by serious disturbances due to the effects of the Cultural Revolution.

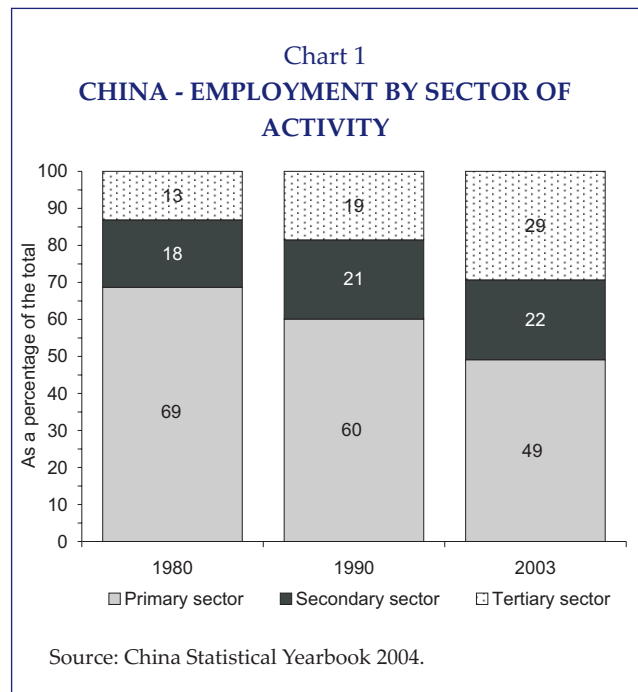
This should be seen in the light of the economic reforms made in China, which envisaged the establishment of a more decentralised and market-oriented economy, and an increasing external openness. Reforms included the diversification of land tenure, the encouragement of private business start-ups, incentives to profit and the easing of the State control over the various economic dimensions. At the same time, foreign trade was liberalised and conditions were created for foreign direct investment, which culminated in the acces-

sion to the WTO in December 2001. The whole process was gradually implemented and led to extensive structural changes in the Chinese economy. Stress should be laid on the productivity gains resulting from a more efficient behaviour of economic agents, largely reflecting the implementation of decision-making autonomy in the agricultural and corporate sectors and the development of market mechanisms, as well as gains related to the allocation of economic resources, particularly due to the lower weight of the primary and the State industrial sectors and the higher weight of external-oriented sectors.

In the case of the agricultural sector, reforms boosted incentives to production and investment, which translated into a significant rise in productivity and living standards in this sector and into the relocation of workers to other sectors. It should be noted that between 1980 and 2003, agricultural productivity more than doubled and the share of employment in the primary sector decreased by around 20 percentage points, to around half of total employment (Chart 1). However, this outward migration from the agricultural sector was largely concentrated in rural areas. In particular, two legal and administrative restrictions discouraged the exodus from rural to urban areas. The first was the "hukou" system<sup>(2)</sup>, which for many years prevented the rural population from seeking work in the cities. Some of these restrictions have already been abolished, but the access to education, health and other social services still continues to be subject to that system. The second was the agricultural land use system, which established that farmers leaving their rural dwelling for long periods would lose the right to use the land, which was their main guarantee of income in old age. In this context, around 60 per cent of the Chinese population continues to live in rural areas, although this figure includes workers moving between rural and urban areas and working mainly in the informal sectors of cities.

Reforms also translated into a decline in the role played by the State in the economy. In particular, the weight of State-owned enterprises in out-

(2) Household registration system, according to which each citizen must live and work in a pre-defined location, usually set at birth. In particular, this system makes a distinction between rural and urban areas.



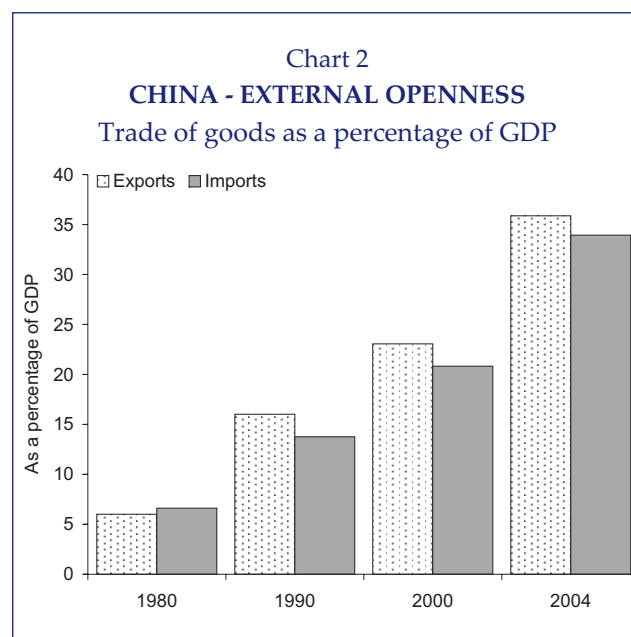
put declined, which as their name indicates, are fully held by the Chinese State. These developments reflected, at a first stage of reforms, up to the mid-1990s, the considerable expansion of collective enterprises, mainly in rural areas. Such enterprises have also a public character, though not State-owned, given that they are held by local communities. However, they developed mainly outside the central plan of the State and in a more market-oriented way, i.e. their management was closer to the private sector, which significantly contributed to increasing both the efficiency in terms of resource allocation and economic competition<sup>(3)</sup>. At a later stage in the reforms, the development of private enterprises was boosted, including those with foreign participation. Despite these developments, State-controlled enterprises still accounted for around 40 per cent of total industrial production in 2003. In the services sector, their influence is even more significant and, for example, in the retail and wholesale trade subsectors such

(3) Such enterprises were created in rural areas in the early 1970s, in an attempt of the government to mechanise agriculture. With the economic reforms, these enterprises were naturally tailored to meet the demand for new investments in agriculture, and local government found in them the solution to absorb the excess labour force of the agricultural sector. Moreover, such enterprises, which were mainly small and medium-sized, benefited from both the availability of raw materials and new markets in terms of State-owned enterprises, which resulted from the easing of resource allocation mechanisms in the economy.

enterprises accounted for around 75 per cent of total revenue in 2001.

On the other hand, reforms were accompanied by an increasing external openness of the Chinese economy. This opening-up process started relatively slowly in the 1980s, with the abolition of a number of controls over exports and imports, and intensified during the following decades, due to foreign direct investment flows and the significant reduction of customs tariffs. Between 1993 and 2002, tariffs declined from 38 to 6 per cent, on weighted average. Stress should be laid on the very strong expansion of the Chinese external trade, with a nominal average growth of 15 per cent between 1980 and 2004, which compares with an average change of 7 per cent in the world trade. As a consequence, the degree of external openness of the Chinese economy, as measured by the ratio of average exports and imports of goods to GDP, increased from 6.3 to 34.9 per cent between 1980 and 2004 (Chart 2). This value is close to the one observed currently in other Asian economies, for example in Korea, but exceeds to a large extent that of other major world economies. In 2004, this ratio stood at around 14 per cent for the euro area and the United States and at around 10 per cent for Japan. On the other hand, the Chinese economy has attracted significant amounts of foreign direct investment since the early 1990s, accounting on average for around 4 per cent of GDP in China (Chart 3). Investment has been mainly concentrated in the industrial sector, namely in export-oriented enterprises. It should be noted that in 2003 enterprises with foreign participation accounted for around 30 per cent of industrial production and more than half of Chinese exports.

Overall, the financial system in China was not efficient in promoting productive investment and economic growth, despite the high increase in financial intermediation both in terms of deposits and loans. Significant reforms were introduced in the financial system, in particular in the banking sector, which evolved from a situation where there was only one bank, in the mid-1980s, to a legal framework now closer to those of modern financial systems. In line with the high savings rate in the economy, the banking sector grew amid conditions of ample liquidity and loans amounted to around 130 per cent of GDP at the end of 2004. However, the sector's structure is still strongly



Sources: International Monetary Fund and CEIC.



Sources: CEIC and UNCTAD.

dominated by State banks, which have an inadequate commercial market orientation. As a rule, credit decisions are not made on the basis of an adequate risk and profitability assessment. It should be noted that over the past few years bank credit has been mainly channelled to State-owned enterprises, to the detriment of more buoyant economic sectors. On the other hand, the performance of the financial sector was also affected by the low development of the capital and securities markets, which due to various limitations were rather constrained and had weak liquidity. At the end of



2004, total capitalisation in stock markets stood at around 27 per cent of GDP, although only around one third of this value is negotiable, while the amount of Treasury securities and corporate bonds issued amounted to only 5.1 and 0.2 per cent of GDP respectively.

In sum, the results of several studies carried out seem to show that the main factors behind Chinese GDP growth have been, to a large extent, physical capital accumulation and the increased efficiency of the economy, due namely to the agricultural exodus and the structural reforms implemented since 1978. In this context, the continued urbanisation process, significant savings and investment levels and the ongoing process of structural reforms point to the maintenance of the high pace of growth of the Chinese economy.

### 3. THE INTEGRATION OF CHINA IN THE WORLD ECONOMY

There has been a growing integration of China in the world economy. Between 1980 and 2004, the weight of Chinese exports and imports of goods in the world total increased from around 1 per cent to 6.6 and 6.0 per cent respectively. In 2004 China was the world third largest exporter and importer. Moreover, since the early 1990s the Chinese economy received around one quarter of the world foreign direct investment channelled to emerging market economies (Table 1).

Therefore, China has become over the years an important export market for the main industrialised economies (Table 4). This is particularly noticeable in the case of Japan, as well as in the case of other Asian economies such as Hong Kong, Taiwan and Korea, to which China became the main destination of exports. These developments partly reflect an increasing degree of vertical integration of the production process in Asia, in which China functions as an assembly centre and export platform for finished goods. This has translated into a significant rise in intra-regional trade flows, with China importing growing volumes of semi-processed goods from other Asian economies and exporting finished goods to the rest of the world. Sales from the euro area and the United States to the Chinese market have also increased considerably, although the weight of China in total exports of these economies is less significant.

Table 4

#### IMPORTANCE OF CHINA IN EXPORTS OF MAIN INDUSTRIALISED ECONOMIES

	Weight in the total, per cent			
	1990	1995	2000	2004
Euro area .....	1.8	1.9	2.1	3.5
US .....	1.2	2.0	2.1	4.3
Japan .....	2.1	5.0	6.3	13.1
South Korea .....	0.9	7.3	10.7	19.6
Hong Kong .....	25.6	34.2	34.3	44.0
Taiwan .....	-	0.3	2.9	19.7

Sources: European Commission, US Department of Commerce, Japan Tariff Association and CEIC.

Moreover, China has also been gaining increasing importance in terms of the world demand for oil and other raw materials such as iron, steel and copper, thus contributing to upward pressures on the prices of these commodities in international markets over the past few years. In particular, the weight of China in the world demand for oil increased from 3.4 to 7.7 per cent between 1990 and 2004.

The penetration of manufactured goods from China is currently significant as regards imports of the main world economies (Table 5). This increase in China's share reflects the strong comparative advantage of this economy in terms of the production and assembly of goods where labour costs are a key factor. However, Chinese exports have been characterised by a growing diversification (Table 6). For example, the weight of textiles, clothing and footwear in total exports declined from around 34 per cent in 1994 to around 19 per cent in

Table 5

#### IMPORTANCE OF CHINA IN IMPORTS OF MAIN INDUSTRIALISED ECONOMIES

	Weight in the total, per cent			
	1990	1995	2000	2004
Euro area .....	4.4	4.7	5.2	8.6
US .....	3.1	6.1	8.2	13.4
Japan .....	5.1	10.7	14.5	20.7
South Korea .....	3.5	5.9	7.4	11.6
Hong Kong .....	36.8	36.2	43.1	43.5
Taiwan .....	-	3.0	4.4	10.0

Sources: European Commission, US Department of Commerce, Japan Tariff Association and CEIC.

Table 6

## CHINA'S EXPORT STRUCTURE BY GROUPS OF PRODUCTS

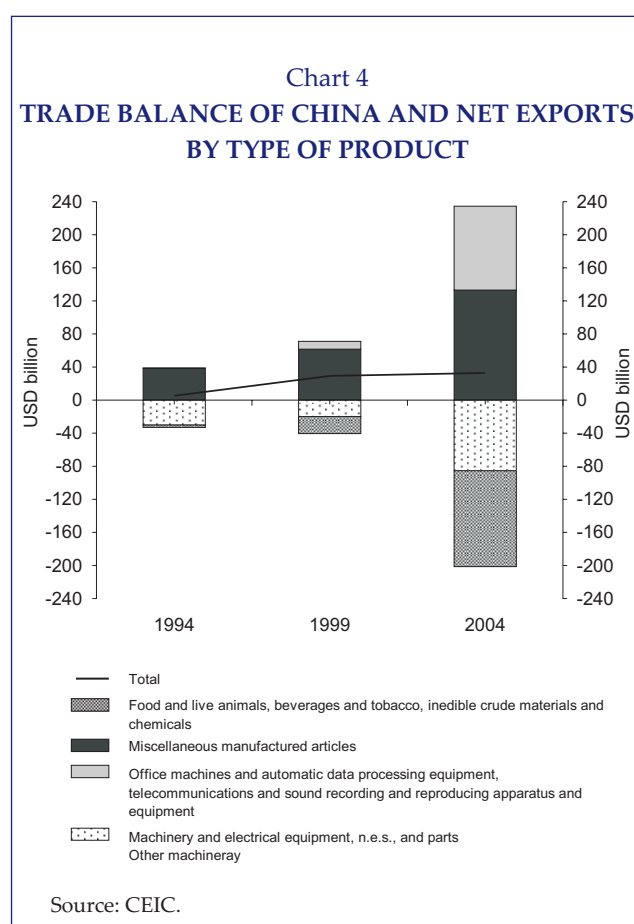
Weight in total nominal exports (per cent)

	1994	1999	2004
Food and live animals; Beverages and tobacco . . . . .	9.1	5.8	3.4
Crude materials, inedible, except fuels; Mineral fuels, lubricants and related products; Animal and vegetable oils, fats and waxes . . . . .	7.0	4.5	3.4
Chemicals and related products, n.e. s. . . . .	5.2	5.3	4.4
Manufactured goods classified chiefly by material . . . . .	19.2	17.0	17.0
Textiles . . . . .	9.8	6.7	5.6
Machinery and transport equipment . . . . .	18.1	30.3	45.2
Office machines and automatic data processing equipment . . . . .	2.2	6.9	14.7
Telecommunications and sound recording and reproducing apparatus and equipment . . . . .	5.6	6.7	11.5
Machinery and electrical equipment, n.e.s., and parts . . . . .	4.9	9.2	10.0
Other machinery . . . . .	3.3	4.3	5.5
Miscellaneous manufactured articles . . . . .	41.3	37.2	26.4
Apparel and clothing accessories . . . . .	19.6	15.4	10.4
Footwear . . . . .	5.0	4.5	2.6
Other . . . . .	0.0	0.1	0.2

Source: CEIC.

2004. In contrast, over the same period, the weight of machinery increased from 16 to over 40 per cent of total exports. China has maintained a relatively stable trade surplus over the past few years, reflecting the strong comparative advantage of the economy in terms of the production of labour intensive goods. Net exports of this type of goods are counterbalanced by the need to import raw materials and capital goods (Chart 4). At the same time, the geographical structure of the balance has been evolving in line with changes in the location of production processes at the global level. In this context, China has been recording a growing trade surplus with the euro area and the United States, while it switched to a deficit with other Asian countries.

The strong increase in the Chinese external trade is associated with the significant amount of foreign direct investment that the Chinese economy has been attracting since the early 1990s. A significant share of these investments emanate from Asia itself. Investment has been mainly focused on the industrial sector, namely in export-oriented enterprises. A large share of this investment has been made by Asian multinationals, which relocate the final assembly stage, in order to take advantage of the low labour costs in China, but which continue to import from their countries of origin most of the components used in production. The motivation underlying foreign direct in-



vestment is likely to be also associated with the size and growth potential of the Chinese domestic market.

Excluding foreign direct investment, capital inflows and outflows in China are still considerably



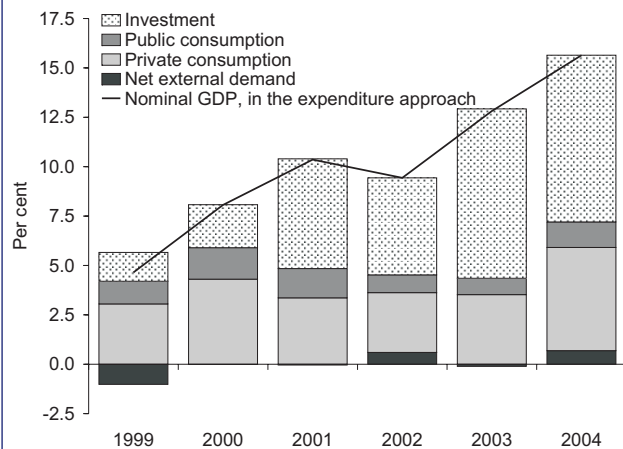
controlled. Authorities continue to support a cautious approach with regard to the liberalisation of capital movements, given the delicate situation of the Chinese financial system and the Asian financial and foreign exchange crisis of 1997-98. Existing legislation significantly limits the access of foreign investors to Chinese stock and securities markets, which is either not possible or unattractive. On the other hand, Chinese portfolio investment abroad is also strongly restricted. In parallel, external corporate indebtedness, including that of companies with foreign participation, and the indebtedness of Chinese government agencies are subject to annual ceilings and repayment rules. Nevertheless, international trade growth and the financial and technological sophistication have led to less and less efficient controls and some steps have been taken towards the gradual liberalisation of capital movements, namely through the implementation of institutional investor programmes, both foreign and Chinese<sup>(4)</sup>.

#### 4. RECENT MACROECONOMIC DEVELOPMENTS

The pace of growth of GDP has followed an upward trend since 2002. The annual growth rate of real GDP reached 9.5 per cent in 2004. The growth pattern of activity has largely benefited the industrial sector. This sector's production increased, in real terms, by around 11 per cent in the past three years. The production of the agricultural sector increased at a very weak pace over the same period (despite having accelerated in 2004, following the implementation by the government of a series of support measures to agriculture), while the services sector increased slightly less than GDP. It should be noted that, in 2004, the services sector accounted for around 32 per cent of total value added, while industry and agriculture accounted for around 53 and 15 per cent respectively. This relatively low weight of services may be related to a number of methodological difficulties in the Chinese national accounts, namely the significant vertical integration of many enterprises or the inadequate coverage of services sectors with a higher pace of growth, namely where public property has

(4) For a detailed description of restrictions to capital inflows and outflows in China, see Prasad and Wei (2005).

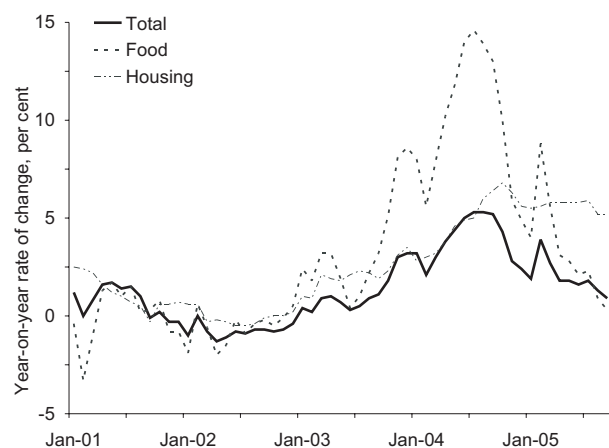
Chart 5  
CHINA - CONTRIBUTION OF EXPENDITURE COMPONENTS TO NOMINAL GDP GROWTH



Source: CEIC.

Note: The Chinese national accounts in the expenditure approach are disclosed on an annual basis and only at current prices.

Chart 6  
CHINA - CONSUMER PRICES



Source: CEIC.

lost importance or which are characterised by smaller producers.

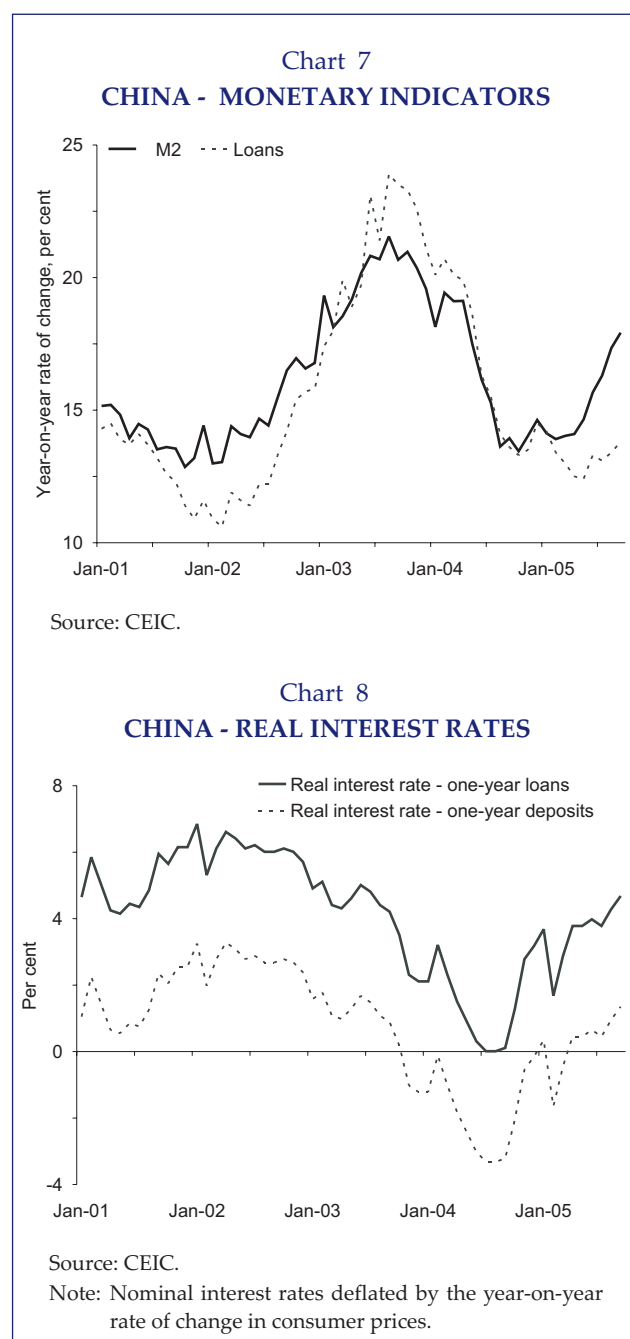
On the demand side, the increase in GDP has largely reflected the strong incentives to investment, which has contrasted with the more moderate behaviour of private consumption. On the other hand, both exports and imports increased considerably, so the net contribution of external demand to GDP growth is likely to have remained low (Chart 5).

Inflation remained at a relatively moderate level, despite having fluctuated somewhat (Chart

6). In annual average terms, the economy moved from a fall in consumer prices in 2002 to moderate inflation in 2004 (3.9 per cent). As from end-2004, inflation showed signs of slowing down. These developments were largely due to the behaviour of food prices and, to a lesser extent, of housing costs.

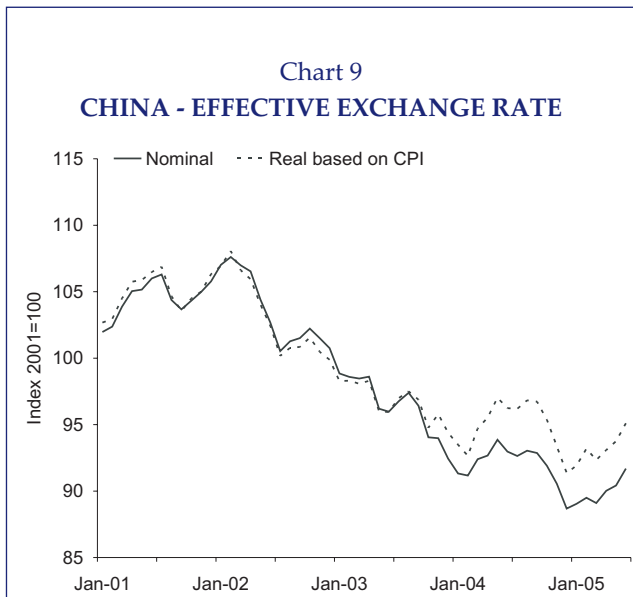
In the context of accelerating activity and prices in 2003 and 2004, authorities decided to take macroeconomic measures, mainly of administrative character. The measures focused, for example, on the control of licensing of new investment projects. On the other hand, the monetary authority raised bank reserve requirements and put pressure on banks to restrict lending to certain sectors. As a consequence, the pace of growth of monetary aggregates and credit slowed down in 2004. The annual change in M2 and total bank loans stood at around 14.5 per cent at the end of 2004, compared with 19.6 and 21.1 per cent respectively at the end of the previous year (Chart 7). It should be noted that the authorities' behaviour concentrated, to a large extent, on the control of the excess buoyancy in certain sectors, to the detriment of more comprehensive solutions that would affect the overall growth of the economy.

The monetary policy stance seemed to remain expansionary. Nominal interest rates remained broadly unchanged (with only a slight increase in October 2004), probably reflecting the authorities' fears of the effects of a more rapid rise in interest rates on the financial situation of State-owned enterprises and capital inflows. In the context of increasing inflation up to the third quarter of 2004, real interest rates reached very low levels (Chart 8). On the other hand, the real effective exchange rate of the renminbi (RMB) recorded a real effective depreciation of around 11 per cent between end-2001 and mid-2005, largely reflecting international developments in the US dollar (USD) (Chart 9). It should be noted that, over this period, the exchange rate regime in China relied on a fixed exchange rate of the RMB against the USD, permitting the fluctuation against other currencies. Therefore, in order to maintain the target for the exchange rate against the USD, the monetary authority bought significant amounts of foreign currency, giving rise to high liquidity in the banking system. This situation is emphasised by high excess reserves of banks and low interbank market

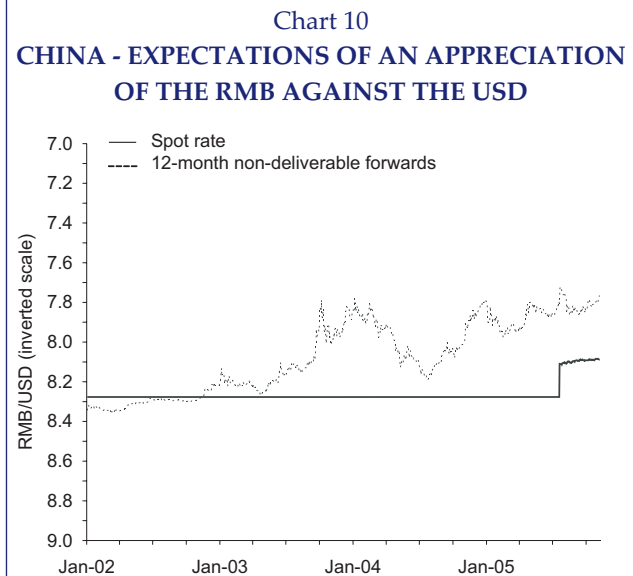


rates. As from end-2002, market expectations point to an appreciation of the RMB against the US dollar (Chart 10). In July 2005, the monetary authority announced a slight appreciation of the RMB against the USD (2 per cent). At the same time, the RMB was pegged to a currency basket that will act as a reference for the RMB exchange rate. The peg to the USD ended, and the RMB/USD is now subject to a daily fluctuation band of up to 0.3 per cent. However, in the following months, the flexibility allowed by the new system was scarcely used.

On the other hand, the fiscal policy has been going through a consolidation process in the past

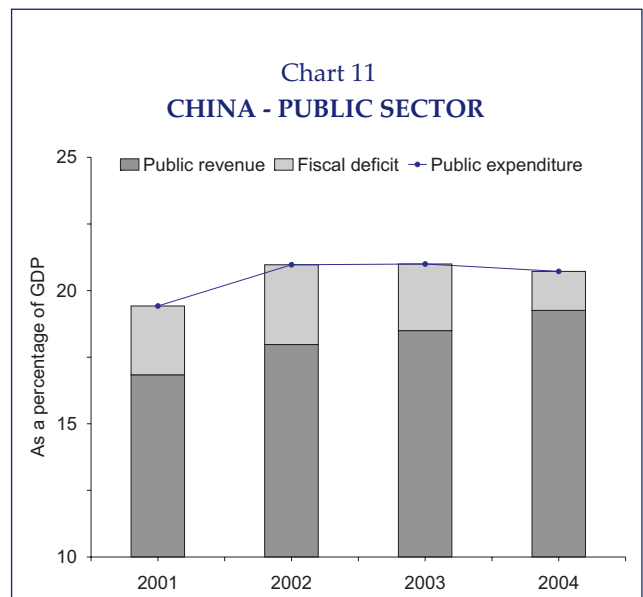


Source: IMF.

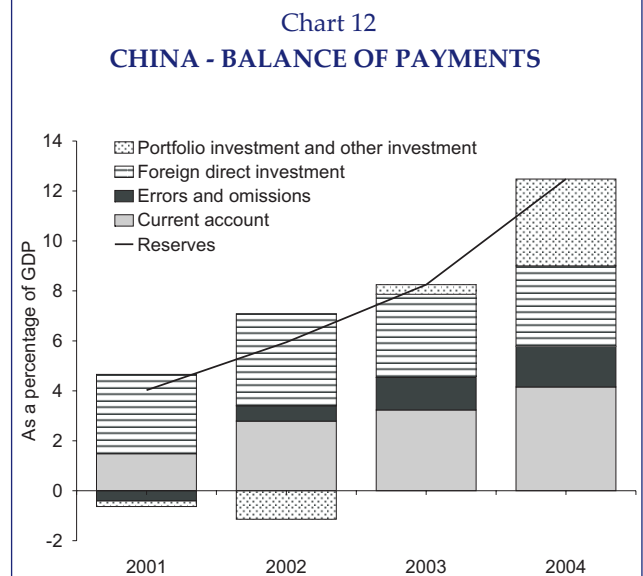


Source: Bloomberg.

two years. The general government deficit declined by around 1.5 p.p. between 2002 and 2004, to 1.5 per cent of GDP (Chart 11). Public revenue has evolved favourably, in line with an improvement in activity and external trade. With regard to public expenditure, authorities have adopted, to a large extent, a cautious approach, in particular to make up for future irrecoverable debt in the banking system or for the increase in social expenditure. Government's priorities are now more balanced, given that there is a smaller emphasis on industrial public investment and a purpose of strengthening support to welfare policies and agriculture.



Source: CEIC.



Source: CEIC.

In the context of exchange rate stability against the USD, the current and financial accounts have posted growing surpluses, leading to a significant accumulation of foreign exchange reserves (Chart 12). The current account balance reached 4.2 per cent of GDP in 2004, reflecting the high savings rate of the Chinese economy. Over the same year, the financial account balance amounted to 6.7 per cent of GDP, due to constant inflows of foreign direct investment, together with a recent increase in net portfolio investment inflows. In 2004, the increase in portfolio investment inflows was, to a great extent, likely motivated by expectations of RMB appreciation against the US dollar, given

that, compared with the previous year, the differential between Chinese and US interest rates remained relatively stable in the first half of the year and even declined later on. International reserves amounted to around 37 per cent of GDP in 2004, corresponding to more than twelve months of imports.

## 5. ECONOMIC POLICY OUTLOOK AND CHALLENGES

The most likely scenario for the Chinese economy, which is common to the projections of international organisations, points to a gradual deceleration of activity and to the maintenance of inflation at a low level (Table 7). The acceleration in activity and prices over the past few years, together with significant monetary growth, raised concerns regarding a possible “overheating” of the economy and a consequent slowdown. It should be noted that, although the pace of growth of GDP in 2003 and 2004 corresponded approximately to the annual average growth level seen since 1980, it is currently estimated that the potential growth of the Chinese economy is somewhat lower. For example, there are signs that investment has not been done in an efficient way, given the existing bottlenecks in certain sectors, such as transportation and supply of energy and other commodities, as well as excessive investment in other sectors. On the other hand, given the significant expansion in the past few years, the weight of investment in GDP currently stands at a maximum level in historical terms, around 44 per cent. In this context, the evolution in activity will likely comprise a decline in the pace of growth of investment and an increase in exports and private consumption.

However, given the difficult challenges that China will face in the future some risks obviously persist, namely those regarding the financial robustness of the banking system in China. The inadequate market orientation of the banking system resulted in a rise in non-performing loans, which together with a heavy operational structure, namely of the four major State Commercial banks, contributed to the low profitability and decapitalisation of the banking system. It should be noted that although the four major State Commercial banks are among the 40 major banks of the world in terms of the size of their assets, only one is among the first 500 in terms of asset profitability<sup>(5)</sup>. On the other hand, the level of 8 per cent for the capital adequacy ratio required by the Basel Capital Accord is not generally complied with.

In the future, the challenge will be related to the reform of the financial system, expected to occur in parallel with the market liberalisation, which within the framework of the WTO membership is projected for the end of 2006. Recently, there seem to be signs of progress in these reforms. Non-performing loans have declined, although some uncertainty persists, given that over time some inconsistency in data releases has been observed. At the end of 2004, it is estimated that the weight of non-performing loans in the financial system, and taking into account banks and asset management companies, may have amounted to around 25 per cent of GDP. Moreover, State Commercial banks have been subject to high recapitalisation operations, namely using the State foreign exchange reserves. In contrast, the recent expansion of credit raises the possibility that part

(5) The Banker (2005).

Table 7

### MACROECONOMIC PROJECTIONS FOR THE CHINESE ECONOMY

	IMF September 2005			Consensus Forecasts October 2005		
	2004	2005	2006	2004	2005	2006
Real GDP, rate of change, per cent. . . . .	9.5	9.0	8.2	9.5	9.2	8.1
Consumer prices, rate of change, per cent. . . . .	3.9	3.0	3.8	3.9	2.4	2.5
General government balance, as a percentage of GDP . . . . .	-1.7	-1.7	-1.5	n.a.	n.a.	n.a.
Current account, as a percentage of GDP . . . . .	4.2	6.1	5.6	n.a.	n.a.	n.a.

Sources: IMF and Consensus Economics.

of the new credit shall be considered irrecoverable, given the speculative nature of some of the associated investments, namely in the real estate sector, and the excess capacity in a number of sectors. It should be noted that, in the past few years, around 20 per cent of investment in fixed assets has been financed by bank loans.

The increase in public sector liabilities in the future is a second risk factor. The public accounts situation is apparently comfortable: in the past few years, the value of the deficit as a percentage of GDP has been declining and the public debt-to-GDP ratio stands at around 25 per cent, being largely comprised of domestic debt (external debt amounts to around 4 per cent of GDP). Albeit moderate, these figures must be assessed in view of several factors. First, general government revenue in China as a percentage of GDP is relatively low, which means that the debt coverage capacity is lower than anticipated. Second, this low government revenue obviously imposes restrictions to expenditure, so that, until recently, public enterprises were responsible for a large share of social expenditure, namely that related to education, health, unemployment or retirement pensions. In the context of decreasing employment in the rural areas and ongoing corporate reforms, the current levels of public expenditure may not be sustainable in the future. The government will likely need to increase public expenditure in the wide range of the social areas referred to above. Moreover, some investments, which are important to overcome problems related to the environment or to regional disparities in terms of economic developments, shall need to be sponsored by the State. Third, great uncertainty persists regarding the magnitude of responsibilities not yet explicitly taken up by the government, which are still risk factors to the public accounts situation in the future. Such responsibilities may include restructuring and recapitalisation costs for State banks and enterprises, the financing of the pension system, which is in a transitional phase from a pay-as-you-go system to a capitalisation system, or the assumption of debt indirectly contracted by local government, in a context where revenue transfers to these services seem to be insufficient to fulfil their responsibilities.

However, future pressure on public accounts may be moderate if the pace of growth of the econ-

omy remains high or if appropriate reforms occur, e.g. reforms preventing the emergence of new non-performing loans or changes in the pension system rules. On the other hand, there is room for an increase in tax revenue. These developments may occur both in State-owned enterprises, as these recover their profits, due to the reforms made in such enterprises, and in the sectors where tax evasion has been significant, namely non-State-owned enterprises (particularly in the services sector) and households. Moreover, the State holds a large volume of assets, namely State-owned enterprises, urban property or natural resources, which may be sold in order to meet any responsibilities to be taken up in the future.

Finally, the maintenance of the RMB exchange rate against the USD has increasingly hindered the conduct of monetary policy in China and caused some friction at international level. In order to control the ample liquidity in the economy, the central bank has been seeking to sterilise the impact of its foreign exchange interventions on money supply, through the issuance of securities to be placed in the interbank market. The perpetuation of this situation may entail additional costs to the monetary authority, considering in particular the need to increase the interest rate of such central bank securities. Moreover, international interest rate hikes in the context of the business cycle may translate into a decline in securities prices which, together with a possible appreciation of the RMB, may imply considerable losses for the Chinese central bank. At the external level, the value of the RMB has been under international pressure, in order to make it more flexible against the US dollar and to allow for a possible appreciation. These developments could facilitate the correction of macroeconomic imbalances at the global level, namely the US external deficit, contributing for example to a greater flexibility in other Asian currencies.

In this context, it is crucial that exchange rate flexibility increases gradually in the future, namely in order to ensure the conduct of monetary policy in China. In financial terms, risks to companies and banks are not likely to be significant, given the weak exchange rate exposure. On the other hand, this may contribute to developments in the foreign exchange market and exchange rate risk management mechanisms. The



need for greater flexibility has been recognised by Chinese authorities, although it still depends on the progress of other economic reforms. In particular, there are concerns regarding possible effects of an eventual exchange rate appreciation on economic growth, namely on exports. However, it should be noted that although recent developments in the Chinese balance of payments point to an eventual appreciation of the RMB, it is extremely difficult to determine the situation of the real effective exchange rate of the RMB with regard to its “equilibrium” level in the context of ongoing economic reforms. For instance, the liberalisation of the services sector in the context of WTO membership and the gradual liberalisation of capital outflows, still strongly conditioned by the success of reforms in the enterprises and banking sectors and developments in financial markets. Recently, several studies aimed at estimating the “equilibrium” level of the RMB using different methodologies, although great uncertainty persists due to the large variety of results.

## 6. CONCLUSION

In the past 25 years, China showed impressive economic growth and an increasing integration in the world economy. Such growth levels of the economy and trade flows are not unprecedented. During similar stages of the economic development process, comparable paces of growth were observed in other economies, such as Japan (after the World War II) and the newly industrialised Asian economies (as from the end-1960s)<sup>(6)</sup>. However, various factors indicate that the impact of the growth and integration process of China on world economy is much more significant than in the case of other economies and that it will likely be observed over several years. On the one hand, there is the size of China, which concentrates around 20 per cent of the world population. Despite the significant increase seen in the last quarter of a century, the Chinese per capita GDP, as measured by purchasing power parity, is still far lower than in the main advanced economies (in 2004, it amounted to 14.3 per cent of the level seen in the

United States) or in the newly industrialised Asian economies (between 18 and 26 per cent). This income gap points to high growth potential, whose materialisation is likely to be supported by favourable macroeconomic developments and the continuation of the structural reform process of the economy. Currently, this is confirmed, for example, by international organisations’ projections regarding developments in the current business cycle. However, there is an urgent need for the further implementation of reform measures, enabling the control of a number of risk factors, related to the banking and public sectors or to the conduct of macroeconomic policies.

On the other hand, the ongoing liberalisation should continue to contribute both to economic growth in China and an increase in its economic importance and integration in the world. For example, the abolition of textiles and clothing import quotas imposed by WTO is likely to give a further boost to Chinese exports over the next few years and will pose additional challenges to the economies specialised in this type of products. In turn, China’s commitments concerning the gradual abolition of restrictions to foreign direct investment over the next few years – in particular, in the trade and financial sectors – will mirror a significant openness of the Chinese domestic market and suggest that the involvement of international investors in the economy will remain considerable, with positive implications on productivity growth and technological innovation.

China’s integration process in the world economy should have an overall positive impact, given that it will allow for a greater specialisation of the international trade, which in turn gives rise to efficiency gains in production and direct benefits for consumers, both in China and the rest of the world. It should be noted that, as far as the Asian economies are concerned, such effects have significantly boosted trade and economic activity in the region over the past few years, which have grown at a more robust pace than in the rest of the world. However, effects on individual countries may be positive or negative, and will tend to evolve over time, largely depending on the degree of complementarity between their pattern of trade and China’s. The countries that tend to benefit more from China’s trade expansion include exporters relatively specialised in equipment goods

(6) The newly industrialised Asian economies include Hong Kong, Singapore, Taiwan and South Korea.

or semi-processed goods with higher value added. Recent experience has shown that commodity exporters will also tend to benefit from the effects of the increased demand for this type of goods by China. On the other hand, countries relatively specialised in the export of goods similar to those produced in China, where labour costs are decisive, will tend to suffer losses in the markets of those products.

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## MONTHLY HISTORICAL TIME SERIES FOR THE PORTUGUESE ECONOMY\*

Cláudia Duarte

## 1. INTRODUCTION

The existence of time series with a reasonable length is crucial for empirical macroeconometrics, for macroeconomic policy formulation and for developing an historical perspective of the economic evolution. Even though the importance of collecting long time series was realised quite some time ago, the existence of periodic revisions, bases changes, enquiries updates, and concept and classification adjustments undermines the possibility of gathering historical time series for most variables.

In this context, the aim of this article is to build monthly historical time series, from several pieces of data series, for the Portuguese economy<sup>(1)</sup>. In the choice of the series considered the focus is placed on general economic indicators, which are already released in the *Statistical Bulletin* of Banco de Portugal and for which building historical time series is a feasible ambition. In particular, the dataset covers the following variables: industrial production index (IPI); industrial and retail trade turnover indices (ITI and RTTI); consumer price index (CPI); number of nights spent (tourism); and qualitative variables from the manufacturing industry,

construction and public works, and trade opinion surveys<sup>(2)</sup>.

Until now, although was possible to gather more past information, only the most recent piece of these series was released in the *Statistical Bulletin* because of the methodological breaks, such as base changes, which hindered the possibility of accessing directly to consistent historical time series. The historical time series dataset presented in this article will be released and regularly updated in the *Statistical Bulletin* (see [www.bportugal.pt](http://www.bportugal.pt)).

Linking separate pieces of information, which reproduce different realities and concepts, is undeniably controversial and difficult. When choosing a method, one faces many options and, quite frequently, it is not possible to choose the “right” method simply because it does not exist. Therefore, regarding the methods, in this article the focus is placed on appealing and straightforward methodologies. Different approaches are applied for dealing with different kinds of data, namely quantitative and qualitative data, all assuming that the most recent piece of the time series is always kept unchanged.

The remainder of the article is organised as follows. Section 2 presents a description of the methods used and discusses the results obtained: section 2.1 considers the quantitative variables (economic activity indicators (section 2.1.1) and the

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(1) This text shares the same spirit of the annual Historical Time Series for the Portuguese Economy Post World War II (Pinheiro et al., 1999) and the Quarterly Series for the Portuguese Economy 1977-2003 (Castro and Esteves, 2004).

(2) Although this article focus mainly on monthly series, a few quarterly series are also considered, for the manufacturing industry, and trade surveys, in order to analyse exhaustively the group of selected series that are released in the *Statistical Bulletin*.

consumer price index (section 2.1.2)), while section 2.2 deals with the qualitative variables. Finally, section 3 concludes.

## 2. COMPILING HISTORICAL TIME SERIES

Any method designed for compiling long time series relies on the assumption that the several original pieces of data series represent the same series, that is, the same phenomenon. As the true historical time series are unknown, to make the compilation process feasible, it is assumed that the latest piece of data series shares the basic features of the true historical time series.

This assumption has two direct implications: first of all, this implies that the most recent piece of data series must be kept unchanged; second, the evaluation of key features of the previous pieces of data series is done by using the features of the current piece as a benchmark.

For checking the similarity between the common period series, three kinds of tests are performed<sup>(3)</sup>. Firstly, it is performed the correlation coefficient test to evaluate the significance of the correlation between the common period series. Instead of just testing if the correlation coefficient is equal to zero (null hypothesis) or higher than zero (alternative hypothesis), it is also performed a more demanding test, through which is evaluated if the correlation coefficient is higher than 0,5. Secondly, it is performed the two-sample test for the difference of means, considering unknown variances, to evaluate if the differences of means between the common period samples are significant. Finally, it is also tested the equality of the samples variances, for the same period, to assess potential differences between the volatility of the different series<sup>(4)</sup>.

If the results of the tests point to the maintenance of the general features of the series, break after break, then it can be said that there is evidence supporting the compilation of the long time series. However, the results of the tests are not always conclusive and change as the tests become more demanding. Therefore, less favourable re-

sults (for example, not so strong correlation) do not necessarily endanger the compilation of historical time series. Therefore, even for the series that present less conclusive test results, it is made an attempt to provide historical time series. Nevertheless, a word of caution - the user must be more careful when using these series.

### 2.1 Quantitative variables

#### 2.1.1 Economic activity indicators

##### 2.1.1.1 Methodology

For obtaining consistent historical time series for the economic activity indicators it is followed a simple procedure. As it was mentioned before, the current piece of series is kept unchanged. Subsequently, monthly rates of change of the older pieces are used to extrapolate from the most recent one backwards. Analytically, denoting the current series as  $x_t$  ( $t = 1, \dots, i, \dots, T$ ) and assuming that the current series starts in period  $i$ , the compilation method of the historical time series is the following:

$$x_t^h = \begin{cases} x_t, & t = i, \dots, T \\ \frac{x_{t+1}^h}{1 + \Delta_{t+1}}, & t = 1, \dots, i - 1 \end{cases}$$

$$\Delta_t = \frac{\tilde{x}_t - \tilde{x}_{t-1}}{\tilde{x}_{t-1}},$$

where  $x_t^h$  is the value of historical time series for moment  $t$  ( $t = 1, \dots, i, \dots, T$ ) and  $\Delta_t$  is the monthly rate of change calculated from the previous series ( $\tilde{x}_t$ ). If, instead of monthly growth rates, were used year-on-year rates of change, the results would not be the same. While using year-on-year rates of change for compiling the historical time series keeps the year-on-year behaviour of the original series, using monthly rates of change preserves not only the monthly behaviour of the long time series, but also their year-on-year evolution, except for base changing years.

##### 2.1.1.2 Results

###### a) Industrial production indices:

The industrial production index (IPI) tries to capture the evolution of value added at factor cost

(3) The common period is the period of time during which the pre- and post-break series are collected simultaneously.

(4) It is worth noting that the reduced number of common period observations may affect the validity of all tests performed.

in industrial activity. The *INE* has been compiling IPI data series for several years now. The first time this index was released was in 1976 in the Monthly Statistical Bulletin (*INE*), where one can find series since January 1968. The first base was 1970=100 (from January 1968 to December 1985), but others have followed, namely 1985=100 (from January 1985 to December 1993), 1990=100 (from January 1990 to December 1998), 1995=100 (from January 1995 to August 2002) and, currently, 2000=100 (started in January 2000).

Concerning the industrial production, the series considered include the overall index and other nine indices resulting from two kinds of disaggregations: by Main Industrial Groupings (MIGs)<sup>(5)</sup> and by economic activities. In the first case, five different groups are analysed - consumption goods, durable consumption goods, non-durable consumption goods, intermediate goods, investment goods and energy. In the second case, the underlying classification is the Portuguese Classification of Economic Activities (CAE rev. 2). Only three of the categories made available by this classification are released in the *Statistical Bulletin* of Banco de Portugal, and, therefore, analysed in this article: mining and quarrying; production and distribution of electricity, gas and water; and manufacturing.

All series are adjusted for working days. Currently, *INE* uses specific software (X12 ARIMA - Demetra) for performing working day adjustment. However, in the past, other methods were used for this purpose, namely proportional methods. Therefore, in order to increase the coherence of the linking procedure, the working day adjusted series used to obtain the historical time series are not the ones originally released by *INE*. Alternatively, the series used result from correcting the raw IPI series always with the same method. The working day correction method considered is similar to the one currently used by *INE*<sup>(6)</sup>.

(5) See Commission Regulation (EC) n° 586/2001 of 26 March 2001.

(6) In fact, it is not possible to replicate exactly *INE*'s results, in particular for the current base, because *INE* obtains the working day adjusted aggregated series by aggregating working day adjusted disaggregated data (indirect approach). In this article, due to data constraints, the working day correction is applied directly to the aggregated series. However, for the current base series, the differences detected are not significant.

After this adjustment, it is possible to proceed with the compilation of the long IPI time series and perform the above-mentioned tests. The test results are: (i) there is evidence of the existence of a strong relation between the monthly rates of both the old and the new base series (see Table 1). Only the "Mining and quarrying" series occasionally present less favourable results; (ii) the mean test shows that, for a significance level of 5%, the null hypothesis (equality of the means) is never rejected; (iii) the same happens in the variance test, except in the case of mining and quarrying for 1990=100 vs. 1995=100, where the respective null hypothesis (equality of the variances) is rejected<sup>(7)</sup> (see Table 1).

Hence, long IPI time series starting at January 1968 (at least for some of the categories) are compiled (see Table 2). Even though, in some cases, the test results are not so positive, the compilation procedure is also applied to the "Mining and quarrying" series. Nevertheless, regarding this series, the users must be more cautious.

#### b) Industrial turnover indices:

The industrial turnover index (ITI) purpose is to measure the monthly evolution of industry sales, being an important short-term indicator of overall economic activity. The ITI is also released by *INE*. The first ITI series start in January 1990 and their base year is 1990 (1990=100). Two more bases followed this first one: 1995=100 (from January 1995 to August 2002) and, currently, 2000=100 (started in January 2000).

Concerning the industrial turnover, the nine series that are released in the *Statistical Bulletin* are: the overall index and eight other series that result from its disaggregation by economic purpose of the output (MIGs<sup>(8)</sup>) (as in the case of IPI) and by economic activities (CAE rev. 2). In this latter case, only two of the categories available in CAE rev. 2 are compiled: mining and quarrying, and manufacturing.

The correlation coefficient, mean and variance tests are also performed (see Table 1). In spite of base changes, evidence indicates that the behav-

(7) The null hypothesis is rejected for a significance level of 5%, but not for a level of 1%.

(8) See footnote 5.

our of the ITI series kept stable. In fact, the null hypothesis of the correlation coefficient test is always rejected, the null hypothesis of the difference of means test is never rejected, and the variance tests suggest that the series volatility is not affected by base changes<sup>(9)</sup>.

Subsequently, by applying the methodology presented above, historical time series are built for ITI (see Table 2).

c) Retail trade turnover indices:

The aim of the retail trade turnover index (RTTI) is to assess the monthly evolution of retail trade sales, which makes it a key short-term indicator of household consumption. The first RTTI series were released by *INE* with base 1995=100 (from January 1995 to August 2002). These series substituted the Retail Trade Sales Indices (RTSI), which were available from January 1991 to December 1997 (base 1990=100). The current base series (2000=100) started in January 2000. Considering the information disclosed in the *Statistical Bulletin*, eleven series are considered: the overall index and its disaggregation by economic activities (CAE rev. 2) (see Table 2).

Concerning the transition from the RTSI to the RTTI, an important remark must be made. While the overall index of the former indicator included sales of “Automobiles, motorcycles and bicycles with or without engine” and “Fuel”, the overall index of RTTI excludes these items. To make things comparable, it is calculated the overall index of RTSI excluding these two categories. This transformation, among with the base changes, seems to have not affected the general characteristics of the RTTI series (see Table 1). In fact, it can be said that, with few exceptions, the mean and variance seem to remain stable and the correlation coefficients between the rates of change of the common period series are rather significant<sup>(10)</sup>.

By applying the methodology described in the previous section, it is possible to compile long

RTTI time series starting in January 1991 (at least, for some of the series considered) (see Table 2).

d) Number of nights spent (tourism):

Apparently, since the number of nights spent is measured in volume, there would be no need for using a backward extrapolation method in order to obtain consistent historical time series. One of the reasons that can justify using this kind of method is a change in the underlying concept; but this did not happen either. The number of nights spent refers to the number of people that during a specific period of time (from the 12 hours of one day to the 12 hours of the next day) stay in a lodging and this concept has remained stable. However, in 2002, the methodology used for obtaining tourism data series changed significantly. In particular, it was incorporated an estimate for the unit non-responses (a non-response happens when a sampled unit fails to respond) in order to avoid non-response bias (for details, see *INE*, 2003a). The new number of nights spent series were released by *INE*, in 2002. Nevertheless, it were made available data series from January 2001. The previous series were released from January 1964 (some series) to December 2001. These changes render historical comparisons impossible and that is why tourism series need to be harmonised.

As it can be seen from the striking results of the tests performed (see Table 1), this methodological alteration does not greatly affect the general features of the series. The correlation coefficients between the rates of change of the old and the current series are all extremely high and there is no evidence of mean and variance changes.

Resorting to the methodology above described, it is possible to recompile long number of nights spent time series, which in the *Statistical Bulletin* are disaggregated by country of main residence of the tourists, from January 1964 (at least, for some of the series) to the most recent period available at the time of the elaboration of this article (see Table 2).

(9) The null hypothesis of the variance test is only rejected twice: for the intermediate goods series (1990=100 vs. 1995=100) and for the energy goods series (1955=100 vs. 2000=100). In spite of these results, historical time series for the intermediate and energy goods are also compiled. Nevertheless, these series must be looked upon more carefully.

(10) There is evidence of higher variability for “Textile, clothing, footwear and leather products” (1990=100 vs. 1995=100), “Foodstuffs, beverages and tobacco in specialized establishments” (1995=100 vs. 2000=100), and “Non-foodstuffs, beverages and tobacco in non-specialized establishments” series (1995=100 vs. 2000=100) and “Mail trade” series exhibit a weaker correlation. In spite of these results, it is made an attempt to build historical time series for these series too.



## 2.1.2 Consumer price index

### 2.1.2.1 Methodology

The consumer price index (CPI) is the key indicator to measure inflation. The *INE* releases monthly CPI series since 1977. Due to geographic, population and product coverage extension, to weighting updates and to methodological alterations, several base changes occurred since then until now. The first CPI series (January 1977 - December 1987) are based on 1976 prices (1976=100). Up to now, there are more four bases: 1983=100 (January 1988 - December 1991), 1991=100 (January 1991 - December 1997), 1997=100 (January 1997 - December 2002) and 2002=100 (started in January 2002).

For obtaining consistent historical CPI time series, which will allow one to calculate the inflation rates (monthly, year-on-year and twelve months moving average) that are released in the *Statistical Bulletin*, it is used a simple method that relies on the existence of a common period between the consecutive base series. Considering this common period, it is calculated a linking coefficient that is the ratio between the old and the new base series. If one assumes that the common period coincides with the base year of the new series, then multiplying the old base series by the linking coefficient implies that the base of the old series becomes the same as the one of the new series. As before, the current base series are kept unchanged and are used as benchmark. In this case, this means that the long CPI series are based on 2002 prices (2002=100). Furthermore, the previous base series are consecutively made compatible with the current base series. Let  $i_t$  be the historical CPI based on 2002 prices and  $i_t^b$  be a certain base index ( $b = \{1976=100, 1983=100, 1991=100, 1997=100 \text{ and } 2002=100\}$ ). So,

$$\hat{i}_t^{2002=100} = \begin{cases} i_t^{2002=100}, t = 2002:1, 2002:2, \dots \\ i_t^{1997=100} \cdot \frac{100}{i_{2002}^{1997=100}}, t = 1997:1, \dots, 2001:12 \\ i_t^{1991=100} \cdot \frac{100}{i_{1997}^{1991=100}} \cdot \frac{100}{i_{2002}^{1997=100}}, t = 1991:1, \dots, 1996:12 \\ i_t^{1983=100} \cdot \frac{100}{i_{1991}^{1983=100}} \cdot \frac{100}{i_{1997}^{1991=100}} \cdot \frac{100}{i_{2002}^{1997=100}}, t = 1988:1, \dots, 1990:12 \\ i_t^{1976=100} \cdot \frac{100}{i_{1983}^{1976=100}} \cdot \frac{100}{i_{1991}^{1983=100}} \cdot \frac{100}{i_{1997}^{1991=100}} \cdot \frac{100}{i_{2002}^{1997=100}}, t = 1977:1, \dots, 1987:12 \end{cases}$$

where  $\bar{i}_\tau^b$  is the average of period  $\tau$  ( $\tau = 1983, 1991, 1997$  and  $2002$ ). This method, also used by *INE*, has the advantage of preserving the annual rate of change of the indices. On the other hand, since these calculations are based on the index levels, the monthly rate of change of the base change month is not preserved.

### 2.1.2.2 Results

Concerning the rates of change of CPI series released in the *Statistical Bulletin*, thirteen series are analysed: the overall index and its disaggregation by items (twelve items) (see Table 2). This particular disaggregation is present only at the last two bases (1997=100 and 2002=100) and obeys to the Classification of Individual Consumption by Purpose (COICOP). For the previous bases other disaggregations were considered (nine items for the bases 1991=100 and 1983=100 and four items for the base 1976=100). So, it is necessary to rearrange the items of the bases 1991=100, 1983=100 and 1976=100, to obtain harmonised items for all bases. In the case of the base 1991=100 this work is already done by *INE*, who released CPI series base 1991 harmonised with base 1997=100. In order to harmonise the items for the bases 1983=100 and 1976=100 it is used a similar procedure to the one used by *INE*, which consists in regrouping the available indices with a higher disaggregation level, according to the new items characteristics<sup>(11)</sup>. In addition to items harmonisation, other assumptions are made, in particular about rents. This item started to be observed with a monthly frequency in 1997. This enabled *INE* to release a monthly overall index, from this date onwards. Between 1988 and 1997, this index was only observed annually and before 1988 it was not even observed, due to methodological constraints. So, for the period between 1988 and 1997, the annual index of the item "Rents" is transformed in a monthly index and is introduced in the calculus of the historical overall index. This transformation assumes that rents are revised all at the same time, once a year,

(11) Applying the regrouping procedure (used for the indices with base 1983=100 and 1976=100) to the indices with base 1991=100 leads to results approximate to the ones released by *INE*. This happens because *INE* uses a disaggregation level higher than the one used in this work.

in January. Before 1988, for the obvious reason, the index “Rents” is not considered in calculus.

More two remarks need to be made. The first remark refers to the geographic coverage of the CPI. Only from the 1997=100 base onwards the National CPI is the reference index for inflation. Before this base, the CPI for the Mainland was the reference. Finally, again starting at 1997, the price reductions (sales and promotions) were introduced in the CPI. This introduction changed the seasonal behaviour of some indices, namely “Clothing and footwear” item.

Using this harmonised CPI dataset, and regarding the methodology described in section 2.1.2.1, long CPI time series are recompiled from January 1977 (in some cases) (see Table 2).

## 2.2 Qualitative variables

### 2.2.1 Methodology

Qualitative information assumes an important role in short-term economic analysis mainly because its disclosure is not affected by significant lags. Another important reason that helps to explain its relevance is the fact that it provides useful insights into economic agents’ expectations, giving, for example, early signs of turning points.

In this context, *INE* conducts several opinion surveys, namely the manufacturing industry survey, the construction and public works survey, and the trade survey. The results of these surveys are presented as balance of respondents, which is the difference between the percentage of positive and negative answers.

Every time a new survey is implemented, as a result of the introduction of new questions in the questionnaire, or the enquiry of a new sample, or by some other reason, a break occurs. However, as long as a certain question remains the same in the different questionnaires, it is possible to calculate historical time series for the results associated with that question.

The methodology used to compute consistent historical time series for the qualitative indicators is quite straightforward. As before, since the true historical time series are unknown, the current series continue to be used as a benchmark for assessing the resemblance between the several pieces of data series. Hence, the current enquiries series are

kept unaltered. Furthermore, for checking if the old and the new series have a similar behaviour, the correlation coefficient, the difference of means and the equality of variance tests are performed<sup>(12)</sup>.

So, depending on these tests results, two different compiling approaches can be followed, for calculating the long time series. If both the old and the new series have similar behaviour and level, then the old ones would just be juxtaposed with the new ones, without any changes. In the other hand, if the tests reveal that the new and the old series do not have equal mean or equal variance (or both) then the old series are modified before being linked with the current survey series. This modification aims to make the old series mean and variance equal to the mean and variance of the new ones (the benchmark), considering the common period sample. Analytically,

$$x_t^h = \begin{cases} x_t, & t = i, \dots, T \\ \left( \frac{\tilde{x}_t - \bar{\tilde{x}}_t}{\tilde{\sigma}_t} \right) + \bar{x}_t, & t = 1, \dots, i - 1 \end{cases}$$

where  $x_t^h$  is the value of historical time series for moment  $t$  ( $t = 1, \dots, i, \dots, T$ ),  $x_t$  and  $\tilde{x}_t$  represent the current and previous enquiry series, respectively,  $\bar{\tilde{x}}_t$  and  $\tilde{\sigma}_t$  stand for the mean and standard error of the old enquiry series, and, finally,  $\bar{x}_t$  and  $\sigma_t$  are the mean and standard deviation of the new enquiry series.

### 2.2.2 Results

Anticipating some results, generally, for the three surveys considered, there seems to be evidence of quite significant correlation between the old and the new series. Nevertheless, a small number of series presents lower values for the correla-

(12) Adding to the generic variance test, other two tests are performed, comparing the variance of the old and new enquiries series in the first and in the second half of the common period. A priori, it could be expected a higher variability of the new enquiry series in the first half of the common period, due to the lack of enquiry answering skills. If this was true, then maintaining the entire current enquiry series unaltered could be a questionable standard procedure. However, for all surveys, test results do not point to the existence of statistically significant differences between the variances in both halves of the common period, corroborating the choice of keeping unchanged the most recent piece of the series when building the long time series.



tion coefficient. Even so, it is made an attempt to build historical time series for these series too.

a) Manufacturing industry survey:

Concerning the manufacturing industry survey (MIS), *INE* conducts two kinds of surveys: the monthly and the quarterly enquiry. The information collected is organised according to a breakdown by type of good. According to this breakdown, there are five main categories: total, consumption goods, intermediate goods, vehicles manufacturing and equipment goods other than vehicles. Nevertheless, the vehicles manufacturing and equipment goods other than vehicles categories are not considered because these categories were made available just with the current survey.

In relation to the monthly survey, the inquired variables relevant for this article are: production trend, order books, export order books, production expectations, finished products stocks and selling-price expectations<sup>(13)</sup>. As regards the quarterly survey, this article covers one variable only — the rate of capacity utilization in manufacturing.

For all categories considered, the correlation coefficient tests showed that both the current and the previous survey series are quite correlated. Regarding the mean and variance tests, the results are mixed. The variance revealed to be quite stable. In fact, according to the test results, there is no need to correct the variance of any of the series considered. In contrast with variance stability, the mean of several variables changes with the questionnaires. It can be seen in Table 1 that about 50% of the series (11 in 21 series) seem to need mean correction.

Therefore, by applying the methodology described in the previous section, long monthly MIS time series are compiled from January 1987 and quarterly MIS time series from the fourth quarter of 1987 (see Table 2).

b) Construction and public works survey:

As regards this survey, four variables are considered - activity appraisal, order books, employment expectations and price expectations. Each variable is evaluated in four different sectors: total, residential buildings, non-residential buildings and public works. In total, sixteen series are analysed.

Once more, correlation coefficient, mean and variance tests are performed. The conclusions drawn from test results are not far from the expected. First of all, in general, correlation coefficient test results point to the existence of evidence favourable to the compilation of long time series<sup>(14)</sup>. For this survey, adding to the mean correction, the variance of some of the old series is also adjusted (see Table 1).

Hence, it is possible to recompile long construction and public works survey (CPWS) time series from February 1991 to as recent as possible (see Table 2).

c) Trade survey:

In what concerns the trade survey (TS), *INE* conducts two kinds of enquiries: the monthly and the quarterly enquiry. In both cases, there are separate questionnaires for the wholesale and retail trade. In relation to the monthly survey, the inquired variables, released in the *Statistical Bulletin*, are: sales, stocks, placing orders, selling prices, current business situation and expected business situation. In what concerns the quarterly survey, two variables are considered - sales and price expectations. In this case, there is more than one previous enquiry; to be more precise, there are two previous enquiries (from 1976:1 to 1989:4 and from 1988:4 to 1996:1).

The usual tests (correlation coefficient, mean and variance) are performed. In general, the correlation results show that the common period series are quite correlated. Exceptional cases exist, where the correlation coefficient values are lower than what would be desirable. In these cases, the user must be more careful when dealing with the series. Regarding the other tests, the variance reveals to be quite stable. Actually, the variance adjust-

(13) Even though the variable "Domestic order books" is also released in the *Statistical Bulletin*, it is not possible to compile long time series for this variable because the question associated with it was only introduced in the current survey.

(14) Again, it is made an effort in order to compile long time series also for the series that present lower correlation values.

ment is performed in one case only. Different means are, by far, more frequent (see Table 1).

Considering the existing data constraints, long monthly and quarterly TS time series are compiled, from January 1989 and from the first quarter of 1976 (for some series), respectively, to the most recent data available at the time of the elaboration of this article (see Table 2).

### 3. CONCLUDING REMARKS

The main goal of this article is to build long time series for some Portuguese data series. In particular, the series considered are the IPI, the ITI, the RTTI, the number of nights spent (tourism), the CPI, and several series from the opinion surveys (manufacturing industry, construction and public works, and trade opinion surveys). The methods that guide the compilation of the historical time series are also presented. To try to reduce as much as possible the subjectivity intrinsic to this kind of work, the historical time series are compiled resorting to simple methodologies. This way, it is made an attempt to produce a coherent dataset, which can be useful for future research.

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**Annex**  
**Table 1**  
**CORRELATION COEFFICIENT AND MEAN AND VARIANCE TESTS - to be continued**

	Correlation coefficient	Test Statistics	
		Mean	Variance
<b>Industrial production index</b>			
1970=100 vs. 1985=100			
Overall .....	0,95*	-0.051	1.707
Mining and quarrying .....	0.43	0.144	0.965
Production and distribution of electricity, gas and water .....	0,98*	0.031	0.797
Manufacturing.....	0,95*	-0.061	1.856
1985=100 vs. 1990=100			
Overall .....	0,98*	-0.077	1.269
Mining and quarrying .....	0,84*	0.711	0.356
Production and distribution of electricity, gas and water .....	0,92*	-0.026	1.093
Manufacturing.....	0,99*	-0.185	1.456
1990=100 vs. 1995=100			
Overall .....	0,97*	-0.054	1.001
Mining and quarrying .....	0,57'	-0.158	1,805*
Production and distribution of electricity, gas and water .....	0,80*	-0.243	0.988
Manufacturing.....	0,98*	0.067	0.758
Consumption goods.....	0,96*	0.052	0.691
Intermediate goods.....	0,97*	-0.002	0.915
Investment goods .....	0,94*	0.193	0.686
1995=100 vs. 2000=100			
Overall .....	0,99*	0.001	0.980
Mining and quarrying .....	0,87*	0.112	0.658
Production and distribution of electricity, gas and water .....	0,85*	-0.009	1.244
Manufacturing.....	0,99*	0.003	0.956
Consumption goods.....	0,98*	-0.046	1.284
Durable consumption goods.....	0,99*	0.025	0.862
Non-durable consumption goods .....	0,97*	-0.052	1.362
Intermediate goods.....	0,99*	0.021	0.946
Investment goods .....	0,98*	0.053	0.662
Energy.....	0,79*	-0.024	1.331
<b>Industrial turnover index</b>			
1990=100 vs. 1995=100			
Overall .....	0,99*	0.007	0.979
Mining and quarrying .....	0,97*	-0.157	1.252
Manufacturing.....	0,99*	0.001	0.989
Consumption goods.....	0,98*	0.045	0.855
Durable consumption goods.....	0,93*	-0.146	1.335
Non-durable consumption goods .....	0,97*	0.059	0.823
Intermediate goods.....	0,98*	-0.232	2,072*
Investment goods .....	0,99*	-0.019	1.070
1995=100 vs. 2000=100			
Overall .....	0,99*	-0.068	1.427
Mining and quarrying .....	0,96*	0.072	0.863
Manufacturing.....	0,99*	-0.045	1.157
Consumption goods.....	0,96*	0.023	1.488
Durable consumption goods.....	0,98*	0.033	0.909
Non-durable consumption goods .....	0,93*	0.045	1.519
Intermediate goods.....	1,00*	-0.061	1.101
Investment goods .....	0,96*	0.005	0.735
Energy.....	0,77*	-0.205	2,528*
<b>Retail trade turnover index</b>			
1990=100 vs. 1995=100			
Overall .....	0,97*	-0.198	1.529
Foodstuffs, beverages and tobacco .....	0,92*	-0.200	1.607
Chemicals, medical, cosmetic and hygiene products .....	0,90*	-0.023	0.921
Textile, clothing, footwear and leather products.....	0,50'	-0.480	1,963*
Furniture, lighting and other housing expenses .....	0,93*	0.495	0.423

**Table 1**  
**CORRELATION COEFFICIENT AND MEAN AND VARIANCE TESTS - to be continued**

	Correlation coefficient	Test Statistics	
		Mean	Variance
1995=100 vs. 2000=100			
Overall .....	0,96*	-0.228	1.552
Foodstuffs, beverages and tobacco .....	0,89*	-0.117	1.234
Non-foodstuffs, beverages and tobacco .....	0,95*	-0.236	1.427
Foodstuffs, beverages and tobacco in non-specialized establishments .....	0,88*	-0.084	1.089
Foodstuffs, beverages and tobacco in specialized establishments .....	0,82*	-0.246	2,290*
Non-foodstuffs, beverages and tobacco in non-specialized establishments .....	0,86*	-0.866	3,200*
Chemicals, medical, cosmetic and hygiene products .....	0,83*	-0.103	1.211
Textile, clothing, footwear and leather products .....	0,94*	-0.251	1.131
Furniture, lighting and other housing expenses .....	0,96*	-0.224	1.498
Books, newspapers, stationery and other products .....	0,79*	-0.004	0.866
Mail trade .....	0.28	0.227	0.178
Number of nights spent (tourism)			
Portugal .....	1,00*	-0.055	0.980
Foreign countries .....	0,99*	-0.029	0.999
Europe .....	0,99*	-0.024	0.986
European Union .....	0,99*	-0.025	0.987
Germany .....	0,99*	-0.012	1.034
Spain .....	1,00*	-0.027	0.990
France .....	1,00*	-0.017	0.929
Italy .....	1,00*	-0.032	1.034
Netherlands .....	1,00*	-0.016	0.975
United Kingdom .....	0,99*	-0.029	0.978
America .....	1,00*	-0.038	1.026
Brazil .....	1,00*	-0.055	0.945
Canada .....	1,00*	-0.017	0.978
United States of America .....	1,00*	-0.030	0.986
Africa .....	1,00*	-0.111	0.984
Asia and Australia .....	1,00*	-0.070	0.980
Japan .....	1,00*	-0.046	1.013
Manufacturing industry survey - monthly series			
Overall			
Production trend .....	0,85*	-3,511*	1.070
Order books .....	0,88*	-2,838*	0.387
Export order books .....	0,90*	-1.397	0.739
Production expectations .....	0,81*	-2,726*	1.229
Finished products stocks .....	0,86*	-0.237	0.914
Selling-price expectations .....	0,94*	1.77	0.747
Consumption goods			
Production trend .....	0,46'	-5,543*	1.211
Order books .....	0,42'	-5,603*	0.869
Export order books .....	0,67'	-4,002*	0.724
Production expectations .....	0.17	-3,512*	1.263
Finished products stocks .....	0,73*	3,524*	1.059
Selling-price expectations .....	0,89*	0.742	1.121
Intermediate goods			
Production trend .....	0,82*	-1.911	1.121
Order books .....	0,96*	-1.925	0.730
Export order books .....	0,87*	-1.808	0.724
Production expectations .....	0,85*	-2,526*	1.607
Finished products stocks .....	0,89*	-0.733	1.376
Selling-price expectations .....	0,92*	1.754	0.664
Manufacturing industry survey - quarterly series			
Rate of capacity utilization in manufacturing			
Overall .....	0,72'	-4,822*	2.187
Consumption goods .....	0,59'	-7,332*	0.757
Intermediate goods .....	0,85*	-0.817	0.422

**Table 1**  
**CORRELATION COEFFICIENT AND MEAN AND VARIANCE TESTS**

	Correlation coefficient	Test Statistics	
		Média	Variance
Construction and public works survey			
Activity appraisal			
Overall .....	0.29	-3,116*	2.017
Residential buildings .....	0,81*	-3,587*	3,931*
Non-residential buildings .....	0,53'	-5,433*	2.091
Public works .....	0.08	-0.467	0.436
Order books			
Total .....	0.44	-6,166*	2.399
Residential buildings .....	0,65'	-7,469*	0.789
Non-residential buildings .....	0,66'	-6,068*	1.317
Public works .....	0,80*	-1.032	2.667
Employment expectations			
Total .....	0,67'	-7,333*	4,582*
Residential buildings .....	-0.09	-10,57*	1.273
Non-residential buildings .....	0.41	-9,076*	1.762
Public works .....	0,53'	-1.302	0.941
Price expectations			
Total .....	0.27	4,199*	7,578*
Residential buildings .....	-0.3	6,009*	3,389*
Non-residential buildings .....	0,75'	-0.698	1.508
Public works .....	0,52'	4,085*	2.066
Trade survey - monthly series			
Sales			
Wholesale .....	0,73*	-2,043*	0.833
Retail .....	0,76*	-5,044*	0.740
Stocks			
Wholesale .....	0,45'	-4,95*	1.123
Retail .....	-0.09	-3,085*	1.197
Placing orders			
Wholesale .....	0,46'	-2,46*	0.997
Retail .....	0,44'	-8,869*	1.121
Selling prices			
Wholesale .....	0,84*	4,168*	0.420
Retail .....	0,84*	4,212*	0.879
Current business situation			
Wholesale .....	0.19	-4,791*	0.326
Retail .....	-0.17	-14,554*	1.969
Expected business situation			
Wholesale .....	0.22	-2,106*	0.570
Retail .....	0.25	-8,330*	2,610**
Trade survey - quarterly series			
First and second enquiry			
Sales expectations			
Wholesale .....	0,94*	-1.021	0.210
Retail .....	-0.11	-1.226	0.032
Price expectations			
Wholesale .....	0,89'	0.479	1.092
Retail .....	0,91*	0.140	1.181
Second and current enquiry			
Sales expectations			
Wholesale .....	0,86*	-1.681	0.809
Retail .....	0,57'	-2,914*	0.296
Price expectations			
Wholesale .....	0,89*	1.380	0.634
Retail .....	0,88*	3,064*	1.238

Notes:

\* - The null hypothesis is rejected for a significance level of 5%. For the correlation coefficient test, the null hypothesis is that the correlation coefficient is equal to 0,5 and the alternative hypothesis is that it is higher than 0,5.

' - The null hypothesis of the correlation coefficient being equal to zero is rejected for a significance level of 5%.

**Table 2**  
**FIRST OBSERVATION OF THE HISTORICAL TIME SERIES - to be continued**

	First observation
Industrial production index	
Overall .....	January 1968
Mining and quarrying .....	January 1968
Production and distribution of electricity, gas and water .....	January 1968
Manufacturing .....	January 1968
Consumption goods .....	January 1990
Durable consumption goods .....	January 1995
Non-durable consumption goods .....	January 1995
Intermediate goods .....	January 1990
Investment goods .....	January 1990
Energy .....	January 1995
Industrial turnover index	
Overall .....	January 1990
Mining and quarrying .....	January 1990
Manufacturing .....	January 1990
Consumption goods .....	January 1990
Durable consumption goods .....	January 1990
Non-durable consumption goods .....	January 1990
Intermediate goods .....	January 1990
Investment goods .....	January 1990
Energy .....	January 1995
Retail trade turnover index	
Overall .....	January 1991
Foodstuffs, beverages and tobacco .....	January 1991
Non-foodstuffs, beverages and tobacco .....	January 1995
Foodstuffs, beverages and tobacco in non-specialized establishments .....	January 1995
Foodstuffs, beverages and tobacco in specialized establishments .....	January 1995
Non-foodstuffs, beverages and tobacco in non-specialized establishments .....	January 1995
Chemicals, medical, cosmetic and hygiene products .....	January 1991
Textile, clothing, footwear and leather products .....	January 1991
Furniture, lighting and other housing expenses .....	January 1991
Books, newspapers, stationery and other products .....	January 1995
Mail trade .....	January 1995
Number of nights spent (tourism)	
Portugal .....	January 1964
Foreign countries .....	January 1964
Europe .....	January 1993
European Union .....	January 1975
Germany .....	January 1964
Spain .....	January 1964
France .....	January 1964
Italy .....	January 1964
Netherlands .....	January 1964
United Kingdom .....	January 1964
America .....	January 1975
Brazil .....	January 1964
Canada .....	January 1964
United States of America .....	January 1964
Africa .....	January 1975
Asia and Australia .....	January 1983
Japan .....	January 1983



**Table 2**  
**FIRST OBSERVATION OF THE HISTORICAL TIME SERIES - to be continued**

	First observation
Consumer price index	
Overall .....	January 1977
Food and non-alcoholic beverages .....	January 1977
Alcoholic beverages and tobacco .....	January 1993
Clothing and footwear .....	January 1975
Housing, water, electricity, gas and other fuel .....	January 1977
Furnishings, household equipment and routine maintenance of the house .....	January 1977
Health .....	January 1977
Transport .....	January 1977
Communications .....	January 1977
Recreation and culture .....	January 1977
Education .....	January 1977
Restaurants and hotels .....	January 1977
Miscellaneous goods and services .....	January 1977
Manufacturing industry survey - monthly series	
Total	
Production trend .....	January 1987
Order books .....	January 1987
Export order books .....	January 1987
Production expectations .....	January 1987
Finished products stocks .....	January 1987
Selling-price expectations .....	January 1987
Consumption goods	
Production trend .....	January 1987
Order books .....	January 1987
Export order books .....	January 1987
Production expectations .....	January 1987
Finished products stocks .....	January 1987
Selling-price expectations .....	January 1987
Intermediate goods	
Production trend .....	January 1987
Order books .....	January 1987
Export order books .....	January 1987
Production expectations .....	January 1987
Finished products stocks .....	January 1987
Selling-price expectations .....	January 1987
Manufacturing industry survey - quarterly series	
Rate of capacity utilization in manufacturing	
Total .....	1986Q1
Consumption goods .....	1986Q1
Intermediate goods .....	1986Q1
Construction and public works survey	
Activity appraisal	
Total .....	February 1991
Residential buildings .....	February 1991
Non-residential buildings .....	February 1991
Public works .....	February 1991
Order books	
Total .....	February 1991
Residential buildings .....	February 1991
Non-residential buildings .....	February 1991
Public works .....	February 1991
Employment expectations	
Total .....	February 1991
Residential buildings .....	February 1991
Non-residential buildings .....	February 1991
Public works .....	February 1991

**Table 2**  
**FIRST OBSERVATION OF THE HISTORICAL TIME SERIES**

	First observation
Price expectations	
Total .....	February 1991
Residential buildings.....	February 1991
Non-residential buildings .....	February 1991
Public works.....	February 1991
Trade survey - monthly series	
Sales	
Wholesale .....	January 1989
Retail .....	January 1989
Stocks	
Wholesale .....	January 1989
Retail .....	January 1989
Placing orders	
Wholesale .....	January 1989
Retail .....	January 1989
Selling prices	
Wholesale .....	January 1989
Retail .....	January 1989
Current business situation	
Wholesale .....	January 1989
Retail .....	January 1989
Expected business situation	
Wholesale .....	January 1989
Retail .....	January 1989
Trade survey - quarterly series	
Sales expectations	
Wholesale .....	1982Q1
Retail .....	1976Q1
Price expectations	
Wholesale .....	1976Q1
Retail .....	1976Q1

## Chronology of major financial policy measures



## January

- **7 January** (*Decree-Law No 13/2005, Official Gazette No. 5, Series I-A*)  
Introduces changes in the legal framework of real-estate based funds, as approved by Decree-Law No 60/2002 of 20 March.
- **17 January** (*Circular Letter of Banco de Portugal No. 102/2004/DSB*)  
Provides indications on the accounting model to be adopted by institutions subject to the supervision of Banco de Portugal that are not covered by Article 4 of Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002, and on the implementation of a transitional regime during the year starting on 1 January 2005.
- **17 January** (*Instruction of Banco de Portugal No. 23/2004*)  
Lays down the procedures to be followed in the reporting of consolidated accounting information, prepared in accordance with the International Accounting Standards.
- **13 January** (*Regulation of the Securities Market Commission No 1/2005, Official Gazette No. 31, Series II*)  
Amends several articles, adds others and republishes, as duly amended, Regulation No 8/2002, of 18 June, which lays down the set of rules governing the legal regime governing real estate funds.
- **24 January** (*Circular Letter of Banco de Portugal No. 7/2005/DET*)  
Banco de Portugal lays down that credit institutions should ensure that the distribution of banknotes through ATMs takes into consideration the structure of the currency circulation of the country, so as to allow a better adequacy between cash supply and demand.
- **13 January** (*Regulation of the Securities Market Commission No 1/2005, Official Gazette No. 31, Series II*)  
Amends several articles, adds others and republishes, as duly amended, Regulation No 8/2002, of 18 June, which lays down the set of rules governing the legal regime governing real estate funds.
- **24 January** (*Circular Letter of Banco de Portugal No. 7/2005/DET*)  
Banco de Portugal lays down that credit institutions should ensure that the distribution of banknotes through ATMs takes into consideration the structure of the currency circulation of the country, so as to allow a better adequacy between cash supply and demand.

## February

- **15 February** (*Instruction of Banco de Portugal No. 1/2005*)  
Regulates the involvement and “implicit support” in securitisation operations.
- **15 February** (*Instruction of Banco de Portugal No. 2/2005*)  
Defines the places and conditions under which current metal coins can be deposited with or withdrawn from Banco de Portugal. Revokes Instruction No 3/2003, published in the Official Bulletin No 2, of 17 February 2003.
- **15 February** (*Instruction of Banco de Portugal No. 4/2005*)  
Provides for the application of a reduced rate to the calculation of the annual contribution to the Deposit Guarantee Fund regarding deposits opened in the off-shore financial centres of Madeira and Santa Maria Island. Revokes Instruction No 122/96, published in BNPB No 5, of 15 October 1996.
- **21 February** (*Notice of Banco de Portugal No 1/2005, Official Gazette No. 41, Series I, B*)  
Lays down that institutions shall prepare their annual and consolidated accounts in conformity with the International Accounting Standards (IAS), as adopted, at each moment, by a EU regulation. Provides for a transitional regime during 2005, for the institutions, which are not subject to the provisions of Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002.
- **21 February** (*Notice of Banco de Portugal No 2/2005, Official Gazette No. 41, Series I, B*)  
Following the adoption of the International Accounting Standards (IAS), amends Notice No 12/92 on the regulatory framework governing the own funds and the solvency ratio.
- **21 February** (*Notice of Banco de Portugal No 3/2005, Official Gazette No. 41, Series I, B*)  
Following the adoption of the International Accounting Standards (IAS), redefines the regime governing the provisions to be set up by credit institutions and financial companies.

- **21 February (Notice of Banco de Portugal No 4/2005, Official Gazette No. 41, Series I, B)**

Following the adoption of the International Accounting Standards (IAS), amends Notice No 12/2001, of 23 November, on the coverage of liabilities on account of retirement and survivors pensions.
  - **21 February Notice of Banco de Portugal No 5/2005, Official Gazette No. 41, Series I, B**

Following the adoption of the International Accounting Standards (IAS), amends Notice No 10/94, of 18 November, on the supervision and control of large exposures of institutions subject to the supervision of Banco de Portugal.
  - **21 February (Notice of Banco de Portugal No 6/2005, Official Gazette No. 41, Series I, B)**

Taking into account the transposition of Directive 2003/51/EC of the European Parliament and of the Council of 18 June 2003, by Decree-Law No 35/2005, of 17 February, amends Notice No 8/94, of 15 November, as regards of composition of consolidation for prudential supervision purposes.
  - **28 February (Instruction of Banco de Portugal No. 6/2005)**

Regulates Notice No 1/2005, of 28 February, with respect to (the accounting framework of) credit fallen due.
  - **28 February (Instruction of Banco de Portugal No. 7/2005)**

Lays down provisions on imparity.
- ### March
- **10 March (Corrigendum No. 10/2005 Official Gazette No. 49, Series I, B)**

Corrigendum to Notice of Banco de Portugal no. 4/2005, published in the Official Gazette no. 41, Series I, B of 28 February.
  - **17 March (Circular Letter of Banco de Portugal No. 9/2005/DET)**

Following the Decision taken by the Governing Council of the European Central Bank on 16 December 2004, makes known the new framework laying down common principles for authentication and fitness sorting regarding banknote recycling by credit institutions and other professional cash handlers.
  - **18 March Instruction of Banco de Portugal No. 9/2005, disclosed through Circular Letter No. 18/2005/DSB**

Concerning the reporting to Banco de Portugal of statistical data prepared in accordance with the International Accounting Standards (IAS) or with the Adjusted Accounting Rules (AAR).
  - **21 March Circular Letter of Banco de Portugal No. 13/2005/DSB**

Following Notice no. 1/2005 of 28 February and Circular Letter no. 102/04/DSBDR of 23 December, provides clarification on the possible scenarios for the implementation of the accounting rules to be complied with in the transitional regime to 2005 by the institutions that must prepare consolidated and non-consolidated accounts or only non-consolidated accounts.
  - **24 March (Circular Letter of Banco de Portugal No. 19/2005/DSB)**

Provides further clarification on pre-contractual information, with regard to loan requests for the acquisition of goods or services.
- ### April
- **1 April (Circular Letter of Banco de Portugal No. 20/2005/DSB)**

Recommends that credit institutions and financial companies must identify the intervening parties and analyse with particular caution operations contracted with natural or legal persons resident or established in certain countries or territories, within the scope of the measures aimed at preventing money laundering. Revokes Circular Letter no. 101/2004/DSB of 3 December 2004.
  - **11 April (Regulation of the Ministry of Finance - Portuguese Insurance Institute No 28/2005, Official Gazette No. 70, Series II)**

Under the provisions laid down in subparagraph a), of paragraph 1 of Article 13 of Decree-Law No 35/2005 of 17 February, defines the statutory regime and the legal framework for the implementation of the international accounting rules adopted in accordance with the provisions of Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 as far as insurance companies, pension fund management companies and insurance mediating companies are concerned. This regulation shall be applicable as from the 2005 fiscal year.
  - **14 April (Regulation of the Securities Market Commission No. 2/2005, Official Gazette No 96, Series II)**

Establishes the regime governing the accounts of real estate investment funds, whose legal framework was approved by Decree Law No 60/2002 of 20 March, as amended by Decree Law No 13/2005 of 7 January.



- **29 April (Regulation of the Securities Market Commission No. 4/2005, Official Gazette, Series II)**  
Introduces changes in the legal framework of the managing entities of stock markets, transferable securities centralised systems, securities settlement systems and services.
  - **29 April (Regulation of the Securities Market Commission No. 5/2005, Official Gazette, Series II)**  
Introduces changes in the regulations on the operation of markets in general and stock markets in particular, putting an end to the compulsory prior registration with the Securities Market Commission of commissions charged by market management entities, replacing this procedure with a prior notification.
- ### May
- **5 May (Resolution of the Council of Ministers No 100/2005, Official Gazette No. 103, Series I-B)**  
Adopts guidelines and measures with a view to ensuring an appropriate response of the judicial system to the mass litigation phenomenon and the protection of the occasional user of the judicial system.
  - **16 May (Instruction of Banco de Portugal No 13/2005, BNPB No. 5/2005)**  
Introduces changes in Instruction No 9/2003 (provisions maps), following the introduction of the International Accounting Standards (IAS) and the Adjusted Accounting Rules (AAR).
  - **16 May (Instruction of Banco de Portugal No 14/2005, BNPB No. 5/2005)**  
Introduces changes in Instruction No 25/97 (periodical reporting of data of a prudential nature), following the introduction of the International Accounting Standards (IAS) and the Adjusted Accounting Rules (AAR).
  - **16 May (Instruction of Banco de Portugal No 15/2005, BNPB No. 5/2005)**  
Provides data on the impact on own funds and own funds requirements of the adoption of the International Accounting Standards (IAS) and the Adjusted Accounting Rules (AAR).
- ### June
- **1 June (Circular Letter of Banco de Portugal No. 41/2005/DSB)**  
Makes known a set of recommendations and principles that credit institutions and similar entities shall take into account when carrying on international business, namely in terms of their organisation and definition of the internal control system.
  - **6 June (Notice of Banco de Portugal No. 7/2005, Official Gazette No 108, Series I, B)**  
Taking into account developments in the respective financial resources, introduces changes in the base contribution rate for the calculation of the annual contributions to the Deposit Guarantee Fund. Notice of Banco de Portugal No 8/2005, Official Gazette No 108, Series I, B Introduces changes in the rules on the adequacy of the own funds of the investment companies and credit institutions mentioned in Notice No 7/96 of 24 December: (a) subjects to its discipline mutual fund management companies when they are authorised to carry on cumulatively the discretionary and individual management of transferable securities belonging to their customers; (b) lays down the minimum own fund requirements for the coverage of merchandise risks; (c) introduces changes in the minimum own fund requirements for the coverage of settlement and counterparty risks; and (d) subject to prior authorisation of Banco de Portugal, allows the use of internal models for the calculation of minimum own fund requirements for the coverage of position risks on financial instruments incorporated in the trading portfolio, as well as of foreign-exchange and merchandise risks.
  - **15 June (Instruction of Banco de Portugal No. 18/2005, BNPB No 6/2005)**  
Provides for the reporting to Banco de Portugal of the financial statements and explanatory notes to the accounts of the institutions that adopt the International Accounting Standards (IAS) or the Adjusted Accounting Standards (AAS).
  - **Instruction of Banco de Portugal No 19/2005, BNPB No. 6/2005**  
Lays down rules governing the prudential monitoring of interest-rate risk.
  - **Instruction of Banco de Portugal No 20/2005, BNPB No. 6/2005**  
Amends Instruction No 72/96 on the internal control system as far as compliance, money-laundering prevention and internal audit is concerned.

- **24 June** (*Notice of Banco de Portugal No. 9/2005, Official Gazette No. 120, Series I, B*)  
Taking into account the implementation of the international accounting standards, amends Notice No 6/2003 of 15 January on the publication of accounts by institutions subject to the supervision of Banco de Portugal. This Notice shall enter into force on the date of its publication, being applicable to the publication of the quarterly balance sheet as at 31 March 2005, unless publication in a different format has been required.
- **24 June** (*Notice of Banco de Portugal No 10/2005, Official Gazette No. 120, Series I, B*)  
Introduces changes in the legal framework of the collection through bank account debit provided for in Notices No 1/2002 of 13 March on the direct debit system and No 10/2003 of 17 September on other types of collection through bank account debit. Provided that the exception foreseen in this notice is respected, this notice shall enter into force on 1 October 2005.
- **27 June** (*Executive Order of the Minister of Finance No 556/2005, Official Gazette No. 121, Series I, B*)  
Under the provisions laid down in article 5 of Decree-Law No 232/96 of 5 December and for the purposes of Council Directive 93/22/EEC of 10 May, approves the list of regulated markets.
- **28 June** (*Opinion of the European Economic and Social Committee OJ No.157 Series C*)  
Issues an opinion on the "Proposal for a Directive of the European Parliament and of the Council on statutory audit of annual accounts and consolidated accounts and amending Council Directives 78/660/EEC and 83/349/EEC" (COM(2004) 177 final - 2004/0065 (COD))

### July

- **7 July** (*Regulation nº 1073/2005/CE, OJ no. 175 Series L*)  
Amends Regulation (EC) No 1725/2003 of 21 September adopting certain international accounting standards in accordance with Regulation (EC) No 1606/2002 of the European Parliament and of the Council, as regards IFRIC 2.
- **13 July** (*Regulation of the Ministry of Finance. Stock Market Commission No. 3/2005 Official Gazette No. 133, Series II*)  
Introduces changes in the regulations governing regulated spot markets, the special market for wholesale operations and the new market, as well as in the regulations governing the supply of integrated registration, clearing and settlement services, and the respective rates, as a result of the restructuring leading to the implementation of a single regulated market, that is also the official quotation market (Eurolist by Euronext), and the consequent extinction of the secondary market.
- **13 July** (*Notice of Banco de Portugal No. 11/2005 Official Gazette No. 139 1ª Series B*)  
Regulates the general conditions governing the opening of deposit accounts with credit institutions having their head office or a branch in national territory. The present Notice enters into force 90 days after publication.
- **15 July** (*Notice of Banco de Portugal No. 22/2005, Official Gazette No. 7/2005*)  
Determines the procedures to be adopted in the process of recognising and monitoring internal models that institutions may wish to use in determining own fund requirements to cover market risks.
- **15 July** (*Notice of Banco de Portugal No. 26/2005, Official Gazette No. 7/2005*)  
Establishes mechanisms preventing the utilisation of the Portuguese financial system for money laundering purposes. Revokes Instruction no. 8/2002.
- **19 July** (*Executive order nº 597/2005 of the Ministry of Finance. Public Administration Ministry. Justice Ministry. Official Gazette No.137, Series I B*)  
Establishes the criteria for setting the supplementary rate of interest on arrears relating to credit held by corporations, natural or legal persons, in compliance with the provisions of article 102 (3) of the Commercial Code. The reference rate will be disclosed in Notice of the Directorate-General of the Treasury up to 15 January and 15 July each year. The present Executive Order is applicable as from 1 October 2004. References to Executive Order 1105/2003 (Series II) of 6 October made in the Notices published in the meantime shall refer to the present Executive Order. Current rate: 9.05% (see Notice 6923/2005 (Series II) of 19 July, in the Official Gazette no. 141 of 25 July 2005, Series II).

### August

- **11 August (Regulation of the Ministries of Finance and Public Administration - Portuguese Insurance Institute No 56/2005, Official Gazette No 120, Series II)**

Issues a regulatory rule on the prevention of money laundering and revokes Regulatory Rule No 16/2002-R of 7 June.
- **12 August (Executive Order of the Ministries of Finance and Public Administration No. 651/2005, Official Gazette No 155, Series I, B)**

Under the provisions laid down in paragraph 1 of Article 5 of Law No 39-A/2005 of 29 July, approves the reporting form for the tax settlement of balance sheet items placed abroad (tax settlement reporting form) and the respective instructions for completing the form, published in an annex to this Executive Order.
- **12 August (Circular Letter of Banco de Portugal No 17/05/DET)**

With the scope of the approval of Regime *Excepcional de Regularização Tributária de elementos patrimoniais colocados no exterior - RERT* (Exceptional Regime of the Tax Settlement of balance sheet items placed abroad), lays down provisions on the implementation of procedures between Banco de Portugal and credit institutions as regards the receipt of *Declaração de Regularização Tributária - DRT* (Tax Settlement Declaration) and the respective payment.
- **25 August (Executive Order of the Ministries of Finance and Public Administration No 712/2005, Official Gazette No 163, Series I, B)**

Amends paragraphs 1, 2 and 3 of Executive Order No 913-I/2003 of 30 August, which lays down the new system of supervision fees in the transferable securities market. This Executive Order shall enter into force on 1 September 2005.
- **26 August (Circular Letter of Banco de Portugal No 100/2005/DSB)**

Makes known a set of principles, understood as “good practice principles”, which shall be adopted by institutions in operational or financial contingency situations.
- **26 August (Circular-Letter of Banco de Portugal No 100/05/DSB)**

Discloses a range of Principles on the Contingency Plan to be implemented by credit institutions and financial companies, with a view to having in place a set of procedures ensuring the pursuit of activities of the institutions in crisis situations.
- **29 August (Law No 48/2005, Official Gazette No 165, Series I, A)**

Rewords Articles 2, 8, 11 and 11-A of Decree-Law No 454/91 of 28 December 1991, which approved the legal regime of uncovered cheques. This Law shall enter into force 30 days after its publication.

### September

- **14 September (Regulation of the Ministries of Finance and Public Administration. Securities Market Commission No 7/2005, Official Gazette No 177, Series II)**

Introduces changes in Regulation No 12/2000, which establishes the system governing financial intermediation activities. This Regulation enters into force on 1 January 2006.
- **15 September (Regulation of the Ministries of Finance and Public Administration. Securities Market Commission No 6/2005, Official Gazette No 178, Series II)**

Introduces changes in Regulation No 5/2004, which updates the system governing autonomous warrants, following the changes introduced in the respective system by Decree-law No 70/2004 of 25 March, which amended Decree-Law No 172/99 of 20 May.
- **15 September (Decree-Law of the do Ministry of the Economy and Innovation No 156/2005, Official Gazette No 178, Series I, A)**

Makes it mandatory for every supplier of goods or service provider having direct contact with the general public to have available a complaint book, thereby reinforcing consumer and user protection. This does not apply to the general government services and bodies listed in Article 38 of Decree-Law No 135/99 of 22 April. This Decree-Law enters into force on 1 January 2006.

## Chronology of major financial policy measures 2005

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- **21 September (Circular-Letter of Banco de Portugal No 35/2005/DPG )** Recommends that, after the entry into force of Law No 48/2005 of 29 August, drawer credit institutions shall indicate the date of occurrence of the reason for return reported by drawee credit institutions.
- **21 de September (Notice of Banco de Portugal of 29 July 2005, Official Gazette No 182, Series III, part A)** Makes public that the final accounts submitted by the liquidators of the Mutual Agricultural Credit Bank of Feira, C.R.L. - now being wound up - are available for consultation in the premises of Banco de Portugal, for a period of 30 days.
- **21 September (Regulation of the Ministries of Finance and Public Administration. Securities Market Commission No 8/2005, Official Gazette No 182, Series II )** Introduces changes in Regulation No 7/2004 of 23 December, on the marketing of harmonised foreign collective investment undertakings that do not produce a simplified prospectus, thereby accommodating the recommendation issued by the Committee of European Securities Regulators (CESR) advising that, after 30 September 2005, European Union Member States should not trade in their territory UCITS from another Member States, if these have not adopted the simplified prospectus prepared in compliance with Directive 2001/107/CE of the European Parliament and of the Council of 21 January 2002. Rectified by Rectification No 1644/2005 of 21 September, Official Gazette No 189, Series II, of 30 September 2005.
- **22 September (Instruction No 27/200, BNP No 10/2005)** Sets at 0.03% the basic contributory rate to be applicable to the calculation of the annual contributions to the Deposit Guarantee Fund by participating institutions in 2006. Revokes Instruction No 21/2005. Distributed with Circular Letter No 106/2005/DSB of 22 September.
- **22 September (Instruction No 28/2005 BNP No 10/2005)** Sets a limit for the irrevocable payment commitments to be applicable to contributions to the Deposit Guarantee Fund in 2006 (distributed with Circular Letter No 106/2005/DSB of 22 September).
- **22 September (Opinion of the European Economic and Social Committee of 9 March 2005 (2005/C 234/02), Official Journal C 234)** Opinion on the “Proposal for Directives of the European Parliament and Council re-casting Directive 2000/12/EC of the European Parliament and Council of 20 March 2000 relating to the take up and pursuit of the business of credit institutions and Council Directive 93/6/EEC of 15 March 1993 on the capital adequacy of investment firms and credit institutions” (COM(2004) 486 final - 2004/0155 and 2004/0159 (COD)).
- **22 September 2005 (Circular Letter of Banco de Portugal No 105)** Clarifies that Circular Letter No 8/98/DSB of 25 February, which provides for the deduction from own funds, in the part not yet assigned to results, of various costs equivalent to intangible assets, does not apply to institutions that prepare the respective accounts according to IAS or AAS, under the provisions of Notice No 1/2005.
- **23 September (Decision of the Ministries of Finance and Public Administration. Portuguese Accounting Standards Board, No 20289/2005, Official Gazette No 184, Series II)** In the wake of the approval of Regulation No 1606/2002 of the European Parliament and of the Council of 19 July, and after the entry into force of Commission Regulation No 1725/2003 of 21 September, both of which regulate the application of international accounting standards in the European Union, it determines the rules that shall govern the application of the Generally Accepted Accounting Principles in national accounting regulations. This document replaces the accounting rule No 18 “Objectives of the financial statements and generally accepted accounting principles”, issued on 18 December 1996.
- **28 September (Report and accounts of the Securities Market Commission for 2004, Official Gazette No 187, 2nd Supplement, Series III, Part A)** Publishes the annual report of the activities of the Securities Market Commission in 2004.
- **28 September (Regulation of the Ministries of Finance and Public Administration. Securities Market Commission No 9/2005, Official Gazette No 187, Series II)** Introduces changes in regulation No 15/2003, regulating the legal system governing undertaking for collective investment, approved by Decree-Law No 252/2003 of 17 October.



### October

- **25 October 2005** (*Commission Regulation (EC) No 1751/2005, Official Journal of the European Union. Séries L 2005*)  
Amends Commission Regulation (EC) No 1725/2003 of 21 September, adopting certain international accounting standards in accordance with Regulation (EC) No 1606/2002 of the European Parliament and of the Council, as regards IFRS 1, IAS 39 and SIC 12. This Regulation shall enter into force on the third day following its publication in the OJEU. It shall apply to each financial year of a company starting on or after 1 January 2005.
- **27 October** (*Opinion of the European Economic and Social Committee (2005/C 267/05), Official Journal of the European Union No 267, Series C*)  
Issues an Opinion on the “Proposal for a Directive of the European Parliament and of the Council on the prevention of the use of the financial system for the purpose of money laundering, including terrorist financing (COM (2004) 448 final).

### November

- **3 November** (*Instruction of the Ministry of Finance and Public Administration. Portuguese Accounting Standards Board, No 3/2005 (Series II) of 17 October 2005, Official Gazette No 211, Series II*)  
Presents the technical interpretation of provisions on the presentation, in the context of financial statements, of the amounts relating to the previous fiscal year, taking into account the changes introduced in the Official Chart of Accounts by Decree-Law No 35/2005, of 17 February.
- **15 November 2005** (*Instruction of Banco de Portugal No 30/2005*)  
Lays down that institutions adopting IAS and AAS shall provide additional data to Banco de Portugal.
- **7 November** (*Decree-Law No 192/2005, Ministry of Finance and Public Administration, Official Gazette No 213, Series I-A*)  
Introduces changes in the Personal and the Corporate Income Tax codes, as well as in the Statute of Tax Incentives, with the purpose of preventing tax evasion involving profits distributed. This Decree-Law shall enter into force on 1 January 2006.
- **7 November** (*Decree-Law No 193/2005, Ministry of Finance and Public Administration, Official Gazette No 213, Series I-A*)  
Approves the Special Taxation Scheme of Debt Securities Income, which shall enter into force on 1 January 2006.
- **15 November** (*Instruction of Banco de Portugal No 30/2005, Official Gazette No 11/2005*)  
Lays down that institutions adopting IAS and AAS shall provide additional data to Banco de Portugal.
- **18 November** (*Regulation of the Ministry of Finance and Public Administration. Securities Market Commission, No 10/2005, Official Gazette No 222, Series II*)  
Introduces changes in Regulations No 7/2001 and 4/2004 of the Securities Market Commission on the governance of companies and reporting requirements, with the purpose of strengthening the supervision system, increasing transparency and adapting interim information to the IAS/IFRS benchmark. Rectified by Rectification No 1946/2005, of 21 November, Official Gazette No 228, Series II, of 28 November 2005.





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