# Banco de Portugal

## Economic bulletin

March 2003

*Economic policy and situation*



*Articles*



*Chronology of major financial policy measures*



*Working papers*



*Economic Research*


Volume 9 Number 1

# *Economic policy and situation*

# THE PORTUGUESE ECONOMY IN 2002

## 1. INTRODUCTION

The Portuguese economy witnessed a marked slowdown in 2002. According to the estimates of the Banco de Portugal published in this *Economic Bulletin*, Gross Domestic Product (GDP) increased, in real terms, by 0.4 per cent, compared with 1.7 per cent growth in the previous year (Table 1.1). The deceleration in activity in 2002 is particularly apparent when analysing its behaviour in the course of the year. Banco de Portugal's estimates point to a positive year-on-year change in GDP of 1.3 per cent in the first half of the year and a negative year-on-year change of 0.5 per cent in the second half of the year (see Box: "*Intra-annual development of economic activity in 2002*").

In 2002, real output growth, now disclosed, is very close to the middle point of the projection interval presented in the *Economic Bulletins* from June to December 2002. The contribution of domestic demand and net external demand to growth are also similar to those presented in the course of the previous year. However, stress should be laid on a change in the composition of domestic demand, characterised by a more marked reduction in GFCF and higher growth of public consumption. In addition, trade flows with abroad, as regards both exports and imports, revealed a stronger than expected performance.

The external framework of the Portuguese economy continued to be characterised by particularly unfavourable conditions. In spite of the higher growth in world output in 2002 than in the previous year, activity in the euro area, an economic space that corresponds to approximately two thirds of Portuguese foreign trade flows, slowed down in 2002, posting a GDP growth of 0.8 per cent, the lowest growth since the 1992/1993 recession. Furthermore, the behaviour of the world economy was subject to very high uncertainty levels, determined by doubts as to the dynamism and sustainability of economic recovery, within a framework of adjustment of imbalances accumulated in the second half of the 90s and of the increasing possibility, towards the end of the year, of a military intervention in Iraq. In parallel, the situation in the financial markets deteriorated further in 2002. This was due, in addition to the above factors, to the disclosure of accounting irregularities in some corporations. Against a background of moderate growth of economic activity, absence of significant inflationary pressures and growing uncertainty as to the sustainability of economic recovery worldwide, the North-American monetary authority and the European Central Bank (ECB) — which had maintained the official interest rates unchanged in the course of 2002 — decided to reduce those rates in November and December 2002,

Table 1.1

MAIN ECONOMIC INDICATORS

Percentage rates of change

| | 2000 | 2001 | 2002 |
|---|---|---|---|
| Private consumption | 2.9 | 1.0 | 0.4 |
| Public consumption | 3.8 | 3.5 | 2.6 |
| GFCF | 4.9 | 0.3 | -5.4 |
| Change in inventories [(a)] | -0.5 | 0.1 | 0.1 |
| Domestic demand | 3.1 | 1.4 | -0.5 |
| Exports | 8.5 | 1.8 | 2.4 |
| Overall demand | 4.3 | 1.5 | 0.1 |
| Imports | 5.6 | 1.1 | -0.6 |
| GDP | 3.7 | 1.7 | 0.4 |
| Current account + capital account (% of GDP) | -8.9 | -8.4 | -5.7 |
| Household savings rate | 11.4 | 11.8 | 12.4 |

Note:

(a) Contribution to GDP growth in percentage points.

respectively. As a result, at the end of the year, bank interest rates in Portugal stood at historically low levels, particularly real interest rates.

Turning to the fiscal policy, the general government deficit, on a National Accounts basis, stood at 2.7 per cent of GDP in 2002, slightly below the target announced in the Supplementary Budget of May 2002 (2.8 per cent of GDP) and significantly below the 2001 deficit (4.2 per cent of GDP). Behind the reduction in the deficit in 2002 was, in a decisive way, a set of extraordinary measures accounting for approximately 1.5 p.p. of GDP — a programme for the settlement of fiscal debts and the sale of the fixed telephone network, of real estate and of the rights for the reintroduction of tolls in CREL (road infrastructure). Excluding these extraordinary effects, the value of the deficit reached a level very close to that observed in 2001. However, since the macroeconomic situation has deteriorated significantly vis-à-vis 2001, the cyclically adjusted primary balance, corrected for temporary effects, increased by 0.3 percentage points (p.p.) of GDP, thus discontinuing a deterioration trend that had reached an accumulated change of approximately 3 p.p. of GDP in the period from 1997 to 2001. This initial consolidation effort was centred on the receipts side that increased by 0.8 p.p. of GDP, when adjusted for cyclical and temporary effects, since primary expenses continued to grow by 0.5 p.p. of GDP, when a similar adjustment is considered.

The domestic demand components more sensitive to the economic cycle — durable consumer goods and Gross Fixed Capital Formation (GFCF) of both corporations and households — had, in general, a higher real decline than in 2001. Public expenditure decelerated more markedly in investment than in public consumption, but continued to grow in real terms. Public consumption was, in fact, the component of domestic expenditure that registered the highest increase in 2002. As a result of the trend of its public and private components, domestic demand had a real negative change of 0.5 per cent (growth of 1.4 per cent in 2001).

The contribution of net external demand to GDP growth increased in 2002 to 1.0 p.p, after a marginally positive value in the previous year. Imports declined, in volume, by around 0.6 per cent, chiefly reflecting the high import content of expenditure components more sensitive to cyclical fluctuations. Exports grew, in real terms, by 2.4 per cent, approximately 0.5 p.p. above growth in 2001, against a background of weakening external demand in the Portuguese economy. Information available indicates that Portuguese exports of goods recorded an accumulated gain of market shares close to 0.5 and 1.4 per cent, in 2001 and 2002 respectively. This result was obtained in a context of relatively unfavourable developments of unit labour costs in Portugal vis-à-vis major trade partners, which has only been made possible by the contraction in exporters' profit margins.

In 2002, the households' savings rate stood at 12.4 per cent of disposable income (11.8 per cent in 2001), showing an increase for the third consecutive year. Compared with 1999, the year when it had reached the lowest level, it increased by approximately 3.5 p.p. In addition to the increase in savings for precautionary reasons, determined by the deterioration of the economic outlook and the sharp increase in unemployment, this trend also reflects the need to allocate a growing share of the disposable income of households to the repayment of bank lending, in particular loans for house purchase.

External borrowing requirements of the Portuguese economy, measured by the joint deficit of the current and capital accounts, declined from 8.4 per cent in 2001 to 5.7 per cent of GDP in 2002. All resident institutional sectors — households, corporations and general government — have contributed to this result. Broken down by account item, the major contribution was the narrowing by 2.1 p.p. of GDP in the trade account deficit. Behind this trend was a volume effect — associated with the positive real growth of exports and with the negative real growth of imports — and some gains in terms of trade. The strong recovery of public transfers associated with funds received by the European Union has also contributed, albeit to a lower degree, to the decrease in external borrowing requirements of the Portuguese economy.

In 2002, labour market developments showed a marked change from its trend in previous years. In particular, the unemployment rate rose to 5.1 per cent, in annual average terms, i.e. 1.0 p.p. above the level recorded in 2001. It should also be mentioned that the intra-annual pattern was very marked, with strong increases in the unemployment rate in the second half of the year. In the

fourth quarter of 2002, the unemployment rate reached 6.2 per cent (approximately 2 p.p. above that observed in the same quarter of 2001). Total employment underwent practically negligible growth (0.2 per cent), reflecting a decline in the private sector that was offset by an increase in public sector employment. The change in apparent productivity was virtually nil for the third consecutive year, in line with average developments in the euro area. Finally, nominal compensation per employee has decelerated, but continued to show significant increases, clearly above the trend observed in the euro area. The real growth of the compensation per employee increased again above productivity growth for the sixth consecutive year.

In December 2002, the year-on-year rate of change in the Consumer Price Index (CPI) stood at 4.0 per cent, revealing an upward trend as of the second quarter. In terms of annual average, the CPI change stood at 3.6 per cent, 0.8 p.p. less than in the previous year. The trend of consumer prices in 2002 reflects the effect of different mixed factors. Among these, the most salient downward factors were the lower growth in prices of unprocessed food, the lower import prices and the deceleration in nominal wages. Among the upward factors are the process of conversion of prices in escudos into euros and the increase in the VAT standard rate, that have affected the trend of consumer prices in the first quarter and as of June 2002 respectively. Moreover, the sharp increases in prices observed in most services — above a level explainable by the aforementioned factors — seem to point to increases in profit margins, thus taking advantage of a less competitive market structure, at least in some sub-sectors. This stands in clear contrast with goods, where the partial or even total absorption of the VAT increases by profit margins was apparent in some items. It is also relevant to refer to the abovementioned decline in profit margins in the exporting sector.

The inflation differential between Portugal and the euro area, measured by the annual average change in the Harmonised Index of Consumer Prices (HICP)[(1)] narrowed to 1.4 p.p. in 2002 (2.0 p.p. in 2001). However, excluding from the HICP the more volatile components — unprocessed food and energy — that differential has widened consistently over the year, from 1.6 p.p. in the first quarter to 2.4 p.p. in the fourth quarter. In the case of the services component, that differential widened from 2.0 p.p. to 3.5 p.p. over the same period.

## 2. EXTERNAL FRAMEWORK AND MONETARY POLICY IN THE EURO AREA

### 2.1. Main international economic developments

The world economic activity proceeded in 2002 the recovery started at the end of 2001. However, the pace of growth did not strengthen during the year, recording some moderation in the last quarter, particularly in the advanced economies. The world economy was affected by very high uncertainty levels, associated with doubts as to the dynamism and sustainability of the recovery, within a framework of adjustment of imbalances accumulated in the second half of the 90s and of increasing possibility, at the end of the year, of a military intervention in Iraq. World output grew 3.0 per cent in 2002 (after 2.3 per cent in 2001), slightly below the average growth observed in the period 1990-2000 (Table 2.1). In terms of economic areas, the Asian countries (excluding Japan) and the countries with economies in transition maintained a high growth, in contrast with Latin America, where GDP recorded a growth almost nil for the second consecutive year. Regarding the advanced economies, one should mention the recovery of economic activity in the US, where GDP accelerated by 2.1 p.p. to 2.4 per cent, and the slowdown from 1.4 to 0.8 per cent in the euro area as a whole. Against the International Monetary Fund forecasts in September 2002, activity was, in general, slightly stronger than expected, although this was not the case in the major European economies.

Inflationary pressures worldwide remained contained in 2002, given the moderate growth of activity and the excess of production capacity in several countries. The inflation rate decreased in most regions, with the advanced economies recording a reduction of 0.7 p.p. Nevertheless, the energy component of consumer prices accelerated in the main economies during 2002, in line with

(1) The analysis of developments in the inflation differential in this text uses an HICP series for the euro area which includes Greece since 1995. The series analysed in section 2. "*External framework and monetary policy in the euro area*" includes Greece only from 2001 onwards.

Table 2.1

WORLD — GDP AND CONSUMER PRICES

Percentage change

| | GDP | | | | Consumer prices | | | |
|---|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | *2002 (rev. against Sep. 02)* | 2000 | 2001 | 2002 | *2002 (rev. against Sep. 02)* |
| World economy | 4.7 | 2.3 | 3.0 | *0.2* | - | - | - | - |
| Countries in transition | 6.6 | 5.1 | 4.1 | *0.2* | 20.7 | 16.3 | 11.1 | *-0.2* |
| Russia | 9.0 | 5.0 | 4.3 | *-0.1* | 20.8 | 20.7 | 16.0 | *0.2* |
| Developing countries | 5.7 | 3.9 | 4.6 | *0.4* | 5.8 | 5.8 | 5.4 | *-0.2* |
| Developing countries in Asia | 6.8 | 5.7 | 6.5 | *0.4* | 1.8 | 2.7 | 1.9 | *-0.2* |
| ASEAN-4[a] | 5.1 | 2.6 | 4.3 | *0.7* | 3.0 | 6.6 | 5.9 | *-0.3* |
| Latin America | 4.0 | 0.6 | -0.1 | *0.5* | 6.8 | 6.4 | 8.7 | *0.1* |
| Brazil | 4.4 | 1.4 | 1.5 | *0.0* | 7.1 | 6.8 | 8.4 | *1.9* |
| Advanced economies | 3.8 | 0.9 | 1.8 | *0.1* | 2.3 | 2.2 | 1.5 | *0.1* |
| New industrialized economies in Asia[b] | 8.4 | 0.8 | 4.6 | *-0.1* | 1.1 | 1.9 | 1.0 | *-0.1* |
| US | 3.8 | 0.3 | 2.4 | *0.2* | 3.4 | 2.8 | 1.6 | *0.1* |
| Japan | 2.8 | 0.4 | 0.3 | *0.8* | -0.7 | -0.7 | -0.9 | *0.1* |
| United Kingdom[c] | 3.1 | 2.1 | 1.8 | - | 2.1 | 2.1 | 2.2 | *0.3* |
| Euro area | 3.5 | 1.4 | 0.8 | *-0.1* | 2.1 | 2.3 | 2.3 | *0.2* |

Sources: IMF, World Economic Outlook (April 2003 and September 2002), Thomson Financial Datastream and Eurostat.

Notes:

(a) Indonesia, Malaysia, Philippines and Thailand.

(b) Korea, Hong-Kong, Taiwan and Singapore.

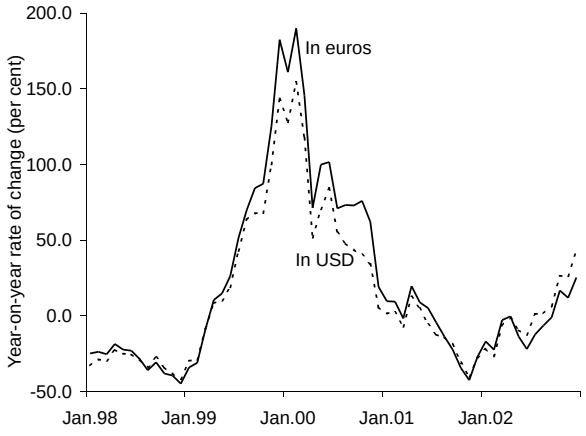
(c) Consumer prices excluding mortgage interest payments.

the behaviour of oil price in international markets. The oil price (Brent), after staying at around 20 USD/barrel in the beginning of the year, reached 30 USD/barrel at the end of 2002. In year-on-year terms, after a deceleration in the two previous years, the oil price accelerated during 2002, particularly in the later months (Chart 2.1). The substantial increase of oil price at the end of the year was influenced by the increasing prospects of war in Iraq and by the disturbances in the oil supply associated with the political crisis in Venezuela.

Notwithstanding the improvements in overall activity, the situation in financial markets deteriorated again in 2002 (Table 2.2). Developments in major financial markets were affected by the disclosure of accounting and management irregularities in some corporations, as well as on growing doubts as to the pace and sustainability of world economic recovery, aggravated towards the end of the year by increasing tensions related with the Iraqi crisis. Against this background, and reflecting both the erosion of confidence and a higher aversion to risk by investors, stock markets recorded significant declines and government bond yields dropped to historical lows, while volatility in both markets reached very high levels (Chart 2.2). Moreover, financing conditions deteriorated in private corporations and higher risk sovereign debtors. The depreciation of the dollar in foreign exchange markets, in particular vis-à-vis the euro, was also significant, in a context in which the US external imbalance was further accentuated.

Reflecting the moderate growth of economic activity, the absence of significant inflationary pressures and the uncertainty as to the sustainability of economic recovery worldwide, the interest rates of the main monetary authorities were left unchanged during most of the year, after the strong decline recorded in 2001. At the end of the year, the signs of moderation in growth, along with a rise in uncertainty, led the US and euro area monetary authorities to reduce their official interest rates. Thus, on 6 November, the Federal Reserve lowered the target for the Federal Funds rate by 50 basis points (b.p.) to 1.25 per cent, an accumulated decline of more than 5 p.p. since December 2000. One month later, the ECB Governing Council also decided to lower by 50 b.p. the minimum bid rate on the main refinancing operations to 2.75 per cent, totalling a decrease of 2 p.p. in a

Chart 2.1
INTERNATIONAL OIL PRICE (BRENT)




Sources: Thomson Financial Datastream and Banco de Portugal.

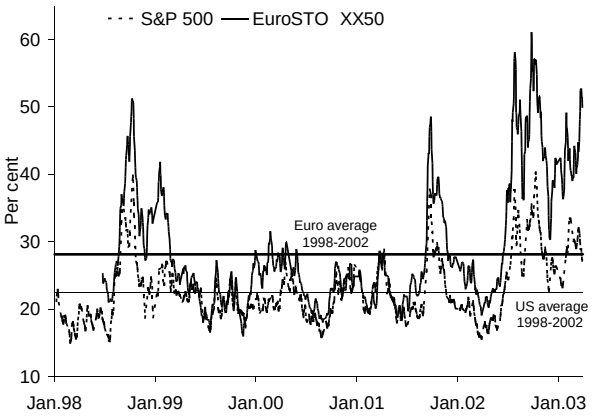
two-year period. In the United Kingdom, official interest rates were kept unchanged in 2002, after a 2 p.p. reduction in 2001.

Regarding fiscal policies, the expansionary stance already apparent in 2001 was substantially reinforced in 2002 in the US and in the United Kingdom. In the US, the cyclically adjusted primary balance decreased by 4.6 p.p. of GDP between 2000 and 2002. In the United Kingdom, the reduction of the cyclically adjusted primary balance between 2000 and 2002 was approximately 3 p.p. of GDP. Finally, in the euro area, the cyclically adjusted primary balance presented an accumulated decline of 0.7 p.p. of GDP since 2000, but the starting budget situation was more unfavourable than that observed in the two other economies. Therefore, as shown in Chart 2.3, the softening in monetary and fiscal policies over the last two years was very significant in the US, in the United Kingdom and, to a lesser degree, in the euro area.

## 2.2. Monetary and financial situation in the euro area

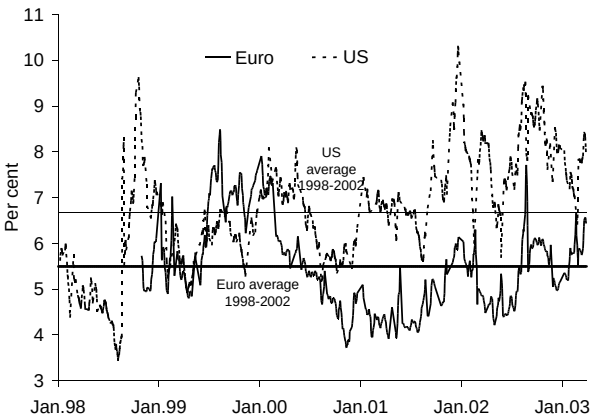
As previously mentioned, ECB official interest rates were left unchanged in the first eleven months of 2002 at the levels set in November 2001. At its meeting on 5 December 2002, the Governing Council of the ECB decided to reduce the minimum bid rate in the main refinancing operations

Chart 2.2A
VOLATILITIES IMPLIED IN MAJOR STOCK PRICE INDICES[a]
(January 1998 to March 2003)




Source: Bloomberg.
Note:
(a) Volatilities implied in futures contracts with closest delivery date on stock price indices. (5-day moving average).

Chart 2.2B
VOLATILITY IMPLIED IN LONG-TERM GOVERNMENT BONDS[a]
(January 1998 to March 2003)




Source: Bloomberg.
Note:
(a) Volatilities implied in futures contracts with closest delivery date on stock prices of long-term government bonds (5-day moving average).

by 50 b.p., to 2.75 per cent (Table 2.3). The decisions taken by the Council in the course of 2002 to

Table 2.2

Stock market indices — Changes – (in percentage)

| Daily data | S&P500 | Nasdaq | Nikkei 225 | FTSE 100 | Dow Jones Euro Stoxx |
|---|---|---|---|---|---|
| 2000 | | | | | |
| Average | 8 | 39 | 2 | 1 | 30 |
| End-of-period | -10 | -39 | -27 | -10 | -6 |
| 2001 | | | | | |
| Average | -16 | -46 | -30 | -13 | -21 |
| End-of-period | -13 | -21 | -24 | -16 | -20 |
| 2002 | | | | | |
| Average | -17 | -24 | -16 | -17 | -23 |
| End-of-period | -23 | -32 | -19 | -24 | -35 |
| End-of-period (since the peaks observed between 1999 and 2000) | -42 | -74 | -59 | -43 | -56 |

Long-term interest rates — Public debt – (in percentage)

| Daily data | US | Japan | United Kingdom | Euro area |
|---|---|---|---|---|
| 2000 | | | | |
| Average | 6.02 | 1.76 | 5.26 | 5.45 |
| End-of-period | 5.11 | 1.63 | 4.88 | 5.02 |
| 2001 | | | | |
| Average | 5.00 | 1.34 | 4.90 | 5.03 |
| End-of-period | 5.05 | 1.37 | 5.05 | 5.13 |
| 2002 | | | | |
| Average | 4.59 | 1.28 | 4.87 | 4.92 |
| End-of-period | 3.81 | 0.91 | 4.37 | 4.26 |

Nominal effective exchange rate index — Changes (in percentage)

| Monthly data | Dollar | Yen | Pound | Euro |
|---|---|---|---|---|
| 2000 | | | | |
| Average | 3.4 | 10.5 | 2.8 | -10.5 |
| End-of-period | 8.5 | -2.9 | -0.5 | -5.2 |
| 2001 | | | | |
| Average | 6.8 | -8.2 | -1.2 | 1.8 |
| End-of-period | 5.1 | -10.4 | 0.3 | 2.7 |
| 2002 | | | | |
| Average | -1.1 | -5.2 | 0.5 | 3.0 |
| End-of-period | -6.5 | -2.0 | -0.3 | 6.7 |

Differentials between private and government bond yields at 7 to 10 years

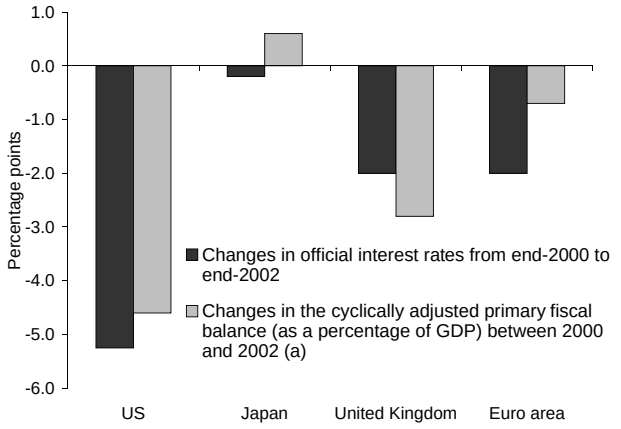
| Daily data | Euro area | | US | |
|---|---|---|---|---|
| Basis points | AAA | BBB | AAA | BBB |
| 2000 | | | | |
| Average | 42 | 143 | 91 | 188 |
| End-of-period | 49 | 197 | 87 | 216 |
| 2001 | | | | |
| Average | 32 | 202 | 59 | 192 |
| End-of-period | 22 | 182 | 42 | 182 |
| 2002 | | | | |
| Average | 25 | 207 | 64 | 221 |
| End-of-period | 22 | 194 | 70 | 209 |

Differentials between government bond yields issued in dollars by emerging market economies vis-à-vis US Treasury bonds

| Daily data | 2001 | | 2002 | |
|---|---|---|---|---|
| Basis points | Average | End-of-period | Average | End-of-period |
| JP Morgan EMBI Global | 794 | 728 | 728 | 725 |
| JP Morgan EMBI Latin America | 862 | 888 | 966 | 981 |

Sources: European Central Bank, Banco de Portugal, Bank for International Settlements, Bloomberg and JP Morgan.

Chart 2.3
CHANGES IN MONETARY AND FISCAL POLICIES OVER THE LAST TWO YEARS




Sources: Bloomberg, European Central Bank, OECD and European Commission.

Note:

(a) In the case of Japan, it includes deferred tax payments on savings.

leave unchanged its official interest rates occurred in a context in which prospects as to inflation in the euro area in the relevant horizon for the conduct of monetary policy were compatible with price stability over the medium term, albeit with significant changes in the respective balance of risks.

In the first months of 2002, economic information pointed to a gradual improvement of economic activity in the euro area throughout the year, to values close to potential output growth, although the moment and of the magnitude of that recovery was still uncertain. There is however some fear that the persistence of inflation rates above 2 per cent, to a large extent due to an exceptional concentration of adverse shocks on prices, might translate into inflationary pressures in the medium term, particularly due to potential second round effects on wage growth.

As from mid-year, it seemed increasingly apparent that the pace of economic recovery in the euro area was evolving more slowly than previously expected and that the growth rates would not accelerate to levels close to those of potential output before mid-2003. Moreover, the negative effects on consumer and investor confidence of the instability in financial markets, of the persistence of imbalances at world level and, towards the end of the year, of the emergence of geopolitical tensions associated with the prospects of a military conflict in Middle East, implied further downward risks for economic recovery. This situation, together with the continued appreciation of the euro since April, have contributed to a slowdown of inflationary pressures in the medium run, gradually reducing risks for price stability. At the end of the year, the increased signs of moderation of economic activity and of the maintenance of the appreciating trend of the euro have increased prospects of a decrease in medium-term inflationary pressures. This situation, against a framework of very high uncertainty and downward risks for the trend of economic activity in the euro area, led the Governing Council of the ECB to reduce the official interest rates in December 2002. With this decision, the Council wished to contribute to an improvement of prospects for economic activity in the euro area, thus partly offsetting the risks for economic growth(2).

Market expectations as to the path of official interest rates in the euro area underwent significant changes in the course of 2002 (Chart 2.4). From the beginning of the year up to May, markets participants expected a rise in official interest rates between 50 and 75 b.p. up to December 2002. As from May, expectations as to the magnitude of the interest rate rise were gradually revised downwards, in line with the change in prospects as to economic growth and with the evaluation of risks for price stability in the euro area. As from September, the three-month EURIBOR, as implied in futures contracts, reflected expectations of a reduction in official interest rates of approximately 25 b.p. up to the end of the year. Reflecting market expectations and the decline in ECB official interest rates at the end of the year, money market interest rates maintained up to May 2002 a slightly upward trend, that was reversed in September. In December 2002, the three-month EURIBOR stood

(2) In the first months of 2003, the adverse effects on economic activity, associated with the increasing probability of a military conflict in Iraq and the continued appreciation of the euro led to a further reduction of the official interest rates of the Eurosystem by 25 b.p., on 6 March 2003.

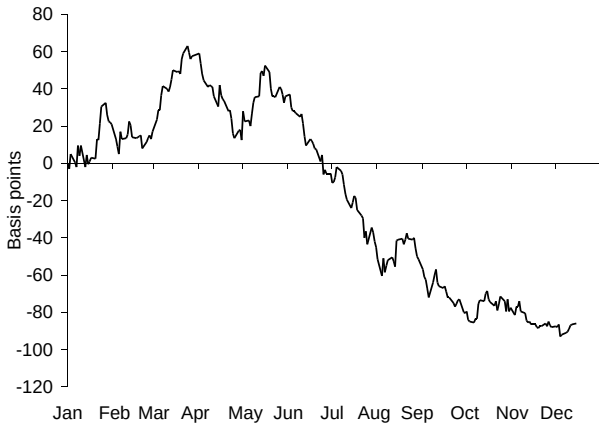
Table 2.3

## EURO AREA — MONETARY AND FINANCIAL INDICATORS

| | Units | 2000 | 2001 | 2002 | 2002 | | | | | 2003 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dec | Dec | Dec | Jan | Mar | Jun | Sep | Dec | Jan | Feb | Mar |
| Euro exchange rate | | | | | | | | | | | | |
| Dollar | dollars, period average | 0.897 | 0.892 | 1.018 | 0.883 | 0.876 | 0.955 | 0.981 | 1.018 | 1.062 | 1.077 | 1.081 |
| Yen | yen, period average | 100.6 | 113.4 | 124.2 | 117.1 | 114.7 | 117.8 | 118.4 | 124.2 | 126.1 | 128.6 | 128.2 |
| Sterling pound | pounds, period average | 0.613 | 0.620 | 0.642 | 0.617 | 0.616 | 0.644 | 0.631 | 0.642 | 0.657 | 0.670 | 0.683 |
| Effective exchange rate index | 1999Q1=100, period average | 85.4 | 87.7 | 93.6 | 87.6 | 86.8 | 90.6 | 91.2 | 93.6 | 95.8 | 97.1 | 97.9 |
| Interest rates | | | | | | | | | | | | |
| ECB's intervention rates | | | | | | | | | | | | |
| Main refinancing operations | %, end-of-period | 3.00 | 3.25 | 2.75 | 3.25 | 3.25 | 3.25 | 3.25 | 2.75 | 2.75 | 2.75 | 2.50 |
| Marginal lending facility | %, end-of-period | 4.00 | 4.25 | 3.75 | 4.25 | 4.25 | 4.25 | 4.25 | 3.75 | 3.75 | 3.75 | 3.50 |
| Deposit facility | %, end-of-period | 2.00 | 2.25 | 1.75 | 2.25 | 2.25 | 2.25 | 2.25 | 1.75 | 1.75 | 1.75 | 1.50 |
| Interbank money market | | | | | | | | | | | | |
| EONIA | %, period average | 4.83 | 3.34 | 3.09 | 3.29 | 3.26 | 3.35 | 3.32 | 3.09 | 2.79 | 2.76 | 2.75 |
| 3-month Euribor | %, period average | 4.93 | 3.34 | 2.94 | 3.34 | 3.39 | 3.46 | 3.31 | 2.94 | 2.83 | 2.69 | 2.53 |
| 12-month Euribor | %, period average | 4.87 | 3.30 | 2.87 | 3.48 | 3.82 | 3.87 | 3.24 | 2.87 | 2.71 | 2.50 | 2.41 |
| Government bond yields | | | | | | | | | | | | |
| 5-year | %, period average | 4.82 | 4.33 | 3.63 | 4.48 | 4.90 | 4.70 | 3.85 | 3.63 | 3.40 | 3.18 | 3.26 |
| 10-year | %, period average | 5.07 | 4.96 | 4.41 | 5.02 | 5.32 | 5.16 | 4.52 | 4.41 | 4.27 | 4.06 | 4.13 |
| Stock markets | | | | | | | | | | | | |
| Dow Jones Euro Stoxx index | in points, period average | 394.5 | 308 | 213.6 | 308.5 | 315.4 | 269.8 | 211.8 | 213.6 | 206.3 | 189.8 | 183.0 |
| Monetary and credit aggregates | | | | | | | | | | | | |
| M3 | %, y-o-y r.c. | 4.1 | 7.9 | 6.8 | 7.7 | 7.2 | 7.1 | 7.2 | 6.8 | 7.2 | 8.1 | - |
| | 3-month moving average | 3.9 | 7.8 | 7.0 | 7.6 | 7.2 | 7.2 | 7.0 | 7.0 | 7.4 | - | - |
| M2 | %, y-o-y r.c. | 3.6 | 6.4 | 6.5 | 6.7 | 6.3 | 6.4 | 6.6 | 6.5 | 6.6 | 7.3 | - |
| M1 | %, y-o-y r.c. | 5.2 | 5.5 | 9.8 | 6.6 | 6.0 | 6.8 | 8.2 | 9.8 | 9.5 | 10.3 | - |
| Credit to residents | %, y-o-y r.c. | 6.0 | 5.2 | 4.1 | 5.2 | 4.8 | 4.4 | 4.3 | 4.1 | 4.1 | 4.3 | - |
| Credit the private sector | %, y-o-y r.c. | 10.1 | 6.7 | 4.7 | 6.2 | 5.4 | 5.3 | 5.0 | 4.7 | 4.8 | 4.8 | - |
| Credit o general government | %, y-o-y r.c. | -6.6 | 0.0 | 1.7 | 1.6 | 2.8 | 1.0 | 1.7 | 1.7 | 1.8 | 2.4 | - |

Source: ECB.

Chart 2.4
ACCUMULATED CHANGES VIS-À-VIS EARLY JANUARY 2002 IN EXPECTATIONS OF THE 3-MONTH EURIBOR IMPLIED IN FUTURES CONTRACTS MATURING IN DECEMBER 2002




Source: Bloomberg.
Note: Interest rate implied in futures contracts maturing in December 2002 as at 2 January 2002=3.8per cent; 3-month Euribor rate on the same date =3.3 per cent.

at an average monthly value of 2.94 per cent, compared with 3.34 per cent in December 2001.

In 2002, the euro exchange rate appreciated on average by 5.5 per cent vis-à-vis the dollar and by 3.0 per cent in nominal effective terms[3]. The upward trend of the euro was maintained in the first months of 2003 with an additional nominal effective appreciation of 4.1 until March. The euro appreciated against the dollar by 19.0 percent, between the end of 2001 and the end of 2002, and by 3.9 per cent, between the latter date and 31 March 2003.[4]

In 2002, the stock and bond market trend in the euro area was in line with the behaviour of major international markets. The Dow Jones Eurostoxx index decreased for the third consecutive year, and its average value in December 2002 stood 31 per cent below the level recorded in December 2001. Reflecting the preference of investors for lower risk assets, average ten-year government bond yields in the euro area declined by 0.6 p.p. from December 2001 to December 2002, to reach 4.4 per cent. This seems to have reflected a significant drop in medium- and long-term real yields, against a background of relative stability of inflation expectations in the euro area on that horizon. Indeed, in that period, real interest rates, as implied in bonds index-linked to the euro area inflation rate, declined by approximately 0.5 p.p.

## 3. MONETARY CONDITIONS OF THE PORTUGUESE ECONOMY

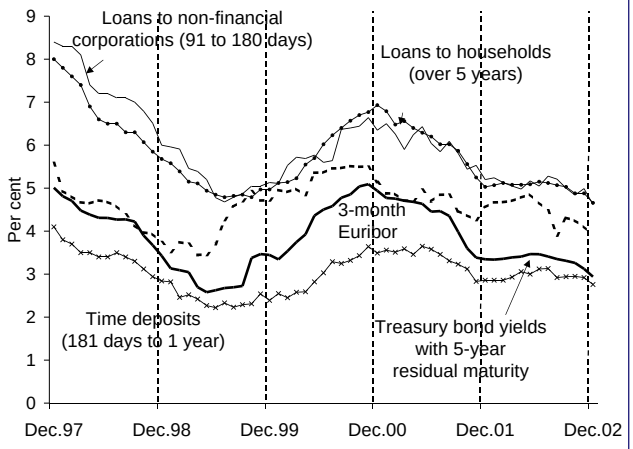
### 3.1. Monetary conditions

As mentioned in the previous section, as a result of the maintenance of the Eurosystem's key interest rates unchanged from 8 November 2001 to 5 December 2002, short-term money market interest rates remained broadly stable in 2002. The downward trend of money market rates observed in 2001 was only resumed in the last quarter of the year, with the emergence of expectations of cuts in official interest rates, which were confirmed in early December. The stability shown by short-term money market rates in the euro area was reflected in the behaviour of nominal bank interest rates in Portugal in the course of the year. These, for a large part of the year, were kept at levels very close to those observed at the end of 2001 and below those recorded at the end of 2000. In the last months of 2002, nominal bank interest rates declined slightly, following the money market interest rate trend (Chart 3.1).

In December 2002, the interest rate on loans to non-financial corporations (for maturities between 91 and 180 days) stood at 4.6 per cent, a decrease of 0.6 p.p. vis-à-vis the value recorded at the end of the previous year. In turn, at the end of 2002, the interest rate on loans to households with maturities of over five years stood at 4.7 per cent, representing a decline of 0.4 p.p. from the value observed in December 2001. The interest rate on time deposits (with maturities from 181 days to 1 year) remained virtually unchanged throughout the year, decreasing by 0.1 p.p. from December 2001 to December 2002 (standing at 2.8 per cent at the end of the year). The stability seen in bank interest rates was reflected in a gradual narrowing of the spreads between money market interest rates and bank interest rates. This trend was particularly no-

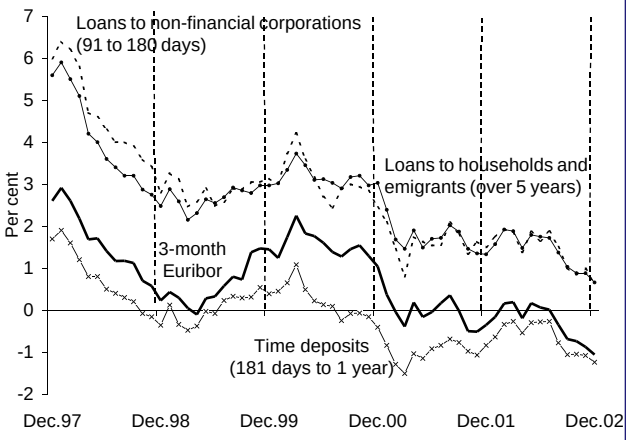
(3) Calculated from monthly data.
(4) Calculated from daily data.

Chart 3.1
BANK INTEREST RATES AND MONEY MARKET INTEREST RATES




Note: Euribor is available since 1 January 1999. Up to 31 December 1998, it was taken into account Lisbor with equivalent maturity (on a 360-day basis, in order to ensure the series continuity).

Chart 3.2
REAL BANK INTEREST RATES




Notes:
(a) Euribor is available since 1 January 1999. Up to 31 December 1998, it was taken into account Lisbor with equivalent maturity (on a 360-day basis, in order to ensure the series continuity).
(b) In spite of the acknowledged limitations of this proce dure, real interest rates are calculated as the contemporaneous difference between nominal interest rates and the year-on-year rate of change of the CPI, since it is difficult to determine accurately the expectations of economic agents regarding the inflation rate in the relevant period.

ticeable in the spread between 6-month Euribor and the interest rate on deposits (181 days to 1 year) that recorded virtually nil figures at the end of 2002. In December 2002, this spread stood at 0.1 p.p. (0.4 p.p. in December 2001).

During the first half of 2002, real bank interest rates[5] did not undergo significant changes (Chart 3.2). However, in the second half of the year, real interest rates decreased significantly. Real interest rates of lending operations with households and non-financial corporations had a very similar trend in the course of the year, and decreased by 0.7 and 0.9 p.p. respectively, between December 2001 and the end of 2002. In December 2002, real lending interest rates reached historical lows[6]. The real interest rate on deposits, which has been negative since mid-2000, recorded an additional reduction of 0.4 p.p., to -1.2 per cent in December 2002.

The evolution of interest rates over the last two years should have resulted in a gradual easing of monetary conditions. However, this trend seems to have been mitigated by the evolution of the effective exchange rate index, which has appreciated since end-2000. The effective exchange rate index for Portugal has recorded, in annual average terms, a nominal appreciation of 0.6 per cent in 2001 and of 0.5 per cent in 2002. In real terms,[7] the appreciation of the index was much more significant, having increased by 3.4 and 2.6 per cent respectively in 2001 and 2002. The continued growth of unit labour costs much above the increase recorded by our major trading partners, particularly those participating in the euro area, translated into a loss of competitiveness over the

(5) Real interest rates are calculated as the contemporaneous difference between nominal interest rates and the year-on-year rate of change in the CPI. In spite of its acknowledged limitations, this procedure is used to estimate real interest rates, since it is difficult to accurately assess the expectations of economic agents regarding the inflation rate in the relevant period.

(6) The real interest rate on loans to non-financial corporations (91 to 180 days) stood at 0.6 per cent. In turn, the real interest rate on loans to households for maturities over 5 years stood at 0.7 per cent in December 2002.

(7) The real effective exchange rate index is calculated using unit labour costs for the economy as a whole, excluding government transfers to *Caixa Geral de Aposentações.*

Chart 3.3
DEPOSITS OF THE NON-FINANCIAL PRIVATE SECTOR IN THE RESIDENT BANKING SYSTEM
Year-on-year rate of change

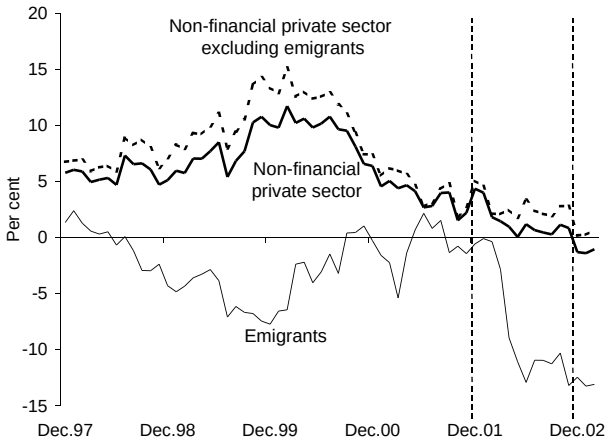
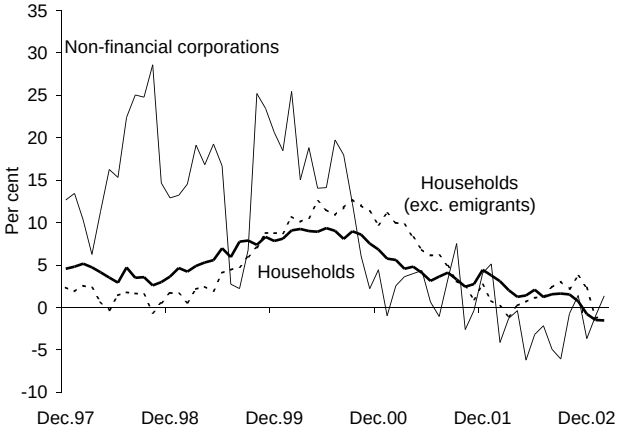



Chart 3.4
DEPOSITS OF THE NON-FINANCIAL PRIVATE SECTOR IN THE RESIDENT SECTOR
Year-on-year rate of change




last two years, which has been accommodated through cuts in the profit margins of the sectors more exposed to competition.

In 2002, the growth rates of deposits held by the non-financial private sector in the resident banking system maintained a downward trend (Charts 3.3 and 3.4). Taking into account annual average stocks, deposits held by the non-financial private sector in 2002 recorded a rate of change of 0.9 per cent, compared with 3.7 per cent in the previous year. Also in annual average terms, the rate of change of deposits held by households decreased by 2.4 p.p. from the previous year, to stand at 1.6 per cent, while the rate of change of deposits held by non-financial corporations declined by 4.3 p.p., from 2.1 per cent in 2001 to -2.3 per cent in 2002. The deceleration of deposits was particularly strong in the second quarter of 2002 and, most notably, in the last month of the year. In December 2002, the year-on-year rate of change of deposits held by the non-financial private sector in the resident banking system stood at -1.3 per cent, compared with 4.4 per cent in December 2001 (and with 6.4 per cent at the end of 2000). Broken down by institutional sector, the year-on-year rate of change of deposits held by households decreased from 4.4 per cent in December 2001, to -0.8 per cent in December 2002, while the year-on-year rate of change of deposits held by non-financial corporations declined 7.7 p.p. over the same period, to stand at -3.7 per cent at the end of 2002. It should be noticed, however, that the evolution of deposits held by the non-financial private sector in the resident banking system continued to be rather constrained by the evolution of emigrants' deposits, which declined significantly in 2002 (chiefly in the first half of the year), recording a year-on-year rate of change of -12.5 per cent in December 2002. Indeed, the deposit aggregates excluding emigrants' deposits did not show such a significant deceleration. The year-on-year rate of change of deposits held by households excluding emigrants' deposits decreased from 5.3 to 1.2 per cent, between December 2001 and December 2002. In turn, the year-on-year rate of change of deposits held by the non-financial private sector excluding emigrants' deposits decreased from 5.1 to 0.2 over the same period. The evolution of emigrants' deposits is, to a large extent, associated with the delocalisation of savings of these agents to non-resident banking institutions that are, however, included within the consolidation perimeter of Portuguese banking groups.

As an alternative to deposits in the resident banking system, if account is taken of all deposits held by the Portuguese non-financial private sector (including emigrants) in Portugal and abroad,[8] the deceleration of deposits in 2002, albeit quite significant, does not seem to be as strong

Chart 3.5
DEPOSITS OF THE NON-FINANCIAL PRIVATE SECTOR IN THE RESIDENT BANKING SYSTEM AND ABROAD
Year-on-year rate of change

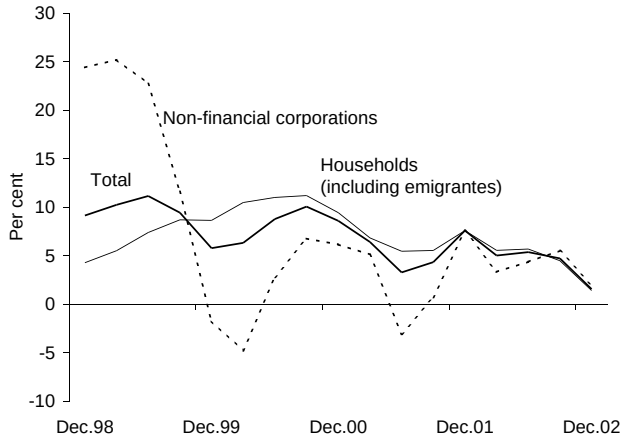
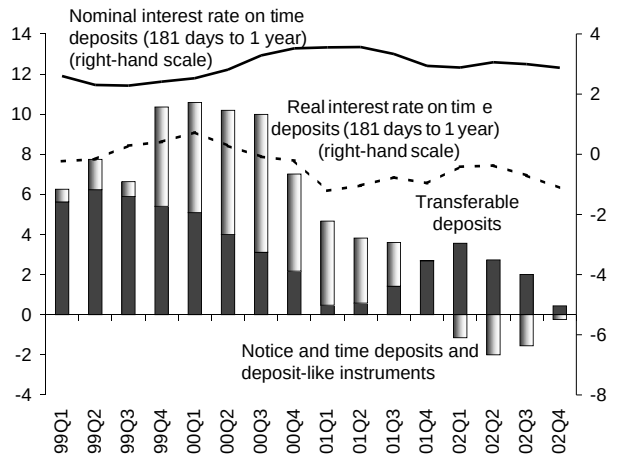



Chart 3.6
CONTRIBUTIONS TO THE GROWTH RATE OF DEPOSITS AND DEPOSIT-LIKE INSTRUMENTS OF THE NON-FINANCIAL PRIVATE SECTOR AND INTEREST RATE ON DEPOSITS




as that resulting from the analysis of the resident banking system, particularly in the first three quarters of the year (see Chart 3.5). In effect, considering all the deposits in the resident banking system and abroad, the year-on-year rate of change of deposits held by the non-financial private sector stood at 1.6 per cent in December 2002 (compared with 7.6 per cent in December 2001)[9]. Deposits held by households in the resident banking system and abroad recorded a year-on-year rate of change of 1.4 per cent, while deposits held by non-financial corporations increased at a year-on-year rate of change of 2.0 per cent vis-à-vis the end of the previous year (these values compare with 7.6 per cent for both sectors in December 2001).

Over a large part of 2002, particularly in the first three quarters, transferable deposits[10] and time deposits showed quite different evolutions. The former had a positive and quite significant growth rate while the latter recorded a decrease (Chart 3.6). This pattern reflected the preference of investors for highly liquid assets, in a background in which, given the maintenance of nominal interest rates on time deposits at rather low levels, the opportunity cost of holding demand deposits remained at low levels. In the last quarter of 2002, this phenomenon ceased to be so apparent, and there was a marked deceleration of transferable deposits. Thus, the contribution of transferable deposits to the year-on-year rate of change of deposits held by the non-financial private sector was reduced from 2.7 p.p. in the last quarter of 2001 to 0.4 p.p. in the last three months of 2002.

The evolution of deposits held by the non-financial private sector (in particular when deposits in the resident banking system and abroad are considered) reflects, to a large extent, the strong slowdown of the Portuguese economy in 2002 and the historically low levels of banking interest rates on deposits. Furthermore, the slowdown in deposits should also reflect the adjustment process of the financial situation of households, which, in view of the high indebtedness levels attained in

(8) In this aggregate are included deposits held by the resident non-financial private sector, using data from Monetary and Financial Statistics, as well as deposits held by the non-financial private sector abroad. Information on deposits abroad is included in the quarterly statistics of the International Investment Position.

(9) In turn, resources from customers of the Portuguese banking system, on a consolidated basis, recorded a year-on-year rate of change of 1.2 per cent (estimate), compared with 7.0 per cent in 2001. However, note that this aggregate does not include only deposits held by the non-financial private sector, but all deposits in the resident and non-resident banking system (including deposits held by the general government).

(10) This aggregate is mostly composed of demand deposits.

Table 3.1

ANNUAL RATES OF CHANGE OF BANK LOANS TO THE RESIDENT NON-FINANCIAL PRIVATE SECTOR[a]

Annual percentage change

| | Households | | | Non-financial corporations | Non-financial private sector |
|---|---|---|---|---|---|
| | Housing | Other purposes | Total | | |
| 2001 | | | | | |
| Jan. | 19.8 | 26.7 | 21.6 | 23.9 | 22.7 |
| Feb. | 18.5 | 24.7 | 20.1 | 23.9 | 21.9 |
| Mar. | 17.7 | 23.5 | 19.2 | 23.4 | 21.2 |
| Apr. | 18.2 | 24.2 | 19.8 | 18.8 | 19.3 |
| May. | 16.9 | 21.6 | 18.1 | 18.7 | 18.4 |
| June | 16.6 | 20.0 | 17.5 | 20.6 | 19.0 |
| July | 16.3 | 19.9 | 17.3 | 18.8 | 18.0 |
| Aug. | 16.1 | 17.0 | 16.4 | 18.8 | 17.5 |
| Sep. | 16.0 | 14.2 | 15.6 | 18.2 | 16.8 |
| Oct. | 16.2 | 9.4 | 14.5 | 15.3 | 14.8 |
| Nov. | 16.1 | 8.8 | 14.2 | 15.5 | 14.8 |
| Dec. | 15.5 | 6.2 | 12.9 | 14.7 | 13.8 |
| 2002 | | | | | |
| Jan. | 15.4 | 4.7 | 12.6 | 14.6 | 13.5 |
| Feb. | 15.7 | 6.5 | 13.3 | 13.3 | 13.3 |
| Mar. | 15.9 | 5.9 | 13.2 | 11.7 | 12.5 |
| Apr. | 15.4 | 5.6 | 12.8 | 11.7 | 12.3 |
| May. | 15.8 | 7.1 | 13.6 | 10.7 | 12.2 |
| June | 15.7 | 5.4 | 13.0 | 9.5 | 11.3 |
| July | 15.7 | 3.7 | 12.6 | 9.3 | 11.0 |
| Aug. | 15.6 | 3.6 | 12.5 | 8.1 | 10.4 |
| Sep. | 16.2 | 4.6 | 13.3 | 7.0 | 10.3 |
| Oct. | 15.7 | 4.9 | 13.0 | 6.9 | 10.1 |
| Nov. | 15.5 | 3.7 | 12.6 | 7.1 | 9.9 |
| Dec. | 15.4 | 2.4 | 12.1 | 7.5 | 9.9 |
| 2003 | | | | | |
| Jan. | 15.2 | 4.8 | 12.6 | 5.9 | 9.4 |
| Feb. | 14.9 | 3.9 | 12.1 | 6.6 | 9.5 |

Note:

(a) This aggregate includes bank loans adjusted for securitisation and corrected of reclassifications and write-offs/write-downs. Annual rates of change calculated from the index of adjusted stocks (Jan.2000=100), according to ECB methodology (see ECB Monthly Bulletin).

the meantime, must channel an increasing part of their savings to cope with the repayment of debt incurred over recent years[11]. Therefore, the increase in the savings rate of households in 2002 did not result in a significant growth of deposits. The increase in savings seems to have reflected not only the need to cope with higher repayments of debt, but also the acquisition of other highly liquid financial assets with potentially more attractive yields than bank deposits[12].

In 2002, credit granted to the non-financial private sector maintained the decelerating trend started in mid-1999. Considering loans granted by monetary financial institutions[13], the annual rate of change of loans granted to the non-financial private sector decreased from 13.8 per cent in December 2001 to 9.9 per cent at the end of 2002 and to 9.5 per cent in February 2003 (see Chart 3.7 and

(11) In addition to the factors abovementioned, two occurrences of an occasional nature seem to have affected the trend of deposits at the end of 2002: on the one hand, the settlement of fiscal debts under the terms laid down in Decree-Law no. 248-A2002 (which should have reached approximately € 1367.4 million, according to the Budget General Directorate) may have also contributed to the decrease in deposits held by the non-financial sector at the end of 2002; on the other hand, the issue of convertible transferable assets by a monetary financial institution, chiefly placed with customers, may have had relevant counterparts on the deposit side.

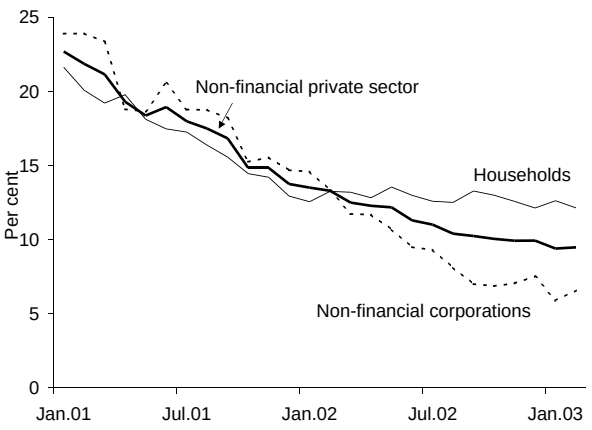
(12) Developments in financial markets in 2002 seem to have raised the preference of investors for more stable and more liquid assets, having as a counterpart a decrease in the weight of shares in their investment portfolios. However, this recomposition of investment portfolios does not seem to have reflected a significant increase in deposits, but rather an increase in demand for units of investment funds. Indeed, available preliminary evidence points to very significant net subscriptions of short-term investment funds, money market funds, bonds funds and real estate funds .

Table 3.1). The deceleration of bank loans granted to the non-financial private sector in 2002 chiefly reflects the trend of loans granted to non-financial corporations, given that the contribution of bank loans to households to this deceleration was significantly lower. The annual rate of change of bank loans granted to non-financial corporations decreased from 14.7 per cent at the end of 2001 to 7.5 per cent in December 2002. The slowdown in economic activity and, in particular, the deceleration in corporate investment, associated with the high indebtedness levels attained in recent years, seem to have given rise to a lower demand for credit by Portuguese corporations. On the other hand, the perception by banks of higher credit risk seems to have also contributed to this trend, as well as the loss of relevance of some specific factors underlying sustained high growth rates of credit to non-financial corporations in previous years(14).

Credit granted to households has been decelerating markedly since mid-1999, when it reached growth rates above 30 per cent. However, in the course of 2002, the deceleration of credit to households was not as sharp as in previous years. In 2002, the annual rate of change of bank loans to households, adjusted for securitisation and corrected of reclassifications and write-offs/write-downs, decreased only 0.8 p.p., from 12.9 per cent in December 2001 to 12.1 per cent in December 2002. The evolution of loans to households reflects, above all, the maintenance of a relatively high growth pace of loans granted to households for house purchase. It is likely that the discontinuance of the subsidised system for new credit in September 2002 may have led to a significant anticipation of decisions of house purchase by households(15). Indeed, as from September, loans for house purchase decelerated gradually, although maintaining relatively high rates of change. In February 2003, their annual rate of change stood at 14.9 per cent, compared with 16.2 per cent in September 2002. The sustained demand for new credit for house purchase seen after the end of the subsidised system should be associated with favourable conditions resulting from the historically low levels of lending rates, as well as with the launching of new products of credit for house purchase(16).

In turn, bank loans to households for purposes other than housing decreased significantly in the course of 2002. Their annual rate of change, which had already declined considerably in 2001, decreased from 6.2 per cent in December 2001 to 2.4

Chart 3.7
ANNUAL PERCENTAGE CHANGE OF BANK LOANS GRANTED TO THE NON-FINANCIAL PRIVATE SECTOR(a)




Note:
(a) Bank loans adjusted for securitisations and corrected of reclassifications and write-offs/write-downs. Annual growth rates are calculated from the index of adjusted stocks (Jan.2000=100), according to the ECB methodology (see ECB Bulletin)

(13) This aggregate includes bank loans adjusted for securitisation operations and corrected of reclassifications and write-offs/write-downs. Annual rates of change calculated from the index of adjusted stocks (Jan.2000=100), according to ECB methodology (see ECB Monthly Bulletin).

(14) Among these specific factors, which did not seem to be directly related with the economic juncture, mention should be made to borrowing requirements associated with direct investment operations by Portuguese corporations abroad and with merger and acquisition operations, as well as the carrying out of public works (namely, road infrastructures with "shadow toll concession").

(15) The evolution of the number of new housing credit contracts, according to data released by the Treasury General Directorate, sustains, to some degree, this hypothesis. In effect, over the first three quarters of 2002, the number of housing credit contracts increased by 20.5 per cent vis-à-vis the same quarters in the previous year. This increase was particularly marked in contracts under a subsidised system, that increased by 88.8 per cent in year-on-year terms in the third quarter of the year. In the last quarter of 2002, there was a significant decline in the number of housing credit contracts (-22.3 per cent, in year-on-year terms).

Chart 3.8
HOUSEHOLD INDEBTEDNESS AND INTEREST PAYMENTS

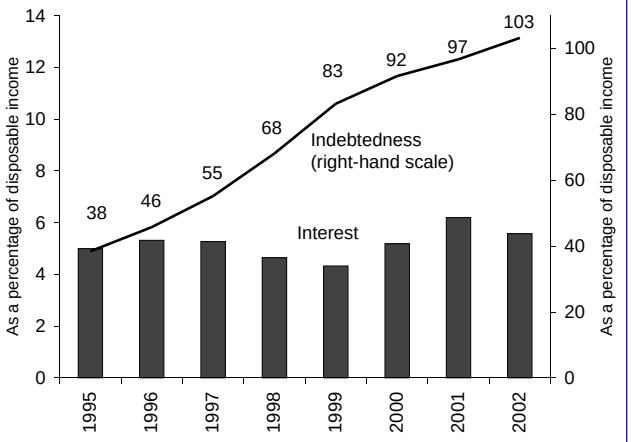
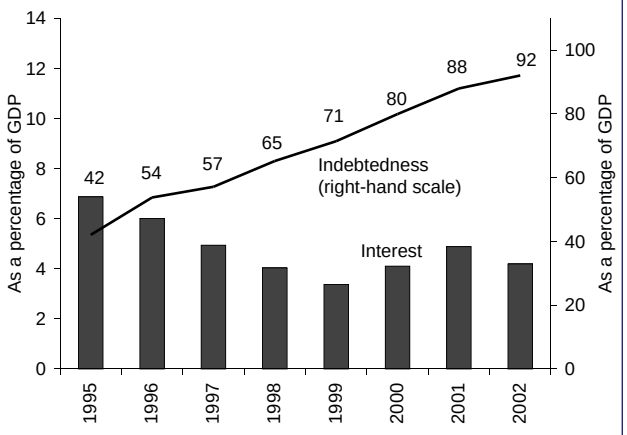



Chart 3.9
INDEBTEDNESS OF NON-FINANCIAL CORPORATIONS AND INTEREST PAYMENTS




per cent in December 2002. In early 2003, there was a slight recovery of this rate of change, that reached 3.9 per cent in February.

In spite of the deceleration observed in the course of 2002, the maintenance of the growth rates of credit to the non-financial private sector at levels significantly above the growth rates of disposable income and nominal GDP was reflected in a further increase in the indebtedness of the non-financial private sector in 2002. The increase in indebtedness was particularly striking for households, chiefly due to the trend of credit for house purchase. Therefore, at the end of 2002, household indebtedness accounted for approximately 103 per cent of disposable income, compared with 97 per cent in the previous year (Chart 3.8). In spite of the increase in indebtedness, the debt burden of households, defined as the overall debt service, that includes interest paid and principal repayments as a percentage of disposable income, seems to have stood at levels close to those observed in the previous year. The decrease in the share of the interest burden, due to the reduction in interest rates in the last two years, seems to have offset the increase in principal repayments, as a percentage of disposable income. In turn, the indebtedness of non-financial corporations, as a percentage of GDP, has also increased from the previous year, even though there was a slowdown in its growth pace. At the end of 2002, indebtedness of non-financial corporations represented 92 per cent of GDP, more 4 p.p. than in 2001 (Chart 3.9).

### 3.2. Developments in the Monetary Survey[17]

The deceleration of credit and deposits over the last two years has been reflected in important changes in the Monetary Survey. In 2002, domestic credit flows decreased significantly, when compared with the flows observed in previous years. Broken down by components, the exception was credit granted to households that recorded net flows slightly above those observed in 2001, albeit quite lower than in 2000. The decline in net flows of deposits was even more significant, decreasing from € +3111 million in 2001 to € -569 million in 2002 (Chart 3.10 and Table 3.2).

(16) These new products envisage more favourable conditions in the new credit contracts for house purchase, such as the repayment in periods up to 40 years, the absence of capital payments in the first years of the contract or the possibility to reach loan-to-value ratios close to 100 per cent (thereby stressing a trend that has been observed over recent years).

(17) The credit aggregates considered in this section were not adjusted for securitisation operations and were not corrected of reclassifications and write-offs/write-downs.

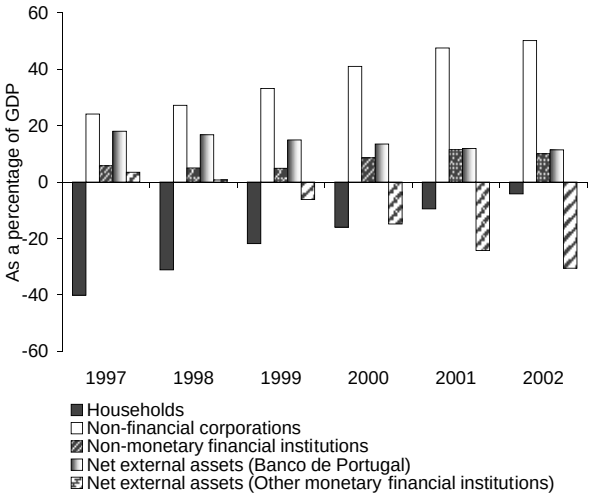
## Table 3.2

## MONETARY SURVEY

Euro million

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | Absolute changes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1999 | 2000 | 2001 | 2002 | Dec. 2002 |
| | Dec. | Dec | Dec. | Dec. | Dec. | Feb. | Dec. | Dec. | Dec. | Dec. | to Feb. 2003 |
| Net external assets | 14 960 | 8 985 | -6 788 | -19 270 | -27 444 | -30 771 | -5 974 | -15 773 | -12 483 | -8 174 | -3 327 |
| Banco de Portugal | 16 770 | 18 623 | 14 985 | 16 050 | 15 521 | 13 816 | 1 852 | -3 638 | 1 065 | -529 | -1 705 |
| Other monetary financial institutions | -1 810 | -9 637 | -21 773 | -35 321 | -42 965 | -44 587 | -7 827 | -12 136 | -13 548 | -7 644 | -1 622 |
| of which: | | | | | | | | | | | |
| Denominated in euro | -2 364 | -10 741 | -19 559 | -34 518 | -39 524 | -37 918 | -8 377 | -8 818 | -14 959 | -5 006 | 1 606 |
| Credit to general government | 12 522 | 8 764 | 8 496 | 9 082 | 8 069 | 7 976 | -3 758 | -268 | 585 | -1 013 | -92 |
| Domestic credit (except general government) | 102 736 | 129 577 | 160 783 | 179 401 | 191 038 | 191 714 | 26 840 | 31 206 | 18 618 | 11 637 | 676 |
| Households | 44 591 | 56 859 | 68 921 | 76 063 | 83 363 | 83 819 | 12 268 | 12 062 | 7 142 | 7 300 | 456 |
| Non-financial corporations | 45 539 | 56 500 | 70 667 | 80 085 | 86 374 | 86 454 | 10 962 | 14 167 | 9 418 | 6 289 | 80 |
| Non-monetary financial institutions | 12 606 | 16 217 | 21 194 | 23 253 | 21 302 | 21 441 | 3 611 | 4 977 | 2 059 | -1 951 | 139 |
| Currency in circulation | 4 562 | 5 620 | 5 392 | 4 451 | 7 025 | 6 759 | 1 059 | -228 | -941 | 2 575 | -267 |
| Deposits and deposit-like instruments - total | 103 027 | 114 507 | 120 125 | 123 236 | 122 667 | 118 466 | 11 480 | 5 618 | 3 111 | -569 | -4 201 |
| Non-monetary financial institutions | 7 623 | 9 661 | 9 843 | 10 360 | 9 641 | 8 991 | 2 038 | 182 | 517 | -719 | -650 |
| General government | 8 177 | 8 872 | 8 181 | 6 329 | 7 866 | 7 540 | 695 | -690 | -1 852 | 1 536 | -325 |
| Non-financial corporations and households | 87 227 | 95 974 | 102 100 | 106 547 | 105 161 | 101 935 | 8 747 | 6 126 | 4 447 | -1 386 | -3 225 |
| Securities other than capital | 10 769 | 13 319 | 17 476 | 22 514 | 23 168 | 23 145 | 2 550 | 4 157 | 5 037 | 655 | -23 |
| Money market fund shares | 0 | 0 | 115 | 166 | 665 | 665 | 0 | 115 | 51 | 499 | 0 |
| Capital and reserves | 15 905 | 20 827 | 25 920 | 27 867 | 28 725 | 31 634 | 4 921 | 5 093 | 1 947 | 858 | 2 909 |
| Sundry (net) | -4 045 | -6 947 | -6 537 | -9 021 | -10 588 | -11 749 | -2 903 | 411 | -2 484 | -1 567 | -1 161 |
| *Memo*: | | | | | | | Year-on-year rate of change | | | | |
| Contribution to the euro area M1 aggregate | 38 164 | 45 537 | 47 723 | 51 177 | 53 149 | 50 967 | 19.3 | 4.8 | 7.2 | 3.9 | 1.4 |
| Contribution to the euro area M3 aggregate | 103 597 | 113 135 | 119 794 | 126 686 | 127 270 | 125 582 | 9.2 | 5.9 | 5.8 | 0.5 | -1.0 |

Chart 3.10
NET POSITION OF THE MONETARY SECTOR[a]
(INSTITUTIONAL BREAKDOWN)
As a percentage of GDP




Note:
(a) The net position of the monetary sector vis-à-vis each sector is defined as the difference between assets and liabilities of the monetary sector vis-à-vis that sector..

The rise in the net credit position of other MFI[18] vis-à-vis the non-financial private sector has led to a deterioration of its debtor position vis-à-vis abroad, i.e., other MFI have raised externally the funds necessary for the expansion of their assets (particularly credit). Note that these liabilities are largely denominated in euro, chiefly reflecting international bond issuance by subsidiaries abroad of Portuguese banks. However, in the second half of 2002, there was a significant drop in the recourse to this type of financing, in line with the general decline in gross issuance of bonds in international financial markets over this period. Nonetheless, taking into account information on a consolidated basis regarding the banking system, the issue of securities in international financial markets represents an increasing share of the financing of the banking system while, in turn, net interbank financing declined in 2002, in particular for domestic banks. As regards the latter, interbank liabilities, net of interbank assets, decreased from 8.0 to 5.6 per cent of gross credit between December 2001 and December 2002 (as a percentage of GDP, it decreased from 9.9 to 6.9 per cent).

## 4. FISCAL POLICY

According to the March 2003 excessive deficit procedure notification, the general government deficit, on a National Accounts basis, stood at 2.7 per cent of GDP in 2002[19], after having reached 4.2 per cent of GDP in 2001 (Table 4.1). In 2002, the general government deficit was slightly below the target announced in the Supplementary Budget of May 2002 (2.8 per cent of GDP), although benefiting from a set of temporary measures that represented approximately 1.5 p.p. of GDP. These temporary measures, implemented at the end of 2002 and not envisaged in the Supplementary Budget, consisted in a programme for the settlement of tax arrears, which has raised general government receipts for 2002 in National Accounts by approximately 0.9 p.p. of GDP[20], and in the sale of both the fixed telecommunications network and the rights for the reintroduction of tolls in a motorway, amounting to 0.3 and 0.2 p.p. of GDP, respectively[21]. Moreover, the receipts from the sale of buildings and land by the general government in 2002 stood above those observed in recent years, at approximately 0.1 p.p. of GDP, and should also be

(18) The net position of the monetary sector vis-à-vis each sector is defined as the difference between assets and liabilities of the monetary sector vis-à-vis that sector.

(19) According to data reported by the National Statistical Institute to Eurostat, the general government deficit stood at 2.6 per cent of GDP in 2002. However, the Eurostat, in its press release summarising the results of the excessive deficit procedure notification for the different Member States, excluded the receipts received by the Portuguese government as a result of the liquidation of the EFTA fund for industrial development in Portugal. According to the Eurostat, such receipts should not have an impact on the deficit, on a National Accounts basis, which was reflected in a revision of the deficit equivalent to € 139.5 million (0.1 percentage points of GDP).

(20) Note that receipts resulting from the extraordinary settlement of tax arrears on 3 January 2003 (approximately 0.15 p.p. of GDP) will be recorded in the general government National Accounts of 2003. The amounts received in 2002 and 2 January 2003 were considered in National Accounts as receipts of 2002.

(21) In National Accounts, the receipts from the sale of the fixed telecommunications network and from the rights of reintroduction of tolls in a motorway were recorded on the expenditure side with a negative sign in the items of gross fixed capital formation and net acquisition of non-financial and non-produced assets (other capital expenditure), respectively.

Table 4.1

GENERAL GOVERNMENT ACCOUNTS
National Accounting

| | As a percentage of GDP | | | | Growth rates | | |
|---|---|---|---|---|---|---|---|
| | 2000 (a) | 2001 | 2002 (b) | | 2001 | 2002 (b) | |
| | | | including the effects of temporary measures | excluding the effects of temporary measures | | including the effects of temporary measures | excluding the effects of temporary measures |
| Total revenue | 42.3 | 41.6 | 42.9 | 42.0 | 5.3 | 8.4 | 6.1 |
| Current revenue | 40.8 | 39.9 | 41.0 | 40.1 | 4.7 | 7.8 | 5.5 |
| Taxes on income and wealth | 10.4 | 9.8 | 9.7 | 9.2 | 0.6 | 4.1 | -1.1 |
| Taxes on production and imports | 14.4 | 14.3 | 15.0 | 14.7 | 5.8 | 10.2 | 8.0 |
| Social contributions | 11.8 | 11.8 | 12.1 | 12.0 | 7.7 | 7.6 | 6.6 |
| Other current revenue | 1.7 | 1.7 | 1.9 | 1.9 | 6.8 | 16.4 | 16.4 |
| Sales | 2.5 | 2.3 | 2.3 | 2.3 | -0.3 | 3.7 | 3.7 |
| Capital revenue | 1.4 | 1.7 | 1.9 | 1.9 | 23.4 | 21.7 | 21.7 |
| Total expenditure | 45.4 | 45.8 | 45.7 | 46.2 | 8.7 | 4.7 | 6.1 |
| Current expenditure | 40.1 | 40.1 | 41.0 | 41.0 | 7.1 | 7.4 | 7.4 |
| Current transfers | 17.5 | 17.6 | 18.4 | 18.4 | 7.8 | 9.4 | 9.4 |
| To households | 14.0 | 14.1 | 14.7 | 14.7 | 7.3 | 9.5 | 9.5 |
| To corporations | 1.1 | 1.3 | 1.4 | 1.4 | 33.0 | 10.3 | 10.3 |
| Other transfers | 2.4 | 2.2 | 2.3 | 2.3 | -0.9 | 7.9 | 7.9 |
| Interest | 3.2 | 3.1 | 3.0 | 3.0 | 4.0 | 1.4 | 1.4 |
| Compensation of employees | 15.0 | 15.1 | 15.3 | 15.3 | 8.0 | 6.5 | 6.5 |
| Intermediate consumption | 4.4 | 4.3 | 4.3 | 4.3 | 3.3 | 7.2 | 7.2 |
| Capital expenditure | 5.4 | 5.7 | 4.6 | 5.2 | 21.6 | -14.2 | -3.6 |
| Gross fixed capital formation | 3.8 | 4.1 | 3.6 | 4.0 | 13.3 | -7.4 | 3.0 |
| Other capital expenditure | 1.5 | 1.6 | 1.1 | 1.2 | 14.8 | -31.5 | -20.2 |
| Overall balance | -3.2 | -4.2 | -2.7 | -4.2 | | | |
| *Memo:* | | | | | | | |
| Primary current expenditure | 36.9 | 37.0 | 38.0 | 38.0 | 7.3 | 7.9 | 7.9 |
| Primary balance | 0.0 | -1.1 | 0.3 | -1.2 | | | |
| Cyclically-adjusted primary balance | -1.0 | -2.0 | -0.2 | -1.7 | | | |
| Public debt | 53.3 | 55.2 | 57.8 | - | | | |

Notes:

(a) Excluding the receipts from the sale of UMTS licences.

(b) The temporary measures taken into account include the effects of the extraordinary settlement of tax arrears, the sale of the fixed telecommunications network, the sale of the rights of reintroducing tolls in a motorway and the sale of buildings and land. The last one is calculated as the difference between the figure recorded in 2002 and the one observed in 2001, as a percentage of GDP.

considered a temporary effect with a positive impact on the fiscal balance of 2002.

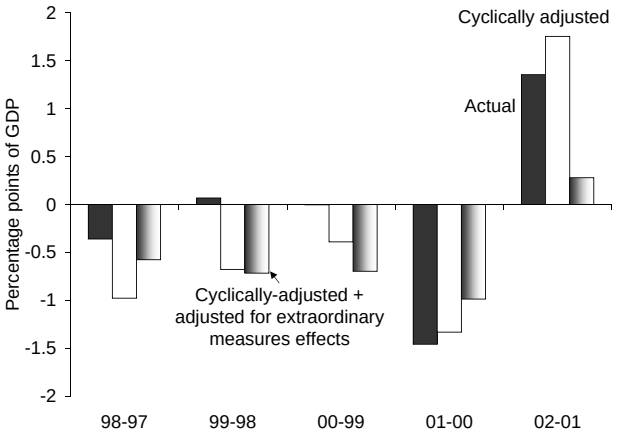
The correction of the deficit in 2002, taking into account the abovementioned effects, would lead to a value very close to the deficit observed in 2001. However, since the macroeconomic scenario has deteriorated significantly in 2002 vis-à-vis 2001, the evolution of the deficit represented a budgetary consolidation effort, reversing the expansionary stance of fiscal policy observed in recent years. Indeed, in the 1997-2001 period, the primary balance adjusted for cyclical and temporary effects[22] decreased year after year, with an accumulated change of 3.0 p.p. of GDP (Chart 4.1). In 2002, this balance increased by 0.3 p.p. of GDP from -2.0 per cent of GDP in 2001 to -1.7 per cent of GDP in 2002. The 2002 evolution resulted from an increase in receipts adjusted for cyclical and temporary effects (0.8 p.p. of GDP) that exceeded the rise in the cyclically adjusted primary expenditure corrected for the effects of temporary measures (0.5 p.p. of GDP) (Chart 4.2). In 2002, the total balance adjusted for cyclical effects and temporary measures improved by 0.4 p.p. relative to 2001, standing at -4.7 per cent of GDP[23].

The behaviour of total receipts adjusted for cyclical effects and temporary measures in 2002 was, to a large extent, explained by the rise in the stan-

dard VAT rate from 17 to 19 per cent as of June 2002 and by the increases in the tax on oil products in the course of 2002. Moreover, transfers from the European Union recorded, in principle, in line with the neutrality principle of community funds, showed high growth rates in 2002, that were reflected in the behaviour of other current receipts (European Social Fund) and capital receipts.

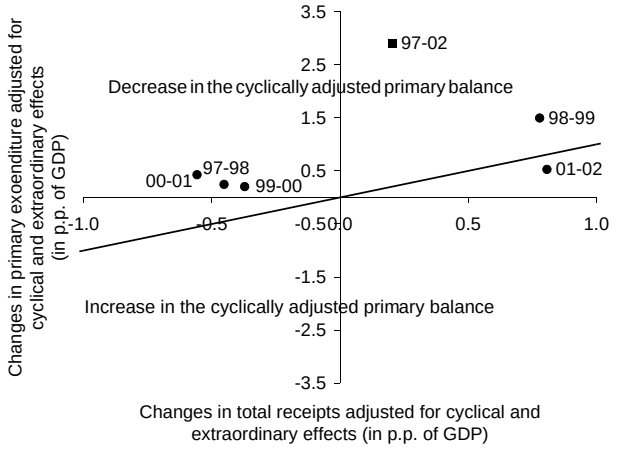
As regards primary expenditure adjusted for cyclical and temporary effects, the evolution observed in 2002 continued to be strongly influenced, as in previous years, by the behaviour of primary current expenditure, in spite of the implementation in the second half of the year of some measures for the control and actual cut in central government current expenditure. Therefore, in 2002, expenditure with personnel and intermediate consumption continued to show high growth rates, with increases of 0.2 and 0.1 p.p. of GDP, respectively. In addition, transfers to households also continued to record a very strong growth, increasing by 0.6 p.p. as a ratio of GDP, mainly as a result of the behaviour of expenditure in pensions of both the private sector and the civil servants social security system. It should be noted, however, that in 2002 the growth rates of these three expenditure items were influenced by the transformation of 31 hospitals as public corporations at the end of the year, which implied the reclassification of € 158.7 million relative to three weeks of expenditure. This change did not have an impact on the deficit, leading only to an increase in transfers to households and to a decline in compensations of employees and intermediate consumption by the same amount.

Chart 4.1
CHANGE IN THE PRIMARY BALANCE
1997-2002




Note: The temporary measures effects include the extraordinary effect of the sale of buildings and land for the whole period considered. It is calculated as the difference between the value recorded in the year and the value observed in 2001, as a percentage of GDP. In addition, in 1997, transfers to the *Caixa Geral de Aposentações* from the *Banco Nacional Ultramarino* and Macau are excluded.

Chart 4.2
CHANGES IN TOTAL RECEIPTS AND PRIMARY EXPENDITURE ADJUSTED FOR CYCLICAL AND EXTRAORDINARY EFFECTS
1997-2002




Note: See footnote of Chart 4.1.

(22) The cyclically adjusted primary balance is calculated according to the methodology currently used in the ESCB. The adjustment for temporary effects takes into account:
- The extraordinary effect of sales of buildings and land in every year between 1997 and 2002. This is calculated as the difference, as a percentage of GDP, between the value recorded in the year and the 2001 figure. According to this approach, from 1999 to 2002, part of the sales of buildings and land is considered extraordinary.
- Transfers from the *Banco Nacional Ultramarino* and Macau to the *Caixa Geral de Aposentações* in 1997.
- The effects of the extraordinary settlement of tax arrears and of the sale of both the fixed telephone network and of the rights for the reintroduction of tolls in a motorway in 2002.

(23) The calculation of cyclically adjusted balances was based on the methodology developed by the European System of Central Banks, which considers a smoothening parameter of 30. The use of a smoothening parameter of 100, perhaps more conventional, would lead to an improvement in the cyclically adjusted total and primary balances of 0.5 and 0.4 p.p. of GDP (i.e. 0.1 p.p. more than when parameter 30 is considered).

The public debt ratio stood at 57.8 per cent at the end of 2002, with an increase of 2.6 p.p. from the value recorded at the end of 2001 and of 4.5 p.p. from the end of 2000. The evolution of the debt ratio in 2002 was, to a large extent, the result of the considerable effect of deficit-debt adjustments, since the contribution of the deficit to the debt increase was almost fully offset by the favourable effect of nominal GDP growth.

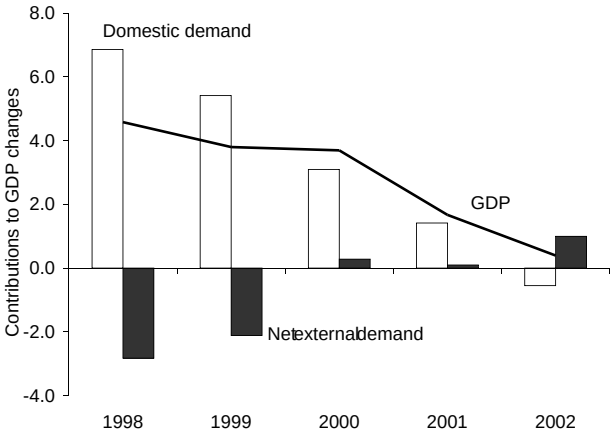
## 5. OUTPUT DEVELOPMENTS IN 2002: EXPENDITURE AND OUTPUT

According to the estimates of the Banco de Portugal, GDP has grown by 0.4 per cent in 2002, reflecting a significant slowdown from the growth of 1.7 per cent recorded in 2001 (Table 1.1). The deceleration of activity in 2002 is particularly noticeable when analysing its behaviour in the course of the year. From the first six months to the second, activity slowed down significantly and the second half of the year was marked by a real negative change in GDP (see Box: "*Intra-annual trend of economic activity in 2002*").

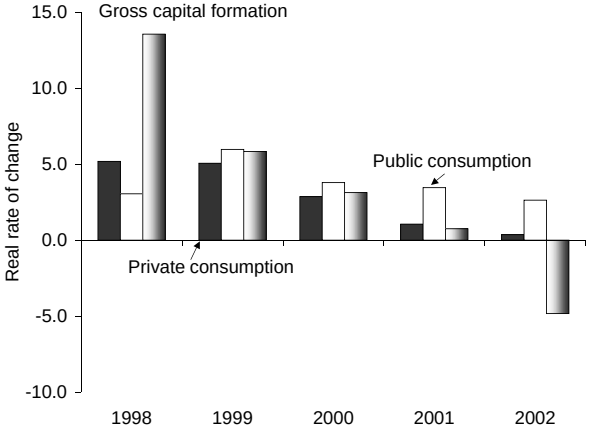
The deceleration of economic activity was determined by the negative behaviour of domestic demand (with a contribution of -0.6 per cent for GDP growth), reflecting the slowdown of private consumption and, chiefly, the decrease in expenditure in investment goods (Chart 5.1). In turn, the contribution of net external demand to growth (1.0 per cent) was more favourable than in the previous year (0.1 per cent), with a slight acceleration of exports and a decrease in imports, in line with the trend of domestic demand.

Compared with the estimates presented in the June, September and December 2002 issues of the *Economic Bulletin* (Table 5.1), real output growth is very close to the average target range then announced, despite some differences in the composition of that growth, particularly in the growth of domestic demand components. The contributions of both the domestic and external demand to growth are also, on the whole, very similar to those implied in the estimates previously released. However, it should be noted that a change in the composition of domestic demand was characterised by sharper reduction in GFCF and higher growth of public consumption. In addition, external trade flows in both exports and imports were slightly stronger than previously estimated, although the contribution of net external demand to real output growth has remained at approximately 1 percentage point.

Chart 5.1
GDP
Domestic and net external demand




Domestic demand – Components




The growth of private consumption in Portugal was weak, decelerating again from the previous year (real growth stood at 0.4 per cent in 2002 and at 1.0 per cent in 2001). This slowdown was followed by a strong deterioration of the confidence indicator of Portuguese consumers, which at the end of the year stood at historically low levels (Chart 5.2). The drop of the confidence indicator in Portugal, that was stronger than in the euro area as a whole, was particularly sharp in the second

Table 5.1

MAIN ECONOMIC INDICATORS

Percentage rates of change - 2002

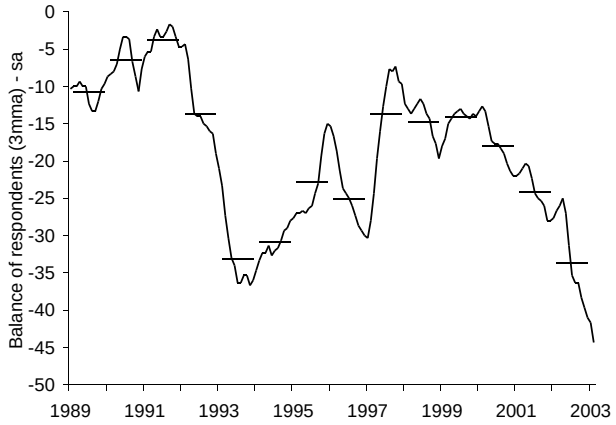
| | EB June 2002 | EB September 2002 | EB December 2002 | EB March 2003 |
|---|---|---|---|---|
| Private consumption | ½ ; 1½ | -¼ ; ¾ | 0 ; ¾ | 0.4 |
| Public consumption | 0.9 | 1.1 | 1.5 | 2.6 |
| GFCF | -5 ; -3 | -5¼ ; -3¼ | -5 ; -3 | -5.4 |
| Domestic demand | -¾ ; ¼ | -1 ; 0 | -¾ ; -¼ | -0.5 |
| Exports | 1 ; 2½ | ¾ ; 2¼ | 1; 2 | 2.4 |
| Overall demand | -¼ ; ¾ | -½ ; ½ | -¼ ; ¼ | 0.1 |
| Imports | -1½ ; ½ | -2½ ; -½ | -2¼ ; -¼ | -0.6 |
| GDP | 0 ; 1 | 0 ; 1 | ¼ ; ¾ | 0.4 |
| Current account + capital account (% GDP) | -6½ ; -5.0 | -6¾ ; -5¼ | -6½ ; -5½ | -5.7 |
| HICP | 3.5; 4.5 | 3.5; 3.7 | 3.7 | 3.7 |

quarter. This trend was probably related with the awareness of the general public as to the seriousness and unsustainability of Portuguese public finance imbalances, and with the first corrective measures taken, namely the increase in the VAT standard rate. The different behaviour of the confidence indicators in Portugal and in the euro area may be partly explained by the vulnerability of the financial situation of many households, with high indebtedness levels, and very unfavourable prospects as to the trend of unemployment, which were confirmed over the second quarter.

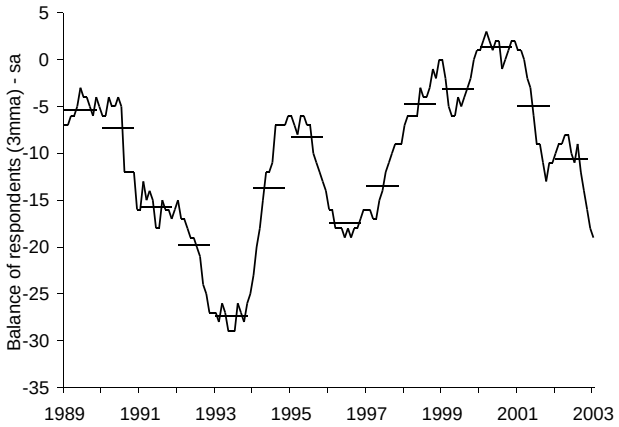
The weak growth of private consumption expenditure may be illustrated by a set of quantitative and qualitative indicators. The retail trade turnover index (that does not cover sales of light passenger vehicles and fuels) slowed down significantly from 2001, increasing in nominal terms by 1.6 per cent in 2002 (6.1 per cent in 2001). Given the trend of prices of products covered by this indicator, the real change in this index in 2002 is likely to have been virtually nil. However, the share of this index on durable goods increased by only 0.8 per cent in nominal terms (3.3 per cent in 2001), which should correspond to a negative real change. Consumption expenditure in the acquisition of vehicles decreased again significantly, which is proven by the number of light passenger vehicles sold, that decreased by 11.4 per cent in 2002, after a fall of 12 per cent in 2001. It should be recalled, however, that in 2001 sales of light passenger vehicles, particularly off-the-road vehicles, were particularly affected by the changes introduced in taxes on vehicles. Excluding off-the-road vehicles, the fall in sales of vehicles is thus sharper in 2002 (-10.2 per cent, compared with -3.6 per cent in 2001). Therefore, expenditure in durable goods (vehicles and other goods) showed a fall in real terms, reflecting the usual higher sensitivity of this type of goods to the economic cycle. Consumption of services also seems to have had a moderate growth, below that recorded in 2001, but higher than in consumption of goods. In particular, the tourism services component had a more unfavourable trend than the other services, with a real decline of 2 per cent, after a growth of 3 per cent in 2001. The qualitative results of the retail trade survey (on turnover, orders to suppliers and actual and expected activity) presented a downward trend in 2002, in line with the trend of the consumer confidence indicator.

The trend of private consumption was limited by the low real growth of the disposable income of households, which recorded a change of 1.1 per cent (1.5 per cent in 2001). The deceleration was sharper in private consumption than in disposable

Chart 5.2
PORTUGAL – CONSUMER CONFIDENCE INDICATOR




EURO AREA – CONSUMER CONFIDENCE INDICATOR



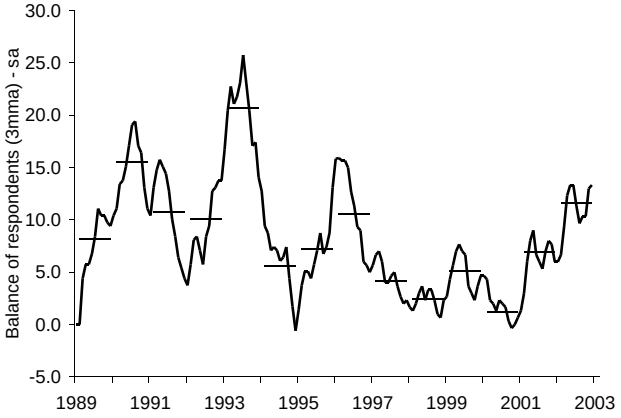

income, which was reflected in an increase in the savings rate of households from 11.8 to 12.4 per cent. The year 2002 was the third consecutive year of an increase in the savings rate. Its accumulated growth since 1999 stood at approximately 3.5 p.p. In addition to the increase in the savings rate for precautionary reasons, associated with the deterioration of economic prospects and rising unemployment, the increase in the savings rate in 2002 probably reflects the need of households to allocate a growing share of their savings to cope with the repayment of debts to the banking system, particularly associated with loans for house purchase.

In 2002, public consumption increased, in volume, by 2.6 per cent, 1.4 p.p. above the value disclosed in the December issue of the *Economic Bulletin*, with stress on the domestic demand component that presented higher growth (Chart 5.1). Thus, in spite of a deceleration from the previous year (3.5 per cent growth, in volume), this component of expenditure continued to rise clearly above the real growth of output. In 2002, in nominal terms, public consumption increased by 7.4 per cent (7.9 per cent in 2001). The deceleration of the component expenditure with personnel, which nonetheless increased by 6.5 per cent in nominal terms (8.0 per cent in 2001), was partially countered by the acceleration from 7.6 to 9.8 per cent of the other components of public consumption.

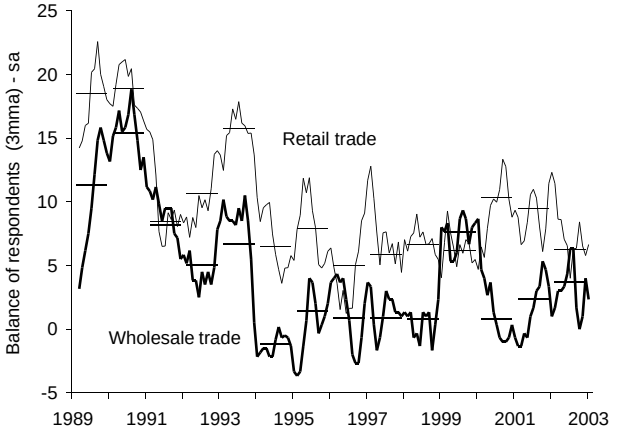
Changes in stocks had a slightly positive contribution to GDP growth. The results of the survey of the National Statistical Office (*INE*) suggest that there was an increase in the level of stocks in manufacturing industry in the course of 2002 (Chart 5.3). In retail trade and wholesale trade, however, evidence in these surveys does not permit to reach any conclusion either on stocking or on destocking.

GFCF showed a decrease of 5.4 per cent in 2002, compared with a growth of 0.3 per cent in 2001. The decline in the acquisition fixed assets goods was broadly based across all its components (transport material, machinery and equipment and construction). In particular, investment in transport material declined strongly for the second consecutive year, reducing by approximately 23 per cent, after decreasing by nearly 15 per cent in the previous year. Investment in machinery and metal products decreased by -5.2 per cent, after an increase of 1.6 per cent in 2001. In turn, GFCF in construction recorded a change of -3.2 per cent. By institutional sector, the fall in investment by corporations and household is particularly noteworthy. As regards the general government, investment has fallen by 7.4 per cent in 2002, in nominal terms, although this rate has been highly influenced by sales of assets that have been registered as disinvestment. Excluding these sales, gross fixed capital formation of the general government grew by 3 per cent in nominal terms, which still corresponds to a significant deceleration from the previous year (9.3 per cent).

Chart 5.3
ASSESSMENT OF STOCKS IN INDUSTRY




ASSESSMENT OF STOCKS IN RETAIL AND WHOLESALE TRADE




The decline in private investment, particularly in equipment (machinery and transport material) reflects, to a large extent, the low confidence levels of entrepreneurs, associated with the weak dynamism shown by domestic and external demand that did not boost an increase in capacity utilization when the rates of the latter were still at relatively low levels, partly due to heavy investments in recent years. Moreover, the indebtedness levels attained by some corporations limit the growth of this variable.

All subcomponents of investment in construction (housing, public works and non-residential buildings) presented weaker growth rates than those observed in 2001, as illustrated in Chart 5.4. In particular, activity in the new housing segment seems to have fallen in 2002. This is suggested by several indicators, such as the sustained decline in the number of new residential building permits (-8.9 per cent in 2002, after a drop of 10.2 per cent in 2001) and in the number of residential buildings concluded (-2.3 per cent up to September and -2.0 per cent in 2001). The apparent contradiction with the trend of bank loans for house purchase, which grew considerably (15.4 per cent in 2002, vis-à-vis 15.5 per cent in 2001) may be the result of the sale of new and used houses in stock, as well as of a possible increase in the ratio of credit granted to the value of the houses. As regards the former case, due to lack of reliable indicators on the date of sale, estimates of Portuguese national accounts usually register housing investment on the date of the construction instead of the date of the actual sale of the dwelling. Therefore, new houses now sold that are reflected in loans for house purchase were registered as investment in construction in previous years[24].

In 2002, exports of goods and services had a real growth of 2.4 per cent, which corresponds to an acceleration of 0.6 percentage points from the previous year. Behind this slight acceleration were both the goods components, that grew by 2.1 per cent in real terms (0.3 p.p. more than in 2001), and the services component, that increased by 3.2 per cent in volume (1.5 p.p. more than in the previous year). This acceleration occurred in spite of the slowdown in external demand relevant for Portuguese economy, which had a growth rate of 0.7 per cent in 2002. This growth differential between Portuguese exports and the relevant external market corresponds to a gain in market share of 1.4 p.p., after a gain of 0.5 p.p. in 2001. The magnitude of this gain in market share, however, in addition to being subject to the usual statistical uncertainty in-

(24) In the case of dwellings whose final purchaser is determined during construction, this procedure is more in line with national accounting principles. However, if the final purchaser is not established during construction, the same principles recommend that it should be registered as a positive change in stocks of goods in stage of production. Only after the date of sale should it be registered as investment in housing, as a counterpart to the decline in stocks. Anyway, the GDP estimate, excluding a breakdown between investment in GFCF and changes in stocks, is identical in both versions.

herent on its calculation, corresponds only to a small percentage of the accumulated loss of share occurred between 1997 and 2000 (approximately 15 per cent) and, moreover, has only been possible due to a further reduction in the profit margins of exporters. The increase in exports of services was due to the services component, that excludes tourism services, the growth of which (above 10 per cent) has offset the decrease in volume (of 2 per cent) in tourism expenditure.

In turn, imports of goods and services decreased by 0.6 per cent in real terms (it had increased by 1.1 per cent in 2001) as a result of a decline of 0.8 per cent in imports of goods and an increase of 1.2 per cent in imports of services. Imports of goods have thus reflected a lower domestic demand, in particular the fall in investment in equipment goods, chiefly transport material.

Given that goods import prices declined more than export prices, the differential in the trend of these prices was favourable to Portugal for the second consecutive year. Gains in terms of trade attained 2.4 per cent in 2002 (1.5 per cent in 2001).

The deceleration of activity in 2002 was broadly based across all sectors of activity except agriculture, forestry and fishing, which recorded a significant increase in volume (7.2 per cent), after a fall in the previous year (of -1.6 per cent). Negative growth rates are estimated for construction and, to a lesser degree, for industry. In effect, in 2002, the turnover index in manufacturing industry dropped by 1.1 per cent in nominal terms (a growth rate of 2.5 per cent in 2001). However, the share of this index relating to production for the external market increased slightly (by 0.3 per cent), although decelerating from the previous year (5.6 per cent). In turn, the manufacturing industry production index decelerated from 2.3 per cent in 2001 to 0.3 per cent in 2002. Activity in services revealed weak growth, decelerating from the previous year. This was, to a large extent, the result of a fall of activity in trade (reflecting the trend of private consumption and investment). The slowdown in the components hotels and restaurants was chiefly the result of the negative behaviour of expenditure by non-residents. The communications sector continued to grow at a robust pace, albeit decelerating from 2001.

The broadly based slowdown in the different sectors was reflected in the activity coincident indicator calculated by the Banco de Portugal, which summarises qualitative data on activity in the con-

Chart 5.4
ACTIVITY APPRAISAL IN THE CONSTRUCTION AND PUBLIC SECTOR ACTIVITY
Main sub-sectors

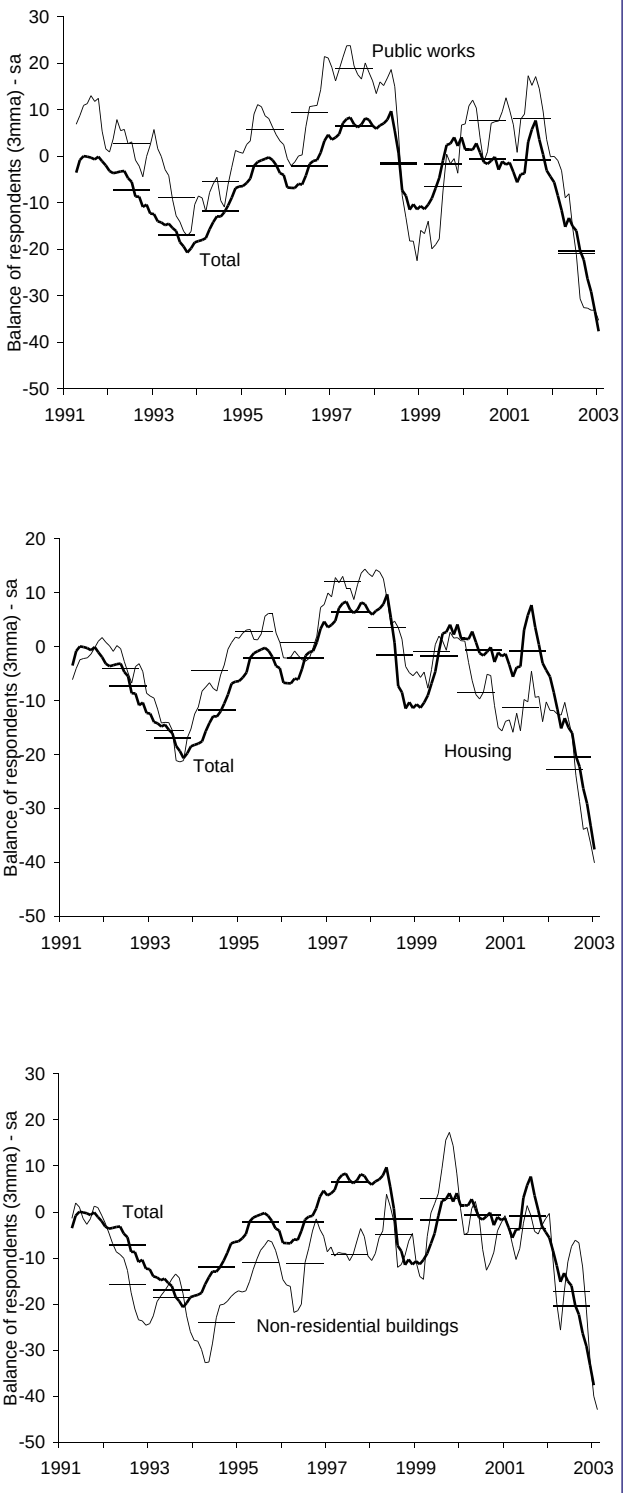
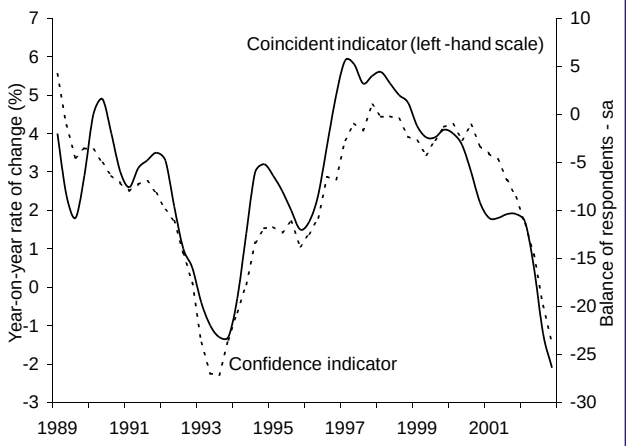


Chart 5.5
COINCIDENT INDICATOR OF ACTIVITY AND CONFIDENCE IN INDUSTRY, CONSTRUCTION AND TRADE




struction, industry and trade sectors. In 2002, this indicator presented an annual average change of -0.3 per cent, compared with 1.9 per cent in 2001 (Chart 5.5).

## 6. EMPLOYMENT AND WAGES

In 2002, the labour market in Portugal was characterised by a strong rise in the unemployment rate, particularly in the latter part of the year. Total employment decelerated also, showing a virtually nil increase from the previous year. Stress should be laid, in particular, on the decrease in employment in the private sector. The increase in the rate of activity was also less significant than in previous years, chiefly reflecting the contribution of demographic factors. The trend of nominal wages was more moderate than in 2001.However, in the private sector, real wages had a growth rate similar to that observed in 2001, well above the growth rate of productivity.

Data of the *INE*'s Employment Survey[25] show that total employment increased by 0.2 per cent in 2002 (1.4 per cent in 2001) (Table 6.1). Dependent employment decelerated to 0.7 per cent (1.5 and 2.5 per cent in 2001 e 2000, respectively). The largest contribution to employment growth, according to the employment status, was made by temporary contracts that increased by 7.2 per cent in 2002 (4.3 per cent in 2001). Self-employment increased only by 0.4 per cent in 2002, after having been the most buoyant component in the previous year (5.7 per cent)[26]. The sectoral breakdown of employment growth underwent also an important change in 2002. The "Construction" and "Other services"[27] sectors made the largest contribution to job creation (0.7 and 0.6 p.p., respectively). While the "Other services" sector has remained among the major sources of job creation, the trend of employment in the "Construction" sector has fluctuated markedly (growth rate of 6.2 per cent in 2002, after a decrease of 1.7 in 2001). It should be noted, however, that the estimate for sectoral employment growth in 2002, particularly in "Construction", is strongly influenced by the statistical effect of the sample rotation in the Employment Survey. Indeed, in a constant sample (i.e., considering only the sample component of the Employment Survey that is common in two consecutive quarters), the growth rate of employment in this sector is set at 1.9 per cent, compared with 6.2 per cent when the full sample is considered. It should also be noted that, in the course of the year, the growth rate of employment in this sector, using the estimate in a constant sample, reveals a strong deceleration (year-on-year changes of 4.2, 4.3, 1.4 and -2.1 per cent respectively, in the four consecutive quarters of the year). Furthermore, in 2002, employment in manufacturing resumed the negative growth rates that characterised its development in the late 1990s and that had been discontinued in 2001.

For the second consecutive year, the slowdown in economic activity, together with the growth in employment, was reflected in a nearly nil rate of change of apparent productivity per worker (0.2 per cent in 2002 and 0.3 per cent in 2001). This has been a common feature to the euro area as a whole, which also recorded low growth rates of productivity since 2001. This behaviour is typical of downward phases of the economic cycle, revealing the usual lag of employment adjustments vis-à-vis output.

In 2002, the number of unemployed workers increased by 26.3 per cent, which represents a strong

(25) These data use the new individual weights calculated by the *INE*, based on the results of the Census 2001.

(26) The other types of work (unpaid family workers and other types of employment) decreased by 17 per cent in 2002.

(27) Includes all services, except general government, teaching and health.

Table 6.1

POPULATION, EMPLOYMENT AND UNEMPLOYMENT

| | | | | | 2001 | | | | 2002 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2000 | 2001 | 2002 | I | II | III | IV | I | II | III | IV |
| Thousands: | | | | | | | | | | | | |
| Total employment | 4928.7 | 5028.9 | 5098.4 | 5106.5 | 5080.8 | 5087.6 | 5105.9 | 5119.2 | 5106.6 | 5132.7 | 5129.6 | 5057.2 |
| (r.c.) | 1.3 | 2.0 | 1.4 | 0.2 | 1.9 | 1.4 | 1.1 | 1.2 | 0.5 | 0.9 | 0.5 | -1.2 |
| Employees | 3563.3 | 3651.6 | 3705.2 | 3732.4 | 3702.7 | 3677.3 | 3710.7 | 3730.1 | 3726.1 | 3732.9 | 3751.2 | 3719.5 |
| (r.c.) | 2.8 | 2.5 | 1.5 | 0.7 | 2.3 | 0.8 | 1.1 | 1.6 | 0.6 | 1.5 | 1.1 | -0.3 |
| Unemployed [a] | 226.8 | 205.6 | 215.6 | 272.3 | 220.8 | 206.6 | 213.2 | 221.8 | 238.4 | 243.0 | 276.1 | 331.8 |
| (r.c.) | -10.6 | -9.3 | 4.9 | 26.3 | -2.6 | 7.4 | 2.9 | 13.0 | 8.0 | 17.6 | 29.5 | 49.6 |
| In percentage: | | | | | | | | | | | | |
| Participation rate, labour force aged 15-64 years | 70.7 | 71.3 | 71.7 | 72.0 | 71.8 | 71.4 | 71.7 | 71.9 | 71.8 | 72.0 | 72.2 | 72.0 |
| Unemployment rate [b] | 4.4 | 3.9 | 4.1 | 5.1 | 4.2 | 3.9 | 4.0 | 4.2 | 4.5 | 4.5 | 5.1 | 6.2 |

Source: *INE, "Inquérito ao Emprego"*.

Notes:

(a) In a narrow sense: only unemployed persons who actively seek work in the period prior to the survey are included as unemployed.

(b) In the columns relating to the years, rates are obtained on the basis of quarterly averages.

r.c.: Percentage rate of change. The column for the quarters present year-on-year rates.

acceleration from the trend observed in 2001, when unemployment had increased by 4.9 per cent. This change was due to a significant increase in both the number of first-job seekers (20.8 per cent), and chiefly the number of the unemployed seeking a new job (27.4 per cent). The number of the unemployed seeking a new job did not evolve homogeneously in the course of the year, being more marked late in the year, with a growth rate of 12.4 and 42.7 per cent, respectively in the first and second halves of the year. This intra-annual behaviour was also reflected in the unemployment rate, the annual average of which stood at 5.1 per cent of the labour force (1 p.p. more than in 2001 and quite close to the estimates available for the natural rate of unemployment), revealing strong growth in the third and fourth quarters. In the last quarter of the year, it reached 6.2 per cent, 2.0 p.p. more than in the same period of the previous year.

The participation rate, for persons aged 15 to 64 years, increased by 0.3 p.p. in 2002, to 72 per cent. This change was short of that resulting from the impact of demographic factors — in particular the gradual ageing of the population and the trend growth in the female participation rate — reflecting the usual pro-cyclical behaviour of this variable.

According to Banco de Portugal's estimates, the rate of change of nominal wages per worker in the private sector stood at 5.3 per cent in 2002 (6.3 per cent in 2001) (Table 6.2). This value sets the wage drift at 1.8 p.p., 0.6 p.p. less than in 2001. This trend of wages seems to be partly associated with less favourable conditions of the labour market, which were reflected in the cyclical behaviour of the wage drift. However, wage increases continued to be much higher than those observed in the euro area (2.8 per cent during the first three quarters of the year). Therefore, in spite of a reduction of 1.3 p.p. in 2002, the differential between unit labour costs growth in the euro area and in Portugal continued to be considerable and unsustainable (the growth rate of unit labour costs in Portugal stands at 4.7 per cent, compared with 2.7 for the euro area, the latter being estimated from information available for the first three quarters of the year). Likewise, real wages growth in the private sector remained stable and continued to be above productivity growth for the sixth consecutive year.

Table 6.2

COMPENSATIONS PER EMPLOYEE [a]
Rates of change

| | Whole economy [b] | | Corporate sector [c] | |
|---|---|---|---|---|
| | Nominal | Real [d] | Nominal | Real [d] |
| 1998 ..... | 5.3 | 2.6 | 5.0 | 2.3 |
| 1999 ..... | 5.4 | 3.2 | 4.5 | 2.3 |
| 2000 ..... | 6.2 | 3.0 | 5.3 | 2.2 |
| 2001 ..... | 6.3 | 1.7 | 6.3 | 1.7 |
| 2002 ..... | 4.9 | 1.3 | 5.3 | 1.7 |

Sources: *INE*, "National Accounts" and "*Inquérito ao Emprego*" and Banco de Portugal.

Notes:

(a) Compensation per employee; includes wages scale value, additional benefits and Social Security contributions from employers.

(b) Excluding the general government transfer to *Caixa Geral de Aposentações*.

(c) Excluding compensation earned by government employees.

(d) Deflated by the private consumption deflator.

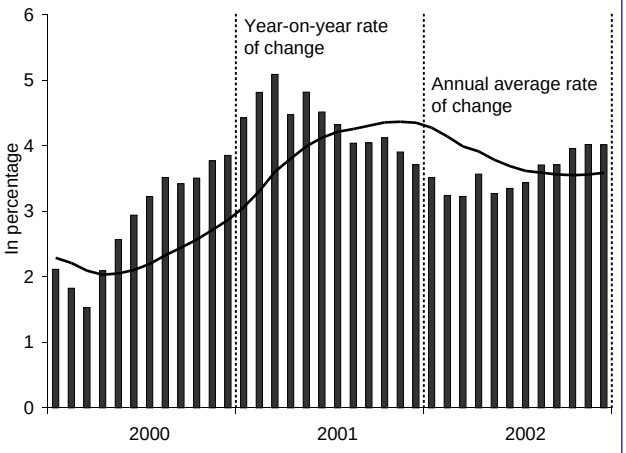
r.c.: Percentage rate of change.

## 7. INFLATION

The inflation rate in Portugal, measured by the annual average change of the Consumer Price Index (CPI), decreased from 4.4 per cent in 2001 to 3.6 per cent in 2002 (Table 7.1). However, in intra-annual terms, the year-on-year rate of change in the CPI presented an upward trend since the second quarter of the year and, from August onwards, has exceeded the average rate of change (Chart 7.1). In December 2002, the year-on-year rate of change of the CPI stood at 4.0 per cent — the level recorded since October —, 0.3 p.p. more than in December 2001 and 0.8 p.p. more than in March 2002, when it reached its lowest figure. Excluding unprocessed food and energy, the annual average change of the CPI moved from 3.6 per cent in 2001 to 4.4 per cent in 2002, reflecting, in particular, the sharp increases in services prices (Chart 7.2).

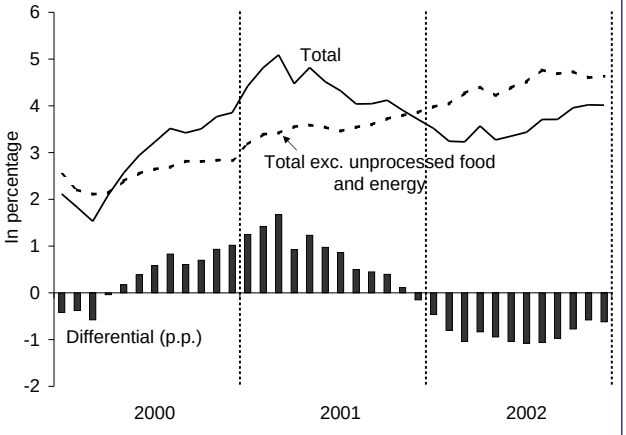
The comparison of the year-on-year rate of change of the CPI with the inflation trend indicators regularly used by the Banco de Portugal confirms the importance of temporary factors in the decline in the CPI in 2002 (Chart 7.3 and Table 7.1). Considering annual average changes, the 10% -trimmed average presented a value similar to that recorded in the previous year (3.9 per cent), while the main component increased from 3.4 to 3.8 per cent. These measures tend to exclude or attach a reduced weight to components with abnormally volatile behaviours, which is often the case of unprocessed food. In 2002, however, these trend measures were not immune to the conversion process of escudos into euros and to the increase in the standard VAT rate. According to the results published in *Economic Bulletin* of September

Chart 7.1
CONSUMER PRICE INDEX
Year-on-year and average rates of change




Source: *INE*.

Chart 7.2
CPI – TOTAL EXCLUDING UNPROCESSED FOOD AND ENERGY
Year-on-year rates of change




Sources: *INE* and Banco de Portugal.

Table 7.1

## CPI – MAIN CATEGORIES AND AGGREGATES

Average and year-on-year rates of change, in per cent

| | Weights | Average rate of change | | | | Year-on-year monthly rates of change | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | in the total | 1999 | 2000 | 2001 | 2002 | Dec.01 | Mar.02 | Jun.02 | Sep.02 | Dec.02 |
| Total | 100 | 2.3 | 2.9 | 4.4 | 3.6 | 3.7 | 3.2 | 3.4 | 3.7 | 4.0 |
| Total excluding unprocessed food and energy | 78.1 | 2.7 | 2.5 | 3.6 | 4.4 | 3.9 | 4.3 | 4.4 | 4.7 | 4.6 |
| Aggregates | | | | | | | | | | |
| Goods | 68.9 | 1.7 | 2.2 | 4.2 | 2.4 | 3.3 | 2.2 | 2.2 | 2.2 | 2.5 |
| Food | 25.8 | 2.7 | 1.9 | 6.1 | 1.9 | 4.3 | 2.4 | 0.9 | 1.2 | 1.5 |
| Unprocessed | 13.0 | 2.7 | 2.5 | 8.8 | 0.3 | 4.6 | 0.9 | -1.6 | -1.0 | -0.1 |
| Processed | 12.8 | 2.8 | 1.4 | 3.1 | 3.8 | 4.0 | 4.1 | 3.7 | 3.7 | 3.3 |
| Industrial | 43.1 | 1.1 | 2.4 | 3.1 | 2.7 | 2.7 | 2.1 | 3.0 | 2.9 | 3.1 |
| Non-energy | 34.3 | 1.8 | 1.4 | 2.5 | 3.1 | 2.9 | 3.2 | 3.2 | 3.0 | 2.9 |
| Energy | 8.8 | -1.9 | 6.1 | 5.2 | 1.2 | 2.0 | -1.8 | 2.5 | 2.3 | 3.9 |
| Services | 31.1 | 3.7 | 4.2 | 4.8 | 6.0 | 4.8 | 5.4 | 5.8 | 6.7 | 6.9 |
| Categories | | | | | | | | | | |
| Food and non-alcoholic beverages | 22.7 | 2.2 | 2.1 | 6.5 | 1.5 | 4.4 | 2.0 | 0.3 | 0.6 | 1.0 |
| Alcoholic beverages and tobacco | 3.2 | 7.2 | 0.8 | 3.2 | 4.8 | 3.6 | 4.3 | 3.9 | 5.2 | 5.5 |
| Clothing and footwear | 7.2 | 0.4 | 0.8 | 1.5 | 2.5 | 2.3 | 3.0 | 3.2 | 1.8 | 2.1 |
| Housing, water, electricity, gas and other fuels | 10.1 | 0.8 | 3.7 | 3.9 | 2.9 | 2.4 | 2.3 | 2.7 | 3.6 | 3.6 |
| Accessories, housing equipment, and current dwelling expenses | 8.1 | 2.2 | 2.0 | 3.2 | 3.1 | 3.4 | 2.9 | 3.0 | 3.3 | 3.0 |
| Health | 6.0 | 4.2 | 3.1 | 3.6 | 4.8 | 4.2 | 4.7 | 5.0 | 5.0 | 4.6 |
| Transports | 21.2 | 2.9 | 4.8 | 4.8 | 5.0 | 4.5 | 3.6 | 5.4 | 5.9 | 6.3 |
| Communications | 2.5 | -3.7 | -4.8 | -2.2 | 0.8 | -1.8 | -0.2 | 1.4 | 1.7 | 1.6 |
| Recreation and culture | 4.2 | 0.7 | 0.8 | 2.2 | 2.2 | 1.6 | 2.2 | 1.9 | 2.5 | 2.1 |
| Education | 1.6 | 4.8 | 5.0 | 5.2 | 5.8 | 6.0 | 6.1 | 6.1 | 6.1 | 4.8 |
| Hotels, cafés and restaurants | 9.2 | 2.9 | 3.6 | 4.2 | 5.7 | 4.4 | 5.1 | 5.6 | 6.0 | 7.3 |
| Miscellaneous goods and services | 4.0 | 3.8 | 4.3 | 5.5 | 5.8 | 5.2 | 5.5 | 5.6 | 5.9 | 6.1 |
| *Memo:* | | | | | | | | | | |
| Trend measures | | | | | | | | | | |
| 10 per cent trimmed mean | | 2.1 | 2.8 | 3.9 | 3.9 | 3.7 | 3.7 | 3.9 | 3.8 | 4.0 |
| Main component | | 2.5 | 2.7 | 3.4 | 3.8 | 3.6 | 3.6 | 3.7 | 3.9 | 4.0 |

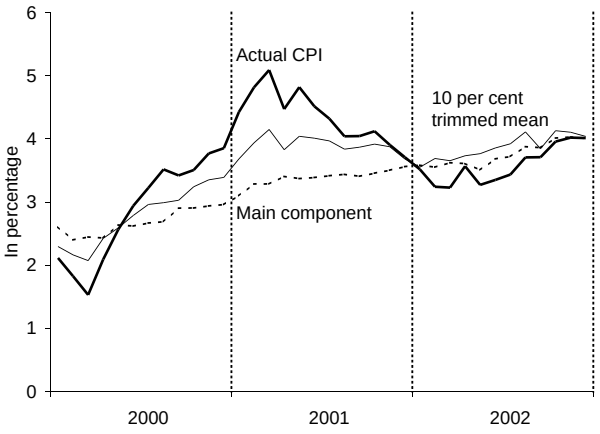
Sources: *INE* and Banco de Portugal.

2002[28], the impact of the conversion process of prices in escudos into euros on the year-on-year rate of change in the first quarter has stood at around 0.2 p.p., with particular incidence on services prices (approximately 0.5 p.p.). Moreover, the increase in the standard VAT rate in June, from 17 to 19 per cent, has gradually affected the price index in the second half of the year[29]. Information available suggests that, in 2002, in annual average terms, the impact of this latter effect, estimated at approximately one quarter of percentage point, should have been lower than previously expected and more lagged in time. Therefore, it could be concluded that the inflation trend, even excluding these factors, seems to have been kept relatively stabilised at a high level in 2002. This stands in contrast with the behaviour of the major determining factors behind inflation.

In 2002, the economic fundamentals showed a development favourable to a decrease in inflation, since import prices declined and nominal wages decelerated somewhat. According to Banco de Portugal's estimates, based on information made available by the *INE*, goods import deflators, in annual average terms, moved from virtually nil growth in 2001 to a negative change of 2.9 per cent in 2002. This decline was broadly based across all types of products, and was heavily influenced by the development of the import prices of consumer goods, the most relevant for the behaviour of inflation. In effect, the import deflators of food and non-food consumer goods decreased by 1.6 and 1.0 per cent in 2002, after increasing by 3.5 and 3.8 per cent in 2001 respectively. In 2002, wage pressures on the trend of prices were slightly less sharp, but still very high since they are associated with virtually nil growth of productivity.

The annual average inflation rate of the HICP declined from 4.4 per cent in 2001 to 3.7 per cent in 2002. This reduction occurred in the context in which consumer prices decelerated also in the euro area as a whole (from 2.4 per cent in 2001 to 2.3 per cent in 2002). Therefore, the inflation differential between Portugal and the euro area[30] narrowed in 2002 (from 2.0 to 1.4 p.p.). However, the growth rate differential between the Portuguese and euro area HICP excluding unprocessed food and energy prices, increased continuously in the course of 2002, chiefly reflecting the behaviour of services prices (Chart 7.4). This differential changed from 1.5 and 1.6 p.p. respectively in the fourth quarter of 2001 and in the first quarter of 2002, to 1.8, 2.3 and 2.4 p.p. in the last three quarters of 2002. The maintenance of the differential in the first quarter at values similar to those observed in the previous year suggests that the conversion of prices in escudos into euros did not determine a significant difference between Portugal and the euro area. The increase in the VAT standard rate does not seem to have been the only factor behind the widening of the differential in the other three quarters of the year.

Chart 7.3
CPI – TREND MEASURES
Year-on-year rates of change




Sources: *INE* and Banco de Portugal.

Services prices in the CPI accelerated sharply in 2002, growing by 6.0 and 6.9 per cent respectively in annual average terms and in year-on-year terms at the end of the year (4.8 per cent in 2001, for both rates). The behaviour of services prices was more marked than would be naturally due to factors such as the conversion process of prices in escudos into euros and the increase in the standard VAT rate. According to the HICP, the inflation differen-

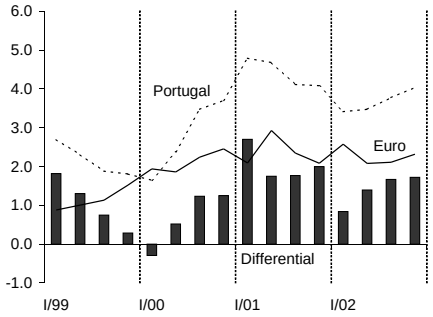
(28) See Santos, D., R. Evangelista, T. Nascimento and C. Coimbra (2002), "Analysis of the impact of the conversion of escudos into euros", Banco de Portugal, *Economic Bulletin*, September 2002.

(29) Note that the *INE* collects the prices of some items of the index on a quarterly basis.

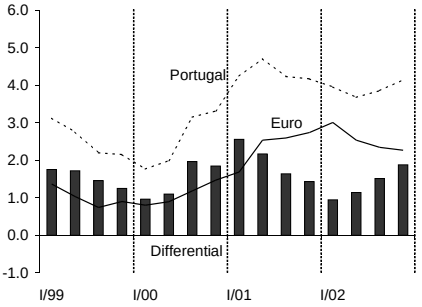
(30) See footnote (1).

Chart 7.4
HARMONISED INDEX OF CONSUMER PRICES – TOTAL AND AGGREGATES
Year-on-year rates of change and differentials

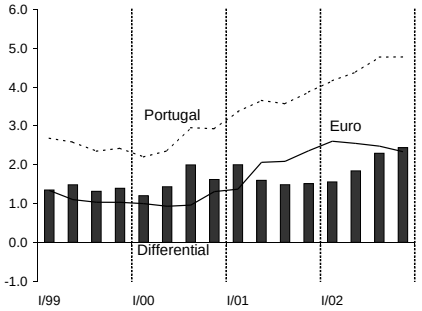
Total



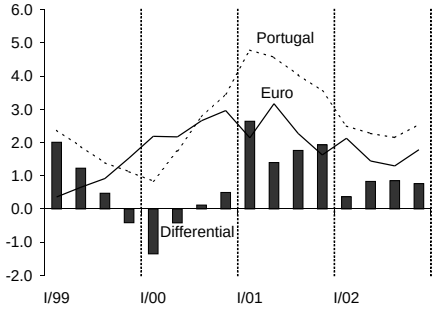

Total excluding energy



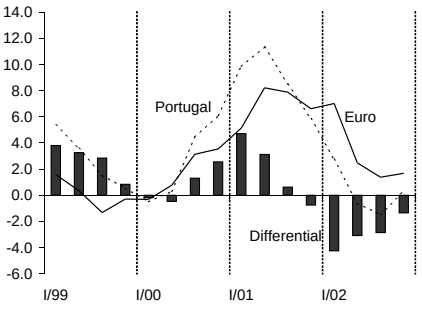

Total excluding energy and unprocessed food



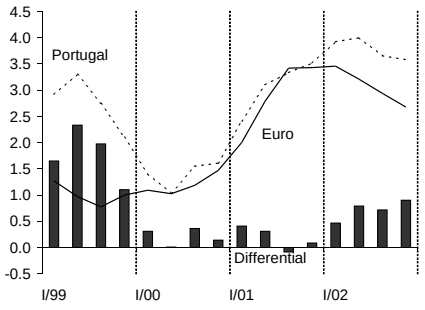

Goods



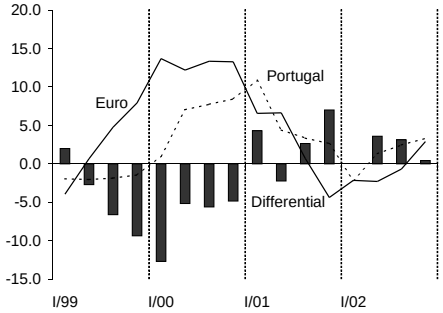

Unprocessed food



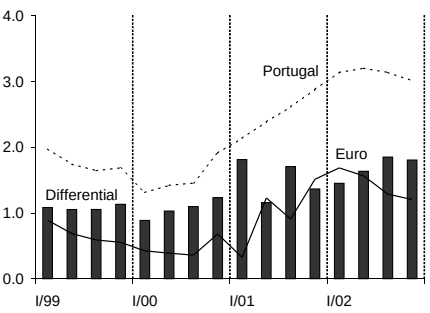

Processed food



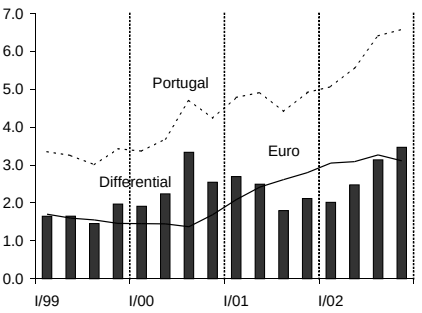

Energy




Non-energy industrial goods




Services




Source: Eurostat.

tial in services between Portugal and the euro area continued to present very significant figures, increasing to 2.8 p.p. (2.3 p.p. in 2001). In the course of the year, the differential, changed from 2.1 p.p.

Table 7.2

CPI – SERVICES

Average and year-on-year rates of change, in percentage

| | Weights in the total | (a) | Average rate of change | | | Contributions for changes in 2002 | Year-on-year monthly rates of change | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2000 | 2001 | 2002 | | Dec.01 | Mar.02 | Jun.02 | Sep.02 | Dec.02 |
| Services | 100 | | 4.2 | 4.8 | 6.0 | 1.2 | 4.8 | 5.4 | 5.8 | 6.7 | 6.9 |
| Sub-indices - major contributions for changes in the average rate of change between 2002 and 2001 | | | | | | | | | | | |
| Recreational and cultural services – entertainment | 0.5 | | 4.4 | 3.2 | 12.0 | 0.04 | 3.7 | 12.0 | 12.2 | 13.3 | 12.3 |
| Insurance connected with transport | 1.9 | VAT | 6.4 | 8.2 | 10.2 | 0.04 | 8.0 | 7.4 | 10.7 | 11.5 | 11.3 |
| Maintenance and repairs | 12.0 | VAT | 8.3 | 7.7 | 9.5 | 0.27 | 7.2 | 8.0 | 9.2 | 11.0 | 11.3 |
| Medical services | 5.8 | | 6.2 | 6.8 | 7.4 | 0.04 | 7.4 | 7.4 | 7.5 | 7.5 | 6.8 |
| Services for the maintenance and repair of the dwelling | 4.7 | VAT | 6.1 | 5.8 | 7.2 | 0.07 | 5.8 | 6.6 | 6.2 | 8.8 | 8.6 |
| Hairdressing salons and personal grooming establishments | 3.3 | VAT | 5.0 | 5.3 | 7.2 | 0.06 | 5.4 | 6.6 | 6.9 | 7.8 | 8.1 |
| Canteens | 2.8 | | 4.2 | 2.9 | 6.4 | 0.09 | 4.6 | 4.6 | 4.6 | 4.6 | 11.6 |
| Education | 5.1 | | 5.0 | 5.2 | 5.8 | 0.04 | 6.0 | 6.1 | 6.1 | 6.1 | 4.8 |
| Restaurants and cafés | 24.9 | | 3.5 | 4.4 | 5.6 | 0.29 | 4.0 | 5.0 | 5.7 | 6.2 | 7.0 |
| Telephone, telegraph and telefax services | 7.8 | VAT | -4.8 | -2.2 | 0.8 | 0.18 | -1.8 | -0.2 | 1.4 | 1.7 | 1.6 |

Sources: *INE* and Banco de Portugal.

Note:

(a) VAT - includes VAT at standard rate.

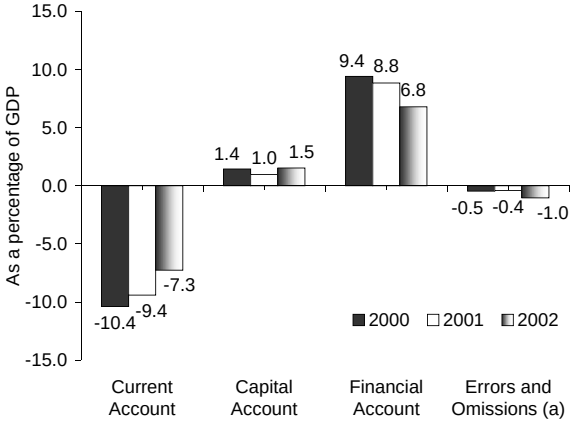
in the fourth quarter of 2001 to 2.0 p.p. in the first quarter of 2002, increasing sharply to 2.5 p.p. in the second quarter and to 3.1 and 3.5 p.p. in the third and fourth quarters of the year respectively (Chart 7.4). The acceleration of prices in services was broadly based across most elementary items of the aggregate (Table 7.2). In some cases, this acceleration was higher than would be expected as a result of the above special factors. For example, the prices evolution in the items "restaurants and cafés", which is not subject to the standard VAT rate, accelerated from 4.0 to 7.0 per cent between December 2001 and December 2002. Likewise, the year-on-year rate of change of the item "maintenance and repairs" reached 11.3 per cent at the end of 2002 (7.2 per cent in December 2001). As a whole, these two items contributed with nearly 50 per cent to the observed acceleration in services prices. Thus, the development of inflation in services, on the one hand, reflects the high growth of wage costs in Portugal (albeit decelerating) and, on the other hand, indicates the existence of a market structure not very competitive in some subsectors of services, which has permitted the widening of profit margins, in spite of a context of marked economic deceleration.

The behaviour of prices in services stands in contrast with the evolution of prices in goods that decelerated from 4.2 to 2.4 per cent, in annual average terms (measured by both the CPI and the HICP). This slowdown was much higher than that observed in the euro area. Thus, the inflation differential in goods between Portugal and the euro area has narrowed (from 1.9 to 0.7 p.p.). These values mainly reflect the different behaviour of unprocessed food, since the contribution to the change of the differential in the other sub-components remained relatively stable, in spite of the increase in the standard VAT rate.

## 8. BALANCE OF PAYMENTS

In 2002, the external borrowing requirements of the Portuguese economy, corresponding to the joint deficit of the current plus capital accounts, declined from 8.4 to 5.7 per cent of GDP. This result, which occurred within a less buoyant international framework, mirrors the deceleration of Portuguese activity associated with an increase in the savings rate of households and a decrease in investment. It also partly mirrors the favourable development in terms of trade of goods and services. The breakdown into the two major components shows that the current account deficit narrowed to 7.3 per cent of GDP, compared with 9.4 per cent in 2001, and that the capital account surplus widened from 1.0 to 1.5 per cent of GDP (Chart 8.1, Table 8.1). Turning to counterparts, the operations classified in the item other investment continued to be the major source of inflows, in particular those carried out by monetary financial institutions.

Chart 8.1
BALANCE OF PAYMENTS BREAKDOWN
Balances




Note:
(a) A positive (negative) sign indicates a credit (debit) not elsewhere recorded in the balance of payments.

The narrowing of the current account deficit was chiefly the result of a further reduction in the goods account deficit, of an increase in the services account surplus and a slight decline in the income account deficit. In turn, the surplus of current transfers declined (Chart 8.2).

The goods account deficit decreased from 12.0 per cent of GDP, in 2001, to 9.9 per cent of GDP in 2002. The narrowing of the trade deficit was chiefly the result of favourable volume and terms of trade effects (Chart 8.3). In contrast with developments observed in previous years, the volume effect was positive in 2002, since exports accelerated slightly while imports decreased in real terms[31]. In addition, and for the second consecutive year, the differential in the evolution of prices of exports and imports of goods was also favour-

Table 8.1

## BALANCE OF PAYMENTS

Euro million

| | 2000 | 2001 | | | 2002 | | | Balance as a percentage of GDP | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Balance | Debit | Credit | Balance | Debit | Credit | Balance | 2000 | 2001 | 2002 |
| Current account | -12 001.4 | 61 875.5 | 50 240.3 | -11 635.2 | 60 594.5 | 51 154.5 | -9 440.0 | -10.4 | -9.4 | -7.3 |
| Goods | -15 017.0 | 43 073.7 | 28 207.2 | -14 866.5 | 41 462.2 | 28 630.0 | -12 832.2 | -13.0 | -12.0 | -9.9 |
| Services | 2 085.8 | 7 087.2 | 9 891.5 | 2 804.3 | 7 132.4 | 10 369.2 | 3 236.7 | 1.8 | 2.3 | 2.5 |
| Transport | -531.4 | 2 334.4 | 1 769.2 | -565.2 | 2 304.5 | 1 915.2 | -389.3 | -0.5 | -0.5 | -0.3 |
| Travel and tourism | 3 297.6 | 2 350.2 | 6 124.8 | 3 774.5 | 2 407.1 | 6 259.9 | 3 852.8 | 2.9 | 3.1 | 3.0 |
| Insurance services | -44.2 | 107.9 | 67.1 | -40.8 | 149.6 | 78.3 | -71.2 | 0.0 | 0.0 | -0.1 |
| Royalties and license fees | -266.7 | 278.3 | 28.4 | -249.9 | 311.7 | 33.3 | -278.4 | -0.2 | -0.2 | -0.2 |
| Other services | -237.3 | 1 813.6 | 1 758.3 | -55.3 | 1 793.7 | 1 939.6 | 145.9 | -0.2 | 0.0 | 0.1 |
| Government services | -132.3 | 202.8 | 143.7 | -59.0 | 165.9 | 142.9 | -23.0 | -0.1 | 0.0 | 0.0 |
| Income | -2 743.5 | 9 285.7 | 5 940.0 | -3 345.6 | 9 101.4 | 5 773.6 | -3 327.8 | -2.4 | -2.7 | -2.6 |
| Compensation per employees | 27.2 | 177.7 | 155.1 | -22.6 | 174.2 | 138.2 | -36.1 | 0.0 | 0.0 | 0.0 |
| Investment income | -2 770.7 | 9 107.9 | 5 784.9 | -3 323.1 | 8 927.2 | 5 635.4 | -3 291.8 | -2.4 | -2.7 | -2.5 |
| Current transfers | 3 673.3 | 2 428.9 | 6 201.5 | 3 772.7 | 2 898.5 | 6 381.8 | 3 483.3 | 3.2 | 3.0 | 2.7 |
| Official transfers | 152.6 | 1 439.2 | 1 609.2 | 170.0 | 1 631.9 | 1 975.3 | 343.5 | 0.1 | 0.1 | 0.3 |
| Private transfers | 3 520.6 | 989.7 | 4 592.3 | 3 602.7 | 1 266.6 | 4 406.5 | 3 139.8 | 3.0 | 2.9 | 2.4 |
| Capital Account | 1 669.8 | 235.2 | 1 431.7 | 1 196.6 | 207.4 | 2 186.1 | 1 978.7 | 1.4 | 1.0 | 1.5 |
| Capital transfers | 1 652.1 | 184.5 | 1 397.7 | 1 213.2 | 183.8 | 2 157.8 | 1 974.1 | 1.4 | 1.0 | 1.5 |
| Official transfers | 1 649.2 | 54.3 | 1 260.2 | 1 206.0 | 41.0 | 2 049.8 | 2 008.8 | 1.4 | 1.0 | 1.5 |
| Private transfers | 2.9 | 130.3 | 137.5 | 7.2 | 142.8 | 108.1 | -34.7 | 0.0 | 0.0 | 0.0 |
| Acquisition/disposable of non produced non-financial assets | 17.6 | 50.6 | 34.0 | -16.6 | 23.7 | 28.3 | 4.6 | 0.0 | 0.0 | 0.0 |
| Financial Account | 10 870.3 | 667 548.9 | 678 487.0 | 10 938.0 | 620 066.5 | 628 880.7 | 8 814.2 | 9.4 | 8.8 | 6.8 |
| Direct investment | -786.7 | 32 646.3 | 30 778.1 | -1 868.3 | 25 553.7 | 26 350.2 | 796.6 | -0.7 | -1.5 | 0.6 |
| Portuguese investment abroad | -8 153.6 | 14 993.8 | 6 541.1 | -8 452.8 | 8 517.3 | 4 791.5 | -3 725.9 | -7.1 | -6.8 | -2.9 |
| Foreign investment abroad | 7 367.0 | 17 652.5 | 24 237.0 | 6 584.5 | 17 036.4 | 21 558.8 | 4 522.4 | 6.4 | 5.3 | 3.5 |
| Portfolio investment | -2 078.0 | 170 774.1 | 173 687.3 | 2 913.2 | 181 967.6 | 185 185.6 | 3 218.0 | -1.8 | 2.4 | 2.5 |
| Assets | -5 040.3 | 61 834.4 | 53 851.3 | -7 983.1 | 82 143.1 | 74 771.4 | -7 371.7 | -4.4 | -6.5 | -5.7 |
| Liabilities | 2 962.3 | 108 939.7 | 119 836.0 | 10 896.3 | 99 824.5 | 110 414.2 | 10 589.7 | 2.6 | 8.8 | 8.2 |
| Financial derivatives | 338.4 | 3 161.7 | 3 446.0 | 284.3 | 4 019.5 | 4 007.8 | -11.8 | 0.3 | 0.2 | 0.0 |
| Other investment | 13 801.7 | 414 729.9 | 425 308.5 | 10 578.6 | 360 345.1 | 366 252.5 | 5 907.4 | 11.9 | 8.5 | 4.5 |
| Assets | -11 792.6 | 214 381.5 | 209 093.9 | -5 287.6 | 182 723.1 | 179 141.1 | -3 582.0 | -10.2 | -4.3 | -2.8 |
| Liabilities | 25 594.3 | 200 348.4 | 216 214.6 | 15 866.2 | 177 622.0 | 187 111.4 | 9 489.5 | 22.1 | 12.8 | 7.3 |
| Reserve assets | -405.1 | 46 236.9 | 45 267.1 | -969.8 | 48 180.5 | 47 084.5 | -1 096.0 | -0.4 | -0.8 | -0.8 |
| Errors and omissions | -538.6 | | | -499.4 | | | -1 352.9 | -0.5 | -0.4 | -1.0 |
| *Memo:* | | | | | | | | | | |
| Current account + Capital Account | -10 331.6 | 62 110.6 | 51 672.0 | -10 438.6 | 60 801.9 | 53 340.6 | -7 461.3 | -8.9 | -8.4 | -5.7 |

Chart 8.2
CURRENT ACCOUNT BREAKDOWN
Balances

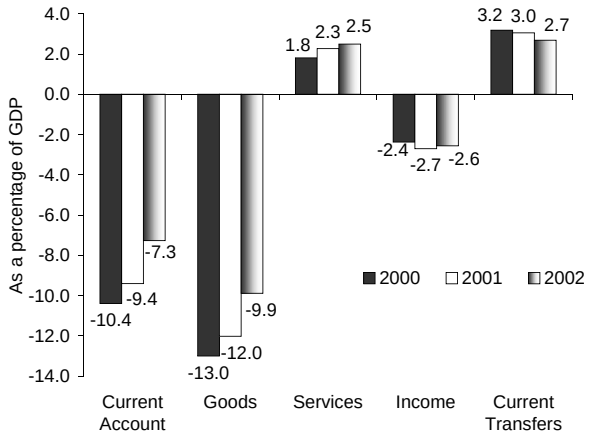
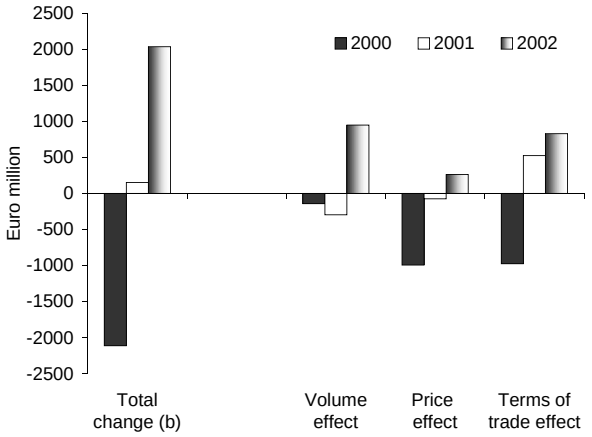



Chart 8.3
CHANGE IN THE TRADE ACCOUNT BREAKDOWN[(a)]




Notes:
(a) The change in the trade balance can be broken down into:
- Volume effect – effect of the change of exported and imported volumes
  $[X_{t-1}. Vx_t.(1+Px_t)] - [M_{t-1}.Vm_t.(1+Pm_t)]$
- price effect – effect of the average growth of external trade prices
  $(X_{t-1}.P_t) - (M_{t-1}.P_t)$
- terms of trade effect – effect of the relative change in export and import prices
  $[X_{t-1}.(Px_t - P_t)] - [M_{t-1}.(Pm_t - P_t)]$

where:
$X_{t-1}$ and $M_{t-1}$ – exports and imports in year $t$-1, at current prices
$Vx_t$ and $Vm_t$ – growth of exports and imports, in volume terms, in year $t$
$Px_t$ and $Pm_t$ – growth of export and import prices, in year $t$
$P_t$ – average growth of external trade prices, in year $t$ $[(Px_t + Pm_t) / 2]$
Note that the volume effect includes the price-volume cross effect, so that the sum of the three effects adds up to the total change. This cross-effect, however, is not significant.

(b) A negative change means an increase in the trade deficit.

able. In 2002, the significant positive change in terms of trade in goods (2.4 per cent, vis-à-vis 1.5 per cent in 2001) accounts for approximately 40 per cent of the improvement observed in the trade account balance. The price effect had also a positive impact on the narrowing of the trade deficit, albeit to a lesser extent.

The services account surplus rose to 2.5 per cent of GDP in 2002, 0.2 p.p. more than in the previous year. This increase reflected the narrowing of the transport services deficit — partly as a result of the developments of the deficit associated with freights on merchandise — and the more favourable behaviour of the balance of other services supplied by corporations, namely legal, accounting and consulting services. The balance of travel and tourism remained relatively stable as a percentage of GDP. Nominal tourism receipts recorded an increase of 2.2 per cent, after an increase of 7.1 per cent in the previous year, in line with the favourable trend of the international economic situation. In turn, travel and tourism expenditure abroad by residents increased by 2.4 per cent, in nominal terms, after a drop of 3.0 per cent in 2001.

In 2002, the income account deficit narrowed slightly from 2.7 to 2.6 per cent of GDP. This behaviour was due to the decline in interest rates, since the net debtor position of the Portuguese economy vis-à-vis the rest of the world has deteriorated in recent years. By type of investment, there was a decrease in the income deficit of other investment, from 1.3 to 1.2 per cent of GDP, and also a decline in the income deficit of direct investment (from 1.2 to 1.1 per cent of GDP). The income deficit of portfolio investment recorded a value similar

(31) See section 5. *Output developments in 2002: Expenditure and Output.*

Table 8.2

FINANCIAL ACCOUNT[(a)]
As a percentage of GDP

| | 2000 | 2001 | | | 2002 | | |
|---|---|---|---|---|---|---|---|
| | Net change | Change in liabilities | Change in assets | Net change | Change in liabilities | Change in assets | Net change |
| Financial Account | 9.4 | 24.4 | -15.6 | 8.8 | 15.8 | -9.1 | 6.8 |
| Direct investment | -0.7 | 5.3 | -6.8 | -1.5 | 3.5 | -2.9 | 0.6 |
| Portfolio investment | -1.8 | 8.8 | -6.5 | 2.4 | 8.2 | -5.7 | 2.5 |
| Financial derivatives | 0.3 | -2.6 | 2.8 | 0.2 | -3.1 | 3.1 | 0.0 |
| Other investment | 11.9 | 12.8 | -4.3 | 8.5 | 7.3 | -2.8 | 4.5 |
| Reserve assets | -0.4 | - | -0.8 | -0.8 | - | -0.8 | -0.8 |
| By institutional sector of the resident investor: | | | | | | | |
| Monetary Authorities | 3.5 | 0.1 | -0.4 | -0.3 | 0.8 | -0.7 | 0.1 |
| Portfolio investment | -0.5 | - | 0.4 | 0.4 | - | 0.4 | 0.4 |
| Financial derivatives | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other investment | 4.3 | 0.1 | 0.0 | 0.1 | 0.8 | -0.2 | 0.6 |
| Reserve assets | -0.4 | - | -0.8 | -0.8 | - | -0.8 | -0.8 |
| General Government | 1.9 | 2.4 | -0.1 | 2.4 | 2.6 | 0.4 | 3.1 |
| Direct investment | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Portfolio investment | 1.9 | 3.1 | -0.6 | 2.5 | 3.1 | -0.3 | 2.7 |
| Financial derivatives | 0.2 | -0.5 | 0.6 | 0.1 | -0.6 | 0.8 | 0.2 |
| Other investment | -0.2 | -0.2 | 0.0 | -0.2 | 0.1 | 0.0 | 0.2 |
| Monetary Financial Institutions | 11.6 | 12.9 | 0.0 | 12.9 | 5.5 | 0.4 | 6.0 |
| Direct investment | 0.6 | 0.0 | -0.2 | -0.2 | 0.3 | 0.0 | 0.3 |
| Portfolio investment | 1.0 | 1.9 | -0.7 | 1.2 | 0.0 | -1.0 | -1.0 |
| Financial derivatives | 0.2 | -1.7 | 1.9 | 0.2 | -2.0 | 1.9 | -0.1 |
| Other investment | 9.8 | 12.6 | -1.0 | 11.6 | 7.3 | -0.5 | 6.8 |
| Non-monetary Financial Institutions | -1.3 | 0.9 | -5.5 | -4.6 | 2.5 | -3.4 | -0.9 |
| Direct investment | 1.1 | 0.2 | -1.5 | -1.3 | 0.7 | -0.2 | 0.5 |
| Portfolio investment | -3.6 | 0.9 | -4.3 | -3.4 | 2.1 | -3.3 | -1.2 |
| Financial derivatives | 0.0 | -0.2 | 0.2 | 0.0 | -0.2 | 0.2 | 0.0 |
| Other investment | 1.1 | 0.0 | 0.1 | 0.1 | -0.1 | -0.1 | -0.2 |
| Non-financial Corporations and Private Individuals | -6.3 | 8.1 | -9.6 | -1.5 | 4.4 | -5.8 | -1.5 |
| Direct investment | -2.4 | 5.1 | -5.1 | 0.0 | 2.5 | -2.7 | -0.2 |
| Portfolio investment | -0.7 | 2.9 | -1.2 | 1.6 | 3.0 | -1.4 | 1.6 |
| Financial derivatives | -0.1 | -0.2 | 0.1 | -0.1 | -0.2 | 0.2 | 0.0 |
| Other investment | -3.1 | 0.3 | -3.4 | -3.1 | -0.9 | -1.9 | -2.8 |

Note:
(a) A (+) sign means an increase in foreign liabilities or a decrease in foreign assets, i.e a financial inflow. A (-) sign means a decrease in foreign liabilities or an increase in foreign assets, i.e. a financial outflow.

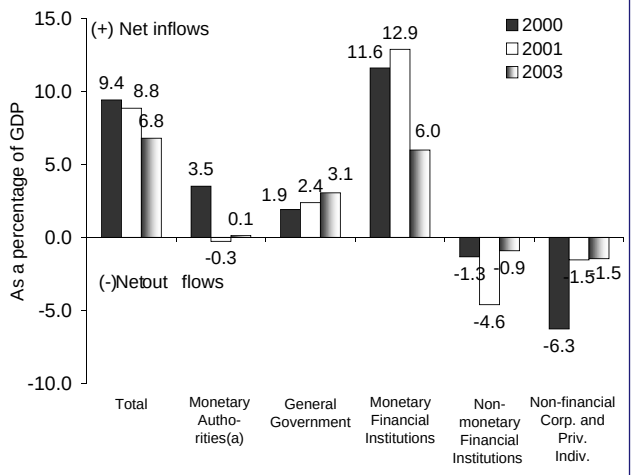
to that observed in the previous year (0.2 per cent of GDP).

The current transfers surplus declined by 0.3 p.p., to 2.7 per cent of GDP, as a result of the development of private transfers. This development was due to a contraction of around 8.9 per cent of the balance of emigrants' remittances — particularly remittances from France and Germany — and also to a further increase in immigrants' remittances (39.9 per cent), associated with immigrating flows from Eastern Europe. In turn, net receipts of official current transfers increased from de 0.1 to 0.3 per cent of GDP in 2002.

The capital account surplus widened from 1.0 to 1.5 per cent of GDP, chiefly reflecting the recovery of official capital transfers to Portugal from the European Union. Receipts within the scope of the ERDF, in particular, increased significantly, after negative changes in the two previous years.

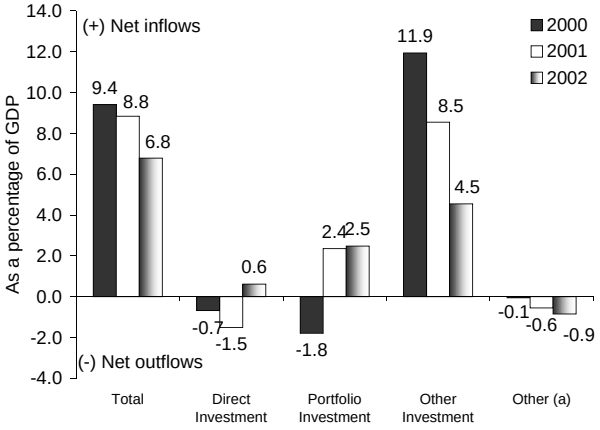
The financial account recorded net inflows equivalent to 6.8 per cent of GDP, compared with 8.8 per cent in 2001 (Table 8.2). Analysing the financial flows by resident institutional sector

Chart 8.4
FINANCIAL ACCOUNT
Balances




Note:
(a) Includes the changes in external liabilities of the Banco de Portugal within the scope of the TARGET system.

Chart 8.5
FINANCIAL ACCOUNT
Balances




Note:
(a) Includes Reserve Assets and Financial Derivatives.

(Chart 8.4), monetary financial institutions continued to be the sector that contributed the most to net inflows into the Portuguese economy in 2002 (6.0 per cent of GDP), although to a much lesser degree than in the previous year (12.9 per cent of GDP). Financial operations on assets and liabilities of the general government were also behind inflows into the Portuguese economy in 2002 (3.1 per cent of GDP, 0.7 p.p. more than in 2001). As in previous years, operations carried out by non-monetary financial institutions and by non-financial corporations and households resulted in net outflows, although in the first case below those recorded in 2001.

By type of investment (Chart 8.5), operations included in other investment continued to be the major source of net inflows, although much lower, as a percentage of GDP, than in the previous year (8.5 and 4.5 per cent of GDP, respectively). These inflows were chiefly the result of operations with abroad by monetary financial institutions. As in 2001, fund raising by these institutions was associated with deposit operations and loans (6.8 per cent of GDP vis-à-vis 11.6 per cent of GDP in 2001). Part of these inflows continued to be related to transfers to resident monetary financial institutions of funds obtained through the issue of medium and long-term debt securities in international markets by branches abroad of those institutions abroad. In turn, the operations included in the item other investment conducted by non-financial corporations and households, mostly deposits abroad, resulted again in net outflows (2.8 per cent of GDP in 2002, compared with 3.1 per cent of GDP in 2001).

Portfolio investment operations corresponded to net inflows equivalent to 2.5 per cent of GDP, slightly above those recorded in 2001 (2.4 per cent of GDP). Behind this was the decline in net investments by residents in foreign securities, that was more significant than the decline in investment by non-residents in domestic securities. In effect, Portuguese portfolio investment abroad led to net outflows equivalent to 5.7 per cent of GDP, below the level recorded in the previous year (6.5 per cent). These lower net investments abroad were extensive to the different types of securities issued by non-resident entities. Indeed, in 2002, there was a decrease in both net acquisitions of debt securities (from 5.0 to 4.7 per cent of GDP) and equities (from 1.5 to 1.0 per cent of GDP). Acquisitions of foreign long-term debt securities continued to be the most important segment in terms of Portuguese portfolio investment abroad. By institutional sector of the resident investor, in net terms, portfo-

lio investment operations abroad continued to be chiefly conducted by investment funds, insurance corporations and pension funds. Foreign portfolio investment in Portugal, in turn, recorded net inflows equivalent to 8.2 per cent of GDP, slightly below the level observed in the previous year (8.8 per cent of GDP). Behind this was the lower investment in money market instruments (1.0 per cent of GDP in 2002, compared with 2.6 per cent of GDP in 2001). This behaviour was chiefly associated with the development of the redemption of short-term securities issued by the general government. In turn, there was an increase in net investments by non-residents in long-term bonds and notes issued by the general government and in equities.

In 2002, direct investment operations between Portugal and abroad resulted in net inflows equivalent to 0.6 per cent of GDP, in contrast with the outflows observed in previous years (0.7 and 1.5 per cent of GDP, respectively in 2000 and 2001). In net terms, both foreign direct investment in Portugal and Portuguese direct investment abroad declined vis-à-vis the previous year, particularly the latter. These flows must have been less affected by big intra-group operations than in previous years. In addition, the deceleration of activity at international and national levels contributed also to the reduction of direct investment flows. By geographical destination, over 80 per cent of total direct investment abroad was directed to Spain. With regard to direct investment in Portugal, as in previous years, mostly came from other European Union countries, namely Spain and Germany.

## 9. CONCLUSION

In the course of 2002, economic activity in Portugal decelerated markedly. Output growth was negative in the second half of the year, with the available indicators revealing that the rate of change continued to be negative in the first quarter of 2003. This trend was due to the behaviour of domestic demand, since exports maintained a moderate positive growth and accelerated slightly vis-à-vis 2002, in spite of the slowdown in the external demand directed to the Portuguese economy. The resulting gains in the external market share occurred in a context in which growth in unit labour costs continued to be higher than in major Portuguese trade partners, and is therefore associated, as in 2001, with a decline in profit margins of the exporting sector. In effect, despite the deceleration in 2002, real wages continued to increase for the sixth consecutive year above productivity, the growth of which was virtually nil. This situation is unsustainable and should start to be corrected this year. Moreover, it is contributing to the excessive widening of the differential between changes in consumer goods and services prices in 2002.

The services component of the CPI accelerated significantly in 2002, reaching, at the end of the year, in aggregate terms, year-on-year rates of change close to 7 per cent. Although this rise may be partly due to the increase in the standard VAT rate, it should be stressed that it happened against a background in which activity decelerated sharply and import prices revealed clearly negative changes. Many services may more easily pass wage increases on to the consumer, and take advantage of limited competitive conditions to increase their profit margins, trying to offset, at least temporarily, the deceleration in activity.

The behaviour of private domestic demand, consumption and investment, translates a continued adjustment process in view of the high foreign borrowing requirements and the high indebtedness levels attained. Portuguese participation in the euro area has made possible, over recent years, to maintain a high imbalance between domestic supply and demand. However, this imbalance, which peaked in 2002, has been corrected via the smaller growth, or even reduction, of domestic demand. The adjustment process for the private sector was started in mid-2000 and increased in 2002, the year when it started in the public sector.

Turning to the private sector, the more marked pace of adjustment over the last year seems to have been related to both the growing perception of the size of the required adjustment and the awareness of the real situation of Portuguese public finances, that occurred simultaneously with the first corrective measures decided by the Government, in a context of the clearly deteriorating international economic outlook. The excessive level of the general government deficit in 2001, clearly above the target established in the Treaty on European Union, and failing to comply with the Stability and Growth Pact, reflects the markedly pro-cy-

clical nature of the stance adopted during the previous expansionary stage of domestic demand. It seems obvious that the fiscal policy between 1997 and 2001 could not have been able to significantly counter the effects on private domestic demand resulting from the decline in nominal and real interest rates associated with the convergence process, with a view to participating in the euro. However, not only were these effects not countered, but instead the fiscal policy proved to be an additional stimulus, contributing to the increased imbalance between supply and demand and to the pressure on the labour market, with the resulting loss of competitiveness in the tradable sector of the economy. Furthermore, conditions were created for the subsequent emergence of a serious fiscal crisis, when the process of adjustment of the private sector was started. For that reason, and also due to the deterioration of the external environment, the economy started to decelerate.

As mentioned, in 2002, the deterioration of the fiscal position was halted and a process of financial adjustment started for the public sector. Excluding temporary and special measures, the public deficit in 2002 seems to have been maintained at a level close to that observed in 2001. This means that the consolidation measures taken countered only the negative effects of the economic deceleration on the balance. Primary expenditure, in particular current expenditure, adjusted for cyclical and temporary effects, continued to increase as a percentage of GDP. Therefore, this is just the start of the effort of financial reorganization of the Portuguese General Government, which must be further pursued over the coming years.

The Portuguese starting position as regards public finance is more unfavourable than in other Member States, and it would be unreal to consider that there is scope for failing to comply with the Stability and Growth Pact and for introducing fiscal stimulus in Portugal. Given the weak growth of private domestic demand and the unfavourable external framework, if no additional consolidation measures are taken, developments will point to a considerable deterioration of the public deficit. This deterioration would be solely due to the cyclical effect, even without any discretionary measures of fiscal stimulus. In turn, any possible fiscal stimulus under the present conditions of the Portuguese economy would lead to a mere postponement of the adjustment of private domestic demand, with the drawback of increasing the probability that, when occurring, that adjustment would be stronger and more sudden. The economic growth recovery must come from a new dynamism of the external demand and from the improvement of private agents confidence, after the already started adjustment of their financial situation.

*Completed with information available as at mid-April 2003*

## Box: TREND OF THE INTRA-ANNUAL ECONOMIC ACTIVITY IN 2002

*In the course of 2002, economic activity slowed down markedly. The coincident indicator of economic activity, the purpose of which is to synthesise the trend of activity in industry, construction and trade, clearly points to that downward profile, moving from a positive change of 1.2 per cent in the first half of the year to a negative change of 1.7 per cent in the second half. The six-month breakdown of the annual estimates of the Banco de Portugal point in the same direction (Table 1 and Chart 1). According to these estimates, after a year-on-year increase of 1.3 per cent in GDP in the first half of the year, the second half of 2002 saw a negative change of 0.5 per cent. This reversal was determined by the trend of domestic demand, chiefly as a result of a more marked fall in investment and of the significant slowdown in private consumption. In spite of a less favourable international framework, exports have resisted to the slowing trend of the other GDP components. Goods exports have even accelerated in the second half of the year from 1.7 to 2.5 per cent. On the whole, this evidence is rather similar to that observed in the estimates of the Quarterly National Accounts of the INE.*

*According to the results of the employment survey of the INE, total employment seems to have increased by 0.7 per cent in the first half of the year, declining by 0.4 per cent in the second half. Considering common samples in consecutive quarters, this trend is less noticeable, and changes of +0.3 per cent and -0.2 per cent are obtained for the first and second halves of 2002 respectively. The intra-annual profile of employment, less sharp than that of output, against a background of a strong deceleration, is partly due to the usual lag in employment vis-à-vis the pace of activity.*

*Is should also be noted that the decelerating patterns of output and employment over 2002, with negative changes in the second half of the year, created an arithmetic base effect (carry-over effect) that will unfavourably influence the annual growth rates of these variables in 2003.*

Table 1

EXPENDITURE

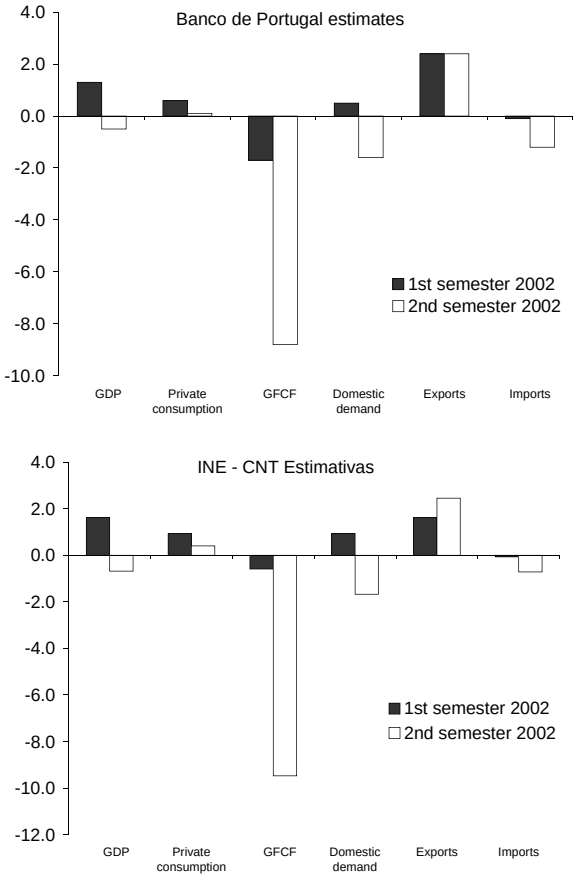
Year-on-year rates of change in volume

| | Banco de Portugal Estimates | | | |
|---|---|---|---|---|
| | 1st Sem. 2001 | 2nd Sem. 2001 | 1st Sem. 2002 | 2nd Sem. 2002 |
| GDP | 2.6 | 0.8 | 1.3 | -0.5 |
| Private consumption | 1.7 | 0.4 | 0.6 | 0.1 |
| GDP | -1.6 | 2.1 | -1.7 | -8.8 |
| Domestic demand | 1.3 | 1.5 | 0.5 | -1.6 |
| Exports | 4.6 | -0.8 | 2.4 | 2.4 |
| of which: goods | 5.2 | -1.4 | 1.7 | 2.5 |
| Imports | 0.6 | 1.6 | -0.1 | -1.2 |
| of which: goods | 1.1 | 2.8 | -0.3 | -1.4 |
| | *INE* Estimates Quarterly National Accounts | | | |
| | 1st Sem. 2001 | 2nd Sem. 2001 | 1st Sem. 2002 | 2nd Sem. 2002 |
| GDP | 2.3 | 1.0 | 1.6 | -0.7 |
| Private consumption | 1.4 | 1.0 | 0.9 | 0.4 |
| GDP | -2.0 | 2.1 | -0.6 | -9.5 |
| Domestic demand | 0.8 | 1.7 | 0.9 | -1.7 |
| Exports | 3.9 | 0.0 | 1.6 | 2.5 |
| Imports | -0.1 | 1.9 | -0.1 | -0.7 |

Chart 1

EXPENDITURE

Rates of change in volume



# THE PORTUGUESE BANKING SYSTEM: DEVELOPMENTS AND INTERNATIONAL COMPARISON

## 1. INTRODUCTION

This article aims at analysing the structural changes experienced by the Portuguese banking system over the last decade, at the level of both the balance sheet and the profit and loss account, and assessing its international position.

The liberalisation of the Portuguese banking system has been considered a success. Notwithstanding its coverage and complexity,(1) efficiency gains resulting from the liberalisation could be obtained without the need to bear the costs in terms of financial stability, which are sometimes associated with this type of process. This resulted from the combination of an appropriate sequencing and timing of the measures deemed necessary to take, with a cautious macroeconomic management, particularly in the field of monetary policy.

Following the more intense period of liberalisation of the banking system, Portugal's participation in the euro area and the prior nominal convergence process represented an additional challenge for the Portuguese economy and in particular for the banking system, given the key role played by the latter in its financing. In this context, the level and volatility of nominal and real interest rates relevant to the Portuguese economy saw a strong reduction. The decline in the cost of capital rendered economic agents' liquidity restraints substantially less active, and allowed them, over these years, to anticipate future expenditure with less recourse to self-financing. Thus, the effects of Portugal's participation in the euro area were similar to a new financial liberalisation process, albeit benefiting from the safety net resulting from participation in a monetary union, namely from the ability of national economic agents to finance themselves in their own currency in an enlarged financial market.

It should be noted that the system adjusted successfully to the new low interest rate regime, contributing to the narrowing of the financial margin. Credit institutions progressively widened the range of services available, which allowed them to increase the revenue originating from commissions charged, and were able to improve the control of administrative costs, which translated into favourable efficiency ratios, in comparison with other banking systems. At the same time, the system underwent technological modernisation. However, the recent period of economic deceleration created a more demanding phase for the correct management of risks and return.

## 2. BALANCE-SHEET STRUCTURE

The nominal convergence process associated with Portugal's participation in the euro area gave rise to significant changes in the balance-sheet structure of the Portuguese banking system. There

(1) The financial liberalisation of the Portuguese economy was a long and gradual process, covering several domains, at both the internal and external level: (a) the lift of the barriers to the involvement of the private sector in financial intermediation in the mid-1980's, enhanced by the respective privatisation process; (b) lifting of explicit restrictions to the carrying on of banking activities, namely the easing of the legally imposed segmentation within the scope of activities allowed to credit institutions, culminating with the acknowledgement of universal banking, the principle of the free establishment and supply of services and the harmonisation of supervisory instruments within the European Union at end-1992, and the end of compulsory investments in government securities; (c) liberalisation of the banks' competition framework, which ceased to be directly controlled via credit limits, through the administrative regulation of interest rates and the expansion of the branch network; (d) gradual liberalisation of capital movements within the European Union between 1986 and 1992.

Table 1

## BALANCE SHEET OF THE BANKING SYSTEM

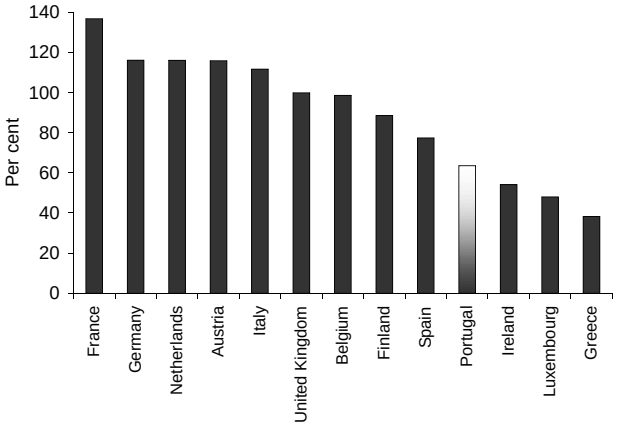
### On a consolidated basis

As a percentage of total assets

| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. | Dec. |
| Cash and assets in central banks [a] | 9.2 | 1.8 | 1.4 | 1.8 | 1.8 | 4.7 | 4.9 | 3.8 | 3.6 | 3.1 |
| of which: cash and assets in the Banco de Portugal | n.a. | n.a. | n.a. | n.a. | n.a. | 4.5 | 4.6 | 3.4 | 3.2 | 2.8 |
| Credit to other credit institutions [b] | 19.4 | 26.2 | 26.1 | 24.2 | 22.9 | 16.3 | 12.4 | 11.4 | 12.2 | 10.4 |
| In the country | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 4.4 | 4.6 | 3.3 |
| Abroad | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 7.0 | 7.6 | 7.1 |
| Credit to customers (net of provisions) | 40.7 | 39.8 | 40.3 | 42.5 | 46.2 | 54.3 | 59.9 | 63.9 | 65.2 | 68.8 |
| Credit overdue | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 1.4 | 1.4 | 1.6 |
| Provisions | n.a. | n.a. | n.a. | n.a. | n.a. | 1.4 | 1.1 | 1.0 | 0.9 | 1.0 |
| Securities and financial fixed assets (net of provisions) | 22.7 | 24.8 | 24.5 | 23.7 | 21.1 | 17.6 | 14.5 | 14.8 | 12.9 | 11.4 |
| Bonds and other fixed-income securities - issued by public issuers | 16.9 | 17.9 | 16.4 | 14.8 | 12.3 | n.a. | n.a. | 4.0 | 3.7 | 3.1 |
| Non-financial fixed assets and other assets | 7.9 | 7.5 | 7.7 | 7.8 | 8.1 | 7.1 | 8.2 | 6.1 | 6.1 | 6.3 |
| Total assets | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Resources from central banks | n.a. | n.a. | n.a. | n.a. | n.a. | 0.9 | 1.4 | 1.4 | 1.0 | 0.5 |
| of which: Banco de Portugal | n.a. | n.a. | n.a. | n.a. | n.a. | 0.7 | 1.2 | 1.3 | 0.8 | 0.4 |
| Resources from other credit institutions [c] | 19.5 | 20.5 | 21.6 | 20.8 | 20.5 | 21.9 | 20.5 | 20.7 | 20.5 | 19.0 |
| In the country | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 4.0 | 4.0 | 2.6 |
| Abroad | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 16.7 | 16.5 | 16.4 |
| Resources from customers | 62.9 | 64.3 | 64.6 | 65.0 | 63.8 | 61.3 | 58.3 | 55.9 | 53.9 | 54.8 |
| of which: | | | | | | | | | | |
| Deposits to resident customers | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 43.9 | 40.9 | 41.4 |
| Deposits to non-resident customers | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 12.0 | 13.0 | 12.4 |
| Liabilities represented by securities | 3.7 | 1.7 | 1.5 | 2.1 | 2.5 | 3.5 | 6.0 | 9.2 | 11.8 | 13.9 |
| of which: bonds | 1.5 | 1.3 | 1.0 | 1.5 | 1.9 | 2.8 | 4.6 | 7.3 | 9.8 | 11.1 |
| Subordinated debt | 1.1 | 1.2 | 1.5 | 1.8 | 2.3 | 2.0 | 2.1 | 2.2 | 2.9 | 3.1 |
| Provisions | 2.1 | 2.0 | 1.3 | 1.0 | 0.9 | 1.0 | 1.0 | 1.2 | 1.2 | 1.3 |
| Other liabilities | 3.9 | 3.7 | 3.5 | 3.4 | 4.3 | 3.3 | 4.3 | 3.6 | 3.2 | 3.0 |
| Equity capital | 6.8 | 6.5 | 6.1 | 5.9 | 5.9 | 6.2 | 6.3 | 5.8 | 5.5 | 5.5 |
| Net income for the year | 0.6 | 0.6 | 0.4 | 0.4 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.5 |
| Total liabilities and equity capital | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *Memo:* | | | | | | | | | | |
| Bank loans to (resident) non-financial corporations | 20.7 | 18.9 | 17.7 | 17.5 | 19.0 | 20.5 | 22.6 | 24.5 | 25.7 | 28.1 |
| Bank loans to (resident) households | 12.1 | 13.5 | 15.4 | 18.0 | 20.2 | 23.4 | 25.9 | 27.4 | 27.3 | 30.0 |
| of which: housing | 8.4 | 9.5 | 10.8 | 12.7 | 14.4 | 17.0 | 19.3 | 20.2 | 20.6 | 23.4 |
| Ratio credit/resources from customers (percentage) | 64.7 | 61.9 | 62.5 | 65.4 | 72.5 | 88.7 | 102.8 | 114.3 | 121.0 | 125.7 |

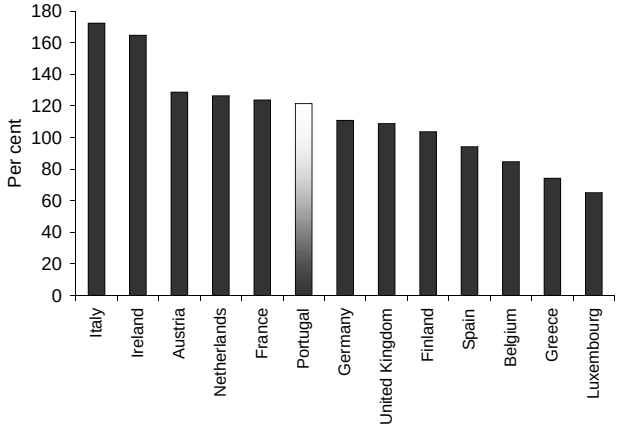
Notes:
(a) Up to 1997 it includes only demand deposits with the Banco de Portugal. The remaining assets in the Bank are included in “Credit to other credit institutions”.
(b) Up to 1997 it includes assets on the Banco de Portugal, except demand deposits, which are included in “Cash and assets in the Banco de Portugal”.
(c) Up to 1997 it includes resources from central banks.

Chart 1
RATIO CREDIT/RESOURCES FROM CUSTOMERS
1995




Source: Bank Profitability, 2003 issue, OECD.

Chart 2
RATIO CREDIT/RESOURCES FROM CUSTOMERS
2001




Source: Bank Profitability, 2003 issue, OECD.

was increased recourse to bank credit by non-financial corporations and especially by households (chiefly for house purchase). The higher indebtedness of the private sector caused the weight of credit to customers in total assets to rise significantly (Table 1).(2) In 1993 this weight was 40 per cent, subsequently increasing to 60 per cent in 1999 and to 69 per cent at end-2002. By contrast with the increased weight of credit to costumers, (throughout the decade) interbank assets declined and the weight of securities portfolios and financial fixed assets continued to fall (particularly in the case of fixed-income securities issued by public issuers).

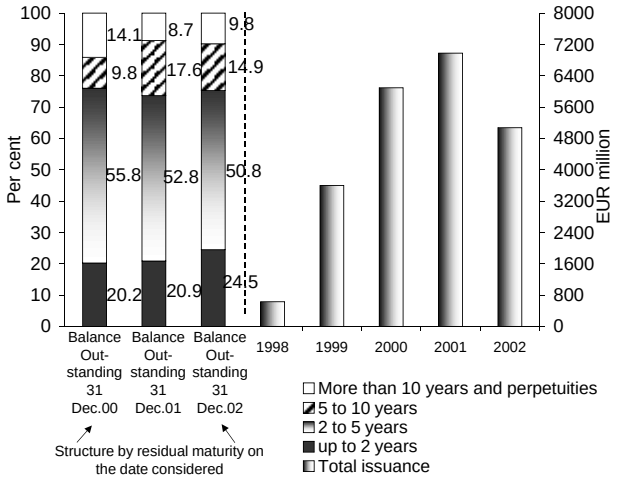
The significant expansion of credit was not followed by a proportional expansion of resources from customers. The ratio of credit to deposits increased from 65 per cent in 1993 to 103 per cent in 1999 and to 125 per cent at end-2002. According to data published by the OECD, despite the significant increase in this ratio in Portugal, the position of Portuguese banks in 2001 stood at levels similar to those of other European banking systems (Charts 1 and 2).

The imbalance in growth between credit and resources from customers also implied an increased recourse to international financial markets, via both the interbank market and, especially, the issue of securities through branches having their head office abroad. The share of securities in the financing of the banking system's assets reached around 14 per cent at end-2002, compared with 3.7 per cent in 1993 and 6.0 per cent in 1999, plus 3.1 per cent of assets financed in the form of subordinated liabilities in December 2002 (2.1 and 1.1 per cent respectively in 1999 and 1993).

The external position of the banking sector, expressed in the International Investment Position (other investment) of other monetary financial institutions, has been increasing gradually on the debtor side in net terms, reaching approximately 40 per cent of GDP in 2002. However, this figure should be compared with total assets (on a consolidated basis, see footnote 2), which stood at 220 per cent of GDP. On the other hand, the debt referred to is mostly denominated in euro, and therefore there is no exchange rate risk (Tables 2.A and 2.B). Finally, stress should be laid on the improved debt maturity resulting from the change in the origin/nature of these funds since 2000, given that the external (short-term) interbank financing

(2) Unless otherwise stated, the data analysed in this text refer to the aggregate of consolidated accounts of banking groups exercising their activity in Portugal, with the exception of those having their head office and/or carrying on their activities chiefly in Madeira's offshore.

Chart 3
INTERNATIONAL ISSUES OF BONDS BY SUBSIDIARIES ABROAD OF PORTUGUESE BANKING GROUPS




Sources: Dealogic e Bloomberg.

component decreased in 2001 and 2002 (especially for domestic institutions[3]) (Table 2.A and Chart 3). In fact, while net interbank liabilities in the aggregate of domestic banking institutions' consolidated accounts reached approximately 17 per cent of GDP in 2000, they accounted for only 12 per cent of GDP at end-2002. This positive trend occurred notwithstanding the unfavourable financing conditions in international securities markets in the second half of 2002, which translated into a standstill, during this period, of new securities issued in these markets by Portuguese banking groups. In fact, and still within the scope of domestic institutions, although the estimate for external market financing (interbank financing plus financing through securities, with and without subordination clauses) stood at approximately 21 per cent of total assets as at December 2002 (just slightly above that seen in December 2001), the share of these funds that corresponds to interbank financing was only around 7 per cent of the total assets of these institutions as a whole on the same date (significantly below the 9.7 per cent recorded in December 2000).

## 3. INTERNATIONAL EXPOSURE

The total amount of external assets held by the Portuguese banking system, on a consolidated basis, which corresponds to its international exposure, amounted to €45,348 million at end-2002,[4] accounting for 16.2 per cent of total assets (18.1 per cent of total assets at end-2001) and around 35 per cent of GDP. The relative importance of the Portuguese banking system's international exposure, in terms total assets, has been on a downward trend since early 2000 (Chart 4). In December 1999 external assets accounted for 23.8 per cent of total assets, having decreased to 18.4 per cent a year later. Throughout 2001 this ratio remained virtually stabilised, decreasing further in 2002, to stand at 16.2 at the end of the year.

The international exposure of the Portuguese banking system is concentrated in developed countries (around 77 per cent of the total at end-December 2002) and among these, in euro area countries (around half the total exposure). A significant part of the remaining external assets of Portuguese banks corresponds to claims on offshore financial centres — slightly above 10 per cent at end-2002. However, the relative importance of the exposure to these offshore countries and territories has been revealing a clear downward trend since end-2000. The remaining geographic areas also represent, as a whole, slightly more than 10 per cent of the banking system's total interna-

(3) Tables 2.A and 2.B show two distinct aggregates of the Portuguese banking groups' consolidated accounts: total of the system (excluding institutions having their head office and/or carrying on their activities chiefly in Madeira's offshore) and domestic institutions. Compared with the former, the latter aggregate excludes institutions managed by non-resident institutions, whether Portuguese law institutions that are branches of non-resident banking groups (under the supervision of the Banco de Portugal) or subsidiaries of credit institutions having their head office in the European Union (not under the supervision of the Banco de Portugal). The purpose of defining an aggregate excluding the above-mentioned institutions reflects the fact that their external financing is typically ensured by entities to which they are closely linked (in contrast to domestic institutions). Thus, due to being intra?group, this type of financing, as well as the respective maturity, is less relevant.

(4) The analysis made in this context was exclusively based on data reported to the BIS on a quarterly basis within the scope of the CIBS (Consolidated International Banking Statistics).

(5) At end-December 2002, 43 per cent of the exposure to Brazil was accounted for by branches in Portugal of banks from countries not reporting to the BIS (such as Brazil), and the remaining 57 per cent by domestic banks, on a consolidated basis.

Table 2A

## MEASURES OF EXTERNAL NET BANK BORROWING – % OF GDP

### International investment position – Other investment
### Other monetary financial institutions

| | Dec.99 | Dec.00 | Dec.01 | Dec.02 |
|---|---|---|---|---|
| End-of-period positions | | | | |
| Assets (€ million) | 39 507 | 48 451 | 50 488 | 48 658 |
| As a percentage of GDP | 36.6 | 41.9 | 40.8 | 37.5 |
| Liabilities (€ million) | 57 558 | 77 769 | 94 330 | 100 690 |
| As a percentage of GDP | 53.3 | 67.3 | 76.2 | 77.5 |
| Net assets (€ million) | -18 052 | -29 318 | -43 841 | -52 032 |
| As a percentage of GDP | -16.7 | -25.4 | -35.4 | -40.1 |

### Consolidated accounts of the Portuguese banking system
### Excluding institutions having their head office and/or carrying on their activity chiefly in Madeira's off-shore

| | Dec.99 | Dec.00 | Dec.01 | Dec.02 |
|---|---|---|---|---|
| End-of-period positions | | | | |
| Interbank liabilities (net of interbank assets) | 9.3 | 14.8 | 12.8 | 12.5 |
| In the country | n.a. | -5.4 | -6.8 | -6.8 |
| Abroad | n.a. | 20.1 | 19.6 | 19.4 |

### Consolidated accounts of the Portuguese banking system
### Domestic institutions

| | Dec.99 | Dec.00 | Dec.01 | Dec.02 |
|---|---|---|---|---|
| End-of-period positions | | | | |
| Interbank liabilities (net os interbank assets) | 6.4 | 12.9 | 9.9 | 6.8 |
| In the country | n.a. | -4.3 | -4.7 | -5.4 |
| Abroad | n.a. | 17.2 | 14.7 | 12.2 |

Table 2B

## MEASURES OF EXTERNAL NET BANK BORROWING – % TOTAL ASSET

### Consolidated accounts of the Portuguese banking system (excluding institutions having their head office and/or carrying on their activity chiefly in Madeira's off-shore)

| | Dec.99 | Dec.00 | Dec.01 | Dec.02 |
|---|---|---|---|---|
| End-of-period positions | | | | |
| 1. Inter bank liabilities (net of interbank assets) | 8.1 | 9.3 | 8.3 | 8.5 |
| 1.1 In the country | n.a. | -0.4 | -0.6 | -0.7 |
| 1.2 Abroad | n.a. | 9.6 | 8.9 | 9.2 |
| 2. Liabilities represented by securities and subordinated debt | 8.1 | 11.4 | 14.7 | 16.9 |
| 2.1 Held by the resident non-monetary sector | n.a. | 3.5 | 3.7 | 4.1 |
| 2.2 Held by other sectors [(a)] | n.a. | 7.9 | 11.1 | 12.8 |
| 3. Total market financing (1.+ 2.) | 16.2 | 20.6 | 23.0 | 25.4 |
| 3. Market financing abroad (estimate) (1.2 + 2.2) | n.a. | 17.5 | 20.0 | 22.0 |

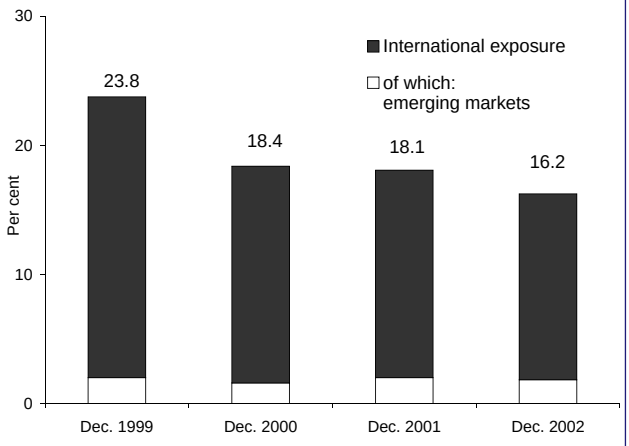
### Consolidated accounts of the Portuguese banking system (Domestic institutions )

| | Dec.99 | Dec.00 | Dec.01 | Dec.02 |
|---|---|---|---|---|
| End-of-period positions | | | | |
| 1. Interbank liabilities (net or interbank assets) | 7.2 | 9.4 | 8.1 | 6.5 |
| 1.1 In the country | n.a. | -0.3 | -0.1 | -0.5 |
| 1.2 Abroad | n.a. | 9.7 | 8.2 | 7.0 |
| 2. Liabilities represented by securities and subordinated debt | 8.1 | 12.1 | 16.1 | 18.2 |
| 2.1 Held by the resident non- monetary sector | n.a. | 3.5 | 3.8 | 4.2 |
| 2.2 Held by other sectors [(a)] | n.a. | 8.5 | 12.3 | 14.0 |
| 3. Total market financing (1.+ 2.) | 15.3 | 21.5 | 24.2 | 24.7 |
| 3. Market financing abroad (estimate) (1.2 + 2.2) | n.a. | 18.3 | 20.5 | 21.0 |

Note:

(a) "Other sectors" include the non-resident sector and other resident MFIs. As such, in 3.2 market financing abroad is somewhat over estimated, although not very significantly .

Chart 4
INTERNATIONAL EXPOSURE
OF PORTUGUESE BANKS
As a percentage of total assets




tional exposure, stress being laid on Latin America (the exposure of which accounts for 3.7 per cent of the total, three quarters of which is concentrated in Brazil)(5) and on African and Middle East countries (around 4 per cent, half of which are claims on Portuguese-speaking African countries). Consequently, exposure to emerging market countries accounts for 1.8 per cent of assets.

In terms of institutional sector, the banking system's international exposure is concentrated in banks (over 50 per cent), but the share of claims on non-banks has been increasing, and already accounts for almost 40 per cent of the Portuguese banking system's total international exposure.

The breakdown by maturity shows that the international exposure consists mainly of assets with a (contractual) maturity of below one year (exactly 50 per cent), with the longest maturities (over two years) showing a growing relative importance: these assets already accounted for 44 per cent of the total at end-2002, a figure close to the European levels.

In comparison with other developed countries, the international exposure of Portuguese banks is low, as can be seen in Chart 5. Taking into consideration only the external assets of national banks,(6) on a consolidated basis, these accounted for around 32 per cent of GDP at end-2002 (33.5 per cent in September 2002), while in the euro area as a whole, excluding Greece and Luxembourg, they amounted to 80 per cent of GDP.(7) The exposure to countries in Eastern Europe, Latin America and the Caribbean, Asia and Pacific and Africa and Middle East — all of which are, for the purposes of this analysis, part of the so-called "emerging market" economies — accounted for around 10 per cent of the GDP of the euro area excluding Greece and Luxembourg, i.e. quite above the participation of these geographic areas in the Portuguese banks' external asset portfolio (around 4 per cent of GDP).

In international terms, stress should be laid on the significant exposure of Spain to the group of countries comprising the geographic area "Latin America and the Caribbean" (21.5 per cent of GDP), especially to Mexico and Chile. Belgium and Austria also show significant exposures, in their case to Eastern European economies (around 12 and 7 per cent of their GDP respectively). The exposure of the United Kingdom's banking system to emerging markets as a whole is also relatively high (20.5 per cent of GDP), and is concentrated in the Asia and Pacific region (10 per cent of GDP). In turn, the (national) Dutch banking system's exposure to emerging markets (almost 18 per cent of GDP) is almost evenly distributed across the three geographic areas referred to.

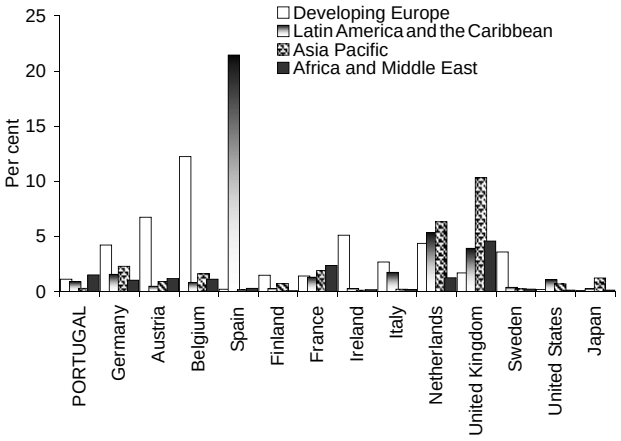
(6) International comparisons made in this section were based on statistics disclosed by the BIS on external assets on a consolidated basis (CIBS). These data are shown from the perspective of the nationality of reporting banks (to the BIS). Given the consolidated basis, external assets of branches in reporting countries of banks having their head office also in reporting countries are considered external assets of the country of nationality of the head office. Thus, the comparison of the exposure of Portuguese banks with that of other banking systems is only legitimate (based on the source referred to), if taking into account only the external assets of Portuguese banks, on a consolidated basis, i.e. banks having their head office in the national territory, including the respective branches and subsidiaries abroad. External assets of branches of foreign banks in Portugal are considered to be assets of the countries of nationality of the head office and therefore, for the purposes of this comparison, do not constitute international exposure of Portuguese banks.

(7) Excluding Germany, Belgium, Ireland and the Netherlands, with an international exposure of over 100 per cent of GDP, the average exposure in the remaining euro area countries decreases to 48 per cent of GDP.

Chart 5

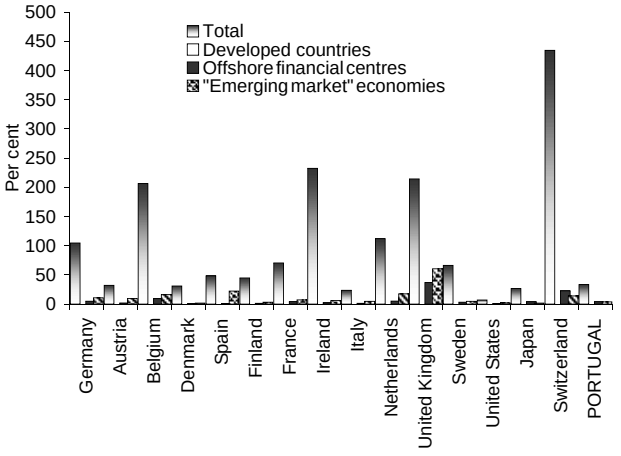
CLAIMS ON EMERGING MARKET ECONOMIES

September 2002 – as a percentage of GDP




EXTERNAL ASSETS OF DOMESTIC BANKS

September 2002 – as a percentage of GDP




Source: BIS – Consolidated foreign claims, by nationality of reporting banks.

## 4. PROFITABILITY

Underlying developments in net return on assets over the last business cycle are rather significant structural changes in the income structure, in particular in the period from 1990 to 1996.

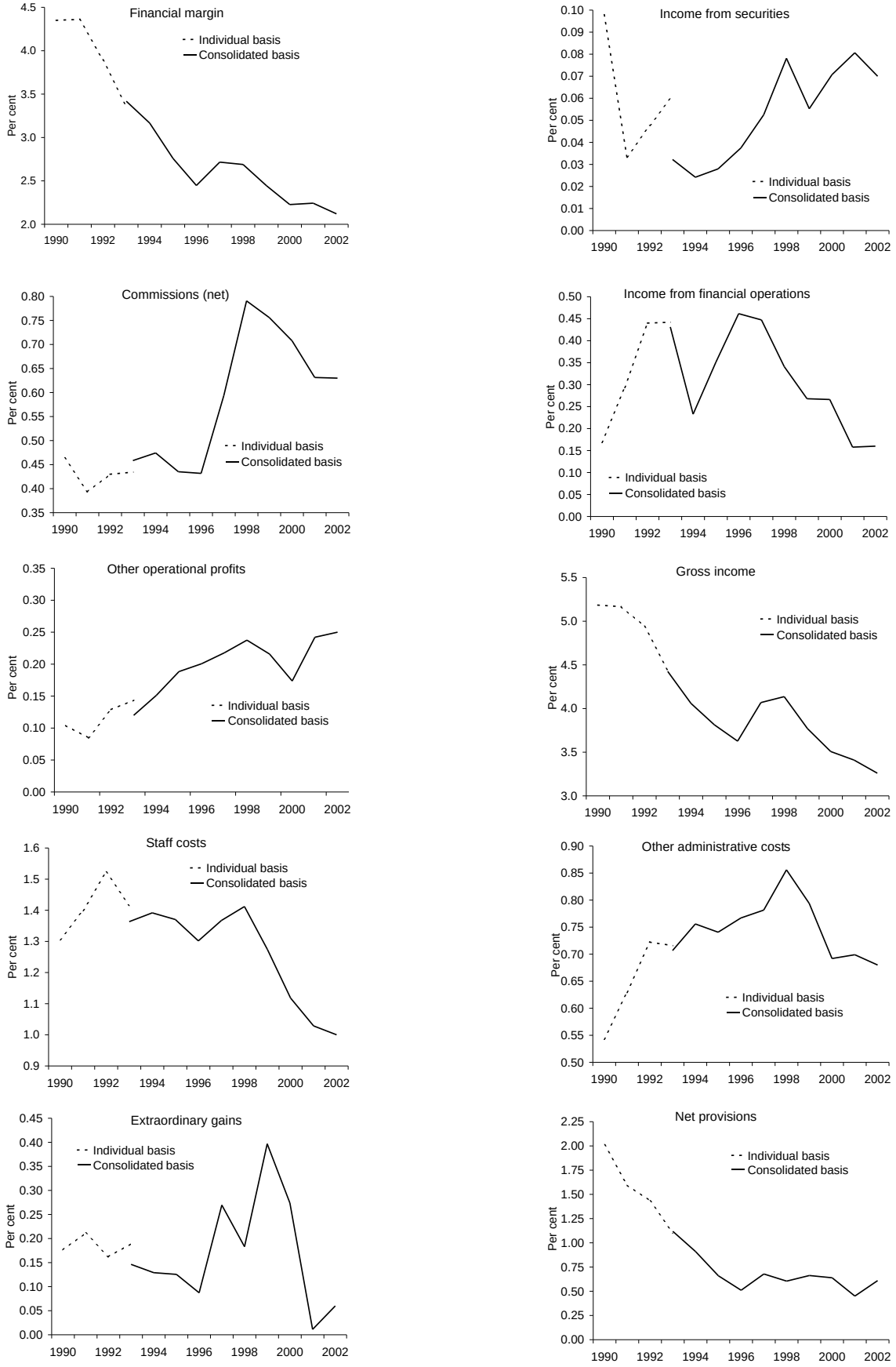
The nominal convergence process which took place during the 1990s, together with a growing competitive climate, contributed to a strong reduction in the contribution of the financial margin to banks' profits in the first half of the 1990s (Chart 6), i.e. from around 4.4 per cent of average assets in 1990 to 2.5 per cent in 1996. In the same period, (net) provisioning declined significantly, from around 2 per cent of average assets to around 0.5 per cent in 1996. Its high level in the early 1990s, on the one hand, reflected the specific provisioning needs of credit overdue, partly inherited from the 1980s, and on the other hand, it was also the result of the slowdown in economic activity, which led to the 1993 recession. Following an interruption in 1997 and 1998, the financial margin as a percentage of average assets resumed the downward trend, to stand at 2.1 per cent in 2002.

Stress should also be laid on the increase in income from financial operations up to 1993, essentially associated with foreign exchange gains. This income, following the subdued levels recorded in 1994 and 1995, resumed high levels in 1996, against a background in which the convergence of long-term interest rates led to rather substantial gains in the fixed-income securities portfolio. As a reflection of the temporary nature of the gains associated with the convergence period, income from financial operations declined progressively from 1997 onwards. This notwithstanding, that reduction was contained by the significant contribution of gains in the variable-income securities portfolio, in line with significant rises in equity prices (which was also related to the high levels of extraordinary income between 1997 and 2000). In 2001 and 2002, both income from financial operations, and extraordinary income, although positive, reached, as a percentage of average assets, the lowest levels since 1990.

Net commissions did not undergo significant changes in the period from 1990 to 1996, when assessed as a percentage of average assets. From 1997 onwards, these gains accounted for a higher share in total income, due to the fact that not only many of the services previously not charging any commissions (or charging a purely symbolic commission) progressively did so consistently with their cost, but also because the streamlining of the capital market significantly enhanced the supply of intermediation services of capital market operations and asset management/domiciliation, responsible for generating commissions in several areas. In 2001 and 2002 commissions earned by banks stood at 0.63 per cent of average assets, which although below the peak of around 0.8 per

Chart 6

MAIN ITEMS OF THE PROFIT AND LOSS ACCOUNT AS A PERCENTAGE OF TOTAL AVERAGE ASSETS




Note: Up to 1993 data are shown on an individual basis, since they are not available on a consolidated basis.

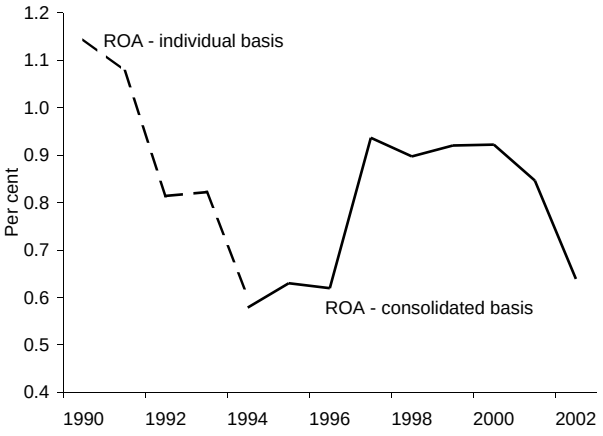
cent recorded in 1998, is clearly above the figures seen in the early 1990s. This is accounted for by the fact that operations in the primary stock market (including privatisations), an important source of commissions for banks, were strongly concentrated in the period from 1997 to 2000, while being virtually negligible from 2001 onwards.

With regard to administrative costs, the system's efficiency improved substantially, translating into a key international position (Chart 12). The staff costs component did not suffer many significant changes between 1990 and 1998, having declined markedly from 1999 onwards, in the context of the restructuring process of financial groups, namely following merger and acquisition operations. In turn, the technological upgrading and the modernisation of distribution channels, which involved, *inter alia*, the automation of administrative procedures and communications, rendered other administrative costs increasingly more important up to 1998, a trend which was largely reversed in the subsequent period. As a whole, administrative costs in 2002 stood at 1.69 per cent of average assets (the lowest level since 1990), compared with 2.13 per cent in 1998 (the highest level in the same period).

The economic slowdown observed since 1999, together with the decline in international stock market prices from 2000 onwards, has translated into reduced profitability since 2001, a situation which became more marked in 2002 (Chart 7). In fact, in 2002 the ROA declined by around 20 basis points, to approximately 0.65 per cent, chiefly as a reflection of a narrowing of the financial margin as a percentage of average assets by around 13 basis points and an increase in net provisions by around 15 basis points, against a background in which capital market-related gains (income from financial operations, extraordinary income and, to a lesser extent, commissions) stood quite below the peaks seen in the 1990s.

Although in 2002 the Portuguese banks' ROA reached levels close to the trough of the last business cycle, recorded after the 1993 recession, presently this has a much different economic meaning that deserves further explanation. First, net return on equity follows the same cyclical pattern as that of the ROA. Despite a significant reduction in 2002 (3.4 percentage points), the level reached (11.5 per cent) allows a wide coverage of the prevailing

Chart 7
NET RETURN ON ASSETS




market interest rate (Charts 8.A and 8.B), thereby ensuring the return on the capital invested in this sector. This was not so clear-cut in the first half of the 1990s, when the return on equity stood systematically below risk-free reference interest rates.

The reduced profitability in 2002 was not only felt in Portugal, but in most European banking systems. In euro area countries as a whole the reduction in net return on assets seen in 2002 was estimated to stand at 11 basis points (Chart 9). With the purpose of making a comparison with the developments in the profitability of Portuguese banks in 2002 a sample of European banks[8] was selected, on which public data are already available. Portuguese banks' ROA, traditionally one of the highest in the European context, continues to compare favourably. In fact, despite the significant reduction in the Portuguese banks' ROA in 2002, it continues to stand among the highest in the group of countries on which there are available data, being only surpassed by the banking systems of

(8) The selection criteria included size (the largest banks of each country) and data availability for 2002 as a whole. The sample occasionally differs from that used in section 2 (data refer to 2001) and includes seven banks in Spain and the United Kingdom; nine in Italy; three in Ireland, France and Germany; five in Portugal and Greece; two in Belgium, the Netherlands and Austria. Source: Banks' reports and financial statements and *Bankscope*.

Chart 8A
NET RETURN ON EQUITY (ROE)

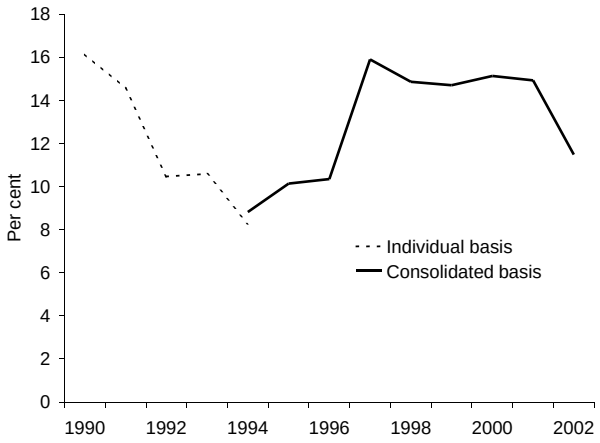



Chart 8 B
DIFFERENTIAL BETWEEN THE BANKING SYSTEM'S ROE AND REFERENCE INTEREST RATES

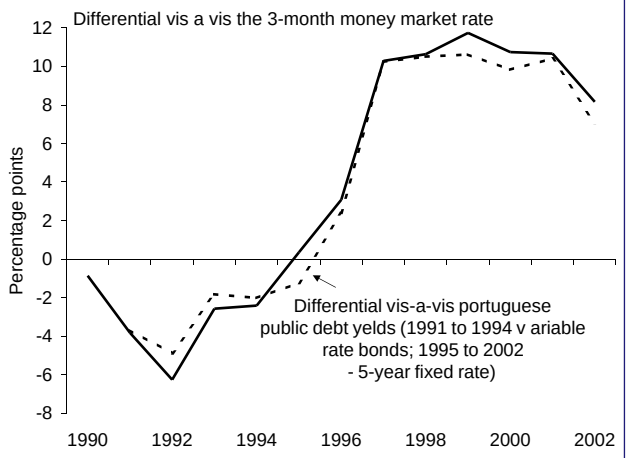
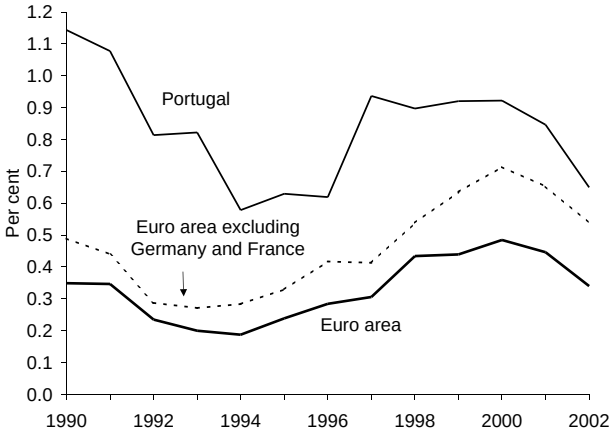
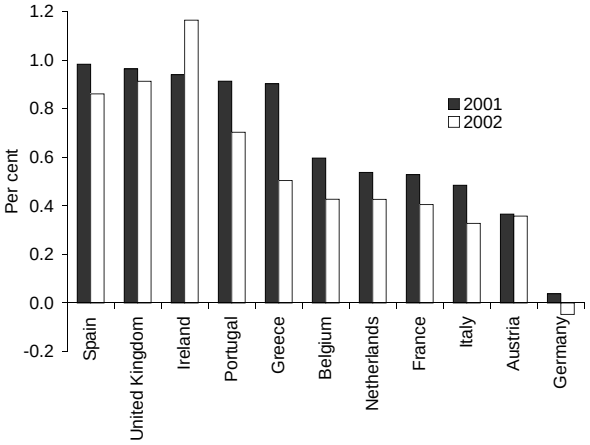



Chart 9
NET RETURN ON ASSETS – PORTUGAL AND EURO AREA AVERAGE




Sources: Bank profitability, OCDE, 2003 issue, Bankscope and Banco de Portugal.

Chart 10
NET RETURN ON ASSETS IN MAIN EUROPEAN BANKS




Note: Country aggregates are averages weighted by total average assets of banks included in the sample.

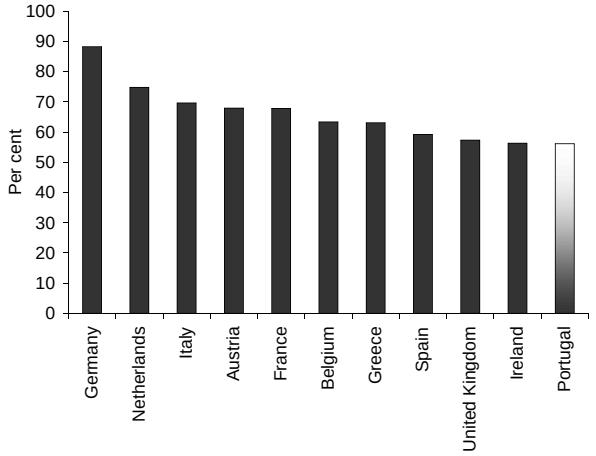
Sources: *Bankscope*, reports and statements of the banks included in the sample and Banco de Portugal. The sample includes seven banks in Spain and the United Kingdom; nine in Italy ; three in Ireland, France and Germany; five in Portugal and Greece; two in Belgium, the Netherlands and Austria

Spain, Ireland and the United Kingdom (Chart 10)[9].

Reference should be made to both the reduction in the profitability of the Greek banking system, with ROA declining by around 40 basis points in 2002 in the aggregate of 5 banks selected, and to the German system, whose three banks in the sample, as a whole, showing losses in 2002 (after having already recorded very low ROA in 2001). In general terms, the explanation for the great disparity between the banking systems' prof-

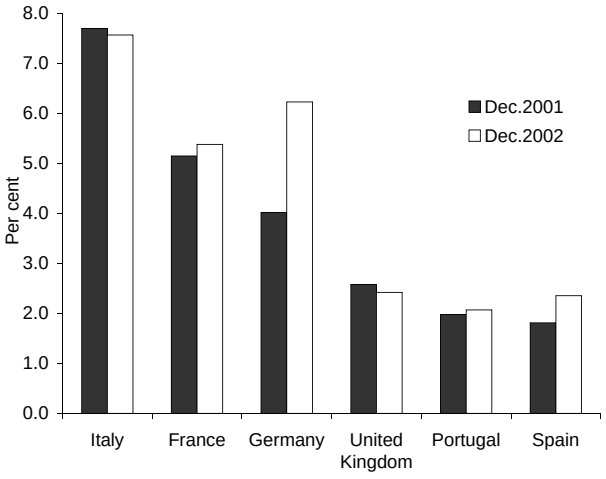
(9) It was not possible to show data on the banking systems of Luxembourg and Finland, given that there are no public data available for 2002.

Chart 11
RATIO OF ADMINISTRATIVE COSTS
TO GROSS INCOME
2001



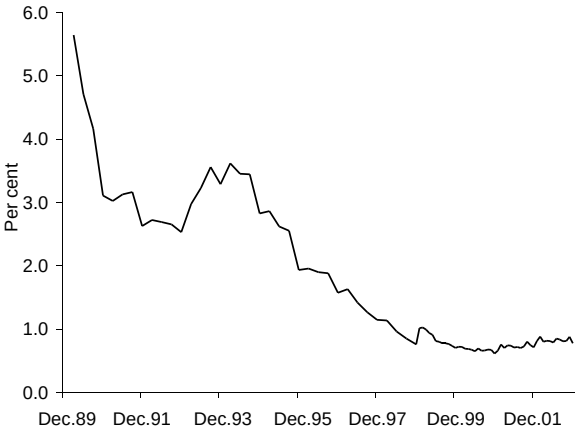

Note: Country aggregates are average weighted by total average assets of banks included in the sample.
Sources: *Bankscope*, and Banco de Portugal. The sample includes seven banks in Spain and the United Kingdom; nine in Italy ; three in Ireland, France and Germany; five in Portugal and Greece; two in Belgium, the Netherlands and Austria

Chart 12
NON-PERFORMING LOANS
AS A PERCENTAGE OF GROSS CREDIT
Note:




Country aggregates are averages weighted by total average assets of banks included in the sample.
Sources: *Bankscope*, reports and statements of the banks included the sample and Banco de Portugal. The sample includes six banks in Spain and the United Kingdom, twelve in Italy, three in France; two in Germany.

Chart 13
CREDIT AND INTEREST OVERDUE
AS A PERCENTAGE OF GROSS CREDIT
TO CUSTOMERS
On an individual basis

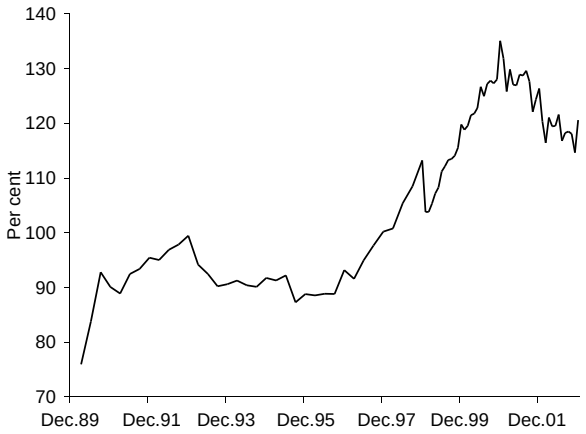



Note: Series break in January 1999.

itability is particularly associated with the cost level; the banking systems with the highest weight of administrative costs in the gross income tend to be those with the lowest profitability levels (Chart 11). Stress should be laid on the particularly favourable position of the Portuguese banking system, which records the lowest ratio of administrative costs to the banking product.

Moreover, compared with the banking systems on which data for December 2002 were available, the ratio of non-performing loans to gross credit in Portuguese banks is very low (similar to that of Spain and the United Kingdom), in comparison with that recorded by banks in Italy, France or Germany (Chart 12). The ratio in the latter country recorded a rather sharp rise between December 2001 and December 2002, which was behind the losses shown by the major German banks in 2002. Apart from the relatively low level of credit overdue of Portuguese banks, by historical and international standards, it should also be noted that the total credit provisions set up by the national banking system as a whole exceed the balance of credit overdue. The respective coverage ratio stood at around 120 per cent in December 2002 (Charts 13 and 14).

Chart 14
TOTAL BANK CREDIT PROVISIONING
AS A PERCENTAGE OF CREDIT OVERDUE
On an individual basis



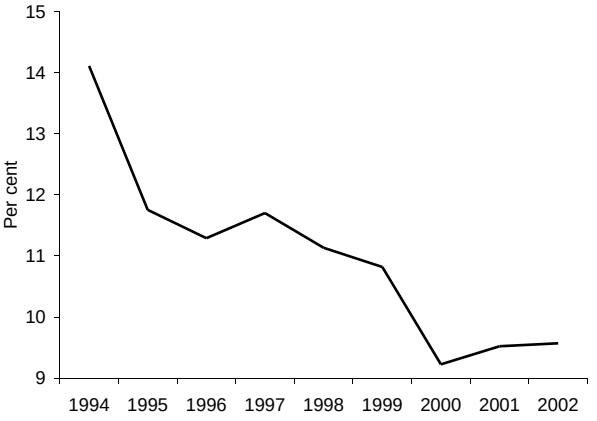

Note: Series break in January 1999.

## 5. SOLVENCY

At end-2002 the capital adequacy ratio of the Portuguese banking system (on a consolidated basis) stood at 9.6 per cent, compared with 11.1 per cent at end-1998 (Chart 15). Up to the end of the 1990s, the ratio reached levels above 10 per cent. These developments reflect the significant growth of own fund requirements, which has been associated with the strong credit expansion, and to a lesser extent, with the growing importance of deductions to own funds (in December 1997 deductions accounted for 0.5 per cent of weighted risks, compared with 1.5 per cent in June 2002). This expansion has not been followed by a proportional reinforcement of own funds, and consequently the ratio has been drawing near the (minimum) limit of 8 per cent, albeit increasing somewhat since 2000. It should also be noted that the increase in own funds has largely reflected the growth of supplementary own funds.

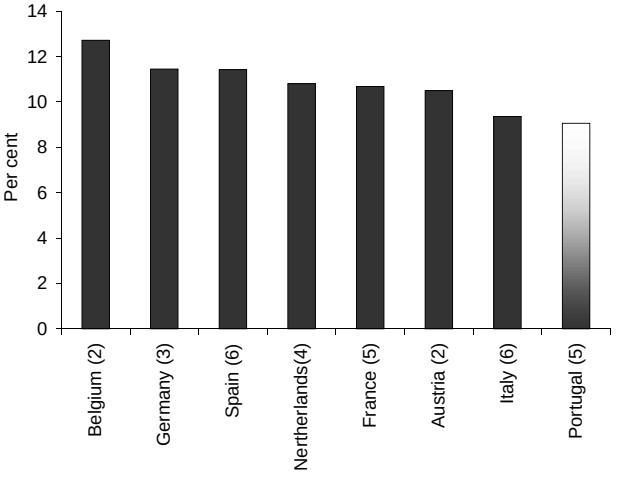
Taking into consideration, for international comparison purposes, data for December 2001 on the five largest Portuguese banking groups as a whole, it is apparent that Portuguese banks stood among those with the lowest capital adequacy ratios (Chart 16). However, some Portuguese banking groups issued equity in recent months, which seems to have contributed to improve their solvency position.

Chart 15
CAPITAL ADEQUACY RATIO
On a consolidated basis




Note: Aggregate of the Portuguese banking system excluding institutions having their head office and/or carrying on their activity chiefly in Madeiras off-shore.

Chart 16
SOLVENCY RATIO
2001




Sources: Bankscope and reports and statement of a sample of European banks. Number of sample banks in each country in brackets. There are no data available for Finland, Ireland, Greece, United Kingdom and Luxembourg.

## 6. CONCLUSION

Portugal's participation in the euro area had an important bearing on the balance-sheet structure of the Portuguese banking system, which was characterised by the growing importance of credit in total assets, especially of credit to households for house purchase, in contrast to the subdued weight of interbank assets and the public debt portfolio. In parallel, deposits did not grow proportionately, which translated into a sharp rise in the ratio of credit to deposits, albeit to levels similar to those seen in other European banking systems. Portuguese banks thus increased their recourse to market financing in euro, which was eased by Portugal's participation in the euro area. At first, this recourse was targeted at the (short-term) interbank market, but from 2000 onwards, Portuguese banks strengthened their securities issues in international financial markets.

Although the banking system has a debtor international investment position similar to that of the economy as a whole, i.e. around 40 per cent of GDP in 2002, (net) recourse to short-term financing in the international interbank market is quite lower. In the case of domestic banking institutions, the recourse to the interbank market abroad, after reaching a peak in 2000, has been on a downward trend, amounting to approximately 12 per cent of GDP at end-2002. On the other hand, (net) external market indebtedness of domestic institutions accounts for only 21 per cent of this sector's total assets.

Turning to profitability, it should be noted that in 2002 the Portuguese banking system recorded one of the highest levels of return on assets from among European banking systems. This is particularly relevant given the structural fall of the financial margin from early 1990 onwards, related to the nominal convergence process of the Portuguese economy and the increased competition in the sector. There was, on the one hand, an increase in the importance of net commissions as income source for banks and on the other hand, a cut in administrative costs, especially staff costs in the context of the restructuring process of financial groups. In parallel, this period saw a sharp drop in non-performing loans.

With regard to solvency, the Portuguese banking system's international position is less favourable. However, the solvency ratio stands clearly above the regulatory minimum, increasing somewhat since 2000, and equity issues in recent months appear to have contributed to improve this indicator.

The current cyclical position of the international economy, together with the adjustment seen in financial markets and the endogenous adjustment process of the Portuguese economy, represent a rather demanding environment for the banking system. Although in several areas the starting point for Portuguese banks is relatively favourable, it is instrumental that these maintain and enhance a prudent risk management, and increase the efficiency gains obtained in recent years.

# *Articles*

# MOVEMENTS IN OFFICIAL INTEREST RATES: PERSISTENCE AND GRADUALISM*

*Fernando Martins***

## 1. INTRODUCTION

There is a common belief among economists that several central banks have conducted their monetary policy in a gradual manner. This belief is usually supported by the evidence that official interest rate in major central banks, in general, have been adjusted in small movements with infrequent reversals, thus giving rise to a path characterised by a high degree of persistence (Charts 1, 2, 3 and 4).(1)

In some literature, this common pattern observed in the behaviour of major interest rates is pointed out as a sign of the preference of central banks for a gradualist monetary policy, also known as "interest-rate smoothing". According to this perspective, central banks revealed some reluctance in adjusting interest rates more aggressively, rather doing it gradually towards a new optimal level. From an empirical point of view, this behaviour is traditionally incorporated in the models, either by directly introducing a stabiliser of the interest-rate variance in the central bank's objective function or, alternatively, through a partial adjustment mechanism in which the interest rate is gradually adjusted towards an optimal interest rate defined by a monetary policy rule. These approaches, however, seem to be chiefly motivated by the need to justify the actual persistence of interest rates, rather than by any theoretical considerations justifying their use. Therefore, they do not permit a distinction between the actual persistence of interest rates, as a result of an explicit preference of the authorities for a gradualist monetary policy, and the "natural persistence" due to the actual persistence of the economic variables to which the monetary authority responds. Thus, as explained in the present article, monetary policy can only be characterised as more or less gradualist, when compared with an optimal policy rule.

The results obtained in some literature [see Goodhart (1999) and Sack (1998a)] have shown that actual monetary policy has been characterised by a degree of gradualism that cannot be strictly explained by the dynamic structure of the economy. In other words, the optimal path for the in-

* The views expressed in this article are those of the author and not necessarily those of the Banco de Portugal.
The author is indebted to Carlos Robalo Marques, Isabel Gameiro, Isabel Horta Correia, José Ferreira Machado, Marta Abreu, Maximiano Pinheiro, Nuno Alves e Pedro Duarte Neves for their comments in previous versions of this article.

** Economic Research Department.

(1) The behaviour of the US Federal Reserve in 2001 stands somewhat in contrast with this approach, since it revealed a historically unprecedented activity level. Indeed, in the course of 2001, the Federal Reserve lowered the target for the Federal funds rate by an accumulated 4.75 percentage points to 1.75 per cent. This decline was achieved through eleven movements. In November 2002, the Federal Reserve lowered it by an additional 50 basis points. By way of example, and assuming that the Federal Reserve will not introduce any additional cuts in the target for the Federal funds rate, it should be mentioned that the previous large interest rate downward cycle in the United States had been significantly longer, spreading from June 1989 to September 1992. Over this period, the Federal Reserve lowered the target for the Federal Funds rates by 6.75 percentage points to 3.0 per cent, through 22 movements, 14 of which of 25 basis points.

(2) The very notion of gradualism depends on the monetary policy instrument considered. For example, an aggressive interest rate rule is consistent with a more gradualist rule for monetary growth and vice-versa, although most works focus the analysis on interest rate rules.

Chart 1
FEDERAL RESERVE: FED FUNDS TARGETS
January 1990 to December 2002

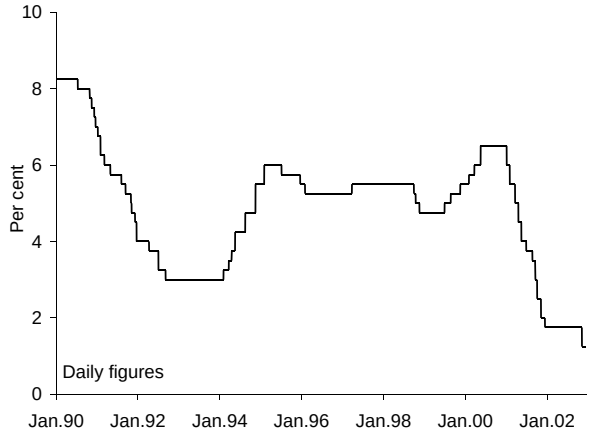



Chart 2
BANK OF ENGLAND: REPO RATE
January 1990 to December 2002

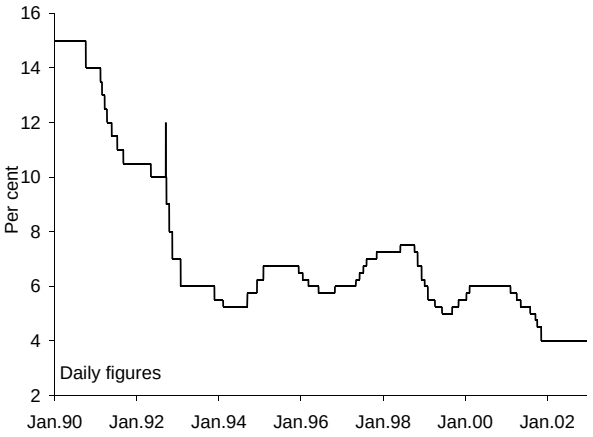



Chart 3
BUNDESBANK: REPO, LOMBARD AND DISCOUNT RATES
October 1992 to December 1998

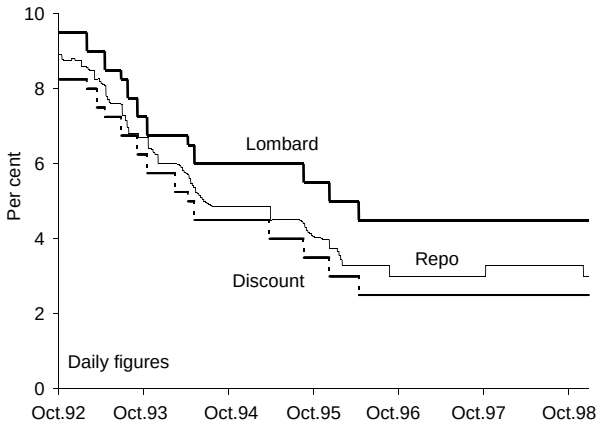
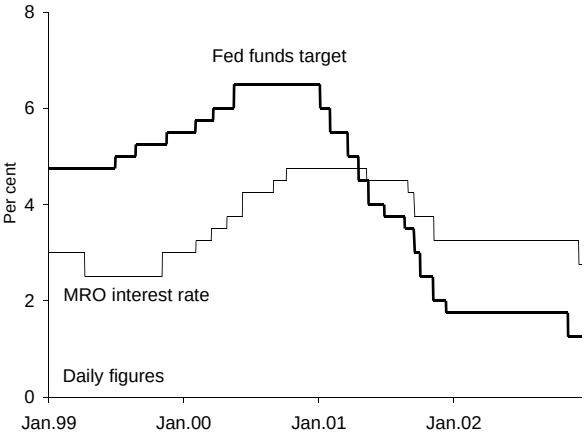



Chart 4
FEDERAL RESERVE AND ECB: OFFICIAL INTEREST RATES




terest rates emerging from different macroeconomic models is usually less gradual than that actually observed.(2)

A possible explanation for the divergence between the indications given by the models and the actual behaviour is that the former may not adequately deal with the uncertainty surrounding monetary policy decisions.(3) In fact, monetary authorities face a large number of uncertainties, including the uncertainty about the state of the economy, uncertainty as to the magnitude of the parameters characterising the transmission mechanism of monetary policy and uncertainty about the model describing the behaviour of the econ-

(3) This article does not discuss to what extent the decision-making process by a collegiate body, such as the EBC Governing Council or the Federal Open Market Committee, and the typically adopted decision rule (simple majority, qualifies majority, consensus, etc..) may influence the degree of gradualism of monetary policy.

Table 1

FEDERAL RESERVE, BUNDESBANK, BANK OF ENGLAND AND ECB: MEASURES OF THE DEGREE OF PERSISTENCE OBSERVED IN OFFICIAL INTEREST RATES

Based on data available up to 31 December 2002

| Official interest rates | Federal Reserve (Fed Funds Target) | | Bank of England (Repo) | | Bundesbank (Discount) | ECB (MRO interest rate) |
|---|---|---|---|---|---|---|
| | Jan92-Dec98 | Jan99-Dec02 | Jan92-Dec98 | Jan99-Dec02 | Jan92-Dec98 | Jan99-Dec02 |
| Number of movements | 17 | 18 | 24 | 15 | 15 | 13 |
| Upward movements | 8 | 6 | 10 | 4 | 1 | 7 |
| Downward movements | 9 | 12 | 14 | 11 | 14 | 6 |
| Size of the movements (basis points) | | | | | | |
| 100 bps | 0 | 0 | 4 | 0 | 0 | 0 |
| 75 bps | 1 | 0 | 0 | 0 | 1 | 0 |
| 50 bps | 4 | 10 | 7 | 2 | 11 | 6 |
| 25 bps | 12 | 8 | 13 | 13 | 3 | 7 |
| Size of the rises | | | | | | |
| 100 bps | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 bps | 1 | 0 | 0 | 0 | 1 | 0 |
| 50 bps | 3 | 1 | 3 | 0 | 0 | 2 |
| 25 bps | 4 | 5 | 7 | 4 | 0 | 5 |
| Size of the declines | | | | | | |
| 100 bps | 0 | 0 | 4 | 0 | 0 | 0 |
| 75 bps | 0 | 0 | 0 | 0 | 0 | 0 |
| 50 bps | 1 | 9 | 4 | 2 | 11 | 4 |
| 25 bps | 8 | 3 | 6 | 9 | 3 | 2 |
| Trend reversals | 4 | 2 | 4 | 2 | 1 | 2 |
| Average of days between consecutive movements | 148 | 81 | 111 | 71 | 105 | 113 |
| Maximum number of days without movements | 553 | 330 | 314 | 364 | 322 | 392 |
| Minimum number of days without movements | 15 | 15 | 24 | 16 | 28 | 18 |
| Average of days between each reversal and the previous movement | 411 | 229 | 201 | 227 | 198 | 214 |

omy. In this perspective, the present article analyses the major results obtained in literature as regards the effects of the different types of uncertainty on the degree of gradualism in the conduct of monetary policy.

The article is structured as follows. Section 2 describes a set of characteristics common to the behaviour of the major official interest rates, based on a number of summary statistics normally used to support the notion that monetary policy is conducted in a gradualist fashion. Section 3 explains why the information content of these statistics should be interpreted with caution and presents a definition of gradualist monetary policy and a possible approach to its identification. Section 4 describes the different types of uncertainty faced by monetary authorities, with particular emphasis on the so-called parameter uncertainty, and shows how the "optimal" level of monetary policy gradualism is sensitive to the type of uncertainty specified. Section 5 presents some conclusions.

## 2. COMMON CHARACTERISTICS IN THE BEHAVIOUR OF MAJOR OFFICIAL INTEREST RATES

Notwithstanding the large differences in the pattern of the interest rate changes introduced by the different monetary authorities, there are still important behaviour similarities that ultimately

contribute to the existence of persistence of official interest rates:

*1. Infrequent and minor interest rate changes* — interest rate changes are relatively infrequent, chiefly taking into account the pace of dissemination of relevant information on economic developments. Information that is likely to lead, at least marginally, to changes in inflation and/or growth forecasts is made available on a daily basis. However, most central banks do not change their interest rates more than once a month, and several months may go by without any change. In addition, when there are changes, these, in general, do not exceed 25 basis points. Table 1 shows that, between 1992 and 1998, the average number of days between consecutive movements by the said authorities stood between 105 and 148 days. Note that the magnitude of the movements, in most situations, did not exceed 50 basis points (in the case of the Federal Reserve and the Bank of England, the 25 basis point movements were more frequent, while in the case of the Bundesbank 50 basis point movements were predominant).

*2. Unusual reversals in the interest rate path* — reversals in the interest rate trend are frequently preceded by a sequence of movements in the same direction. In practice, this means that there is a strong persistence in official interest rates. In the case of the Federal Reserve, for instance, between 1992 and 2002, only six of the 35 changes announced in the target for the Federal funds rate corresponded to a trend reversal.

*3. Maintenance of the interest rates for a relatively long period before any reversal in the respective trend* — evidence shows that the time gap between movements in the same direction is rather shorter than the time gap between movements in opposite directions. Furthermore, as the period of time from the last interest change increases, there is a higher probability that the forthcoming interest rate change may reflect a trend reversal.(4) Table 1 shows that over the last ten years, for the monetary authorities in question, the average length of the periods preceding interest-rate trend reversals was two to three times longer than the average length of overall movements.

## 3. PERSISTENCE OF THE INTEREST RATES AND MONETARY POLICY GRADUALISM

In some literature, the common pattern of behaviour of major above-mentioned interest rates is considered to be evidence of the adoption of a gradualist policy ("interest-rate smoothing") that is ultimately responsible for the formation of the so-called "interest-rate cycles".(5) Some economists, such as Goodhart (1997), claim that interest-rate cycles contribute (and do not counter, as would be desirable) to the formation of economic cycles. According to this perspective, if the interest rates would evince a less cyclical behaviour, and if central banks were willing to change their interest rates more frequently and more widely, the length of the economic cycles could be reduced. Expressions like "too little and too late" or "to be behind the curve" are often used to criticise the perceptible reluctance of some monetary authorities to change interest rates more aggressively.

From an empirical point of view, the preference of monetary authorities for a gradualist policy is usually incorporated in the models either by directly introducing in the central bank's objective function a term that would allow the reduction of the interest rate variance [see, for instance, Söderlind (2001) or Rudebusch and Svensson (1999)] or, alternatively, through a partial adjustment mechanism, in which the central bank gradually changes the official interest rate towards an optimal interest rate defined by a monetary policy rule [see Clarida *et al* (1997) or Batini and Haldane (1999)].(6) However, any of the above approaches seems to be chiefly due to the need to justify the actual persistence of interest rates, and not to

(4) A Probit model estimated for the United States between January 1990 and December 2001 — a period that witnessed 49 movements in the Federal funds rates, 9 of which corresponded to trend reversals, showed the following equation for the probability of reversal of the interest rate trend:

$$P(I=1)=\Phi(-4.546+0.024D)$$

where $I$ assumes the value 1 when the interest rate movement corresponds to a reversal, and 0 in the opposite case. $\Phi(.)$represents the distribution function of a normal standard distribution and $D$ represents the period of time elapsed (in days) between consecutive interest rate changes. The *t*-rácio for $D$ coefficient is 2.31.

(5) See, for instance, Lowe and Ellis (1997).

considerations underpinning their use [see Woodford (1999)].

There are several reasons behind the preference of the authorities for a gradualist monetary policy.(7) Nonetheless, the incorporation in the objective function of an interest rate stabiliser does not permit a distinction between actual persistence of interest rates as a result of an explicit preference of the authorities for a gradualist monetary policy and the "natural persistence" due to the inertia observed in the economic variables to which the monetary authority responds. In other words, in the formulation of monetary policy, monetary authorities take into account the dynamics of the so-called fundamental variables of the economy, such as output and inflation. Given that shocks to these variables exhibit strong serial correlation and respond to monetary policy with a substantial lag, some persistence in official rates may be expected even in the absence of an interest-rate smoothing objective. In this perspective, a gradualist monetary policy should be understood as the tendency to limit changes in the official interest rates to a degree greater than the one accounted for the dynamic structure of the economy. Thus, a monetary policy can only be characterised as more or less gradualist when compared with an optimal policy rule.

In order to distinguish between persistence induced by monetary policy and persistence resulting from the dynamic behaviour of non-policy variables, it is necessary, first, to characterise the structural form of the economy, which can be achieved through the estimation of a VAR model formulated as follows:

$$W_t = \sum_{j=0}^{q} A_i W_{t-j} + \sum_{j=0}^{q} b_j i_{t-j} + v_t^W$$

$$i_t = \sum_{j=0}^{q} c_j^{'} W_{t-j} + \sum_{j=0}^{q} d_j i_{t-j} + v_t^j$$

where $W_t$ is a $n \times 1$ vector of non-policy variables (i.e. variables not directly controlled by monetary policy) that may include the inflation rate, the GDP growth rate, the unemployment rate or an index of commodity prices, $i_t$ is the interest rate and $q$ is the number of VAR lags. The VAR describes both the structure of the non-policy variables in the economy, and the reaction function of the monetary authority. However, in deriving optimal monetary policy, the reaction function of the monetary authority is completely ignored. Thus, after calculating the structural form of the economy estimated from the VAR, it is possible to determine an optimal interest rate that minimises the present discounted value of the sum of the output gap, $x_t$ and the deviation of the inflation rate $(\pi_t)$ from its target $(\pi^*)$. A possible objective function to be minimised could be formulated as follows:

$$\frac{1}{2} E_t \left\{ \sum_{i=t}^{\infty} \beta^i \left[ \left( \pi_{t+1} - \pi^* \right)^2 + \lambda x_t^2 \right] \right\}$$

where $\beta$ represents the discount factor $(0 < \beta < 1)$ and $\lambda$ the relative weight assigned to the stabilisation of the output gap. This formulation is relatively conventional in literature [see Woodford (1999)].(8) It should be noted, however, that it does not show any term minimising the interest rate variance, given that the purpose is to investigate whether the actual persistence of interest rates can

(6) This latter approach may be represented in formal terms by the following equation:

$$i_t = (1-\rho) i_t^* + \rho i_{t-1},$$

where $i_t$ defines an interest rate directly or indirectly controlled by the monetary authority and $i_t^*$ is an optimal interest rate defined, for instance, on the basis of a Taylor rule. Usually, the empirical results present high values for the parameter $\rho$ that measures the degree of persistence of the interest rate [see Sack (1998b)].

(7) A number of justifications have been pointed out in literature for the preference of monetary authorities for a gradualist monetary policy. A traditional explanation consists in the willingness of central banks to reduce volatility in the financial markets, a situation that would be facilitated if interest rate changes would be gradual and foreseeable. Some authors sustain that if central banks would frequently reverse their interest rate trend, this might be interpreted as a signal of imperfect knowledge or even of incompetence, which would threaten their credibility. Goodhart (1997) sustains that the major cause behind the preference for a gradualist monetary policy lies in the natural conservatism of monetary authorities, which tend to change official interest rates only when there is solid evidence supporting the decision. Since that evidence emerges only slowly, interest rates are adjusted also slowly. More recently an explanation has been advanced, involving the interaction between a systematic monetary policy and the existence of agents with forward looking expectations (as opposed to expectations based only on the extrapolation of past behaviour). According to this perspective, a gradualist and systematic monetary policy makes possible that small changes in short-term interest rates have a stronger impact on longer-term interest rates and, therefore, on the economy [these arguments can be found, for instance, in Goodfriend (1991), Sack and Wieland (1999) and Amato and Laubach (1999)].

be explained without simply assuming that the authorities prefer to conduct monetary policy in a gradual manner. The parameters of the interest rate resulting from a problem of dynamic programming are $\pi^*, \beta$ and $\lambda$, which are exogenously defined and are a function of contemporaneous and lagged values of the model variables that, in addition to the inflation rate, the interest rate and the output gap, could also include other variables:

$$i_t^* = g\left(x_t, x_{t-1}, \ldots, x_{t-k}, \pi_t, \pi_{t-1}, \ldots, \pi_{t-k}, i_{t-1}, i_{t-2}, \ldots, i_{t-k} | \pi^*, \lambda, \beta\right)$$

where $k$ is the result of the lag structure determined by the VAR model. Note that the optimal interest rate $i_t^*$ depends on the lagged values of the interest rate determined by the VAR model itself. Therefore, even in the absence of any explicit smoothening objective by monetary authorities, the optimal interest rate reveals a natural persistence. Accordingly, since at least one part of the actual persistence of interest rates may result from the dynamic structure of the economy, the mere analysis of the statistics presented in Table 1 does not allow for any conclusion to be drawn in terms of the degree of gradualism of monetary policy. These statistics would be informative if, in the absence of the stabilising term in the objective function, the series of changes in official interest rates had a random-walk type behaviour.

Thus, the evaluation of the degree of gradualism of monetary policy requires a comparison between changes in the actual interest rate ($\Delta i_t$) and changes in the optimal interest rate ($\Delta i_t^*$). As suggested by Sack (1998a) a possible measure could be the comparison of volatility between these two series, by calculating the ratio between their respective variances:

$$Var\left(\Delta i_t^*\right) \Big/ Var\left(\Delta i_t\right)$$

The results obtained in some studies [Goodhart (1999) and Sack (1998a)] have shown that actual monetary policy in different countries has been characterised by a degree of gradualism that cannot be strictly explained by the dynamics of the economic variables to which monetary authorities respond. In other words, the optimal path for interest rates emerging from different macroeconomic models is usually less persistent than the actual path [see, for instance, Goodhart (1999)]. The crucial issue is to ascertain whether this situation implies that monetary authorities have adopted sub-optimal monetary policy strategies or whether, on the contrary, there are factors not included in the models that justify the strategies followed so far.

## 4. UNCERTAINTY AND DEGREE OF ACTIVISM OF MONETARY POLICY

A possible explanation for the divergence between the indications given by the models and actual practice is that the former may not deal adequately with the uncertainty surrounding monetary policy decisions. The traditional approach for the analysis of monetary policy under uncertainty consists in the specification of an objective function for monetary authorities and of a macroeconomic model, so as to determine how monetary policy may respond to shocks in the economy. The manner in which uncertainty affects monetary policy ultimately depends on the specification of the model and on the type of uncertainty considered.

### 4.1. Optimal monetary policy under additive uncertainty

Many academic studies assume that the authorities take their monetary policy decisions as if they were under certainty. This results in admitting that uncertainty faced by policy-makers assumes a particular form. Specifically, uncertainty is introduced in the analysis through additive (mean zero) shocks on the objective variables of monetary authorities. This, given the quadratic-linear specification of these models (thus known because the objective function is quadratic and the restriction is linear), does not affect the optimisation problem. This situation corresponds to what in literature is known as "certainty equivalence", i.e. the optimal rule obtained under uncertainty is the same as if the situation of the economy were perfectly observed (complete information).[9]

(8) When compared with other objective functions used in this type of literature [for instance, Woodford (1999)], a salient difference is the absence of future values for inflation and for the output gap. As demonstrated by Woodford (op cit), these future values alone may create an incentive for some interest-rate smoothening.

In this framework, the specified models recognize that uncertainty is independent from the behaviour of monetary authorities. Therefore, the sole uncertainty considered is that arising when the economy variables are lagged from the forecast path — the so-called additive uncertainty. Against this background, authorities should ignore the effects of uncertainty on the economy.

This situation may be illustrated by means of a simple theoretical model for a closed economy, similar to that presented by Svensson (1996). It allows for the consequences of the parameter uncertainty to be discussed in order to determine optimal monetary policy, in a context in which an authority adjusts the interest rate so as to obtain a target for the inflation rate.(10) The model, however, due to its simplicity, necessarily has some weaknesses. In particular, it has not microeconomic foundation and, since it presents the equations in their reduced form, it does not permit the identification of the source of shocks hitting the economy. Literature presents alternative models, with microeconomic foundations, but they are less tractable to illustrate the problem under discussion [see, for instance, Khan *et al* (2000)].

The basis of the model is a two-equation system. The first one (a version of the Phillips curve) establishes a relationship between the inflation rate $\pi_t$ and the output gap $x_t$:

$$\pi_{t+1} = a\pi_{\tau} + \gamma x_{t+1} \tag{1}$$

The second equation (a version of the IS curve) establishes an inverse relationship between the output gap and real interest rate prevailing in the previous period $(r_t)$ defined in terms of a deviation from the neutral or equilibrium level, subject to additive shocks, $\xi_{t+1}$, independently distributed with mean zero and variance $\sigma_{\xi}^2$:

$$x_{t+1} = -\delta r_t + \xi_{t+1} \tag{2}$$

The interest rate set at the end of the $t$ to be in force until $t$+1 is given by the Fisher equation:

$$r_t = i_t - E_t\pi_{t+1} \tag{3}$$

where $i_t$ is the nominal interest rate defined in terms of the deviation vis-à-vis the neutral or equilibrium value. By replacing (2) in (1) we obtain the reduced form for the inflation rate:

$$\pi_{t+1} = a\pi_t - br_t + \varepsilon_{t+1} \tag{4}$$

with $b = \gamma\delta$ and $\varepsilon_{t+1} = \gamma\xi_{\tau+1}$. Monetary authorities set the interest rate with a view to reaching an inflation target $\pi^*$. Specifically, it is assumed that the purpose of monetary authorities is to minimise the squared deviation of inflation from the target, the latter being normalised to zero. This is equivalent to minimise both the squared deviation of the expected value of the inflation rate from target (the squared bias) and uncertainty as to future inflation (inflation variance). Formally, the minimisation of the objective function can be written as follows:(11)

$$E_t\pi_{t+1}^2 \tag{5}$$

or, alternatively,

$$\left(bias_t\pi_{t+1}\right)^2 + \mathrm{var}_t\left(\pi_{t+1}\right) \tag{5a}(12)$$

The only source of uncertainty in model (4) results from the shock introduced in the IS equation. Thus, it is assumed that the authorities are definitely fully acquainted with: i) the model parameters; ii) the state of the economy, which implies that, for instance, the inflation rate and the output gap do not reveal measurement errors and that authorities are able to perfectly identify the type of

(9) Is this case, the so-called "separation principle" is applicable, according to which the problem of selection of the optimal policy (optimisation problem) and the problem of estimation of the current state of the economy (problem of extraction the signal) may be dealt with separately [see, for instance, Svensson and Woodford (2002)].

(10) See Martin (1999) for an application of the same type of model within the framework of an open economy.

(11) This problem may be solved through dynamic programming. However, Svensson (1996 and 1997) shows that the solution usually coincides with that obtained with the optimisation for a single period, the objective function being given by equation (5).

(12) The bias of the random variable $\pi_{t+1}$ is defined as $E_t\pi_{t+1} - \pi^*$ and measures the difference between expected inflation and the inflation target. Equation (5a) results from the fact that:

$$E_t\left(\pi_{t+1} - \pi^*\right)^2 = E_t\left(E_t\pi_{t+1} - \pi^*\right)^2 + E_t\left(\pi_{t+1} - E_t\pi_{t+1}\right)^2,$$

where the second term stands for the variance.

shocks hitting the economy; and, perchance more important, iii) the functional form of the economy (i.e. the manner in which inflation and the output gap are interrelated). Taking into account these hypothesis, by replacing (4) in (5), differentiating in order to $r_t$ and setting the result equal to zero, the optimal rule is given by:

$$r_t = \frac{a}{b}\pi_t \tag{6}$$

By replacing (6) in (4), we obtain the equilibrium path for the inflation rate:

$$\pi_{t+1} = \varepsilon_{t+1} \tag{7}$$

Based on (6) and (7), the optimal monetary policy rule is obtained in terms of the additive shock:

$$r_t = \frac{a}{b}\varepsilon_t \tag{8}$$

In order to reach this optimal path for the real interest rate, based on (3) and taking into account that inflation expectations are zero, the interest rate should be set according to the following rule:

$$i_t = r_t + E_t\pi_{t+1} = \frac{a}{b}\varepsilon_t \tag{9}$$

This rule fulfils "certainty equivalence principle": the same optimal rule would be obtained if there were no uncertainty. Once the shock over inflation is observed, the optimal response of the authorities will be to fully cancel its effects, so that the inflation rate may resume the target. This means that, although the authorities are not able to avoid temporary deviations of inflation from target, they may ensure that these deviations are not permanent. Therefore, optimal monetary policy would be characterised by a high degree of aggressiveness. It is obvious that this result depends on the above hypotheses (i) to (iii). These make it possible for the authorities to identify unambiguously the type of shock faced and the manner in which the monetary policy instrument should be adjusted. In practice, however, monetary authorities are not able to identify clearly either the type of shocks faced by the economy or the best response to those shocks.

### 4.2. Optimal monetary policy under parameter uncertainty

Some more recent studies have attempted to explore the implications for monetary policy of a wider range of uncertainties [see, for example, Sack (1998a)]. One strand of research has tried to gauge the extent to which uncertainty about the parameter magnitude of the transmission mechanism may lead to a less aggressive response of monetary policy to economic shocks. This analysis having its roots in the work of Brainard (1967) is based on the assumption that uncertainty about the relationship between official interest rates and the rest of the economy (a form of parameter uncertainty) creates a trade-off for monetary authorities: the presence of parameter uncertainty may imply that movements in official interest rates could lead to an increase in uncertainty about the future path of the economy. In this case, monetary authorities should be more cautious, even if this would mean a worse outcome on average, in order to reduce the probability of falling a long way short of the target set (Brainard's principle): "(...) central banks must avoid becoming a source of additional uncertainty themselves when there is only limited knowledge about the economy and the behaviour of economic agents" [Issing (2002)].

The consideration of the so-called parameter uncertainty leads to the elimination of the above hypothesis (i). This type of uncertainty arises when it is assumed that authorities know the structural equations characterising the economy, but ignore the size of the multipliers, thus having to estimate them. For example, if in equation (4), authorities ignore the value of parameter *b*, they cannot assess the impact of interest rate changes on the output gap and thus on inflation.

Brainard (1967) assumed that authorities ignore the actual figures of model parameters, but know their distribution. Using the model above, it is assumed that parameters $a$ and $b$ follow a normal distribution,[13] with means $\bar{a}$ and $\bar{b}$, and variances $\sigma_a^2$ and $\sigma_b^2$, respectively, and covariance $\sigma_{ab}$:

$$\begin{pmatrix} a \\ b \end{pmatrix} \sim N\left\{\begin{pmatrix} \bar{a} \\ \bar{b} \end{pmatrix}; \begin{bmatrix} \sigma_a^2 & \sigma_{ab} \\ & \sigma_b^2 \end{bmatrix}\right\}$$

(13) The hypothesis of parameter normality is not strictly necessary.

We assume, in a first analysis, that the covariance between these two parameters is zero. In this case, using (4), the objective function (5a) may be written as

$$\left(\bar{a}^{-2}\pi_t^2 + \bar{b}^{-2}r_t^2 - 2\bar{a}\bar{b}\pi_t r_t\right) + \left(\sigma_a^2\pi_t^2 + \sigma_b^2 r_t^2 + \sigma_\varepsilon^2\right) \quad (5b)$$

Differentiating in order to $r_t$ and equalling to zero, we obtain the optimal rule:

$$r_t = \left[\frac{\bar{a}\bar{b}}{\bar{b}^{-2} + \sigma_b^2}\right]\pi_t \quad (10)$$

For a better comparison with the situation presented in the previous section, let us represent by *cv* the coefficient of variation $cv = \frac{\sigma_b}{\bar{b}}$ and define the parameter *h*, as $h = \frac{1}{1+cv^2}$. Thus, equation (10) may be written as follows:

$$r_t = h\frac{\bar{a}}{\bar{b}}\pi_t \quad (10a)$$

Parameter *h* defines the gap identified by Brainard, and shows that the response to shock $\varepsilon_t$, under parameter uncertainty, is a fraction of the response in the situation in which certainty equivalence occurs (since *h* stands between zero and one). This fraction is exclusively determined by the coefficient of variation, i.e. by the relative size of uncertainty (measured by the standard deviation) in relation to the mean of the policy multiplier. When uncertainty is high, *h* is small and monetary policy becomes more gradualist. As the relative weight of uncertainty declines, *h* tends to one and the optimal response of monetary policy gets closer to the situation described in the previous subsection. In this context, monetary authorities face a trade-off between the desire to bring the inflation rate back to the target (reduction of the inflation bias) and the desire to minimise the risk of increased volatility in inflation with only one instrument available $(i_t)$. Deriving from (5b), the variance of inflation depends positively on the real interest rate deviation from its neutral level, and thus monetary policy decisions affect the uncertainty about future inflation. Thus, by contrast with the additive uncertainty model, variance becomes endogenous. Therefore, within this model monetary authorities adjust interest rates to a smaller extent than they would do in a scenario without uncertainty, ( i.e. it is not optimal to completely offset a shock in any period). This situation is what Blinder (1998) calls "Brainard's conservatism principle": "Estimate how much you need to tighten or loosen monetary policy to get it right. Then do less". The response of monetary policy is thus spread over several periods.(14)

Replacing the monetary policy rule (10a) in (4) and applying the expectation operator, we obtain:

$$E_t\pi_{t+1} = \bar{a}(1-h)\pi_t \quad (11)$$

The optimal nominal interest rate results from the sum of the optimal rule for the real interest rate (10a) and the expected inflation (11):

$$i_t = \frac{h\bar{a}}{\bar{b}}\pi_t + \bar{a}(1-h)\pi_t \quad (12)$$

Equation (12) shows that the implications in terms of manipulation of monetary policy instrument resulting from a gradualist rule for the real interest rate may be ambiguous. Analysing the right-hand side of equation (12), we verify that: the first term (real interest rate) points to a more gradualist policy, while the second term (inflation expectations) translates the fact that a gradualist rule for the real interest rate leads to an increase in inflation expectations. The combined effect, however, points to a rule for the gradualist nominal interest rate, unless *b* is very high, which, according to the estimates presented by Rudebusch and Svensson (1999), seems unlikely.

It is also interesting to consider the situation in which the covariance between parameters $(\sigma_{ab})$ is not zero. In this case, the objective function (5b) will be equal to:

$$\left(\bar{a}^{-2}\pi_t^2 + \bar{b}^{-2}r_t^2 - 2\bar{a}\bar{b}\pi_t r_t\right) + \\ + \left(\sigma_a^2\pi_t^2 + \sigma_b^2 r_t^2 + \sigma_\varepsilon^2 - 2\pi_t r_t\sigma_{ab}\right) \quad (5c)$$

(14) Some studies have attempted to quantify the importance of "Brainard's effect". Sack (1998a) confirms that if the impact of monetary policy on the economy is uncertain, a more aggressive policy may induce excessive volatility on target variables. In that sense, it may be optimal to adjust official interest rates gradually in order to deliberately limit the risks of increased volatility on the economy. The analysis under parameter uncertainty explains an important part of actual persistence in interest rates. However, even considering effects resulting from economy dynamics and parameter uncertainty, an element of inertia which is not explainable by data prevails in interest rates.

and the optimal monetary policy rule is given by

$$r_t = \left[ \frac{\bar{a}\bar{b} + \sigma_{ab}}{\bar{b}^2 + \sigma_b^2} \right] \pi_t \qquad (10b)$$

As it derives from equation (10b), a high covariance between the two parameters could lead to a situation in which a more aggressive policy would be optimal (see Annex).(15)

Finally, it should be noted that these findings obviously depend on the type of model presented. Starting from a model with an objective function that attaches some weight to output stabilisation, Söderstrom (2000) shows that in some situations parameter uncertainty could induce monetary authorities to choose a more aggressive monetary policy. In particular, when there is uncertainty about the degree of persistence of inflation (parameter *a*), there could be cases in which it would be optimal to change interest rates in a more aggressive fashion, in order to reduce uncertainty about future developments in the economy. However, uncertainty about the impact of monetary policy on the economy (parameter *b*) continues to lead to a less aggressive policy, in line with Brainard's analysis.

### 4.3. Optimal monetary policy under uncertainty about the state of the economy

The assumed hypothesis that authorities are completely aware of the state of the economy neglects two important sources of uncertainty: the existence of errors in the measurement of variables and the uncertainty about the type of shocks affecting the economy. This could emerge either because certain variables, such as GDP, are only available with some time lag and are subject to frequent revisions, or because there is another type of variables, such as the output gap, whose measurement is not direct and whose results are sensitive to the method of estimation used.

Measurement errors may be considered within models similarly to additive shocks. If this is the case, there is no change in the optimal policy rule. For example, in the previous model, if we assume that the output gap shows measurement errors, equation (2) may be changed to:

$$\hat{x}_{t+1} = -br_t + \varepsilon_{t+1} + \xi_{t+1} \qquad (2a)$$

where $\hat{x}_{t+1}$ represents the output gap measure used by monetary authorities and $\xi^y_{t+1}$ the measurement error associated. Since authorities cannot distinguish between the contribution to the output gap estimate resulting from the additive shock and that deriving from a measurement error, the optimal policy rule given (1) and (2a) remains (6).

However, within models with different types of shocks requiring different policy responses, the existence of measurement errors could make the problem of identifying shocks particularly complex. For example, a monetary authority, whose purpose is to limit output gap and inflation fluctuations vis-à-vis a target, typically raises the interest rate in the presence of a positive demand shock. However, if the output estimate shows measurement errors it becomes more complicated to know whether an output rise reflects a demand shock, a supply shock or whether it is merely the result of a measurement error. Therefore, raising interest rates on the assumption that the output rise was the result from a demand shock could be a wrong decision.

Smets (1998) and Orphanides (1998) examine the extent to which errors in output gap measurement (Smets) and in output gap and inflation measurement (Orphanides) could affect the optimal response of the Federal Reserve. Both studies assume that monetary policy is defined according to a Taylor rule. Firstly, the optimal rule is derived assuming that there are no measurement errors. Subsequently, this rule is derived admitting the existence of measurement errors. The results suggest that if these errors are significant the optimal response of monetary policy tends to be more gradual:(16) "When the noise content of the data is properly taken into account, policy reactions are cautious and less sensitive to the apparent imbalances in the unfiltered data. The resulting policy prescriptions reflect the recognition that excessively activist policy can increase rather than decrease economic instability" [Orphanides (1998)].

(15) Although the conclusion pointing to a greater gradualism is better known, Brainard (1967) acknowledges that the existence of high covariances between the parameters of the model may lead to a more aggressive monetary policy. Martin and Salomon (1998) assess the impact of the existence of non-zero covariances for the case of the United Kingdom.

### 4.4. Optimal monetary policy under uncertainty about the economic model

The analysis made in the previous three subsections assumed that authorities know the type of uncertainty they are facing. For example, to estimate the optimal policy rule (10), it is necessary to know the parameter variance and also to identify additive shocks on the economy. Similarly, the work by Orphanides (1998) admits that authorities know the variance of measurement errors of variables. However, the type of uncertainties faced by policy makers is in practice considerably wider. More precisely, monetary authorities ignore the functional form of the "true" model of the economy and which variables should be included in that model.

Some studies have attempted to analyse how monetary policy should be conducted under model uncertainty - also known in the literature as "Knightian uncertainty". The so-called literature on robust control considers this type of uncertainty and presents some principles about the estimation of the optimal monetary policy rule, taking into account the different models/paradigms at the disposal of a monetary authority. Svensson (2000) identifies three approaches in literature.

The first approach, referred to as Bayesian, starts by calculating for each monetary policy rule *f*, the loss in each model (*m*) across all available models and/or paradigms (*M*). Secondly, a subjective probability $(p_m)$ is attributed to each actual loss and the so-called expected loss is calculated:

$$E_M L = \sum_{m \in M} p_m L(f, m)$$

where $L(f, m)$ defines the loss function of the model *m*, using the policy rule $f$. The optimal policy rule $f^*$ minimises the expected loss:

$$f^* = \underset{f \in F}{Min} E_M L$$

Gerdsmeier *et al* (2002) present other weighting choices, as the weighting of the models themselves or of optimal policy rules obtained in each model, concluding that any of these two approaches produces outcomes which area worse than those of the previous method.

More recently, literature on robustness control has adopted an approach that does not require the advance existence of subjective probabilities to weight the different models under review. The methodology used consists in the so-called *min-max* criterion [see, for example, Onatski and Stock (2000) or Gerdsmeier *et al* (2002)]. For each monetary policy rule $f$, the maximum loss across available models is calculated and the optimal policy rule $f^*$ is the rule that minimises maximum losses. In other words, the optimal policy rule is that showing the best outcome in the range of the different worst-case scenarios. In formal terms:

$$f^* = \underset{f \in F}{Min} \underset{m \in M}{Max} L(f, m)$$

Onatski and Stock (2002) use this criterion to identify robust policy rules, starting from the US economy model presented by Rudebusch and Svensson (1999). In this work four different types of uncertainty are considered: parameter uncertainty, uncertainty about data quality, uncertainty about the degree of serial correlation of shocks and uncertainty about the model itself. The key finding was that the different forms of specifying uncertainty produce different implications on the degree of monetary policy activism. Moreover, authors conclude that the main source of uncertainty for policy makers is that associated with the model of the economy itself and aggressiveness found in some estimated policy rules is linked to worst-case scenarios.

Finally, a third approach [see, for example, Levin *et al* (1999)] consists in attempting to identify monetary policy rules performing well across a wide range of models ( i.e. robust rules). By definition, this type of rules do not perform as well as the optimal rule derived in each particular model, but is designed to work smoothly within that model and across alternative models.

The impact of this particular source of uncertainty — perhaps the most important one — on the conduct of monetary policy is an evolving matter, and there is neither a consensual manner of identifying robust monetary policy rules nor a clear balance about the degree of monetary policy gradualism. However, an important finding in the most recent literature on robustness control is that in worst-case scenarios interest rate rules point to greater aggressiveness. The underlying view is that some types of uncertainty may lead to a smaller than expected impact of monetary policy

instruments on objective variables. Under these circumstances, in order to prevent worst-case scenarios, it would be optimal to react more aggressively when under uncertainty.

## 5. FINAL REMARKS

The findings in some empirical studies suggest that monetary policy in different countries has been characterised by a degree of interest rate gradualism, which cannot be strictly explained by the dynamic structure of the economy. In other words, the optimal path for interest rates emerging from different macroeconomic models is normally less gradual than that observed in practice. A possible explanation for the divergence between indications given by models and actual practice is that the former may not deal adequately with different sources of uncertainty surrounding monetary policy decisions. Common intuition seems to point to the fact that the introduction of uncertainty should lead to a more cautious position of monetary authorities. This view reflects Brainard's findings (1967). However, from a theoretical point of view, as argued by different authors [see, for example, Onatski and Williams (2002)], greater uncertainty does not necessarily mean more gradual monetary policy.

An important finding in this article relates to the fact that different hypotheses about the form of uncertainty have different implications in terms of the optimal degree of monetary policy gradualism. In that sense, monetary authorities should assess the different sources of uncertainty and combine them comprehensively. A well designed monetary policy strategy should take into account the presence and the implications of those different sources of uncertainty. This suggests that a monetary authority should not rely on a single indicator or model separately. On the contrary, it should assemble several sources of information, cross check their contents and assess their implications.

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## ANNEX
## IMPACT ON THE OPTIMAL POLICY RULE OF THE EXISTENCE OF NON-ZERO COVARIANCES BETWEEN PARAMETERS

Taking into account that the mean squared error of inflation expectations can be written as (see footnote 12):

$$E_t\pi_{t+1}^2 = E_t^2\pi_{t+1} + \text{var}_t\,\pi_{t+1} \quad \text{(I)}$$

With the variance being defined as:

$$\text{var}_t\,\pi_{t+1} = \sigma_a^2\pi_t^2 + \sigma_b^2 r_t^2 + \sigma_\varepsilon^2 - 2\pi_t r_t \sigma_{ab} \quad \text{(II)}$$

When the parameter variances and the respective covariance are zero, (II) does not depend on the real interest rate. This is therefore the certainty equivalence situation.

The marginal change in the inflation variance in period *t+1* is given by:

$$\frac{\partial\,\text{var}_t\,\pi_{t+1}}{\partial r_t} = 2\left(\sigma_b^2 r_t - \pi_t\sigma_{ab}\right) \quad \text{(III)}$$

If the covariance between *a* and *b* is zero, a rise in the real interest rate will then simultaneously lead to an increase in the variance of future inflation. However, if the covariance between the parameters is sufficiently large and positive, the Brainard principle will then cease to occur, because a rise in the real interest rate reduces the inflation variance, and the monetary authorities no longer face a policy dilemma.

This result seems to be relatively intuitive. For example, it is assumed that the multiplier of monetary policy *b* and the parameter measuring the persistence of inflation *a* are strongly and positively correlated, thereby resulting in a rule that points to a more aggressive monetary policy. Thus, if the persistence of inflation is high, and given the strong correlation between parameters, the actual situation would (desirably) reveal a higher monetary policy efficiency.

The possible existence of a strong positive correlation between parameters is of an empirical nature. For example, Sack (1998a) does not find evidence of a more aggressive monetary policy for the United States, assuming the presence of parameter uncertainty.

# UNEMPLOYMENT AND VACANCY DURATION IN THE PORTUGUESE LABOUR MARKET*

*João Miguel Coelho***

## 1. INTRODUCTION

One of the key issues of labour market activity is the constant opening of vacancies by firms and the fill-in of these vacancies by those who are unemployed and looking for a job. The data collected systematically by public employment agencies on vacancies posted by firms and job seekers registrants looking for a job is a valuable statistical source to study these activities.

Public employment agencies play a relevant part as mediators between demand and supply in the labour market and are frequently used by those looking for a job. According to the *IEFP* (Institute of Employment and Professional Training), the organization responsible for the public employment service in Portugal, during the year 2000, 405 thousand job seekers registered in public employment agencies, of which only 1 in 20 was not unemployed; for the same period 122 thousand vacancies were announced and 68 thousand matches between job seekers and firms were completed. The analysis of data collected by public employment agencies may help find some answers to many interesting labour market issues.

## 2. DURATION OF REGISTERED UNEMPLOYMENT AND DURATION OF VACANCIES

The fill-in probability of vacancies is depicted in Chart 1, while the employment probability of a job seeker registered in a public employment agency is shown in Chart 2. We conclude that, from the moment a firm opens a vacancy in a public employment agency, the fill-in probability decreases over time. In the same way, the employment probability of job seekers decreases after the second month of registration. The employment probability rises from the first to the second month probably because of the normal selection period.

An immediate conclusion that one can draw from these two different transition probabilities is that average duration of job vacancies is considerably different from the average duration of registered unemployment. While a firm takes, on average, only nine weeks to fill a vacancy, a job seeker must wait for seven months, on average, to find a job.(1)

Table 1 presents the results of the regression equations for transition probabilities for job seekers (employment probability) and for vacancies (fill-in probability). For instance, a firm in the

* The views expressed in this article are those of the author and not necessarily those of the Banco de Portugal. The author is grateful for the useful comments and suggestions of Pedro Portugal, José Machado and Maximiano Pinheiro. The author is responsible for any remaining errors.

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(1) For a first approach, the average duration may be determined by inverting the values of the employment probability and the fill-in probability given by the dotted line in Charts 1 and 2.

(2) We assume that the duration of a state — open vacancy or registered unemployment — follows an exponential distribution, so the average duration is the inverse of the transition probability. This transition probability can be determined directly from Table 1 by multiplying the standard hazard rate by the estimated coefficients: 0.108*exp(-0.212-0.177-0.056).

Chart 1
FILL-IN PROBABILITY

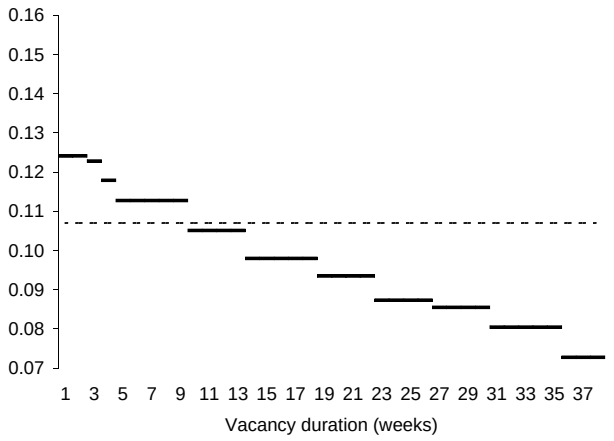
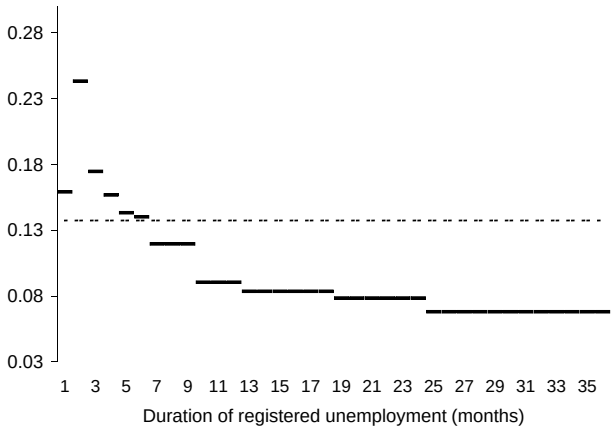



Chart 2
EMPLOYMENT PROBABILITY




manufacturing sector, located in the north region, that wants to fill an open vacancy for a skilled worker, in the second quarter of the year, will have to wait for, on average, 14.4 weeks.(2) On the other hand, the vacancy duration will be only7.8 weeks for a restaurant trying to hire a non-qualified person to work in the *Algarve* region during the summer months.

Similarly, the average duration of registered unemployment of an unemployed female, aged 30, with 9 years of education, who seeks for a job as an unskilled worker in the manufacturing industry, in the centre region, during the first quarter of the year, will be 7 months and 6 days.(3) Also an unemployed male, aged 18, with 12 years of education, looking for the first job in the *Algarve* region during the summer months, in the catering sector as unskilled worker, will have a duration of registered unemployment of only 1 month and 24 days.

Generally, from the results of the estimation given in Table 1, we can draw several conclusions about the average vacancy duration and the duration of registered unemployment. There exists an interesting symmetry of the results concerning the activity sector of a firm: in general, vacancies in the services sector are easier to fill than vacancies in the manufacturing sector; on the other hand, an unemployed individual has a greater probability of getting a job in the manufacturing industry than in the services sector, probably because of the specificity of the skills needed for the latter job (Industry Specific Skills). According to *IEFP* (2000) for the triennium under review i.e., 1998-2000, the number of job seekers willing to work in the services sector exceeded by about 50 per cent the number of job seekers willing to work in manufacturing activities. Also, the average duration of registered unemployment is lower for those who are looking for a job in construction sector or in the catering sector.

We find that vacancies for administrative personnel last less time than for any other categories. Similarly, perhaps because there are many people aspiring to work in this kind of job, the employment probability for administrative occupations is lower. Our results confirm some well-known findings: men have an average duration of registered unemployment lower than women and the employment probability decreases with age. A 25 year-old unemployed has twice the employment probability of a 55 year-old. We also conclude that more years of education do not influence positively the employment probability. Also, having a higher education diploma does not help in obtaining a job in a public employment agency.

Typically, perhaps as the result of the lack of work experience, one would expect the unemployment rate for those looking for a first job to be higher than that for the other unemployed. However, that does not appear to occur at the public employment agencies: an unemployed looking for the first job in a Portuguese public employment agency has a higher employment probability than

(3) In this case, the average duration of registered unemployment is determined by: 1/[0.142*exp (-0.032*(30-32)+0.036-0.12)].

Table 1

TRANSITION PROBABILITIES — REGRESSION EQUATIONS, 1998-2000

| Variable | Job seekers | | | Vacancies | | |
|---|---|---|---|---|---|---|
| | Coefficient | | Standard deviation | Coefficient | | Standard deviation |
| Location | | | | | | |
| North | -0.167 | + | 0.005 | -0.212 | + | 0.011 |
| Centre | - | | - | - | | - |
| Lisbon | 0.010 | ++ | 0.005 | -0.029 | + | 0.011 |
| *Alentejo* | -0.265 | + | 0.009 | 0.159 | + | 0.029 |
| *Algarve* | 0.396 | + | 0.008 | 0.124 | + | 0.015 |
| Seasonality | | | | | | |
| I quarter | - | | - | - | | - |
| II quarter | -0.035 | + | 0.005 | -0.056 | + | 0.012 |
| III quarter. | 0.020 | + | 0.005 | -0.095 | + | 0.011 |
| IV quarter | 0.062 | + | 0.005 | 0.123 | + | 0.011 |
| Age (years) | -0.032 | + | 0.000 | | | |
| Gender | | | | | | |
| Male | 0.190 | + | 0.004 | | | |
| Female | - | | - | | | |
| Labour profile | | | | | | |
| Employed | - | | - | | | |
| Unemployed | 0.036 | + | 0.010 | | | |
| Unemployed- 1st job | 0.369 | + | 0.011 | | | |
| Schooling | | | | | | |
| No schooling | | | | | | |
| 4 years | -0.106 | + | 0.008 | | | |
| 6 years | -0.119 | + | 0.009 | | | |
| 9 years | -0.120 | + | 0.009 | | | |
| 12 years | -0.200 | + | 0.010 | | | |
| >12 years | -0.163 | + | 0.015 | | | |
| Occupation | | | | | | |
| Directors and staff members | -0.104 | ++ | 0.049 | 0.110 | | 0.095 |
| Intellectual and scientific | -0.016 | | 0.020 | 0.070 | ++ | 0.031 |
| Technicians | -0.046 | + | 0.011 | 0.008 | | 0.018 |
| Administrative personnel | -0.118 | + | 0.007 | 0.379 | + | 0.015 |
| Sales and services personnel | -0.010 | * | 0.006 | 0.045 | + | 0.014 |
| Farmers | 0.258 | + | 0.011 | 0.125 | + | 0.040 |
| Skilled workers | 0.002 | | 0.006 | -0.177 | + | 0.012 |
| Machine operators and manufacturers. | -0.091 | + | 0.007 | 0.062 | + | 0.018 |
| Unskilled workers | - | | - | - | | - |
| Firm activity | | | | | | |
| Agriculture | 0.043 | + | 0.012 | 0.037 | | 0.039 |
| Manufacturing | - | | - | - | | - |
| Energy and water supplies | -0.033 | | 0.048 | 0.193 | ++ | 0.085 |
| Construction | 0.046 | + | 0.008 | -0.044 | + | 0.014 |
| Trade | 0.005 | | 0.006 | 0.141 | + | 0.012 |
| Catering and hotels | 0.126 | + | 0.007 | 0.141 | + | 0.016 |
| Transport and communication | 0.037 | + | 0.014 | 0.099 | + | 0.030 |
| Banking and finance | -0.040 | | 0.039 | -0.062 | | 0.071 |
| Real estate, rentals | -0.011 | | 0.008 | 0.103 | + | 0.018 |
| Public administration | -0.364 | + | 0.016 | 0.115 | * | 0.065 |
| Education. | -0.141 | + | 0.017 | 0.324 | + | 0.042 |
| Health and social aid | -0.180 | + | 0.010 | 0.191 | + | 0.028 |
| Collective and social services | -0.026 | + | 0.009 | 0.170 | + | 0.022 |
| Household services | 0.215 | + | 0.020 | 0.296 | + | 0.040 |
| Other services | -0.121 | + | 0.013 | 0.223 | + | 0.022 |
| Standard hazard | 0.142 | + | 0.007 | 0.108 | + | 0.016 |
| Log Likelihood. | -548 668 | | | -59 691 | | |
| Number of observations | 192 657 | | | 111 423 | | |

Source: *IEFP.*

Notes: Asymptotic standard errors in parentheses. + ++ * denote statistical significance at the 1 per cent, 5 per cent and 10 per cent levels respectively.
The standard harzard rate refers to the transition probability for the omitted categories and the average for "Age" (32 years).

one looking for a new job. This unexpected result may have two different explanations. On the one hand, Portuguese labour authorities give a great deal of importance to first job policies for youths.(4) On the other hand, it is widely agreed upon that, the granting of unemployment benefits creates a disincentive to seek employment. We do not have any data available on unemployment benefits in our sample, but the lack of incentives for the unemployed to look for a new job is probably being captured indirectly in our model.

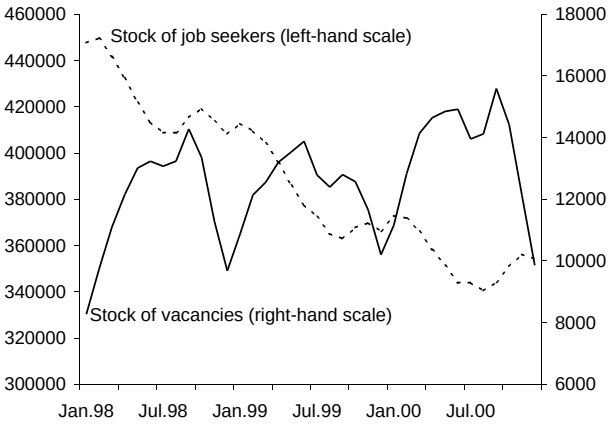
## 3. STOCKS AND FLOWS IN THE LABOUR MARKET

Charts 3 and 4 show an inverse relation for the period 1998-2000 between the stock of vacancies and the stock of the unemployed.(5) In Chart 5 we can also observe, in a fashion similar to the Beveridge curve, the path taken by the stock of job seekers and the stock of vacancies in an expansion period. Generally, an increase in the stock of vacancies is associated with a decrease in the stock of job seekers.

In addition to the standard inverse relation between the two opposite sides of the labour market, it is interesting to analyse the relation between the stocks and flows with both the duration of vacancies and the duration of registered unemployment. In Table 2 we see that an increase in the stock or in the flow of vacancies has a negative effect on the fill-in probability or, equivalently, a positive effect on the average vacancy duration. This latter effect may be called crowding-out and is explained by the congestion provoked by the rise in the number of vacancies competing in the labour market. On the contrary, an increase in the stock or in the flow of vacancies has, as expected, a positive impact on the employment probability.

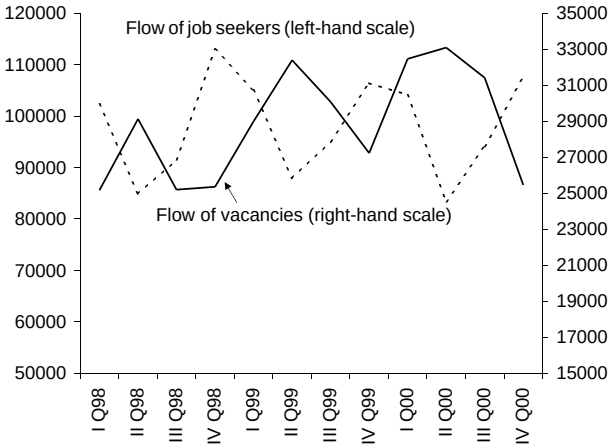
Symmetrically, either an increase in the unemployment rate or in the stock or in the flow of job seekers has a positive effect on the fill-in probability of vacancies and a negative impact on the employment probability. Chart 6 illustrates the effect of an increase in the unemployment rate on the average duration of vacancies and registered unemployment in public employment agencies. For example, against a background of economic contraction, following a sharp rise in the unemployment rate from 4 per cent to 8 per cent of the labour force, the average vacancy duration for a firm in the catering sector, in the second quarter, for a service employee, in the region of Lisbon, would decrease from 9 to 7 weeks. A similar rise in the unemployment rate would cause an increase in the average duration of registered unemployment in public employment agencies from 34 to 73 weeks

Chart 3
STOCK OF VACANCIES AND REGISTERED EMPLOYMENT




Source: *IEFP.*

Chart 4
FLOW OF VACANCIES AND JOB SEEKERS



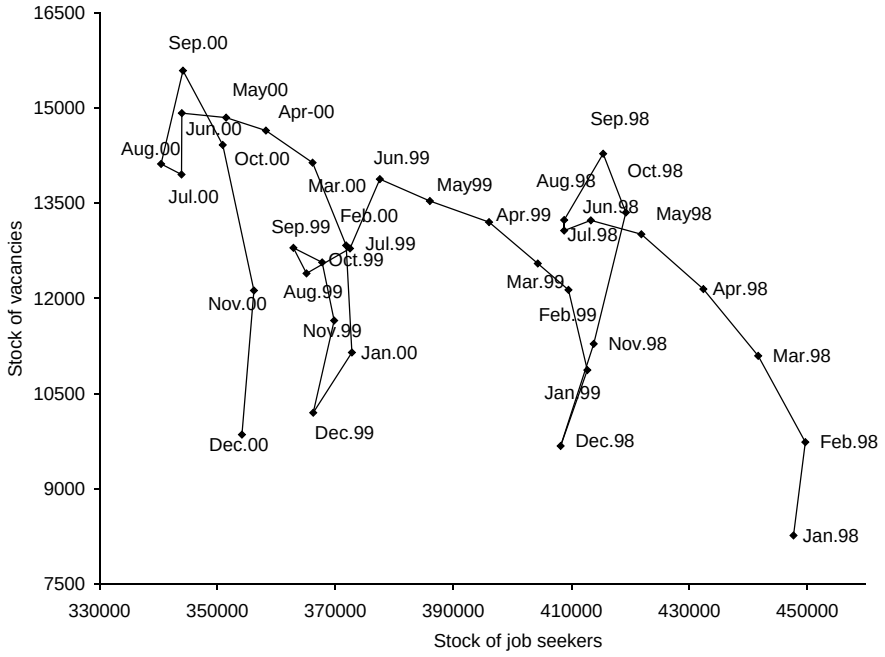

Source: *IEFP.*

(4) According to OECD (1998, pp 191-3), Portugal spent 0.34 per cent of GDP in active public policies for youths in the year 1996, when the average spending for the OECD countries was only 0.1 per cent of GDP.

(5) Luz and Pinheiro (1994) found evidence of a stable cointegration relation amongst the unemployment rate and the vacancy rate in Portugal for the period between 1984 and 1993.

Chart 5

RELATION BETWEEN THE STOCK OF VACANCIES AND JOB SEEKERS




Source: *IEFP.*

for an unemployed male aged 28, with 12 years of education.

Results in Table 3 reveal that the effect on the fill-in probability is higher for job seekers who are unemployed for less than 6 months. This implies that, an increase in the stock of short-term unemployment (less than 6 months) has a greater positive effect on vacancy probability than a similar increase in the stock of long-term unemployment (more than 24 months). A possible reason for this phenomenon may lie in the fact that firms rank the unemployed according to their unemployment spells. Long periods of inactivity cause depreciation of job seekers' individual abilities, so long-term unemployed have greater difficulty in com-

Table 2

EFFECTS OF TRANSITION PROBABILITIES

| Variable | Job seekers | | Vacancies |
|---|---|---|---|
| | Female | Male | |
| Unemployment rate ($t$) . . . . . | -0.759 | -0.890 | 0.223 |
| | [0.036] | [0.046] | [0.043] |
| Stock of job seekers ($t$-1) . . . . | -0.979 | -1.139 | 0.269 |
| | [0.042] | [0.056] | [0.051] |
| Stock of vacancies ($t$-1) . . . . . | 0.771 | 0.963 | -0.174 |
| | [0.042] | [0.054] | [0.050] |
| Flows of job seekers ($t$) . . . . . | -0.705 | -0.460 | 0.697 |
| | [0.158] | [0.209] | [0.190] |
| Flows of vacancies ($t$) . . . . . | 0.807 | 0.957 | -0.302 |
| | [0.045] | [0.059] | [0.054] |

Note: Asymptotic standard errors in parentheses.

Chart 6

UNEMPLOYMENT RATE EFFECT ON DURATION

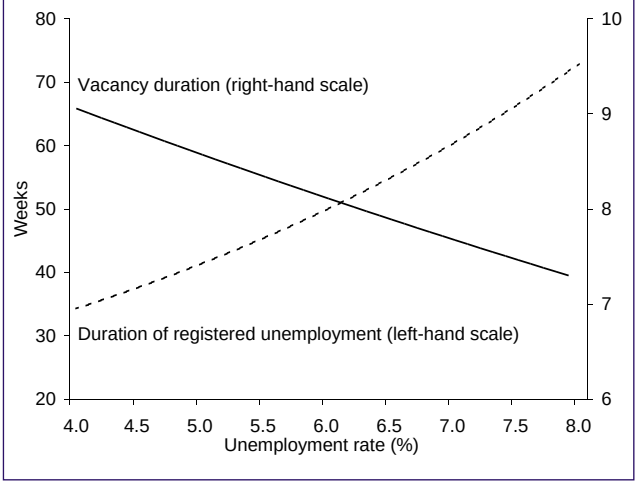


Table 3

FILL-IN PROBABILITY

| Unemployment duration | Coefficient | Standard deviation |
|---|---|---|
| Less than 3 months | 0.406 | 0.078 |
| 4-6 months | 0.458 | 0.030 |
| 7-12 months | 0.349 | 0.030 |
| 13-18 months | 0.322 | 0.025 |
| 19-24 months | 0.270 | 0.024 |
| > 24 months | 0.070 | 0.024 |

Source: *IEFP.*

Table 4

EMPLOYMENT PROBABILITY

| Vacancies duration | Coefficient | Standard deviation |
|---|---|---|
| Up to 1 month | 1.148 | 0.043 |
| 1-3 months | 0.565 | 0.032 |
| 4-6 months | 0.364 | 0.018 |
| 7-9 months | 0.291 | 0.011 |
| >9 months | 0.171 | 0.006 |

Source: *IEFP.*

peting for a job in the labour market. Similarly, vacancies with less than one-month duration (close to the flow of new vacancies) have a higher effect on employment probability than "old" vacancies.

## 4. CONCLUSIONS

The major findings of this empirical study are the following: first, the hazard functions for vacancies and for job seekers have a negative duration dependence, that is, the fill-in probability of vacancies and the employment probability decrease over time. However, the average vacancy duration is only nine weeks, whereas the average duration of registered unemployment for an individual registered in a public employment agency is seven months.

Higher education does not guarantee a higher employment probability for a job seeker registered in a public employment agency. There is an interesting symmetry in the results for different sectors of activity: vacancies in the services sector are easier to fill than vacancies in the industrial sector; yet, job seekers have a greater probability of obtaining employment in industry than in services. The duration of registered unemployment is also lower for those who intend to obtain employment in catering or construction. The vacancy duration for administrative occupations was found to be smaller than vacancy duration for unskilled occupations. Similarly, the employment probability for administrative occupations is lower, perhaps because there are many job seekers willing to work in this type of job. Quite conventionally, we found also that men have a smaller average duration of registered unemployment than women and that the employment probability decreases with age.

The fill-in probability of vacancies increases with the increase in the unemployment rate and also with the rise in the number of job seekers, either stock or flow. On the contrary, an increase in the stock or in the flow of vacancies has a negative impact on the fill-in probability of vacancies, probably due to a congestion effect. We found evidence of a negative impact of the unemployment rate, the stock and the flow of job seekers on the employment probability. But, an increase in the stock or in the flow of vacancies has, as expected, a positive impact on the employment probability. The fill-in probability of vacancies is not independent from the composition of unemployment: a shift from long-term to short-term unemployment improves that probability. Likewise, "new" vacancies have a higher effect on employment probability than "old" vacancies. Consequently, our analysis suggests that the stock on one side of the market seems to match predominantly the flow on the other side of the market.

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# THE CONDUCT OF MONETARY POLICY: A CRITICAL REVIEW*

*Bernardino Adão***
*Nuno Alves***
*Isabel Correia***

## 1. INTRODUCTION

During the past decades there has been a surge in the monetary policy literature. Many issues have been subject to vivid debate, including the empirical extraction of the effects of monetary shocks, the optimal goals of monetary policy, the appropriate monetary policy operating procedures, the option between rules and discretion, the monetary transmission channels or the appropriate way to model a monetary economy.

This note will not survey all the literature related to these issues (an excellent review of these issues is Walsh (1998)). The focus will be on the analysis of what monetary policy can actually do, on the evaluation of the risks arising from discretionary monetary policies and on suggestions of how these policies can be improved upon to best achieve their objective. In undertaking this exercise we will review and build on some recent literature on monetary policy, most notably Woodford (2003). Many of the issues under discussion in this note are subject to criticism and have not yet gained general consensus among the profession. We claim, nonetheless, that they are representative of the current state of the investigation on monetary policy issues.

The note is organized as follows. The next section explores the effects of monetary policy, both in the long and the short run. The subsequent sections will only focus on the short-run conduct of monetary policy. Section 3 describes what affects inflation in the short run. Sections 4 and 5 describe the characteristics, the risks and some possible improvements on the current monetary policy strategy followed by major central banks. Section 6 concludes.

## 2. WHAT DOES MONETARY POLICY DO?

### 2.1. In the long-run

The fact that a higher rate of money growth is fully transmitted in the long run into a higher rate of inflation has been recognized for centuries. In the words of Hume (1752) “The absolute quantity of the precious metals is a matter of great indifference”. The root of this result is clear: in the long-run, the economy is not subject to any nominal friction, thus changes in money will be fully incorporated in price changes. In the very long-run, changes in money are similar to changes in the denomination of the *numeraire*, which obviously have no effect but on prices. Monetary policy is therefore neutral in the long run, i.e., it has no effect on activity or employment in the long run.

This so-called quantity theory of money is one of the most robust relations in macroeconomics. It holds for different periods, different monetary aggregates and different groups of countries (for an overview, see McCandless and Weber (1995) or Monnet and Weber (2001)). Chart 1, taken

* The views expressed in this article are those of the authors and not necessarily those of the Banco de Portugal.
The authors thank Carlos Martins, Fernando Martins, José Ferreira Machado, Marta Abreu and Maximiano Pinheiro for their comments. Any remaining errors are the authors responsibility.

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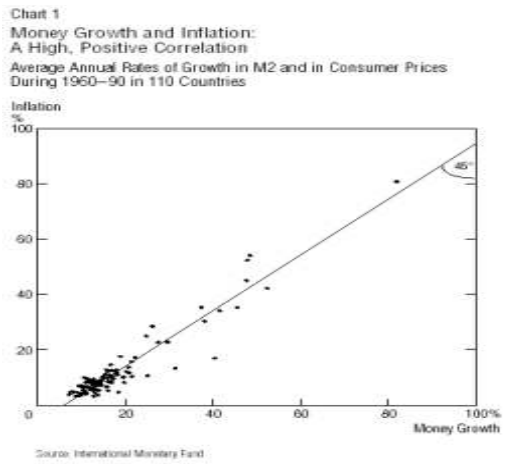
Chart 1
CROSS-SECTION FOR A PANNEL OF 110 COUNTRIES IN THE PERIOD 1960-90




Source: McCandless, G. and W. Weber (1995).

from McCandless and Weber (1995), is a representative example.

In recent decades, major central banks have followed policies aimed at targeting a level for a very short-term interest rate. Does quantity theory continue to apply in this case? The answer is yes. To see this it is important to recall the Fisher equation (Fisher (1896)), which states that the nominal interest rate is equal to real interest rate plus the expected rate of inflation(1).

In the long run, the real interest rate will be a function of the time preferences of households and the rate of growth of the economy. Assuming that these elements are constant in the long run, a higher nominal interest rate will be associated with a higher expected (and realized) inflation. This positive relation in the long-run between nominal interest rates and inflation should be no surprise. In fact, it is by now a stylized fact: countries with high average nominal interest rates are the ones experiencing high average inflation; countries with low average nominal interest rates are also the ones experiencing low average inflation.

How does this relate to the long run monetary growth in the economy? To support a higher (lower) targeted average interest rate, the central bank has to increase (decrease) the inflation expectations of the economic agents, since it cannot permanently change the real interest rate. To increase (decrease) these expectations the central bank has to permanently increase (decrease) the rate of monetary creation. Therefore, in the long run, there is a positive relation between money growth, nominal interest rates and inflation.

In sum, monetary policy is neutral in the long run. In this time span, monetary policy is able to control the average rate of inflation by targeting a compatible rate of money growth (in case of money-growth targeting) or a corresponding level of interest rates (in case of interest rate targeting). The long run mandate of a central bank is thus clear. Since monetary policy cannot affect real variables, it should focus on promoting a low inflation environment, in particular given that high inflation is costly. All the major central banks share this focus on low inflation.

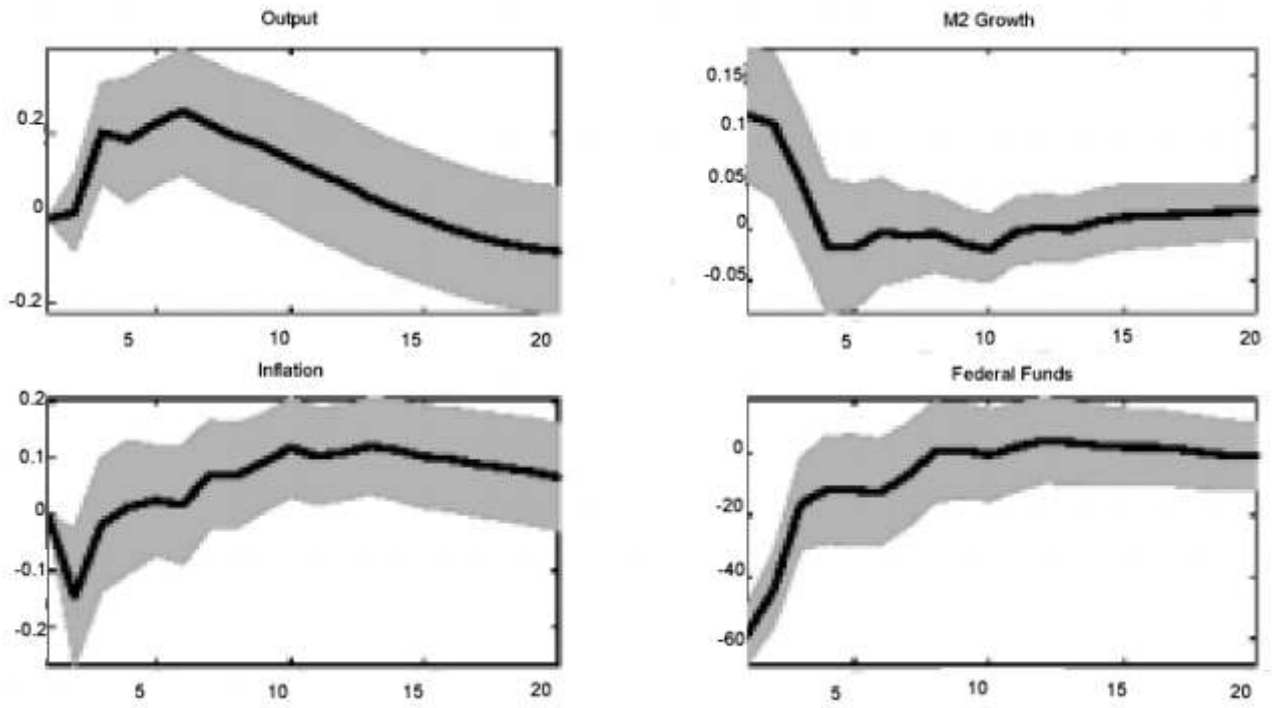
However, in the short to medium run, there are nominal and real frictions in the economy. In this time span, monetary policy has real effects. Accordingly, the central banks' mandates typically leave some room for short-run stabilization policy.

### 2.2. In the short to medium run

To evaluate the performance of a given monetary policy in the short run it is important to understand first what monetary policy can achieve in this time-span. However this is a very difficult question. Since monetary policy actions reflect, in part, policy makers' responses to non-monetary developments, the effects on the economy combine the effects from the policy shock and the effects from the underlying shocks to which policy is reacting. It is not possible to isolate the policy shock without an *a priori* idea of the characteristics of those underlying shocks. These so-called identifying assumptions, together with data, allow one to answer the question of "what does monetary policy do in the short to medium run?". Different identifying assumptions lead to different answers for the same data set. To be able to pursue the analysis it is therefore necessary to rely on some beliefs. Those beliefs, coming mainly from central bank understanding, can be summarized by saying that "monetary policy actions cannot affect current inflation and output, nor inflation and output in the near future." (Svensson, 2000). Us-

(1) This equation will appear and be explained in Section 5 below which presents a stylized monetary model.

Chart 2
EFFECTS OF A MONETARY POLICY SHOCK IN THE US (TAKEN FROM ALTIG ET EL. (2002))




Source: Altig *et al.* (2002)

ing these identifying assumptions, the data mainly confirms the remaining beliefs about the effects of monetary policy. As reported in Chart 2, for the US, and Chart 3, for Europe, the identification of monetary shocks using zero contemporaneous effects leads to the "rough benchmark that monetary policy affects output in about one year and inflation in about two years" (Svensson, 2000). This is the sense in which monetary policy acts with lags in aggregate activity and inflation. These figures also confirm that an unanticipated increase in money supply leads to a temporary reduction in interest rates. This is the so-called liquidity effect.

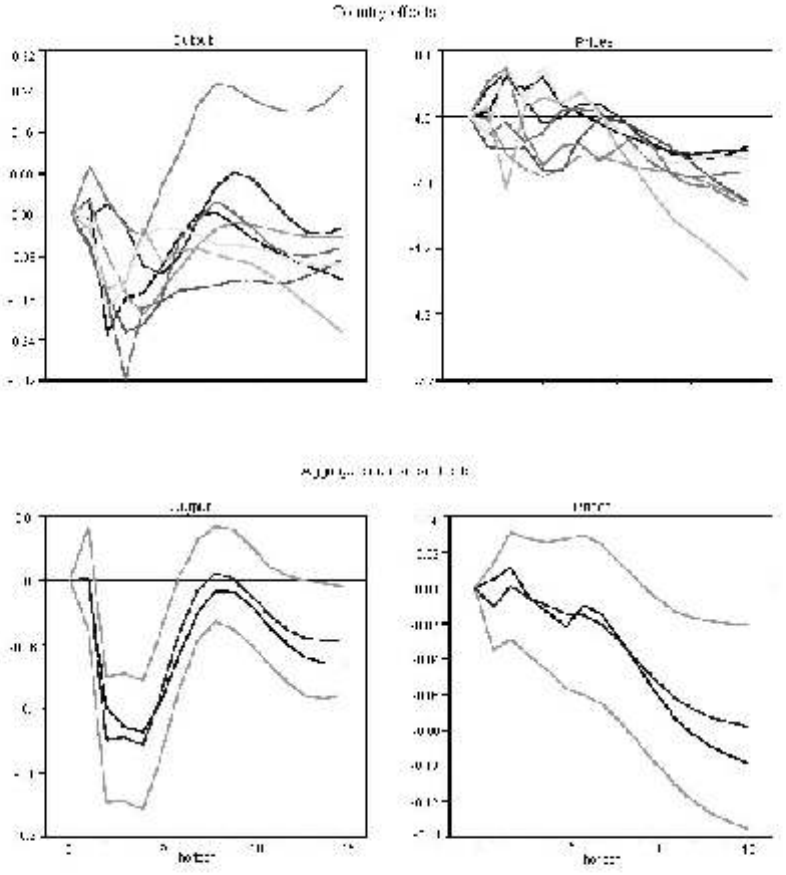
These lagged effects of monetary policy on inflation and output, together with the liquidity effect, correspond to the conventional wisdom on what monetary policy does in the short to medium run.

The impulse response of the identified monetary policy shock also allows us to get some idea on the magnitude of the effects on inflation and output. And the conclusion is that these effects are very small: a 60 basis points decline of the interest rate implies a maximum impact on output of 0.2 per cent (after one year) and on annualized inflation of 10 basis points (after two years)[(2)]. These very small effects of the monetary shock can also be read from the exercises developed by the Bank of England. In its *Inflation Report*, the Bank of England compares the projections of inflation and output based on a constant interest rate scenario with the projections based on an interest rate path taken from market expectations. In its February 2001 issue, for example, market expectations implied an overall decline in interest rates of around 60 basis points for the subsequent 8 quarters. The comparison of the end of period effects of the two interest rate paths allows us to conclude that the 60 basis points decline in the interest rate leads to an increase of inflation of 10-20 basis points and to an increase of output of 0.1-0.2 per cent.

Therefore the conventional wisdom on the short to medium run effects of monetary policy

(2) In the short-run, inflation actually decreases after a decline in interest rates. This response is usually called the "price puzzle" in the literature.

Chart 3
EFFECTS OF A MONETARY POLICY SHOCK IN THE EURO AREA



Source: Peersman and Smets (2001))

can be summarized by a long lag on output, a very long lag on inflation and very small effects on both variables.

## 3. WHAT AFFECTS INFLATION IN THE SHORT RUN?

If one of the main focus of monetary policy is the inflation rate it is important to have some idea on the determinants of inflation. In the long-run it should be clear that inflation is "always and everywhere" a monetary phenomenon (Friedman (1992)). Different rates of inflation in the long run are necessarily rooted in different objectives (implicit or explicit) of the monetary authority.

To understand the short run determinants of inflation one has to start by analysing the effects on inflation of the most commonly identified shocks to the economy. Starting with the monetary shock, it was already described above that while money and interest rates move contemporaneously with the shock, inflation only starts to rise more than one and a half years later (see Chart 2). This sluggishness can arise, for example, due to rigidities in the price-setting mechanism of firms, due to frictions in the labour market, or due to a learning process by the agents concerning the policy of the monetary authority.

When a non-monetary shock hits the economy the response of the rate of inflation is always related to the reaction of the monetary authority to the shock. It is not possible to strip down the impulse response of inflation to a shock *irrespective* of the policy response. Nonetheless, it is still possible to present some ideas that seem broadly consensual in the literature. It is fair to say that the

available evidence suggests that the response of inflation to most shocks commonly identified in the literature(namely technology shocks, preference shocks and real demand shocks) is *significant, mostly contemporaneous* and relatively short-lived. Representative studies that confirm this result are, for example, Iacovello (2000), Altig *et al.* (2002) or Canova and Nicoló (2000). It would be difficult to argue that it is the monetary policy action which is producing such contemporaneous effects. We can therefore infer that it is the underlying relation between the shock and inflation that causes these patterns.

## 4. THE CURRENT STRATEGY OF CENTRAL BANKS

Central banks in the major industrialized countries share a common understanding as to how to conduct monetary policy in an uncertain environment. Despite differences in the goals of monetary policy and in the specific implementation procedures, their monetary policy strategies can be summarized as follows:

a) The recognition that in the long run the monetary authority can only be responsible for nominal aggregates. Since high inflation is known to be costly, an objective of monetary policy is always a low inflation rate in the medium term.
b) The acknowledgement of transmission lags in the policy. Policy is therefore conducted with a forward-looking perspective. Past and current variables are important as predictors of future economic developments.
c) The control of a short term interest rate in the implementation of monetary policy.
d) The absence of a mechanical reaction of the policy instrument to specific developments in the economy.

In short, the instrument is an interest rate. Its level depends on the forecasts of future inflation. There is no rule connecting the instrument and the forecasts. This means that the policy uses the interest rate as an instrument and is discretionary.

### 4.1. A model to assess monetary policy

An evaluation of monetary policy requires the construction of a structural model where alternatives of conducting monetary policy can be compared. As clearly stated in Lucas (1980) "...we are interested in models because we believe they may help to understand matters about which we are currently ignorant". The basic model where to conduct this monetary experiment will be chosen taking into account that we should "subject them [models] to shocks for which we are fairly certain how actual economies or parts of economies would react." (Lucas (1980)) The choice of the model would be more connected with its ability to imitate the economy than with its realism. "A "good" model (...) will not be exactly more "real" than a poor one, but will provide better imitations. Of course, what one means by a "better imitation" will depend on the particular questions to which one wishes answers." (Lucas (1980)).

Therefore to discuss the conduct of monetary policy we chose a very simple model which replicates quite well what we called in Section 2 the conventional wisdom. Let us look sequentially at the two qualitative effects of monetary policy: first, the existence of transmission lags; second, the reaction of output, leading and peaking first than inflation.

The existence of transmission lags is related to the so-called aggregate-demand block of the economy. This block is summarized in a behavioural equation that relates private expenditures in two consecutive periods, and is therefore forward-looking.[3] Economic agents that give up one unit of real expenditures today save an amount of income equal to the price today, and the application of that amount allows them to increase real expenditures tomorrow by that amount times the interest rate divided by the price level tomorrow. Therefore economic agents are indifferent between consuming today, or delaying expenditures when the change of utility due to the decline of one unit of consumption today is identical to the increase of utility of consumption tomorrow. The assumption that these spending decisions are made in advance, or based on old information, is a

(3) Let us take the period duration as a quarter. Then $t$ and $t+1$ denote respectively the current and next quarter.

reduced form of real costs of "time to build", or "time to plan".

The aggregate-demand block of the economy can be written as[4]

$$x_t = E_{t-d}x_{t+1} - \sigma E_{t-d}(i_t - \pi_{t+1} - r^n_{t+1}) + \chi_t \qquad (1)$$

In this equation $i_t$ represents the policy instrument, the interest rate, and $r^n_t$ the natural real interest rate. The output gap is represented by $x_t$,[5] and the inflation rate by $\pi_t$. The $\chi_t$ represents mainly real supply or demand shocks, for example public expenditures shocks, not forecastable in period $t-d$. The operator $E_{t-d}$ represents the expectation, given the information available $d$ periods in advance. For given expectations of future expenditures and inflation, an increase of the forecastable nominal interest rate leads to a decline in current expenditures.

As stated in Woodford (2003) "Banks restrict themselves to interventions that seek to control the overnight interest rate in an interbank market for central bank balances. But the current level of overnight interest rate as such is of negligible importance for economic decision-making; if a change in the overnight rate were thought as to imply only a change in the cost of overnight borrowing for that one night, then even a large change (say, a full percentage point increase) would make little difference to anyone's spending decisions. The effectiveness of changes in central-banks targets for overnight rates in affecting spending decisions (and hence ultimately pricing and employment decisions) is wholly dependent upon the impact of such actions upon the financial-market prices, such as longer-term interest rates, equity prices and exchange rates. These are plausibly linked, through arbitrage relations, to the short-term interest rates most directly affected by central bank actions; but it is the expected future path of short term rates over coming months and even years that should matter for the determination of these other asset prices, rather than the current level of short term rates by itself."

To close the model we need to build the aggregate-supply block of this economy. In line with the recent literature, this block takes the form of an "expectations-augmented Phillips-curve". The most popular story behind such a relation comes from the hypothesis that firms set prices in a staggered way. A discrete-time variant of that model was proposed by Calvo (1983). In that model every period only a fraction of firms choose prices optimally. In Calvo's original work this price would be rigid between adjacent price setting opportunities. These opportunities arise randomly. In this framework, the price setting and inflation are purely forward looking, and therefore react to expected developments of the output gap. This characteristic is at odds with the evidence described above that the effects on output lead the effects on inflation and that the inflation process is therefore characterized by a substantial degree of inertia. In the simple Calvo story the effect on inflation should precede the effect on output, when this effect on output is predictable. The model of staggered pricing can be improved in this respect. One first extension is the hypothesis that prices are set in advance, that is, the firms commit to a price for period $t$ and afterwards in period $t-d$. A second extension is to allow for a backward looking behaviour in the aggregate-supply curve. This is done by assuming that prices are automatically changed in accordance with some mechanical rule between the occasions in which firms can choose prices optimally. Firms that are not allowed to choose prices optimally can re-set previously chosen prices by last period's inflation.

$$\pi_t = \gamma\pi_{t-1} + \kappa E_{t-d}x_t + \beta E_{t-d}(\pi_{t+1} - \gamma\pi_t) + u_t \qquad (2)$$

This second equation is the so-called Phillips curve where $\gamma$ is the degree of indexation of the firms that do not choose prices and $u_t$ is a measure of a cost-push shock. The inflation dynamics implied by this curve replicate the one displayed by the data. In particular, inflation exhibits inertia and a hump-shaped response to a monetary shock.

In summary, the main frictions of the model come from some price stickiness and some real rigidity. The price stickiness is formalized as an extended Calvo price setting mechanism and the real rigidities are summarized by time to build or time to plan constraints.

(4) See Appendix for the derivation.

(5) The output gap is defined as the deviation of output from the output that would characterize an economy without frictions. This measure is not related to the usual definition of output gap (deviation from a trend).

It is easy to understand the role of monetary policy in this model. The interest rate affects the intertemporal choices, but cannot affect them contemporaneously since expenditure decisions are taken $d$ periods in advance. The channel through which monetary policy affects the inflation rate is the output gap. The output gap responds to expectations of the interest rate and the inflation rate responds to expectations of the output gap. This model, for $d \geq 1$, is consistent with the identifying assumption that there are no contemporaneous effects of monetary policy. A natural value for $d$ would be the estimated time lag between the monetary shock and the output response. Most empirical studies suggest that this lag is around two quarters.

Notice that the amount of money was not used to determine the equilibrium paths of the output gap and of the inflation rate. The equilibrium of the money market for a certain trajectory of the interest rate and the associated trajectories of prices and output, will determine the trajectory of the monetary aggregate for which it is possible to define a stable demand.

Note also that in the simplified economy represented by the aggregate demand and supply and the money demand, a monetary policy shock leads to a liquidity effect in the impact period. This occurs because, for a given demand for real money, the existence of lags and the associated zero contemporaneous effects of a change of the interest rate on output and prices, leads naturally to a negative relation between the amount of money and the interest rate.

The conduct of monetary policy takes usually into account the identified transmission lags. But the main question is the one that we have been trying to answer, that is: what are the foundations of those lags? The really important result from this model, for the purpose of this note, is that the existence of lags in the transmission of monetary policy does not come from the fact that the policy today directly affects the economy tomorrow, but rather from the fact that the policy today is an indicator of the policy tomorrow. It is this forecastable part of future policy that affects the economy tomorrow. Monetary policy has real effects through the anticipated component and these real effects lead the effects on inflation.

This seems in contrast with the common understanding that the existence of transmission lags comes from the fact that it is today's change in interest rates that *per se* affects output and inflation in the future. It is also in contrast with the idea that non-neutrality of monetary policy comes predominantly from surprises, that is from its non-anticipated component.

### 4.2. Indeterminacy

The conduct of monetary policy by most central banks, that explicitly or implicitly can be characterized as inflation targeters, is purely forward looking. That is "only factors that matter for the central bank's forecast of the future evolution of its target variables, conditional upon its current and future policy actions, play any role on the decision." (Svensson and Woodford (2002)). In practice the central bank has to forecast the path of the conditional expectations of inflation that themselves depend upon current policy. This forecast depends only upon information about exogenous disturbances and the policy action. Then the interest rate is set as a function of exogenous disturbances. Although the option for an interest rate is mainly defended to avoid that financial volatility is transmitted to equilibrium prices and quantities, it is well established in the literature, as in the seminal contribution of Sargent and Wallace (1975), that in general this is not the case. When the interest rate is set as a function of exogenous disturbances the policy leads to indeterminacy. Even if policy is imposed as an equilibrium condition where the interest rate today depends on expectations of inflation in a horizon of several quarters, it is well known in the literature that too long a forecast period leads to indeterminacy (Levin *et al.* (2001)) and that too strong a response to forecasts also leads to indeterminacy[6] (Bernanke and Woodford (1997)). As both things

(6) Suppose monetary policy is being conducted to fight against the impact on inflation of different types of shocks. If these shocks are serially correlated, the more forward looking the policy the larger should be the response of the interest rate (see Gianonni and Woodford (2002)). To be effective, policy is then characterized by large responses to something that is likely to be estimated with considerable error.

occur in the context of inflation-targeting the danger of indeterminacy could be significant.(7)

This indeterminacy is mainly driven by the difficulty of such a procedure to anchor inflation expectations. As the monetary aggregate is not controlled any expectation could in principle be accommodated, that is, it could be self-fulfilled. As can be easily confirmed in equation (1) the same interest rate can be associated with different inflation expectations which lead to different output gaps and, by equation (2), to different realized inflations.

When the interest rate policy does not follow a rule that guarantees local determinacy, as is the case when monetary policy does not react systematically to any endogenous variable, or when local determinacy can be associated with global indeterminacy,(8) the existence of "escape clauses" can help determination of equilibrium. Let us just refer two of those clauses. The first is the one referred as an hybrid rule in Svensson and Woodford (2003). The proposed rule implies that the central bank reacts when private sector expectations deviate systematically from the central bank forecasts. A strong reaction to those deviations implies a determination of equilibrium. A second clause is the one developed in Christiano and Rostagno (2001). The interest rate policy is complemented with a threat to change to a policy that controls the monetary aggregate in case the growth rate of prices (or the growth rate of the monetary aggregate) transposes a certain pre-announced interval. Woodford (2003) develops a similar argument to claim that the threat to change to a policy that controls money supply can avoid deflationary trajectories. The control of the broad aggregate (the one for which a stable relation with prices exists) is a necessary condition for the credibility of such a clause. However, in the current context of financial innovation, it is not clear how an institutional framework that would allow the control of broad monetary aggregates could be designed.

(7) See Batini and Pearlman (2002) where these results are extended for a policy rule that includes a term on the lagged interest rate.

(8) See for example Benhabib *et al.* (2001).

### 4.3. Implications

In summary, results in the recent literature suggest that the procedures followed by central banks that target the inflation rate have the following implications:

a) Because the interest rate affects inflation through the forecastable interest rate path, any change of the interest rate necessarily implies a period where the surprise is completely ineffective. Since the surprise interest rate is as high as the subsequent path, the initial volatility of the interest rate has costs and no benefits.

b) Because the interest rate is reacting to forecasts with an horizon of several quarters in the future, to be really effective the interest rate should react strongly to these forecasts. However, the longer the forecasting horizon, the more uncertain are the targeted variables and the more conservative should the central bank act. The conservative moves that we observe in the data (and subsequent patterns towards the unchanged policy) can justify the small effects of monetary policy that we initially described.

c) Because the procedure can be described as an interest rate reacting to shocks, the policy leads to indeterminacy and therefore the described responses of the endogenous variables are just one among a multiplicity of possible outcomes.

In conclusion, when the idea that monetary policy affects inflation with long lags leads to a purely forward-looking procedure, monetary policy is costly and has small and uncertain effects.

These characteristics of "inflation targeting" procedures, which are associated with decision-making under discretion are quite robust to different types of rigidities. Their drawbacks come from the fact that, as already referred, these procedures cannot affect inflation expectations due to their pure forward-looking character. Only if policy reacts to past shocks, can it bring about the desired evolution of private sector expectations. The reason is that in this case agents, by observing shocks today, can infer policy tomorrow. If policy does not have this type of "history dependence" opti-

mal outcomes cannot be reached due to the forward-looking behaviour of the private sector. In the model described above money has real effects due to nominal price rigidities and to real frictions in the decision process. However the results are robust to an economy characterized by rigidity in nominal wages. It is well documented in the literature (Woodford (2003)) that allowing for wage stickiness would not add power to the model in replicating the effects of monetary shocks on inflation and output. Stickiness of wages would create a new way through which real shocks can shift the Phillips curve but this could be replicated in the model proposed by a cost push shock.

## 5. IMPROVEMENTS IN THE CONDUCT OF MONETARY POLICY

According to the recent developments in the literature if central banks committed to a policy rule they would be able to achieve the optimal (given the objective) equilibrium. This is quite an ambitious proposal. The existence of a commitment technology is something exogenous and therefore does not belong to the set of alternatives that can be chosen by the central bank. A modest proposal would be a type of "intermediate commitment" which we believe could anyway improve the way central banks usually conduct monetary policy. We can use the analysis of the risks identified before to propose some improvements that build on the current characteristics of the conduct of monetary policy by the major central banks. First, it is important to recognize that current policy does not affect current inflation, that is, that surprises in the interest rate have no real effects. This implies that even if the central bank, when deciding period *t*'s policy, has more information than the one that was available to the private sector when it took the decisions for period *t*, that additional information should not be used. Therefore both the central bank and the private sector should have identical relevant information. This will avoid the costly and ineffective volatility in the interest rate. Second, it is also important to recognize that the policy should aim at influencing the forecastable components of inflation and that therefore the efficacy is through the forecastable component of the interest rate. This implies that efficacy could be improved if the interest rate were perfectly forecastable some periods in advance. Every period *t* the central bank, instead of fixing an interest rate for that period, would announce an interest rate for period $t+d$. If we think that *d* equal to one or two quarters is a reasonable decision lag then the interest rate should be decided for the next, or the following, quarter. In deciding on the value of the interest rate for period *t* the main forecast would be period *t*'s inflation.

The model presented in section 4 considered the existence of a sub-set of firms which updated prices with the previous period's inflation. The existence of this indexation implies that the costs of inflation come not only from the level of inflation but also from changes of the inflation rate. This latter cost arises due to the increased relative price distortion caused by the increase in inflation volatility. Since a sub-set of firms index prices by last period's inflation while the remaining update prices optimally, sudden changes in inflation have a cost in terms of resource allocation. The central bank should thus try to minimise this additional cost of inflation, by avoiding a high volatility of inflation. This implies that for a given inflation forecast for period *t* the interest rate should change less the higher the degree of indexation. In particular, the interest rate set at period $t-d$ for period *t* should react negatively to forecasts of period $t+d$ inflation. For a given inflation forecast, the change in interest rate would be smaller than in the case without indexation.

If the monetary authority committed today to an interest rate *d* periods from now, the gain would be to avoid costly changes of the interest rate with no effects, and to have a smaller reaction to the inflation forecasts. Although these results are quite robust we cannot forget that "the key stumbling block for policy-formation is limited knowledge of the way the macroeconomy works" (McCallum (1997)). Therefore also from this point of view the characteristic that policy instrument reacts less to obtain the same result seems desirable. Until now, the procedure is described as a reaction of central bank forecasts. Therefore no reaction was imposed when realized inflation, or private sector expectations, deviate in a systematic way from central banks forecasts. As mentioned above, to ensure determinacy the central bank should react to these deviations and therefore

should respond not only to its own forecasts but to the deviations between these forecasts and private sector forecasts (Svensson and Woodford (2003)).

## 6. IN SUMMARY

We can summarize the last sections as follows:

1. The recognition of lags in the transmission of monetary policy actions to inflation has to be associated with some type of lags of decision of the private sector. Given these lags, the private sector behaviour has a strong forward looking component.
2. The transmission lags should be interpreted as the private sector reacting to the forecastable behaviour of the interest rate. Surprises have no effects. A pure white noise policy would be completely ineffective.
3. The conduct of monetary policy could be improved if the central bank commits to an interest rate in the next period (or two periods from now). The setting of the interest rate for period *t* would have as main input the forecast at *t-d* of inflation of period *t*. Note that the existence of lags in the transmission does not imply a forward looking policy. This interest rate policy could be amended by a commitment to change the interest rate when private expectations deviate from central bank forecasts.

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## Appendix

### DERIVATION OF THE AGGREGATE DEMAND EQUATION

Here we will present the derivation of the aggregate demand equation

$$x_t = E_{t-d} x_{t+1} - \sigma E_{t-d}\left(i_t - \pi_{t+1} - r^n_{t+1}\right) + \chi_t$$

Let us begin by assuming $d$=0. To derive this equation we take the first order condition of the household problem in order to present and future consumption given by[9]

$$U_c\left(C_t, \xi_t\right) = ß\left(1 + i_t\right) E_t\left[\frac{U_c\left(C_{t+1}, \xi_{t+1}\right)}{\pi_{t+1}}\right]$$

where $\xi_t$ represents shocks to preferences. When we represent this Euler equation as a function of output instead of consumption we have

$$U_c(Y_t, \zeta_t) = ß\left(1 + i_t\right) E_t\left[\frac{U_c\left(Y_{t+1}, \zeta_{t+1}\right)}{\pi_{t+1}}\right] \qquad (3)$$

where $\zeta_t$ contains now not only shocks to preferences but real demand components different from private consumption. Letting government purchases be denoted by $G_t$ market clearing implies that $C_t + G_t = Y_t$. Loglinearizing equation (3) around a deterministic steady-state, and representing by $\hat{G}$ the percentual deviation from the steady state of $G$, we can write

$$\hat{Y}_t = \hat{g}_t + E_t\left[\hat{Y}_{t+1} - \hat{g}_{t+1}\right] - \sigma\left[\hat{i}_t - \hat{\pi}_{t+1}\right]$$

where $\sigma$ represents the intertemporal elasticity of substitution.

If we define the output gap as $x_t = \hat{Y}_t - \hat{Y}^n_t$ with $\hat{Y}^n_t$ being the deviation of the flexible price equilibrium output from the steady state, we can write the above equation as

$$\hat{x}_t = \hat{g}_t + E_t\left[\hat{x}_{t+1} - \hat{g}_{t+1}\right] - \hat{Y}^n_t + \hat{Y}^n_{t+1} - \sigma\left[\hat{i}_t - \hat{\pi}_{t+1}\right]$$

If we define $r^n_{t+1} \equiv \sigma^{-1}\left[\hat{g}_t - \hat{g}_{t+1} - \hat{Y}^n_t + \hat{Y}^n_{t+1}\right]$ we obtain equation (1), with $d$=0. The existence of decision delays implies that the decisions for period $t$ are taken in period $t$-$d$. In this case the household's first order condition should be written as

$$E_{t-d} U_c(C_t, \xi_t) = ß E_{t-d}\left[\left(1 + i_t\right)\frac{U_c\left(C_{t+1}, \xi_{t+1}\right)}{\pi_{t+1}}\right]$$

Using the same sequence as before we arrive at equation (1) where $\chi_t = (\hat{g}_t - \hat{Y}^n_t) - E_{t-d}(\hat{g}_t - \hat{Y}^n_t)$.

(9) This condition is a simplification since it assumes that the economy is cashless and that labour is inelastic or that preferences are additively separable between consumption and leisure.

# *Chronology of major financial policy measures*

## January*

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| · *15 January (Notice of Banco de Portugal no. 1/2003, Official Gazette no. 12, Series I - B)* | Pursuant to the provisions set forth in Article 42 - A and in Article 199-G of the Legal Framework of Credit Institutions and Financial Companies, provides for the regime to be complied with in the establishment of subsidiaries of credit institutions and financial companies in non-EC member countries. |
| · *15 January(Notice of Banco de Portugal no. 2/2003, Official Gazette no. 12, Series I - B)* | Pursuant to the provisions set forth in Article 43 - A and in paragraph 4 of Article 117 of the Legal Framework of Credit Institutions and Financial Companies, provides for the regime to be complied with in the acquisition by credit institutions of certain types of participations in other credit institutions having their head office abroad or in financial institutions. |
| · *15 January (Notice of Banco de Portugal no. 3/2003, Official Gazette no. 12, Series I - B)* | Redefines the information particulars that must be submitted together with the communications on qualifying holdings. Rewords the preamble and paragraph 1 and adds paragraph 2 - A to Notice no. 3/94, of 22 June. |
| · *15 January (Notice of Banco de Portugal no. 4/2003, Official Gazette no. 12, Series I - B)* | Taking into account the changes introduced in the Legal Framework of Credit Institutions and Financial Companies by Decree-Law no. 201/2002, of 26 September, rewords Notice no. 10/94, of 18 November (limits to "large exposures"), redefining the types of credit institutions and financial companies subject to its discipline. |
| · *15 January (Notice of Banco de Portugal no. 5/2003, Official Gazette no. 12, Series I - B)* | Pursuant to the provisions set forth in Article 113 of the Legal Framework of Credit Institutions and Financial Companies, as amended by Decree-Law no. 201/2002, of 26 September, redefines the limits on the net value of the fixed assets of credit institutions, as well as on the total value of shares or other equity capital that credit institutions may hold. |
| · *15 January (Notice of Banco de Portugal no. 6/2003, Official Gazette no. 12, Series I - B)* | Pursuant to the provisions set forth in paragraph 3 of Article 115 of the Legal Framework of Credit Institutions and Financial Companies, as amended by Decree-Law no. 201/2002, of 26 September, lays down the terms and conditions and the periodicity of the publication of accounts by institutions subject to the supervision by Banco de Portugal. This Notice shall be applicable to the publication of the 2002 fiscal year accounts. |
| · *15 January (Notice of Banco de Portugal no. 7/2003, Official Gazette no. 12, Series I - B)* | In accordance with the provisions set forth in paragraph 2 of Article 75 and in Article 195, both of the Legal Framework of Credit Institutions and Financial Companies, amends Notice no. 1/95, of 17 February, adding paragraph 4 - A, on the establishment of value dates related to debit and credit entries in demand deposit accounts, namely for the purpose of interest calculation and withdrawal of credited amounts. This Notice takes effect within 60 days as of the date of its publication. |
| · *23 January (Regulation no. 1/2003 of the Stock Market Commission, Official Gazette no. 19, Series II)* | Sets the annual rate to be paid by issuing entities to the Stock Market Commission, on account of the supervision of the periodic reporting of financial information. Adds Article 12 - A and revokes subparagraph c) of paragraph 1 of Article 10 of Regulation no. 8/2001 of the Stock Market Commission, of 28 December. |
| · *29 January (Circular Letter of Banco de Portugal no. 7/03/DSBDR)* | Makes known that the biannual report to be prepared by the institutions' external auditors, referred to in Circular Letter no. 17/2002/DSB, of 14 February, shall be submitted to the Banco de Portugal until the end of the quarter after the reference date of the report. The adoption of this procedure shall start with the information relating to 31 December 2002. |
| · *30 January (Decision of the Ministry of Finance no. 1825/2003, Official Gazette no. 25, Series II)* | Pursuant to the provisions set forth in paragraph 2 of Article 66 of Law no. 32-B/2002, of 30 December, authorizes the Public Credit Management Institute to intervene in the secondary public debt market as a party to repur- |

* The chronology for monetary measures of the Eurosystem can be found in the Monthly Bulletin of the European Central Bank.

chase operations on securities representing the direct public debt quoted in the special public debt market (MEDIP - *mercado especial de dívida pública*).

· *30 January (Circular Letter of Banco de Portugal no. 1/DMR)*

Following Circular Letter no. 347/DMR, of 27 October 1999, fixes at 2.87% the rate of return of Deposit Securities, Series B, for the quarterly interest calculation period to start on 4 February 2003.

· *31 January (Circular Letter of Banco de Portugal no. 8/03/DSBDR)*

Taking into account the provisions set forth in paragraphs 1.2 and 1.3 of the Annex to Notice no. 4/2002, makes known that the Banco de Portugal accepts that in the calculation of capital losses inherent in participations in *Sociedade Interbancária de Serviços*, SA (SIBS, Interbank Services Company), the 'presumable transaction value" shall be based on the price set by SIBS in the last outright sale of shares.

· *31 January (Circular Letter of Banco de Portugal no. 9/03/DSBDR)*

Gives some explanations on Banco de Portugal's interpretation of certain precepts contained in the Legal Framework of Credit Institutions and Financial Companies, as worded by Decree-Law no. 201/2002, of 26 September, related to the registration of the accumulation of posts (Article 33), the registration of the members of the management and auditing boards (Article 69), as well as time limits, supplementary information and certificates (Article 71).

## February

· *8 February (Notice of Banco de Portugal no. 8/2003, Official Gazette no. 33, Series I - B)*

Revises the provisioning regime of credit fallen due (according to the type of guarantee and the progressivity principle of minimum provisioning levels), rewords the concept of bad debt (according to the initial maturity of the operations, the likelihood of future default, and from a portfolio perspective) and differentiates among provisions for general credit risks, lending secured by mortgages on owner-occupied housing. Amends paragraphs 3, 4, 5 and 7 of Notice no. 3/95, of 30 June. This Notice takes effect on the last working day of the month in which it is published, save for the alterations introduced in no. 1 of paragraph 4 of the above-mentioned Notice, which takes effect six months after this date.

· *11 February (Directive 2002/87/EC of the European Parliament and of the Council, Official Journal of the European Union L03000005)*

Lays down provisions on the supplementary supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate and amending Council Directives 73/239/EEC, 79/267/EEC, 92/49/EEC, 92/96/EEC, 93/6/EEC and 93/22/EEC, and Directives 98/78/EC and 2000/12/EC of the European Parliament and of the Council. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 11 August 2004. They shall forthwith inform the Commission thereof.

· *17 February (Instruction of the Banco de Portugal no. 3/2003)*

Lays down the conditions under which excess metal coins can be deposited with the Banco de Portugal.

· *19 February (Executive Order no. 160/2003,Official Gazette no. 42, Series I - B)*

Under the provisions of paragraph 4, of Article 295 of the Commercial Companies Code, lays down that companies issuing shares listed in regulated markets under the supervision of the Stock Exchange Commission shall not be subject to the provisions set forth in paragraph 2, of article 259 of the Commercial Companies Code as regards reserves set up to the amounts mentioned in subparagraph a) of the afore-mentioned paragraph, when they are intended for the coverage of losses or negative results carried forward.

## March

· *1 March (Regulation of the Instituto de Seguros de Portugal (Portuguese Insurance Institute) no. 12/2003,Official Gazette no. 51, Series II*

Pursuant to the provisions set forth in paragraph 2, of Article 10, of Decree-Law no. 158/2002, of 2 July, lays down a set of rules related to the legal framework of savings funds set up as pension funds. Revokes paragraphs 50 to 58 of Rule no. 298/91, of 13 November.

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| · *12 March (Circular Letter of the Banco de Portugal No. 21/2003/DSB)* | Within the scope of the measures preventing money laundering, recommends that credit institutions and financial companies must examine with particular care the operations negotiated with natural or legal persons residing in some territories. Revokes Circular Letter No. 91/2002/DSB of 6 November and Circular Letter No. 5/2003/DSB of 16 January. |
| · *20 March (Circular Letter of the Banco de Portugal No. 25/03/DSBRE)* | Explains the understanding of the Directorate-General of Taxes as regards the transfer, without loss of tax benefits, of balances on housing-savings accounts to other credit institutions. |
| · *21 March (Notice of the Banco de Portugal No. 9/2003, Official Gazette No. 68, Series) I - B* | Introduces changes in Notice No. 3/95 of 30 June, adding subparagraph n), to paragraph 1.1, of paragraph 1, of paragraph 15, so as to include the Mutual Counter-guarantee Fund in the list of entities whose assets are subject to the compulsory setting of provisions for specific and general credit risks. |
| · *22 March (Regulation No. 14/2003 of the Instituto de Seguros de Portugal, Official Gazette No. 69, Series III)* | Taking into consideration the rules relating to the composition of the assets of pension funds provided for in Rule No. 21/2002 of 28 November, in Decree-Law No. 158/2002 of 2 July, in Executive order No. 1451/2002 of 11 November, and in Decree-Law No. 204/95 of 5 August, lays down the rules to be complied with by pension fund managing companies as regards the reporting of data on the composition of the assets of pension funds managed by them. Revokes Rule No. 10/99-R of 7 September, although keeping in force the data processing Instruction No. 26 annexed to it. This rule is applied for the first time to the reporting of data on the composition of the assets of pension funds as at 31 December 2002. |
| · *25 March (Circular Letter of the Banco de Portugal No. 26/03/DSBDR)* | Recommends that income declarations for purposes of housing credit must be examined with particular care, given that the Directorate-General of Taxes has drawn attention to the fact that some of them are not in accordance with those submitted at tax offices. |
| · *26 March (Regulation No. 2/2003 of the Stock Market Commission, Official Gazette No. 72, Series II)* | Amends Article 68 of Regulation No. 12/2000, so as to guarantee that financial intermediaries make available to their clients the value of operations on securities on the day on which settlement takes place. This Regulation takes effect on 1 April 2003. |
| · *27 March (Circular Letter of the Banco de Portugal No. 2/DMR )* | Makes known the new prices - effective from 1 April 2003 onwards - of services provided by SITEME, replacing the former price list annexed to Circular Letter No. 6/DMR of 10 February 2000. |

## April

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| · *1 de April (Regulation No. 3/2003 of the Stock Market Commission, Official Gazette No. 77, Series II)* | Limits the scope of the compulsory opening of individual accounts with financial intermediaries to transferable securities held by collective investment undertakings and pension funds. Rewords Article 35 of Regulation No. 14/2000 of 23 March. This Regulation takes effect on 1 April 2003. |
| · *11 April (Executive Order No. 296/2003, Official Gazette No. 86, Series I - B)* | In accordance with the provisions of paragraph 3 of Article 1 of Decree-Law No. 88/94, of 2 April, lays down that transferable securities representing the public debt, issued pursuant to the provisions set forth in the Resolution of the Council of Ministers No. 10/2003, of 28 January, shall be added to the list published through Executive Order No. 377-A/94, of 15 June. |
| · *17 April (Circular-Letter of the Banco de Portugal No. 31/03/DSBDR)* | Discloses guidelines relating to the accounting treatment of *Agrupamentos Complementares de Empresas* (Complementary Company Groupings) with links to credit institutions. |
| · *24 April (Decree-Law No. 83/2003, Official Gazette No. 96, Series I - A)* | In the use of the legislative powers granted by Law No. 25/2002, of 2 November, introduces changes in Decree-Law No. 454/91, of 28 December, granting access to all credit institutions to the data disclosed by the Banco de Portugal related to cheque risk users. |

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| · *26 April (Decree-Law No. 86/2003, Official Gazette No. 97, Series I - A)* | Establishes the general rules applicable to the intervention of the State in the definition, design, preparation, competition, award, alteration, surveillance and general monitoring of public and private partnerships. Introduces changes in Articles 1, 12 and 18 and revokes Article 4 of Decree-Law No. 185/2002, of 20 August. |
| · *30 April (Decree-Law No. 91/2003, Official Gazette No. 100, Series I - A)* | Introduces changes in the legal framework of Treasury bills. Rewords Articles 2 and 7 of Decree-Law No. 279/98, of 17 September. |

## May

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| · *3 May (Executive Order No. 530/2003, Official Gazette No. 102, Series II)* | Under the provisions of paragraph 1 of Article 173 of the Legal Framework of Credit Institutions and Financial Companies, approved by Decree-Law No. 298/92, of 31 December, introduces changes in the Regulation of the Deposit Guarantee Fund. Revokes subparagraph c), of paragraph 1 of Article 3 and rewords Articles 4, 6, 16, 17 and 19 of the said Regulation, approved by Executive Order No. 285-B/95, of 15 September. |

*Working papers*

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