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THE PORTUGUESE ECONOMY IN 2006

1. INTRODUCTION

Developments in the Portuguese economy in 2006 have been marked by the acceleration of activity underpinned by buoyant export behaviour; the virtual stabilisation of the unemployment rate; and a reduction in the external and public accounts imbalances. The start of the fiscal consolidation process, whose maintenance will be vital to ensure stable economic growth over the medium term, was a key element of economic developments. Favourable developments *vis-à-vis* 2005 represent an economic recovery that may accelerate somewhat in 2007. However, it should be noted that Gross Domestic Product (GDP) growth will be lower than in the euro area for the fifth consecutive year. Thus, the differential *vis-à-vis* the euro area average level of *per capita* income will continue to widen.

Banco de Portugal estimates presented in this issue of the *Economic Bulletin* point to a GDP increase of 1.2 per cent in 2006, after a virtual stagnation in 2005. This figure is close to that projected in the summer, but entails a significant change in the composition of expenditure. In fact, the growth projected for exports was revised upwards in line with more favourable developments in this variable than previously anticipated, in parallel with lower growth of domestic demand and hence of imports (Table 1.1).

The growth estimated for 2006 reflects an acceleration of economic activity by 0.8 percentage points (p.p.) from 2005, mainly driven by a strong expansion of exports. In this context, expectations that exports will remain buoyant until the end of the year are a fundamental assumption underlying the current

Table 1.1

MAIN ECONOMIC INDICATORS

Rate of change, per cent (unless otherwise indicated)

			***Memo*:** **EB Summer 2006**
	2005	**2006**	**2006**
GDP	0.4	1.2	1.2
Private consumption	1.7	1.1	1.3
Public consumption	1.9	-0.2	0.7
GFCF	-2.6	-3.2	-1.2
Domestic demand	0.6	0.1	0.8
Exports	1.0	9.0	8.4
Imports	1.6	4.0	5.7
Contribution to the change in GDP (p.p.)			
Domestic demand	0.7	0.1	0.9
Net exports	-0.3	1.1	0.3
Current account + capital account (percentage of GDP)	-8.1	-7.6	-9.4
HICP	2.1	3.0	2.6

Sources: *INE* and Banco de Portugal.

estimates. The volatility of external trade, which has significantly exceeded the usual levels since the beginning of the year, introduces a considerable degree of uncertainty in the current estimates.

As already apparent in the projections for 2006 published in the summer issue of the Economic Bulletin, but even more so in current estimates, the composition of growth has changed markedly *vis-à-vis* the past two years. In fact, the contribution of net exports to GDP growth will become clearly positive, while the contribution of domestic demand will be close to zero. The reduction in the contribution of domestic demand in the past two years reflects a significant deceleration in both private and public consumption, as well as a stronger fall in Gross Fixed Capital Formation (GFCF).

The performance of domestic expenditure has been conditioned by developments in monetary conditions, which have gradually become less accommodative, as well as by the need to correct the structural imbalance of public accounts, in a context of low trend growth of the Portuguese economy.

In the first nine months of the year, the European Central Bank (ECB) continued to gradually increase its key interest rates, a movement that had started in December 2005. Thus, the minimum bid rate on the main refinancing operations was set at 3.25 per cent in the beginning of October. The transmission of the rise in ECB rates to lending rates has been relatively rapid, as almost all loans are granted at floating rates, which in general are indexed to money market rates. However, transmission has not been complete, as banks' margins continued to squeeze. In addition, it should be noted that interest rates remain at historically low levels in both nominal and real terms. This, in parallel with financial innovation in the credit market, has sustained the increase in private sector indebtedness.

Turning to public sector accounts, the estimates for the cyclically adjusted primary balance point to a clearly restrictive stance of fiscal policy in the current year, predominantly relying on an increase in fiscal revenue and, to a lesser extent, on lower expenditure growth. The latter has been associated with a reduction in staff costs and investment expenditure, while pension expenditure continued to expand rapidly. The general government deficit is projected to decline to 4.6 per cent of GDP in 2006, whereas the government debt ratio will maintain an upward path, and is estimated to reach 67.4 per cent at the end of the year. In turn, in the light of the estimates currently available, the underlying balance, corresponding to the total balance adjusted for the cycle and for the impact of temporary measures, is projected to improve by 1.5 p.p. According to these figures, the European Union Council Recommendation in the context of the Stability and Growth Pact regarding the fiscal adjustment in 2006 is expected to be complied with.

The gradual rise in interest rates, the increase in the tax burden and the perception that structural measures must inevitably be adopted to ensure the correction of the public accounts imbalance are likely to have contributed to the moderation of household consumption expenditure. Despite the rise in disposable income, this moderation seems to have also been due to the perception that the improvement in labour market conditions is still incipient and to a change in nominal wages estimated at close to zero. Private consumption growth is projected to decrease from 1.7 per cent in 2005 to 1.1 per cent in 2006. Thus, unlike in recent years, the change in private consumption is not expected to be higher than that of output and that observed in the euro area. However, it should be noted that estimates for 2006 comprise an intra-annual acceleration of private consumption, which seems to be in line with the recovery in consumer confidence in the third quarter of the year. However, this pattern is magnified by the base effects related to developments in the consumption of durable goods in the course of 2005, associated with the rise in the standard VAT rate in July 2005.

In the current context, it is important to assess the impact of increasing interest rates on private consumption developments. On the one hand, the higher level of debt and the generalised indexation to money market rates increase the sensitiveness of consumers to developments in the cost of credit. On the other hand, the impact from the rise in interest rates may be mitigated by the fact that they remain

at historically low levels; besides, the banking system has continuously offered new financial products and types of contracts, which help contain debt servicing costs in the short term. In any case, it should be noted that after the adjustment of economic agents to higher consumption and indebtedness levels, following the monetary and financial integration of the Portuguese economy, solvency conditions resulting from household intertemporal budget constraints will tend to foster a moderation in the growth of private consumption in the future. Due to its nature, this phenomenon will tend to be gradually felt, but for a longer period than that typically associated with cyclical fluctuations.

GFCF is projected to decline by 3.2 per cent in 2006, raising to approximately 18 per cent the cumulative reduction over the past five years. The breakdown of GFCF by institutional sector shows that unfavourable developments have been broadly based, although their causes are rooted in different factors. Developments in housing investment reflect an adjustment to the very high level of growth in the second half of the 1990s. In turn, the need to correct the public accounts imbalance has translated into a significant reduction in general government investment. Finally, with regard to corporate investment, in addition to the uncertainty that continues to surround demand prospects, corporate decisions are also being affected by uncertainty about the impact of some structural measures, in particular as regards the fiscal consolidation process. Indeed, factors such as the predictability of the tax system and the degree of flexibility of the product and labour markets play a particularly relevant role in corporate investment decisions, namely, in a context in which the opening up of international markets requires significant sectoral reallocations in the economy. Thus, and although financing conditions are not currently an active restriction, companies may be postponing new investment decisions.

The absence of a recovery in corporate investment in parallel with an acceleration of exports conforms with the past experience of the Portuguese economy. In fact, available evidence reveals that corporate investment tends to lag export behaviour, picking up only when the signs of higher buoyancy are transmitted to domestic demand, in particular to private consumption. The existence of spare capacity or of undesirable inventory levels, as well as the fact that a significant share of corporate investment is related to investment oriented to the domestic market, may contribute to this result.

Goods and services exports have been the most buoyant component of global demand and their growth rate is expected to be close to that of external demand, in contrast with particularly unfavourable developments in the past few years. The acceleration of sales abroad in the first eight months of the year was broadly based by types of products, with the growth of intermediate and capital goods being particularly strong. Exports of fuels and some minerals recorded an exceptionally favourable behaviour, which seems to be related to bottlenecks in the global petroleum refining sector and to the rise in the international price of raw materials. The recovery in transport material exports, after a drop in 2005, is also worth highlighting. The buoyant performance of exports was supported by the acceleration of sales to the traditional markets of destination, with the rebound in euro area domestic demand playing a role in this behaviour. In particular, exports to the Spanish market strengthened their positive contribution and sales to the German market recorded a remarkable pick-up, contrasting with the particularly unfavourable trend in the past few years. In addition, exports to the United States accelerated strongly. The behaviour of exports also benefited from the strong growth of sales to less usual markets – namely Angola – but also to other destinations, such as Singapore, Mexico and Brazil.

It is difficult to measure the extent to which the favourable developments in exports correspond basically to a sustainable phenomenon, or whether they predominantly reflect a merely temporary behaviour. In particular, in 2006 relative costs in the Portuguese economy continued to increase. However, it should be noted that the traditional competitiveness indicators need to be interpreted with caution, in particular, in a scenario characterised by increasing integration of the world economy and the ongoing restructuring of the Portuguese productive sector.

Contrasting with developments in the past two years, the strong acceleration of merchandise exports and the rather subdued trend of imports in a context of virtual stagnation of domestic demand translated into a favourable volume-effect, which may allow for a reduction in the current account deficit in 2006. This favourable effect is likely to exceed the negative impact on the current account from the terms of trade loss (related to developments in the international price of oil) and the deterioration of the income deficit (resulting from a rise in the net external indebtedness of the Portuguese economy). The borrowing requirements of the Portuguese economy, as measured by the combined current and capital account deficits, remained high and may reach 7.6 per cent of GDP in 2006 (i.e. a 0.5 p.p. decline from 2005). In the first half of the year, the external deficit continued to be largely financed through funds raised abroad in euro by the resident banking system. In contrast to previous years, these funds were essentially raised through the interbank market, although the branches and subsidiaries of Portuguese banking groups continued to issue securities abroad. The larger recourse to interbank financing may be temporary, due to securitisation, which usually takes place in the second half of the year, as well as to the launch of a new instrument to obtain liquidity, the so-called mortgage bond, whose legal framework has in the meantime been concluded.

2. MAJOR INTERNATIONAL ECONOMIC DEVELOPMENTS

World economic activity and trade continued to grow at a robust pace in 2006 (Table 2.1). According to the September 2006 forecasts of the International Monetary Fund (IMF) global growth is expected to remain at around 5 per cent and world trade is projected to accelerate to around 9 per cent. In the first half of the year the pace of activity exceeded expectations in most regions and became more balanced in geographical terms, reflecting in particular the strengthening of euro area GDP. The international macroeconomic environment continued also to be marked by developments in the international price of oil, which continued to show a strong rising trend until August, having declined significantly afterwards. The increase in inflationary pressure in many countries in the course of the year was reflected in rises in the official interest rates of many central banks, including the ECB. Conditions in international financial markets remained broadly favourable, while in the foreign exchange markets the US dollar resumed a depreciation trend, namely against the euro, in a context of continued deterioration of global imbalances.

The expansion of international trade – which continues to exceed the growth of world output (Chart 2.1) – reflects a considerable rise in exports and imports in both the group of advanced economies and of emerging market economies, which have been gaining weight in international trade during the last decade. The increase in protectionist sentiment, in view of the stalemate in multilateral trade liberalisation negotiations, is a risk factor for developments in the world economy, in so far as it may lead to a rise in trade barriers.

The international prices of oil, as well as of non-energy commodities, reached rather high levels, reflecting strong world demand and limited spare capacity in global terms. Oil prices had been on a rising trend until the beginning of August, when they reached USD 78 per barrel, also as a result of deteriorating geopolitical tensions in the Middle East and risks of oil supply disturbances in some of the main producing countries. The easing of fears of oil supply disruptions, in parallel with downward revisions in demand prospects, contributed to a reversal in the rising trend of prices in the beginning of August. On 20 October OPEC announced a reduction in production quotas by an amount of 1.2 million barrels per day, effective from 1st November 2006. At the end of October, the price of Brent crude oil stood at around USD 60 per barrel, corresponding to a 3.4 per cent rise from the figure recorded at the end of 2005 (a decline of approximately 4 per cent in euros). However, oil price developments continue to be subject to significant uncertainty. Quotations in the futures market point to expectations of a rise in

Table 2.1

DEVELOPMENTS IN WORLD ECONOMY

Rate of change, per cent

	Weight in world GDP (per cent)	2004	2005	2006
GDP				
World economy	100.0	5.3	4.9	5.1
Advanced economies	52.3	3.2	2.6	3.1
US	20.1	3.9	3.2	3.4
Japan	6.4	2.3	2.6	2.7
Euro area	14.8	2.1	1.3	2.4
Germany	4.1	1.2	0.9	2.0
France	3.0	2.0	1.2	2.4
Italy	2.7	1.1	0.0	1.5
Spain	1.8	3.1	3.4	3.4
Portugal	0.3	1.1	0.4	1.2
United Kingdom	3.0	3.3	1.9	2.7
Emerging market and developing economies	47.7	7.7	7.4	7.3
Developing Asian countries	27.1	8.8	9.0	8.7
China	15.4	10.1	10.2	10.0
Latin America	7.4	5.7	4.3	4.8
Central and Eastern Europe	3.3	6.5	5.4	5.3
Commonwealth of Independent States	3.8	8.4	6.5	6.8
Africa	3.3	5.5	5.4	5.4
Middle East	2.8	5.5	5.7	5.8
Trade volume of goods and services		10.6	7.4	8.9
International commodity prices in USD				
Brent – level		38.0	55.1	67.2[(a)]
Brent		33.5	45.0	22.8[(b)]
Non-energy commodities		21.7	9.5	25.0[(c)]
Consumer prices				
Advanced economies		2.0	2.3	2.6
Emerging market and developing economies		5.6	5.3	5.2

Sources: HWWA (price of non-energy commodities), IMF, Thomson Financial Datastream (oil price). For Portugal, *INE* and Banco de Portugal.
Notes: (a) Figures up to 31 October 2006. (b) Year-on-year rate of change, figures up to 31 October 2006. (c) Year-on-year rate of change, figures up to October 2006.

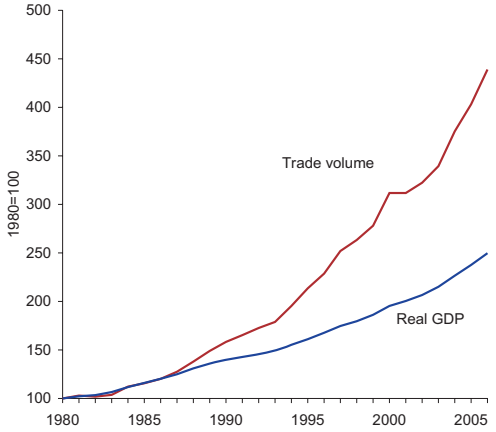
Brent crude oil prices until the end of 2007 to around USD 67 per barrel (Chart 2.2). In addition, information extracted from option prices reveals that the markets continue to consider that there are upside risks to the prices currently incorporated into the futures contracts (Chart 2.3). The prices of some non-energy commodities, whose share in world trade exceeds that of energy,[1] have increased strongly over the past few years, particularly the price of metals. It should be noted that in the past five years, the rise in metal prices was even more marked than in energy prices. Between the end of 2005 and October 2006, the US dollar price of non-ferrous metal increased by around 60 per cent (approximately 50 per cent in euros), with significant rises in the prices of copper, zinc and nickel (Chart 2.4).

A potential disorderly correction of global macroeconomic imbalances remains an important risk to world economic developments, even though the most likely scenario seems to be that of a gradual adjustment. In 2006 the current accounts of several Asian economies, in particular China, continued to record large surpluses and international oil price developments contributed to a further rise in the cur-

(1) However, the weight of energy commodities in imports of raw materials by OECD countries is close to 70 per cent.

Chart 2.1

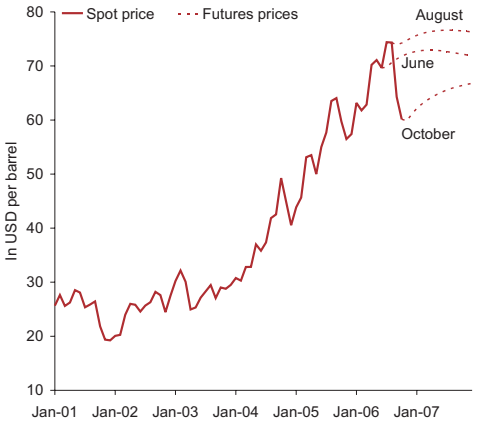
WORLD TRADE AND GDP



Source: IMF.

Chart 2.2

INTERNATIONAL OIL PRICE (BRENT)

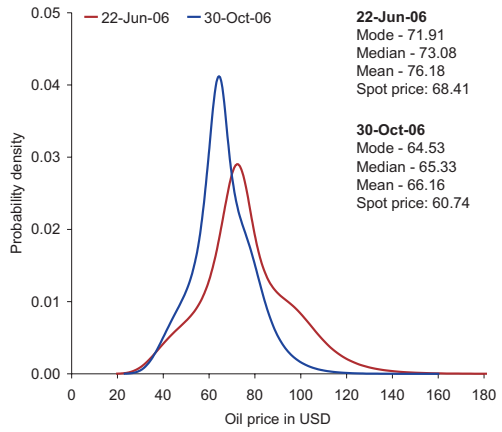


Sources: Bloomberg, Thomson Financial Datastream and calculations of Banco de Portugal.

Chart 2.3

EXPECTATIONS FOR THE PRICE OF BRENT EXTRACTED FROM OPTIONS ON FUTURES CONTRACTS

Contract maturing in June 2007

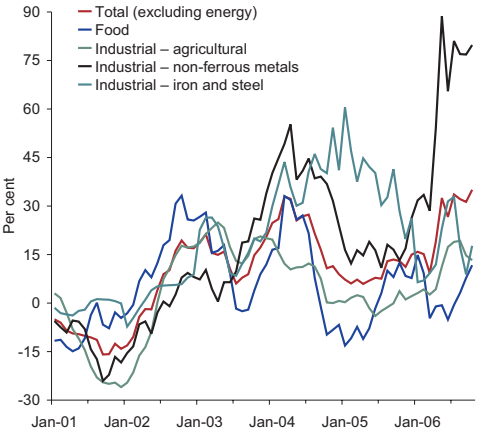


Sources: Bloomberg and calculations of Banco de Portugal.

Chart 2.4

INTERNATIONAL PRICE OF NON-ENERGY COMMODITIES IN USD

Year-on-year rate of change

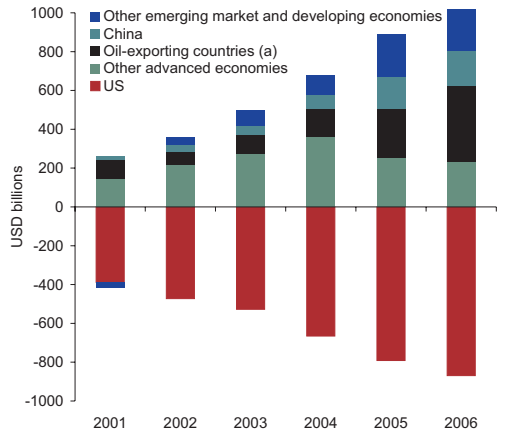


Source: HWWA.

rent account surplus of oil exporting countries. By contrast, the current accounts of oil importing countries, including Portugal, have been negatively affected by the loss in terms of trade (Chart 2.5). The US current account continued to post a significant deficit, which is likely to reach 6.6 per cent of GDP in 2006. Turning to the financing of this deficit, in the first half of the current year financial inflows of private entities were somewhat lower, while financial inflows of official external entities were higher. These flows continued to reflect the investment of international reserves accumulated by several central banks of Asian and oil-exporting countries in the acquisition of US Treasury securities, in the context of the management of their exchange rate policies.

Chart 2.5

CURRENT ACCOUNT



Source: IMF.
Note: (a) Includes: Algeria, Angola, Azerbaijan, Bahrain, Brunei, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Iran, Kazakhstan, Kuwait, Libya, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, Sudan, Syria, Trinidad and Tobago, Turkmenistan, United Arab Emirates, Venezuela and Yemen.

The US economy is likely to grow 3.4 per cent in 2006, which is close to the growth pace observed in the previous year. After particularly strong growth in the first three months of the year, GDP slowed in the second and third quarters, largely as a result of lower domestic demand growth. Residential private GFCF slowed down significantly. Private consumption also decelerated after strong growth in the first months of the year, in a context of higher interest rates, high energy prices, modest employment growth and slowdown in housing prices. Recent data show that a cooling trend persists in the housing market, in terms of both the number of dwellings sold and their prices. A potential more abrupt slowdown in this market, with an impact on both private consumption and residential investment, may bring about a more marked moderation of the growth pace of US output, affecting global economic developments (Chart 2.6).

In Japan GDP growth is expected to stand at 2.7 per cent in 2006, i.e. close to that recorded in 2005. In the first quarter of the year, GDP increased strongly, having decelerated afterwards, partly due to a rather marked fall in public GFCF. Despite a moderation in its growth pace, the expansion of the Japanese economy remains sound, mainly underpinned by domestic demand. With regard to other Asian countries, emerging market economies continued to grow strongly in 2006, particularly China, whose growth is estimated to be again around 10 per cent, chiefly as a result of the continued buoyancy of exports and investment.

Economic activity in the euro area is projected to accelerate from 1.3 to 2.4 per cent in 2006, largely reflecting the strengthening of domestic demand, particularly investment (Chart 2.7). In the first two quarters of the year GDP growth was strong and higher than expected, with quarter-on-quarter rates of change standing at 0.8 and 0.9 per cent in the first and second quarters, respectively. Activity also became more broadly based across expenditure components. Domestic demand strengthened, in particular GFCF, which accelerated in the first half-year. In turn, consumer expenditure increased at a strong pace in the first quarter of the year, followed by a moderation in the second quarter, against a backdrop of improved labour market situation and confidence levels close to the average of the last ten years. The robust growth of world demand impacted favourably on euro area exports, even if these moderated somewhat in the second quarter of the year. A similar pattern was recorded by imports. External

Chart 2.6

US HOUSING MARKET

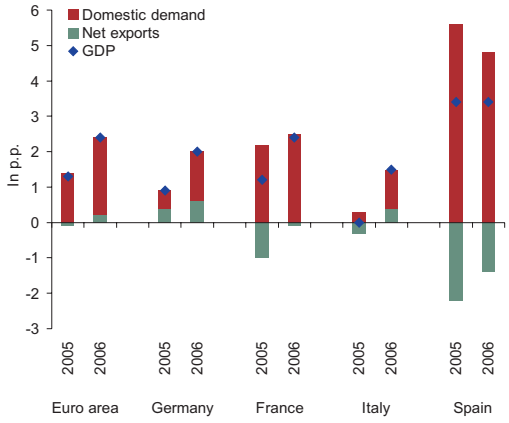
House sales

House prices, year-on-year rate of change

Sources: Department of Commerce – Bureau of Census and Thomson Financial Datastream.

Chart 2.7

EURO AREA – CONTRIBUTIONS TO GDP GROWTH



Source: IMF.

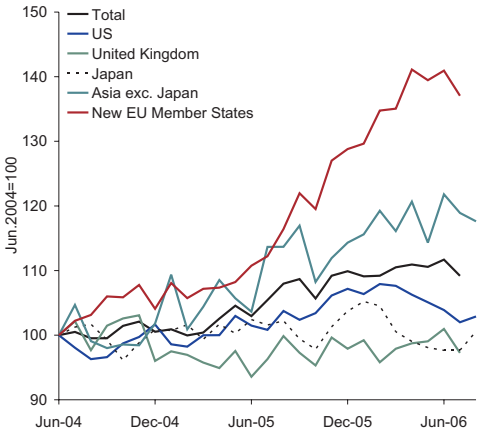
trade data continue to show strong growth of exports to the new European Union Member States and, to a lesser extent, to the emerging market and developing economies of Asia. In parallel, the weight of these economies in euro area imports continued to increase (Chart 2.8).

The strengthening of activity in 2006 was broadly based across euro area countries, including Portugal, although the pace of expansion of GDP continued to be differentiated. The strongest growth continued to be recorded by some of the smallest economies, such as Ireland and Luxembourg. In turn, the Portuguese and the Italian economies continued to record the lowest growth among euro area countries. Turning to the main trading partners of Portugal, the growth of the Spanish economy will be again close to 3.5 per cent in 2006, while in Germany and France activity will accelerate significantly to 2.0 and 2.4 per cent respectively. GDP growth in these three economies has been largely supported by domestic demand, leading to an expansion of imports that in Spain and Germany contributed significantly to the growth of external demand for the Portuguese economy in 2006 (see Section 4, "*Expendi-*

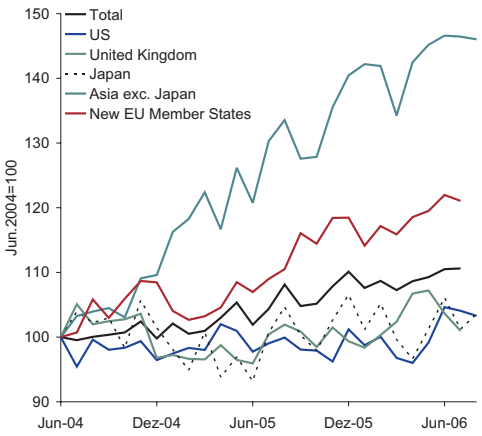
Chart 2.8

EURO AREA – VOLUME OF IMPORTS AND EXPORTS OF GOODS

Extra-euro area exports broken down by country of destination



Extra-euro area imports broken down by country of origin

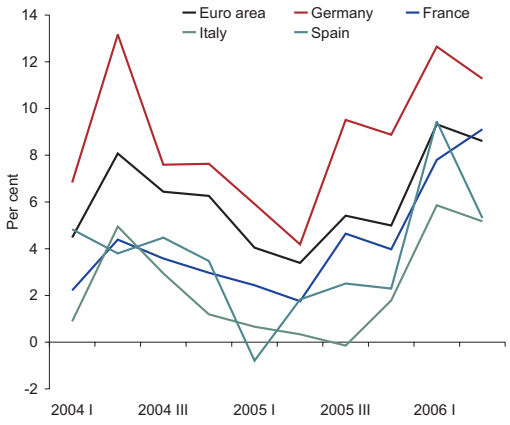


Source: Eurostat.

Chart 2.9

EURO AREA COUNTRIES – VOLUME OF EXPORTS OF GOODS AND SERVICES

Year-on-year rate of change

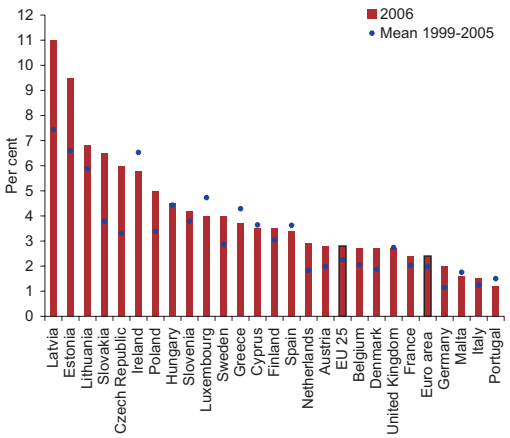


Source: Eurostat.

Chart 2.10

GROSS DOMESTIC PRODUCT IN EUROPEAN UNION COUNTRIES

Real rate of change



Source: IMF.

ture"). Exports also accelerated, including in countries such as Italy, Spain and France, which had recorded low export growth in 2005 (Chart 2.9).

In the other EU Member States, activity has generally continued to expand faster than in the euro area (Chart 2.10). In the United Kingdom, GDP growth is likely to increase to 2.7 per cent in 2006, i.e. close to the average growth of the last 25 years. Activity has been supported by the behaviour of domestic demand, namely of private consumption. Exports and imports of goods and services recorded high

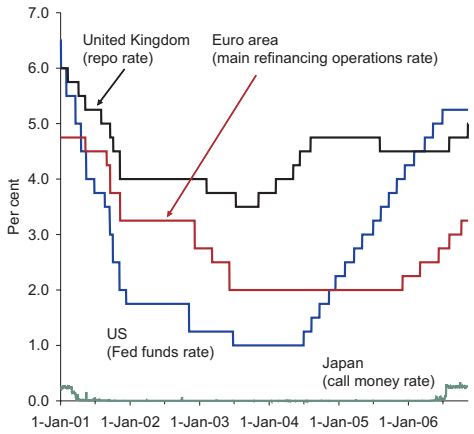
growth rates.[2] In the remaining EU countries growth has generally remained sustained throughout 2006, despite the persistence of significant heterogeneity. Growth is expected to be higher – above 6 per cent – in the Baltic States as a whole and only in Malta is the change in GDP projected to be lower than the EU average. With regard to the larger economies, activity in Poland and Hungary accelerated to 5.0 and 4.5 per cent, respectively. In the majority of the new Member States, activity growth in 2006 seems to be supported by robust domestic demand, with significant rises in both exports and imports of goods and services.

In the past few years, notwithstanding the very sharp rise in the international price of oil and other commodities, increased global competition and the contribution of monetary policies to the stabilisation of inflation expectations contained the pace of consumer prices, particularly through the impact on the prices of tradable goods and services and on wage decisions in the labour markets. However, the continued buoyancy of world demand and the progressive reduction in spare capacity have added to inflationary pressures at the global level. Therefore, in the group of the advanced economies, inflation is likely to increase further in 2006, reaching to 2.6 per cent (2.3 per cent in 2005). Underlying inflation, which excludes the most volatile components, is also expected to increase in some economies, in particular in the United States. In the euro area, inflation in the first eight months of the year remained above the level considered by the ECB to be consistent with price stability over the medium term. In September the year-on-year change in consumer prices declined significantly to 1.7 per cent, largely reflecting developments in the international price of oil.[3] Excluding energy and unprocessed food prices, inflation in the euro area has remained subdued, at around 1.5 per cent.

In this context, the central banks of several advanced economies raised their official interest rates in the course of 2006 (Chart 2.11). The US Federal Reserve continued to raise the Fed funds rate by 25 basis points (b.p.) in all its Board meetings until June, by a total of 100 b.p. Subsequently, given the signs of economic slowdown, against a background of moderation in the housing market, the US monetary authority kept its official interest rate unchanged at 5.25 per cent. In the euro area, the Governing

Chart 2.11

OFFICIAL INTEREST RATES



Sources: Bloomberg and ECB.

(2) From the perspective of the analysis of the external demand for the Portuguese economy, it should be noted that the UK overseas trade statistics continued to be affected by the VAT fraud, which is introducing an upward bias in the growth of these flows. According to the UK overseas trade statistics, in the first half of the year the volume of goods imports recorded a chain growth of 13.1 per cent and that of goods exports of 14.3 per cent. Excluding the effect of the VAT fraud, chain changes in imports and exports stood at 5.8 and 4.9 per cent, respectively.

(3) According to the preliminary estimate of Eurostat, the year-on-year change in the HICP stood at 1.6 per cent in October.

Council of the ECB also raised its key interest rate on four occasions by a total of 100 b.p., with the minimum bid rate on the main refinancing operations being set at 3.25 per cent in October. In the United Kingdom, expectations that inflation would remain above the 2 per cent target for some while, in parallel with firm economic growth, limited spare capacity and rapid growth of broad money and credit, led the Monetary Policy Committee of the Bank of England to raise its official Bank rate by 25 b.p. in August and again in the beginning of November, to 5.0 per cent. In Japan, due to the consolidation of the signs that the goal of overcoming deflation was being achieved, in mid-July the Bank of Japan raised its official interest rate by 25 b.p., after keeping it unchanged at zero since 2001.

At the fiscal level, no significant progress was recorded in the correction of the public sector imbalances of the main advanced economies. According to the IMF projections, cyclically adjusted deficits are expected to record minor reductions in the United States and in the euro area, standing respectively at 3.1 and 1.7 per cent of potential GDP. In the United Kingdom and Japan, the structural deficit is not likely to suffer major changes from 2005, remaining at levels close to 3 and 5 per cent of potential GDP respectively.

Financial market conditions continued to be broadly favourable in the first ten months of the year, despite a short-lived period of instability in May and June that affected mainly the stock markets. Until October and compared with end-2005, the main stock markets recorded valuations (except for the Nikkei index in Japan); long-term interest rates increased somewhat, but remained at low levels; the yield spreads of the sovereign debt in emerging markets continued to narrow and volatility remained low (Table 2.2).

In the first months of 2006, the main stock markets continued to show a valuation trend. Between mid-May and mid-June, there was a reversal in this trend, which affected in particular some emerging markets and seems to have been associated with a re-evaluation by investors of the pace of increase of the official interest rates of the main central banks in a context of rising inflationary pressures. Subsequently, the stock markets of both developed and emerging market economies recorded further gains, in general, recovering the losses accumulated in May/June (Chart 2.12). Likewise, the rise in stock market implied volatility in this period was not sustained.

In bond markets, long-term interest rates followed an upward trend in the first half of the year, which according to data extracted from inflation-indexed bonds, translated the rise in real interest rates. In the period of stock market correction long-term interest rates fell reflecting stronger preference for less risky assets. In the second half of the year, the upward trend in long-term interest rates was reversed. Given prospects of a slowdown in the world economy and in particular in the United States, real interest rates declined both in the euro area and in the United States. In the latter, inflation expectations also eased. At the end of October, 10-year interest rates stood at around 4.6 per cent in the United States and 3.8 per cent in the euro area, i.e. approximately 70 b.p. higher than the minimum levels reached in the course of 2005. Taking into account expectations about long-term developments in inflation and the real growth of these economies, long-term interest rates remained at low levels, in particular, in the case of the US economy (Chart 2.13). Yield spreads between private and public sector bonds widened somewhat in the course of the year both in the United States and in the euro area, nearing the average figures recorded between 1999 and 2006. In turn, yield spreads of sovereign debt issuers in emerging market economies remained at particularly low levels, which may partly reflect an improvement in fundamentals over the past few years.

In the foreign exchange market the US dollar has depreciated against the major currencies and, albeit to a lesser extent, also against the currencies of emerging market economies, which recorded some losses during the period of instability in the middle of the year. Since the announcement by the Chinese authorities of the abandonment of the peg to the US dollar and the adoption of a managed floating re-

Table 2.2

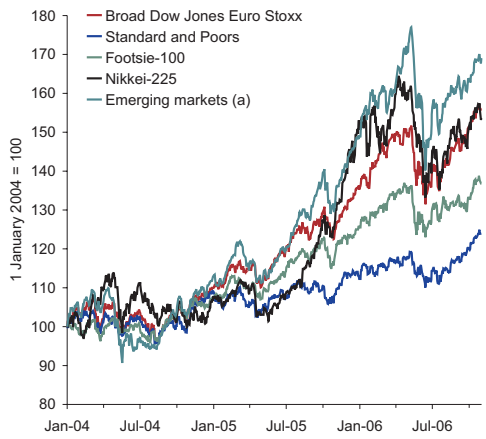
INTERNATIONAL FINANCIAL MARKETS

	Averages			End-of-period		
	2004	2005	2006[a]	2004	2005	2006[a]
Stock price indices (percentage change)						
S&P 500	17.1	6.8	7.1	9.0	3.0	10.4
Nasdaq	20.6	5.7	6.4	8.6	1.4	7.3
Nikkei 225	20.1	11.1	29.1	7.6	40.2	1.8
FTSE 100	11.6	14.1	13.8	7.5	16.7	9.1
Dow Jones Euro Stoxx	17.8	17.0	19.6	10.0	23.0	15.3
10-year interest rates – public debt (per cent)						
US	4.3	4.3	4.8	4.2	4.4	4.6
Japan	1.5	1.4	1.8	1.4	1.5	1.7
United Kingdom	4.9	4.4	4.5	4.5	4.1	4.5
Euro area	4.1	3.4	3.9	3.7	3.4	3.8
Differentials between private and public debt bond yields (with a maturity of 7 and 10 years) (basis points)						
US						
AA	13.1	24.1	48.0	19.7	40.0	59.8
BBB	72.8	76.1	99.2	58.2	98.5	118.2
Euro area						
AA	32.6	27.9	33.9	32.7	29.2	35.7
BBB	83.9	98.2	125.9	71.5	122.5	119.9
Emerging market debt spreads (basis points)						
EMBI+	437.2	316.7	202.1	356.0	245.0	194.0
Nominal effective exchange rates (percentage change)						
US dollar	-4.6	-2.5	-1.6	-4.5	3.5	-4.0
Japanese yen	3.7	-3.2	-6.7	0.7	-10.4	-3.6
Pound sterling	5.0	-1.6	0.0	1.6	-2.3	5.2
Euro	4.0	-0.9	0.2	2.1	-7.1	3.1
Memo:						
EUR/USD exchange rate [b]	10.0	0.0	0.2	7.8	-13.4	7.6

Sources: BIS (Japanese yen and pound sterling effective exchange rate and euro area 10-year interest rate), Bloomberg, ECB (euro effective exchange rate and EUR/USD exchange rate), Federal Reserve Board (USD effective exchange rate) and JPMorgan (EMBI+).
Notes: (a) Figures up to 31 October 2006. (b) A positive change corresponds to an appreciation of the euro.

Chart 2.12

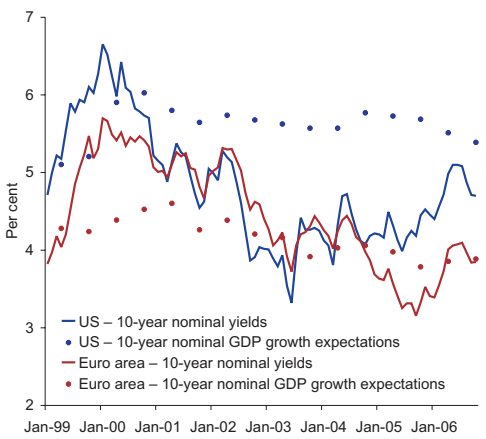
STOCK MARKETS



Sources: Bloomberg and Thomson Financial Datastream.
Note: (a) Morgan Stanley Capital International index including: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Jordan, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey.

Chart 2.13

LONG-TERM YIELD AND GDP GROWTH EXPECTATIONS



Sources: Bloomberg,Consensus Economics and ECB.

gime in mid-2005, the flexibility of the renminbi against the US currency has been limited (from end-2005 till the end of October 2006, the renminbi appreciated by 2.4 per cent against the dollar). The euro recorded a nominal effective appreciation of around 3 per cent between end-2005 and the end of October 2006, partially reverting the depreciation observed during 2005 (7.1 per cent from end-2004 to end-2005). Considering the euro area's main trading partners, the euro appreciated against the dollar, the yen and, to a lesser extent the Swiss franc, and depreciated against the pound sterling.

3. MACROECONOMIC POLICIES

3.1. Monetary policy of the ECB and monetary and financial conditions of the Portuguese economy

Monetary policy of the ECB

As mentioned in the previous section, during the first ten months of 2006 the ECB continued to gradually remove the accommodative stance of monetary policy in the euro area. After the rise in December 2005, the ECB increased again its key interest rates by 25 b.p. in March, June, August and October, bringing the minimum bid rate on the main refinancing operations to 3.25 per cent (Table 3.1).

The interest rate hike reflected the evaluation by the Governing Council of risks to price stability over the medium-term against the background of a noticeable and higher-than-expected increase in economic activity. In view of the low levels of the key interest rates in both nominal and real terms and of the high pace of growth of money and credit, the ECB adopted a vigilant stance so as to ensure that inflation expectations would remain firmly anchored at levels consistent with price stability (Chart 3.1). As underlined by the Governing Council, and in spite of the increase in the key rates, monetary policy in the euro area continues to be accommodative. In this context, market expectations incorporate a further interest rate rise of approximately 25 b.p. until the end of the year (Chart 3.2).

Table 3.1

KEY ECB INTEREST RATES

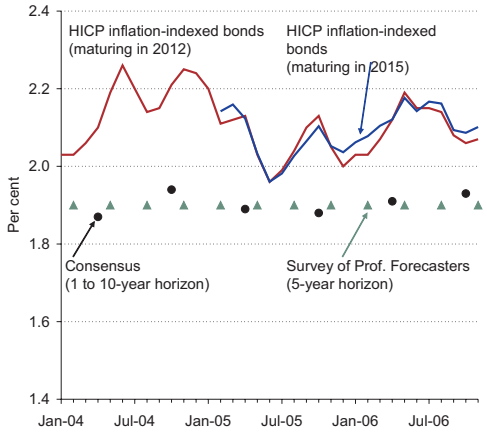
Per cent

Date of the decision	Deposit facility	Main refinancing operations	Marginal lending facility
5 Oct. 2000	3.75	4.75	5.75
10 May 2001	3.50	4.50	5.50
30 Aug. 2001	3.25	4.25	5.25
17 Sep. 2001	2.75	3.75	4.75
8 Nov. 2001	2.25	3.25	4.25
5 Dec. 2002	1.75	2.75	3.75
6 Mar. 2003	1.50	2.50	3.50
5 Jun. 2003	1.00	2.00	3.00
1 Dec. 2005	1.25	2.25	3.25
2 Mar. 2006	1.50	2.50	3.50
8 Jun. 2006	1.75	2.75	3.75
3 Aug. 2006	2.00	3.00	4.00
5 Oct. 2006	2.25	3.25	4.25

Source: ECB.

Chart 3.1

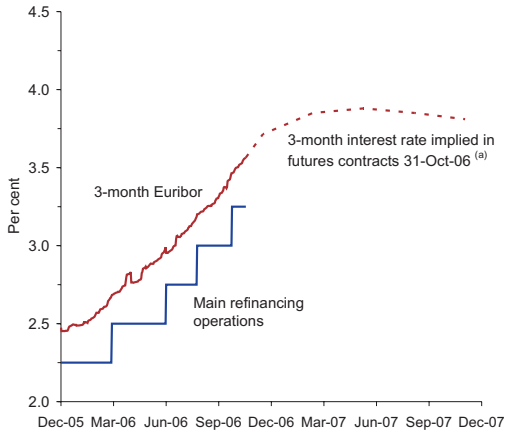
EURO AREA – LONG-TERM INFLATION EXPECTATIONS



Sources: Bloomberg, Consensus Economics and ECB.

Chart 3.2

EURO AREA – SHORT-TERM INTEREST RATES



Sources: Bloomberg and Banco de Portugal.
Note: (a) The abcissa axis indicates the delivery dates.

The persistence of low short- and long-term interest rates sustained the continued high growth of credit. In particular, and as regards loans to the private sector, it is worth mentioning the strong increase in loans for house purchase, which has nonetheless moderated somewhat as of mid-year. According to the euro area bank lending survey, demand for loans for house purchase by households declined in the third quarter for the first time since early 2005. In turn, loans to non-financial corporations accelerated from 8.3 per cent at the end of 2005 to 12.7 per cent in September. Against the background of favourable financing costs, this trend reflects the increasing need for funds to finance investment, as well as merger and acquisition activity in the euro area. In effect, and still according to the results of the bank lending survey for the euro area, these factors continued to be singled out by non-financial corporations as contributing to the increase in demand for credit. The conditions for granting loans to enterprises remained virtually unchanged in the second and third quarters, after a trend towards some easing in late 2005 / early 2006, whereas demand for credit by enterprises continued to increase in the first three quarters of the year.

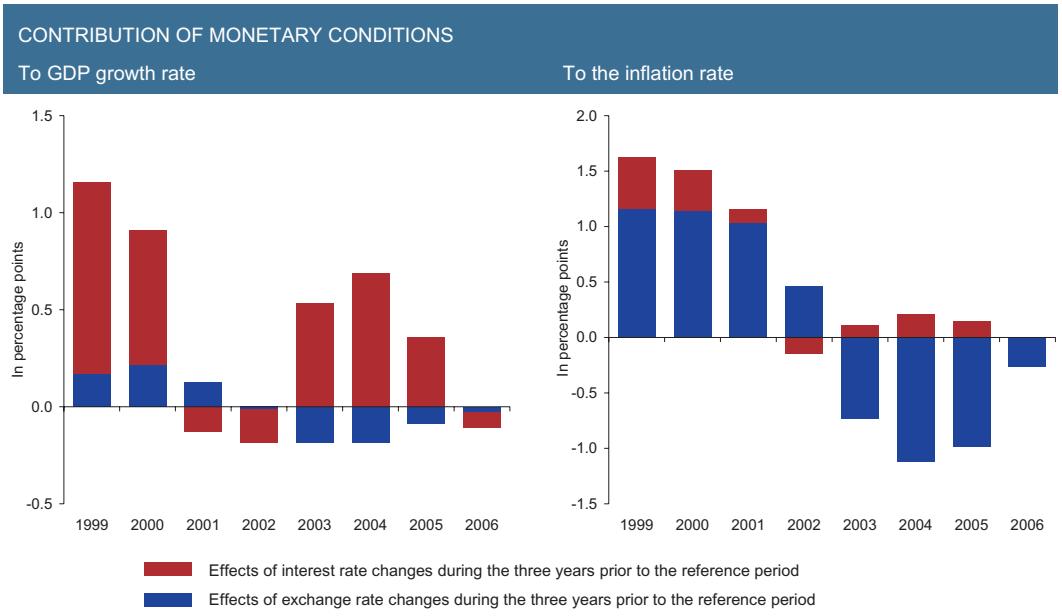
Monetary and financial conditions of the Portuguese economy

The gradual increase of interest rates since the last months of 2005, in parallel with the accumulated appreciation of the effective exchange rate index for Portugal, had a moderately negative impact on GDP growth in 2006. The monetary conditions prevailing over recent years have also been behind the decline in inflation, although less significantly than in previous years (Chart 3.3).

The end of the relatively long period of interest rate stability in euro area monetary policy operations affected the behaviour of interest rates applied by Portuguese banks in 2006 (Table 3.2 and Chart 3.4). Given that most loans granted by the Portuguese banking system are agreed at variable interest rates, usually indexed to money market interest rates, the transmission of changes in key ECB interest rates to the rates on outstanding amounts of loans and deposits has been relatively rapid. Therefore, the interest rates on outstanding amounts have also started to increase in late 2005, with changes similar to those observed for the interest rates on new loans and time deposits. The increase in money market interest rates, however, has not fully passed through to interest rates on credit, since the interest rate margins applied by banks continued to narrow (chiefly in loans to households for house purchase and

Chart 3.3

CONTRIBUTION OF MONETARY CONDITIONS



Source: Banco de Portugal.
Note: For further details on this indicator, see Esteves P. (2003), "Monetary conditions index for Portugal", *Economic Bulletin,* June, Banco de Portugal.

to non-financial corporations), maintaining the trend observed in previous years. This tightening of the interest rate margins on credit is associated with competitive pressures in the financial sector, as suggested by the results of the bank lending survey (Chart 3.5).[4,5]

Long-term Portuguese bond yields increased slightly in 2006, chiefly in the first half of the year (Chart 3.6). After mid-year, the upward trend of long-term yields was discontinued, mainly on account of the consolidation of expectations regarding a slowdown in the pace of growth of world economy *vis-à-vis* developments in previous quarters (particularly for the US economy). Overall, Portuguese government debt yields followed the trend observed in other euro area countries. The spread between the Portuguese and German government long-term yields has thus remained at levels close to those observed since mid-2005, in spite of a slight increase in June and July. The interest-rate spread *vis-à-vis* the German government debt stands currently close to 15 b.p., corresponding to an increase of approximately 10 b.p. from the minimum levels observed in early 2005.

In the first ten months of 2006, the PSI-Geral index evolved favourably, increasing by approximately 25 per cent since the end of the previous year. Its valuation was higher than that of the Dow Jones Euro Stoxx index in the same period. Growth in the Portuguese stock market index was particularly strong in the first quarter, partly reflecting the announcement of the takeover bids on *Portugal Telecom* and on *Banco Português de Investimento* in February and March 2006, respectively. In the second quarter, the Portuguese index was affected by the disturbances in international financial markets in late spring. However, the losses observed in this period had been fully reversed by the end of August. In the subsequent months, the PSI-Geral continued to show significant valuation. The positive behaviour of the Portuguese stock market was broadly based, with the main contributions coming from the financial, manufacturing, energy and telecommunications sectors. Only the technology sector had a negative change in the period under review.

(4) The results of the Bank Lending Survey are disclosed on the website of Banco de Portugal, on www.bportugal.pt and are reviewed in the text "The banking system in the first half of 2006" in this *Economic Bulletin*.

(5) The development of the interest rate margins is reviewed in more detail in "Section 4 *Profitability*" of the article " The banking system in the first half of 2006" in this *Economic Bulletin*.

Table 3.2

MONETARY AND FINANCIAL CONDITIONS OF THE PORTUGUESE ECONOMY

Period averages

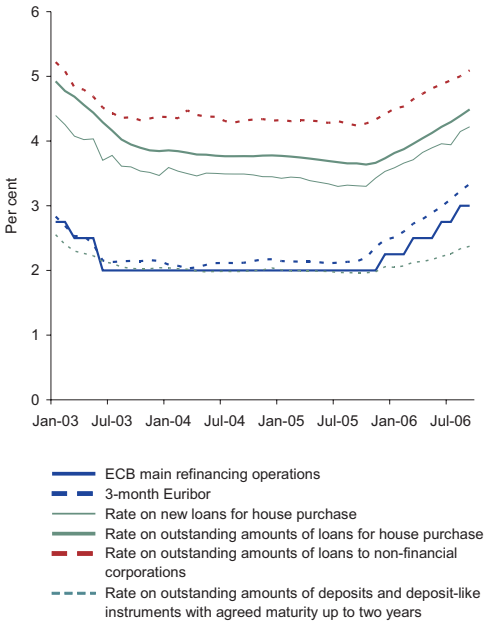
	2004	2005	2005				2006			
			I	II	III	IV	I	II	III	October
Interest rates - In percentage										
3-month Euribor	2.1	2.2	2.1	2.1	2.1	2.3	2.6	2.9	3.2	3.5
10-year Treasury bond yield	4.1	3.4	3.6	3.3	3.3	3.5	3.6	4.1	4.0	4.0
Interest rates on outstanding amounts of bank loans										
Non-financial corporations	4.4	4.3	4.3	4.3	4.3	4.3	4.6	4.8	5.0	
Households for house purchase	3.8	3.7	3.8	3.7	3.7	3.7	3.9	4.1	4.4	
Households for consumption and other purposes	7.8	7.7	7.7	7.7	7.6	7.7	7.8	7.9	8.2	
Interest rate on new bank loans for house purchase	3.5	3.4	3.4	3.4	3.3	3.4	3.7	3.9	4.1	
Stock exchange										
PSI-Geral index (percentage change against the preceding comparable period)	27.5	11.3	5.5	-1.1	1.6	6.2	13.7	7.0	1.5	3.4
Exchange rate										
EUR/USD exchange rate	1.24	1.24	1.31	1.26	1.22	1.19	1.20	1.26	1.27	1.26
Percentage change against the preceding comparable period[a]	9.9	0.1	1.1	-3.9	-3.2	-2.5	1.1	4.5	1.4	-0.9
Nominal effective exchange rate index [b]	100.9	100.8	101.3	100.8	100.6	100.4	100.5	101.0	101.1	101.0
Percentage change against the preceding comparable period[a]	0.6	-0.2	0.0	-0.5	-0.2	-0.2	0.1	0.4	0.1	-0.1
Loans granted by resident financial institutions (annual growth rate)[c]										
Non-financial private sector	6.6	7.7	6.0	6.8	7.8	7.7	8.6	8.3		
Households	9.8	10.1	9.3	9.3	9.9	10.1	10.6	10.3		
For house purchase	10.5	11.1	10.7	10.9	11.1	11.1	11.2	10.8		
For consumption and other purposes	7.5	6.7	5.1	4.2	5.8	6.8	8.7	8.5		
Non-financial corporations	3.2	4.8	2.3	4.0	5.3	4.8	6.0	5.8		
Memo:										
HICP - Year-on-year rate of change	2.5	2.1	2.1	1.5	2.4	2.5	3.2	3.6	2.9	

Sources: ECB, Euronext Lisboa, *INE*, Reuters and Banco de Portugal.

Notes: (a) A positive change corresponds to an appreciation of the euro against the US dollar or of the effective exchange-rate index. (b) Calculations against a group of 22 trading partners. For a detailed description of the methodology, see Gouveia, A. C. and Coimbra, C. (2004), "New effective exchange rate index for the Portuguese economy", *Economic Bulletin*, December, Banco de Portugal. (c) Loans granted by resident financial institutions adjusted for securitisation operations conducted by non-resident vehicle corporations. The resident financial institutions aggregate includes other resident monetary financial institutions and other credit institutions included in the other resident financial intermediaries and auxiliaries sector.

Chart 3.4

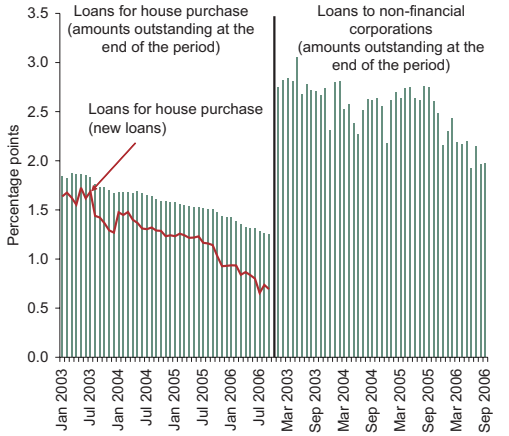
KEY ECB INTEREST RATES, MONEY MARKET RATES AND BANK INTEREST RATES



Sources: ECB and Banco de Portugal.

Chart 3.5

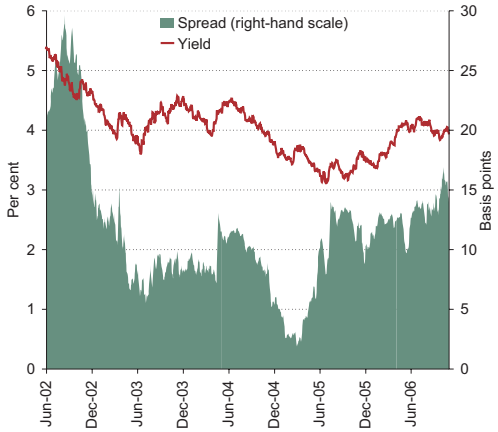
INTEREST MARGINS ON LENDING RATES



Sources: ECB and Banco de Portugal.
Note: The interest margin implied in amounts outstanding is calculated as the difference between the interest rate on amounts outstanding and the 6-month moving average of 6-month Euribor. In the case of new loans, the interest margin is the difference between the interest rate on new loans and 6-month Euribor.

Chart 3.6

YIELDS OF THE PORTUGUESE GOVERNMENT DEBT AND SPREAD VIS-À-VIS GERMAN GOVERNMENT DEBT



Sources: Reuters and Banco de Portugal.
Note: Yields obtained at close of business. The spread was calculated by interpolating the German yield curve, so as to ensure that the yield of the Portuguese 10-year benchmark bond is compared to a German yield of a comparable maturity. The calculation of the spread was based on 5-day moving averages.

Data available for the first half of the year point to a deceleration of total indebtedness of non-financial corporations. This trend is chiefly the result of less recourse to financing via securities, since loans granted by resident financial institutions[6] accelerated significantly in the first six months of the year, maintaining the recovery trend started in mid-2005 (Chart 3.7).

The acceleration of loans to non-financial corporations has mainly reflected the buoyancy of loans to corporations in services (with focus on loans to the "services provided mainly to corporations" sector, which includes holding companies of some economic groups, as well as loans to real-estate corporations) (Table 3.3). According to the results of the bank lending survey, demand for loans by Portuguese corporations has been chiefly associated with debt restructuring processes, the financing of mergers, acquisitions and other corporate restructuring processes, and, to a lesser extent, the financing of inventories and working capital needs. In turn, in contrast with the euro area, investment, which continued to decline in 2006, has not contributed to sustain demand for loans by non-financial corporations.

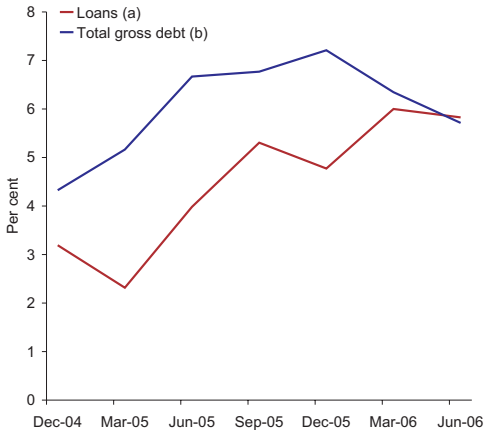
The financing of non-financial corporations in the capital market stood below the levels observed in previous semesters (Chart 3.8). In effect, net issues of listed corporate shares and commercial paper assumed values close to zero, whereas net issues of bonds accounted for only around 12 per cent of financing flows of non-financial corporations in the first half of 2006. Therefore, financing in the capital market was significantly replaced by bank loans.

Household indebtedness continued to increase in the first half of 2006 at a rate slightly above that recorded at the end of 2005 (Chart 3.9). The rate of change of loans to households for house purchase

Chart 3.7

CREDIT GRANTED TO NON-FINANCIAL CORPORATIONS

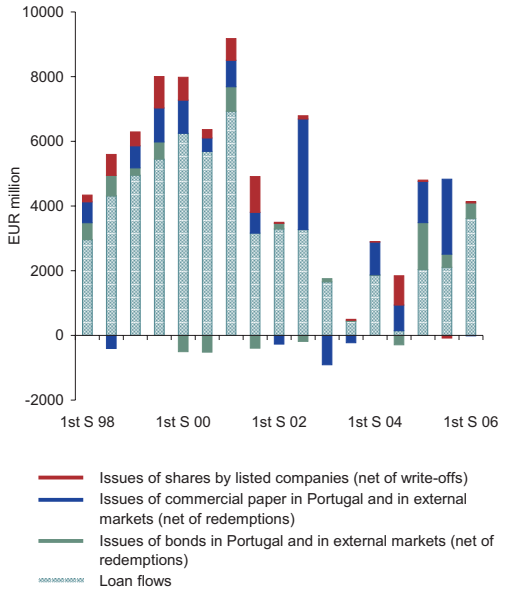
Annual rate of change



Source: Banco de Portugal.
Notes: (a) Includes loans granted by resident financial institutions adjusted for securitisation operations with the intervention of a non-resident financial vehicle. (b) The debt concept underlying this rate of change includes loans to non-financial corporations (excluding foreign direct investment in corporations having their head-office in Madeira and Santa Maria off-shores), securities other than shares and trade credits.

Chart 3.8

FINANCING OF PORTUGUESE NON-FINANCIAL CORPORATIONS



Source: Banco de Portugal.

(6) The resident financial institutions aggregate includes other resident monetary financial institutions (a sector usually mentioned in the publication "*Monthly indicators*") and other credit institutions included in the other resident financial intermediaries and auxiliaries sector, whose data is published only on a quarterly basis. The calculation of the rates of change of loans to the non-financial private sector requires adjustment for securitisation operations conducted by non-resident vehicle corporations.

Table 3.3

LOANS GRANTED BY OTHER MONETARY FINANCIAL INSTITUTIONS TO NON-FINANCIAL CORPORATIONS [(a)]

Annual rate of change

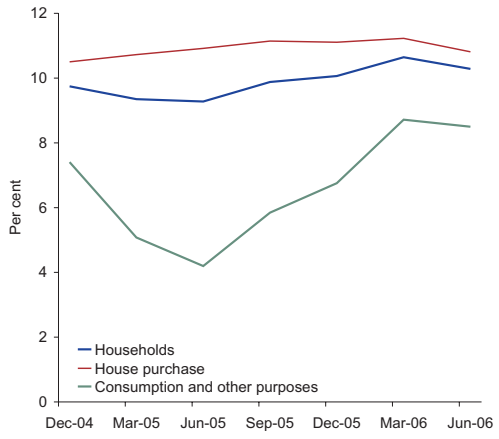
	Weight in total loans						
	Aug-05	Jun-04	Dec-04	Jun-05	Dec-05	Jun-06	Aug-06
Total loans to non-financial corporations	100.0	1.9	1.5	2.1	4.6	6.1	6.5
By branch of activity:							
Agriculture, livestock, hunting, forestry and fishing	1.5	-1.5	2.4	4.9	4.7	8.4	7.3
Mining and quarrying	0.5	-4.0	-8.0	1.5	0.9	-8.8	-7.0
Manufacturing	14.4	-6.3	-5.7	-4.2	-4.6	-2.9	-1.9
Generation and distribution of electricity, gas and water	2.4	-3.8	-2.3	36.6	33.4	13.5	11.6
Construction	19.5	2.1	4.9	6.9	8.6	5.0	4.5
Services	61.7	4.5	2.5	1.2	4.7	8.4	8.9
of which:							
Real estate activities	17.7	13.9	13.6	10.5	10.7	10.7	10.4
Other services provided mainly to corporations	11.6	-1.4	-2.0	-4.7	6.6	17.0	19.6
Trade, hotels and restaurants	19.8	2.5	0.7	0.4	2.9	4.8	5.1
Transport, post and communication	7.4	13.7	-4.8	-8.7	-5.5	1.9	0.8

Source: Banco de Portugal.
Note: (a) Annual rates of change are obtained from the relation between outstanding amounts of bank loans at end-period and transactions, which are calculated from outstanding amounts adjusted for reclassifications.

Chart 3.9

LOANS GRANTED BY RESIDENT CREDIT INSTITUTIONS TO HOUSEHOLDS[(a)]

Annual rate of change



Source: Banco de Portugal.
Note: (a) Includes loans granted by resident financial institutions adjusted for securitisation operations with the intervention of a non-resident financial vehicle.

virtually stabilised in the first six months of the year, in a context of interest rate increases. The persistence of relatively high growth rates in this credit segment may reflect the supply of new financial products and contract modalities, such as the extension of maturities or higher flexibility in required loan-to-value ratios, as well as the tightening of the interest rate margins applied by banks, as previously mentioned. In turn, the rate of change of loans for consumption and other purposes accelerated

somewhat in the first half of the year. According to the results of the bank lending survey, these loans were chiefly intended to finance the acquisition of durable goods.[7]

3.2. Fiscal policy

The general government deficit is expected to stand at 4.6 per cent of GDP in 2006, recording a decline of 1.4 p.p. of GDP from 2005. The figure for the deficit coincides with the official target in the latest update of the Stability and Growth Programme for 2005-2009. In turn, the government debt ratio is expected to reach 67.4 per cent, increasing by 3.4 p.p. from the end of 2005 (Table 3.4).

According to Banco de Portugal estimates, cyclical developments in the economy will continue to contribute, albeit moderately, to the deterioration of the fiscal deficit. Since the methodology followed takes into account the composition of expenditure and income, the acceleration of GDP is not fully reflected in an improvement of the cyclical component, in particular given that the change in private consumption is expected to be lower than its trend growth. Thus, the deficit adjusted for the cycle and temporary measures is forecast to decline by 1.5 p.p. of GDP in 2006. In spite of the uncertainty surrounding the present estimates, this suggests that the European Union Council Recommendation on the fiscal adjustment to be made during the current year in the context of the Stability and Growth Pact should be complied with.

Interest expenditure is expected to rise by 0.1 p.p. of GDP, as a result of the increase in government debt stock. Indeed, and given the maturity composition of debt, the recent trend of the interest rates did not imply an increase in the implicit interest rate on debt. Therefore, the cyclically-adjusted primary balance is forecast to post an increase of 1.6 p.p. of GDP, suggesting a clearly tightening stance of fiscal policy in the current year. This result chiefly reflects an increase in tax revenue and, to a lesser extent, a decline in staff costs and investment expenditure, in a context still characterised by strong pension expenditure growth.

According to Banco de Portugal estimates, tax revenue, including cyclically-adjusted social contributions, will explain 1 p.p. of GDP of the improvement in the underlying fiscal position. This result is due to the effects of discretionary measures, mostly approved in previous years, and to a lesser extent to the increased effectiveness of tax administration. As regards the discretionary measures, it is worth high-

Table 3.4

MAIN FISCAL INDICATORS
As a percentage of GDP

	2002	2003	2004	2005	2006
Overall balance [a]	-2.9	-2.9	-3.2	-6.0	-4.6
Primary balance [a]	0.0	-0.2	-0.5	-3.3	-1.7
Overall balance adjusted for the cycle and for temporary measures [b]	-4.9	-4.8	-4.7	-5.2	-3.7
Primary balance adjusted for the cycle and for temporary measures [b]	-2.0	-2.0	-2.0	-2.4	-0.8
Public debt [a]	55.5	57.0	58.6	64.0	67.4

Sources: *INE*, *Ministério das Finanças* (State Budget Report for 2007) and Banco de Portugal.
Notes: **(a)** The GDP used in the calculation of the ratios is that considered in the draft State Budget Report for 2007. **(b)** Banco de Portugal estimates. For details on the methodology used in the cyclical adjustment, see Neves and Sarmento (2001), "The use of cyclically adjusted balances at Banco de Portugal", *Economic Bulletin*, September, Banco de Portugal

(7) Data made available for the third quarter of 2006 on loans granted by resident monetary financial institutions suggest that loans for house purchase decelerated slightly. In turn, loans to households for consumption and other purposes accelerated very significantly in the third quarter, although these developments were particularly affected by loans to non-profit institutions serving households which, under statistical classification, are included in the household sector.

lighting, due to their relevance, the additional impact of the rise in the VAT standard rate in July 2005, the 2.5 cent increase in the Tax on Oil Products (per litre of petrol and diesel) in mid-January 2006 and the effect of the elimination of tax incentives in the personal income tax, net of the revenue losses resulting from the rate cut, within the scope of the 2005 Budget. Also on the revenue side, it is important to mention the recovery of dividends received by the State, after a sharp fall in 2005.

Also according to Banco de Portugal estimates, pension expenditure, in spite of some deceleration, is expected to contribute with approximately 0.4 p.p. to the increase in the ratio of expenditure to GDP. In turn, expenditure with compensation of employees in the general government (adjusted for the break in the series resulting from the corporatisation of some public hospitals in late 2005) is expected to fall by approximately 0.3 p.p. of GDP, as a result of the decline in the number of staff, the freezing in automatic career progressions, below-inflation wage increases and the decline in average wages due to staff retirement/hiring. Moreover, it is also worth mentioning the 0.3 p.p. decrease in the ratio of public investment to GDP, particularly resulting from its non-co-financed component.

4. EXPENDITURE

Current estimates point to GDP growth of 1.2 per cent is 2006, amounting to a 0.8 p.p. acceleration of economic activity from the previous year. Nonetheless, Portugal will post the lowest growth amongst the 25 European Union countries and the GDP rate of change will continue to be lower than in the euro area for the fifth year in a row (Chart 4.1).

The acceleration of economic activity is chiefly accounted for by the strong expansion of exports, whereas domestic demand is expected to stagnate. The expectation that exports will maintain towards the end of the year the buoyant behaviour seen in the first semester is a key factor in current estimates. The high volatility of external trade[8], however, introduces a significant degree of uncertainty.

The present estimate for GDP growth is identical to the projection for 2006 published in the summer issue of the *Economic Bulletin*. Nonetheless, there were significant but opposite revisions of the contributions of domestic demand and net exports to GDP growth (of approximately -0.8 p.p. and + 0.8 p.p. *vis-à-vis* summer projections). Therefore, as underlined then, but more markedly now, estimates for 2006 represent a change from the composition of growth observed in the two previous years. The contribution of net external demand is expected to be significantly positive in 2006, partly reflecting strong export growth. In contrast, the contribution of domestic demand to GDP growth is expected to be virtually nil. The reduction in the contribution of domestic demand *vis-à-vis* previous years reflects the clear deceleration of both private and public consumption, as well as a more marked decline in GFCF in 2006 (Table 4.1).

Despite the increase in disposable income, the gradual rise in interest rates, the upsurge in the tax burden and the perception that structural measures will be needed to ensure the correction of the public finance imbalance have contributed to moderate household consumption expenditure, in a context in which the improved labour market conditions are still incipient and the increase in real wages will likely be close to zero. The annual change in private consumption is expected to narrow from 1.7 per cent in 2005 to 1.1 per cent in 2006. Therefore, contrary to developments in recent years, growth in private consumption is not expected to exceed output growth nor growth in euro area consumption.

The marked easing in liquidity constraints resulting from participation in monetary union and from the financial integration of the Portuguese economy induced strong private consumption growth and a

(8) Present estimates for 2006 are based on data made available up to early November. In the case of statistics on external trade of goods, it corresponds to developments in real terms over the first two quarters of 2006 and in nominal terms up to August. An initial estimate was also made available for September, within the scope of the Special Data Dissemination System (SDDS) (on this procedure, see www.bportugal.pt).

Table 4.1

GDP AND MAIN EXPENDITURE COMPONENTS [a]

Real percentage rate of change

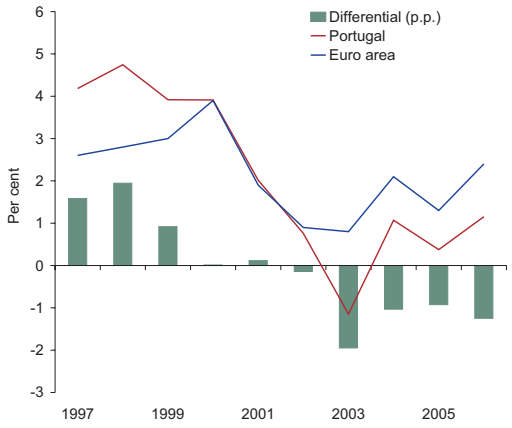
	2002	2003	2004	2005	2006
GDP	0.8	-1.1	1.1	0.4	1.2
Private consumption	1.3	0.0	2.3	1.7	1.1
Public consumption	2.6	0.7	1.8	1.9	-0.2
Investment	-4.7	-9.8	1.0	-3.5	-2.7
GFCF	-3.5	-10.0	0.0	-2.6	-3.2
Change in inventories[b]	-0.4	0.0	0.2	-0.2	0.1
Domestic demand	0.1	-2.2	1.9	0.6	0.1
Exports	1.4	3.7	5.0	1.0	9.0
Imports	-0.7	-0.5	6.9	1.6	4.0
Contribution of domestic demand to GDP[b]	0.1	-2.3	2.1	0.7	0.1
Contribution of net external demand to GDP[b]	0.7	1.2	-1.0	-0.3	1.1

Sources: *INE* and Banco de Portugal.
Notes: (a) Banco de Portugal estimates derived from the *INE*'s National Accounts from 1995 to 2003 (ESA95). (b) Contribution to the rate of change in GDP in percentage points.

Chart 4.1

GROSS DOMESTIC PRODUCT

Real rate of change

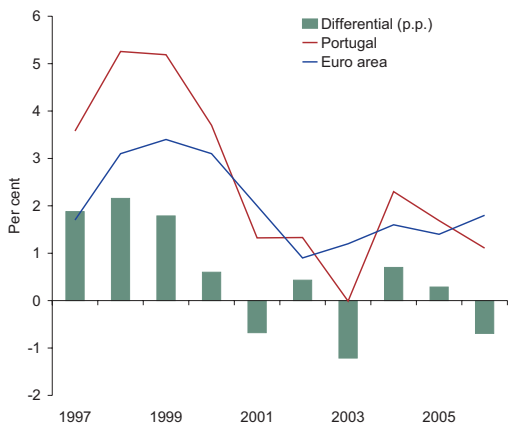


Sources: IMF and Banco de Portugal.

Chart 4.2

PRIVATE CONSUMPTION

Real rate of change



Sources: IMF and Banco de Portugal.

sharp decline in the savings rate, particularly in the second half of the 90s. This behaviour reflected the adjustment of the economic agents to higher steady-state consumption and indebtedness levels. Over recent years, private consumption has shown strong resilience to slowdown, which was partly related to the easier smoothing of consumption made possible by participation in the euro area and by the resulting increased financial integration. The very favourable financing conditions prevailing in the credit market made it possible to contain the debt service burden, in spite of the continuing rise in indebtedness. Therefore, over the last two years, and contrary to output, private consumption growth was higher in Portugal than in the euro area (Chart 4.2).

In the present context, it is key to assess the impact that the rise in interest rates may have on private consumption developments. If, on the one hand, the effects of the rise in interest rates may be mitigated by the fact that these remain at historically low levels in both nominal and real terms, on the other

hand, the higher indebtedness level will tend to raise consumer sensitiveness to developments in the cost of credit. These effects will tend to be particularly apparent in the case of the Portuguese economy, if we consider not only the high level of household indebtedness, but also the fact that interest rates on bank credit are typically indexed to money market interest rates. In this context, the role of the banking system in determining the degree of pass-through of the rise in ECB interest rates to credit interest rates and to the debt service supported by households should be emphasised. Indeed, the supply of new financial products and of new agreement modalities, together with the tightening of interest rate margins applied by banks, have made it possible to contain the debt service burden. Therefore, the rise in interest rates has not translated into a significant increase in forced savings (see "Section 3.1 *Monetary policy of the ECB and monetary and financial conditions of the Portuguese economy*"). however, solvency conditions arising from intertemporal household budgetary constraints will tend to lead to some moderation of private consumption growth in the future, a phenomenon that will tend to be gradual, but last longer than the usual cyclical frequency.

In spite of the deceleration of private consumption in annual terms, the present estimates for 2006 incorporate an acceleration profile within the year, which seems to be consistent with the recovery of the consumer confidence indicator in the second half of the year. Indeed, the development of private consumption tends to be strongly linked to the development of consumer confidence, which, in turn, reflects the consumer's perception of the current and future economic conditions. In this context, it is interesting to note that the significant deceleration of private consumption from the second half of 2005 occurred in the wake of an interruption of the upward trend of consumer confidence. Although it may be difficult to explain the development of the expectations of economic agents due to their endogenous nature, the trend of this indicator was particularly unfavourable in June 2005 (similarly to developments in May 2002) coinciding with an increase of indirect taxation and a hightened perception of the magnitude of public finance imbalances and of the corresponding need to implement more structural measures to ensure fiscal consolidation (Chart 4.3).[9]

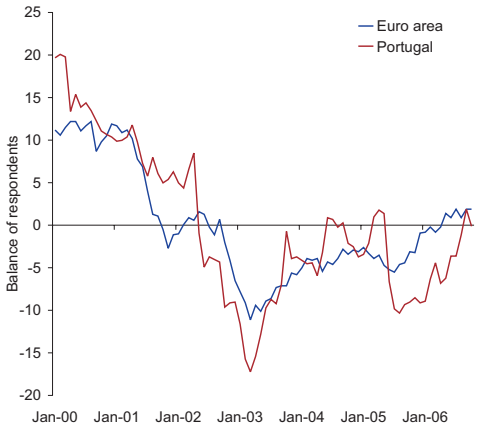
Even though consistent with recent developments in consumer confidence, the acceleration of private consumption in the second half of 2006 was amplified by base effects related to the behaviour of durable goods consumption in the course of the previous year, associated with the rise in the VAT standard rate in July 2005. Therefore, and although the developments estimated for 2006 point to a nearly nil change in the consumption of durables, their intra-annual profile, in terms of year-on-year changes, will be characterised by a significant recovery in the second half of the year. In turn, consumption of non-durables is likely to accelerate more moderately, reversing the trend of significant slowdown seen in the course of 2005 and in the first half of 2006. These developments are consistent with the profile of the private consumption coincident indicator, which tends to evaluate the trend of private consumption and, therefore, does not reflect the very short-term fluctuations of durable goods consumption (Chart 4.4).

According to Banco de Portugal estimates, in 2006 real public consumption is expected to post a slight decline for the first time since the mid-1990s. For the year as a whole, this estimate assumes a decrease in the number of civil servants, similarly to developments in the first half of the year. In addition to the restrictions applying to new hirings, the number of civil servants is expected to decline, particularly in the education sector, as a result of the decrease in the number of hired teachers in primary and secondary education in the 2005/2006 school year. Expenditure in goods and services is expected to decelerate from 2005, in particular in social benefits paid in kind, as a result of the decrease in expenditure with medical co-payments in the National Health Service.

(9) In terms of monthly changes, the consumer confidence indicators posted the two most marked decreases in these two months, taking as a reference the period after June 1986 – the date from which the indicator is available. Only these two monthly changes are not captured by the 99 per cent confidence intervals generated by univariate models.

Chart 4.3

CONSUMER CONFIDENCE INDICATOR: PORTUGAL AND EURO AREA

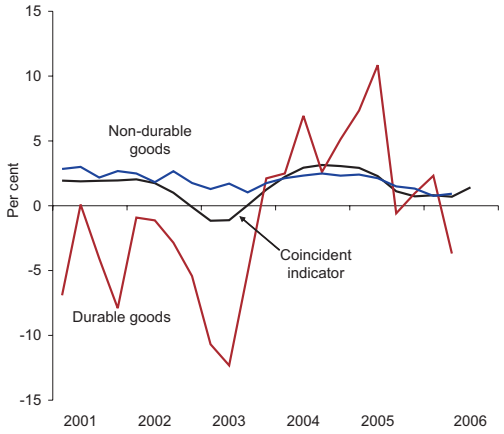


Source: European Commission.
Note: Series were standardised according to respective average in the period in question.

Chart 4.4

COINCIDENT INDICATOR OF PRIVATE CONSUMPTION AND CONSUMPTION OF DURABLE AND NON-DURABLE GOODS

Year-on-year rate of change



Sources: *INE* and Banco de Portugal.

GFCF is expected to decline by 3.2 per cent in 2006, bringing the cumulative reduction over the last five years to approximately 18 per cent. The absence of investment recovery after the 2003 recession continues to be a limiting factor for a stronger and more sustainable recovery of the pace of growth of economic activity. The breakdown into the different institutional sectors points to a broadly based unfavourable trend of GFCF, although the respective causes are based on different factors.

Public investment, in real terms, declined further in 2006, in spite of the increase in transfers from European Union within the scope of the Third Community Support Framework. In effect, in the context of a required correction of the public account imbalances, investment in the general government has been declining markedly, in particular in the non-co-financed component.

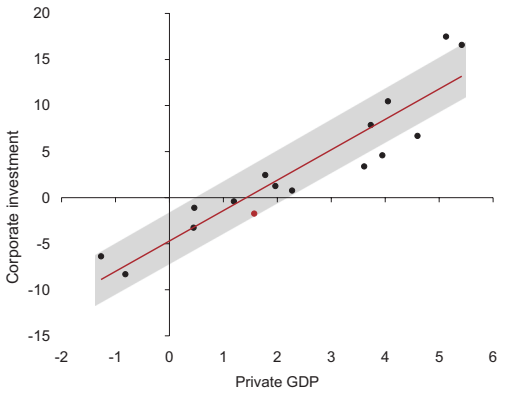
Housing investment by households is also expected to decline in 2006. The accumulated decrease of this investment since 2000 reaches approximately 30 per cent. Continually negative rates of change indicate that, in addition to the trend of the usual explanatory factors, the behaviour of housing investment is reflecting an adjustment from the very high growth observed in the second half of the 1990s. In effect, the continuing interest rates decline in this period, associated with participation in the euro area, has stimulated investment in construction and has led to an adjustment of the housing stock held by households. The traditionally slow renewal of the housing stock, taking into account its low rate of depreciation and the discrete nature of the purchase decision, has therefore constrained housing investment in recent years.

Finally, corporate investment is also expected to decline in 2006. The present estimate for corporate investment developments is not much different from that suggested by the simple and merely illustrative relationship presented in Chart 4.5, which stresses that this investment component is strongly linked to output growth, with positive rates of change occurring at higher private sector GDP growth rates than those forecast for 2006. In addition, past evidence suggests that corporate investment tends to lag exports, picking up only when the signs of economic acceleration pass through to private consumption (see "Box 1 *Corporate investment and exports*"). The relationship between demand

Chart 4.5

CORPORATE INVESTMENT AND DEVELOPMENTS OF ECONOMIC ACTIVITY

1991-2006, annual rates of change



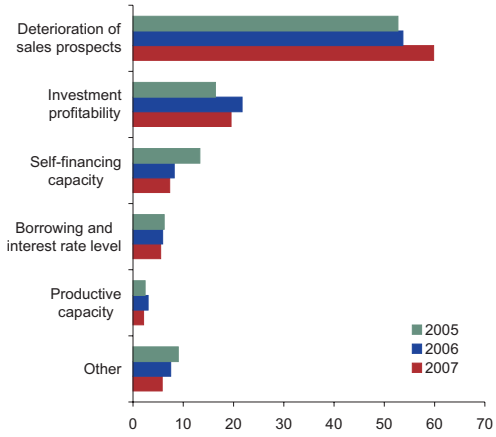
Area covered by a pattern deviation in every tail

Sources: *INE* and Banco de Portugal.

Chart 4.6

MAIN FACTORS LIMITING INVESTMENT

Per cent



Source: *INE* (Investment Survey).

growth prospects and investment decisions is apparent in the results of the *INE*'s Investment Survey, according to which the deterioration of sales prospects continues to be considered as the main factor limiting investment (Chart 4.6).

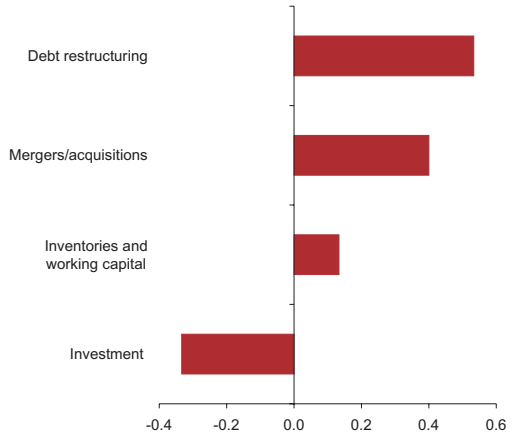
In addition to the effects related to the incipient recovery in economic activity, corporate investment decisions are constrained by the uncertainty as to the impact of some structural measures, in particular as regards the process of fiscal consolidation, as well as to the effects related to growing international competition in some countries with lower unit production costs. Indeed, in a context where the opening of international markets requires important sectoral reallocations in the economy, factors such as the predictability of the tax system and the degree of flexibility in output and labour markets assume particular relevance in corporate investment decisions. In this context, and although financing conditions have remained favourable, corporations could be opting for postponing new investment decisions. The results of the Bank Lending Survey reveal that loans taken by corporations during the first three quarters of 2006 continue to be chiefly channelled to restructure debt and to finance mergers and acquisitions and current business. In turn, investment financing was again indicated by surveyed banks as leading to a decline in the demand for credit (Chart 4.7).

Exports have been the main component of stronger global demand. Export growth is expected to stand close to that observed for external demand, in contrast with particularly unfavourable developments over the last two years (Chart 4.8). Exports accelerated strongly in both goods and services, with particular emphasis, in the latter case, on higher growth of tourism-related exports, as well as other services, such as those related to transports, activities in the construction sector and the provision and professional and technical services.

As previously mentioned, the assumption that export behaviour will remain buoyant in the later part of the year is a key factor underlying the present estimates and entails a high level of uncertainty. Such uncertainty is related to the volatility of external trade, as well as to the behaviour of exports in some specific sectors and geographical markets.

Chart 4.7

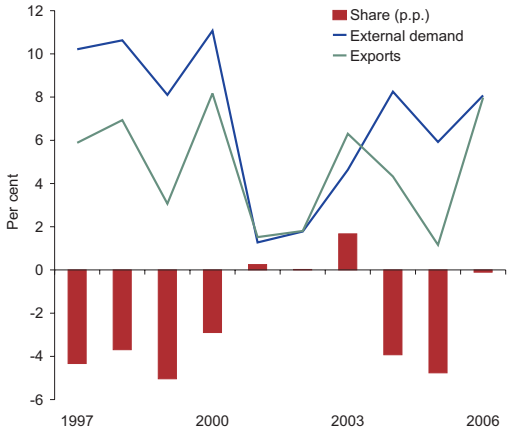
FACTORS BEHIND GROWTH OF BANK LENDING TO CORPORATIONS[(a)]



Source: Banco de Portugal (Bank Lending Survey - April, July and October).
Note: (a) Weighted balances of responses are expressed in deviations from the neutral position (neutral value =3).

Chart 4.8

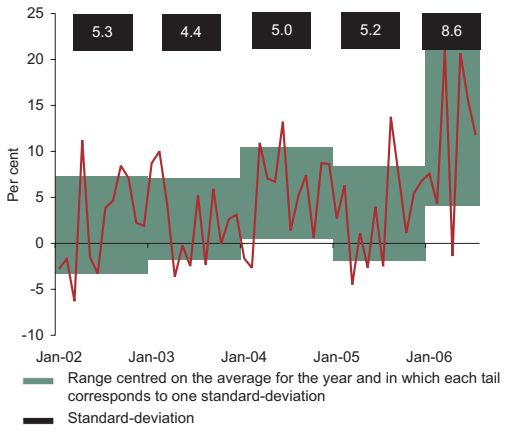
EXPORTS OF GOODS
Real rates of change



Sources: European Commission, *INE* and UK Office of National Statistics.
Note: The calculation of extreme demand is based on weighted growth of imports from 17 important markets of destination of Portuguese exports of goods.

Chart 4.9

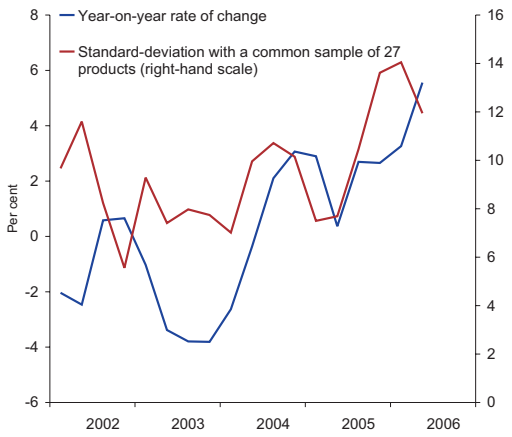
NOMINAL EXPORTS OF GOODS
Year-on-year rates of change



Sources: *INE* and Banco de Portugal.
Note: For 2006, information is available up to July.

Chart 4.10

PRICES OF EXPORTS OF GOODS



Sources: *INE* and Banco de Portugal.

First, exports of goods have been particularly volatile in 2006 (Chart 4.9). The standard-deviation calculated on monthly year-on-year rates of change up to August was substantially higher than the values observed in the previous four years. In the same vein, the variability of export prices was also higher, both from a time-series and cross section perspective (Chart 4.10), rendering projections for price developments more uncertain. This variability is related to the increase in the international price of commodities, in particular oil, in a context where some sectors of intermediate goods have gained importance in the structure of Portuguese exports.

Second, the acceleration of exports has been significantly influenced by the behaviour of some specific sectors, the impact of which can not necessarily be extrapolated to the future. Particularly since

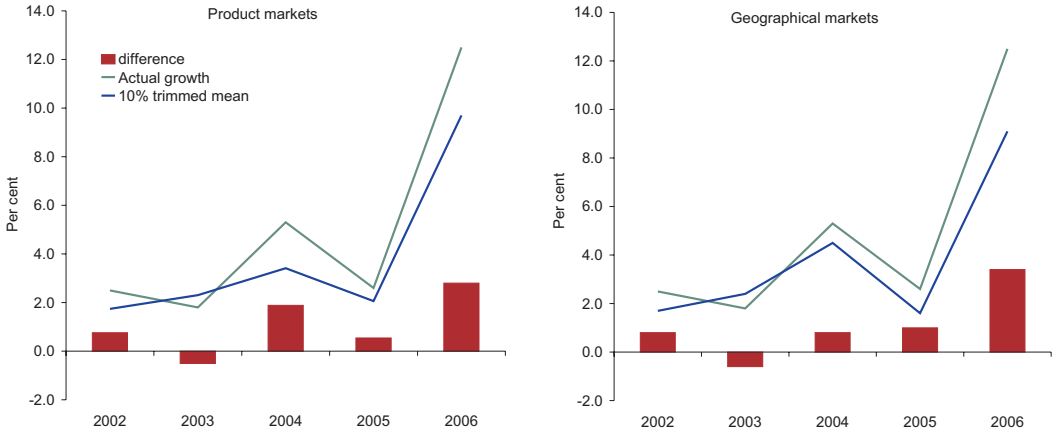
the second half of 2005 and in a context of limited global refining capacity, exports of oil products increased significantly (real growth in the first six months of the year stood at approximately 45 per cent). In addition, the production of a new car model was started by an important manufacturer of the sector, thus making it possible to reverse previous falls in production. Finally, as of the second quarter of 2006, exports of some mineral products increased, which was probably related to the increase in the international prices of these commodities. As a whole, these three sectors are estimated to have contributed with approximately 3.9 p.p. to the 12.5 per cent nominal growth of exports of goods in the first eight months of the year. Compared with the previous year, this accounts for around 30 per cent of the acceleration of exports of goods from 2005 to the first eight months of 2006. Notwithstanding the influence of these sectors, the elimination of extreme changes in exports via the calculation of a trend measure such as the trimmed mean clearly confirms a broadly based recovery of exports in the first eight months of 2006, with particularly strong growth of intermediate and equipment goods (Chart 4.11 and Table 4.2).

Third, the buoyant behaviour of exports was supported by the acceleration of sales to traditional markets of destination. In particular, exports to the Spanish market re-inforced their positive contribution; sales to the German market recovered notably, in contrast with the particularly unfavourable developments in recent years; and exports to the US market accelerated strongly. However, the behaviour of exports has also benefited from the strong growth of sales to unusual markets. According to data from external trade available up to August, exports grew significantly to destinations such as Angola, Singapore, Mexico and Brazil. In the first eight months of the year, these markets, as a whole, contributed with approximately 2.8 p.p. to 12.5 per cent year-on-year growth of nominal exports of goods. Worthy of mention are sales to Angola, with year-on-year nominal growth reaching approximately 55 per cent in the January-August period, after the already high growth observed in 2005 (Chart 4.11 and Table 4.3).

There are doubts about whether the favourable export performance can be regarded as sustainable, or whether it chiefly reflects a temporary phenomenon. In 2006, relative costs in the Portuguese economy continued to increase. However, it is important to stress the difficulties in interpreting the usual

Chart 4.11

DEVELOPMENTS OF NOMINAL EXPORTS, EXCLUDING COMPONENTS WITH MORE EXTREME CHANGES
Year-on-year rates of change



Sources: *INE* and Banco de Portugal.
Note: For 2006, information is available up to August. The trimmed mean is equivalent to export growth excluding components with more extreme changes, corresponding to 5 per cent of total exports in each tail of distribution.

Table 4.2

PORTUGUESE EXPORTS OF GOODS BY GROUPS OF PRODUCTS
Nominal rate of change, per cent [a]

	Weights 2005	2003	2004	2005	2006 (Jan-Aug)
Total	100.0	2.5	5.3	2.8	12.5
Agriculture	3.8	-1.4	15.3	10.2	7.9
Food products	4.2	4.8	1.6	4.6	9.8
Mineral fuels	4.3	27.3	24.9	52.9	72.6
Chemicals	5.2	8.0	12.1	16.3	15.6
Plastic, rubber products	5.2	14.6	16.7	11.7	13.8
Leather, leather products	0.3	-20.1	-5.4	1.6	24.8
Wood, cork	4.5	0.5	3.2	-1.4	5.1
Pulp, paper	4.6	4.9	-2.7	4.5	12.4
Textile products	5.1	-19.3	-3.3	-1.0	3.1
Clothing	8.3	1.1	-5.4	-9.8	-2.0
Footwear	4.2	-9.7	-6.2	-4.9	-1.8
Minerals, ores	5.0	4.0	19.5	7.1	19.5
Basic metals	7.4	6.1	27.7	10.8	27.7
Machinery, equipment	18.7	2.6	1.5	1.4	16.1
Motor vehicles, other transport equipment	14.0	4.9	5.8	-5.8	1.9
Optical and precision instruments	0.9	12.9	-5.5	-11.7	9.2
Other products	4.2	22.0	10.4	3.7	7.9
Memo: (Classification by large economic categories)					
Consumer goods [b]	35.9	-1.4	0.7	-1.0	3.3
Equipment goods [b]	26.4	9.3	3.0	-2.5	11.9
Fuels	3.9	31.3	22.4	58.8	77.3
Intermediate goods	32.6	0.5	12.8	4.4	16.7

Sources: *INE* (International Trade Statistics) and Banco de Portugal.
Notes: (a) From 2005 onwards the calculation of the rates of change is based on the new methodology published by the *INE* in September 2005 (exports include estimates of non-responses and of transactions below the reporting threshold). (b) The classification by large economic categories presented in this table differs from that used by the *INE*, since passenger cars are included under consumption goods, instead of equipment goods.

Table 4.3

PORTUGUESE EXPORTS OF GOODS BY SOME GEOGRAPHICAL MARKETS

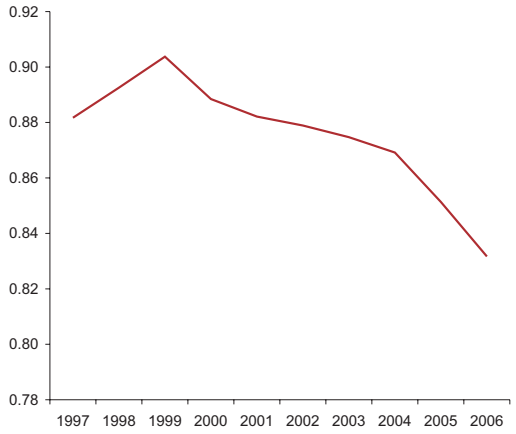
	Year-on-year rate of change (%)[a]			Contribution to export growth (p.p.)		
	2004	2005	2006 (Jan-Aug)	2004	2005	2006 (Jan-Aug)
Total	5.3	2.8	12.5			
10 markets contributing most to export growth in 2006						
Spain	12.8	7.5	13.7	3.0	1.9	3.7
Germany	-4.8	-6.3	16.6	-0.7	-0.8	2.0
US	9.2	-5.6	32.5	0.5	-0.3	1.7
Angola	3.0	19.3	56.4	0.1	0.4	1.3
Singapore	5.2	56.8	78.1	0.0	0.5	0.9
Italy	-4.0	4.0	10.0	-0.2	0.2	0.4
Netherlands	13.0	2.2	7.2	0.5	0.1	0.3
Mexico	21.5	21.8	99.2	0.0	0.1	0.3
Brazil	19.7	14.9	51.5	0.1	0.1	0.3
Sweden	-10.4	7.7	14.2	-0.1	0.1	0.2
Memo: markets contributing less to export growth in 2006						
Belgium	-0.2	-8.0	-5.4	0.0	-0.3	-0.2
United Kingdom	-2.9	-6.2	-5.8	-0.3	-0.6	-0.5

Sources: *INE* and Banco de Portugal.
Note: (a) From 2005 and 2006 onwards the calculation of the rates of change is based on the new methodology published by the *INE* in September 2005 (exports include estimates of non-responses and of transactions below the reporting threshold).

Chart 4.12

WEIGHT OF THE 17 EXPORT MARKETS USED IN THE CALCULATION OF EXTERNAL DEMAND

As a percentage of total exports of goods



Sources: *INE* and Banco de Portugal.
Note: For 2006, information is available up to August.

competitiveness indicators, namely in the context of increasing integration of the world economy and of the productive restructuring in progress in the Portuguese economy. The very low level of unit production costs in emerging and developing market economies, the fact that these compete with Portuguese exports chiefly in third markets and the importance of taking into account the respective patterns of specialisation are some of the aspects that are not easily captured by the usual price and cost competitiveness indicators. In addition, the most commonly used external demand indicator is based on a fixed structure formed by the main markets of destination, which in the present diversification context tends to distort the analysis of market shares. This aspect is illustrated in Chart 4.12, and shows a loss in the weight of the 17 markets usually considered for the calculation of external demand relevant for the Portuguese economy. This decrease had been observed over recent years and has strengthened in 2005 and in the first eight months of 2006.

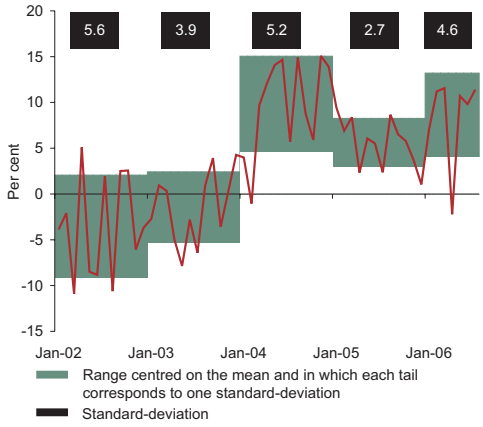
As previously mentioned, the present estimate for 2006 is based on the expectation that exports will continue to grow strongly towards the end of the year. This projection is supported by nominal information available for the third quarter. In the July-August period, nominal exports of goods have increased by 15.8 per cent year-on-year, *vis-à-vis* 11.2 and 11.7 per cent in the first and second quarters, respectively. The first estimate made available for September within the scope of the Special Data Dissemination System (SDDS)[10] points to a pace of nominal growth of exports of 6.5 per cent. Moreover, indications from manufacturing qualitative surveys, albeit subject to a high degree of uncertainty, suggest a deceleration of the pace of growth of exports of goods in the fourth quarter (see "Box 2 *Qualitative surveys as leading indicator of nominal exports of goods*").

The intra-annual profile of the estimated growth of exports of goods and services includes a deceleration of exports of tourism from the second quarter, although maintaining high growth rates. One of the reasons justifying this profile is that the year-on-year rate of change in the second quarter was influenced by the fact that Easter fell in April, whereas in 2005 it had fallen in March.

(10) For further details, see www.bportugal.pt.

Chart 4.13

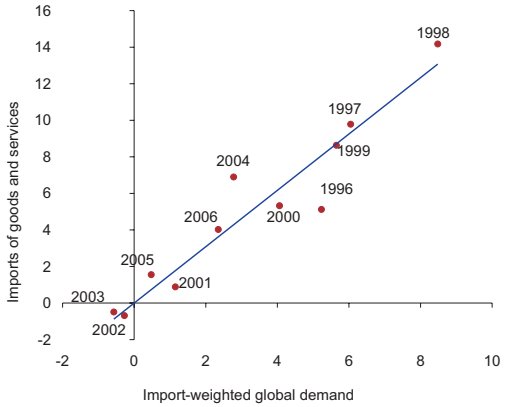
NOMINAL IMPORTS OF GOODS
Year-on-year rate of change



Sources: *INE* and Banco de Portugal.
Note: For 2006, information is available up to August.

Chart 4.14

IMPORTS AND WEIGHTED GLOBAL DEMAND
Real percentage rate of change



Sources: *INE* and Banco de Portugal.

In spite of the continued buoyancy of exports, the contribution of net exports to the year-on-year rate of change of GDP in the second half of the year is expected to decline, due to the projected acceleration of imports. The increase in the pace of growth of imports, already apparent in the preliminary nominal information available for the third quarter, is probably related to the projected acceleration of domestic demand and to a replenishing of inventories, which attained very low levels in the second quarter in a context of a very moderate development of imports. Therefore, and despite the high degree of uncertainty due to the volatility of imports during the first eight months of 2006, the trend of imports this year is expected to remain consistent with the empirical relationship observed between this variable and the import-weighted global demand (Charts 4.13 and 4.14).

5. EMPLOYMENT AND WAGES

The results of the Labour Force Survey of *INE* (National Statistical Institute) point to some improvement in labour market conditions in the first half of the year, materialised in a positive change in employment and in the virtual stabilisation of the unemployment rate compared with the same period in 2005. However, long-term unemployment continued to rise significantly.

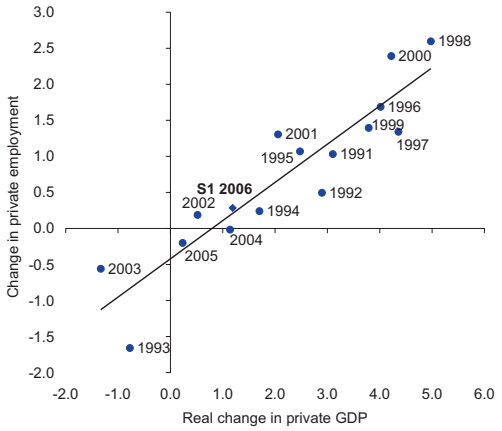
According to *INE*, the change in total employment stood at 0.8 per cent, year-on-year, in the first half of 2006, after the stagnation in 2005. A disaggregated analysis shows that the rise in total employment was strongly influenced by the growth of employment in the "public administration, defence and compulsory social security" sector. However, this result does not seem to be consistent with the information obtained from other sources, including the behaviour of general government labour costs (see "Section 3.2 *Fiscal policy*").

The estimate of employment growth in the private sector, based on Labour Force Survey data, points to a slight recovery of private employment, in line with developments in the cyclical position of the Portuguese economy (Chart 5.1). Indeed, employment in the private sector grew by around 0.2 per cent,

Chart 5.1

PRIVATE GDP AND PRIVATE EMPLOYMENT GROWTH[(a)]

Per cent

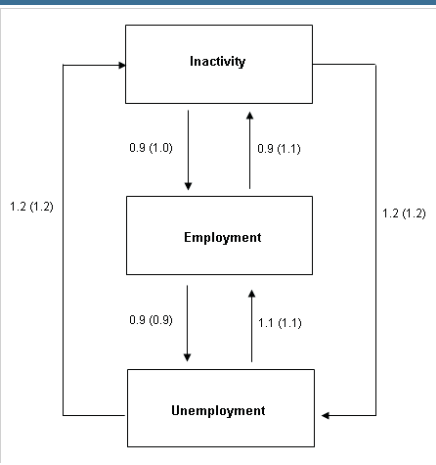


Sources: *INE* and Banco de Portugal.
Note: **(a)** Private employment is defined as total employment excluding public sector employment; private GDP is defined as total GDP less compensation of public employees and general government fixed capital consumption. Private employment and GDP series do not include corporate hospitals.

Chart 5.2

QUARTERLY AVERAGE FLOWS IN THE LABOUR MARKET

As a percentage of the labour force[(a)]



Sources: *INE* and Banco de Portugal.
Note: **(a)** Considering the common sample component of quarter t and quarter t-1, and using the population weights of quarter t. Average figures for the first two quarters of 2005 and 2006. Figures for the first half of 2005 in brackets.

Table 5.1

EMPLOYMENT AND UNEMPLOYMENT

	Year			First semester		
	2003	2004	2005	2004	2005	2006
Participation rate of population aged 15-64 (per cent)	72.8	72.9	73.4	72.7	73.2	73.7
Total employment (y-o-y rate of change)	-0.4	0.1	0.0	0.1	-0.1	0.8
Private sector employment (y-o-y rate of change) [(a)]	-0.3	0.1	-0.3	0.1	-0.2	0.2
Total unemployment rate (as a % of the labour force)	6.3	6.7	7.6	6.4	7.4	7.5
Long-term unemployment (as a % of total unemployment) [(b)]	37.7	46.2	49.9	45.1	50.2	53.3

Source: *INE* (Labour Force Survey).
Notes: **(a)** Employment in the private sector broadly defined as employment in the economy as a whole excluding sector 75 of the Classification of Economic Activities (NACE) – Public administration, defence and compulsory social security. **(b)** A long-term unemployed is an individual seeking work for a period of more than 12 months.

year-on-year, in the first half of 2006, which compares with a 0.3 per cent decline in 2005 (Table 5.1).[11] This evolution resulted from the growth in employees, given that the number of self-employed continued to decline compared with the same period of the previous year. In sectoral terms, the decrease in employment in the manufacturing industry became less marked and the weight of the services sector in private employment continued to strengthen.

In the first half of 2006 the unemployment rate stood at 7.5 per cent, i.e. close to that seen in first half of 2005 and in 2005 as a whole. According to the Labour Force Survey of *INE*, the number of unemployed increased by 2.9 per cent year-on-year during this period, i.e. much less than in previous semesters.

(11) Employment in the private sector is broadly defined as employment in the economy as a whole excluding sector 75 of the Classification of Economic Activities (NACE) – Public administration, defence and compulsory social security. This measure overestimates the employment level in the private sector, given that it includes the health and education sectors (which, in turn, include both public and private employment). A restrictive definition of private employment, which excludes the health and education sectors as a whole, would lead to a zero growth rate in the first half of 2006 (-0.9 per cent in 2005).

The stabilisation of the unemployment rate in a period of low economic activity growth may be partly explained by the strong deceleration in potential output in Portugal over the past few years.[12] Long-term unemployment continued to rise in the first half of 2006, accounting for more than 53 per cent of the total unemployment. The increase in the average duration of unemployment is consistent with the weak economic growth. The depreciation/inadequacy of the professional skills of the unemployed with regard to the new job vacancies, which is particularly relevant in the context of the ongoing sectoral restructuring of the Portuguese economy, and the potential high duration of unemployment benefits seem to be also contributing to the maintenance of long-term unemployment at a high level.[13]

The analysis of the quarterly flows between the different labour market states reveals that the downward trend in gross flows between employment and inactivity persisted in the first half of 2006 (Chart 5.2). On the one hand, the decrease in movements from employment to inactivity seems to be largely associated with the lower intensity of early retirements. On the other hand, flows between inactivity and employment also continued to decline in the first half of the year, conditioned by the still low buoyancy of economic activity. Flows between employment and unemployment were similar to the comparable period in 2005. The transitions from employment to unemployment were evenly split between the various types of labour contract, while job creation remained centred on fixed-term contracts.

In 2006, according to Banco de Portugal estimates, average compensation per employee in the economy as a whole is likely to decelerate from the previous year, increasing by around 3 per cent (3.4 per cent in 2005). This behaviour is associated with lower wage growth in the public sector, given that compensation per employee in the private sector should show a rise close to that seen in the previous year.

6. PRICES

The annual average rate of HICP inflation is likely to stand at 3.0 per cent in 2006, i.e. 0.9 p.p. higher than in 2005. The increase in inflation reflects the acceleration in goods prices, given that the change in services prices should be close to that seen in 2005. Taking as a reference the average value of the projection range prepared by the ECB staff and published in the September 2006 issue of the ECB Monthly Bulletin, the inflation differential *vis-à-vis* the euro area shall stand at 0.6 p.p., after having been close to zero in 2005 (Chart 6.1).

Compared with the projection published in the summer issue of the *Economic Bulletin*, the current estimate for 2006 represents an upward revision by 0.4 p.p., which is closely related to the revision of the HICP and CPI series made by *INE* in October, when the results for September were published.[14] With regard to the previous series, the revision made from January 2006 onwards implied an upward revision of the year-on-year rate of change in the HICP of 0.6 p.p. for the first eight months of the year as a whole.

The rise in the inflation rate is related to the effects of tax measures, namely the rise in the standard VAT rate in July 2005 and the increase in the tax on tobacco in early 2006, as well as to the acceleration of import prices excluding energy. The significant rise in prices of some unprocessed food, which continue to be characterised by high volatility, has also contributed to the acceleration in consumer prices in 2006.

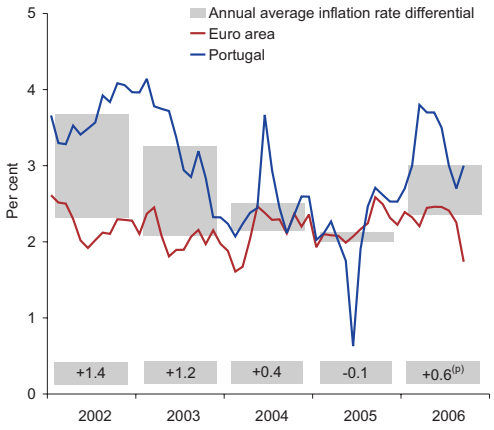
(12) Given the significant decline in trend GDP growth over the last years, it should be expected that – for the same NAIRU – the pace of growth needed to ensure the stabilisation of unemployment has also declined in the recent past. For evidence on developments in potential output in the Portuguese economy, see Almeida, V. and Félix, R., "*Computing potential output and output gap for the Portuguese economy*", in this issue of the *Economic Bulletin*.

(13) See Pereira, A., "*Assessment of the changes in the Portuguese unemployment insurance system*", in the Spring 2006 issue of the Economic Bulletin.

(14) This revision was due to a reassessment of methodological changes introduced in January 2006 regarding the collection of data on prices of a number of "Clothing and footwear" items during the periods of sales and promotions and of releases of new collections. According to *INE*, due to the need for actual data that enables a comparison between both methods, this revision was only possible with the index for September 2006.

Chart 6.1

INFLATION IN PORTUGAL AND THE EURO AREA
Year-on-year rates of change in the HICP



Sources: ECB, Eurostat and Banco de Portugal.
Note: (p) projection.

Therefore, the rise in the inflation rate in 2006 was associated with developments in goods prices, which are more influenced by changes in indirect taxes[15] and developments in international prices due to their higher tradable content. In a context of stable growth of wage costs – albeit higher than for the other euro area countries – the rise in services prices remained, on average, relatively stable compared with the previous year (Table 6.1). The average change in services prices stood at 2.7 per cent in September (2.5 per cent in 2005), being particularly noteworthy the downward trend of the year-on-year rates of change throughout 2006.

The acceleration in goods prices in 2006 was broadly based across the components of this aggregate, except for energy. Between December 2005 and September 2006, average growth of food prices rose by 2.8 p.p. In the case of processed food, this rise was influenced by the significant increase in the price of tobacco in the beginning of the year. Non-energy industrial goods accelerated less markedly and the average growth of their prices stood at 1.4 per cent in September (1.0 per cent in 2005). The analysis of the year-on-year rates of change in all these components shows that prices accelerated mainly throughout the first half of 2006.[16]

Energy prices will continue to grow significantly, at a level close to that observed in 2005, reflecting developments in oil prices in international markets. Therefore, although contributing to the level of inflation in 2006, direct effects associated with the rise in oil prices do not seem to have contributed to the acceleration of consumer prices in 2006. However, there was some indirect pressure on prices related to rising oil prices over the past few years. Indeed, given that energy is frequently used as an intermediate good for the production of other goods or services (e.g. transportation), a rise in its price tends to fuel lagged increases in the other consumer prices. This phenomenon seems to be supported by empirical evidence on the Portuguese economy, which reveals a statistically significant correlation between past developments in energy and unprocessed food prices and the contemporaneous

(15) In the case of VAT, this result is due to the rate structure of this tax. Moreover, other indirect taxes, such as specific consumption taxes (e.g. tax on tobacco or alcoholic beverages) are levied on goods and not services.

(16) One of the methodological changes introduced by *INE* in early 2006 was related to the monthly collection of prices subject to sales and promotions, which substituted the previous method based on a 3-month moving average of price observations. This change implies higher volatility in the year-on-year rates of change over 2006 both in non-energy industrial goods and in the aggregate index, thus making it more difficult to analyse the corresponding intra-annual patterns.

developments in HICP excluding these two types of goods – which is a measure usually called core inflation (Chart 6.2).[17]

Table 6.1

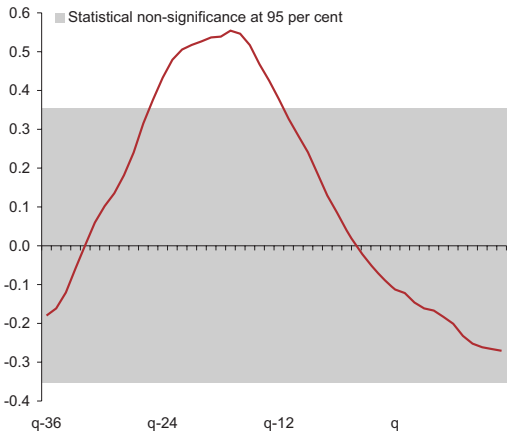
HICP – MAIN CATEGORIES AND AGGREGATES
Per cent

		Annual average rate of change				Year-on-year rate of change			
	Weights	2003	2004	2005	2006	2005	2006		
					Sep.	Dec.	Mar.	Jun.	Sep.
Total	100.0	3.3	2.5	2.1	3.1	2.5	3.8	3.5	3.0
Total excluding unprocessed food and energy	80.2	3.3	2.6	1.7	2.3	2.0	3.4	2.5	2.7
Aggregate									
Goods	61.8	2.4	1.6	1.9	3.2	2.4	4.4	4.0	3.3
Food	21.4	2.6	1.4	0.1	2.9	1.8	2.4	4.6	4.0
Unprocessed	10.7	2.1	0.0	-0.5	2.0	1.2	0.4	4.6	4.2
Processed	10.6	3.1	2.8	0.8	3.8	2.5	4.4	4.6	3.7
Industrial	40.4	2.4	1.8	2.8	3.4	2.6	5.4	3.7	2.9
Non-energy	31.4	1.8	0.8	1.0	1.4	0.9	3.7	1.5	2.8
Energy	9.1	4.9	5.4	10.0	10.6	9.3	11.7	11.6	3.1
Services	38.2	4.6	3.9	2.5	2.7	2.9	2.9	2.7	2.4
Memo:									
CPI	-	3.3	2.4	2.3	3.1	2.6	3.9	3.7	3.0

Sources: *INE* and Banco de Portugal.

Chart 6.2

CORRELATION COEFFICIENT BETWEEN ENERGY AND UNPROCESSED FOOD PRICES AND HICP EXCLUDING THESE TWO COMPONENTS
Monthly figures, year-on-year rates of change



Sources: Eurostat and Banco de Portugal.

(17) For more details, see Marques, C. R.; Neves P. D. and Sarmento, L. M., "Evaluating core inflation indicators", in the December 1999 issue of the *Economic Bulletin*.

7. BALANCE OF PAYMENTS

7.1. Borrowing requirements in 2006

The current estimates point to an interruption of the deteriorating pattern of external borrowing requirements of the Portuguese economy in 2006. The combined current and capital account deficit is forecast to stand at 7.6 per cent of GDP, a 0.5 p.p. decline from 2005. Such developments in the external imbalance reflect the continued reduction in the investment rate of the economy and the stabilisation of domestic saving, after the decline seen in the past few years (Chart 7.1). The value now estimated for the combined current and capital account deficit represents a significant change compared with the projections published in the summer 2006 issue of the *Economic Bulletin*, which pointed to an increase in external borrowing requirements to 9.4 per cent of GDP.

The reduction of the external deficit estimated for 2006 resulted from a decline in the current account deficit. This development reflects an improvement in the goods and services account, which is likely to more than offset the worsening of the income account associated with the gradual deterioration of the international investment position of the Portuguese economy. Unlike in the past few years, the lower growth of domestic demand in Portugal than in the country's major trading partners, given more favourable developments in exports, may lead to a decline in the goods and services deficit in 2006 (see Box 3, entitled "*Goods and services account and relative domestic demand between Portugal and the euro area*").

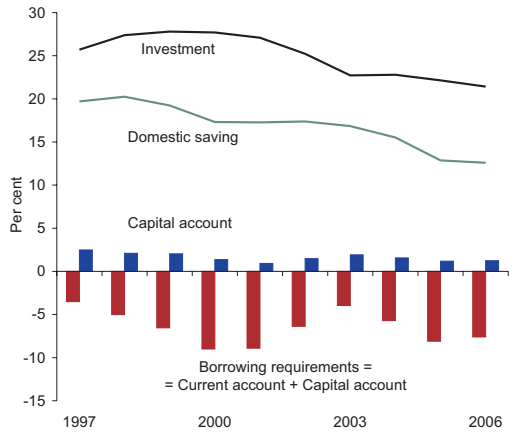
7.2. The balance of payments in the first half of 2006

In the first half of the year, the combined current and capital account deficit narrowed to 8.9 per cent of GDP (9.2 per cent in the same period of 2005). This development reflected improvements in the current account, given the stabilisation of the capital account (Table 7.1).

Chart 7.1

INVESTMENT, DOMESTIC SAVING AND BORROWING REQUIREMENTS

As a percentage of GDP



Sources: *INE* and Banco de Portugal.

Table 7.1

CURRENT AND CAPITAL ACCOUNT
Percentage of GDP

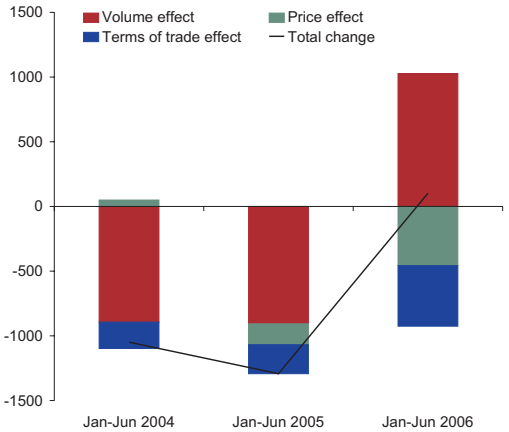
	Annual figures		1st half of the year[a]		
	2004	2005	2004	2005	2006
Current account	-7.3	-9.3	-7.0	-10.0	-9.4
Goods	-10.5	-11.4	-9.7	-11.2	-10.6
Services	2.9	2.8	2.5	2.0	2.6
of which:					
Travel and tourism	2.9	2.7	2.3	2.0	2.1
Income	-1.7	-2.1	-1.8	-2.3	-3.1
Current transfers	2.0	1.5	2.0	1.5	1.7
of which:					
Emigrants/immigrants remittances	1.4	1.2	1.2	1.1	1.1
Capital account	1.6	1.2	1.3	0.8	0.7
Memo:					
Current account + capital account	-5.7	-8.1	-5.7	-9.2	-8.9

Sources: *INE* and Banco de Portugal.
Note: (a) For the calculation of the ratios of the various components of the balance of payments as a percentage of GDP over the first semesters, six-month estimates of nominal GDP calculated by Banco de Portugal were used.

The improvement of the current account balance relied on the decline in the goods and services deficit. In contrast to the previous two years, the strong acceleration in goods exports and very subdued developments in imports, in a context of lower domestic demand, translated into a favourable volume effect. This more than offset the further loss in the terms of trade associated with developments in international oil prices (Chart 7.2). Indeed, according to data provided by *INE*, in the first half of 2006 goods export and import prices grew year-on-year by 4.4 and 6.8 per cent respectively. The effect of

Chart 7.2

BREAKDOWN OF THE CHANGE IN THE GOODS ACCOUNT [a]
EUR million



Sources: *INE* and Banco de Portugal.
Note: A positive (negative) change means an increase (decrease) in the goods balance. For a description of the methodology used, see Banco de Portugal, *Annual Report* 2003, page 169.

rising international oil prices continued to be dampened by positive developments in terms of trade excluding energy (which rose by 1.3 p.p. in the first half of the year). Like in the previous years, this gain reflects developments in import prices, which albeit the observed acceleration, continued to increase modestly, as well as the rise in some prices of intermediate goods exported in 2006. The current account balance also benefited from the higher services surplus, reflecting not only the increase in net exports of tourism services but also of other services, such as those related to transportation, the construction sector and the provision of technical professional services.

The income account deteriorated significantly, reflecting somewhat higher financing costs and, mainly, the effect of the continued accumulation of net external debt by the Portuguese economy. Finally, and as a whole, both public and private current and capital transfers were remarkably stable compared with the values observed in the same period of the previous year.

The slight reduction in the borrowing requirements of the Portuguese economy translated into lower net inflows of funds. The financial account balance stood at 8.4 per cent of GDP in the first half of 2006, compared with 10.6 per cent of GDP a year earlier (Table 7.2).

Like in previous years, the resident banking system largely intermediated the financing of the Portuguese economy. Financing flows of the banking system are usually recorded in the balance of payments under "other investment" and they reflect deposits or loans granted by non-resident banking institutions. Over the past few years most of these flows were associated with the financing of Portuguese banking groups in the form of bonds and other medium and long-term securities, issued by subsidiaries and branches abroad. The financing thus obtained is recorded in the balance of payments when the funds are channelled to the respective parent undertaking in Portugal in the form of deposits. The cross-checking of external accounts with data from the consolidated balance sheet of the banking system shows that in 2006, and in contrast to the past few years, the financing of other monetary financial institutions was mainly obtained in the interbank market, although subsidiaries and branches abroad of Portuguese banking groups continued to issue securities. The higher recourse to interbank financing may be temporary, due to securitisation, which usually takes place in the second half of the year, as well as to the launch of a new instrument to obtain liquidity, the so-called mortgage bonds, whose legal framework has been recently completed.

In the first half of 2006 portfolio investment accounted for very significant net outflows of funds (above 12 per cent of GDP). This development reflects, on the one hand, a lower recourse to financing from non-residents by the public sector and non-financial corporations and, on the other hand, the very significant purchase by institutional investors and households of securities issued by non-residents. In fact, in the first half of 2006 there was a significant reduction in government debt placed with non-residents, which is consistent with lower general government borrowing requirements. Moreover, special mention should be made to the redemption of commercial paper by two major economic groups, whose issuances were mostly held in non-residents portfolios. Finally, insurance corporations and pension funds and, to a lesser extent, households made very significant purchases of medium and long-term debt securities issued by non-residents.

The amount outstanding of direct investment operations, excluding those associated with companies located in the Madeira and Azores off-shore centres, corresponded to a net inflow of funds of around 1.7 per cent of GDP, accounting for a recovery of this type of financing compared with the first half of 2005 (0.7 per cent of GDP).[18] However, it should be noted that this recovery largely resulted from a reduction in direct investment of Portugal abroad compared to 2005.

(18) The exclusion of these operations associated with companies located in the Madeira and Santa Maria (Azores) off-shore centres is justified because they frequently involve significant amounts, which merely represent the use of these off-shore centres for the carrying out by non-residents of investments in third countries and therefore they do not have relevant consequences for the Portuguese economy.

Table 7.2

FINANCIAL ACCOUNT

	Jan-Dec 2005	January - June 2005			January - June 2006		
	Net change	Change liabilities	Change assets	Net change	Change liabilities	Change assets	Net change
Current and capital account	-8.1			-9.2			-8.9
Financial account	8.8	19.4 (14.8)	-8.8 (-4.2)	10.6	24.3 (22.8)	-15.9 (-14.4)	8.4
Direct investment	1.1	2.8	-1.7	1.1	2.5	-0.9	1.6
excluding Madeira and Santa Maria (Azores) off-shores	*0.7*	*2.4*	*-1.7*	*0.7*	*2.4*	*-0.6*	*1.7*
Portfolio investment	-1.1	7.0	-7.9	-0.9	0.5	-13.4	-12.9
Financial derivatives	-0.1	-2.7	2.5	-0.2	-3.7	3.4	-0.3
Other investment	7.9	12.4 (7.7)	-1.7 (2.9)	10.6	25.0 (23.5)	-7.2 (-5.7)	17.9
Reserve assets	1.0	0.0	-0.1	-0.1	0.0	2.1	2.1
By institutional sector of resident investor:							
Monetary authorities [(a)]	2.7 (1.2)	7.8 (3.1)	-0.2	7.6 (2.9)	4.1 (2.6)	0.9	5.0 (3.5)
Portfolio investment	-0.7		0.3	0.3		1.0	1.0
Financial derivatives	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other investment	2.4 (0.9)	7.8 (3.1)	-0.3	7.4 (2.8)	4.1 (2.6)	-2.2	1.9 (0.4)
Reserve assets	1.0		-0.1	-0.1		2.1	2.1
General government	6.2	5.6	0.1	5.6	2.9	0.2	3.1
Direct investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0
excluding Madeira and Santa Maria (Azores) off-shores	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Portfolio investment	6.7	7.2	-0.2	6.9	3.4	-0.1	3.3
Financial derivatives	0.0	-0.5	0.3	-0.2	-0.6	0.3	-0.3
Other investment	-0.5	-1.1	0.0	-1.1	0.1	0.0	0.1
Other monetary financial institutions [(a)]	-1.8 (-0.3)	0.8	0.0 (4.7)	0.8 (5.5)	19.1	-3.7 (-2.2)	15.3 (16.8)
Direct investment	-0.3	0.1	-0.2	-0.1	0.4	0.2	0.6
excluding Madeira and Santa Maria (Azores) off-shores	*-0.3*	*0.1*	*-0.2*	*-0.1*	*0.4*	*0.2*	*0.6*
Portfolio investment	-6.0	-2.7	-0.7	-3.5	0.7	-3.6	-2.9
Financial derivatives	-0.1	-1.5	1.5	0.1	-2.3	2.1	-0.2
Other investment	4.5 (6.1)	4.9	-0.6 (4.1)	4.4 (9.0)	20.3	-2.5 (-0.9)	17.8 (19.3)
Non-monetary financial institutions	-0.9	2.1	-5.9	-3.8	-1.3	-7.6	-8.8
Direct investment	0.5	0.8	-0.5	0.4	0.5	0.0	0.5
excluding Madeira and Santa Maria (Azores) off-shores	*0.5*	*0.9*	*-0.5*	*0.4*	*0.5*	*0.0*	*0.5*
Portfolio investment	-1.5	1.6	-5.8	-4.2	-1.5	-8.6	-10.1
Financial derivatives	0.1	-0.5	0.5	0.0	-0.5	0.8	0.2
Other investment	0.0	0.2	-0.1	0.0	0.3	0.3	0.5
Non-financial corporations and households	2.5	3.2	-2.9	0.3	-0.5	-5.7	-6.2
Direct investment	0.9	1.9	-1.0	0.9	1.6	-1.1	0.5
excluding Madeira and Santa Maria (Azores) off-shores	*0.5*	*1.4*	*-1.0*	*0.4*	*1.5*	*-0.9*	*0.6*
Portfolio investment	0.4	0.9	-1.4	-0.4	-2.1	-2.0	-4.1
Financial derivatives	-0.1	-0.2	0.2	0.0	-0.3	0.2	-0.1
Other investment	1.4	0.6	-0.7	-0.1	0.3	-2.8	-2.5
Errors and omissions	-0.7			-1.3			0.5

Sources: *INE* and Banco de Portugal.
Notes: 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. **(a)** The figures in brackets in other investment of monetary authorities and of other monetary financial institutions are adjusted for temporary end-of-year operations between the two sectors (reversed in the first days of the subsequent year). Such operations do not affect the overall financial account balance.

8. CONCLUSION

The dynamics of exports is a fundamental feature of developments in the Portuguese economy in 2006. This dynamics has been characterised by a higher diversification of exports in terms of goods and geographic markets. With regard to the latter, it should be noted that the highest contributions to export growth in 2006 came from the traditional markets of destination, namely Spain, whose positive contribution has been rising, and the United States and Germany, which significantly recovered from the negative contributions in 2005. However, from the second half of 2005 onwards, and throughout 2006, there was a strong increase in exports to countries with a traditionally negligible weight in the Portuguese external trade. This phenomenon seems to reflect a gradual increase in the integration of the Portuguese economy in the world market and occurs in a context of strong rise in international transaction flows of goods and services, associated with the reduction of trade barriers and the growing participation of emerging market economies in international trade.

For a small open economy like Portugal, the increasing integration in world trade has a significant impact on efficiency, namely through increased competition, with direct benefits for consumers, and reduced market fragmentation, allowing companies to fully take advantage of their economies of scale.

However, there is high uncertainty about the degree of sustainability of the current dynamics of exports, as well as about the diversification process observed in 2006. The high volatility of exports, which is clearly above that seen in recent years, illustrates such uncertainty. Moreover, the relative costs of the Portuguese economy continued to increase in 2006. However, the growing integration in world economy of emerging market economies with low unit production costs and the ongoing productive restructuring of the Portuguese economy make it more difficult to interpret the usual price-competitiveness indicators.

Another fundamental feature of developments in the Portuguese economy in 2006 was the further decline in investment. In cumulative terms, total investment fell by around 18 per cent in the past five years. As a consequence, in 2006 the weight of investment in GDP, in both nominal and real terms, is expected to fall to the lowest level of the past decades.

It is important to analyse the reasons behind the successive fall in corporate investment over the past five years. Overall, corporate investment depends on the present value of expected profitability. The latter in turn depends on expected developments in factor productivity, on corporate demand expectations and on the degree of uncertainty surrounding these elements. In addition to the low trend growth that has characterised the Portuguese economy over the past few years and low demand expectations, factors such as the predictability of the tax system, workforce skills (due to the complementarity between physical and human capital) and the prevailing institutional framework (namely in terms of flexibility of the goods and labour markets) seem to have also been crucial for corporate investment decisions. Moreover, in a context of uncertainty, namely regarding the sustainability of global demand growth and the impact of some structural measures on the Portuguese economy, companies may have decided to wait for new information that would confirm the viability of particular investment projects.

Given the crucial importance of investment for the promotion of future economic growth – by incorporating new technologies and know-how into production processes –, developments in this variable in recent years are particularly worrying. In fact, taking into account the behaviour of investment and of the capital stock over the past few years, there is a risk that capital intensity in the economy – measured as the weight of the capital stock in GDP – will gradually decline in the near future. In this context, the quality of investment should improve substantially so that over the coming years the contribution

from capital may support the convergence of Portuguese *per capita* income towards the average euro area level.

An important element in this context, and the third relevant feature of recent developments in the Portuguese economy, was the beginning of the full implementation of a fiscal consolidation package. The significant fiscal consolidation in 2006 has mainly relied on an increase in tax revenue and, to a lesser extent, on the reduction of expenditure as a percentage of GDP. The pursuance of the objectives of the Stability and Growth Programme for the coming years, in particular regarding developments in the general government deficit and also in revenue and expenditure, is key to ensure a stable and predictable framework for economic decisions in Portugal.

The cut-off date for data was early November 2006.

Box 1. Corporate investment and exports

The acceleration of the Portuguese economy from the second half of 2005 onwards has been characterised by a more favourable performance of exports, which however, has not been accompanied by a comparable performance of investment. Besides the specific factors that seem to condition public investment and housing investment, corporate investment continued to record negative year-on-year rates of change in the course of 2006.

These developments in corporate investment, despite conditioning the pace of recovery of economic activity, do not seem to differ significantly from those observed in the past. Indeed, recent evidence of the Portuguese economy shows that corporate investment tends to accelerate with some lag compared with the evolution of exports, when signs of increased economic buoyancy are passed through to private consumption. The analysis of the statistical significance of correlation coefficients for the period between 1979 and 2005 (Chart 1) points to a lag of 8 to 15 quarters (Q12 being the most significant coefficient) between developments in exports of goods and corporate investment, as measured in terms of the year-on-year rates of change.[1] It should be noted, however, that this lag decreases significantly from 3 to 12 quarters (Q9 being the most significant) excluding the initial part of the sample. This result seems to be related to the characteristics of the 1983-84 recession, when the significant depreciation of the real exchange rate enabled a strong and rapid acceleration of exports, in a scenario of still rather depressed domestic demand.

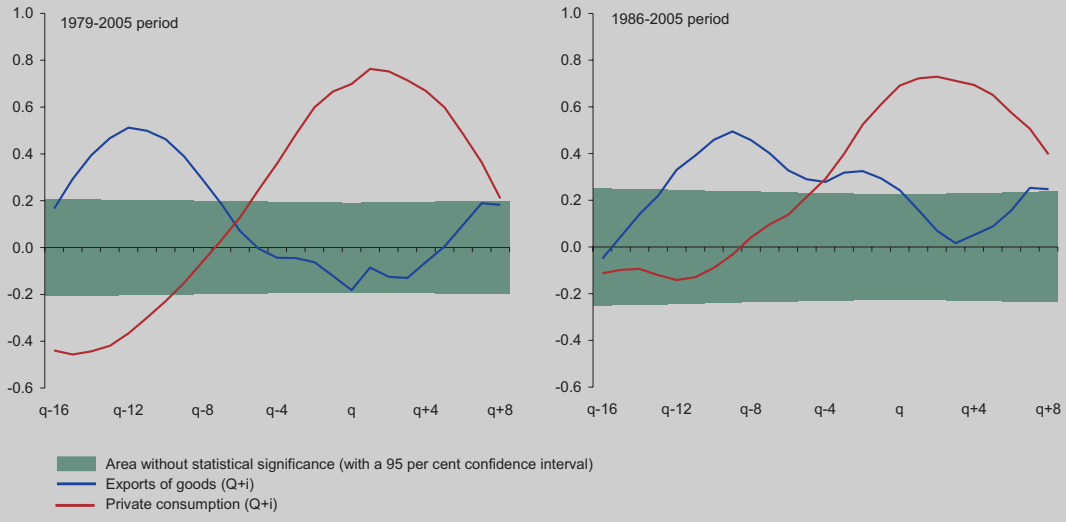
Several factors may be behind this empirical regularity. First, the existence of spare capacity or of undesirable levels of stocks may explain a lagged reaction of investment to exports. This result will be the more significant the higher the uncertainty about future developments in exports and domestic demand. Chart 2 points to some lag (1 to 4 quarters) between developments in exports of goods and the rate of capacity utilisation in manufacturing industry – a particularly representative sector of the activity of export companies.

Second, a large share of corporate investment is related to domestic market oriented activities and therefore it is naturally linked to the current and expected developments in domestic demand, in particular, private consumption (Chart 1). Indeed, on the basis of the latest data available for 2002 of the input-output matrices of National Accounts, there is no evidence that the export sectors have a predominant weight in the composition of corporate investment. Taking into account the sectoral distribution of investment weighted by the ratio of exports to total final

Chart 1

CORRELATION BETWEEN CORPORATE INVESTMENT AND EXPORTS AND PRIVATE CONSUMPTION

Quarterly data (year-on-year rates of change)



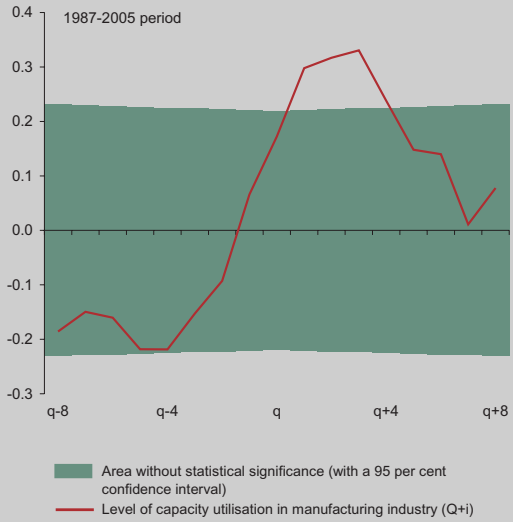
Source: Banco de Portugal.

(1) The results reported would not be significantly different if use were made of the cyclical components obtained through the application of a filter of the Hodrick-Prescott type for the removal of the respective trends, instead of the variables expressed in year-on-year rates of change.

Chart 2

CORRELATIONS BETWEEN EXPORTS AND CAPACITY UTILISATION

Quarterly data (year-on-year rates of change)



Sources: *INE* and Banco de Portugal.

demand of each sector, in 2002 approximately 1/4 of corporate investment is estimated to have been directly related to exports.

Thus, the fact that the strong export buoyancy in 2006 has not been accompanied so far by more favourable developments in corporate investment does not seem to be out of line with the empirical evidence available for the Portuguese economy.

Box 2. Qualitative surveys as leading indicators of nominal exports of goods

Exports are a key variable for developments in activity in a small open economy like the Portuguese. Developments in exports, particularly in the very short term, tend to be characterised by high volatility.[1] Therefore, the identification of indicators that are made available more timely and with some forecasting properties regarding developments in exports, enables the improvement of the short-term forecasts of the Portuguese economy.

Chart 1 shows the correlation coefficients between nominal exports of goods (as measured in year-on-year rates of change) and some indicators built on the basis of balance of respondents of qualitative surveys on the manufacturing industry and economic sentiment indicators for European Union countries. The selection of these indicators was based on the time they are made available and on the statistical evidence on their forecasting properties regarding developments in exports.

The combined use of these indicators makes it possible to obtain a forecasting model for developments in exports in quarter t at the end of the first month of that quarter, i.e. in a period in which there are only external trade statistics for the first month of the previous quarter, and a first estimate within the framework of the Special Data Dissemination Standards (SDDS) procedure for the second month.

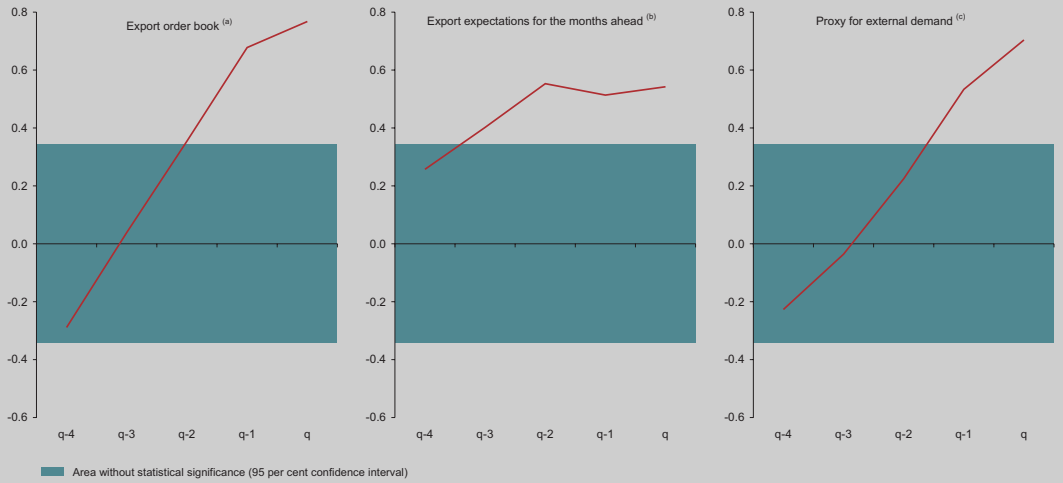
The assessment of these projections is illustrated in Chart 2, which also presents the current forecast for the fourth quarter, built on the basis of data available in mid-November – when the first version of the external trade statistics for August and the first estimate of SDDS for September were published by INE.

The evaluation of model errors over the period used for its estimation highlights the difficulty in forecasting developments in exports in 2006. Throughout the period under review, the forecast error had never recorded the magnitude of the consecutively positive figures observed over the first three quarters of 2006. Taking into account the forecast error estimated for the third quarter,[2] the current central projection, albeit subject to a high degree of uncertainty,

Chart 1

CORRELATION COEFFICIENTS WITH CONTEMPORANEOUS DEVELOPMENTS IN EXPORTS

Quarterly year-on-year rates of change



Sources: European Commission, *INE* and Banco de Portugal.
Notes: (a) On the basis of the Monthly Manufacturing Survey, taking into account data regarding the first month of each quarter and a sectoral aggregation representative of the Portuguese export structure. (b) On the basis of the Quarterly Manufacturing Survey, taking into account a sectoral aggregation representative of the Portuguese export structure. (c) On the basis of the economic sentiment indicators of the European Commission, taking into account data regarding the first month of each quarter and a geographical aggregation representative of the Portuguese export structure.

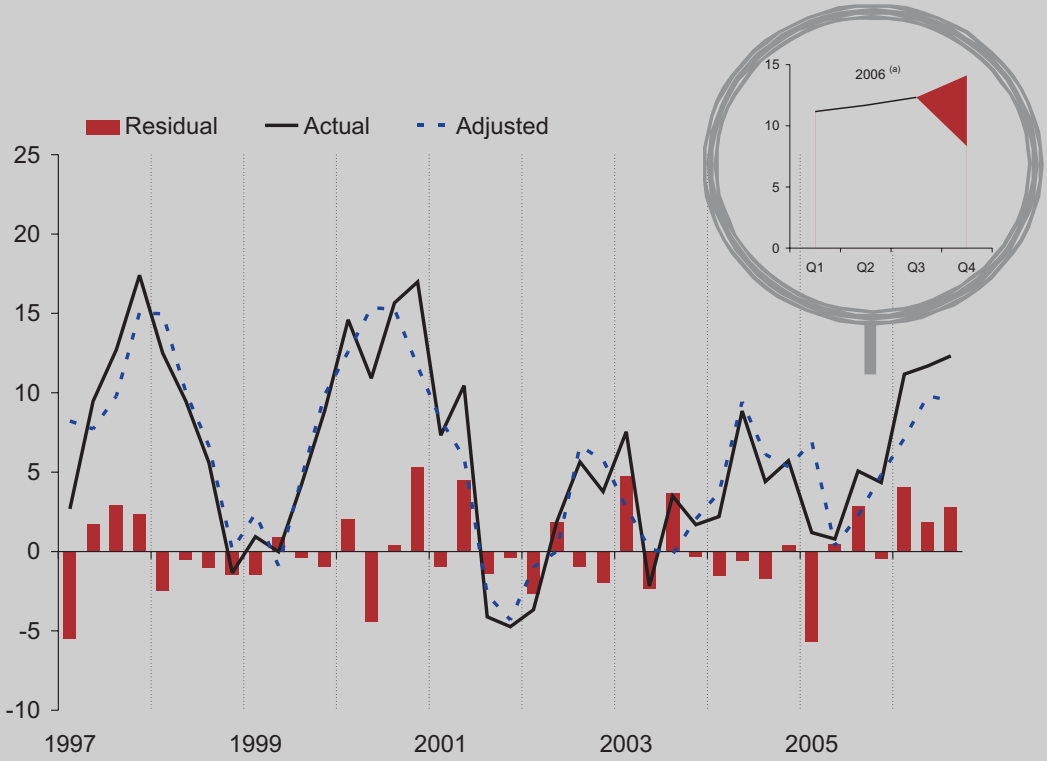
(1) A disaggregated analysis by cyclical components shows that volatility in exports of goods was around 2.5 times higher than GDP volatility, in the period between 1978 and 2003. For a more detailed analysis of the cyclical properties of the main expenditure components, see G. Castro and P. S. Esteves, "Quarterly series for the Portuguese economy: 1977-2003", in the June 2004 issue of the Economic Bulletin of the Banco de Portugal.

(2) The incorporation of the forecast error of the third quarter corresponds to use the model to project developments in the year-on-year rate of change in exports, instead of using a direct projection for the level of that rate. This implies that factors not explained by the model, which contributed to higher export growth over the third quarter, are assumed to persist in the last quarter of 2006.

points to a slight deceleration in the growth rate of exports of goods in nominal terms over the fourth quarter, to a value that continued to translate the strong buoyancy of the export sector.

Chart 2

NOMINAL EXPORTS OF GOODS
Quarterly year-on-year rates of change



Sources: *INE* and Banco de Portugal.
Note: (a) Projection range for the fourth quarter, defined by a one standard-deviation in each tail.

Box 3. Goods and services account and relative domestic demand between Portugal and the euro area

In recent years, the goods and services deficit continued to be higher than suggested by the fact that domestic demand in Portugal recorded far more subdued developments than in the main markets of destination of Portuguese exports.

Traditionally, developments in the trade balance are negatively related to the relative growth of domestic demand in Portugal (which fosters imports) compared with that of the main markets of destination (the driving force behind exports). This relationship between developments in the goods and services account excluding energy and the growth of relative domestic demand is shown in Chart 1 for the period 1985-2006 (correlation coefficient of 0.84), using the euro area as a proxy for the main markets of destination of Portuguese exports.

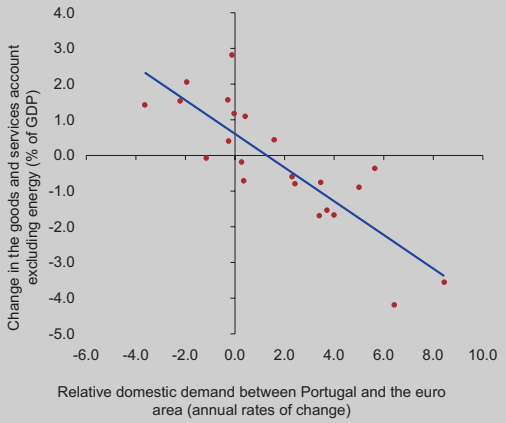
Taking into account this historical average relationship and assuming that the exogeneity of the energy account is valid in the short term – given that it is strongly conditioned by oil price developments in international markets –, it is possible to break down developments in the goods and services account over the past few years (Chart 2).

Since 2000, developments in relative domestic demand between Portugal and the euro area have contributed positively to developments in the trade balance. In this period, the cumulative growth of domestic demand in Portugal was approximately 6.8 p.p. lower than in the euro area. However, after 2003 the trade deficit did not decline, given that the impact associated with developments in relative domestic demand was counterbalanced by other factors. On the one hand, in a context of significant increases in oil prices, the energy deficit deteriorated. On the other hand, the residual component resulting from this breakdown, which tends to reflect effects related to developments in exports, recorded negative figures between 2003 and 2005 (the residual component shows a correlation coefficient of 0.78 with developments in the market share of goods and services exports).

In 2006 the goods and services account is projected to show favourable developments, largely due to the strong acceleration in exports. This is reflected in the residual component of the above-mentioned breakdown and contrasts with developments seen in the recent past.

Chart 1

GOODS AND SERVICES ACCOUNT EXCLUDING ENERGY AND RELATIVE DOMESTIC DEMAND BETWEEN PORTUGAL AND THE EURO AREA
(1985-2006)

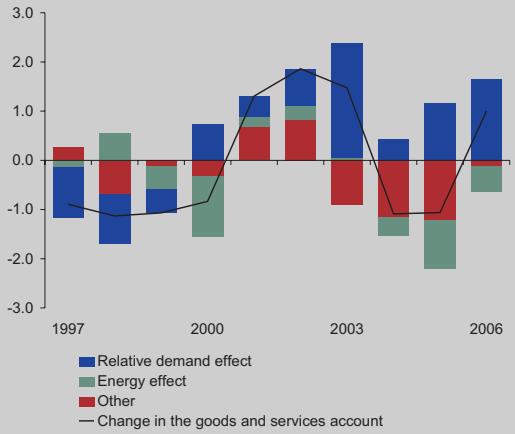


Sources: ECB, *INE* and Banco de Portugal.

Chart 2

BREAKDOWN OF DEVELOPMENTS IN THE GOODS AND SERVICES ACCOUNT

As a percentage of GDP



Sources: ECB, *INE* and Banco de Portugal.

THE BANKING SYSTEM IN THE FIRST HALF OF 2006

1. OVERVIEW

Portuguese banking institutions have been revealing a remarkable capacity to adapt to the unfavourable developments in the Portuguese economic environment in recent years, which have been characterised by the maintenance of low growth rates, the rise in the unemployment rate and the need to consolidate public accounts. In fact, the banking system has been able to keep a considerable pace of business expansion, by concentrating business on lower-risk segments, not only in terms of probability of default, but also as regards guarantees associated with operations, namely in the housing credit segment. There has been a certain business diversification in geographical terms, the international component accounting for a growing share of the system's assets and of the profit and loss, albeit still limited compared with the banking systems of other European countries.

In the past few years banking institutions have been benefiting from overall positive developments in financial markets. Stock markets continued to follow an upward trend, while long-term interest rates in bond markets have remained at low levels, although they increased somewhat in the course of last year.

In addition, in the context of a reduced financial margin, profits and losses of banking institutions also benefited from the trend increase in revenue from commissions associated with a wider range of services provided to their customers.

In the first half of 2006 banking activity on a consolidated basis continued to grow significantly, again boosted by growth in credit to customers, stress being laid on the acceleration of loans to non-financial corporations and to households for consumption and other purposes and the maintenance of strong growth in loans to households for house purchase. Following the trend of recent years, resources from customers grew much less, and banks thus continued to resort to alternative financing sources as a way of sustaining credit growth. Hence, in the first half of 2006 the financing needs of institutions were mainly met through market financing, although, in contrast to recent years, financing was essentially of the interbank type and, to a lesser extent, carried out with recourse to medium and long-term debt markets. In this context, it should be noted that the slight deterioration of liquidity indicators in the first half of the year may soon be reversed, with a likely contribution from recourse to securitisations, which generally occur in the course of the second half of the year, and the boosting of a new instrument to obtain liquidity, i.e. mortgage bonds (the necessary legal framework governing these instruments was meanwhile completed).

The profitability of most institutions increased further in the first half of 2006, compared with that seen in the same period in 2005. However, reference should be made to the fact that in one of the major banking groups considered this increase was associated, in particular, with one-off operations in the context of a restructuring of participating interests in the insurance sector. Adjusted for this operation, the return on assets of the aggregate of institutions considered also followed an upward trend, while the return on equity declined slightly.

(1) Similarly to the 2005 Financial Stability Report, the analysis carried out in this article focuses on an aggregate of 13 institutions/banking groups which since early 2005 have adopted the International Accounting Standards in the preparation of their financial statements on a consolidated basis. For further details on the data used in this article, see Box 1 " Universe of institutions used in the analysis".

In the context of a rise in interest rates, and in spite of a decrease in their contribution to the return on assets, the financial margin recorded a significant increase, the highest since 2001. Also, commissions gained further importance in the generation of profitability for banking institutions.

Credit portfolio default ratios also evolved favourably, notwithstanding the background of a rise in interest rates. In line with recent years, a better risk management and the introduction of new financial products and types of contract more adapted to the current ability of counterparties to service debt played a role in this context. More markedly in 2006, these developments seem to have also reflected recourse to the sale de credit overdue and other non-performing loans.

The solvency of the institutions considered increased slightly in the first half of the year, mainly benefiting from an increase in original own funds. This increase essentially reflected the improvement in the situation of one of the main groups considered, as a result of the rise in the equity capital of one of the institutions comprising the above-mentioned group (which at the consolidated level translated into an increase in minority interests).

2. ACTIVITY

In the first half of 2006 the activity of banking institutions, assessed in terms of total assets on a consolidated basis, increased at an annualised rate of 6.6 per cent (at end-June 2006 the year-on-year change was 10.1 per cent) (Table 2.1).

The main contribution to this change was associated with the expansion of (net) credit to customers, which in this half-year grew at an annualised rate of 8 per cent (9 per cent in year-on-year terms at end-June 2006).[2] When considering activity carried on at the domestic level, the segment that made the highest contribution to this expansion continued to be that of loans to households for house purchase, where the competitive pressure is more intense.[3] This segment continued to grow strongly, and the respective annual rate of change remained above 10 per cent at end-June.[4] The persistence of high growth rates reflected the offering of contract conditions which, allowing for the debt burden associated with indebtedness to be limited, have been sustaining credit demand. According to the Bank Lending Survey, among these conditions stress should be laid on the lengthening of contractual maturities, the squeeze of margins in medium-risk loans and the acceptance of higher loan-to-value ratios.

Still with regard to households, loans for consumption and other purposes were significantly buoyant in the first half of 2006. In fact, their annual rate of change stood at 8.5 per cent in June 2006, after 4.2 per cent in June and 6.8 per cent in December 2005. According to the survey respondents, developments in these loans seem to have been essentially related to financing the purchase of durable goods.

On the other hand, loans to non-financial corporations have been gradually accelerating, in particular loans to larger corporations, according to available information. The annual rate of change in loans to non-financial corporations reached 5.8 per cent in June 2006, compared with 4.0 and 4.8 per cent in June and December 2005 respectively. According to the Bank Lending Survey results, developments in demand by corporations may have been motivated by increased financing needs related to debt restructuring, mergers, acquisitions and other corporate restructuring and, to a lesser extent, the financ-

(2) This aggregate also includes credit to customers subject to securitisation but not derecognised.

(3) This assessment results from developments at the level of interest rate margins in bank loans and from Bank Lending Survey responses. For an in-depth analysis of developments in credit to the non-financial private sector, see Section 3.1 "Monetary policy of the ECB and monetary and financial conditions of the Portuguese economy" in the article "The Portuguese economy in 2006" in this issue of the Economic Bulletin.

(4) The annual rate of change in loans by institutional sector is based on data from monetary and financial statistics. The calculation took into account loans granted by resident financial institutions adjusted for securitisations conducted through non-resident special purpose vehicles. The resident financial institutions aggregate includes other resident monetary financial institutions and other credit institutions included in the other resident financial intermediaries and financial auxiliaries sector.

Table 2.1

BALANCE SHEET OF THE BANKING SYSTEM
On a consolidated basis

	Euro million			Rate of change[a] (per cent)		Structure (as a percentage of assets)		
	2005		2006	Jun.2006		2005		2006
	Jun.	Dec.	Jun.	y-o-y.r.c	a.s.r.c.	Jun.	Dec.	Jun.
Cash and claims on central banks	4 619	6 205	5 510	19.3	-21.2	1.6	2.0	1.7
In the country	4 170	5 657	4 807	15.3	-27.8	1.5	1.8	1.5
Abroad	450	548	702	56.2	64.5	0.2	0.2	0.2
Claims on other credit institutions	3 548	3 199	3 514	-1.0	20.6	1.2	1.0	1.1
In the country	2 011	2 166	1 854	-7.8	-26.8	0.7	0.7	0.6
Abroad	1 537	1 033	1 660	8.0	158.2	0.5	0.3	0.5
Investment in credit institutions	22 343	27 676	24 329	8.9	-22.7	7.8	9.0	7.7
In the country	2 204	3 582	2 611	18.5	-46.9	0.8	1.2	0.8
Abroad	20 138	24 094	21 718	7.8	-18.8	7.0	7.9	6.9
Net credit to customers	194 123	199 873	208 233	7.3	8.5	67.6	65.3	65.9
Financial assets measured at fair value through profit or loss	18 310	18 150	20 527	12.1	27.9	6.4	5.9	6.5
Available-for-sale financial assets	13 523	14 037	16 632	23.0	40.4	4.7	4.6	5.3
Held-to-maturity investments	645	718	746	15.6	7.9	0.2	0.2	0.2
Hedging derivatives	1 418	816	1 051	-25.9	66.0	0.5	0.3	0.3
Securitised non-derecognised assets	10 212	14 186	14 636	43.3	6.4	3.6	4.6	4.6
Investment in subsidiaries	3 399	3 475	3 752	10.4	16.6	1.2	1.1	1.2
Tangible and intangible assets	4 501	3 886	3 947	-12.3	3.2	1.6	1.3	1.2
Other assets	10 403	13 768	13 041	25.4	-10.3	3.6	4.5	4.1
Total assets	**287 043**	**305 989**	**315 920**	**10.1**	**6.6**	**100.0**	**100.0**	**100.0**
Resources from central banks	5 824	6 215	8 450	45.1	84.9	2.0	2.0	2.7
In the country	5 181	5 464	7 337	41.6	80.3	1.8	1.8	2.3
Abroad	643	751	1 113	73.0	119.8	0.2	0.2	0.4
Resources from other credit institutions	36 779	38 840	43 779	19.0	27.1	12.8	12.7	13.9
In the country	4 288	5 384	5 470	27.6	3.2	1.5	1.8	1.7
Abroad	32 491	33 457	38 309	17.9	31.1	11.3	10.9	12.1
Resources from customers and other loans	142 123	149 139	147 099	3.5	-2.7	49.5	48.7	46.6
Financial liabilities measured at fair value through profit or loss	4 078	4 306	5 626	38.0	70.7	1.4	1.4	1.8
Liabilities represented by securities	60 257	62 807	65 209	8.2	7.8	21.0	20.5	20.6
Subordinated debt	10 132	9 973	9 789	-3.4	-3.7	3.5	3.3	3.1
Hedging derivatives	1 197	956	1 371	14.6	105.6	0.4	0.3	0.4
Liabilities for non-derecognised assets	977	2 363	2 681	174.5	28.7	0.3	0.8	0.8
Other liabilities	10 567	13 608	11 800	11.7	-24.8	3.7	4.4	3.7
Total liabilities	**271 933**	**288 208**	**295 803**	**8.8**	**5.3**	**94.7**	**94.2**	**93.6**
Capital	**15 110**	**17 782**	**20 117**	**33.1**	**28.0**	**5.3**	**5.8**	**6.4**
of which: Net profit and loss	1 061	2 197	1 591	50.0	n.a.	0.4	0.7	0.5
Total liabilities and net wealth	**287 043**	**305 989**	**315 920**	**10.1**	**6.6**	**100.0**	**100.0**	**100.0**
Memo:								
For the domestic institutions sub-group								
Claims and investments in central banks and in other credit institutions	**24 627**	**31 328**	**26 652**	**8.2**	**-27.6**	**8.6**	**10.2**	**8.4**
In the country	7 113	9 817	7 663	7.7	-39.1	2.5	3.2	2.4
Abroad	17 514	21 511	18 988	8.4	-22.1	6.1	7.0	6.0
Resources from central banks and other credit institutions	**28 136**	**28 294**	**33 448**	**18.9**	**39.7**	**9.8**	**9.2**	**10.6**
In the country	3 966	4 720	5 590	41.0	40.2	1.4	1.5	1.8
Abroad	24 170	23 573	27 857	15.3	39.6	8.4	7.7	8.8

Source: Banco de Portugal.
Note: (a) y-o-y.r.c. - year-on-year rate of change; a.s.r.c. - annualised six-month rate of change; n.a. - not applicable.

ing of inventories and working capital needs. However, in line with the retrenchment at the level of corporate investment, financing needs related to investment projects continued to make a negative contribution to developments in credit demand in this segment.

Growth in credit to customers also reflected the buoyant international activity of the major Portuguese banking groups. In fact, given the progressive maturing of the activity carried on in the national territory, banking institutions have been seeking investment opportunities abroad. In this context, in their

reports for the first half of 2006 some of the major Portuguese banking groups presented significant changes in the international component at the level of fund raising, credit granting and generation of income. For the five major banking groups as a whole, (year-on-year) growth in credit granted in the international activity segment was around 20 per cent, i.e. clearly exceeding that recorded in domestic activity. Poland, Greece and Angola are among those countries where the international activity of Portuguese banks is particularly relevant.

The increase in activity also translated growth in the equity and debt instruments portfolios (included in the financial assets portfolios measured at fair value through profit or loss and in the available-for-sale financial assets). The increase in the debt instruments portfolio essentially reflected purchases of securities, given that in the first half of the year the value of this portfolio declined, against a background of some rise in long-term interest rates. In turn, the valuation of the equity portfolio benefited from positive developments in stock markets.

Resources from customers continued to show low annual rates of change in June 2006, albeit higher than those seen in the same period in 2005. The further, albeit small, decline in the savings rate and the continuing channelling of resources from customers to alternative investments (among which investment funds and products associated with life insurance) in institutions which, although not integrating the composition of consolidation of banking activity, belong to the institutions' financial groups, remained among the factors conditioning developments in resources from customers. The fact that banks chose this strategy was again based on these investments enabling customer loyalty through the offering of products with a potentially higher profitability and the generation of higher actual profitability for institutions, in overall terms.

In this context, and similarly to recent years, the weight of resources from customers as counterpart for net credit granted to customers declined further (Chart 2.1). The credit-to-deposit ratio of domestic institutions thus increased, standing at 140 per cent at the end of the first half of 2006, compared with 138 per cent in June 2005 and 135 per cent in December 2005.[5]

Given that in the course of the first half of 2006 there were no credit securitisations, the balance of securitised credit declined, which seems to have essentially corresponded to the current repayment of loans[6] (Chart 2.2). However, although in recent years securitisations turned out to be an important liquidity source for banking institutions, this type of operation was generally conducted in the second half of the year,[7] leading institutions to typically resort, in a more active manner, to other financing sources in the course of the first half of the year.

Hence, liabilities represented by securities increased by 3.8 per cent in this half-year (8.2 per cent year-on-year), benefiting from the favourable conditions that characterised financial markets in the first few months of 2006, particularly in the first quarter. In the second quarter of the year, in the context of some disturbances in international financial markets, the spreads of debt securities issued by some of the major Portuguese banking groups in international markets worsened somewhat, although later this was to a large extent reversed. In parallel, (net) financing with central banks and other credit institutions increased significantly, making the main contribution to a change in resources in the half-year under analysis. This trend was concentrated in the main domestic institutions and reflected, in a more evident manner, an increase in liabilities to credit institutions abroad. In addition, it resulted from a decrease in claims, on both institutions abroad and domestic institutions. Thus, the coverage ratio of in-

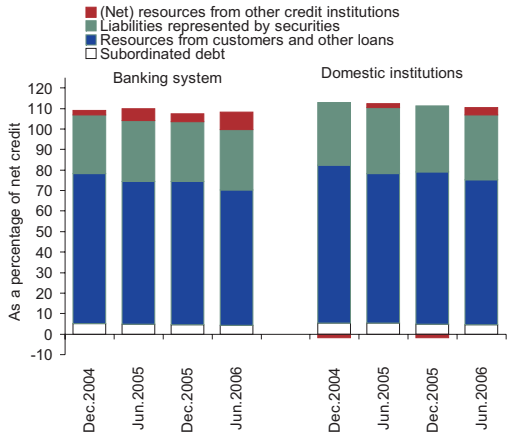
(5) This value is obtained when only claims not subject to securitisation are taken into account and when the concept of resources from customers does not cover securities issued by banks and placed with customers. Conclusions remain qualitatively valid when the variants to this ratio including the components referred to above are taken into account.

(6) It is important to recall that the adoption of International Accounting Standards (IAS) implied stricter criteria for the total derecognition of securitised assets. Therefore, this derecognition shall only occur where there is a total assignment of the rights and obligations associated with these assets.

(7) In fact, further securitisations were conducted in the course of the third quarter of 2006.

Chart 2.1

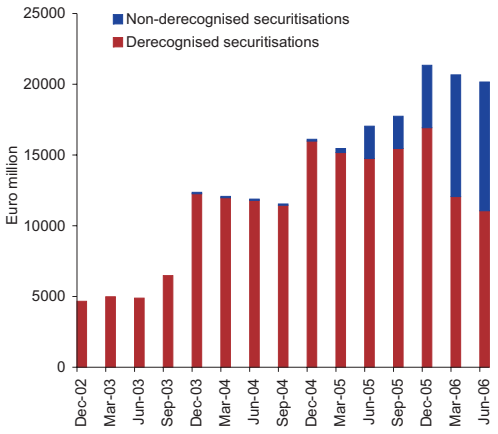
FINANCING SOURCES OF THE BANKING SYSTEM



Source: Banco de Portugal.
Note: (Net) resources from other credit institutions include net resources from central banks.

Chart 2.2

DEVELOPMENTS IN OUTSTANDING AMOUNTS OF LOANS SOLD IN SECURITISATION



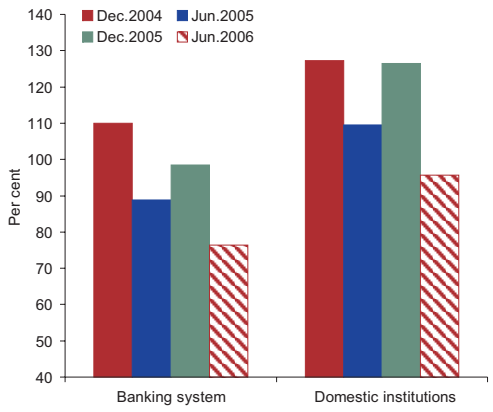
Source: Banco de Portugal.

terbank liabilities by highly liquid assets declined, more significantly in the case of domestic institutions (although these keep this coverage ratio at a higher level than that seen in the remaining institutions – Chart 2.3).

The analysis of liquidity gaps allows to obtain a more comprehensive perspective by considering the components of short-term assets and liabilities by residual maturities. In the half-year under analysis, developments in these indicators confirm the deterioration of the liquidity position of institutions, although to levels similar to those seen in June 2005 (Chart 2.4). In fact, there was a significant increase in volatile liabilities, related to the recourse to interbank financing and, to a lesser extent, to an increase in debt securities with a residual maturity of less than one year.

Chart 2.3

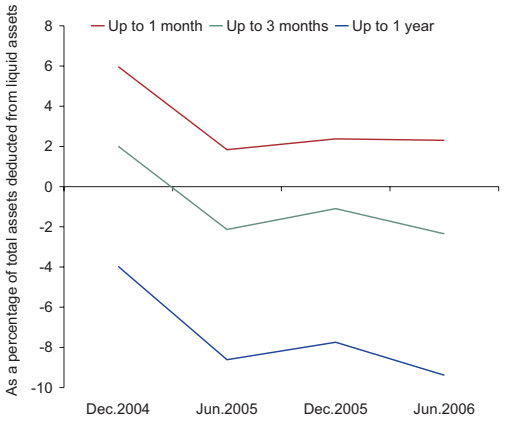
COVERAGE RATIO OF INTERBANK LIABILITIES BY HIGHLY LIQUID ASSETS



Source: Banco de Portugal.

Chart 2.4

LIQUIDITY GAP IN MATURITY LADDERS
Domestic institutions



Source: Banco de Portugal.
Note: Liquidity gap defined as (liquid assets - volatile liabilities)/(assets - liquid assets)x100 in each maturity ladder.

However, the greater recourse to the (typically shorter-term) interbank market, which accounts for the deterioration of the liquidity position in the first half of 2006, seems to have been merely temporary in nature. In fact, it should be taken into account that the same type of development was observed in the first half of 2005 (reversed in the following half-year) and that there were further securitisations in the third quarter of 2006. In turn, as from the last quarter of the year, institutions may resort to the issue of a new type of debt instrument at long maturities, namely mortgage bonds. The process for the creation of the legal framework governing this instrument was completed in October 2006, with the publication of four Notices and one Instruction by Banco de Portugal.[8]

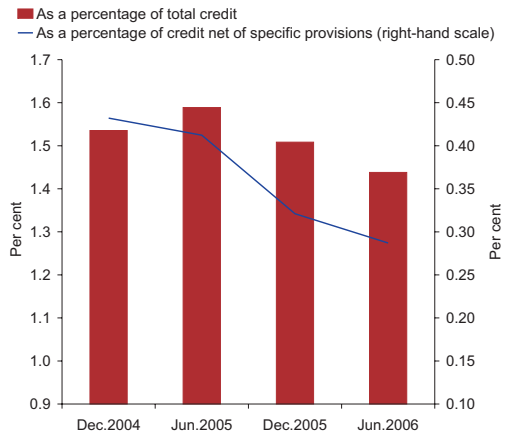
3. CREDIT DEFAULT AND PROVISIONING (PRUDENTIAL REGIME)

In the first half of 2006 the weight of credit overdue[9] in total credit continued to follow the downward trend seen in the second half of 2005, standing at 1.44 per cent (1.59 and 1.51 per cent in June and December 2005 respectively – Chart 3.1). This decline in the default ratio reflects the increase in total credit and a relative stabilisation of credit overdue compared with end-2005 values (a small rise compared with the same period in 2005).

Against the background of a slight economic rebound and a gradual rise in interest rates, developments in credit overdue seem to have benefited from the adoption by banking institutions of more sophisticated credit risk assessment models and types of contract more appropriate to the current ability of customers to service debt. According to the results of the Bank Lending Survey, contractual innovation involved – for example and depending on the segment under consideration – the lengthening of contractual maturities, the reduction of commissions and other charges not related to interest rates and the squeeze of interest rate margins applied in medium-risk loans. The implementation of these new conditions may have also involved credit renegotiations, which has also contributed to limit the emergence of new delinquency situations.

Chart 3.1

DEFAULT CREDIT RATIO



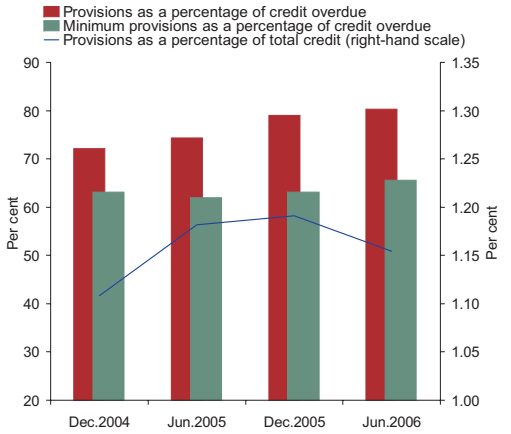
Source: Banco de Portugal.

(8) Namely Notices nos. 5, 6, 7 and 8 and Instruction no. 13/2006.

(9) The prudential concept of credit default includes credit overdue for more than 90 days and non-performing loans reclassified as overdue for provisioning purposes, in accordance with the change introduced in 2002 in Notice no. 3/95.

Chart 3.2

SPECIFIC CREDIT PROVISIONING



Source: Banco de Portugal.

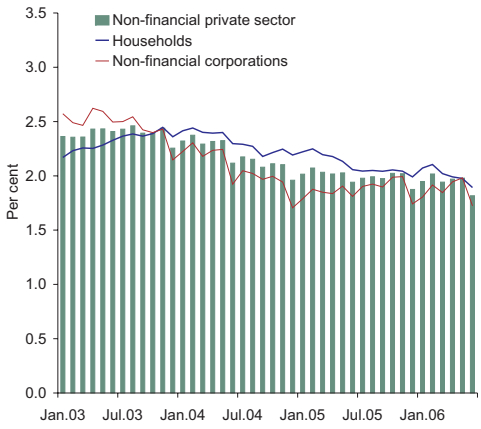
The containment of credit overdue in the banking book has benefited, on the one hand and similarly to the recent past, from write-offs (deducting from assets credits recognised as uncollectable) and, on the other hand, from the sale of credit overdue and other non-performing loans. The latter type of operation seems to have been particularly relevant in the first half of 2006, as some of the main banking institutions started resorting to it.

The ratio of credit overdue net of provisions for non-performing loans and for credit overdue to total credit, also net of these provisions, declined in the period under analysis, to stand at 0.29 per cent (13 and 3 b.p. less than in June and December 2005 respectively). In addition to the aspects already mentioned, this reflected the fact that institutions continued to set up specific provisions higher than the minimum regulatory levels established by Banco de Portugal. At the end of the first half of 2006, the total amount of specific provisioning accounted for 80 per cent of the portfolio of credit overdue (Chart 3.2). This coverage level was quite close to that seen in late 2005 and corresponded to an increase of around 6 p.p. from the level recorded in June that year.

An analysis of the counterparties of credit overdue that also takes into account the portfolio of resident customers shows that the decline in the ratio of credit overdue in the first half of the year was broadly based across non-financial corporations and households, notwithstanding the increase in the segment of loans to households for consumption and other purposes (Charts 3.3 and 3.4).

Chart 3.3

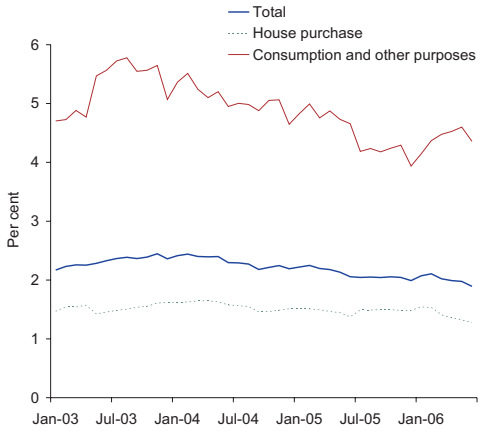
DEFAULT RATIO IN CREDIT TO RESIDENT CUSTOMERS



Source: Banco de Portugal.
Note: Credit and interest overdue and other non-performing loans as a percentage of total credit to the sector in the banking book.

Chart 3.4

DEFAULT RATIO IN CREDIT TO RESIDENT HOUSEHOLDS



Source: Banco de Portugal.
Note: Credit and interest overdue and other non-performing loans as a percentage of total credit to the sector in the banking book.

4. PROFITABILITY

In the first half of 2006 the profitability, on a consolidated basis, of most banking groups under analysis increased in comparison with the same period a year earlier (Table 4.1). However, the trend of the aggregate indicator for the institutions under analysis as a whole was strongly conditioned by one of the main banking groups. In fact, this group's profitability was largely determined by one-off operations associated with the restructuring of the participating interests of insurance corporations integrating the group and hence, they did not reflect the normal development of their activity. Adjusted for this operation, the return on assets (ROA) of the aggregate of institutions considered stood at 1.22 per cent compared with 1.06 per cent in June 2005, while the return on equity (ROE) declined somewhat, by 1 p.p., standing at 20 per cent.[10]

In fact, the empirical distribution of ROA allows to ascertain that most institutions improved at the indicator level in the first half of 2006. However, one of the main institutions of the banking system recorded an abnormally high increase in its profitability ratio, associated with the above-mentioned restructuring of participating interests of the group's corporations (Chart 4.1).

The financial margin increased by 8 per cent in the first half of 2006 in comparison with the same period in 2005 (i.e. the highest rate of change since 2001).[11] However, its contribution to the return on assets declined further (by 5 b.p. - Chart 4.2). This seems to have reflected, on the one hand, the slight increase in the overall margin of interest rates applied in operations with customers (in the context of a rise in the level of interest rates), and on the other hand, the maintenance of a significant recourse to market financing (especially money market financing this half-year), the cost of which is higher than that of resources from customers.

(10) Without adjusting for the results of the operation referred to, the return on assets of the group of institutions analysed stood at 1.46 per cent, while the return on equity increased, to stand at 24 per cent.

(11) The fact that in total customer deposits there is a significant share of overnight deposits that are not remunerated, or that are remunerated at rather low rates, favours the increase in the interest margin (interest received – interest paid) at times of reference interest rate rises (this acted in the opposite direction in the recent past).

Table 4.1

PROFIT AND LOSS ACCOUNT

On a consolidated basis

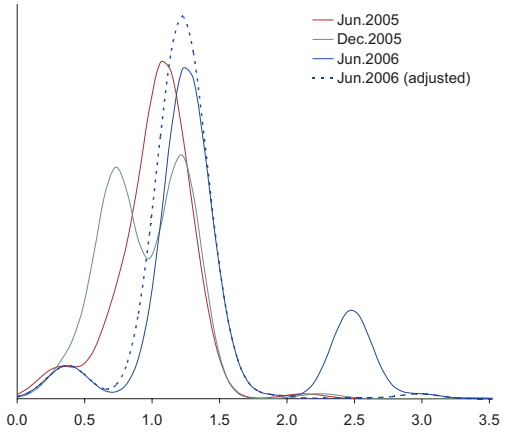
	Euro million				As a percentage of total assets				Year on year rate of change
	2004	2005	2005	2006	2004	2005	2005	2006	2006
	Year		1st half		Year		1st half		1st half
1. Interest income	12 622	13 977	6 833	8 040	4.63	4.86	4.88	5.17	17.7
2. Interest expenses	7 504	8 601	4 173	5 163	2.75	2.99	2.98	3.32	23.7
3. Financial margin (1-2)	**5 119**	**5 375**	**2 659**	**2 877**	**1.88**	**1.87**	**1.90**	**1.85**	**8.2**
4. Income from capital instruments	161	217	180	138	0.06	0.08	0.13	0.09	-23.1
5. Income from net services and commissions	1 923	2 212	1 044	1 196	0.71	0.77	0.75	0.77	14.6
6. Income from financial assets and liabilities measured at fair value	346	505	343	-119	0.13	0.18	0.24	-0.08	-134.9
7. Income from available-for-sale financial assets	104	663	87	230	0.04	0.23	0.06	0.15	163.9
8. Income from foreign exchange revaluation	208	53	-123	281	0.08	0.02	-0.09	0.18	-329.3
9. Income from the sale of other financial assets	72	366	105	207	0.03	0.13	0.07	0.13	97.5
10. Other operating profit and loss	602	651	451	738	0.22	0.23	0.32	0.47	63.5
10.a) Other operating profit and loss – adjusted	*602*	*651*	*451*	*401*	*0.22*	*0.23*	*0.32*	*0.26*	*-11.1*
11. Gross income (3+4+5+6+7+8+9+10)	**8 535**	**10 042**	**4 746**	**5 548**	**3.13**	**3.49**	**3.39**	**3.57**	**16.9**
11.a) Gross income - adjusted (3+4+5+6+7+8+9+10.a)	***8 535***	***10 042***	***4 746***	***5 212***	***3.13***	***3.49***	***3.39***	***3.35***	***9.8***
12. Staff costs	3 667	3 300	1 484	1 614	1.35	1.15	1.06	1.04	8.8
13. General administrative costs	1 891	1 956	914	982	0.69	0.68	0.65	0.63	7.5
14. Depreciation and amortisation	562	465	223	215	0.21	0.16	0.16	0.14	-3.5
15. Provisions net of restitutions and annulments	279	187	30	56	0.10	0.06	0.02	0.04	84.6
16. Impairment losses and other net value adjustments	1 012	1 372	707	561	0.37	0.48	0.51	0.36	-20.7
17. Appropriation of income from associates and joint ventures (equity method)	624	217	94	152	0.23	0.08	0.07	0.10	61.7
17. a) Appropriation of income from associates and joint ventures (equity method) - adjusted	*624*	*217*	*94*	*116*	*0.23*	*0.08*	*0.07*	*0.07*	*24.1*
18. Income before taxes and minority interests (11-12-13-14-15-16+17)	**1 748**	**2 981**	**1 482**	**2 272**	**0.64**	**1.04**	**1.06**	**1.46**	**53.3**
18 a) Income before taxes and minority interests - adjusted (11-12-13-14-15-16+17.a)	***1 748***	***2 981***	***1 482***	***1 900***	***0.64***	***1.04***	***1.06***	***1.22***	***28.2***
19. Taxes on profit	228	401	268	319	0.08	0.14	0.19	0.21	19.0
20. Income before minority interests (18-19)	**1 520**	**2 580**	**1 214**	**1 953**	**0.56**	**0.90**	**0.87**	**1.26**	**60.9**
20.a) Income before minority interests - adjusted (18.a-19)	***1 520***	***2 580***	***1 214***	***1 581***	***0.56***	***0.90***	***0.87***	***1.02***	***30.2***
21. Minority interests (net)	236	383	153	362	0.09	0.13	0.11	0.23	136.7
22. Net profit and loss (20-21)	**1 284**	**2 197**	**1 061**	**1 591**	**0.47**	**0.76**	**0.76**	**1.02**	**50.0**
22.a) Net profit and loss - adjusted (20.a-21)	***1 284***	***2 197***	***1 061***	***1 219***	***0.47***	***0.76***	***0.76***	***0.78***	***14.9***

Source: Banco de Portugal.

Note: The adjustment in some of the items (namely in lines 10 and 17) refers to the deduction of the effect of the restructuring of participating interests in corporations of the insurance sector carried out by one of the major banking groups considered in the analysis. However, the corresponding adjustment was not made in the items of taxes on profit and minority interests (19 and 21).

Chart 4.1

RETURN ON ASSETS
Empirical distribution

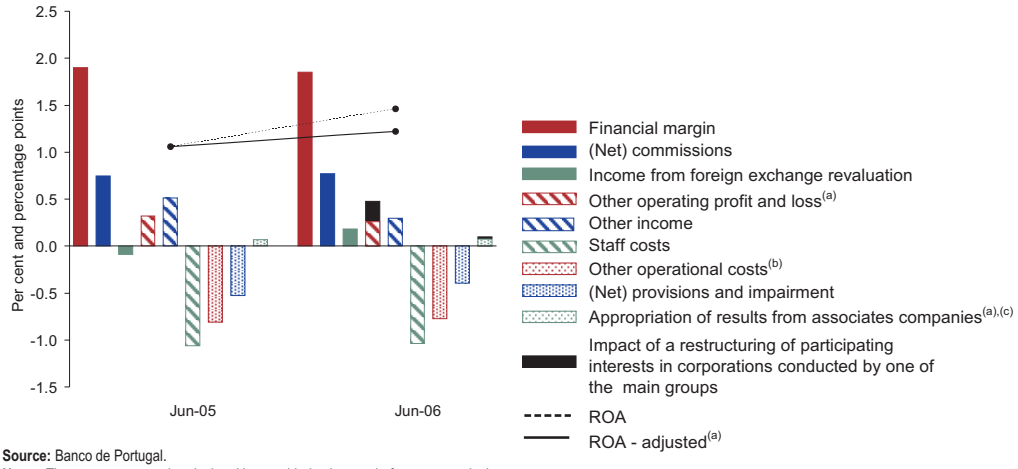


Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to a Gaussian kernel that weighs institutions by their assets; indicator calculated by considering income before taxes and minority interests. The adjusted indicator is obtained after the deduction to the results of the impact of the restructuring of participating interests in corporations (namely in the insurance sector) conducted by one of the main groups considered.

The increase in the interest rate margin obtained in customer deposits during the first half of 2006 (which had already started at the end of the previous year) more than offset the slight reduction of the margin in loans, despite the rise in interest rates charged (around 45 b.p. during the first six months of 2006 – Chart 4.3). According to the results of the Bank Lending Survey, this narrowing of active margins essentially reflected the existing competitive pressure between banking institutions in some mar-

Chart 4.2

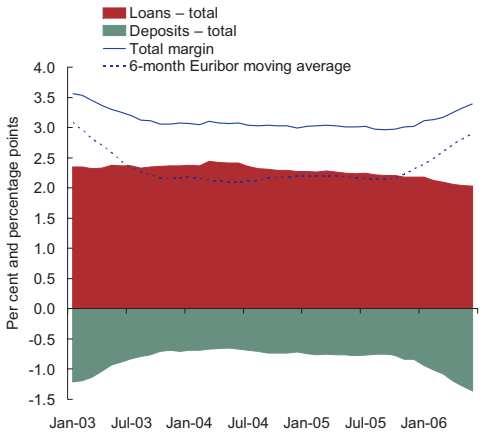
RETURN ON ASSETS - ROA
Breakdown by contribution



Source: Banco de Portugal.
Notes: The return on assets is calculated by considering income before taxes and minority interests. (a) Excludes the results of the impact of the restructuring of participating interests in corporations (namely in the insurance sector) conducted by one of the main groups considered. (b) Other operational costs include general administrative spending and depreciation. (c) Appropriation of results from associates companies and joint ventures (equity method).

Chart 4.3

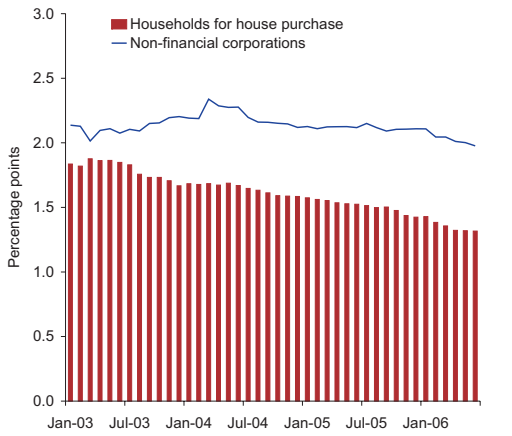
INTEREST RATE MARGINS IN OPERATIONS WITH CUSTOMERS



Source: Banco de Portugal.
Note: Margins calculated as the difference between interest rates on amounts outstanding and a moving average of the 6-month Euribor.

Chart 4.4

INTEREST RATE MARGINS IN LOANS



Source: Banco de Portugal.
Note: Margins calculated as the difference between interest rates on amounts outstanding and a moving average of the 6-month Euribor.

ket segments, such as non-financial corporations, and the housing credit segment in particular (Chart 4.4). At the end of the first half of the year, this latter segment accounted for over 40 per cent of the amount of total credit granted to the non-financial private sector.[12]

In net terms, income from services and commissions increased further, by around 15 per cent. Thus, the contribution from this item to the change in profitability rose again, by 2 b.p., in line with the sustained developments of the past few years.

Adjusted for the effect of the restructuring of participating interests already referred to (that significantly affected other operating profit and loss),[13] gross income growth stood close to 10 per cent, thereby implying a decrease (by 4 b.p.) in the contribution to ROA. The joint contribution from the remaining items (other than the financial margin and income from services and commissions) to gross income was negative by 1 b.p. This also reflects some base effects at the level of a number of items (such as the results of currency revaluation and of financial assets and liabilities measured at fair value through profit or loss).

Given the developments in gross income, the improvement in profitability indicators for the aggregate of institutions considered was due to a significant reduction in impairment losses and other net value adjustments (which, declining by 21 per cent from the first half of 2005, led to a 14 b.p. contribution to the increase in ROA). According to the institutions, this trend, also seen in most European Union countries in the recent past, was underpinned by an improved portfolio risk profile and enhanced risk control and prevention measures, inter alia. The containment of impairment costs (and in particular of credit impairment) is in line with developments in banking book default, which, as already referred to, is currently recording low levels. Hence, it will not only reflect a better adequacy of contractual conditions to the current ability of counterparties to service debt, but also – albeit to an extent not yet quantifiable – the sale de credit overdue and other non-performing loans mentioned earlier. In spite of this contain-

(12) The actual profitability of operations in this segment clearly exceeds that implied in interest margins and is instead associated with customer loyalty, which ensures other gains, namely commissions, on a widened time basis.

(13) The estimated impact of the operation on this item is of approximately 22 b.p.

ment in impairment costs, (in aggregate terms) excess provisions are still set up over the minimum regulatory levels.

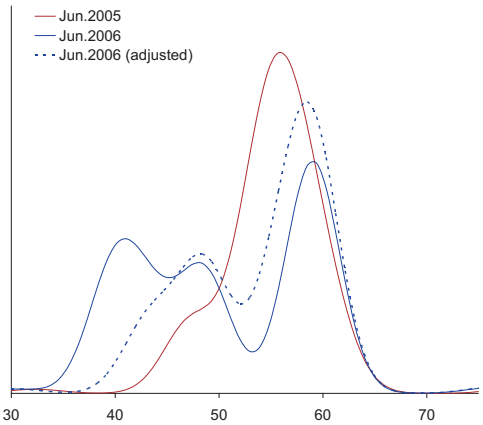
Also contributing to the increase in profitability, and following recent years, there was an improvement in efficiency, assessed by the cost-to-income ratio.[14] Indeed, after adjusting for the effect on gross income of the one-off operation conducted by one of the major banking groups during the first half of the year, this indicator declined from 55.2 per cent in the first half of 2005 to 54.0 per cent in the same period in 2006. Notwithstanding this decline, in terms of empirical distribution there was a certain dispersion among the institutions analysed vis-à-vis June 2005 (Chart 4.5). Joint developments in the items staff costs, general administrative spending and depreciation stood at 7.3 per cent year-on-year, i.e. below the increase in the financial margin and in most of the remaining profit items (not influenced by the operations referred to).

When adjusted for the effect of the restructuring of participating interests, the item appropriation of results from affiliated companies and joint ventures (also affected by the accounting of that operation) made a contribution to the increase in return on assets not exceeding 1 b.p.

Finally, the contribution of the results derived from the international activity of the major Portuguese banking groups to earnings has been increasing. Available information for the first half of 2006 on the international activity of the five major banking groups operating in Portugal shows that results from international activity accounted for around 5 per cent of the total consolidated results of the aggregate of institutions considered in this article, compared with 4 per cent in the first half of 2005.[15] However, the profitability of external operations varies significantly among the different groups considered, from positive contributions of around 30 per cent to negative contributions of around 20 per cent of the net con-

Chart 4.5

COST-TO-INCOME RATIO
Empirical distribution



Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to a Gaussian kernel that weighs institutions by gross income; indicator calculated as the ratio of the sum of staff costs, administrative costs and depreciation for the year to gross income. The adjusted indicator is obtained after the deduction to gross income of the impact of the restructuring of participating interests in corporations (namely in the insurance sector) conducted by one of the main groups considered.

(14) Calculated as the ratio of the sum of staff costs, administrative costs and depreciation for the year to gross income.

(15) This comparison must also take into account the impact of one-off operations that significantly affected the net result for the first half of 2006. Under these terms, it can be concluded that the weight of international activity would be slightly higher than that mentioned above.

solidated results. This disparity reflects the degree of development of the market where this activity is carried out.

5. SOLVENCY

In June 2006 the overall capital adequacy ratio of the group of institutions considered, on a consolidated basis, stood at 11.5 per cent, compared with 10.4 per cent in June 2005 and 11.3 per cent December 2005. Developments in the ratio mirrored increases of 7.2 per cent in total own funds and 5.5 per cent in total own funds requirements (Table 5.1).

The increase in total own funds chiefly reflected the expansion of original own funds. Underlying these developments was the significant increase in minority interests, which was especially relevant in one of the major banking groups. The decrease in additional own funds in the period under analysis mainly reflected the regulatory changes introduced by Banco de Portugal in the recognition of provisions for general credit risks as a positive element of own funds.[16] Hence, the amount of provisions for general credit risks eligible as an element of own funds started to only correspond to the difference (when positive) between the value of regulatory provisions (laid down in Notice no. 3/95) and the amount of credit impairment losses calculated for the group.[17] In turn, the cut in deductions to own funds arose from the decline in risks covered by own funds and, to a lesser extent, from the sale of participating interests in credit institutions and other financial institutions. Finally, total own funds requirements continued to be determined by developments in requirements associated with the solvency ratio, while the remaining determining components of total requirements declined. The acceleration in requirements relating to the solvency ratio was in line with growth in credit granted, namely in the segments of credit to non-financial corporations and to households for consumption and other purposes, as well as the maintenance of strong growth in credit to households for house purchase.

The slight increase in the overall capital adequacy ratio did not extend to the group of institutions analysed and there were differentiated behaviours among banking institutions with a relevant weight for total own funds (Chart 5.1). This notwithstanding, the five major banking groups showed ratios over 10 per cent, stress being laid on a substantial increase in the ratio of one of the groups. This reflected the significant rise in original own funds, via minority interests, resulting from the capital increase in one of the institutions integrating the group (this operation contributed with 5.6 p.p. to the increase in the system's own funds in the half-year).

(16) Change made through Notice no. 2/2006 with regard to Article 17 (C) of Notice no. 12/92.

(17) This made a negative contribution of 0.6 p.p. to developments in the overall capital adequacy ratio in the first half of 2006. This estimate is based on the assumption, on the one hand, that regulations remained unchanged (as prevailing in late 2005) and, on the other, that institutions were not sensitive to the regulatory change referred to above (i.e. the exercise is carried out on a ceteris paribus basis in all remaining elements of own funds and of the respective requirements).

Table 5.1

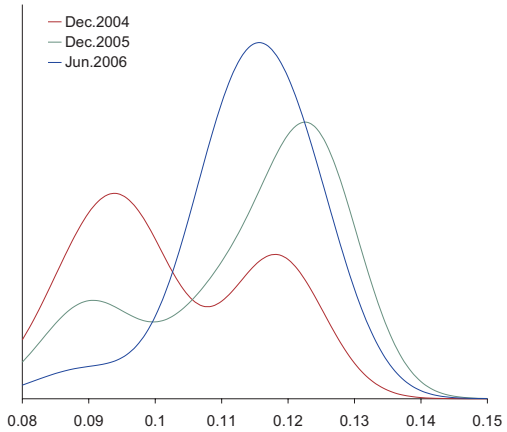
CAPITAL ADEQUACY
On a consolidated basis

	Euro million					Year-On-Year change	
	2003	2004	2005	2005	2006	2005	2006
	Dec.	Dec.	Jun.	Dec.	Jun.	Dec.	Jun.
						per cent	
1. Own funds							
1.1. Original own funds	13 059	13 729	13 947	14 904	16 900	8.6	21.2
1.2. Additional own funds	8 194	8 337	9 872	10 782	10 169	29.3	3
1.3. Deductions	2 376	2 092	2 685	1 948	1 620	-6.9	-39.7
1.4. Supplementary own funds	0	1	0	0	0	-100	n.a.
Total own funds	18 877	19 975	21 135	23 738	25 450	18.8	20.4
2. Own funds requirement							
2.1. Credit risks	14 769	15 096	15 489	16 208	17 182	7.4	10.9
2.2. Position risks	335	488	573	493	451	0.9	-21.3
2.3. Settlement and counterparty risks	45	53	72	67	66	26.7	-8.9
2.4. Foreign exchange risks	81	41	60	57	51	38.9	-15
2.5. Other requirements	0	1	0	1	0	-34.8	818.1
Total own funds requirements	15 231	15 679	16 194	16 826	17 750	7.3	9.6
						percentage points	
3. Ratios							
3.1. Own funds/total requirements	123.9	127.4	130.5	141.1	143.4	13.7	12.9
3.2. Own funds/(total requirements x 12.5)	9.9	10.2	10.4	11.3	11.5	1.1	1
3.3. Original own funds/(total requirements x 12.5)	6.9	7	6.9	7.1	7.6	0.1	0.7

Source: Banco de Portugal.
Note: n.a. - not applicable.

Chart 5.1

CAPITAL ADEQUACY RATIO
Own funds / (total requirements* 12.5)
Empirical distribution



Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to a Gaussian kernel that weighs institutions by their own funds.

Box 1. Universe of institutions used in the analysis

The implementation of the International Accounting Standards (IAS) in 2005 introduced significant changes to the accounting of some of the main on-balance-sheet and off-balance-sheet items of financial institutions, giving rise to new financial statement presentations in the banking system. However, the adoption of IAS did not extend to the whole Portuguese banking system in early 2005, given that in the course of that year different accounting systems coexisted among institutions (the IAS, the Adjusted Accounting Standards (AAS) and the former Chart of Accounts of the Banking System). The difficulty in elaborating robust compared analyses among the different accounting regimes required a redefinition of the universe of banking institutions to be analysed. Hence, in the 2005 Financial Stability Report the analysis made was based on data relating to the thirteen institutions that adopted the new accounting standards in the elaboration of their financial statements on a consolidated basis since the beginning of the year.

In early 2006 the adoption of the new accounting standards was widespread to the remaining banking institutions (with the exception of SICAM, Integrated System of Mutual Agricultural Credit - Sistema Integrado de Crédito Agrícola Mútuo). However, the unavailability of comparable data (i.e. in the same basis of accounting) for the first half of 2005 for institutions that adopted the new accounting standards only in 2006 causes the analysis in this article to again focus on the thirteen institutions referred to. The existence of comparable data is particularly relevant as regards the activity's profit and loss, for which the analysis of the first half of the year made in this article takes as reference year-on-year periods (i.e. first half of each year).

The group of institutions under analysis, which accounted for around 87 per cent of the total assets of the Portuguese banking system in December 2004, still does not include institutions having their head office or carrying on activities exclusively in the Madeira off-shore and/or dealing predominantly with non-residents. On occasion, whenever deemed relevant, use will be made of information for December 2004, collected under Instruction 30/2005.

The analysis made in this article essentially focuses on accounting and prudential data on a consolidated basis. Some of the background information is not yet certified. Where it is deemed necessary to have a breakdown by sector (by counterparty) or by instrument in order to complement the analysis, use is also made of aggregates on an individual basis or Monetary and Financial Statistics aggregates.

Furthermore, for some of the analyses carried out, particularly the liquidity situation of institutions, special emphasis is placed on the sub-group domestic institutions. This aggregate corresponds to the total system excluding the institutions whose management is conducted by non-resident institutions, whether these are institutions governed by Portuguese law, subsidiaries of non-resident banking groups (subject to supervision by Banco de Portugal), or branches of credit institutions having their head office abroad. The rationale for distinguishing domestic from non-domestic institutions is related to the fact that external borrowing by non-domestic institutions, unlike domestic institutions, is usually obtained from entities with which they have a group relationship (which means the type and maturity of financing become less relevant).

ARTICLES

COMPUTING POTENTIAL OUTPUT AND THE OUTPUT GAP FOR THE PORTUGUESE ECONOMY*

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1. INTRODUCTION

Gross Domestic Product (GDP) is one of the main welfare indicators in developed economies. It is certainly the most widely used indicator whenever the economic prosperity of a country is an issue to be assessed. In the case of the Portuguese economy, this indicator points towards a weak economic performance in the recent past, and deserves a deeper analysis that goes beyond the usual conjunctural assessment of the evolution of each aggregate demand component. This article suggests an interpretation of this phenomenon based on economic growth theory and on the concept of potential output, enabling an assessment of the supply side conditions and the identification of some structural factors that might have limited the Portuguese economy growth since the beginning of the millennium.

Using appropriate techniques, GDP can be decomposed into a structural component and a conjunctural component. The first one is usually named as "potential output" and it can be defined as "the level of output at which the economy's resources are fully employed or, more realistically, at which unemployment is at its natural rate" (Mankiw, 2003, pp. 246). The second component, usually named "output gap", is the deviation between the actual level of output and the potential output and it includes temporary elements that are shaped by business cycle and other very short-run fluctuations.

The computation of potential output and the output gap for the Portuguese economy enables not only an assessment of economic growth potential, but also the measurement of the cyclical position of the economy and the identification of changes in the pattern of business cycle evolution. These indicators usually play a relevant role in different domains of economic analysis, such as in the computation of structural indicators (for instance, the cyclically-adjusted budget balance) and in the appraisal of inflationary pressures in the economy stemming from the demand side. Additionally, these indicators are also used in the assessment of the overall consistency of the macroeconomic projections for the Portuguese economy.

Potential output is not an observable variable and must therefore be computed using an information set that contains observable variables, using techniques that combine macroeconomic theory with statistics and econometrics. These techniques are usually classified into two broad categories: statistical methods, which decompose mechanically real GDP time series into its trend, cycle and irregular components; and structural methods, which use economic theory in the process of potential output computation. Since potential output resulting from the implementation of the previous methodologies is not an observable variable, it is not possible to evaluate the accuracy of the computed figure based on the usual goodness of fit measures, in contrast to what usually happens with observable variables. Thus,

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** Economic Research Department.

the point estimate obtained for each year in the sample should not be taken as the true figure, but as an amount with a strong probability of being close to the true magnitude of the variable.

This article explores some of the most commonly used methods for computing potential output and the output gap and applies them to Portuguese economy data. Among the statistical methods, the Hodrick and Prescott (HP), the Baxter and King (BK) and the Christiano and Fitzgerald (CF) filtering methods were implemented.[1] Concerning the structural methods, the production function approach was considered in two alternative formulations: the CES[2] production function and the Cobb-Douglas function, which is a particular case of the former.

This article is organised as follows: section two describes the alternative methods used to compute potential output; section three discusses the empirical results obtained by applying those methods; and section four, presents the main conclusions of this study and suggests directions for further research.

2. METHODS FOR COMPUTING POTENTIAL OUTPUT

Potential output is a non-observable variable, as it measures a phenomenon that cannot be empirically observed: the quantity of goods and services that an economy can produce by making full use of all its available resources.

The need for computation of potential output has led to the development of several methodologies, which combine distinct subjects of economic analysis such as macroeconomic theory, statistics and macroeconometrics. These methods make use of information on observable variables to obtain results for potential output, and reflect not only the information they use but also the properties of the techniques they apply. In general, these methods are grouped into statistical or structural methods, according to the techniques they use and the information they incorporate.

2.1. Statistical methods

Statistical univariate methods[3] are purely mechanical procedures, which can be used to decompose any time series into different components. They are used for identifying components with strong persistency, usually called tendency, and components with weak persistency, usually associated with cyclical and very short-run movements.

The direct application of these methods to the observed output series produces a smoothed series, called trend output, which is taken to represent potential output. The remaining components (cyclical and erratic) correspond to the output gap.

Univariate statistical methods have a direct interpretation and are generally easy to implement, being a practical way to compute potential output. However, these techniques do not incorporate any macroeconomic theory, which limits the interpretation of the results they produce and restricts its utility in the analysis of the behaviour of the economy. Additionally, statistical methods suffer, in general, from end-of-sample problems, which are usually tackled by extending the output series, introducing, however, a new source of uncertainty in the computation process. Finally, it is also important to account for problems in the treatment of structural breaks, since these methods spread the impact of a break through many periods, influencing potential output growth in several periods instead of having effects strictly at the moment in which the break occurred.

(1) For further details see Hodrick and Prescott (1997), Baxter and King (1999) and Christiano and Fitzgerald (1999).
(2) CES is the acronym for Constant Elasticity of Substitution.
(3) Statistical methods can be grouped into two categories, univariate and multivariate. In this article, we will focus on the univariate methodologies.

In practice, statistical methods simply apply bilateral moving averages to the historical output series, to filter out components with distinct frequencies. Among the several univariate techniques available, this article covers three main methods, which are frequent in the literature on economic growth and business cycles: the Hodrick-Prescott filter (HP) and the band-pass filters Baxter and King (BK) and Christiano and Fitzgerald (CF).

The HP filter is a simple smoothing procedure that extracts a non-linear trend component from observed output by minimising a weighted average of the variability in the trend and its deviations from actual output. Formally, trend output is obtained through the minimization of the following loss function:

$$\min_{y_t^T} L = \sum_{t=1}^{S} (y_t - y_t^T)^2 + \lambda \sum_{t=2}^{S-1} (\Delta y_{t+1}{}^T - \Delta y_t{}^T)^2 \qquad (1)$$

where y_t and y_t^T are the logs of observed and trend output respectively,[4] S is the number of observations and λ is a smoothing parameter. The minimization of the loss function implies a choice of a value for the smoothing parameter, which represents a penalty for variability in the growth of trend output: a higher value for λ implies smoother estimates for trend output and consequently a smaller output gap.

The HP filter has some good features that have contributed to its wide utilisation, including the fact that it renders the output gap stationary, as presented in King and Rebelo (1993), and the fact that it is flexible and simple to implement. However, there are also some problems associated with the HP filter. The first one comes from the choice of the appropriate smoothing parameter λ, which is largely discretionary and far from being consensual. A second shortcoming is commonly known as the end-of-sample problem, which results from the fact that towards the edges of the sample, as leads and lags become unavailable, the HP filter gradually turns into an asymmetric filter, overemphasising the importance of the last observations.[5] This way, estimates of trend output for recent history suffer from bias, which is particularly serious because estimates for recent periods are typically those in which policymakers are more interested for purposes of policy decision. A common way of tackling this issue is to extend the output series forward using reliable projections. Finally, many studies refer[6] that when used with data that is integrated or nearly integrated, the HP filter can induce spurious cycles, i.e. it can generate cycles even if they are not present in the original data.

Another univariate type of filtering technique is the band-pass filter, which relies on the theory of spectral analysis of time series data. This methodology is used to transpose time series fluctuations represented in the time domain, to fluctuations in the frequency domain. Assuming that business cycle fluctuations correspond to a well-defined band of frequencies, it is then possible to apply the filter to the observed output series, and isolate the observations corresponding to the pre-defined band, obtaining the output's cyclical component. In practice, the filtered series consists of a weighted average of the original time series, where the weights attributed to each component of the series are determined according to the frequencies we wish to retain. The filter is the array of weights that, when applied to the original series, produces the cyclical component of output. More formally, the filtered series is given by:

$$B(L)y_t = \sum_{j=-\infty}^{\infty} b_j L^j y_t \qquad (2)$$

where $B(L)$ represents the band-pass filter, b_j corresponds to the weight attributed to y_{t-j}, and L^j stands for the usual lag operator.[7]

(4) Variables in small letters represent the natural logarithms of the correspondent variables in big letters.

(5) For further details see Giorno *et al.* (1995), Cerra and Saxena (2000) and Mohr (2005).

(6) See, for example, Harvey and Jaeger (1993) or Cogley and Nason (1995).

(7) For any variable X_t, the lag operator L^j is defined such that $L^j X_t = X_{t-j}$.

The BK and CF filters are probably the two most widely used band-pass filters. The BK filter performs a finite and symmetric bilateral moving average, imposing the same number of leads and lags and symmetry of weights, which implies that observations in a similar position on each side of the central observation are given equal weights. These characteristics have the advantage of assuring that the filtered series has no phase shift, i.e., that the timing of peaks and troughs is consistent with the behaviour of the unfiltered series. However, this is achieved at a cost of losing observations at the beginning and end of the sample. Usually, to solve this problem, the series are extended using the same type of techniques mentioned for the HP filter.

The CF filter, contrary to the BK filter, uses all observations available in the sample, forward and backwards, implying that in each period, the number of leads differs from the number of lags, which turns the filter asymmetric with a varying weighting scheme. This way, the CF filter overcomes one of the limitations of the BK filter, the loss of observations at the beginning and the end of the sample, but it may introduce the phase-shift problem already explained.

2.2. Structural methods: the production function approach

Structural methods, contrary to statistical, take economic theory into account in the process of computation of potential output and the output gap. They establish a link between potential output and other macroeconomic variables, which introduces the opportunity of examining the underlying economic factors that drive changes in potential output and therefore gives the possibility of deriving some economic interpretation from the evolution of the obtained results, instead of just assessing their value. However, the application of this type of methods implies a prior choice of an adequate model, which necessarily consists of a simplification of reality and relies on a set of assumptions about the structure of the economy that may or may not be entirely correct. In addition, these methods require a large amount of information, which may be a problem in situations where there are limitations in assessing the data or when their quality is questionable. It is also worth noting that, in general, structural methods are still dependent on the utilization of statistical univariate methods to calculate trend components for some variables used in the computation process, which revives the limitations associated with statistical methods, already discussed.

One of the keystones among structural methods is the production function approach. This approach looks at the supply side conditions of the economy, postulating an aggregate production function that explicitly models output as the outcome of a production process, depending on: the available quantity of factors of production, the productivity of these factors, and their weight in output. Potential output is obtained as the result of the defined production function when its contributing inputs and productivity are at their sustainable long-run levels.

When compared to other structural methods, the production function approach has the important advantage of allowing for an explicit growth accounting exercise, which expresses potential output growth as a function of the growth rate of each of its determinants.

2.2.1. The CD and CES production functions

The functional form adopted for the production function synthesizes in a very simple way the technology used in the productive process, i.e. the way factor inputs are combined to produce output. There is not, however, a consensus as to the best functional form to adopt, and several different forms have been proposed in the literature. Among these, the two most widely used, in the literature on economic growth, are the CES production function, and a particular case of it, the CD function. These functions

differ in many aspects, including in the complexity of their functional form and in the restrictions they impose on the technology underlying the production of goods and services in the economy.

The CD function is, most probably, the most widely used functional form for the production function, mainly due to the fact that it is analytically simple and straightforward to calibrate. Furthermore, when one looks at data concerning long periods of time, the characteristics of the CD function seem to be compatible with the observed facts for a wide range of economies.

The most popular functional form, for the CD production function, considers two productive factors, capital and labour, and is formally expressed as:

$$Y_t = A_t L_t^{\alpha} K_t^{1-\alpha}, \ 0 < \alpha < 1 \tag{3}$$

where A_t represents total factor productivity (TFP), K_t corresponds to the capital stock, L_t is total employment, and α is a constant that corresponds to the elasticity of output with respect to labour. This elasticity is calibrated to match the empirical average labour share obtained from the national accounts data, being in line with one of the major assumptions of the CD function, the stability of the income factor shares in output. It is therefore important to keep in mind that in order to be able to apply the CD function, the historical information on the income factor shares must point to their constancy over time. Furthermore, this assumption has the important implication of unitary elasticity of substitution between factors of production. This is a rather restrictive assumption, meaning that an increase in the relative price of one of the factors will always be accompanied by a proportional decrease in the relative utilisation of that factor.

A more general alternative to the CD functional form is provided by the CES production function. In this article, we use the following specification:

$$Y_t = \left[\delta \left(B_t L_t \right)^{\frac{\sigma-1}{\sigma}} + \left(1-\delta\right) \left(X_t K_t \right)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}}, \ 0 < \delta < 1 \text{and } \sigma > 0 \tag{4}$$

where B_t and X_t are indexes of labour and capital augmenting technical progress respectively, δ is the distribution parameter capturing the functional distribution of income and σ is the elasticity of substitution.

This framework implies that factor income shares vary proportionally to factors' real cost and productivity, which contrasts with the constancy assumption underlying the CD function. Furthermore, the CES specification introduces an important advantage over the CD form since it does not impose the substitution parameter to be equal to one, and thus gives the possibility of estimating it from the data. It can be shown that when the elasticity of substitution is unitary, the CES function converges to a CD function.

We see that the CES production function is markedly less restrictive than the CD function, allowing for much richer results, specifically to test the validity of the CD formulation through the realization of a statistical test on the estimate obtained for the elasticity of substitution. In addition, the CES formulation adopted in this article includes technical progress specific to each factor,[8] which is not possible with the CD function, since only total factor productivity is identified.

(8) The utilization of a CES production function with technical progress for capital is compatible with a stationary model only if technical progress is itself stationary. For further details see Barro and Sala-i-Martin (1995).

2.2.2. The computation of potential output and the growth accounting exercise

In order to compute potential output, it is necessary to know beforehand the levels of potential factor utilization and productivity, and estimates of the parameters needed for the production function.

Regarding factors of production, the computation of their potential levels follows the same procedure for both the CD and CES functions. For capital input, it is quite common to use the actual capital stock to measure both actual and potential capital, since capital is a relatively fixed input, at least in the short run. This assumption seems valid, as long as there is no noticeable deviation of the capital stock from its long-run level. As for potential employment, it is generally obtained through the natural rate of unemployment and active labour force. Thus, potential factor levels are given by:

$$K_t^* = K_t \tag{5}$$

$$L_t^* = PA_t\left(1-u_t^*\right) \tag{6}$$

where PA_t corresponds to the observed active labour force and u_t^* is a measure of the natural rate of unemployment, with both variables being exogenous.

The parameter α of the CD function is calibrated using the average labour income share obtained from the national accounts data. Knowing this parameter, the unobservable total factor productivity is obtained by computing the Solow Residual by solving the production function to A_t:

$$A_t = \frac{Y_t}{L_t^{\alpha} K_t^{1-\alpha}} \tag{7}$$

The resulting Solow residual is then smoothed[9] to obtain an estimate of trend factor productivity, A_t^*. With potential capital input K_t^*, potential labour input L_t^*, and trend TFP A_t^* we can now easily compute potential output by plugging these values into the production function.

$$Y_t^* = A_t^*\left(L_t^*\right)^{\alpha}\left(K_t^*\right)^{1-\alpha} \tag{8}$$

This expression can be directly applied to the growth accounting exercise, since it is log-linear in the factors of production. Differentiating both sides of the production function in logs yields:

$$\underbrace{\Delta y_t^*}_{\substack{\text{Potential ouput}\\ \text{growth rate}}} = \underbrace{\Delta a_t^*}_{\substack{\text{TFP}\\ \text{contribution}}} + \underbrace{\alpha \Delta l_t^*}_{\substack{\text{Labour}\\ \text{contribution}}} + \underbrace{(1-\alpha)\Delta k_t^*}_{\substack{\text{Capital}\\ \text{contribution}}} \tag{9}$$

In the case of the CES production function, the computation process is more complex, since there are two unknown parameters and, using the formulation adopted in this article, there are two specific productivities to calculate. Solving the profit maximization problem with CES technology, we obtain the first order condition for labour demand, which is given by:

$$y_t - l_t = \sigma\left(w_t - p_t\right) + \left(1-\sigma\right)b_t - \sigma \ln\delta \tag{10}$$

Equation (10) can be interpreted as a long-run relation between output per worker, $y_t - l_t$, the real cost of labour, $w_t - p_t$ and the labour-augmenting technological progress, b_t. It is therefore possible to consider this equation as a cointegration relation, and estimate the elasticity of substitution between factors using Johansen's maximum likelihood method,[10] which produces efficient estimates for the parameters of a cointegration relation.

(9) In this article, as commonly accepted in the literature, we use the HP filter as a smoothing technique to obtain trend TFP.

(10) A detailed description of Johansen's method can be found in Johansen (1995).

To obtain the labour productivity index, we make use of a standard procedure in the literature,[11] and assume that it grows at a constant rate. This way, its level can be well approximated by a linear trend, which converts equation (10) into:

$$y_t - l_t = \sigma\left(w_t - p_t\right) + \left(1-\sigma\right)\left(\mathbb{C} + \eta^L t\right) - \sigma \ln\delta \tag{11}$$

where η^L is the average growth rate of labour productivity, t is a deterministic trend and $\mathbb{C}$ is an unknown scale constant. Even though the elasticity of substitution has been estimated, the distribution parameter δ and the scale constant $\mathbb{C}$ are still unknown. However, using the fact that the CES function corresponds to a CD function in the case of unitary elasticity of substitution, δ can be calibrated using the equivalent parameter in the CD function (i.e., labour income share in value added, α), which is in line with what is usually done in the literature. Using the obtained estimates for the parameters δ and σ it is then possible to use equation (10) to find the scale constant, $\mathbb{C}$, and the labour productivity index B_t, given by the following expression:

$$B_t = \left(\frac{Y_t}{L_t}\right)^{\frac{1}{1-\sigma}} \left(\delta \frac{P_t}{W_t}\right)^{\frac{\sigma}{1-\sigma}} \tag{12}$$

Finally, the capital-augmenting technological progress can be recovered by solving the production function to X_t:

$$X_t = \left(\frac{1}{1-\delta}\left(\frac{Y_t}{K_t}\right)^{\frac{\sigma-1}{\sigma}} - \frac{\delta}{1-\delta}\left(\frac{B_t L_t}{K_t}\right)^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}} \tag{13}$$

The calculated B_t and X_t series are then smoothed using an HP filter, to obtain their trend levels, B_t^* and X_t^*, which corresponds to the same procedure used to smooth the Solow residual in the CD case.

Having obtained potential factor levels, their productivities, and the production function parameters, potential output can finally be calculated by directly substituting them in the production function:

$$Y_t^* = \left[\delta\left(B_t^* L_t^*\right)^{\frac{\sigma-1}{\sigma}} + \left(1-\delta\right)\left(X_t^* K_t^*\right)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}} \tag{14}$$

For the CES production function, the growth accounting exercise is more complex than in the CD case, since the CES function is not log-linear. The approach adopted in this article is to take the log of the production function and then linearise it around the previous period, applying a first order Taylor expansion. After some algebraic manipulation we get:

$$\underbrace{\Delta y_t^*}_{\substack{\text{Potential output}\\ \text{growth rate}}} = \underbrace{\omega_t^L \Delta b_t^*}_{\substack{\text{Labour productivity}\\ \text{contribution}}} + \underbrace{\omega_t^L \Delta_t^* l_t^*}_{\substack{\text{Labour}\\ \text{contribution}}} + \underbrace{\omega_t^K \Delta x_t^*}_{\substack{\text{Capital productivity}\\ \text{contribution}}} + \underbrace{\omega_t^K \Delta k_t^*}_{\substack{\text{Capital}\\ \text{contribution}}} \tag{15}$$

where:

$$\omega_t^L = \frac{\delta\left(B_{t-1}^* L_{t-1}^*\right)^{\frac{\sigma-1}{\sigma}}}{\delta\left(B_{t-1}^* L_{t-1}^*\right)^{\frac{\sigma-1}{\sigma}} + \left(1-\delta\right)\left(X_{t-1}^* K_{t-1}^*\right)^{\frac{\sigma-1}{\sigma}}} \text{ and } \omega_t^K = \frac{\left(1-\delta\right)\left(X_{t-1}^* K_{t-1}^*\right)^{\frac{\sigma-1}{\sigma}}}{\delta\left(B_{t-1}^* L_{t-1}^*\right)^{\frac{\sigma-1}{\sigma}} + \left(1-\delta\right)\left(X_{t-1}^* K_{t-1}^*\right)^{\frac{\sigma-1}{\sigma}}}$$

represent the weights of the labour force and capital stock in output, which vary with time. In the case of $\sigma = 1$, these weights are given by $\omega_t^L = \delta$ and $\omega_t^K = 1-\delta$, which exactly correspond to the income shares of each factor in value added, since δ was calibrated using the labour share of the CD function.

(11) See, for example, Dimitz (2001) and Jalava (2005).

3. POTENTIAL OUTPUT AND THE OUTPUT GAP FOR THE PORTUGUESE ECONOMY

Potential output and the output gap for the Portuguese economy can be computed using the methods presented in Section 2 and the available data. The results obtained are extremely useful in the assessment of the evolution of economic activity, enabling, in particular, the identification of supply side factors that lie behind the weak economic growth witnessed in Portugal in recent years.

3.1. The dataset for the Portuguese economy

The dataset used in this article is mostly taken from the "Quarterly Series for the Portuguese Economy: 1977-2005" published in the summer 2006 issue of the Banco de Portugal Economic Bulletin.[12]

The time series for compensation per worker was built using employees' wage bills and assuming that a self-employed worker earns on average 75 per cent of an employee. Concerning the natural rate of unemployment, it was assumed that it has remained broadly unchanged throughout the sample period at 5.5 per cent of the labour force;[13] nevertheless, the recent increase in long-term unemployment may raise some doubts on the maintenance of the estimated natural rate of unemployment. The capital stock time series was built using the perpetual inventory method, assuming a slightly increasing depreciation rate that captures the faster depreciation of some types of investment goods (in particular, electronic equipment and computer systems). The value-added time series as well as the respective deflator were computed from GDP at market prices by subtracting indirect taxes. Finally, income per unit of capital was obtained using the resource constraint and the previously mentioned time series:

$$R_t = \frac{P_t Y_t - W_t L_t}{K_t} \tag{16}$$

It should not be disregarded that this is a very inaccurate measure of income per unit of capital, since both compensation per worker and capital stock lie on the assumptions previously referred and do not correspond to effectively observed figures. Thus, all measurement errors related with both labour income and capital stock will translate directly to measurement errors in the income per unit of capital considered.

3.2. Statistical methods

The implementation of the univariate methods described in section 2.1 implies not only the choice of the parameters' values for each of the filters considered, but also an extension of the actual real GDP data to avoid the end-of-sample problems previously mentioned. Thus, the actual real GDP time series was extended up to 2010, using the Banco de Portugal projections published in the summer 2006 issue of the Economic Bulletin for 2006 and 2007 and the average growth rate recorded in the period 1993-2005 for the rest of the extension period.

Concerning the HP filter, the smoothness parameter was set to $\lambda = 7680$, which, according to Raven e Uhlig (2002), corresponds to a smoothness parameter of 30 for annual data, corresponding to the

(12) This database corresponds to an update of the one published in Castro and Esteves (2004) and follows the methodology presented there.
(13) In line with the results published in Dias, Esteves and Félix (2004).

benchmark usually considered in the Eurosystem exercises.[14] In terms of the band-pass filters, a low-pass specification was considered, removing all the fluctuations with a frequency lower than 12 years.

The annual average growth rates of the computed potential output using the HP, BK and CF filters for the whole sample period as well as for the sub-samples are plotted in Charts 3.2.1 and 3.2.2. An immediate conclusion is that the discrepancies resulting from alternative univariate methods (which are visible in Chart 3.2.2) tend to vanish whenever averages of sample periods are considered. The results suggest an annual average growth rate at around 3 per cent for the whole sample period (1986-2005). However, an inspection of sub-sample periods reveals that this annual average growth rate does not result from a broadly flat profile, since annual average growth rates differ quite substantially across periods. In fact, the results suggest an annual average growth at around 4 per cent in the sample period 1985-1994 and only 2 per cent in the sample period 1995-2005, revealing a continued decline in the potential output growth rate throughout the last 20 years. In particular, a closer inspection of the last 5 years of the sample suggests that the potential output annual average growth rate was probably not more than 1.5 per cent.

The computed output gap is plotted in Chart 3.2.3. In general terms, one can easily conclude that despite the fact that point estimates do not coincide, the computed output gap is broadly similar across the alternative methods used and the turning points tend to coincide. The results suggest that by the time of Portuguese accession to the European Union in 1986, output was significantly below its potential level. In the following years, real GDP growth surpassed potential output growth, determining a computed output gap at around 4 per cent in 1990. Subsequently, the significant slowdown in real GDP growth led to a decline in output gap that reached a close to zero position in 1993, declining further until 1995. In the period 1995-2001, the Portuguese economy returned to economic activity growth rates above potential with the output gap reaching 3 per cent in 2001. Thereafter, the accumulation of disequilibria with non negligible impact on aggregate demand level has limited real GDP to growth

Chart 3.2.1

POTENTIAL OUTPUT GROWTH – STATISTICAL METHODS (SUB-SAMPLES)

Annual average growth rate, in percentage

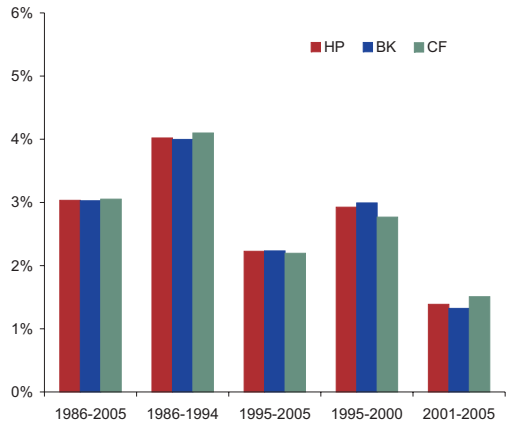
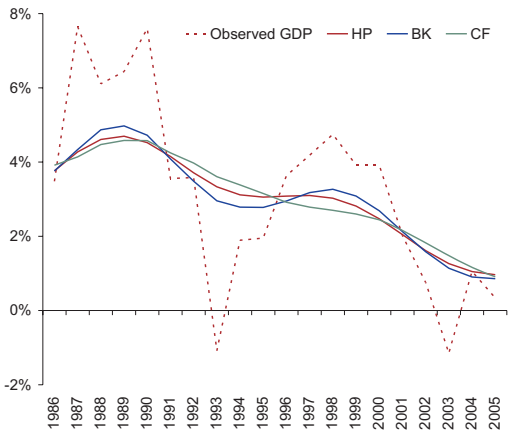


Chart 3.2.2

POTENTIAL OUTPUT GROWTH – STATISTICAL METHODS

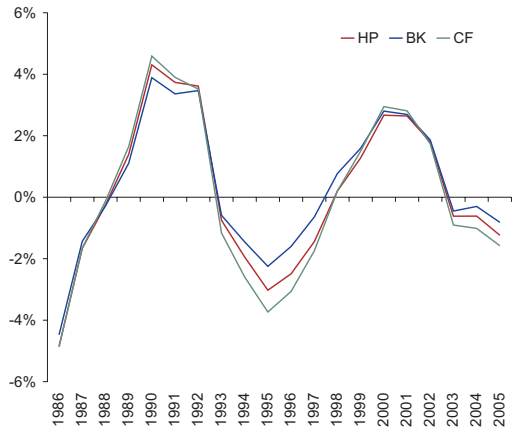
Annual average growth rate, in percentage



(14) As already referred in Section 2, the choice of the HP filter smoothing parameter is to a large extent discretionary. One must emphasize that the choice of alternative smoothness parameters only affects the amplitude of the business cycle, while maintaining both the average potential output growth and the turning points of each business cycle. In particular, the utilisation of the smoothness parameter value originally suggested in Hodrick and Prescott (1997), $\lambda = 1600$, leads to the computation of business cycles with a smaller amplitude and to a more volatile potential output growth rate.

Chart 3.2.3

OUTPUT GAP – STATISTICAL METHODS
As a percentage of potential output



rates below potential, determining the progressive closure of output gap until 2003 and its return to negative grounds in subsequent years.

In conclusion, the results obtained by implementing the alternative univariate statistical methods are identical and allow for a general characterisation of the trend component of the actual output time series. One may highlight the fact that, irrespective of the method, potential output growth of the Portuguese economy has decelerated substantially in the last 20 years and that the results point towards an annual growth rate ranging from 1 to 1.5 per cent in the last 5 years.

3.3. Structural methods: the production function approach

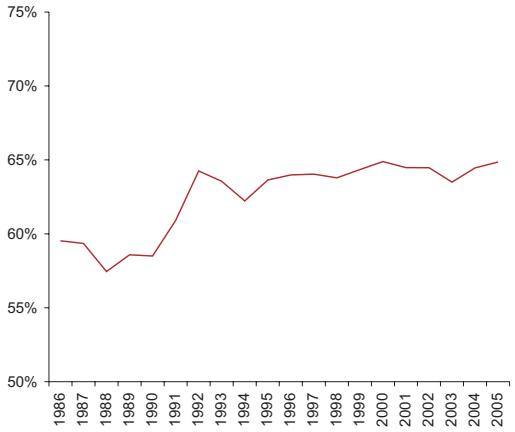
The production function approach draws on the specification of a function that is compatible with the most evident stylised facts of the economy. One of these facts, first suggested in Kaldor (1965), is that the income share of each one of the productive factors in value added is broadly constant. The evolution of labour income share as a percentage of value added in the Portuguese economy since 1986 is plotted in Chart 3.3.1. This information was used to calibrate the parameters α and δ of the CD and CES production functions, respectively, since they were set at the average labour income share for the period 1992-2005 (64 per cent). It should be noted that while the labour income share fluctuated for the period 1986-1992, since then it has remained broadly stable.

To evaluate the reasonability of the CD specification, a CES production function was considered and the elasticity of substitution among factors was estimated using quarterly data for the sample period 1988-2005 based on the methodology presented in Section 2.2. The estimated elasticity of substitution is 0.65 and the corresponding standard deviation is 0.06, meaning that the null hypothesis of a unit elasticity of substitution (in case of a unit elasticity of substitution the CES production function collapses to CD production function) is rejected at a 1 per cent significance level.[15] Thus, the results suggest that the unit elasticity of substitution is not supported by empirical evidence for the sample period considered.

(15) The result obtained for the elasticity of substitution is similar to the one published in Lucas (1990) for the US economy.

Chart 3.3.1

LABOUR INCOME SHARE
As a percentage of value added



To assess both the impact of using a CD production function (when a CES production function seems to be, according with available evidence, the one that is more adequate) and the differences arising from the utilisation of structural methods instead of univariate methods, potential output and the output gap were computed using CD and CES production functions and compared with the results obtained using the HP filter, which was used as the univariate benchmark method.[16]

The potential output growth rate and the corresponding output gap estimates computed using the HP filter and the alternative production function specifications are plotted in the charts 3.3.2, 3.3.3 and 3.3.4. The most evident finding is the coincidence of the results obtained using the alternative production function specifications. Additionally, the output gap results obtained using both the production function approach and the univariate statistical methods are qualitatively identical, despite slightly higher amplitude of the output gap when the HP filter is used.

Moreover, the results plotted in Chart 3.3.3 show that potential output growth computed using the production function approach usually tends to be more volatile than the one computed using univariate statistical methods. This feature results from the fact that the production function approach, due to its structural nature, reflects not only trend productivity growth (which is necessarily smooth since it is obtained from a univariate filtering procedure), but also the growth of the available production factors, which is not necessarily smooth, reflecting supply side shocks, in particular in the labour force.

A comparison of the annual average growth rate of potential output for the whole sample period (1985-2005) and for the sub-sample periods that were previously used in the case of univariate statistical methods is presented in Chart 3.3.2. The results obtained suggest that the computed annual average potential output growth is very similar across methods both for the whole sample period and for the sub-samples.

To sum up, the results obtained using the production function approach seem to confirm the deceleration of the potential output growth rate already shown by the univariate statistical methods. However, in contrast with the statistical methods, structural methods provide some indication of the factors that are likely to be behind potential output deceleration through the growth accounting exercise.

(16) The choice of the HP filter as the univariate benchmark method is due to the fact that it is a widely used method in the literature whenever potential output and output gap figures are required.

Chart 3.3.2

POTENTIAL OUTPUT GROWTH – STRUCTURAL VS STATISTICAL METHODS (SUB-SAMPLES)

Annual average growth rate, in percentage

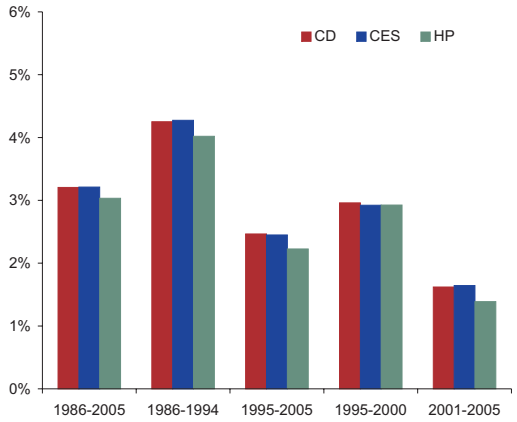


Chart 3.3.3

POTENTIAL OUTPUT GROWTH – STRUCTURAL VS STATISTICAL METHODS

Annual average growth rate, in percentage

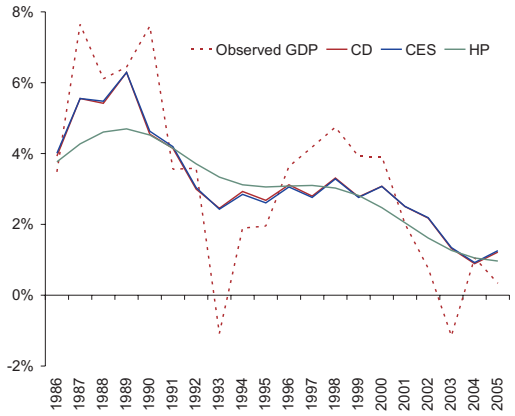
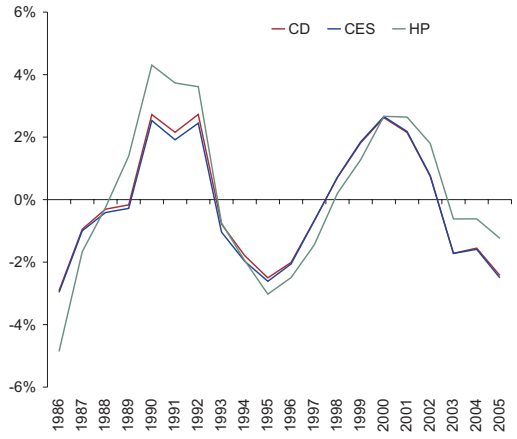


Chart 3.3.4

OUTPUT GAP – STRUCTURAL VS STATISTICAL METHODS

As a percentage of potential output



It should be noted that the CD production function only allows for identification of the contribution of trend total factor productivity, while the CES production function formulation considered enables identification of the contribution of the trend productivity growth of each one of the production factors for potential output growth. In addition, it must be referred that the current formulation implicitly considers a constant capital stock utilisation rate[17] and the maintenance of the number of hours per worker, meaning that any decline in these variables determines an overestimation of the amount of factor services effectively used and an underestimation of the specific productivity of the factor under consideration, since it is obtained as a residual. In the case of capital services, this type of bias tends to be bounded since capacity utilisation is likely to be a stationary variable; in the case of labour, however, the bias

(17) The available information on capacity utilisation for Portugal refers to the manufacturing sector and does not take into account, for instance, the services sector, which accounts for a significant share in overall production.

might be more significant since the number of hours per worker has declined since 1986. Nevertheless, according to the latest issue of the Employment and Labour Market Statistics published by the OECD,[18] the decline in the number of hours per worker is near 8 per cent in the period 1986-2004, meaning that an eventual underestimation in the annual trend productivity growth should not exceed 0.5 per cent on annual average terms. Thus, the results obtained and their interpretation in qualitative terms is likely to be robust to the measurement problems previously mentioned.

The contribution from production factors and associated productivities to potential output growth is mapped in Charts 3.3.5 and 3.3.6. According to the results obtained, the contribution of each factor, as well as the contribution of trend total factor productivity is similar irrespective of the production function used and thus the growth accounting exercise is robust to the production function specification considered. This conclusion applies both for the whole sample and for each of the sub-samples.

A first conclusion that can be drawn from the results obtained for the period 1986-1994 is that the growth rate of factor productivity and the increase in capital stock played a crucial role in the real convergence process observed since the accession of Portugal to the European Union.[19] The growth of labour has played a limited role, since it depends to a large extent on the evolution of demographic structure, which is characterized by the ageing process.

Secondly, comparing the period 1995-2005 with the period 1986-1994, the reduction in the contribution of productivity is crucial to understand the reasons behind the decline in potential output and the same applies to capital stock, though to a lesser extent. The CES production function results, which allow for identification of the productivity contribution of each factor, suggest that this decline in productivity is common to both capital and labour factors.

Finally, decomposing the sample period 1995-2005 into two sub-samples (1995-2000 and 2001-2005), one can conclude that the decline in potential output growth that is estimated to have occurred in the last years stems essentially from a smaller contribution of capital stock growth rate and from associated productivity, despite the slight decline in productivity associated to the labour factor.

Chart 3.3.5

GROWTH ACCOUNTING
COBB-DOUGLAS

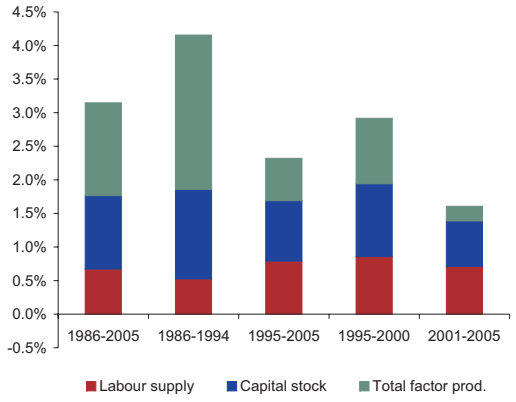
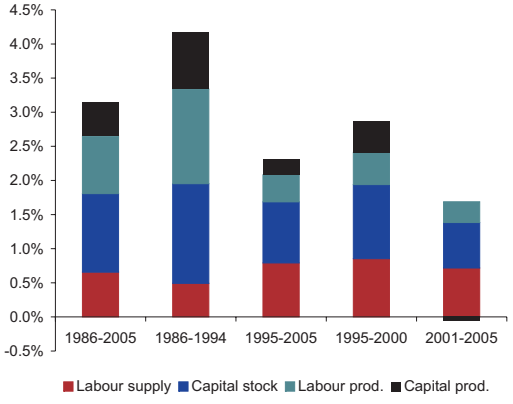


Chart 3.3.6

GROWTH ACCOUNTING
CES



(18) OECD (2006), "Average annual hours actually worked per worker", *Employment and Labour Market Statistics*, 2006, release 01.
(19) This result is in line with the conclusions presented in Cavalcanti (2004).

The decline in the contribution of capital stock reflects a distinct behaviour of investment in each one of the sub-samples. Thus, while in the period 1995-2000 investment grew at around 8 per cent, in annual average terms, it recorded an annual average decline of 3 per cent in the period 2001-2005. Moreover, the decline in productivity associated to the capital factor may also be related with the progressive obsolescence of the capital stock already installed, since the decline in investment might have also eventually limited the normal process of replacement of the capital stock that depreciated in the meantime.

The main conclusion that can be drawn from the structural approach is that the deceleration of potential output recorded in recent years essentially reflects the unfavourable behaviour of investment and its role in the maintenance of efficient conditions of production.

4. CONCLUDING REMARKS

This article presents computations for potential output and the corresponding output gap for the Portuguese economy, using alternative methods.

The results obtained are robust to the methodology adopted and point towards a deceleration of potential output in Portugal throughout the last 20 years, from an annual growth rate of around 4 per cent, for the period 1986-1994, to an annual growth rate close to 1.5 per cent, for the period 2001-2005. It is worth mentioning that these results are similar to those that can be found in European Central Bank and European Commission working papers.[20]

The implementation of a structural method like the production function approach enables one to go beyond the mere description of potential output deceleration by identifying structural factors that are driving this evolution and that are, ultimately, the genesis of the weak economic growth witnessed in Portugal in recent years. Nevertheless, interpretation of the results must be cautious, since they rely on a number of previously mentioned assumptions.

The results suggest that the deceleration of potential output throughout the last 20 years has been largely determined by a decline in the contribution of capital stock and total factor productivity. In the period 1986-2004, the strong growth in potential output benefited from a very peculiar juncture. As referred in Cavalcanti (2004), this period corresponded to Portuguese accession to the European Union, which may have implied a number of important transformations in the economy, in particular access to new markets and improved financing conditions for the business sector, which are likely to have significantly influenced both the dynamics of investment and improvement in total factor productivity. In the last years (2001-2005), the weak growth of potential output reflects a limited contribution of capital stock, as a result of the continued decline in investment since the beginning of the millennium, as well as the impact of investment in the maintenance of efficiency conditions at factor productivity level, in particular in the case of capital.

This study leaves a number of open questions that deserve some future research not only to reach a deeper understanding of the conclusions and results just presented, but also to test their validity as new information becomes available. Firstly, it seems important to consider the possibility of revisiting the results using reliable information on hours worked instead of the number of workers, since the results obtained for total factor productivity contribution using the production function approach might change. Secondly, the production function approach can be extended in order to account for the possibility of considering imported intermediate goods (for instance, imported energy goods) as an additional factor to evaluate the impact of shocks in the price of these imported goods on potential output

(20) The estimates published by the ECB for potential output growth can be found in Benalal *et al.* (2006), while the estimates published by the European Commission can be found in Denis *et al.* (2006).

level. Finally, the utilisation of methods that are able to combine the production function approach with other structural approaches (for instance using Okun's law and/or the Phillips curve), through multivariate methods will make it possible to test the robustness of the results and conclusions contained in this study using a larger information set.

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WAGE SETTING IN THE PORTUGUESE LABOR MARKET: A MICROECONOMIC APPROACH*

*Pedro Portugal***

"Portuguese businessmen have stopped investing and stopped working on projects. They do not see any markets; they do not see the cheap labour there used to be; they do not see infrastructures being developed; they receive no clear signals from the State; they do not believe that the existing economic policy is either permanent or viable. Thus have they launched the Portuguese economy into uncertainty and decadence. A recession born of circumstances? No; rather a deep-seated, complex demand for change in structures and in the economic, political and social system."

"A rigorous analysis carried out around 1960 would have made it clear that the Portuguese development model, over what could in certain respects be a medium-term period, will play itself out."

Para onde vai a economia portuguesa?

Francisco Pereira de Moura (1969).

1. INTRODUCTION

It would seem to be generally accepted in Portugal that "the economic model based on low wages has played itself out." This proposition presupposes that there is an economic development model that characterises the Portuguese economy; that this model hinges on low wages; and that it has inexorably played itself out. The reason why this concept has been so generally accepted would seem to be the reasoning that a model based on high wages was the only logical outcome of the end of a model based on low wages.

The low-wage model and its end is, however, one of those common-sense notions for which there can be found no grounds in economic analysis. It seems in fact to be above all an echo of philosophical concepts derived from Hegel's dialectic: that deep inside any new social model there are the contradictions that will inevitably lead to its downfall.

Economic models are abstract constructs. They are very useful in providing a simplified way of helping us understand the fundamental mechanisms underlying the behaviour of economic agents. In this sense, an economic model is not "real" in the way that, for example, a pair of shoes is based on a real model. It is very debatable whether you can classify an economic model on the basis of such a confusing concept as "a low wage model playing itself out."

When the idea of low wages is expressed, the issue is obviously: low in relation to what? For a labour economist, the notion of a low (or high) wage is very specific. In microeconomic terms, wages are low if they are set below the value of marginal productivity and high if they are above. The value of marginal

* The opinions expressed in this article are the responsibility of the authors and are not necessarily those of the Banco de Portugal. Our acknowledgments to Nuno Alves, Anabela Carneiro, Mário Centeno, Pedro Martins, José António Ferreira Machado, Maximiano Pinheiro and Ricardo Mourinho for their commentaries and suggestions. Lucena Vieira provided excellent computational assistance.

** Economic Research Department.

productivity represents the gain for the firm resulting from recruiting (or dismissing) another worker. It marks out a clear dividing line in the wage bargaining process. This function therefore defines firm labour demand. In the aggregate, if the wages paid by firms are too low, labour will become scarce, a phenomenon known in Portugal since at least 1410.[1]

Setting wages is clearly more complex than what stems purely and simply from a balance between labour force supply and demand. The dynamics of such supply and demand do, however, have a decisive effect on the way wages move. If wage bargaining involves, at least at a first stage, a confrontation between employers and trade union associations, then it is better described as playing out a non-cooperative game, in a bilateral monopoly situation, leading to agreement on wages, employment levels and possibly redundancy payouts. It is this approach, and not a normative appreciation of what wages should be, that will provide a guideline for the empirical investigation of what determines wages in Portugal, presented in the following sections.

2. THE ARCHITECTURE OF THE WAGE BARGAINING SYSTEM IN THE PORTUGUESE LABOUR MARKET

Private sector workers' pay in Portugal is conditioned by the definition of two thresholds. The first is the national minimum wage, specifying a floor for the majority of the labour force.[2] The second is defined by the wage bargaining between employers' and trades union associations, leading to a "salary table" with the minimum wage for each professional group.

Determining these salary tables is the central, but not the only, element in the bargaining process. It may result from agreements at sectoral level (majority), or from company or multi-company agreements. In legal terms, the agreement is only binding on the parties in the negotiations – the workers who are unionised and the companies within the employer associations – but the Ministry of Labour and Social Security systematically uses government decrees (*portarias*) to extend the collective agreement to all companies and workers in the sector.

It is often in the interest of companies to pay their workers above the going rate set out in the table. The main reason why companies guarantee higher wages than the norm is to prevent a drain of workers who have been selected and trained and have shown aptitude for their particular jobs. The handling of this cushion (the difference between the contractual rate and the actual rate) provides the company with a human resource management tool and some leeway to soften any negative shocks in demand for their product. In the Portuguese labour market, companies do in fact pay their workers significantly more than the contractual wage negotiated in the collective contract.[3]

3. THE MINIMUM WAGE AND WAGE DISTRIBUTION IN PORTUGAL

Minimum wage legislation was introduced in 1974, when certain exceptions were allowed. These were gradually brought into the process.[4] In October 2004, 7.8 per cent of full-time employed workers in the private sector were on the minimum wage. This was around 49.3 per cent of average base pay and 41.5 per cent of total pay. The minimum wage is clearly a decisive factor on the left tail of wage distribu-

(1) In the Lisbon parliament of August 1410, " [the participants] … complained that there were guards of the castle, because pay was so low, leading to the cities and towns of the realm being poorly guarded" quoted in Itinerários de el-rei D. João I, by Humberto Baquero Moreno, 1988.

(2) This excludes the handicapped and apprentices.

(3) Cardoso and Portugal (2005) put this wage cushion at 30-40% of contractual rate.

(4) For example, small companies, the young and farmers were not included.

Chart 1

WAGE DISTRIBUTION (2004)

Source: *Quadros de Pessoal*.

tion. It does not allow wage dispersion at the cost of an heavy left tail of the wage distribution (Chart 1). The influence of the minimum wage on wage distribution in the labour market means that high wage dispersion is essentially generated by the right tail of the distribution (Machado and Mata, 2005).

The effect of the minimum wage on employment has been the subject of heated discussion among economists. Theoretically, if there is competition in the factors market, the imposition of a minimum wage above the competitive equilibrium wage will inevitably lead to job losses, above all in the sector covered by the minimum wage. However, in a monopsony, where the employer has some capacity to set wage levels, it is well-known that setting a minimum wage can increase employment.[5]

Empirical research on this topic has accumulated a vast repository of contradictory results. Some indicate that jobs are lost, others point to nil effects on employment or even a slight gain. In Portugal, the minimum wage was extended to the under-20s in 1987 and allows us to study the impact of the minimum wage in almost ideal conditions. The measure involved a big rise in the wage (between 33 and 50 per cent) for a specific group. Two opposite effects are clear from a detailed study of the influence of this measure on the gross flow of workers, using the "*Quadros de Pessoal*" (*QP*), a longitudinal data set matching firms and workers in the Portuguese economy. On the one hand we have severance, on the other accessions; the employment generated by new companies and the employment lost through company closures (see Table 1) (Portugal and Cardoso 2006). The proportion of young people recruited fell, both in new companies and in those already in operation. At the same time, there was an

(5) In a more general sense, we can add to the power of monopsony the hurdles placed on worker mobility (for example, the cost of finding another job). In other words, any mechanism that makes it more difficult for workers to opt for a move increases the negotiating power of the company.

Table 1

EFFECT OF THE CHANGE IN MINIMUM WAGE ON WORKER FLOWS

	Fraction of teenagers in worker flows			
	Accessions	Separations	New firms	Closures
1988	-0.037	-0.15	-0.042	0.05
	(0.01)	(0.01)	(0.018)	(0.023)
1989	-0.043	-0.14	-0.041	0.025
	(0.01)	(0.01)	(0.018)	(0.023)
Reference: 1986				
Number of firms	99 608	125 397	38 138	19 203

Note: Poisson regression with random effects. Each regression includes company site, a measurement of industrial concentration, 7 sectoral variables and a variable for foreign companies. Standard errors in brackets.

increase in the proportion of young people in companies which closed. However, the proportion of young job losers in existing companies fell significantly and more than offset the negative effect on employment in other flows. This led to a positive net effect. To put it bluntly, the 1987 extension of the minimum wage led to a significant net employment gain for young people.

4. CONTRACTUAL WAGES, ACTUAL WAGES AND THE WAGE CUSHION

The wage bargaining process between trades unions and employers' associations is built on conventions and gives the unions a crucial role in that they are able to push for an egalitarian wage distribution structure. From this angle, the thrust of the unions will be towards more wage compression and away from pay as a function of productivity among workers and companies.

If we admit that contractual wages, i.e. wages negotiated through collective agreements, reflect above all the preferences of unions and that the wage cushion (defined as the difference between the contractual wage and the actual wage) illustrates above all the pay policies defined by companies themselves, then we are in a position to analyse two distinct preferences relating to the pattern of wage distribution.

The study of the factors determining contractual wages and the wage cushion, based on regression analysis, shows that worker attributes have a muted influence on the behaviour of agreed wages (Cardoso and Portugal, 2005). The wage cushion, however, significantly amplifies the effect of these variables, mitigating to some extent the wage compression favoured by the unions (Table 2).

The distribution of contractual wages shows clearly the preference of workers' representatives for an egalitarian distribution (reducing the range of wages) but this is offset by the wage cushion, which accentuates the dispersion, above all on the right tail of the distribution.

Table 2

WAGE DETERMINANTS - MARGINAL EFFECTS

Regressors	Dependent variable		
	Contractual wage	Wage cushion	Actual wage
	(A)	(B)	(A+B)
Nominal productivity (log)	0.026	0.021	0.057
Schooling	0.016	0.019	0.047
Age	0.02	0.011	0.034
Age squared	-0.0002	-0.001	-0.0003
Seniority	0.004	0.001	0.006
Seniority <1 year	-0.019	-0.024	-0.051
Gender (female = 1)	-0.109	-0.128	-0.204
Size of the firm (log)	0.028	0.008	0.036
Age of firm	-0.0003	-0.0001	-0.0005
Turnover rate	0.001	0.007	0.014
Number of observations	1 134 427	1 134 427	1 134 427
R^2	0.54	0.3	0.59

Note: Estimation by maximum likelihood of the Tobit regression model. Each regression includes 5 measures of union power, 3 variables indicating extension of the collective agreement, 3 regional variables and 17 sectoral variables. Source: Quadros de Pessoal, 1999.

5. RENT SHARING AND THE ROLE OF INSIDERS AND OUTSIDERS IN WAGE SETTING

A considerable branch of the literature focuses on the internal factors of the company in setting wages. Again we must consider the monopolistic situation which allows for the generation of rents that will be shared between owners and workers, modified by the negotiating power of the two sides. In this theoretical framework, it makes sense to tie wages to company performance indicators (profits, productivity, cash flow, etc).

Once the distinction between insider and outsider factors in a company is established, there is scope for an interesting analysis of the distinction between insider and outsider workers. The idea is that wages are fundamentally set by incumbent workers (insiders) while those not on contract (outsiders) have a relatively minor role to play. There are costs associated with selection, recruitment and training of insiders, making it economically unviable to replace them with jobless at lower wages. The rent associated with replacement costs guarantees insider bargaining power in wage negotiations.

The insider-outsider theory of wage setting allows us to put forward an explanation for setting wages above the market equilibrium level. Wage insensitivity to labour market conditions, and above all unemployment, can entail hysteresis caused by the power of insiders. In this case, contemporary unemployment depends on past unemployment, leading to a negative relation between contemporary wage levels and past employment levels.

An approach to an insider-outsider model to set wages (Table 3) was undertaken on the basis of a panel of companies with at least 100 workers, provided by the Ministry of Labour and Social Solidarity (Carneiro and Portugal, 2006). Results from this approach show that nominal productivity has a significant impact on wage setting with an 18% weight for internal factors. This is fairly high by international standards.[6] Market share also affects wages, suggesting that power in the product market creates

(6) The long-term figure for internal weight is calculated by dividing the coefficient of nominal productivity by one less the coefficient of the lagged wage.

Table 3

WAGE SETTING - INSIDER OUTSIDER MODEL

	Dependent variable: log wages	
Regressors	**Regression coefficient**	***t* statistic**
Wages lagged	0.227	7.4
Nominal productivity	0.143	6.1
Growth in permanent employment	-0.096	-5.8
Market share	0.018	4.3
Temporary employment	-0.019	-0.6
Rate of labour use	0.318	2.5
Layoff rate	-0.022	-5.3
Unemployment rate	-0.123	-5.9
Number of companies	4330	

Note: GMM estimation. Each regression includes 4 categories of schooling, 5 of professional qualification and 5 temporal dummies.

rents that are also picked up by workers in the form of bigger wages. The negative relation between wage variation and the unemployment rate suggests that outsider power has an important part to play in wage setting because it affects the alternative options of others in the bargaining process. There are no signs of hysteresis when the importance of insiders is measured through the variation in employment of workers on secure contracts. As a last point, the positive effect on wages from the rate of labour use and the negative effect from the rate of layoffs seem to bolster the idea that the threat of dismissal weakens worker bargaining power and brings wages down.

6. DISPLACEMENT RISK AND WAGE DETERMINATION

In a labour market with Portugal's level of sclerosis, where the likelihood of finding a suitable place of work is very low and unemployment duration therefore very high, being dismissed is an extremely dramatic event (Blanchard and Portugal, 2001). In this context it is possible to envisage a bargaining scenario involving workers' and employers' representatives where a compromise is reached with company survival in mind. Here, wage levels are balanced against the likelihood of a job being lost with closure. Wages in this way have a bearing on the occurrence of the discrete terminal event that reduces employment to zero. This brings us to a point where company survival hangs in the balance. At the same time, the likelihood of closure affects the setting of wages throughout the bargaining process and if there is a negative shock on demand for the product, wage concessions will be on the table. So, if wages are completely determined by the minimum wage, the wage-concession process will collapse.

The study of Carneiro and Portugal (again using the QP individual records), reached the conclusion that the quasi-elasticity of labour demand through company job losses due to closure was in the order of 0.15. This means that an exogenous variation on wages of 10% will increase the likelihood of closure by 1.5 per cent. In turn, the worker faced with the average likelihood of closure (6.3 per cent) will receive during the year before closure a wage 6 per cent lower than that received in a company with no closure in sight. As a final point, companies with a large proportion of minimum wage earners face a

larger risk of closure, since there is no scope for wage concessions. An increase of 10% of workers receiving the minimum wage corresponds to a 0.6 per cent rise in the likelihood of company closure.

Faced with a negative shock which changes firm's survival frontier, workers can, in certain circumstances, make concessions to cut down the risk of displacement. In many cases, however, closure cannot be avoided and the workers are faced with significant wage losses afterwards Job losses mean that the investment in human capital specific to the company has gone, i.e. the investment that made the worker more productive in the company but cannot be transferred to other companies. Workers also lose the investment in the search for a job suited to their productive capacities (job matching). There are also strategies frequently used to put off the payment of a higher salary to the period nearing the end of a career, basing this on the length of service of a worker. This is a way of disincentivating lower performance and also leads to wage losses whenever workers change jobs. As a last point, prolonged unemployment tends to lead to a human capital depreciation and stigmatisation among employers.

Carneiro and Portugal (2006b) carried out a study comparing the evolution of wages among workers dismissed as a result of company closure with wages for workers in companies that did not close and could therefore serve as a control group. The QP micro data on staff was also used. The conclusion was that three years after closure, the wage differential between the two groups was 10 p.p. for women and 12 p.p. for men. If there is a period of unemployment, the differential rises by 3 p.p. for women and 6 p.p. for men. The major part of wage losses (40 to 46 per cent) lies in fact that human capital specific to the company disappears. Change in the sector of activity weighs significantly on the wages of workers who find new jobs (14 to 24 per cent), and there is also a distinct behavioural difference between those who find a new job straight away and those who go through a period without a job. Being unemployed contributes 33 to 44 per cent of total wage loss. A selection issue is raised however. It is possible to argue that the heaviest consequences of company closure are hidden in the near fifty per cent of those dismissed who did not find a new job, and, thus, are not on the *QP* staffing list three years later.

7. THE CYCLICAL BEHAVIOUR OF REAL WAGES

There is a vast literature on this subject. How do real wages react to changes in economic activity? Adjustments to employment across the aggregate labour market demand curve cause a counter-cyclical reaction in real wages. Alternatively, the intertemporal substitution of labour by leisure across the dynamic labour supply curve will generate a pro-cyclical sensitivity of real wages to business cycle.

Economists seem on the whole to agree that using aggregate data in research on the cyclical pattern of wages does very little to clarify things. In fact, the use of aggregate wage data leads to a number of variables intermingling to the point where they cannot be separated: the effects of the changes on wage dispersion, on the distribution of hours worked and on the composition of the labour force. An additional implication from using aggregate data is that it assumes implicitly that the relation between real wages and the business cycle is the same for all workers or groups of workers. Leaving aside the heterogeneity in the wage cycle sensitivity may lead to serious problems when undertaking this analysis.

The empirical evidence based on microeconomic longitudinal data allows us to overcome the problems of aggregate figures. From this came the generally accepted agreement that real wages behave in a moderately pro-cyclical way, more accentuated among workers who move between jobs (movers) and much less among those who do not move (stayers).

A study of the labour market in Portugal, carried out by Carneiro and Portugal (2004), based on the QP individual staffing records of 1986-1988, shows indeed a moderate cyclical sensitivity in real wages

Table 4

DEPENDENT VARIABLE: LOGARITHM OF REAL HOURLY WAGE

	SAMPLE:		
Cyclical variable	**Stayers**	**Accessions**	**Separations**
Unemployment rate	-1.16	-2.08	-0.6
	(-9.7)	(-16.1)	(-2.8)
Number of observations	170 414	115 009	88 894
R^2	0.5	0.42	0.44

Note: This regression is estimated for OLS. Each regression includes linear and quadratic trends, worker age and age squared, schooling and seven binary variables that identify levels of qualification. 't' statistics are in brackets.

among workers who stayed in the same company for two consecutive years. There is, however, a significantly large pro-cyclical reaction in real wages among just hired workers. On the contrary, cyclical sensibility is weak among workers who have left their companies (Table 4).

8. WAGE SETTING IN A LOW INFLATION (AND LOW PRODUCTIVITY) REGIME

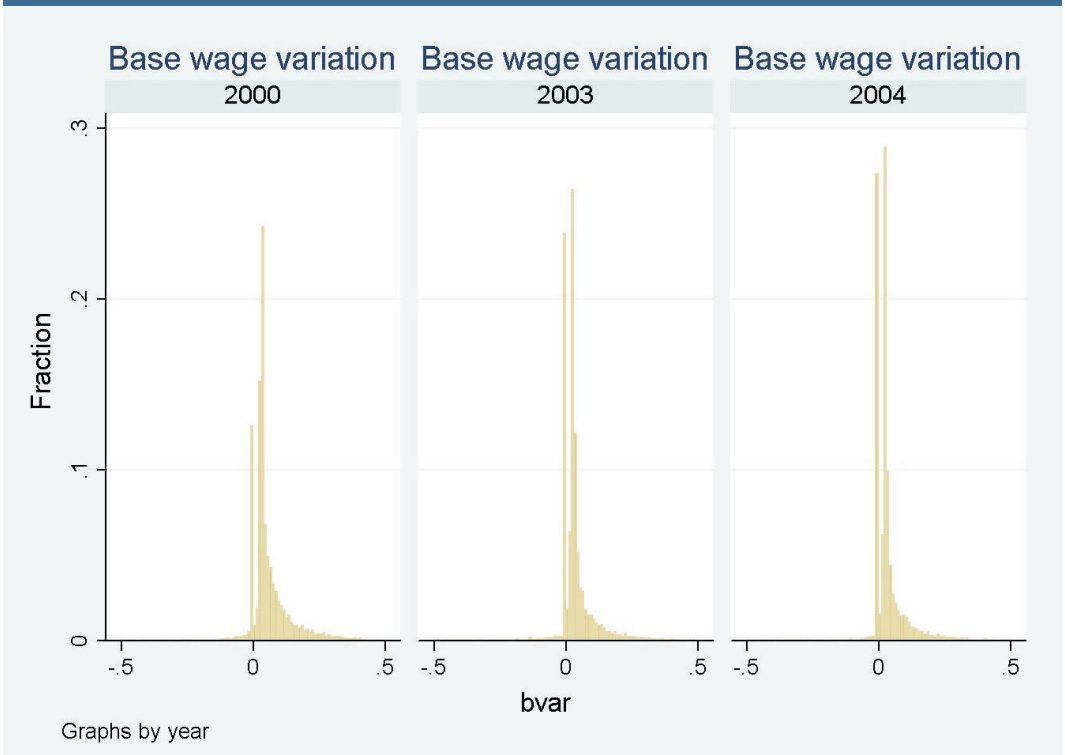
The notion of nominal rigidity of wages is associated with barriers to a nominal fall in wages (legal, contractual and others). Since the 1950s, nominal wage cuts are forbidden in Portugal. This restriction, however, does not create unsurmountable restrictions for companies seeking real wage concessions below the inflation rate. In such a case it will be enough to ensure that a nominal wage up-date is below inflation. The higher the inflation rate, the more leeway on wages is available for companies. In a low-inflation regime, however, nominal wage rigidity may stop companies from adjusting to negative product demand shocks through wage accommodations. The smaller the wage cushion (the difference between the wage actually paid and the wage agreed in collective pay bargaining) the more difficult this manipulation will become. A third area where there is leeway for adjustment could be in the structure of total pay, which is made up of base pay, regular and occasional payments and overtime.

An empirical study of the wage variation distribution, in the absence of large measurement errors, gives a convincing picture of the presence of nominal rigidity. Resistance to nominal negative variations in wages will mean sparse negative variations but if this cannot happen, there will be a rise in nil variations.

In terms of recent developments in the empirical distribution of wage variations (from an analysis of the 1999-2004 QP staffing figures) there are hardly any nominal negative variations (measured from base pay) and a large mass point at wage variations equal to zero (Chart 2). The move towards more null variations (from 13 per cent in 1999-2000 to 28 per cent in 2003-2004) is particularly revealing. This is probably associated with low inflation and weak productivity growth. There is also a salient move towards zero in the distribution of wage variations, corresponding approximately to the expected inflation rate accentuating even more the compression of the distribution. As a last point, it is clear that in 2004 the variation in total pay was less than in base pay. This shows that companies are having recourse to an unusual way of adjusting wages negatively (Charts 3 and 4).

Chart 2

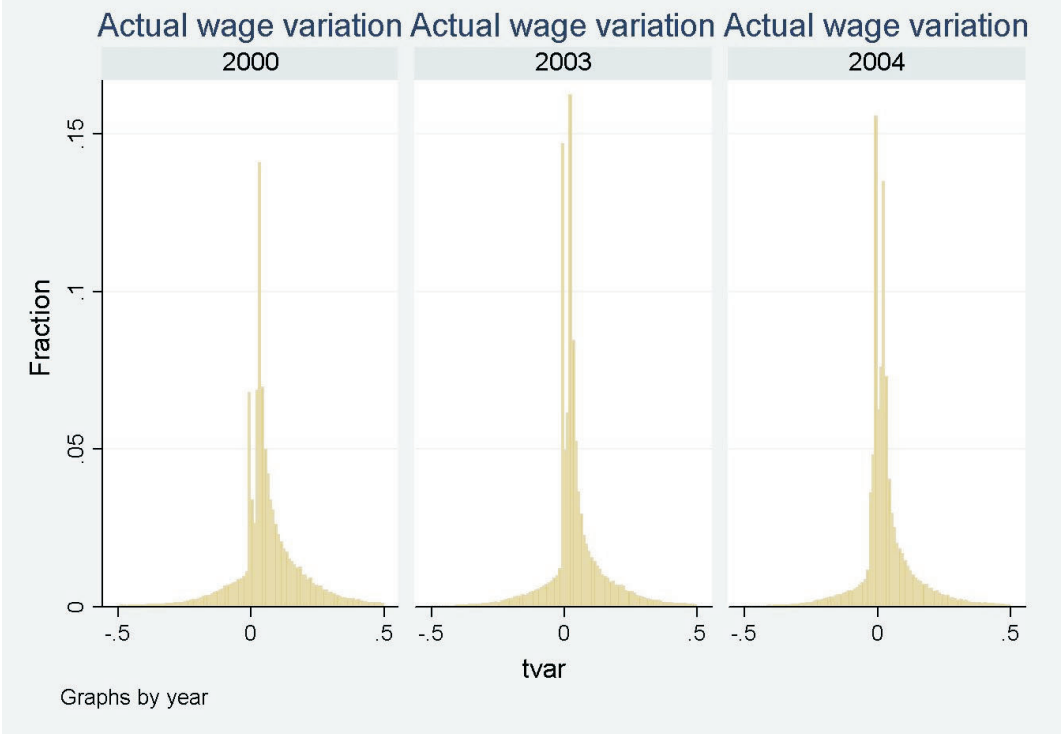
DISTRIBUTION OF WAGE VARIATION (BASIC PAY)



Source: *Quadros de Pessoal*.

Chart 3

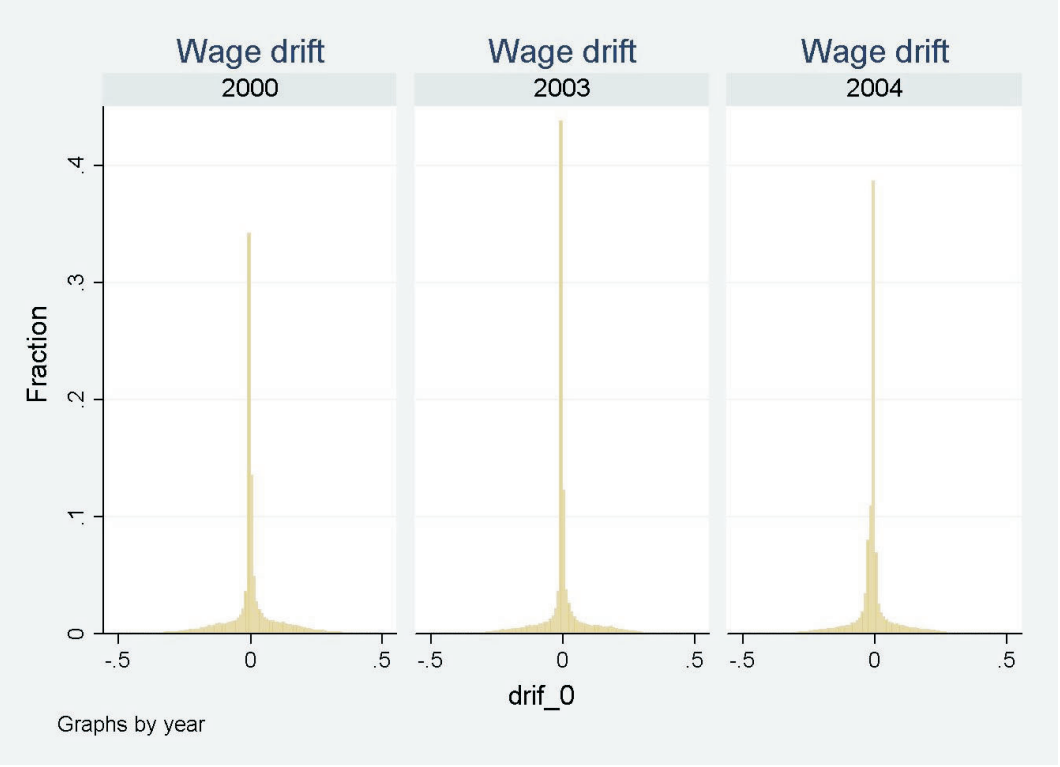
DISTRIBUTION OF WAGE VARIATION (TOTAL PAY)



Source: *Quadros de Pessoal*.

Chart 4

DISTRIBUTION OF WAGE DRIFT



Source: *Quadros de Pessoal*.

9. CONCLUSIONS

The importance of minimum wage setting has been established in this analysis in the pattern of wage distribution. The argument was that a change to the minimum wage had mixed effects on employment. A breakdown of its effects in terms of gross worker flows is especially enlightening as a way of understanding better the range of reactions to minimum wage setting.

Portuguese firms often pay their workers above the contractual wage, ensuring a wage cushion which can serve as an important mechanism for wage flexibility. The cushion can also serve as a buffer against the egalitarian thrust on wage distribution by workers' representatives.

Both internal and external factors have a bearing on wage setting. In the Portuguese case, rent sharing between employers and workers gives a relatively high importance to internal factors. In a labour market where the loss of a job can be a serious problem because of the low arrival rate of job offers, wages are conditioned by fears of dismissal, among these the possibility of firm closure.

Among the external factors conditioning wage movements, the economic cycle plays a decisive role. Leaving aside compositional effects, real wages for Portuguese workers are pro-cyclical, especially for starting wages.

The picture is of a country with extreme nominal wage rigidity. This nominal rigidity resides in the fact that nominal wages cannot fall, a situation set down in labour legislation. Resistance to a cut in nominal

wages is clearly visible in the empirical distribution of wage variations, where recent developments show a rising difficulty for companies to use wages as a response to negative product demand shocks.

Throughout this brief digression on the behaviour of wages in the Portuguese labour market there has never been any suggestion that wages might have been set below their equilibrium value. Indeed, if any evidence exists, it points in the opposite direction. In the public administration sector, the decision on wages is defined in political terms, far from the confrontation between supply and demand. Here there is strong evidence when comparing like for like that the wages of civil servants are set at a figure far above the private sector (Portugal and Centeno, 2001). Excessive wage growth may also reside at the root of the macroeconomic imbalances in the Portuguese economy (Blanchard, 2006).

In a discussion of what determines wages, it should always be borne in mind that labour contracts are freely negotiated between employers and employees. The leeway for negotiations will be determined by the conditions underlying company survival and by the workers' reservation wage. Bargaining power depends on a variety of factors, among them risk aversion (for example income fluctuations), the capacity to inflict costs (for example through strike action) or asymmetric information (for example on the company's economic performance). And it is the bargaining power of the parties that will determine the final outcome. In this context, fancying to replace the "low wage model" for another economic model is as frivolous as wishing to change a shoe design. The economic debate would in all likelihood be more fruitful if it focused on the most suitable format for labour market institutions rather than on a sterile contemplation of "an economic development model based on low wages playing itself out".

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ON THE COSTS OF A MONETARY UNION*

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*Pedro Teles***

1. INTRODUCTION

This article revisits the issues in the optimal currency area literature, as in Mundell (1961) and a more recent literature, on the optimal choice of an exchange rate regime. This literature focuses on the following question: what are the costs of a fixed exchange rate regime when there is a role for stabilization policy?

The literature usually suggests that when different shocks hit different countries or when there are differences across countries in the effects of shocks, monetary policy - which has a stabilization role due to the existence of nominal rigidities in the economy, may have to react differently in the different countries. Because of this heterogeneity it is common to infer that there are costs of coordinating monetary policies, either through a fixed exchange rate regime or a monetary union. Building on Mundell (1961) the literature concludes that these costs are higher the stronger are the asymmetries, the more severe are the nominal rigidities, the more pronounced is the incompleteness of international asset markets, the less mobile is labor, and, finally, the less able is fiscal policy in effectively stabilizing the national economies (Corsetti, 2005).

In this article we show that when both fiscal and monetary policies are considered jointly, and assumed to have the same flexibility in response to shocks, the loss of the country specific monetary tool is of no cost.[1] This is true irrespective of the asymmetry in shocks and the transmission mechanisms, in particular the severity of the nominal rigidities. The elements that are crucial in assessing the costs of a single monetary policy are the degree of labor mobility and the effectiveness of fiscal policy, but labor mobility works in the opposite way to the conventional wisdom. In fact only if labor is not mobile across countries is fiscal policy able to eliminate the costs of a monetary union .

These results are derived in a standard two country model. Each country specializes in the production of a set of tradeable goods. The technologies used in the production of these goods are the simpler ones: labor is the only input and productivity does not depend on the scale of production. Labor is not mobile across countries. Money is used by households of every country for transactions of every consumed good: both the goods produced at the country and goods imported from abroad. The government of each country consumes goods produced at home. The expenditure realized in public consumption must be financed by every government with distortionary taxes and seigniorage. The tax instruments are standard linear labor income and consumption taxes. There is non-contingent nominal public debt in each currency that can be traded internationally and private agents issue state-contingent private debt which can be traded inside each country.

* The analyses, opinions and findings of this article are those of the authors and do not necessarily coincide with those of the Banco de Portugal.

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(1) This article is a summary of the results developed in Adão, Correia and Teles (2006).

2. THE METHODOLOGY

As said before we want to be able to answer the question of whether the transition from a monetary regime where the monetary authority has full autonomy to a different regime, namely a monetary union or a specific exchange rate regime, reduces the choices of a decision maker (or of a set of decision makers). This is a particularly interesting question when national monetary policies have a potential stabilization role due to the presence of nominal rigidities. Since we want an answer that is robust to the type of price rigidity we will not derive the result using a particular type of rigidity, like prices set one period in advance, price-setting *à la* Calvo (1983), or any type of state-dependent price setting. Alternatively we will determine the conditions that should be satisfied in an equilibrium where prices were flexible and the exchange rate would also be flexible. We will see the role that fiscal and monetary instruments play in that environment. Namely we will show that there is a strong interaction between any policy instrument, either fiscal or monetary, and between these instruments and the characteristics of the path of equilibrium prices. We are able to show that even if monetary policy is common to both economies and the producer price level does not react to states, or change over time, the same set of equilibrium allocations can be achieved in equilibrium. If this is the case, in an economy with fixed exchange rates and price rigidities those restrictions on price setting will not be active, and the same set of allocations that was derived in the flexible prices and flexible exchange rates economy could be achieved.

3. THE MODEL

The economy has two countries of equal size, the home country and the foreign country (denoted by *). In each country there is a representative household with preferences over the good produced at home, $C_{h,t}\left(C^*_{h,t}\right)$, the good produced abroad, $C_{f,t}\left(C^*_{f,t}\right)$ and over hours of labor in the market, $N_t\left(N^*_f\right)$. Households need money for transactions of goods.

In each country there is a continuum of firms. Each firm produces a distinct, perishable consumption good with labor only.

Fiscal and monetary policy is undertaken by a government in each country. The aggregate consumption of the public good is exogenous and has to be financed with taxes on the consumption of the home good, $\tau_{h,t}\ \left(\tau^*_{h,t}\right)$, taxes on the consumption of the foreign good, $\tau_{f,t}\ \left(\tau^*_{f,t}\right)$, taxes on labor income, $\tau_{N,t}$ $\left(\tau^*_{N,t}\right)$, taxes on profits and seigniorage.

In each period $t = 0,1,\ldots,T$, where T can be made arbitrarily large[2], the economy experiences shocks. In the particular model analyzed these shocks for the private sector are determined by changes in technologies and by changes in policies.

There are markets for goods, labor, money, state-contingent debt and state non-contingent debt. The labor market is segmented across countries. The state-contingent debt market is segmented across countries and across households and governments. The goods and the state non-contingent debt are tradeable across countries and agents. We assume that firm i sets prices, $P_{h,t}(i), P^*_{f,t}(i)$, every period with contemporaneous information. We also assume that exchange rates, ε_t, are flexible.

The conditions for the optimal decisions on consumption and saving can be described in the following way: the household should be indifferent between using one unity of home money in the consumption of the home good today or saving this unit of money. If the household chooses to save then there are

(2) The assumption of a finite, even if arbitrarily large, time horizon considerably simplifies the analysis and is as reasonable an assumption as the more standard one of an infinite horizon.

two possible alternatives. A first one is to buy the home non-contingent asset whose yield is the gross interest rate (R_t). A second possibility is to convert the unit of the home money into foreign money and then buy the foreign non-contingent asset which pays the gross interest rate (R_t^*). The return of any of these applications can be used to buy consumption of the home good tomorrow. Let us call these optimizing conditions, two for each household, the *intertemporal* conditions.

In addition households have to decide on the total consumption decomposition, into home and foreign good, and on the decision of consuming versus supplying labor. Any of these decision rules equate the marginal rate of substitution of two goods [3] to the relative price of these goods paid by the household. The decision over the consumption of home versus foreign good implies that the marginal rate of substitution has to be equated to their relative price, i.e. the terms of trade, gross of taxes paid on the consumption of every good. In the second decision, of consumption versus labor supply, the relative price is the real wage, net of labor income taxes and gross of the consumption tax. Notice that when deciding on consumption versus labor the nominal interest rate, $R_t, \left(R_t^*\right)$, is a price to add to the producer price of the good plus taxes, because transactions of goods for consumption have to be realized with money. As the household has to forgo the interest rate in order to hold money instead of other assets, this is usually described as leisure being a credit good and consumption a cash good. Let us call this set of conditions, two for each household, the *intratemporal* conditions.

The pricing conditions describe the firms' behavior and imply that firms set prices that are a mark-up over marginal costs. In the special case of flexible prices studied here the mark-up is constant given assumption of a constant elasticity of substitution across goods, and marginal costs are constant due to the choice of a linear production function. Notice that we impose that technology is identical for every good produced in every country. This implies that technological shocks, i.e. a change in the productivity of labor at home or abroad, should be interpreted as sectorial shocks that coincide in this environment with national shocks.

Our purpose in this section is to assert a major result of the paper, that has implications for equilibrium allocations with sticky prices and fixed exchange rates. We show that for any given equilibrium allocation $\overline{C_{h,t}}, \overline{C_{f,t}}, \overline{N_t}, \overline{C_{h,t}^*}, \overline{C_{f,t}^*}, \overline{N_t^*}$ in the described economy, the equilibrium conditions that characterize the flexible price and the flexible exchange rate environment can be satisfied with different combinations of policies and prices. That is, there is not a unique way to decentralize[4] a chosen allocation. A particular combination is the one where exchange rates are constants over time as well as producer prices.

The main proposition follows:

PROPOSITION 1:[5] *Any flexible equilibrium allocation can be implemented with a particular policy such that producer prices are constant across states and over time, for every good, and the exchange rate is fixed*.

Proposition1 $P_{h,t} = P_{h,0}, P_{f,t}^* = P_{f,0}^*, \varepsilon_t = \varepsilon_0 \left(and\ R_t = R_t^*\right)$.

If the allocation $\left\{\overline{C_{h,t}}, \overline{C_{f,t}}, \overline{N_t}, \overline{C_{h,t}^*}, \overline{C_{f,t}^*}, \overline{N_t^*}\right\}$ is an equilibrium allocation in the economy above this means that there exist a set of policies and prices that satisfies everyone of the conditions that we described. These prices and policies in general would be time and state dependent. For example, the ex-

(3) A marginal rate of substitution between any two goods describes the maximum amount of one good the household is decided to give up in order to have one additional unity of the other good.

(4) As we are working with market economies the decision maker cannot impose to private agents a chosen allocation. It is called decentralization the way through which that allocation can be chosen voluntarily by private agents in a market economy. Policy makers use policy instrumenst that affect prices and the value of assets such that free choices through the market coincide with the chosen allocations.

(5) See the proof in Adão, Correia and Teles (2006).

change rate would change with the state of the economy and prices would fluctuate over time. Let us give some intuition on how the same allocation can be supported by different policies that guarantee constant prices and exchange rates. In order to do this, we would evaluate whether the clearing and optimizing conditions of households and firms in the economy are satisfied for a given allocation and two different sets of policies and prices, set Λ (which is not constrained) and set Θ where producer prices and exchange rates are constant over time.

The clearing conditions for every good, and for labor in every country, are trivially satisfied since the allocation is the same. Therefore we have to check how every agent can choose the same quantities and firms set constant prices, for the fixed exchange rate.

Let us begin by the price setting conditions. It is easy to verify that a constant price level can be the outcome of firms' choice once the nominal wage rate in every country reacts to the country technological shocks. To see this, note that a constant producer price level implies a constant marginal cost and this can be achieved if the wage rate in every country reacts completely to changes in productivity.

When the exchange rate is fixed the *intertemporal* conditions of the households in every country imply that $R_t = R_t^*$. Let us take a particular path for this common interest rate. Using the *intratemporal* conditions we can verify that the choice of labor and of consumption of the local good can be the same if the real wage net of taxes is the same in the set Λ and in the set Θ. We can use the tax on labor income to guarantee that, in every date and state, this is true. The choice over the two aggregate goods, home and foreign consumption, is determined by the terms of trade, again gross of consumption taxes. This choice would be the same if, in every country, the tax on the imported good is adjusted to maintain the terms of trade gross of taxes constant across set Λ and set Θ.

We still have to verify that the common nominal interest rate is identical to the expected real interest rate plus the expected inflation of consumer prices. Since we are maintaining the real interest rate constant, because the allocation is the same, the choice of a common interest rate and of constant producer prices has to be adjusted by the expected tax on the consumption of the home good, in every country. This tax on every state will be chosen to guarantee the private budget constraint. As we constrain the environment to the non-existence of state contingent assets,[6] the change of the tax on the home consumption good across states, allows for a consumer price that is state dependent, even when the producer price is constant over time. This state-dependent consumer price allows for deflated nominal assets to be also state-dependent, and can therefore satisfy the private budget constraint, for every state and date.

Finally, we just have to verify the home budget constraint, or national solvency, that guarantees that the amount of real external assets can finance the flow of future trade balance deficits, for every date and state. These are the conditions that, given the allocations and the new path for the producer prices, would determine the interest rate path, which as said before, is common to both countries.

This exercise can be repeated for any allocation that is an equilibrium for the case where prices and exchange rates are flexible.

We have thus shown that for any equilibrium allocation, $\left\{\overline{C_{h,t}}, \overline{C_{f,t}}, \overline{N_t}, \overline{C_{h,t}^*}, \overline{C_{f,t}^*}, \overline{N_t^*}\right\}$, the equilibrium conditions can be satisfied by asset positions, prices and policies such that producer prices and exchange rates are arbitrary constants, $P_{h,t} = P_{h,0}, P_{f,t}^* = P_{f,0}^*, \varepsilon_t = \varepsilon_0$. This means that the full set of equilibrium allocations can be implemented under fixed exchange rates with producer prices in both countries that are constant over time. It is important to highlight the particular role played by taxes in

(6) Although there exist state-contingent assets traded between households in every country, in equilibrium the net supply of these assets for the representative household in every country is zero.

the equilibrium with constant producer prices and exchange rates. In general different shocks in different countries lead to changes in relative prices. If producer prices and the exchange rate are constant then such relative price changes can only be achieved by changes in the consumption taxes in one good relative to the other. Consumption taxes play another role, when public debt is non-contingent, which is that of replicating state-contingent real debt. We have assumed, as is standard in this literature, that internationally traded assets are state non-contingent. Nominal interest rates, that in a fixed exchange rate regime are common across countries, can play the role of replicating state-contingent international debt. Consumption taxes also affect the households decisions between consumption and labor. Labor income taxes will have to adjust for those effects. Since prices are constant and technological shocks in the two countries can be different, the nominal wages will have to move in response to shocks and move differently in different countries. Money supply will also have to move to respond to shocks to satisfy the transactions role of money. A fixed exchange rate , which should be equal to one in the case of a monetary union, leads to the result that nominal interest rates are equalized but money could be distributed across countries in a very asymmetric way.

4. STICKY PRICES

One first implication of the result in the Proposition is that fixed exchange rates do not restrict the set of allocations under flexible prices. This is an interesting result in itself, in particular, as in our model, when asset markets are incomplete. However, the issue of whether there are costs of a fixed exchange rate regime is typically associated with the presence of some type of price rigidity, as argued by Friedman (1953). If there are restrictions on how producer prices are set, and exchange rates are fixed, it may be the case that there will be restrictions on the relative prices of the goods produced in the different countries.

It is particularly surprising that fixed exchange rates do not restrict the set of allocations also when producer prices are constant over time. Can both producer prices and exchange rates be constant over time? Yes, as long as taxes can change so that the terms of trade, real wages, and debt levels can move with the shocks.

We now assume that prices are sticky in some or in all goods produced. We assume that firms set prices as in Calvo (1983) staggered price setting,[7] which is a commonly used assumption in the sticky price literature. We assume that firms set prices in the currency of their country. In each country, starting from an historical common price, at every date, each firm can optimally set its price with some probability less than one, that can differ across countries. As there is a continuum of firms, this probability is also the share of firms that optimally revise the price in each period. In general, staggered price setting leads to inefficient differences in prices across firms. Although in a given country firms are otherwise identical, have the same linear technology and face identical demand functions, they may charge different prices. Thus, the relative price of the goods they produce may be different from one. The only case in which this will not occur is when firms that in each period have the opportunity of choosing a new price decide to maintain the same price. The price setting restrictions in this case will not be binding and the producer price level in each country will be constant. The equilibrium conditions will be identical to the equilibrium conditions of the flexible price economy when producer prices are constant across periods.

(7) Calvo (1983) price setting assumes that there is a probability that is particular firm can chose optimally its price. This probability is identical across firms and non correlated over time. Therefore the probability that a particular firm can decide on its price does not depend on how long ago she got the opportunity to do it. Once the firm gets this opportunity she will decide setting a price that is a constant mark-up on the weighted sum of future marginal costs.

Since, as stated in Proposition 1, it is possible under flexible prices to implement the full set of equilibrium allocations with constant prices and fixed exchange rates, it follows that under sticky prices it is also possible to implement that same set, also with fixed exchange rates.

The proposition follows.

PROPOSITION 2: *In a world economy with non-contingent bond markets and Calvo (1983) staggered price setting there is no cost of a fixed exchange rate regime, independently of the degree of price rigidity.*

In Proposition 1 we showed that the set of allocations under flexible prices is implemented with policies that generate constant prices and exchange rates, equal to arbitrary numbers. For the policies that induce prices to be equal to the historical initial prices of the Calvo firms, $P_{h,0}$ and $P^*_{f,0}$, and exchange rates equal to any constant,[8] the equilibrium conditions under Calvo (1983) will be exactly the ones under flexible prices. This establishes that the flexible price set of allocations is feasible with Calvo price setting and fixed exchange rates. This set is also the optimal, in the sense that for every allocation in the set under sticky prices, there is one in the set under flexible prices, that is a potential Pareto improvement.[9]

The result in Proposition 2 can be extended to any other form of price stickiness, such as prices set in advance, Taylor (1980) staggered prices, or Rotemberg (1982) adjustment costs of changing prices. For the case where prices are set in advance, let the initial prices $P_{h,0}$ and $P^*_{f,0}$ be exogenously given and the other period prices $P_{h,t}$ and $P^*_{f,t}$ be set in advance for k periods, for a finite k. Proposition 1 implies that adding those restrictions to the flexible price economy still allows to implement the set of allocations under flexible prices, in a fixed exchange rate regime. The argument of welfare dominance of the flexible price set also applies here.

We have analyzed flexible versus fixed exchange rate regimes. The analysis clearly follows through in a monetary union. The interest rate will be common as under fixed exchange rates and equal to one. The money supply in each country obviously does not have to be the same.

We have assumed that prices are set in the currency of the producer. We could alternatively have assumed local currency pricing. The results would follow through. For the policies that support constant producer prices and constant exchange rates, local currency price setting restrictions would not have any impact. Contrary to what is argued extensively in the literature that does not allow for fiscal policy instruments, it does not make a difference whether prices are set in the currency of the producer or the consumer.

5. LABOR MOBILITY

In the literature of optimal currency areas the lack of labor mobility is one of the justifications for the costs of a monetary union with asymmetric member countries. A result of this paper is that the opposite is true. Labor immobility is a necessary condition for the irrelevance of the exchange regime.

Proposition 1 was stated for the case where labor cannot move across countries. It does not apply when labor is mobile. To see this we assume that workers can choose to work in foreign firms and re-

(8) The exchange rate could be equal to one for the case of a monetary union.

(9) It is clear that under sticky prices there are allocations that are not implementable under flexible prices. That is the case whenever otherwise identical firms set different prices. It turns out, as we show in Adão, Correia and Teles (2006), that the set of flexible price allocations dominates in terms of welfare the set of allocations under sticky prices. Since agents are heterogeneous across countries, the meaning of welfare dominance is the usual one, of a potential Pareto movement where lump sum transfers between agents are implicitly assumed.

main being taxed at home. They consume at home. This is one way of modelling labor mobility. There are alternative ways but the same arguments go through.

For the home households, total labor N_t is split between work at home $N_{h,t}$ and work abroad $N_{f,t}$,

$$N_t = N_{h,t} + N_{f,t}. \tag{1}$$

Similarly for the foreign country, N_t^* is split between $N_{h,t}^*$, which is labor in the home country, and $N_{f,t}^*$, which is labor in the foreign country,

$$N_t^* = N_{h,t}^* + N_{f,t}^*. \tag{2}$$

The market clearing conditions in the goods market is:

$$C_{h,t} + C_{h,t}^* + G_t = A_t \left[N_{h,t} + N_{h,t}^* \right] \tag{3}$$

$$C_{f,t} + C_{f,t}^* + G_t = A_t \left[N_{f,t} + N_{f,t}^* \right] \tag{4}$$

where A_t and A_t^* represent, respectively, the productivity at home and at the foreign country. Therefore $A_t N_t \left(A_t^* N_t^* \right)$ is total production at home (the foreign country) when prices are flexible. The conditions of the households problem are the same except for an additional arbitrage condition on where to work, that equates the two wages

$$W_t = \varepsilon_t W_t^* \tag{5}$$

Notice that full labor mobility implies one additional constraint per state to the equilibrium conditions. The wage in the same currency must be equal across countries. As shown in the proof of Proposition 1, there are multiple policies that support each allocation under flexible prices with constant prices and exchange rates. These degrees of freedom were used to maintain prices and exchange rates constant over time. They are not enough to satisfy the additional equilibrium restrictions, described in conditions (5), which are as many as the number of states in every period.

When labor is mobile, and prices are sticky, the exchange rate regime matters. In particular, while with flexible exchange rates it is possible to implement the set of allocations under flexible prices, that is not the case in a fixed exchange rate regime.

Notice that when we say that with labor mobility there are costs of a fixed exchange rate regime, while there are no such costs when labor is immobile, we are not claiming that labor mobility is undesirable. We are not comparing environments with and without labor mobility, but rather environments with and without fixed exchange rates, when labor is immobile or when it is mobile.

6. CONCLUDING REMARKS

Under a flexible exchange rate regime, monetary policy in each country can freely respond to shocks, may respond to country specific shocks or may respond differently from other countries to common shocks. Instead, in a monetary union there is a unique monetary policy for the members of the union. This implies restrictions in the use of policy; the exchange rate must be constant over time and the nominal interest rate must be equal across countries. Are these restrictions relevant to achieve the optimal equilibrium allocations? Does the answer to this question change with the introduction of nominal rigidities, like staggered price setting?

The conventional wisdom is that there are costs of a fixed exchange rate regime, or a monetary union, resulting from the loss in ability to use policy for stabilization purposes. The costs are taken to be higher the stronger are the asymmetries across countries in shocks and their transmission, and the stronger are the nominal rigidities. Instead, we show that in an environment with nominal rigidities, the type of price setting (producer currency pricing or local currency pricing) and the exchange rate regime (whether flexible or fixed exchange rates) are irrelevant once fiscal policy instruments are taken into account. This is the main result of the paper. We also show that in order for the costs of the monetary union to be zero labor cannot be mobile.

One possible objection to our analysis, as well as to the related literature that uses both fiscal and monetary policy instruments, is that we do not incorporate informational restrictions in the policy choice and also do not take into account lack of ability to commit. The assumptions of private information on the part of the government and inability to commit in the presence of a time inconsistency problem may justify policy that does not respond to contingencies, such as illustrated with the inflation cap in the analysis in Athey, Atkeson and Kehoe (2005). But once we want to take into account these considerations for the use of fiscal instruments there is no reason why the same arguments should be exclusively for those and not extended to monetary instruments.

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ESTIMATING FORWARD *PREMIA* OF SHORT-TERM INTEREST RATES BASED ON SURVEY RESULTS*

*Isabel Marques Gameiro***

1. INTRODUCTION

Financial market participants' expectations regarding future interest rates are important indicators from the central bank's point of view. Such expectations are useful insofar as they make it possible to assess whether or not a given monetary policy decision will surprise the markets and to analyse the efficiency of the communication policy. Market expectations regarding interest rates are also used as technical assumptions in the macroeconomic forecasts regularly conducted by central banks, as in the case of the Eurosystem.[1]

Forward interest rates are one of the most widely used indicators to assess market expected future interest rates. In the absence of uncertainty, forward interest rates would be similar to market expected future interest rates. Given the existence of uncertainty, risk-averse investors will demand additional compensation as protection against surprises regarding such rates. Therefore, forward interest rates incorporate a risk premium, called forward premium, and are imperfect indicators of expectations for future interest rates. Such *premia* are not directly observable and several approaches can be used in their estimation.

A widely used approach compares forward interest rates with the corresponding realised future interest rates over a long period of time and approximates risk *premia* by the average historical differences for each horizon between the two variables. However, this approach, which is called "ex post", has several limitations, namely because it provides an average and constant estimate of the risk premium for each horizon, when in fact the risk premium varies over time. Another possible approach consists in estimating the forward risk premium using interest rate expectations from surveys. Interest rate expectations reported in surveys may, in principle, be regarded as direct or "pure" measures of such expectations as they are not affected by the various risk *premia* or by technical market factors, given that respondents do not take positions in the market.[2] Therefore, the difference between forward interest rates and interest rate expectations reported in surveys may be used as a measure of the forward risk premium. This approach has the advantage of being forward-looking.

This paper presents estimates of the forward risk premium of the German three-month interest rates based on these two approaches. Given the limitations of the *ex post* approach, the focus is on the estimation of the survey-based forward risk premium. Germany is used as a proxy for the euro area, as there are no survey data on interest rate expectations for the euro area prior to December 2002.

This article is structured as follows: in Section 2, data used are briefly described; Section 3 presents estimates for forward risk *premia* of German three-month rates using the *ex post* approach; in Section 4, the forward risk premium is calculated on the basis of expectations regarding the German

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(1) See the June 2006 issue of the ECB Monthly Bulletin.

(2) However, interest rate expectations reported in surveys may also indirectly incorporate a forward risk premium, if respondents use money market forward interest rates as a benchmark when building their expectations.

three-month interest rates reported by Consensus Economics between January 1990 and December 2005. Estimates for the risk premium derived from Consensus expectations suggest that this premium displays considerable variation over time. Therefore, Section 5 presents a number of macroeconomic and financial factors that may influence the risk premium behaviour and assesses the importance of these factors to explain the past behaviour of survey-based risk *premia* of three-month rates in Germany using a simple model. Section 6 concludes.

2. DATA

German three-month forward interest rates were calculated on the basis of the spot rates curve derived using the Svensson method (1994).[3] We used the Svensson parameters estimated by the Bundesbank for the period January 1990-December 2005, which are reported to BIS (for further details, see BIS (2005)).

Forecasts for the German three-month interest rate refer to the average forecasts of the panel of respondents to the Consensus survey, which are monthly reported in Consensus Forecasts. The panel is composed of financial experts who provide forecasts regarding interest rates for three –months and one-year ahead. Consensus forecasts are published in the second week of every month, based on forecasts by respondents during the previous two weeks.

One-year ahead expectations data on inflation and economic activity for the German economy were also compiled from Consensus Economics and correspond to the weighted average of monthly forecasts reported for these variables for the years t and t+1. For instance, Consensus one-year ahead expectations regarding inflation were calculated as follows:

$$Inf_{i,t}^{(e)} = a_i Inf(t) + b_i Inf(t+1)$$

where i means the month and t means the year in which the forecast is reported.

$Inf_{i,t}^{(e)}$: one-year ahead inflation expectations of Consensus in month i of year t

$Inf(t)$: Consensus forecast for inflation in year t

$Inf(t+1)$: Consensus forecast for inflation in year t+1

a_i and b_i are the weights: in January $a_i = 1$ and $b_i = 0$ and throughout the year a_i declines by 1/12 and b_i increases by the same ratio, so that in December $a_i = 0$ and $b_i = 1$.

This procedure was also applied to the standard deviation of forecasts of the Consensus panel for inflation and GDP in Germany, which were used as proxies for uncertainty surrounding the macroeconomic outlook.

Data on actual inflation in Germany were obtained from Thomson Financial Datastream and refer to the year-on-year rate of change in the consumer price index. Swap interest rates and government bond yields for Germany were also obtained from Thomson Financial Datastream. Finally, Bloomberg data were used for the implied volatility derived from options on futures contracts on German ten-year government bonds.

(3) The Svensson method (1994) consists in the approximation of a curve to the relationship between spot interest rates for different maturities at a given moment, by estimating a functional form where parameters are determined through the minimisation of the square deviations of theoretical prices from observed prices.

3. FORWARD RISK PREMIUM BASED ON THE *EX POST* APPROACH

The *ex post* approach to estimate the forward risk premium is based on the comparison of the forward interest rates with realised future interest rates for each horizon, assuming that the risk premium corresponds to the average historical difference between such rates. It should be noted that the differences between forward interest rates and corresponding outturns may reflect not only the existence of a risk premium but also errors in agents' expectations. However, if the period of time under review is relatively long, errors in agents' expectations are expected to be, on average, close to zero.

Chart 1 shows that between 1990 and 2005 the differences between the three-month forward interest rates in Germany and corresponding outturns were significant both in positive and negative terms. On average, and as predictors of future interest rates, forward interest rates showed an increasing upward bias over the horizon. At horizons of up to 6 months, the forward risk premium is close to zero, but it becomes significant over longer horizons, reaching 0.5 and 1.5 p.p. respectively in 1 and 2-year horizons. In fact, taking into account a 95% confidence interval (dotted lines in Chart 1), the bias in the average *ex post* risk premium for each horizon is statistically different from zero for horizons beyond 6 months.

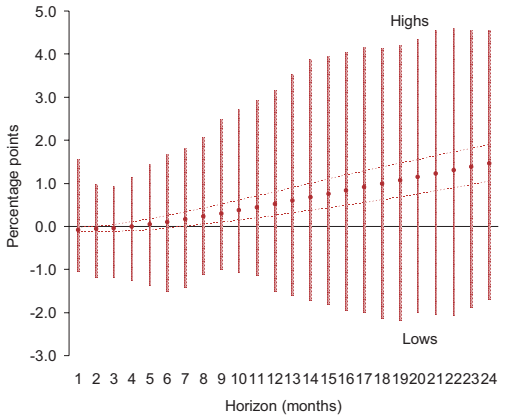
This result is consistent with those of various empirical works testing the "expectations theory of the term structure of interest rates", which suggest that the risk premium implied in forward interest rates of interbank rates is negligible for very short maturities, albeit becoming statistically significant beyond the 6 months horizons (Durré *et al* (2003), Cassola and Luis (2001) and Brooke *et al* (2000)).

However, the *ex post* approach to estimate the forward risk premium has several limitations. On the one hand, and as previously mentioned, the average deviations between forward interest rates and realised future rates may reflect not only the existence of a risk premium but also systematic errors in agents' expectations in the sample period. On the other hand, this approach provides a constant estimation of the risk premium for each horizon, which is rejected by most empirical studies, pointing to

Chart 1

EX-POST FORWARD PREMIUM OF THE THREE-MONTH INTEREST RATE

Difference between the forward and realised rates [(a)]



Note: (a) The dots in the chart represent the average and the dotted lines represent the 95% confidence interval. Given the high autocorrelation of the *ex post* risk premium due to the overlapping nature of data, the confidence intervals were calculated on the basis of the adjusted standard deviation proposed by Andrews (1991).

substantial changes in the risk premium over time. This reflects, for instance, various macroeconomic situations or different investors' attitudes towards risk.[4]

4. SURVEY-BASED FORWARD RISK PREMIUM

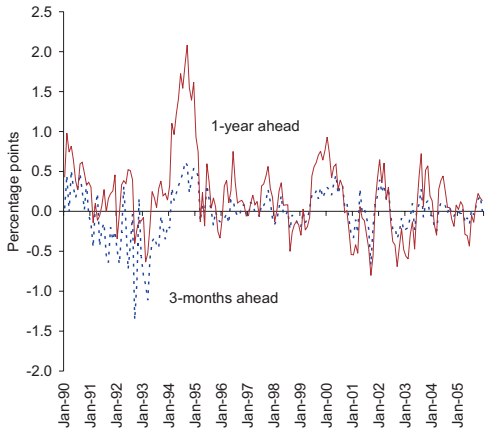
Another possible approach to estimate forward risk *premia* consists in comparing forward interest rates with interest rate expectations reported in surveys. Chart 2 presents risk *premia* calculated as the difference between forward interest rates and Consensus three-month interest rate expectations both for 3-month and 1-year ahead. For both horizons, the risk premium shows high variability over time.

In the period of 1990-2005 the forward risk premium was, on average, zero in the 3-month horizon and of around 0.2 p.p. in the 1-year horizon, i.e. approximately 0.3 p.p. lower than that estimated in the *ex post* approach. During the 1992-1993 recession of the German economy, the risk premium of the three-month interest rate recorded significant negative figures, particularly in the three-month horizon. In the period under review the risk premium reached its highest values in mid-1994.

Despite the positive average value, nearly half of the estimated risk survey-based forward *premia* shows negative figures. This may suggest that Consensus expectations often overestimate the true market expectations. On the other hand, according to a number of empirical papers, estimates for risk *premia* are often negative when the yield curve is negatively slopped (Peacock (2004)).

Chart 2

SURVEY-BASED FORWARD RISK *PREMIA* OF THE THREE-MONTH INTEREST RATE



(4) See, for example, Hordahl *et al* (2006).

5. MODELLING THE BEHAVIOUR OF SURVEY-BASED FORWARD RISK PREMIUM

The estimate of the risk *premia* of forward interest rates based on Consensus expectations suggests that such *premia* show high variability over time and reach a significant magnitude in certain periods. In this section we attempt to model the time variation of the survey-based forward premium using macro-economic and financial variables that according to some theoretical and empirical works are likely to influence its behaviour.

Realised inflation and inflation expectations

A number of studies documented a close link between, on one hand, realised inflation and inflation expectations, and on the other hand, measures of the risk premium.[5] A positive shock on actual inflation and inflation expectations may increase uncertainty regarding the future profitability of assets, and therefore a rise in the risk *premia* of forward interest rates would be likely. Charts 3 and 4 present realised inflation and one-year ahead Consensus inflation expectations for Germany in the period from January 1990 to December 2005.

Expectations for economic activity

The impact of the economic growth outlook for the risk premium is not clear. On the one hand, in the framework of models with habit formation in consumption, the degree of risk aversion of economic agents is affected by the economic cycle through the change in consumption compared to a given habit level. These models suggest that during a cyclical slump, when consumption is lower than usual, agents are more risk averse and the risk premium tends to increase, and vice versa.[6] In this context, the risk premium is likely to be counter-cyclical. On the other hand, it can be argued that more favourable expectations for economic activity increase the probability of interest rate hikes, so investors tend to demand a higher risk premium in order to protect themselves against possible capital losses. In that

Chart 3

INFLATION RATE IN GERMANY

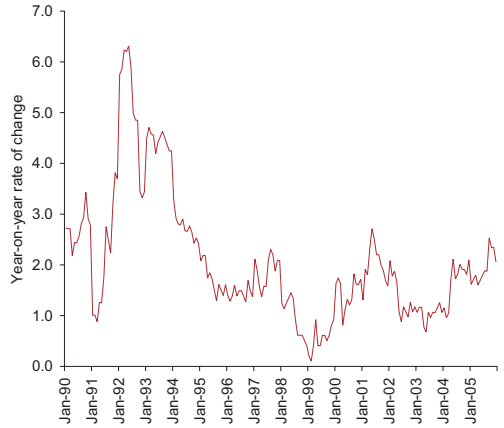


Chart 4

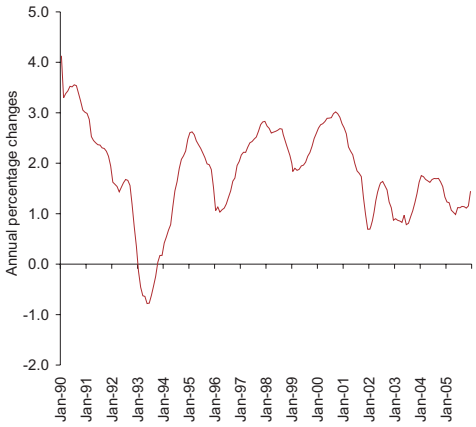
CONSENSUS EXPECTATIONS ONE-YEAR AHEAD FOR INFLATION IN GERMANY

(5) See, for example, Hordahl *et al* (2006).

(6) Campbell and Cochrane (1999).

Chart 5

CONSENSUS EXPECTATIONS ONE-YEAR AHEAD FOR GDP IN GERMANY



case, the risk premium is likely to be pro-cyclical. Chart 5 presents one-year ahead Consensus expectations for economic activity in Germany.

Uncertainty regarding the macroeconomic outlook

Another factor that may influence the risk premium of forward interest rates is related to the uncertainty of economic agents regarding the macroeconomic outlook. Higher uncertainty regarding the outlook for inflation and/or economic activity of a given economy is expected to be associated with a higher demanded risk premium. In empirical literature there is not an obvious indicator of the agents' uncertainty regarding the macroeconomic outlook. In a number of papers, the volatility of the industrial production index, inflation or unemployment rate is used (see e.g. Fornari and Mele (2005)). However, such measures are not forward-looking. In order to measure the agents' uncertainty regarding the macroeconomic outlook, this paper proposes to use the standard deviation of Consensus panel forecasts for inflation and economic activity in Germany, whose developments are shown in Chart 6.

Financial market uncertainty

The behaviour of the risk premium is likely to reflect the investors' uncertainty regarding the future profitability of assets. The implied volatility of options on government bond future contracts is one of the most widely used indicators of financial market uncertainty. This indicator gives a measure of market uncertainty about short-term movements in yields. Chart 7 shows the implied volatility derived from options on 10-year Bunds future contracts.

Slope of the yield curve

One of the explanations for the relationship between the slope of the yield curve and the risk premium of forward interest rates arises from the relationship between the slope of the yield curve and the business cycle. Several empirical studies illustrate a positive relationship between the slope of the yield curve and the subsequent real economic activity.[7] However, there is some evidence that this relationship has not been stable over time, having been conditioned by structural changes in the economy, the

(7) See, for example, Estrella *et al* (2003) and Estrella (2005).

Chart 6

UNCERTAINTY REGARDING INFLATION AND ECONOMIC ACTIVITY IN GERMANY

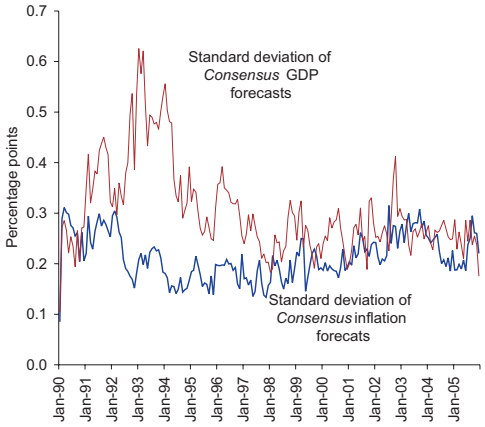
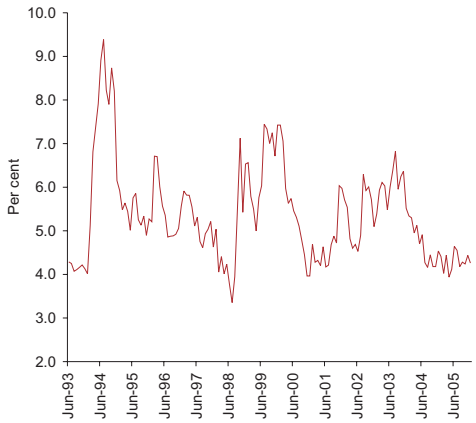


Chart 7

IMPLIED BOND MARKET VOLATILITY IN GERMANY[a)]

(Percentage per annum)



Note: (a) Implied volatility of the near contract generic future.

conduct of economic policy and the combination of shocks affecting the economy at each moment in time.[8]

Another explanation for the relationship between the slope of the yield curve and the forward risk premium arises from the relationship between the slope of the yield curve and the monetary policy stance. The underlying idea is that a significant positive slope of the yield curve suggests a tighter monetary policy stance in the future, and vice versa, and that such would influence the investors' tendency to take interest rate risk.[9] More specifically, if investors consider rises in future interest rates to be more probable than declines in those rates compared with their central expectations when the curve shows a significant positive slope, they will tend to demand a higher risk premium to protect themselves against the greater risk of capital losses. Chart 8 presents the slope of the yield curve in Germany, measured by the spread between the two-year government bond yield and the three-month money market rate.

Liquidity premium

The liquidity premium regards the additional profitability required by investors to meet any difficulties in selling assets at times of market stress. Liquidity *premia* vary considerably over time and tend to increase substantially during the episodes commonly known as "flight to liquidity". The spread between the interest rates on 5-year swaps in Germany and government bond yields with a similar maturity was used to capture the impact of such episodes on the risk premium of forward rates.[10] As Chart 9 shows the swap spread is typically positive. This suggests that Treasury bonds tend to be more liquid than swaps.[11] In the summer and autumn of 1998 in the context of the Russian crisis, the swap spread increased significantly. Also in 2000 the swap spread widened. This is likely to have been associated with structural changes in the US government debt market that pointed to a considerable decline in the supply of US Treasury securities (Cortes (2003)).

(8) See, for example, Moneta (2003) and Davis and Fagan (1997).

(9) See, for example, Peacock (2004).

(10) Empirically, changes in the liquidity premium are an important factor behind the behaviour of swap spreads (see, for example, Cortes (2003)).

(11) The swap spread is also used as an indicator of the credit risk of the banking system. However, the credit risk of interest rate swaps is limited by the fact that there is no trade of principal.

Chart 8

SLOPE OF THE YIELD CURVE IN GERMANY

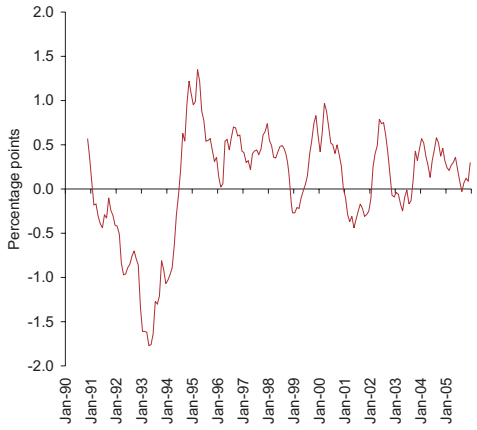
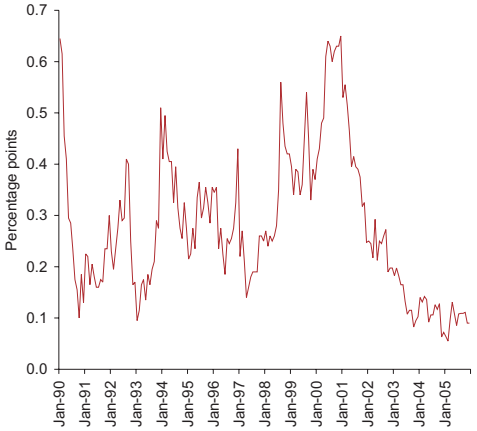


Chart 9

SWAP SPREAD



In order to quantitatively assess the impact of the possible explanatory factors mentioned above on the behaviour of the forward risk premium of the three-month interest rate, the following initial formulation was used to identify the explanatory variables and the respective lags:

$$RP_t = \alpha_1 + \sum_{i=0}^{p} \beta_{1,i} X_{1,t-i} + \sum_{i=0}^{p} \beta_{2,i} X_{2,t-i} + \sum_{i=0}^{p} \beta_{3,i} X_{3,t-i} + \sum_{i=0}^{p} \beta_{4,i} X_{4,t-i} + \sum_{i=0}^{p} \beta_{5,i} X_{5,t-i} + \sum_{i=0}^{p} \beta_{6,i} X_{6,t-i} + \sum_{i=0}^{p} \beta_{7,i} X_{7,t-i} + \varepsilon_t$$

where RP_t is the forward risk premium, α_1 a constant, p the maximum number of lags for the selection of the explanatory variables X_1,...., X_7 and ε_t is the residual. The explanatory variables were selected following an approach going from general to particular, where $p = 12$. X_1 corresponds to inflation, X_2 to economic activity, X_3 and X_4 to uncertainty regarding the outlook for inflation and economic activity respectively, X_5 to uncertainty in financial markets, X_6 to the slope of the yield curve and X_7 to the swap spread. Table 1 presents the various proxies that were tested for each explanatory variable.

The equation was estimated using the two-stage least squares method. An instrumental variables method was chosen in order to guarantee the consistency of the estimated coefficients. In fact, a positive shock on the risk premium may also lead to an increase in the slope of the yield curve, implying that this slope would be positively correlated with the residual of the equation and that the estimated regression coefficients would be biased. The instrument chosen was the slope of the yield curve (X_6) with up to a 6-period lag.[12]

Table 2 shows the best specifications for the forward risk premium of the three-month rate for 3-month and 1-year horizons over the sample period between April 1995 and December 2005.

The variables are measured in percentage points. This means that, for instance, a difference of one percentage point between the actual year-on-year inflation rate and the expected annual average inflation a year earlier (surprise inflation) has an impact of 0.09 p.p. on the forward risk premium of the three-month rate for the 3-month horizon and of 0.16 p.p. for the 12-month horizon.

(12) An $R^2 = 0.86$ was obtained in the regression between the endogenous explanatory variable and the instruments considered (first-stage of the two-stage least square method).

Table 1

EXPLANATORY VARIABLES AND PROXIES

Explanatory variables	*Proxies*
X_1: Inflation	. Realised inflation: German CPI (y-on-y rate of change) . Expected inflation: Consensus forecasts one-year ahead for consumer prices in Germany (weighted average of CPI forecasts for t and t+1) . Surprise inflation: Difference between realised inflation (German CPI, y-on-y) and one-year ahead Consensus forecasts for CPI in Germany one year earlier (annual percentage change)
X_2: Economic activity	. Industrial production: IPI in Germany excluding construction (y-on-y rate of change) . Economic activity outlook: Consensus forecasts one year ahead for GDP in Gemany (weighted average of GDP forecasts for t and t+1)
X_3: Uncertainty regarding the inflation outlook	. Standard deviation of the Consensus panel forecasts one-year ahead for CPI in Germany (weighted average of the standard deviation of forecasts for t and t+1)
X_4: Uncertainty regarding the economic activity outlook	. Standard deviation of the Consensus panel forecasts one-year ahead for GDP in Germany (weighted average of the standard deviation of forecasts for t and t+1)
X_5: Financial markets uncertainty	. Implied volatility in options on German 10-year government bond future contracts
X_6:Yield curve slope	. Spread between the German 2-year government bond yield and the 3-month money market interest rate
X_7: Swap spread	. Spread between the 5-year swap rate in Germany and the 5-year government bond yield

According to the results of Table 2, surprise inflation, the economic activity outlook, implied bond market volatility, and the slope of the yield curve are important variables for explaining the forward risk premium behaviour for both the 3-month and 1-year horizons. Uncertainty regarding future developments in inflation (lagged by 2-month) is also an important variable at the 3-month horizon[13]. All variables have the expected sign. The coefficient associated with the economic activity outlook (lagged 12-month) shows a positive sign, which suggests that the forward risk premium has a pro-cyclical behaviour. Neither the uncertainty regarding economic activity nor the swap spread are statistically significant to explain the forward risk premium of the three-month rate over the considered horizons. A

Table 2

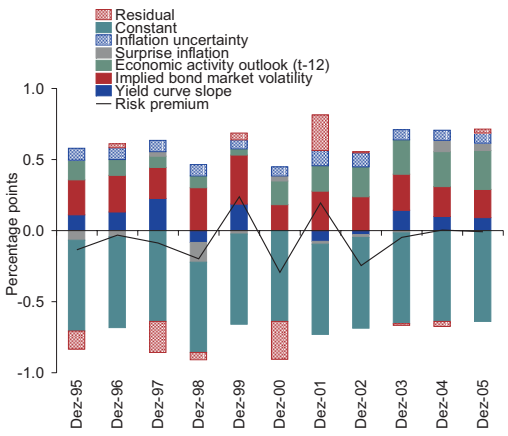
FORWARD SURVEY-BASED RISK PREMIUM OF THE THREE-MONTH RATE
(t-ratios in brackets)

	lag	Risk premium 3-month horizon	Risk premium 1-year horizon
Constant		-0.64 (-6.87)	-1.16 (-10.1)
Inflation (surprise inflation)	0	0.09 (5.48)	0.16 (6.32)
Inflation uncertainty	2	0.36 (4.63)	–
Economic activity outlook	12	0.11 (4.63)	0.12 (4.66)
Implied bond market volatility	0	0.05 (3.53)	0.16 (8.01)
Slope of the yield curve	0	0.31 (8.09)	0.75 (13.3)
Dummy 2001:9		-0.64 (-5.51)	-0.61 (-3.38)
		LM~F(7,115)=1.69 (0.12) ARCH~F(7,108)=1.12 (0.35) N~χ^2(2) =1.80 (0.41) Hetero ~F(11,110)=1.29 (0.12)	LM~F(7,116)=1.82 (0.09) ARCH~F(7,109)=2.18 (0.04) N~χ^2(2) =0.28 (0.87) Hetero ~F(9,113)=1.06 (0.40)

(13) In order to test the robustness, the equations for the risk premium at the 3-month and 1-year horizons were estimated using the ordinary least squares method. In both equations, point estimates of the coefficients associated with the slope of the yield curve (0.36 in the equation for the 3-month risk premium and 0.85 in the equation for the 1-year risk premium) are higher than the estimates obtained using instrumental variables. Also the 0.40 point estimate of the coefficient associated with uncertainty regarding inflation in the equation for the 3-month risk premium is higher than that obtained using instrumental variables. With regard to the other explanatory variables, there are no significant differences between the parameters estimated through both methods.

Chart 10

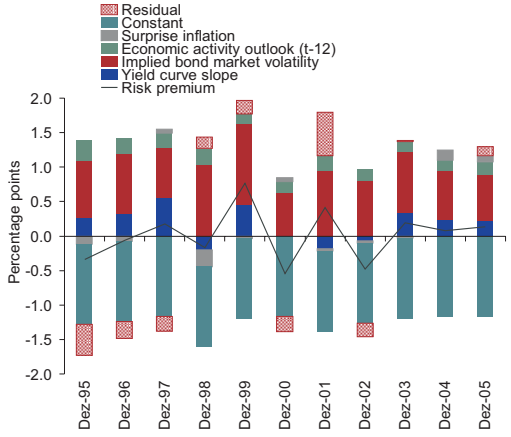
CONTRIBUTIONS TO THE SURVEY-BASED RISK PREMIUM THREE-MONTH AHEAD[(a)]



Note: (a) With a view to simplification, the values of the risk premium and respective components are only shown for the month of December in each year.

Chart 11

CONTRIBUTIONS TO THE SURVEY-BASED RISK PREMIUM ONE-YEAR AHEAD[(a)]



Note: (a) With a view to simplification, the values of the risk premium and respective components are only shown for the month of December in each year.

dummy with a negative sign was identified in September 2001, which was associated with the unexpected decline in the key ECB interest rates in the aftermath of the terrorist attacks of 11 September. This type of shock has an immediate impact on forward interest rates, being only incorporated in the interest rate expectations reported by Consensus in the survey conducted in the following month.

Charts 10 and 11 show the contributions from each of the identified explanatory variables to the behaviour of the 3-month rate forward *premia* in the months of December of the 1995-2005 period. Among the identified explanatory variables, implied bond market volatility had a very significant impact on developments in risk *premia* at both horizons. In addition, and at the 3-month horizon, the economic activity outlook also had a considerable influence on the behaviour of the risk premium.

6. CONCLUSION

Forward interest rates are imperfect indicators of market expectations regarding future interest rates, given that they incorporate a risk premium demanded by investors to make up for uncertainty surrounding interest rates in the future.

This article uses interest rate expectations reported by Consensus Economics as proxies for the true market expectations regarding interest rates. It can be concluded that the forward risk premium calculated on the basis of such expectations, shows great variability over time, reaching a significant magnitude during certain periods. Attempts have been made to identify factors explaining the behaviour of the time-varying forward risk premium, using a simple model that combines factors directly related to economic fundamentals with factors reflecting financial market conditions.

The results obtained indicate that surprise inflation, economic activity outlook, uncertainty in financial markets and the slope of the yield curve are significant explanatory variables with a positive impact on the risk premium of the German forward interest rates at the 3-month and 1-year horizons. Uncertainty regarding future inflation also has a considerable positive impact on the behaviour of the forward risk premium at the 3-month horizon. By identifying these explanatory factors, it is possible to obtain some

indication of the impact of potential changes in these explanatory factors on forward interest rates, via the risk premium.

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CHRONOLOGY OF MAJOR FINANCIAL MEASURES

January to September 2006

January

- 3 January (Circular Letter No 1/06/DSBDR)

  Expresses Banco de Portugal's availability to launch the (informal) application procedure for the use of internal rating systems (credit risk) as well as standard approaches and advanced mediation (operational risk), in the context of the future transposition into national law of Directives 93/6/EEC and 200/12/EC.

- 9 January (Opinion of the European Central Bank 2005/C 323/10, Official Journal of the European Union No 323, Series C)

  Opinion of the European Central Bank at the request of the Council of the European Union on a proposal for a directive of the European Parliament and of the Council amending Directive 2004/39/EC on markets in financial instruments as regards certain deadlines (CON/2005/53).

- 16 January (Instruction of Banco de Portugal No 33/2005, BNBP No 1/2006)

  Amends Instruction No 23/2004, on accounting reporting prepared according to International Accounting Standards (IAS) and Adjusted Accounting Standards (AAS).

- 16 January (Instruction of Banco de Portugal No 34/2005, BNBP No 1/2006)

  Amends Instruction No 18/2005, on the reporting of financial statements and other items for the presentation of accounts of institutions that adopt International Accounting Standards (IAS) and Adjusted Accounting Standards (AAS).

- 16 January (Instruction of Banco de Portugal No 35/2005, BNBP No 1/2006)

  Establishes the accounting items to be reported to Banco de Portugal by institutions adopting IAS and AAS, in addition to those required by Instructions No 23/2004 and No 18/2005.

- 16 January (Instruction of Banco de Portugal No 36/2005, BNBP No 1/2006)

  Amends Instruction No 19/97, updating the list of Zona A countries, for the purpose of the solvency ratio.

- 19 January (Circular Letter No 2/2006/DPG)

  Urges all card issuers to check whether their regulations comply with the minimum standard general provisions for the use of bank cards, substantiated in regulatory provisions as set out in paragraphs 6 to 8 of Notice of Banco de Portugal No 11/2001, of 20 November.

- 20 January Circular Letter No 12/06/DSBDR)

  Provides clarification on the impact framework of the recognition of liabilities with long-service rewards for active staff, resulting from the transition to International Accounting Standards (IAS) or Adjusted Accounting Standards (AAS).

February

- 15 February 2006 (Circular-letter no. 5/2006/DPG)

  Clarifies doubts as to the opening of bank deposit accounts by individuals who are not engaged in a professional activity. In the view of Banco de Portugal, such fact shall not constitute a valid ground for refusal by credit institutions.

- 15 February (Instruction of Banco de Portugal No 2/2006 Official Gazette No 3)

  Amends Instruction No 4/2002, introducing a new data reporting to Banco de Portugal, as regards the coverage of the commitment to pay retirement and survivors pensions.

- 15 February (Circular Letter of Banco de Portugal No 12/2006/DSB)

  Clarifies doubts as to the accounting framework of commitments to pay seniority bonuses to the active staff.

- 21 February (Law No 3/2006 of 21 February (Series I-A, No 37)

  Authorises the Government to issue legislation in the field of consumers' rights, in order to transpose into national law Directive 2002/65/CE of 23 September concerning the distance marketing of consumer financial services.

March

- 10 March (Circular Letter No 32/06/DSBDR)

  Provides clarification on the items recognised under the concept of 'fixed assets' for the purpose of the limits established in Notice No 5/2003.

- 15 March (Decree-Law No 52/2006 Official Gazette No 53 Series I, A)

  Transposes into national law Directive 2003/6/CE on insider dealing and market manipulation (market abuse), and Directive 2003/71/CE on the prospectus to be published when securities are offered to the public or admitted to trading.

- 15 March (Instruction of Banco de Portugal No 3/2006 Official Gazette No 3/2006)

  Introduces changes in Instruction No 19/2005 on interest rate risk in the banking book.

- 15 March (Instruction of Banco de Portugal No 4/2006, BNBP No 3/2006)

  Rewords subparagraph b) of the explanatory notes to Part I - Minimum provisioning levels, in the Annex to Instruction No 9/2003, published in Official Gazette No 5 of 5 May 2005.

- 20 March (Decree-Law No 59/2006 Official Gazette No 56 Series I, A)

  Lays down the new system applicable to mortgage bonds and to mortgage credit institutions, as well as to public-sector collateralised bonds. Revokes Decree-Law No 125/90 of 16 April.

- 24 March (Notice of Banco de Portugal No 1/2006, Official Gazette No 66, Series I - B)

  Amends Notice No 10/94 of 18 November, defining with a higher degree of accuracy the values of the asset items that shall be taken into consideration in the calculation of the large exposures of institutions subject to the supervision of Banco de Portugal.

- 29 March (Decree-Law No 76-A/2006 Official Gazette No 63 Series I, A)

  Introduces changes, *inter alia*, in the Code of Commercial Companies.

- 31 March (Circular Letter No 34/06/DSBDR)

  Provides clarification on a number of provisions introduced by Notice No 2/2005 in Notice No 12/92, on the calculation method.

April

- 3 April (Circular Letter of Banco de Portugal No 6/2006/DPG)

  Recommends that all credit institutions insert the expiry date in each cheque supplied to their clients. For the purpose, they shall also disclose the set of good practices approved by Comissão de Coordenação Interbancária para os Sistemas de Pagamento - CISP (Interbank Coordination Commission for Payment Systems). This measure shall be implemented within a maximum period of three months.

- 4 April (Notice of Banco de Portugal No 2/2006, Official Gazette No 74, Series I - B)

  Establishes with a higher degree of accuracy the conditions under which the provisions for general credit risks may be considered positive items of consolidated own funds, amending Notice No 12/92 of 29 December.

- 4 April (Law No 10/2006 Official Gazette No 67, Series I - A)

  Authorises the government to extend the breach of regulations regime applicable to the insurance activity to holding companies subject to the supervision of Instituto de Seguros de Portugal (Portuguese Insurance Institute) and to mixed financial companies regarding the violation of the legal and regulatory rules governing the supplementary supervision of financial conglomerates. This authorisation is valid for a period of 180 days.

- 6 April (Joint Decision No 357/2006 of the Presidency of the Council of Ministers; Ministry of Finance and Public Administration; Ministry of Justice; et. al., Official Gazette No 83, Series II)

  In accordance with the provisions laid down in Article 4 (1) of Regulation (EC) No 2006/2004 of the European Parliament and of the Council of 27 October, designates the Consumer Institute as the single liaison office responsible for the coordination of the application of the said regulation, as well as the competent authorities with specific powers to enforce consumer protection legislation within their specific field of competence.

- 10 April (Circular Letter No 37/06/DSBDR)

  On the understanding of Banco de Portugal of the classification - for purposes of calculating the solvency ratio - of undrawn credit facilities referred to in Part II of the annex to Notice No 1/93.

May

- 9 May (Notice of Banco de Portugal No 3/2006, Official Gazette No. 89, Series I - B)

  Lays down that credit institutions and financial companies shall have an internal control system covering the definition of their organisational structure, the methods and the procedures required for the achievement of the objectives set out in paragraph 6 of this Notice, in order to minimise the financial, operational, legal and reputational risks - including the risk of fraud, irregularities and errors - guaranteeing their timely prevention and detection. Revokes Instruction No 72/96 of 17 June.

- 15 May (Regulation No 67/2006 of the Ministry of Finance and Public Administration and Instituto de Seguros de Portugal (Portuguese Insurance Institute) (Legal Provision No 4/2006-R), Official Gazette No 105, Series II)

  Amends legal provision No 5/2005-R of 18 March, which defined the subjective scope and the enforcement regime of international accounting standards (IAS) adopted in accordance with the provisions laid down in Article 3 of Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July.

- 17 May (Circular Letter No 50/06/DSBDR)

  Informs credit institutions and financial companies on the structure and powers of the auditing board referred to in Notice No 3/2006, taking into account the entry into force, on 30 June 2006, of Decree-Law No 76-A/2006 of 29 March.

- 24 May (Circular Letter No 51/06/DSBDR)

  Provides clarification on the treatment to be given - for the purpose of calculating own funds on a consolidated basis - to unrealised gains on investment property and other tangible fixed assets at the date of transition to International Accounting Standards.

- 25 May (Circular Letter No 52/06/DSBDR)

  Provides clarification on the recognition of provisions for general credit risks as a positive item of own funds, under paragraph 3 (1) (9-a) of Notice No 12/92.

- 29 May (Decree-Law No 95/2006 of the Ministry of Finance and Public Administration of 29 May, Official Gazette, Series I)

Establishes the legal framework applicable to distance contracts for consumer financial services, transposing into Portuguese law Directive No 2002/65/EC of the European Parliament and of the Council of 23 September 2002 concerning the distance marketing of consumer financial services. Pre-contractual information and distance financial services contracts shall subsidiarily be regulated by Decree-Law No 7/2004 of 7 January and the Securities Code, approved by Decree-Law No 486/99 of 13 November. This Decree-Law shall enter into force 30 days following its publication.

- 29 May (Law No 18/2006, Official Gazette No 103, Series I - A)

Authorises the government to legislate in the field of reorganisation and winding up of credit institutions and financial companies within the scope of the transposition of Directive No 2001/24/EC of the European Parliament and of the Council of 4 April 2001 on the reorganisation and winding up of credit institutions. This legislative authorisation is valid for a period of 120 days.

June

- 7 June (Circular Letter No 59/06/DSBDR

Informs that, exceptionally, institutions subject to supervision on a consolidated basis may send up to 31 October 2006 their individual internal control reports as well as the group internal control report, including the respective opinions, envisaged in Notice No 3/2006.

- 14 June (Directive 2006/46/EC of the Parliament and of the Council, OJ L 224)

Amending Council Directives 78/660/EEC on the annual accounts of certain types of companies, 83/349/EEC on consolidated accounts, 86/635/EEC on the annual accounts and consolidated accounts of banks and other financial institutions and 91/674/EEC on the annual accounts and consolidated accounts of insurance undertakings. The Member States shall bring into force the laws, regulations and administrative provisions relating to the implementation of Directive 2006/46/EC by 5 September 2008 and communicate to the Commission the text of the main provisions of the internal law approved regarding the issues regulated by this directive, which in turn shall enter into force on the 20th day following its publication in the Official Journal of the European Union.

- 14 June (Directive of the Parliament and of the Council 2006/48/EC, OJ L 177)

Relating to the taking up and pursuit of the business of credit institutions.

- 14 June (Directive of the Parliament and of the Council 2006/49/EC, OJ L 177)

On the capital adequacy of investment funds and credit institutions.

- 16 June (Instruction of Banco de Portugal No 6/2006, BNBP No 6/2006)

Determines, for the purpose of implementing paragraph 3 (1) (10) of Notice No 12/92 of 29 December, that only revaluation reserves recorded in individual accounts, as a result of the revaluation of fixed assets pursuant to the provisions of tax legislation, can be considered a positive item of own funds.

- 16 June (Circular Letter No 4/2006/DMR)

Updates data disclosed in January 2006 on the Eurosystem credit assessment framework for non-marketable assets, presenting as an annex a note entitled 'Eurosystem collateral framework: new details on the Eurosystem credit assessment framework for non-marketable debt instruments'.

- 19 June (Circular Letter No 23/05/DSBDR)

Provides clarification on the deadlines for the settlement of situations where real estate has been repossessed by the lender because the respective owner has defaulted on the loan.

July

- 12 July (Circular-Letter no 21/2006/DET)

Releases pertinent data relating to the implementation of the Framework for the detection of counterfeits and fitness sorting by credit institutions and other professional cash handlers, which was published in Circular-Letter no 9/2005/DET of 17 March.

- 17 July (Instruction of Banco de Portugal No 8/2006, BNBP No 7/2006)

Exempts from country-risk provisioning the assets corresponding to "B loans" granted by Corporación Andina de Fomento.

- 31 July (Decree-Law No 145/2006, Official Gazette No 146, Series I)

Transposes into Portuguese law Directive 2002/87/EC on the supplementary supervision of credit institutions, insurance undertakings and investment firms in a financial conglomerate, and Directive 2005/1/EC relating to the establishment of a new organisational structure for financial services.

August

- 3 August (Guideline of the European Central Bank ECB/2006/11, OJ 221)

Amending Guideline ECB/2005/16 on a Trans-European Automated Real-time Gross settlement Express Transfer system (TARGET).

- 8 August (Notice of Banco de Portugal no 4/2006, Official Gazette no 152 Series I)

Amending Notice No 6/2003 of 15 January, regarding the deadlines and publication form of the accounts of institutions subject to the supervision of the Banco de Portugal. This Notice shall be applicable to the publication of accounts relating to the 2006 fiscal year. Corrected by Corrigendum No 61/2006 of 28 August, in the Official Gazette No 175, Series I, of 11 September 2006.

- 10 August (Commission Directive 2006/73/EC, OJ L 241).

Implementing Directive 2004/39/EC of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and credit institutions providing investment services. Member States shall adopt and implement by 31 January 2007 the laws, regulations and administrative provisions necessary to comply with this Directive, and shall apply those provisions from 1 November 2007 onwards.

- 10 August (Commission Regulation (EC) No 1287/2006, OJ L 241).

Implementing Directive 2004/39/EC of the European Parliament and of the Council as regards record-keeping obligations of investment firms, transaction reporting, market transparency and admission of financial instruments to trading. This Regulation shall apply from 1 November 2007, except Article 11 and Article 34 (5) and (6), which shall apply from 1 June 2007.

September

• 5 September (Decision No 17901/2006 of 17 July 2006 of the Ministry of Finance and Public Administration; Justice Ministry; Official Gazette No 171-Series II C)	Sets up a working group for the transposition of the directive on money laundering and terrorist financing, which prepares the legislation implementing this directive and ensures the fulfilment of the deadline for transposition. The representatives of Banco de Portugal in this working group shall be Ms. Graça Damião and Ms. Célia Ramos.
• 12 September (Circular Letter of Banco de Portugal No 22/06/DSBDR)	Clarifies doubts on the interpretation of the provisions of No 3 of Notice No 1/2005 as regards the accounting of external commissions and costs relating to the contracting of credit operations.
• 15 September (Instruction of Banco de Portugal No 9/2006, BNBP No 9/2006)	Reporting of financial statements and other items for the presentation of accounts of institutions adopting IAS and AAS (amending Instruction No 18/2005).
• 20 September (Instruction of Banco de Portugal No 10/2006, distributed with Circular Letter No 82/2006/DSB)	Report on the system for the prevention of money laundering - branches in Portugal of credit institutions and financial companies (excluding investment firms) having their head office in other European Union Member States (amending Instruction No 24/2002).
• 27 September (Instruction of Banco de Portugal No 11/2006, distributed with Circular Letter No 86/2006/DSB)	Setting of the contributory rate for the Deposit Guarantee Fund in 2007.
• 27 September (Instruction of Banco de Portugal No 12/2006, distributed with Circular Letter No 86/2006/DSB)	Limit for the irrevocable payment commitments applicable to contributions to the Deposit Guarantee Fund in 2007.

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