



Banco de Portugal

EUROSYSTEM

Economic Bulletin | *Autumn 2007*

Volume 13, Number 3

Available at
www.bportugal.pt
Publications

BANCO DE PORTUGAL

Economics and Research Department

Av. Almirante Reis, 71-6th floor

1150-012 Lisboa

Distributed by

Administrative Services Department

Av. Almirante Reis, 71-2nd floor

1150-012 Lisboa

Printed by

Jorge Fernandes, Lda.

Number of copies printed

150 issues

Legal Deposit no. 241773/06

ISSN 0872-9786



CONTENTS

CONTENTS***Economic Policy and Situation***

The Portuguese Economy in 2007	9
<i>Box 1.</i> Recent turbulence in international financial markets	54
The Portuguese Banking System in the Course of 2007	61

Articles

An Open Economy Model of the Euro Area and the US	95
Financing Costs of Portuguese Companies	113
The Regressivity of Unemployment Insurance: Identification of the Income Effect Through the July 1999 Legislation	127
Export Specialization Over the Last Four Decades: How Does Portugal Compare With Other Cohesion Countries?	145

Chronology of Major Financial Measures

January to October 2007	I
-------------------------------	---



ECONOMIC POLICY AND SITUATION

The Portuguese Economy in 2007

The Portuguese Banking System in the Course of 2007

THE PORTUGUESE ECONOMY IN 2007

1. INTRODUCTION

In 2007, the recovery of the Portuguese economy was characterised by a clear acceleration of business investment and a significant expansion of exports of goods and services, in a context of continued deterioration of the labour market situation. In addition, the Portuguese economy resumed the adjustment process of the external account imbalance. Behind these developments was, on the one hand, the continued fiscal consolidation process, even exceeding commitments made within the framework of the Stability and Growth Pact and, on the other hand, the maintenance of moderate growth of private consumption, which may imply the discontinuance in 2007 of the downward trend of the household saving rate observed in recent years. Although the rate of growth of the Portuguese economy was closer to that observed in the euro area and in the European Union, it is worth noting that it continued to be particularly low, namely *vis-à-vis* the rate recorded in economies with comparable *per capita* income levels.

At the international level, 2007 was marked as from the mid-year by a significant turbulence in international financial markets, associated with a sudden change in risk perception by investors. The impact of these developments on the Portuguese economy will chiefly depend on how quickly normalcy returns to the money and debt markets, on the final degree of repricing of credit risk after the current turbulence, and on the tightening of credit standards for loans to the private sector by the banking system. Each of these items, however, is surrounded by a high level of uncertainty. In this context, the possibility of persistence of broadly tighter financial conditions and the deterioration of the external macroeconomic environment, in particular of foreign demand for Portuguese goods and services, are clear downward risks for the Portuguese economy in the near future. In view of the usual gradualism in the propagation mechanisms of shocks to the economy as a whole, no significant impact of the present turmoil on the growth of the Portuguese economy in 2007 is to be expected. However, some uncertainty remains as to the international economic and financial environment at the end of the year, as well as to the response of economic agents to these developments.

According to Banco de Portugal estimates, the rate of growth of economic activity will be 1.8 per cent in 2007, 0.5 percentage points (p.p.) higher than in 2006 (Table 1.1). This estimate is identical to the projection published in the summer issue of the Economic Bulletin, but implies a significant revision in terms of the major expenditure components. In particular, gross fixed capital formation (GFCF) was revised upwards, chiefly determined by significant imports of air transport material at mid-year. In addition, private consumption and exports are expected to grow less than in the summer projections. As a whole, the contribution of internal demand to Gross Domestic Product (GDP) growth was revised upwards (0.3 p.p.), whereas the contribution of net exports was revised downwards, by the same magnitude.

In 2007 the developments of the Portuguese economy continued to be influenced by external and internal factors. At the external level, these include the intensification of the economic and financial globalisation process and the continued gradual increase in the European Central Bank (ECB) intervention rates. At the internal level, the continued moderation of household consumption may be highlighted, as well as the maintenance of a clear tightening stance of fiscal policy, associated with the consolidation process of public accounts.

Table 1.1

MAIN ECONOMIC INDICATORS			
Rate of change, per cent			
		Memo: EB Summer 2007	
	2006	2007	2007
GDP	1.3	1.8	1.8
Private consumption	1.2	1.2	1.4
Public consumption	-0.5	-0.3	0.1
GFCF	-1.8	2.1	0.6
Domestic demand	0.3	1.1	0.8
Exports	9.1	6.7	7.2
Imports	4.3	3.7	3.4
<i>Contribution to the change in GDP (p.p.)</i>			
Domestic demand	0.3	1.2	0.9
Net exports	1.0	0.6	0.9
Current account + capital account (percentage of GDP)	-8.6	-7.7	-7.9
HICP	3.0	2.3	2.5

Sources: INE and Banco de Portugal.

Economic activity and world trade are expected to maintain a robust, albeit decelerating, pace of expansion, reflecting, on the one hand, the continued dynamism of emerging market economies and, on the other hand, the slowdown in activity in most advanced economies, albeit at different paces. The behaviour of imports from Portugal's major trading partners is expected to translate into a deceleration of external demand for Portuguese goods and services. This development will likely contribute to the estimated deceleration of the volume of Portuguese exports of goods and services, from 9.1 per cent in 2006 to 6.7 per cent in 2007. This behaviour reflects the lower dynamism of the exports of goods, which are expected to decelerate by 4 p.p. in 2007, to 4.3 per cent, whereas exports of services are forecast to accelerate *vis-à-vis* 2006 to 12.8 per cent. The marked deceleration in the exports of goods is also associated with the trend of exports in specific sectors which recorded strong dynamics in 2006, in particular fuels, motor vehicles and ores. In this context, the behaviour of exports over the last months of the year is surrounded by a high degree of uncertainty, related to the usual volatility of external trade data, to the degree of persistence of the recent trends in exports of both goods and services, and to the impact of the international economic and financial situation on world trade.

In the first half of the year, the ECB increased its key interest rates further by 25 basis points (b.p.) in March and June. These developments raised the minimum bid rate on the main refinancing operations to 4 per cent, totalling an accumulated increase of 200 b.p. since December 2005. Against the background of the financial market turbulence, and similarly to other central banks, the ECB carried out some liquidity-providing operations on the money market in August and September, in order to ensure its orderly functioning. These measures contributed to some normalization of the liquidity conditions in shorter maturities, in spite of sharp increases in money market interest rates for maturities of over 1 month. At the end of October, three- and six-month interest rates stood close to 4.6 per cent, 60 b.p. above the ECB reference rate, reflecting a substantial increase in the counterparty premium.

Bank interest rates on balances of borrowing operations rose in line with money market interest rates, but with the usual time lag. This development, in the context of relatively high household indebtedness, is one of the contributing factors to the moderate growth of private consumption. Current estimates point to a 1.2 per cent increase in private consumption in 2007, similarly to 2006. Other factors contributed to this evolution, namely the deterioration of labour market conditions, with a continued increase in the unemployment rate and a weak net job creation, the deterioration of the fiscal burden, namely at the level of indirect taxes, and the deceleration of transfers to households, a component of disposable income usually associated with a higher propensity to consume. In the context of the relatively low level of the saving rate, namely taking into account the significant share of disposable income that households are allocating to the repayment of principal, solvency conditions arising from the households' intertemporal budget constraints are becoming more active, which will also tend to be reflected in the evolution of private consumption in the future.

The consolidation of public accounts proceeded in 2007. The continuation of this process is fundamental to ensure a sustained growth of the Portuguese economy in the medium to long run. Estimates for the structural primary balance point to a tighter stance of fiscal policy in 2007, which is the result, *inter alia*, of the increase in tax revenue and of the decline in the weight of compensation of employees, against a background still characterised by expressive growth of pension expenditure. According to current official estimates, the general government deficit is expected to reach 3.0 per cent of GDP in 2007, down by 0.9 p.p. from 2006 and 0.3 p.p. below the official objective. The materialisation of these prospects would mean that Portugal would have reached the reference value for the deficit laid down in the Stability and Growth Pact one year before the deadline arising from the current official commitments.

The significant acceleration estimated for GFCF, from -1.8 per cent in 2006 to 2.1 per cent in 2007, represents a particularly favourable development in the Portuguese economy. Indeed, a stronger recovery of the Portuguese economy requires a robust and quality-based growth of investment, particularly in its business component. The buoyancy of investment increases not only the future level of productive capacity, but also the sustained pace of economic growth, in so far as it allows the incorporation of new ideas in the production processes and the creation of jobs with a higher technological content.

2. MAJOR INTERNATIONAL ECONOMIC DEVELOPMENTS

In the first half of 2007, the international economic environment was basically unchanged from 2006, being marked by robust growth of economic activity and world trade in a context of less accommodative monetary policies and broadly favourable financial market conditions. These changed significantly during the summer, in the wake of a sudden change in risk perception in international financial markets triggered by the continued deterioration of the housing market in the United States and by increased concerns about the size and distribution of losses in the high-risk mortgage market. These developments led to a sharp increase in the uncertainty about the economic outlook in the near future. Nonetheless, the implications for world economy growth should be more noticeable in 2008, as the impact for 2007 as a whole is expected to be limited (see "[Box 1 Recent turbulence in international financial markets](#)").

Economic activity and world trade maintained a robust pace of expansion in the first half of 2007 reflecting the continued buoyancy of emerging market economies and a slowdown of economic activity in most advanced economies, which nonetheless recorded different paces of growth. The year-on-year change in world GDP stood at approximately 5 per cent in the first two quarters of 2007, slightly below average growth in 2006. World imports slowed somewhat in the same period, but grew at

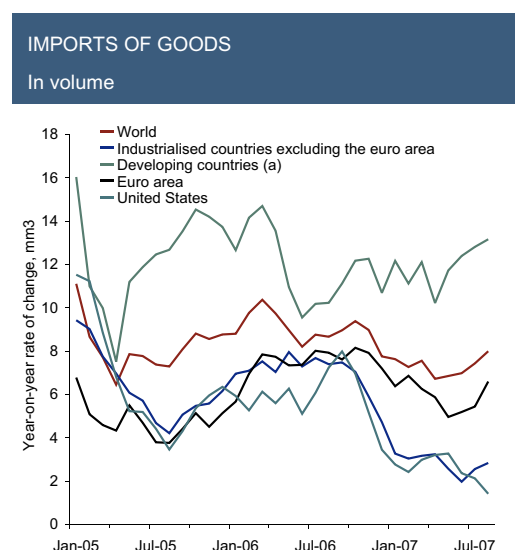
rates close to 7 per cent (compared with around 9 per cent in 2006 as a whole). These developments chiefly reflected the deceleration of imports in industrialised countries, particularly in the United States, given that growth of imports in developing countries¹ continued to increase (Chart 2.1). Most recent information for July and August suggests an acceleration in the third quarter, including in industrialised countries.

According to the International Monetary Fund (IMF), assuming a gradual return to a more normal situation in financial markets in forthcoming months, growth prospects for world economy in the second half of 2007 remain relatively favourable. IMF's forecasts point to an expansion of 5.2 per cent of world GDP for the year as a whole, slightly lower than in 2006 (Table 2.1). Nonetheless, the volume of world trade of goods and services is expected to decelerate in 2007 after strong growth in the previous year, leading to a slowdown of external demand for Portuguese goods and services.

Growth of economic activity in 2007 will continue to be sustained by the buoyancy of emerging market and developing economies (8.1 per cent growth, as in 2006), particularly China, India and Russia, but also the Middle East and some African economies² (Table 2.1). In contrast, GDP growth in advanced economies is forecasted to fall from 2.9 per cent in 2006 to 2.5 per cent in 2007, largely reflecting the deceleration of activity in the United States and, to a lesser extent, in the euro area and Japan (Chart 2.2).

In the United States, the evolution of economic activity in the first half of 2007 continued to be constrained by the fall in residential investment, in a context of increased deterioration of the housing market and difficulties in the mortgage market. Data for the third quarter suggest that the situation deteriorated further, as evidenced by the unfavourable developments of several indicators on the housing sector³ and of confidence in the construction sector, which reached levels close to historical

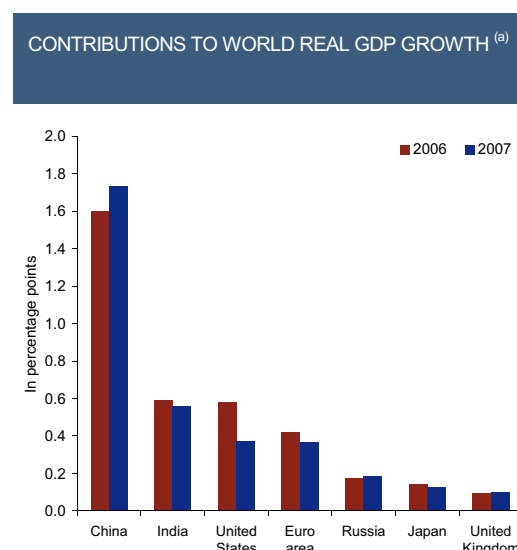
Chart 2.1



Sources: CPB Monthly Trade Monitor and Banco de Portugal calculations.

Note: (a) Includes the emerging market economies and the newly industrialised Asian economies.

Chart 2.2



Sources: IMF and Banco de Portugal calculations.

Note: (a) Based on the shares of world GDP measured in purchasing power parity.

(1) Including emerging market economies and newly industrialised Asian economies.

(2) Among these, stress should be laid on the significant buoyancy of the Angolan economy, with the real growth rate going up from 18.6 per cent in 2006 to 23.1 per cent in 2007.

(3) Building permits and new housing under construction fell by 9.5 and 11.5 per cent, quarter-on-quarter, in the third quarter (compared with changes of -6.1 and 0.3 per cent in the second quarter, respectively). In the same period, sales of housing stocks fell by 8.3 per cent quarter-on-quarter (8.6 per cent drop in the second quarter).

Table 2.1

DEVELOPMENTS IN WORLD ECONOMY			
Rates of change, per cent			
	2005	2006	2007
GDP			
World economy	4.8	5.4	5.2
Advanced economies	2.5	2.9	2.5
US	3.1	2.9	1.9
Japan	1.9	2.2	2.0
Euro area	1.5	2.8	2.5
Germany	0.8	2.9	2.4
France	1.7	2.0	1.9
Italy	0.1	1.9	1.7
Spain	3.6	3.9	3.7
Portugal	0.6	1.3	1.8
United Kingdom	1.8	2.8	3.1
Newly industrialised Asian economies ^(a)	4.7	5.3	4.9
Emerging market and developing economies	7.5	8.1	8.1
Central and Eastern Europe	5.6	6.3	5.8
Commonwealth of Independent States	6.6	7.7	7.8
Russia	6.4	6.7	7.0
Developing Asian countries	9.2	9.8	9.8
China	10.4	11.1	11.5
India	9.0	9.7	8.9
Middle East	5.4	5.6	5.9
Latin America	4.6	5.5	5.0
Africa	5.6	5.6	5.7
World trade volume of goods and services	7.5	9.2	6.6
International commodity prices in USD			
Brent	45.0	20.1	2.2 ^(b)
Non-energy commodities	9.5	26.3	20.4 ^(c)
Consumer prices			
Advanced economies	2.3	2.3	2.1
Emerging market and developing economies	5.2	5.1	5.9

Sources: HWWI, IMF, Thomson Financial Datastream and Banco de Portugal.

Notes: (a) Korea, Hong-Kong, Taiwan and Singapore. (b) Year-on-year rate of change, figures up to 31 October 2007. (c) Year-on-year rate of change, figures up to October 2007.

lows. In fact, according to preliminary estimates of national accounts for the third quarter, private residential GFCF fell more than in the first two quarters of 2007. According to the IMF, growth is expected to decline significantly from 2.9 per cent in 2006 to 1.9 per cent in 2007, reflecting a fall in total investment determined by the residential component and an increase in private consumption close to that observed in 2006, in line with the low level of the unemployment rate and the acceleration of wages. The slowdown in domestic demand will lead to a significant decline in growth of imports of goods and services. Exports will continue to grow at high rates, albeit lower than in 2006, benefiting from the depreciation of the US dollar and from robust growth in United States' main trading partners. Net exports will thus contribute positively to GDP growth in 2007, contrary to developments in the previous year.

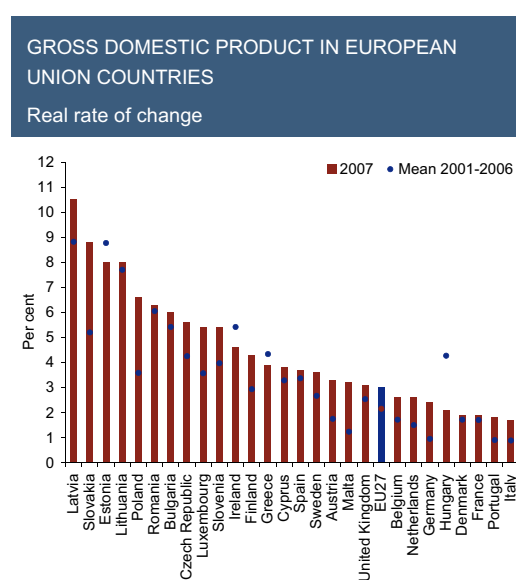
In the first half of 2007, economic activity in the euro area grew at a similar pace as in 2006 (2.8 per cent). This pace was particularly pronounced in the first quarter, given that GDP decelerated subsequently (year-on-year change of 3.2 and 2.5 per cent and quarter-on-quarter change of 0.8 and 0.3 per cent in the first and second quarters, respectively). Similarly to developments in 2006, activity growth

was supported by the expansion of domestic demand, which reflected the significant buoyancy of investment, in particular early in the year. Private consumption decelerated largely as a result of the impact of the increase in indirect taxation in Germany.⁴ Indicators available for the period following the start of turbulence in the financial markets continue to point to growth close to potential in the second half of 2007, in spite of some deterioration of financing conditions in the private sector in that period. According to the IMF, GDP in the euro area is forecasted to grow by 2.5 per cent in 2007 as a whole, after a 2.8 per cent increase in 2006 (Table 2.1). This evolution is the result of a decline in the contribution of internal demand, since the contribution of net exports is expected to increase slightly.

The slowdown in economic activity is broad based across all euro area economies, except for Portugal and Austria. As a result, growth of the Portuguese economy became closer to the euro area average. Nonetheless, similarly to recent years, the Portuguese economy growth rate is expected to stand below that of most European Union (EU) countries. In the majority of non-euro area EU countries, activity is expected to decelerate, but maintaining strong growth paces, in particular the new Member States (Chart 2.3).⁵ As regards the larger economies, IMF forecasts point to an acceleration of activity in Poland and to a deceleration in the Czech Republic and Hungary.

In 2007, the developments of Portugal's main trading partners will be marked by a deceleration in activity in the four largest euro area economies, although at different GDP growth paces (Table 2.1). In particular, Spain and Germany are expected to record high growth rates (3.7 and 2.4 per cent respectively), whereas in the French and Italian economies growth will be weaker (1.9 and 1.7 per cent respectively). In contrast, in the United Kingdom activity is expected to accelerate from 2.8 per cent in 2006 to 3.1 per cent in 2007. With the exception of Germany, growth in these economies will largely rely on domestic demand (Chart 2.4). In the case of Germany, the composition of GDP growth will be more balanced, with a contribution of net exports higher than that of domestic demand. Exports and imports of goods and services in major euro area economies slowed down in the first half of 2007, in

Chart 2.3

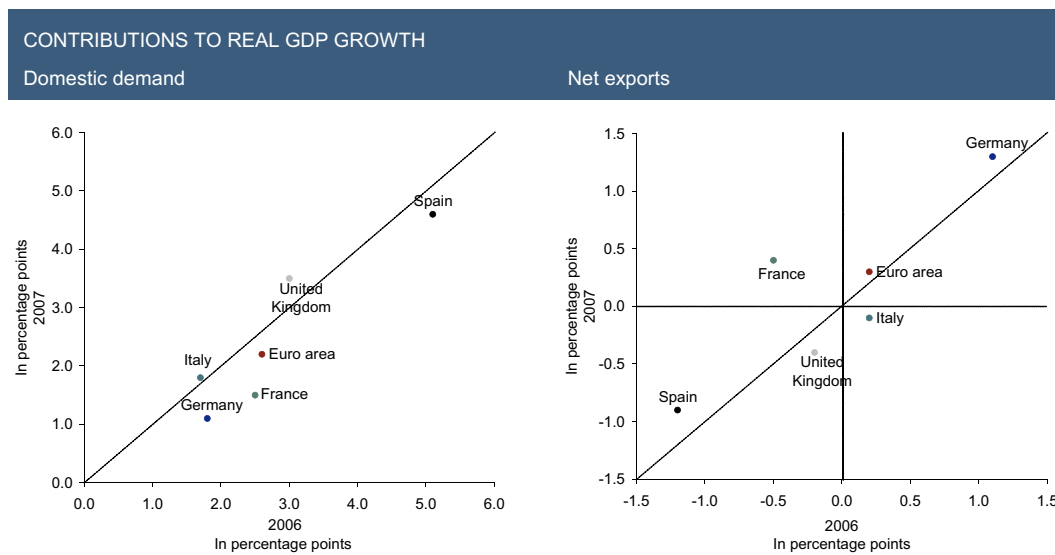


Sources: IMF, INE and Banco de Portugal.

(4) The announcement of a VAT increase in Germany brought forward some household consumption expenditure decisions to 2006, thereby contributing to higher growth at the end of that year and lower growth in the first quarter of 2007.

(5) This group of countries now includes Bulgaria and Romania, which joined the European Union in January 2007.

Chart 2.4

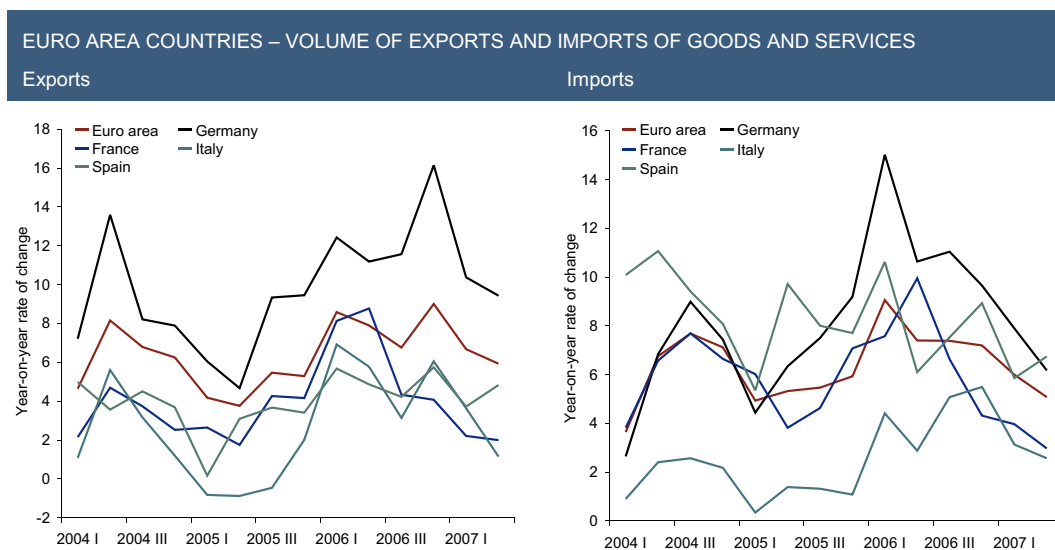


Source: IMF.

line with the decline in of world trade growth (Chart 2.5). These developments reflected lower growth of trade of goods with the United States and the maintenance of high growth of trade *vis-à-vis* Asia and the new Member States (Chart 2.6).

The behaviour of imports in Portugal's main trading partners translated into a deceleration of external demand for Portuguese goods and services in the first half of 2007 (Table 2.2). In the year as a whole, external demand is expected to behave less favourably than in 2006, thereby contributing to a deceleration of Portuguese exports of goods and services in volume (see "[Section 5 Demand and external accounts](#)"). In 2007, similarly to the previous year, Portuguese exports are expected to grow above forecasts for the euro area, but clearly below the projection for emerging markets and developing

Chart 2.5



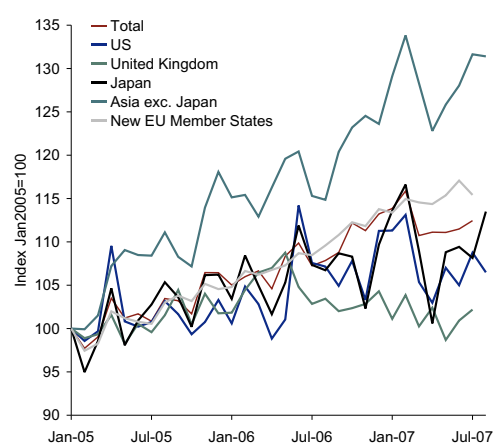
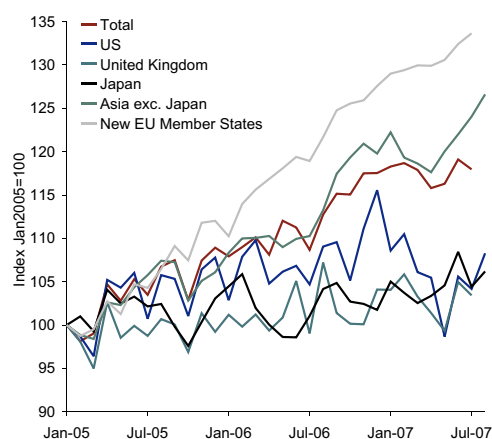
Source: Eurostat.

Chart 2.6

EURO AREA – VOLUME OF EXPORTS AND IMPORTS OF GOODS

Extra-euro area exports by country of destination

Extra-euro area imports by country of origin



Sources: Eurostat and Banco de Portugal calculations.

Table 2.2

EXTERNAL DEMAND FOR PORTUGUESE GOODS AND SERVICES

Real year-on-year rate of change, per cent

	Weights 2006	2006		2006				2007	
		2006		(1 st half)				2007	
				I	II	III	IV	I	II
External demand ^{(a),(b)}	100.0	8.4	5.5	10.5	8.6	7.7	7.1	5.8	5.1
Imports of goods and services									
Spain	25.4	8.3	6.3	10.6	6.1	7.5	8.9	5.9	6.7
France	13.7	7.1	3.5	7.6	10.0	6.6	4.3	4.0	3.0
Germany	13.7	11.5	7.0	15.0	10.6	11.0	9.7	7.9	6.2
Italy	4.5	4.5	2.9	4.4	2.9	5.1	5.5	3.1	2.6
United Kingdom ^(b)	9.5	8.9	-0.8	10.7	13.4	6.6	5.1	1.0	-2.5
US	5.8	5.9	2.5	6.3	6.4	7.2	3.7	2.9	2.0

Sources: Eurosystem, UK Office for National Statistics and Banco de Portugal calculations.

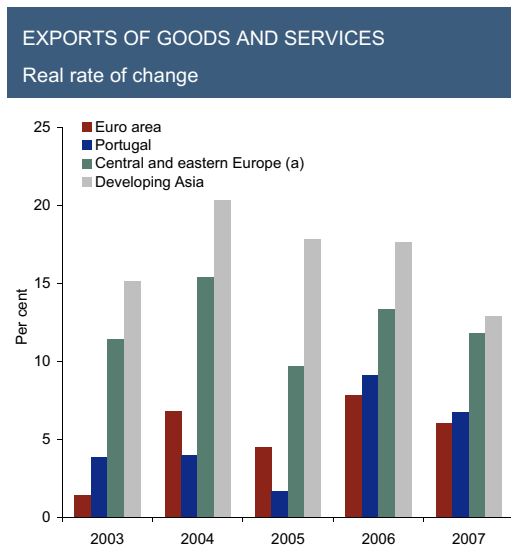
Notes: (a) Calculated as a weighted average of real growth of imports of goods and services from important markets of destination of Portuguese exports of goods. (b) For the United Kingdom, excluding the effects of the Value Added Tax (VAT) fraud, according to the estimates of the UK Office for National Statistics.

economies in Central and Eastern Europe and Asia (Chart 2.7). In spite of the slowdown from the previous year, exports of goods and services in these economies are forecasted to remain buoyant.

Continued strong world demand and limited spare capacity in global terms kept international commodity prices at high levels. In the case of oil, after a fall in January, prices exhibited a rising trend, only temporarily interrupted in August in the wake of the financial market turmoil (Chart 2.8).⁶ Therefore, at the end of October, in a context of declining crude inventories and of geopolitical tensions in the Middle

(6) From the end of July to 23 August, international oil prices fell by approximately 9 per cent.

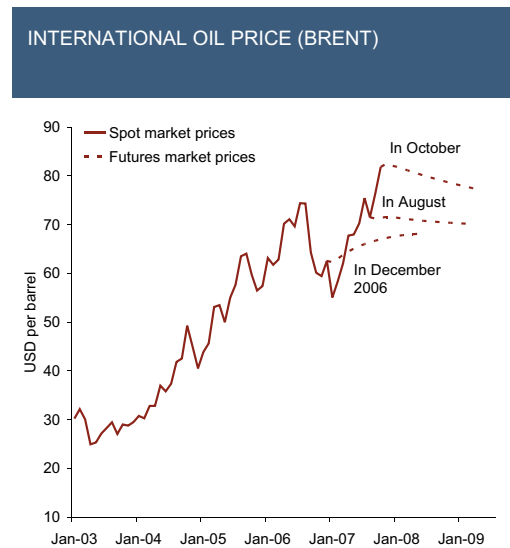
Chart 2.7



Sources: IMF, INE and Banco de Portugal.

Note: (a) Includes Albania, Bulgaria, Croatia, Czech Republic, Estonia, Latvia, Lithuania, Macedonia, Hungary, Malta, Poland, Romania, Slovakia and Turkey.

Chart 2.8

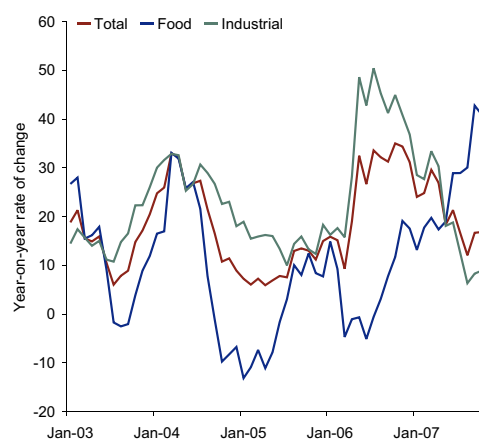


Sources: Bloomberg and Thomson Financial Datastream.

East, the price of Brent reached historical peaks in nominal terms (around USD 90 per barrel), approaching also its peaks in real terms. However, from January to October 2007, the oil price (in US dollars) rose on average by only 2.2 per cent from the same period in 2006 (Table 2.1). In euro terms, prices fell by 6 per cent, given the depreciation of the US dollar in the course of the year. The decision of the Organisation of Petroleum Exporting Countries (OPEC), announced in mid-September, to increase oil production by 0.5 million barrels per day as from November 2007 did not preclude the upward trend of the oil price, since that increase was deemed to be insufficient in view of the current stock level. At the end of October, futures market prices pointed to the maintenance of the oil price at approximately USD 82 per barrel up to the end of 2007 and to a decline to values around USD 78 by the end of 2008. As regards non-energy commodity prices, the year-on-year rate of change exhibited a downward trend over the first ten months of the year as a result of the deceleration of prices of industrial raw-materials (Chart 2.9). Behind these developments were, in particular, metal prices that, although remaining at high levels, exhibited a downward trend following the sharp increase observed in 2006. In contrast, food commodity prices rose considerably in the course of the year. These developments reflected increased demand for this type of products associated with the use of some cereals and oil-seeds for the production of biofuels and disturbances in production in some countries due to adverse weather conditions. From end 2006 to October 2007, the price of these commodities in USD rose by around 28 per cent.

The slower pace of growth of international commodity prices in a framework of less accommodative monetary policies, will lead, according to the IMF, to a decline in inflation in advanced economies from 2.3 to 2.1 per cent in 2007 (Table 2.1). Excluding more volatile components, price growth remained contained in the course of the year, reflecting the maintenance of anchored long-term inflation expectations. In the euro area, inflation was affected by the rise in indirect taxation in Germany, but remained below 2 per cent in the first three quarters of 2007. Compensation per employee grew moderately in the first half of 2007 (approximately 2 per cent), contributing to a change in unit labour costs close to that observed in 2006 as a whole (0.8 per cent). Late in the year, the year-on-year change in euro area consumer prices is expected to rise temporarily as a result of an unfavourable base effect of the energy component associated with a sharp fall in the same period of 2006 and of an acceleration of food

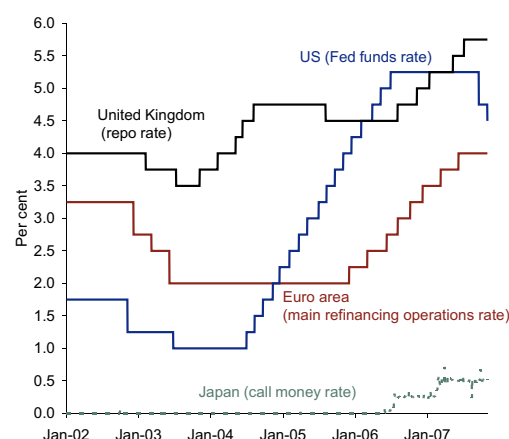
Chart 2.9

INTERNATIONAL PRICE OF NON-ENERGY
COMMODITIES
USD

Source: HWWI.

Chart 2.10

OFFICIAL INTEREST RATES



Sources: Bloomberg and ECB.

prices. In emerging market and developing economies, in particular China and India, inflation is expected to rise in 2007 (from 5.1 to 5.9 per cent, according to the IMF) reflecting the strong pace of growth of economic activity and the higher weight of food in consumer prices in these economies.

Monetary policy stance in major advanced economies became less accommodative in the first half of 2007 in response to the continued upward risks to prices, given robust growth of world activity and high commodity prices (Chart 2.10). In the euro area, the Governing Council of the ECB increased its key interest rate by 25 basis points (b.p.) twice, to reach 4 per cent in early June (see [Section 3](#)). In the United Kingdom, the Monetary Policy Committee of the Bank of England raised its official interest rate by 25 b.p. in January, May and July, to 5.75 per cent, to ensure the maintenance of inflation below the 2 per cent target in the medium term. The United States Federal Reserve kept the reference rate unchanged in the context of moderate growth of economic activity, but acknowledged the existence of upward risks to inflation. In the second half of the year, financial market turbulence and the drying up of money market liquidity have constrained the conduct of monetary policy in major advanced economies. During August and September, different central banks adopted measures intended to ensure the regular operation of the respective money markets (see [Box 1 Recent turbulence in international financial markets](#)). Additionally, on 18 September, the Federal Reserve decided to lower its target for the federal funds rate by 50 b.p. to 4.75 per cent in order to mitigate the adverse effects of the tightening of credit standards on the housing market and on economic growth in general.⁷ On 31 October, The Federal Reserve cut again the federal funds rate by 25 b.p. to 4.5 per cent. The Governing Council of the ECB and the Bank of England's Monetary Policy Committee decided to maintain the respective official interest rates unchanged in their September and October meetings, in view of the increased uncertainty associated with financial market developments. In some economies, namely in emerging market and developing economies, little affected by the turbulence in international financial markets, upward pressures on prices related to the high pace of activity growth and to soaring oil and food commodity prices led to further increases in the reference interest rates during the second half of 2007.

(7) On 17 August, the monetary authority had cut the discount rate by 50 b.p.

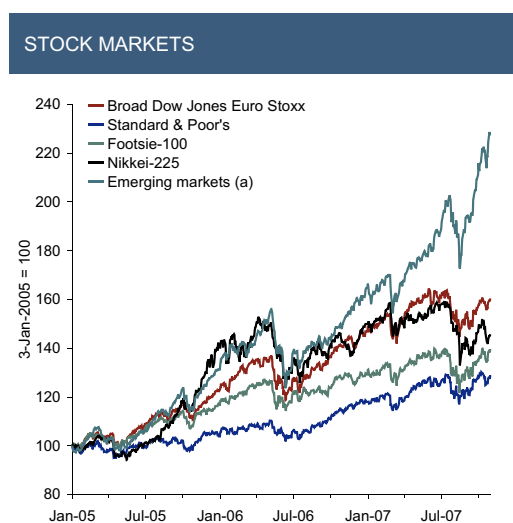
Turning to the fiscal area, limited progress is expected in the correction of public deficits in major advanced economies. According to IMF projections, the cyclically-adjusted deficits will decline around 0.2 to 0.4 p. p. of GDP in the United States, the euro area, Japan and the United Kingdom. The euro area shall continue to post the lowest value (0.8 per cent of GDP), partly due to the Stability and Growth Pact framework, while Japan shall post the highest value (3.8 per cent of GDP).

Financial market conditions continued to be broadly favourable in the first half of 2007, notwithstanding a short instability period in late February/early March. During the summer, financial market developments were affected by a change in risk perception by international investors triggered by increased difficulties in different financial institutions associated with investments in the mortgage subprime segment in the United States. In this context, spreads in private debt markets widened considerably and volatility in bond and equity markets rose sharply. In addition, uncertainty as to the size and distribution of losses in the subprime market generated a loss in confidence that translated into a significant decline in money market liquidity (see "[Box 1 Recent turbulence in international financial markets](#)"). As from mid-September, in the wake of the reference rate cut in the United States, these movements were gradually reversed. However, financial conditions remained less favourable than in the first half of the year. More recently, in the context of the presentation of results for the third quarter by financial and non-financial corporations, volatility rose in international financial markets.

In the first six months of 2007, main equity markets maintained the valuation trend observed during 2006, against the background of strong world economic growth (Chart 2.11). In July and August, the flight from riskier assets translated into significant falls in stock prices in major international markets, which were almost fully reversed as of mid-September. At the end of October, excluding the Nikkei index in Japan, main stock price indices stood at higher levels than at the end of 2006 (Table 2.3).

As regards developments in public debt bond markets, long-term interest rates exhibited an upward trend in the first half of 2007 in most advanced economies. However, the sudden change in risk perception as of mid-July implied a reversal in this trend. As of mid-September, long-term government bond yields saw a relative stabilisation around lower values than those observed at the outset of the period of financial market turbulence. *Vis-à-vis* 2006, 10-year interest rates rose in the euro area and in the United Kingdom and declined in

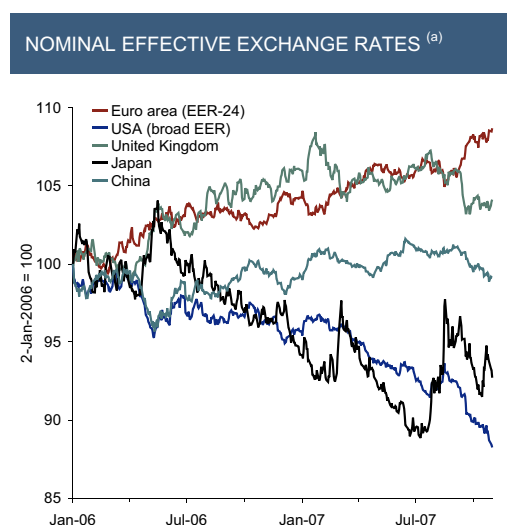
Chart 2.11



Sources: Bloomberg and Thomson Financial Datastream.

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

Chart 2.12



Sources: Bank for International Settlements, ECB and Federal Reserve Board.

Note: (a) An increase (decrease) denotes an appreciation (depreciation).

the United States (Table 2.3). In turn, yield differentials between private and public debt in the United States and in the euro area widened significantly, particularly in the summer, after having remained at low levels during the first half of 2007. At the end of October, these differentials stood in general at higher levels than in the last two years.

The trends observed in foreign exchange markets in 2006 remained broadly unchanged in 2007, in spite of a temporary interruption in July and August (Chart 2.12). The US dollar depreciated further in nominal effective terms, in line with the slowdown of economic activity and the persistence of a high current account deficit. The yen continued to exhibit a downward trend, in a context in which the low interest rates reinforced capital outflows from the Japanese economy (usually known as carry trade). The renminbi appreciated slightly in nominal effective terms, maintaining the appreciating trend *vis-à-vis* the USD observed since mid-2005. In this context, the euro appreciated by 4.3 per cent in nominal effective terms from late 2006 to late October 2007 (Table 2.3). The strengthening of the European currency reflected appreciations *vis-à-vis* most currencies of euro area main trading partners, in particular the US dollar and, to a lesser extent, the yen, the Swiss franc and the pound sterling.

Table 2.3

INTERNATIONAL FINANCIAL MARKETS						
	Averages			End-of-period		
	2005	2006	2007 ^(a)	2005	2006	2007 ^(a)
Stock price indices (percentage change)						
S&P 500	7	9	13	3	14	9
Nikkei 225	11	30	7	40	7	-3
FTSE 100	14	15	8	17	11	8
Dow Jones Euro Stoxx	17	22	17	23	20	9
MSCI - emerging market economies ^(b)	22	30	27	32	26	38
10-year interest rates - public debt (per cent)						
US	4.3	4.8	4.7	4.4	4.7	4.5
Japan	1.4	1.7	1.7	1.5	1.7	1.6
United Kingdom	4.4	4.5	5.1	4.1	4.7	4.9
Euro area	3.4	3.9	4.3	3.4	4.1	4.4
Differentials between private and public debt bond yields (with a maturity of 7 and 10 years) (basis points)						
US						
AA	24.1	49.5	79.7	40.0	53.9	130.1
BBB	76.1	101.6	134.5	98.5	111.2	185.0
Euro area						
AA	27.9	34.3	53.2	29.2	35.1	85.9
BBB	98.2	124.0	115.0	122.5	110.4	146.4
Emerging market debt spreads						
EMBI+	316.7	199.5	181.8	245.0	169.0	186.0
Nominal effective exchange rates (percentage change) ^(c)						
US dollar	-2.6	-2.0	-3.9	3.3	-4.3	-7.8
Japanese yen	-3.2	-7.2	-5.9	-10.4	-6.1	-1.6
Pound sterling	-1.6	0.5	2.7	-2.3	6.0	-1.8
Euro	-1.0	0.3	3.3	-6.7	4.5	4.3
Memo:						
EUR/USD exchange rate ^(d)	0.0	0.9	7.7	-13.4	11.6	9.7

Sources: Bank for International Settlements, Bloomberg, ECB, JPMorgan and Federal Reserve Board.

Notes: (a) Figures up to 31 October. (b) Morgan Stanley Capital International index for emerging market economies: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, India, Indonesia, Israel, Jordan, Korea, Hungary, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey. (c) A positive change corresponds to an appreciation. (d) A positive change corresponds to an appreciation of the euro.

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, the ECB increased its key interest rates by 25 b.p. in March and June 2007. The minimum bid rate on the main refinancing operations was thus set at 4 per cent, totalling an accumulated rise of 200 b.p. since December 2005 (Table 3.1.1). The decisions to raise the interest rates reflected the assessment by the Governing Council of the ECB that there were upside risks to price stability in the euro area over the medium term and aimed at ensuring that inflation expectations would remain firmly anchored at levels consistent with price stability. The main upward risks indicated by the Governing Council were associated with higher-than-expected wage growth, given the high level of capacity utilisation and the continued improvement in the labour markets, with higher-than-estimated contribution of administered prices and indirect taxation and with further increases in oil prices. According to the evaluation of the Council, upward risks to price stability in the medium and long term were confirmed by persistent high paces of monetary and credit expansion in the euro area in 2007.

The financial market turbulence during the summer, namely the disturbances in the operation of money markets, introduced significant changes to the euro area monetary policy framework. In the Council's assessment, although price stability remained subject to the abovementioned upward risks, the existence of higher than usual uncertainty concerning the economic outlook in the euro area due to instability in the financial markets, justified the decision taken at the September and October meetings

Table 3.1.1

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
7 Dec. 2006	2.50	3.50	4.50
8 Mar. 2007	2.75	3.75	4.75
6 Jun. 2007	3.00	4.00	5.00

Source: ECB.

to maintain the key interest rates unchanged. The Governing Council stressed the need to gather additional information and to analyse new data before drawing further conclusions regarding monetary policy, with a view to ensuring price stability in the medium term. According to expectations derived from overnight interest rate swaps (Overnight Index Swaps) available for the next twelve months, additional increases in ECB interest rates in that period are not taken on board by market participants.

Similarly to other central banks, the ECB carried out liquidity providing operations on the money market in August and September, with a view to ensuring its regular operation (see "[Box 1 Recent turbulence in international financial markets](#)").⁸ These measures contributed to some normalisation of liquidity conditions in very short maturities. There were, however, sharp increases in money market interest rates for maturities exceeding one month. At the end of October, three- and six-month interest rates stood close to 4.6 per cent, approximately 60 b.p. above the ECB key interest rate. Against the background of a downward revision of expectations of key interest rate hikes, the behaviour of money market interest rates reflected a substantial increase in risk premium.

In the first nine months of 2007, growth of loans to the private sector stabilised somewhat but remained at high levels. These developments reflected different behaviours of loans to non-financial corporations and households. The latter showed a downward trend in the course of the year, reflecting the deceleration of loans to households for both house purchase and consumption purposes. In contrast, in spite of some moderation in the first four months of 2007, loans to non-financial corporations accelerated further and continued to exhibit a high pace of expansion (year-on-year change of 14.1 per cent in September, compared to 13.1 per cent at the end of 2006). According to the October Bank Lending Survey for the euro area, these developments were determined by the continued strong demand for credit by non-financial corporations for investment and inventories, mergers and acquisitions and corporate restructuring. According to the results of this survey, a significant share of banks tightened their credit standards in the third quarter of 2007, particularly in the case of non-financial corporations, and intends to tighten credit standards further in the next quarter.

Monetary and financial conditions in the Portuguese economy

In the first half of 2007 developments in monetary and financial conditions of the Portuguese economy were similar to those observed in the previous year. Notwithstanding the growing tightening of monetary policy, financing conditions in the international financial markets remained broadly favourable. Subsequently, the situation in these markets deteriorated, which was also reflected in a significant increase in money market interest rates with maturities of more than one month, translating into some worsening of financing conditions in the non-financial private sector.⁹

In effect, although the impact of the turbulence on conditions offered by banks to their customers is not yet observed in quantitative information available as at the cut-off date of this Bulletin (namely on interest rates and credit flows), qualitative information collected within the scope of the October Bank Lending Survey and other consultations made by Banco de Portugal to banks with the purpose of monitoring the impact of financial market turbulence points to the tightening of credit standards for loans in the third quarter of 2007. According to respondents to the survey, the persistence of some instability in the money market and the continued difficulties in obtaining financing from wholesale funding markets will likely continue to influence the credit standards for loans and the criteria for the

(8) From 9 to 14 August, the ECB conducted four overnight liquidity-providing fine-tuning operations and a supplementary longer-term refinancing operation on 23 August for the first time. In September, the ECB conducted another liquidity-providing fine-tuning operation and another supplementary longer-term refinancing operation. In parallel, during this period, the ECB increased the benchmark amounts in main refinancing and longer-term operations.

(9) For a more detailed analysis of the recent turbulence in financial markets and its consequences for the development of the Portuguese banking system, see "[Box 1 Recent turbulence in international financial markets](#)" and the article "[The Portuguese banking system in the course of 2007](#)" in this Bulletin.

collection of bank deposits in the fourth quarter.

The upward trend of the ECB key interest rates was maintained during the first quarter of 2007. Since December 2005, these rates were raised by 200 basis points, affecting the development of money market interest rates. Subsequently, euro money market interest rates were particularly affected by the financial market turbulence, with an increase in rates for maturities over one month, due to a widening of the counterparty risk premium. In turn, in the first three quarters of 2007, the effective exchange rate index for Portugal rose by 0.6 per cent, maintaining the appreciating trend observed since early 2006 (Table 3.1.2).

The impact of these developments may be evaluated by resorting to an illustrative and simple indicator of the development of monetary conditions in the Portuguese economy, the so-called monetary conditions index.¹⁰ According to this indicator, monetary conditions were tightened in 2007, with an impact on economic activity growth. In terms of inflation, the maintenance of the upward trend of the effective exchange rate index for Portugal contributed again significantly to its decline (Chart 3.1.1). This indicator, however, does not cover a number of relevant variables in the evaluation of monetary and financial conditions, allowing, *inter alia*, for a wider characterisation of financing conditions in the economy. Among these variables, stress is laid on the development of bank margins, long-term interest rates, private debt spreads, stock markets, residential prices and, in general, the financial position of the banking system.

Bank interest rates on balances (including the effects of former rates) have been evolving in line with money market interest rates, in spite of some time lag (Chart 3.1.2). Similarly to 2000, this lag, in the context of interest rate hikes, implied an increase in the interest rate overall margin in operations with customers. Indeed, the widening of the margin in borrowing operations has more than offset the narrowing of the differential in lending operations (Chart 3.1.3). In the case of a protracted instability situation in the money market, banks may continue to develop more competitive strategies to collect deposits from customers, which would narrow the differential in borrowing operations.

In line with long-term interest rates in the euro area, long-term Portuguese Treasury bond yields rose by approximately 70 b.p. in the first half of the year. (Chart 3.1.4). Subsequently, this trend was reversed, influenced by the turbulence in international financial markets, which, to some extent, should have led to the flight-to-quality phenomenon. The latter may also have contributed to widen the risk premia underlying public debt in some euro area countries. In Portugal, this led the spread between the Portuguese and the German 10-year government debt yield to occasionally exceeded 15 b.p. The upward trend of long-term interest rates was resumed in mid-September, which was associated with the decision of the US Federal Reserve to lower its target for the federal funds rate by 50 b.p., to 4.75 per cent, on 18 September. The risk premium underlying the Portuguese government debt reached again the levels recorded since mid-2005 (between 10 and 15 b.p.), standing slightly below the levels associated with the Italian and Greek government debt (Chart 3.1.5).

Financial market instability has significantly affected private debt markets, where risk premia remained at historically low levels since mid-2003. The spreads between the interest rates on long-term private debt and government debt securities with similar maturities widened significantly. The reassessment of risk premia has chiefly affected issuers in the financial sector. After 18 September, however, spreads narrowed in euro bonds issued by the non-financial sector and by banks and insurers. Bonds issued by Portuguese banks have evolved in line with this gradual downward trend, but remained at higher levels than before the beginning of the turbulence period.¹¹

(10) For methodological information, see Esteves, Paulo (2003), "*Monetary conditions index for Portugal*", *Economic Bulletin*, June, Banco de Portugal.

(11) For further details on the recent development of spreads of debt securities of Portuguese banks, see "*Section 2 Macroeconomic and financial environment*" of the article "*The Portuguese banking system in the course of 2007*" in this Bulletin.

Table 3.1.2 (to be continued)

MONETARY AND FINANCIAL CONDITIONS OF THE PORTUGUESE ECONOMY																
	Quarterly incidence										Monthly incidence					
	2004	2005	2006	2006.1	2006.2	2006.3	2006.4	2007.1	2007.2	2007.3	Dec-06	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07
Nominal interest rates - period averages (per cent)																
3-month Euribor	2.1	2.2	3.1	2.6	2.9	3.2	3.6	3.8	4.1	4.5	3.7	4.1	4.2	4.5	4.7	4.7
12-month Euribor	2.3	2.3	3.3	2.8	3.2	3.5	3.8	4.0	4.2	4.6	3.9	4.5	4.6	4.7	4.7	4.6
10-year fixed-rate Treasury bond yields	4.1	3.4	3.9	3.6	4.1	4.0	3.9	4.2	4.5	4.6	4.0	4.7	4.7	4.6	4.5	4.5
Bank interest rates																
On outstanding amounts of loans																
Non-financial corporations	4.4	4.3	4.9	4.6	4.8	5.0	5.3	5.5	5.7	5.8	5.4	5.7	5.8	5.8	5.9	
Households for house purchase	3.8	3.7	4.3	3.9	4.1	4.4	4.7	4.9	5.0	5.2	4.8	5.1	5.2	5.2	5.3	
Consumption and other purposes	7.8	7.7	8.0	7.8	7.9	8.0	8.1	8.3	8.6	8.6	8.1	8.6	8.6	8.6	8.7	
On outstanding amounts of deposits with an agreed maturity																
Non-financial private sector - up to 2 years (excluding demand deposits, at notice)	2.0	2.0	2.3	2.1	2.2	2.3	2.6	2.8	3.0	3.2	2.7	3.0	3.1	3.2	3.3	
On new loans																
Households for house purchase	3.5	3.4	4.0	3.7	3.9	4.1	4.4	4.5	4.6	4.9	4.4	4.7	4.7	4.8	5.1	
Exchange rates - period averages																
Nominal effective exchange rate index ^{(a),(b)}	100.9	100.8	100.9	100.5	101.0	101.1	101.1	101.3	101.7	101.8	101.3	101.6	101.7	101.6	101.9	
Nominal effective exchange rate index - percentage change from the previous corresponding period ^{(a),(b)}	0.6	-0.2	0.2	0.1	0.4	0.1	0.0	0.2	0.4	0.1	0.2	-0.1	0.1	-0.1	0.2	
Stock market - end-of-period values																
PSI-Geral index - percentage change from the previous corresponding period	18.0	17.2	33.3	17.7	-4.1	8.7	8.6	5.2	17.8	-11.4	5.1	1.3	0.4	-5.8	-6.3	7.8
Housing market prices - End-of-period annual rate of change																
Índice Confidencial Imobiliário ^(c)	0.6	2.3	2.1	3.2	3.5	2.8	2.1	1.5	1.0		2.1	1.0	1.0	1.1		
Assessment by banks (INE)	4.9	2.9	0.3	2.4	1.7	0.7	0.3	0.0	0.5	1.0	0.3	0.5	-	-	1.0	-

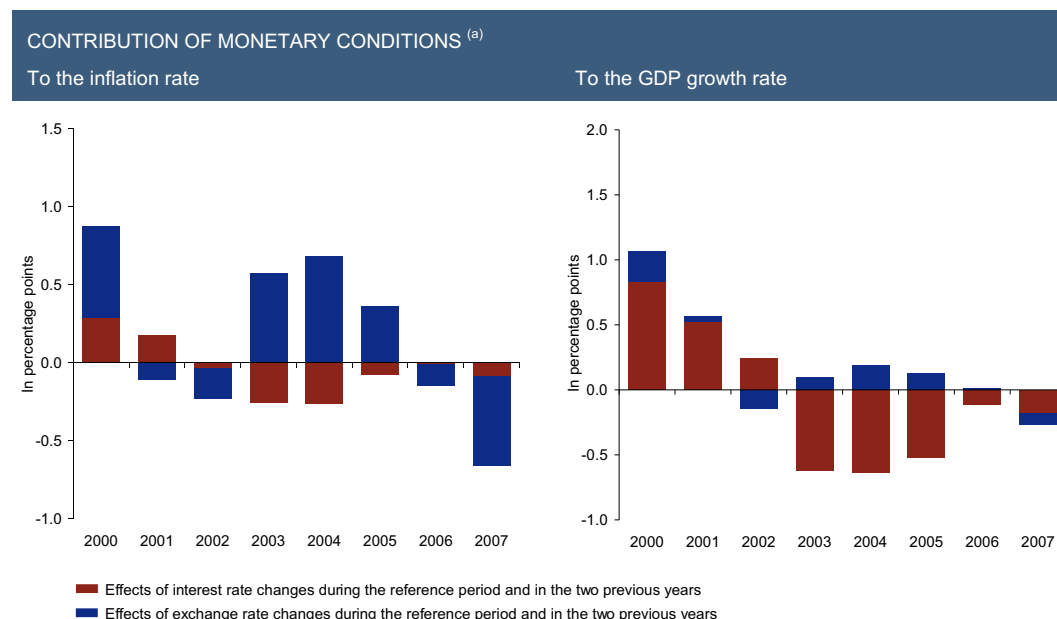
Table 3.1.2 (continued)

MONETARY AND FINANCIAL CONDITIONS OF THE PORTUGUESE ECONOMY																
	Quarterly incidence										Monthly incidence					
	2004	2005	2006	2006.1	2006.2	2006.3	2006.4	2007.1	2007.2	2007.3	Dec-06	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07
Loans granted to the non-financial private sector - End-of-period annual rate of change																
Households																
Loans granted by resident financial institutions ^(d)																
Total	9.7	10.1	9.8	10.7	9.8	9.9	9.8	9.4	9.8		9.8	9.8				
For house purchase	10.5	11.1	5.5	5.5	5.6	5.9	5.5	6.3	7.5		5.5	7.5				
Consumption and other purposes	7.4	6.9	5.7	7.0	7.1	7.1	5.7	7.3	8.5		5.7	8.5				
Loans granted by resident monetary financial institutions ^(e)																
Total	9.2	9.8	9.9	10.2	10.0	10.1	9.9	9.6	9.4		9.9	9.4	9.0	9.1		
For house purchase	10.5	11.1	9.9	11.2	10.8	10.2	9.9	9.4	9.0		9.9	9.0	8.9	8.9		
Consumption and other purposes	4.4	4.5	10.1	5.8	6.9	9.6	10.1	10.9	11.3		10.1	11.3	9.3	9.9		
Non-financial corporations																
Loans granted by resident financial institutions ^(d)	3.2	4.1	5.5	5.5	5.6	5.9	5.5	6.3	7.5		5.5	7.5				
Loans granted by resident monetary financial institutions ^(e)	2.5	5.0	7.1	6.4	6.7	7.5	7.1	7.8	8.5		7.1	8.5	9.1	8.6		
Total gross debt ^(f)	5.1	8.5	5.7	7.0	7.1	7.1	5.7	7.3	8.5		5.7	8.5				
Memo:																
HICP - End-of-period annual average rate of change																
Portugal	2.5	2.1	3.0	2.3	2.7	3.0	3.0	3.0	2.7	2.5	3.0	2.7	2.6	2.5	2.5	
Euro area	2.1	2.2	2.2	2.2	2.3	2.4	2.2	2.1	2.0	1.8	2.2	2.0	1.9	1.9	1.8	

Sources: Euronext Lisboa, Eurostat, Imométrica, INE, Reuters and Banco de Portugal.

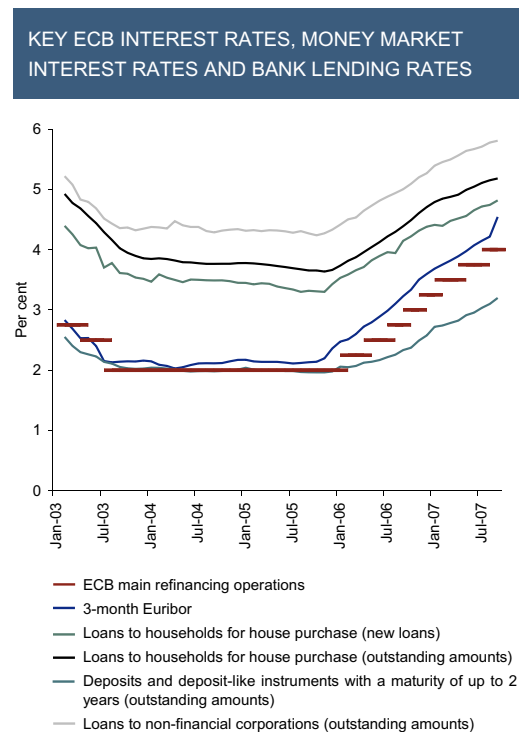
Notes: (a) A positive change corresponds to an appreciation of the euro against the US dollar or of the effective exchange-rate index. (b) Calculations against a group of 22 trading partners. For a detailed description of the methodology, see A. C. Gouveia and C. Coimbra, "New effective exchange rate index for the Portuguese economy", in the December 2004 issue of the *Economic Bulletin* of Banco de Portugal. (c) The *Índice Confidencial Imobiliário* tracks developments in the residential market in Portugal, in particular in the Lisbon and Porto metropolitan areas. In October 2006 this index adopted a new methodology and broadened its background information. The index uses data available at www.lardocelar.com, which in 2005 contained around 280,000 real estate registers. For further details on the methodology used, see the article by I. Fonseca and R. Guimarães, in the October 2006 issue of Newsletter *Imobiliária Portuguesa - Confidencial Imobiliário*, entitled: "Índice Confidencial Imobiliário: procedimentos metodológicos". (d) 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. Annual rates of change are based on amounts outstanding of loans at the end of the month adjusted for securitisation and transactions which are based on outstanding amounts adjusted for reclassifications, write-offs/write-downs and exchange rate and price revaluations. (e) Loans granted by resident monetary financial institutions. Annual rates of change are based on amounts outstanding of bank loans at the end of the month adjusted for securitisation and monthly transactions which are based on outstanding amounts adjusted for reclassifications, write-offs/write-downs and exchange rate and price revaluations. (f) Includes loans granted by resident and non-resident credit institutions, loans/additional capital granted by non-resident corporations of the same economic group (excluding those granted to non-financial corporations having their head office in Madeira off-shore), commercial paper and bonds issued by non-financial corporations held by other sectors.

Chart 3.1.1



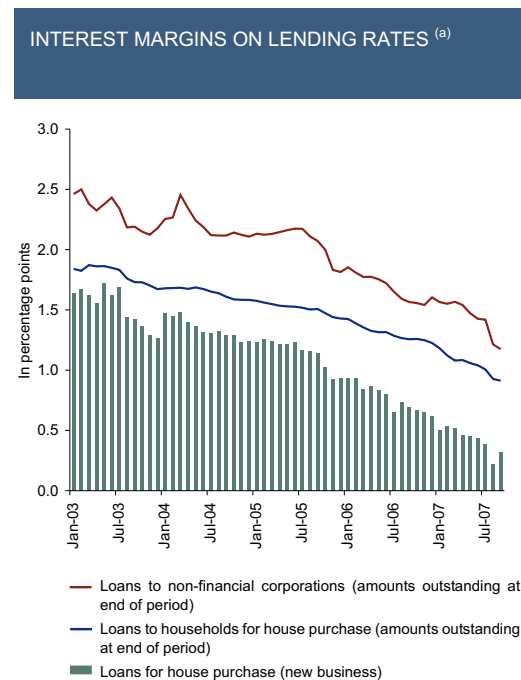
Note: (a) For methodological information, see P. Esteves, "Monetary conditions index for Portugal", in the June 2003 issue of the *Economic Bulletin* of Banco de Portugal. The multipliers underlying the construction of this index (corresponding to impacts of changes in the exchange rate and in the interest rate) were updated taking into account the main model currently used in economic projections for the Portuguese economy.

Chart 3.1.2



Sources: ECB and Banco de Portugal.

Chart 3.1.3

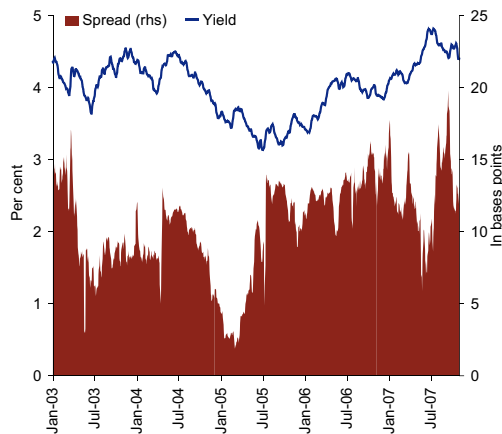


Sources: ECB and Banco de Portugal.

Note: (a) The interest margin in amounts outstanding of loans 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 business, the interest margin is the difference between the interest rate on new loans and 6-month Euribor.

Chart 3.1.4

PORTUGUESE GOVERNMENT DEBT YIELDS AND SPREAD VIS-À-VIS GERMAN GOVERNMENT DEBT (10-YEAR)

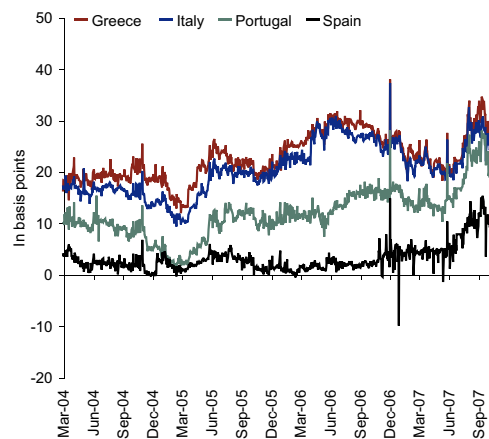


Sources: Reuters and Banco de Portugal.

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.

Chart 3.1.5

GOVERNMENT DEBT ASSET SWAP SPREADS VIS-À-VIS GERMANY



Source: Reuters.

At the international level, stock markets maintained favourable developments during the first half-year, but lost ground subsequently in the third quarter, due to financial market instability. In the second half of September and in the first half of October these losses were somewhat reversed, in a context of declining volatility. At the end of October, the PSI – Geral index maintained an accumulated change since the start of the year that was higher than that observed in the Dow Jones Euro Stoxx.

The release of the first results on the third quarter of the year for financial and non-financial corporations and the outbreak of some geopolitical instability with an impact on the oil price were reflected in an increase in volatility in international and Portuguese financial markets.

Prices in the Portuguese residential market, evaluated on the basis of the *Confidencial Imobiliário* index, should have recorded an annual change rate of 1.1 per cent in August, compared with 2.1 per cent at the end of 2006. Real estate valuation may, on the one hand, induce a wealth effect on expenditure decisions made by the respective owners and, on the other hand, influence the development of the credit market (since real estate assets are used as collateral in credit operations). In this context, it is worth stressing that evidence in the Portuguese case does not suggest the existence of overvalued prices in real estate assets liable to give rise to substantial negative corrections to the value of these assets.¹²

In the first half of 2007 the Portuguese banking system maintained a comfortable position in terms of profitability, solvency and risk coverage. At the end of the semester, liquidity gaps of domestic banking

(12) See "Box 6.1 Housing prices in Portugal and Macroeconomic Fundamentals: Evidence of Quantile Regression", in the *Financial Stability Report 2005* of Banco de Portugal.

groups revealed, as a whole, a virtual stabilisation from June 2006.^{13,14} In a context of stability in the wholesale financing market, actual gaps were not liable to affect prices, quantities and time frames of banking operations. However, given the financing difficulties in these markets in the third quarter of the year, assessed either by the development of spreads in the debt markets or by the responses to the October Bank Lending Survey, institutions tightened their credit standards for loans to the non-financial private sector.

According to reporting banks, this change, also due to a more negative assessment of the risks associated with expectations regarding economic activity in general and risks associated with prospects about specific activity sectors or companies, is expected to continue in the last quarter of the year, spilling over into the level of spreads and credit to be granted, which will probably translate into a deterioration of financing conditions to the non-financial private sector.

Also according to the responses to the survey, the tightening of credit standards applied to the approval of loans over the next three months will be broadly based across loans to corporations and households. Reporting banks were unanimous in recognising that recent developments will contribute to a tightening of credit standards for loans and credit lines to corporations, irrespective of the size of the corporation and the purpose of the loan (to finance fixed investment, inventories and working capital and/or mergers/acquisitions and corporate restructuring). In addition, the reassessment of credit risk may curtail the availability revealed by banks in the past to adjust credit standards to their customer's debt servicing capacity, by renegotiating debt. In this respect, in the third quarter, debt restructuring reinforced its contribution to the expansion of demand for loans by non-financial corporations.

Information available for the first half of the year points to an acceleration of indebtedness of non-financial corporations. In fact, loans granted to this sector accelerated from 5.5 per cent at the end of 2006 to 7.5 per cent in June (Chart 3.1.6).¹⁵ Also benefiting from favourable risk premia, Portuguese non-financial corporations issued significant amounts of bonds and commercial paper in the first half of 2007 (particularly in the second quarter), which, in net terms, accounted for almost 75 per cent of net debt issuance in the previous year as a whole. Reflecting these developments, the rate of change of financial debt in the sector increased from 5.7 per cent at the end of 2006 to 8.5 per cent in June 2007.¹⁶ Over this half year, there were significant flows of share issuance, mostly from unlisted companies (Chart 3.1.7). Information on the third quarter suggests some further acceleration of financial debt of non-financial corporations.

In the case of bank credit to households, loans for house purchase continued to slow down, in line with the interest rate hike and the relatively high level of Portuguese household borrowing (Chart 3.1.8). In turn, consumer credit and other lending posted growth rates close to 11 per cent in the first half of the year, maintaining a rate of change similar to that observed at the end of the third quarter.¹⁷ In this segment it is worth highlighting the relative importance of loans with a maturity of over 5 years and of bank overdrafts.

(13) The liquidity gap is defined as the difference between available assets and required liabilities in each residual maturity class and provides an indication on the financing requirements to be met by banking institutions within the time frame considered (as a percentage of total assets less highly liquid assets). For a detailed description of the liquidity indicators generally used in the analyses drawn up at Banco de Portugal, see "Box 4.1 Monitoring the banking system's liquidity risk" in the *Financial Stability Report* 2004 of Banco de Portugal.

(14) For a more comprehensive evaluation of the Portuguese banking system, see the article "*The Portuguese banking system in the course of 2007*", in this Bulletin.

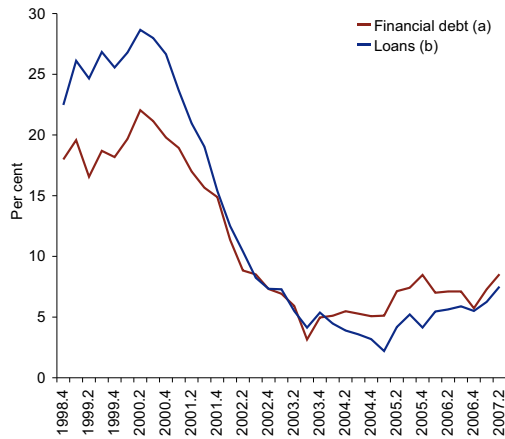
(15) For further details on the sectoral breakdown of loans to the sector, see "*Section 3.5 Credit risk*", in the article "*The Portuguese Banking System in the course of 2007*", in this Bulletin.

(16) The financial debt concept includes loans granted by resident and non-resident credit institutions, loans /additional capital granted by non-resident corporations of the same economic group (excluding those granted to non-financial corporations having their head office in Madeira off-shore), commercial paper and bonds issued by non-financial corporations held by other sectors. Information of quarterly financial accounts on securities may be subject to future revisions.

(17) The development of the rate of change of this aggregate has been occasionally curtailed by some loans to non-profit institutions serving households that, for statistical purposes, are considered in the household sector.

Chart 3.1.6

CREDIT GRANTED TO NON-FINANCIAL CORPORATIONS

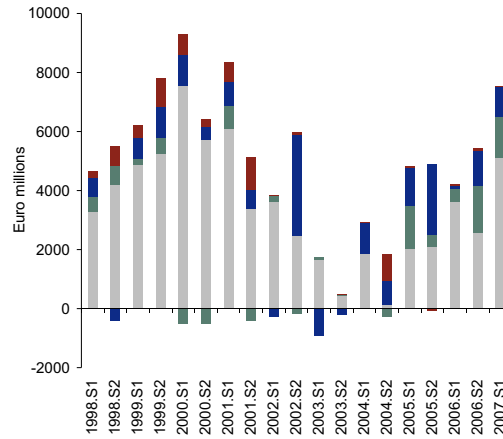


Source: Banco de Portugal.

Notes: (a) Includes loans granted by resident and non-resident credit institutions, loans /additional capital granted by non-resident corporations of the same economic group (excluding those granted to non-financial corporations having their head office in Madeira off-shore), commercial paper and bonds issued by non-financial corporations held by other sectors (b) Includes loans granted by resident financial institutions adjusted for securitisation operations with the intervention of a non-resident financial vehicle.

Chart 3.1.7

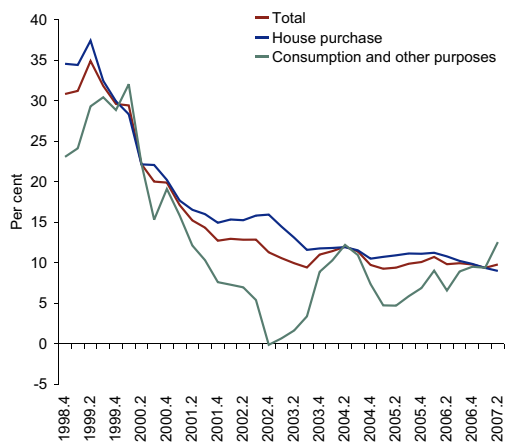
FINANCING OF PORTUGUESE NON-FINANCIAL CORPORATIONS



Source: Banco de Portugal.

Issues of shares by listed companies (net of write-offs)
Issues of bonds in Portugal and in external markets (net of redemptions)
Issues of commercial paper in Portugal and in external markets (net of redemptions)
Loan flows

Chart 3.1.8

LOANS GRANTED BY RESIDENT CREDIT INSTITUTIONS TO HOUSEHOLDS ^(a)

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.

3.2. Fiscal policy

According to the estimate of the general government account for 2007, on a national accounts basis, included in the State Budget Report for 2008 and in the revised excessive deficit procedure notification of 15 October, the deficit of this institutional sector is expected to reach 3.0 per cent of GDP (Table 3.2.1). This figure represents a 0.9 p.p. of GDP decline *vis-à-vis* 2006 and stands 0.3 p.p. of GDP below the target assumed by the Government in March, after the assessment of the fiscal outcome for 2006, within the scope of the excessive deficit procedure. The materialisation of these prospects would mean that Portugal would have reached the reference value for the deficit laid down in the Stability and Growth Pact one year before the deadline resulting from the present commitments.¹⁸ According to the same source, the public debt ratio is expected to reach 64.4 per cent at the end of the year, declining by 0.4 p.p. from 2006.

The assessment of the impact of fiscal policy on the economy requires an examination of the development of fiscal variables adjusted for the effects of the economic cycle. According to Banco de Portugal estimates, cyclical developments in the economy may still have a slightly negative contribution to the evolution of the fiscal balance, in particular given that the change in private consumption will be lower than its trend growth. As a consequence, the structural deficit is expected to decline by around 1.0 p.p. of GDP in 2007.¹⁹ These estimates, with the uncertainty surrounding them, indicate that the budgetary adjustment in the present year will exceed the 0.5 p.p. of GDP recommended in the Stability and Growth Pact for the Member States that did not yet reach the medium-term objective. However, in 2007 the structural deficit is projected to stand around 2 p.p. of GDP above the medium-term objective of 0.5 per cent of GDP to be attained in 2010, thus providing a measure of the additional fiscal consolidation effort required in the coming years.

Given that interest expenditure will increase by 0.1 p.p. of GDP, the cyclically-adjusted primary balance is estimated to reach 0.5 per cent of GDP. This value is positive for the first time in recent years, and

Table 3.2.1

MAIN FISCAL INDICATORS					
As a percentage of GDP					
	2003	2004	2005	2006	2007
Overall balance ^(a)	-2.9	-3.4	-6.1	-3.9	-3.0
Primary balance ^(a)	-0.2	-0.7	-3.5	-1.1	-0.1
Overall structural balance ^(b)	-4.9	-5.1	-5.7	-3.5	-2.4
Primary structural balance ^(b)	-2.2	-2.5	-3.1	-0.7	0.5
Public debt ^(a)	56.9	58.3	63.7	64.8	64.4

Sources: INE, Ministério das Finanças and Banco de Portugal.

Notes: (a) Values based on the excessive deficit procedure notification of 15 October, including GDP level. (b) Structural values are adjusted for the effects of the cycle and temporary measures. Cyclical components are calculated by Banco de Portugal according to the methodology used in the Eurosystem (see Braz, "The Calculation of Cyclically Adjusted Balances at Banco de Portugal: An update", in the Winter 2006 issue of the *Economic Bulletin* of Banco de Portugal).

(18) Next year, if the March excessive deficit procedure notification concludes that the fiscal deficit in 2007 is equal to or lower than 3.0 per cent of GDP and if the spring European Commission forecasts indicate that these results are sustainable and credible, the Council, based on a Commission recommendation, will close the excessive deficit procedure for Portugal.

(19) The structural deficit corresponds to the deficit adjusted for the cycle and for temporary measures in the terminology used within the scope of the Stability and Growth Pact. According to the methodology followed by Banco de Portugal, contrary to the 2002 to 2004 period, in 2005 and 2006 no temporary measures were implemented. This is expected to continue in 2007.

represents an improvement of around 1.2 p.p. of GDP, indicating an inevitably tight stance of fiscal policy at this stage of public finance consolidation. These developments are a result, *inter alia*, of the increase in tax revenue and of the fall in the weight of compensation of employees, in a context still characterised by a significant growth of pension expenditure.

According to Banco de Portugal estimates, the tax revenue cyclically-adjusted (including social contributions) will contribute with 0.7 p.p. of GDP to the improvement in the structural fiscal position. Contrary to the previous year, this result is not significantly affected by tax policy measures. In turn, the increase in tax administration effectiveness continued to have a marked impact on revenue growth. It should be highlighted, in particular, the magnitude of the expansion of revenue from the corporate income tax in 2007 explained, to a large extent, by corporate results in 2006 and by the widening of the tax base.²⁰ Also worthy of note is the increase in the ratio of social contributions to GDP, with a particular emphasis on the contributions to the Social Security sub-system.

Also according to Banco de Portugal estimates for cyclically-adjusted values, the main factor explaining the decline in the ratio of primary expenditure to GDP lies in compensation of employees, which, even after being adjusted for the effect of the transformation of some public hospitals into corporations in March and October 2007, contributed with 0.4 p.p. to that decline. Similarly to 2006, these developments result from the decline in the number of staff, the freezing of automatic progressions in careers, the decline in average wage via retirement/new hiring and the wage scale update below the inflation rate. In turn, the ratio of expenditure with pensions to GDP, although continuing to decelerate, rose by 0.2 p.p. Finally, it is worth stressing the 0.2 p.p. of GDP decline in expenditure with unemployment subsidies, particularly due to tighter application criteria.

4. SUPPLY

According to Banco de Portugal estimates, gross value added (GVA) in the Portuguese economy grew year-on-year by 1.8 per cent in the first half of 2007, compared with 1.3 for 2006 as a whole. The upturn in activity is supported in qualitative terms by the Bank's coincident indicators and the European Commission economic sentiment indicators, which in the first half of the year followed the upward trend started after 2005 (Chart 4.1). These qualitative indicators point to some stabilisation of the activity recovery in the third quarter. This intra-annual profile is particularly visible in industrial and services confidence indicators.

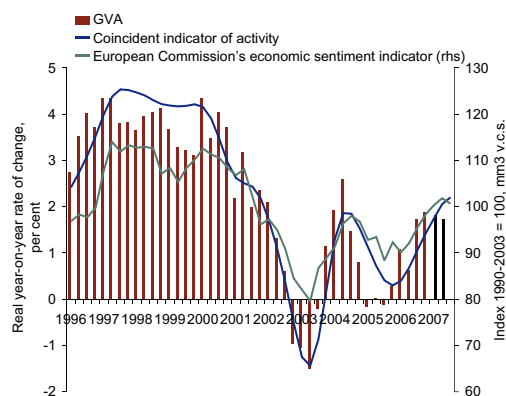
The acceleration projected for output in 2007 is mainly attributable to the greater contribution of total factor productivity, from 0.4 p.p. in 2006 to 1.4 p.p. in 2007.²¹ In turn, the capital factor contributed 0.3 p.p. to output growth, while developments in the work factor translated into a contribution of 0.1 p.p. The increase in total factor productivity may be the result of three factors. First, pro-cyclical developments in the capacity utilisation rate increased by 2.3 p.p. year-on-year during the first half of 2007, following falls during the last three semesters (Chart 4.2). Second, the weak increase in total employment as a whole (Chart 4.2) and in the private sector (Chart 4.3), which typically lag behind the economic cycle, are positively reflected in total factor productivity. Finally, the gradual reshaping of the fabric of production for higher value added activities is also contributing, albeit to a lesser extent, to gains in total factor productivity.

(20) The collection of the corporate income tax by the State rose by 31.9 per cent up to September, year-on-year.

(21) The breakdown of output growth is described in detail, including caveats in its interpretation, in V. Almeida and R. Félix, "Computing potential output and the output gap for the Portuguese economy", in the Autumn 2006 issue of the *Economic Bulletin* of Banco de Portugal.

Chart 4.1

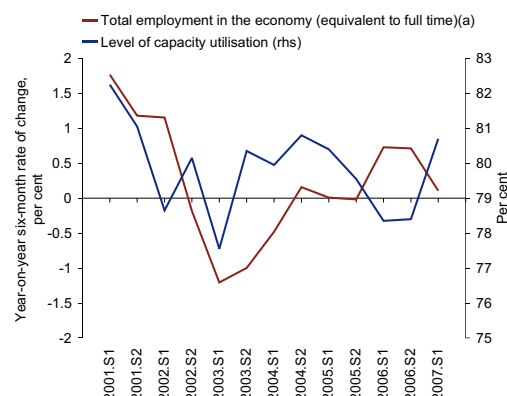
GVA, COINCIDENT INDICATOR OF ACTIVITY AND ECONOMIC SENTIMENT INDICATOR



Sources: European Commission, *INE* (Quarterly Accounts) and Banco de Portugal.

Chart 4.2

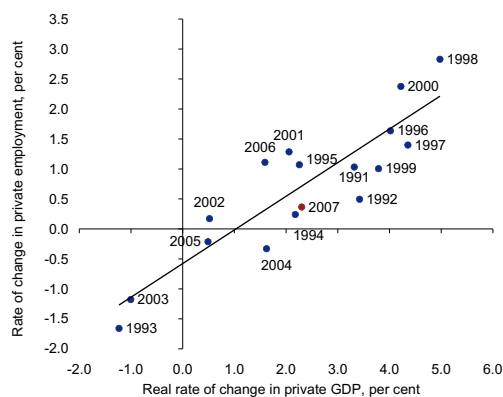
TOTAL EMPLOYMENT IN THE ECONOMY (EQUIVALENT TO FULL TIME) AND CAPACITY UTILISATION



Sources: European Commission and *INE*.

Note: (a) The employment level used corresponds to total employment adjusted for the number of hours worked. In particular, each number of hours worked equivalent to full time correspond to one job.

Chart 4.3

PRIVATE GDP AND PRIVATE EMPLOYMENT GROWTH ^(a)

Sources: *INE* and Banco de Portugal.

Note: (a) Private sector employment is defined as total employment excluding Banco de Portugal estimates for public sector employment. Private GDP is calculated 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 4.4

CHANGE IN APPARENT LABOUR PRODUCTIVITY AND GDP IN THE PRIVATE SECTOR



Sources: *INE* and Banco de Portugal.

Note: (a) The unemployment rate series was constructed according to the methodology described in G. L. Castro and P. S. Esteves, "Quarterly series for the Portuguese economy: 1977-2003", in the June 2004 issue of the *Economic Bulletin* of Banco de Portugal.

In the context of the acceleration projected for total factor productivity in 2007, productivity per employee in the private sector is likely to accelerate also, from 0.5 per cent in 2006 to 1.9 per cent in 2007. In contrast to the previous year, developments projected for work productivity follow economic growth in the private sector, confirming the typical pro-cyclical behaviour of this variable (Chart 4.4).

According to Employment Survey data of Statistics Portugal (*Instituto Nacional de Estatística*, Portuguese acronym: *INE*), the participation rate in the first half of 2007 was 73.9 per cent (Table 4.1). In 2007 as a whole, demographic developments projected for the Portuguese population age structure would lead to a zero aggregate participation rate.²² On the one hand, the increase in older population (55-64 years), with lower participation rates, contributes to the decline in the participation rate. On the other hand, this was offset by other demographic developments: (i) the small weight of young population (15 to 29 years), with lower participation rates and (ii) greater weight of the age group with the highest employment rate (30-54 years). Compared to previous years, developments in the participation rate slowed down (0.2 p.p. in the first half of 2007 from 0.5 p.p. for the same period in 2006). Thus, in 2007 non-demographic structural factors, which have influenced the increase in the participation rate over the past few years, were more subdued. Such factors include the slower growth in the participation rate of women.

During the first half of 2007, total employment declined by 0.2 per cent compared to the same period in 2006 (Table 4.1). This decline resulted from the combination of two factors. On the one hand, the number of employees grew by only 0.2 per cent, *i.e.* below growth over the past few years. On the other hand, following the downward trend that started with the deceleration in the economy in 2001, the number of self-employed continued to fall (-0.4 per cent). This is atypical, given that during economic recovery stages this type of employment would be expected to recover. In this context, less buoyant self-employment may be associated with the increase in the minimum value of compulsory social contributions, which renders it less competitive, in particular, when compared to low-income employment.²³

Table 4.1

POPULATION, EMPLOYMENT AND UNEMPLOYMENT						
Year-on-year rate of change, per cent (unless otherwise indicated)						
	Annual figures			1 st Semester		
	2004	2005	2006	2005	2006	2007
Population	0.6	0.5	0.2	0.6	0.2	0.2
Labour force	0.5	1.0	0.8	1.0	0.9	0.5
Participation rate 15-64 years (% of population)	72.9	73.4	73.9	73.2	73.7	73.9
Total employment	0.1	0.0	0.7	-0.1	0.8	-0.2
Private sector employment ^(a)	0.0	-0.2	1.1			0.4
Dependent employment	1.2	0.8	2.2	0.6	2.4	0.2
Permanent contract	2.2	1.3	0.9	1.6	1.8	-2.5
Fixed-term contract ^(b)	-1.9	1.7	9.3	0.4	4.8	9.9
Self-employment	-3.1	-2.8	-2.7	-2.5	-2.9	-0.4
Total unemployment	6.6	15.7	1.3	16.9	2.9	9.0
Total unemployment rate (% of labour force)	6.7	7.6	7.7	7.4	7.5	8.2
Long-term unemployment (% of total unemployment) ^(c)	46.2	49.9	51.7	50.2	53.3	49.2

Sources: *INE* (Employment Survey) and Banco de Portugal.

Notes: (a) Private sector employment is defined as total employment excluding Banco de Portugal estimates for public sector employment. (b) Includes fixed-term contracts and contracts with temporary employment agencies. (c) A long-term unemployed is an individual seeking work for 12 months or more.

(22) Assuming that in 2007, for each age group, participation rates did not change from 2006. For a more detailed analysis of the impact of demographic developments on participation rates, see "Box II.4.1 entitled *Implications of developments in the age structure of the Portuguese population for the participation and unemployment rates*", in the 2001 issue of the *Annual Report* of Banco de Portugal.

(23) The relationship between self-employment, the rigidity of labour legislation and compulsory social contributions is assessed, for a sample comprising 18 developed countries, in Mário Centeno, "*Is self-employment a response to labour market rigidity?*", in the December 2000 issue of *Economic Bulletin* of Banco de Portugal, pp. 27-35.

Despite lower growth in the number of employees, the re-composition by type of contract continued. Fixed-term jobs grew by 9.9 per cent, and their weight in total employment increased, while permanent jobs declined by 2.5 per cent. Although the greater use of fixed-term contracts is typical in economic recovery stages, the upward trend in the importance of such contracts for the composition of employment has been consistent since 1995. On the basis of Employment Survey data in 1999 and 2007, Chart 4.5 shows that this composition shift has mostly affected the younger population. This trend suggests that structural factors – namely the protection of certain groups of workers over other groups, due to the current employment protection legislation – lead to excessive rotation of some workers. Labour market segmentation is economically inefficient and affects negatively the decisions made by workers and corporations regarding investment in education and training.

In sectoral terms, the decline in employment during the first half of 2007 was due to the fall in employment in manufacturing, following gains over the past three semesters. Moreover, employment in services slowed down, and the year-on-year rate of change stood at 0.3 per cent. Employment developments in the services sector were mainly due to lower employment in general government, education and health and to higher employment in real estate, renting and business activities.

In the first half of 2007, the unemployment rate reached 8.2 per cent, *i.e.* the peak of the past few years, accounting for a 0.7 p.p. increase from the same period in the previous year (Table 4.1). The number of unemployed grew by 9 per cent year-on-year. In addition to interlinked structural factors – namely the gradual restructuring of the economy, the great share of long-term unemployment and the high financial and entitlement coverage of unemployment benefits – part of that increase resulted from the usual lag of this variable during periods of economic acceleration.

Labour market dynamics may also be analysed from a perspective of labour market flows between inactivity, employment and unemployment. Chart 4.6 shows quarterly averages for such flows over the past four quarters. During this period, on average, 47.8 thousand individuals moved from employment to inactivity and 42.8 thousand moved from inactivity to employment. Total transitions from inactivity to unemployment are higher than transitions from inactivity to employment, by around 20 thousand. Finally, transitions from unemployment to employment affected 53.9 thousand individuals, while 47.1 thousand individuals moved from employment to unemployment. Over the past four quarters, such labour market flows corresponded to 6.8 per cent of the labour force.²⁴

With regard to the breakdown of unemployment by duration, the share of long-term unemployment (12 months or longer) declined from 53.3 per cent in the first half of 2006 to 49.1 per cent of total unemployment in the first half of 2007, although the number of unemployed for more than two years increased by 3.4 per cent year-on-year. However, the rise in short-term unemployment is particularly noteworthy. In contrast to the most recent years, the number of unemployed for less than one year increased, on average, by 18.6 per cent compared to the same period in 2006.

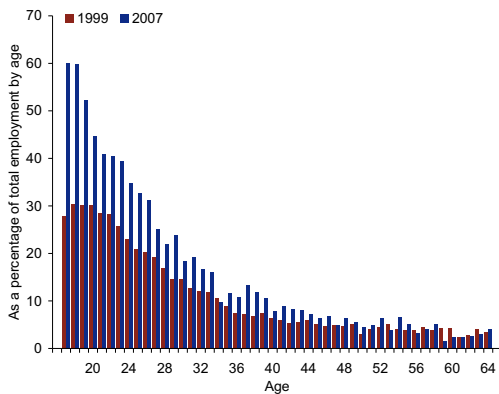
The decline in the average duration of unemployment, from 22.9 months in the first half of 2006 to 22 months in the same period in 2007, is consistent with the smaller share of long-term unemployment. However, the still high financial coverage of the unemployment benefit regime and the significant potential duration of the benefits still contribute to considerable long-term unemployment in Portugal.²⁵

(24) In the Employment Survey, the number of transitions within the labour market tends to be underestimated due to sample criteria. Moreover, the rotation of 1/6 of each quarterly sample requires that only the common component of successive quarterly samples is used in the calculation.

(25) See A. Pereira, "Assessment of the changes in the Portuguese unemployment insurance system", in the spring 2006 issue of the *Economic Bulletin* of Banco de Portugal; M. Centeno and Á. Novo, "The regressiveness of the unemployment insurance: Identification through the income effect of the July 1999 legislative change", in the Autumn 2007 issue of the *Economic Bulletin* of Banco de Portugal; and "Box 2.5 entitled *Work incentives and the generosity of unemployment benefits*", in the 2005 *Annual Report* of Banco de Portugal.

Chart 4.5

PROPORTION OF FIXED-TERM CONTRACTS BY AGE



Source: Employment Survey, INE.

Chart 4.6

QUARTERLY AVERAGE FLOWS IN THE LABOUR MARKET

Volume in thousands and, in brackets, percentage of 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 last two quarters of 2006 and the first two quarters of 2007.

5. EXPENDITURE

Banco de Portugal estimates indicate that the Portuguese economy grew by 1.8 per cent in 2007, accounting for an acceleration in economic activity from 0.5 p.p. in the previous year (Table 5.1). Although for the sixth consecutive year GDP growth in Portugal underperformed that of the euro area, this differential shall narrow in 2007 (Chart 5.1). However, Portugal shall again record one of the lowest growth rates among the 27 European Union countries.

Acceleration in economic activity in 2007 mirrors changes in the composition of growth, as a result of the significant increase in the contribution of domestic demand. This reflected greater GFCF buoyancy, which, in contrast to previous years, shall record a positive change. In turn, the contribution of net external demand to GDP growth shall fall slightly from 2006, mirroring a deceleration in exports in 2007 (Chart 5.2).

The estimate for GDP growth in 2007 presented in this publication is similar to projections presented in the summer issue of the *Economic Bulletin*. However, some revisions were made regarding the main expenditure components. Therefore, current estimates point to considerable GFCF growth in 2007 compared to the value released in the summer (by 1.5 p.p.). This revision is mainly determined by GFCF behaviour under "Transport equipment", mainly reflecting growth in this component in mid-2007, associated with the purchase of aircraft.²⁶ In contrast, private consumption and export growth shall be lower (by 0.2 and 0.5 p.p. respectively). The revised estimate of export growth reflects less buoyant exports of goods, given that exports of services shall continue to grow at a high pace. However, albeit having decelerated in 2007, exports of goods and services continue to be the most buoyant component of overall demand, and the gain of market share is expected to be higher than in 2006 (Chart 5.3).

⁽²⁶⁾ However, since purchases of aircraft are only imports they have no impact on GDP, but only on its composition.

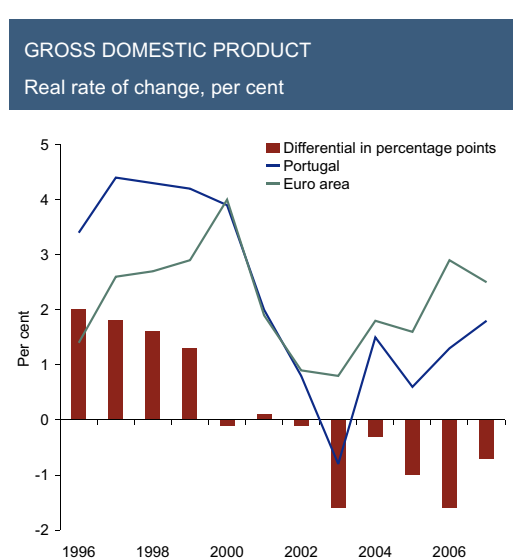
Table 5.1

GDP AND MAIN EXPENDITURE COMPONENTS ^(a)						
Real rate of change, per cent						
	2002	2003	2004	2005	2006	2007
GDP	0.8	-0.8	1.5	0.6	1.3	1.8
Private consumption	1.3	-0.2	2.5	2.1	1.2	1.2
Public consumption	2.6	0.2	2.6	2.9	-0.5	-0.3
Investment	-4.7	-8.3	2.5	-4.1	-1.8	2.3
GFCF	-3.5	-7.4	0.2	-3.1	-1.8	2.1
Change in inventories ^(b)	-0.4	-0.3	0.5	-0.2	0.0	0.1
Domestic demand	0.1	-2.0	2.5	0.9	0.3	1.1
Exports	1.4	3.9	4.0	1.6	9.1	6.7
Imports	-0.7	-0.9	6.7	2.2	4.3	3.7
Contribution of domestic demand to GDP ^(b)	0.1	-2.2	2.7	1.0	0.3	1.2
Contribution of net external demand to GDP ^(b)	0.7	1.4	-1.2	-0.3	1.0	0.6

Sources: INE and Banco de Portugal.

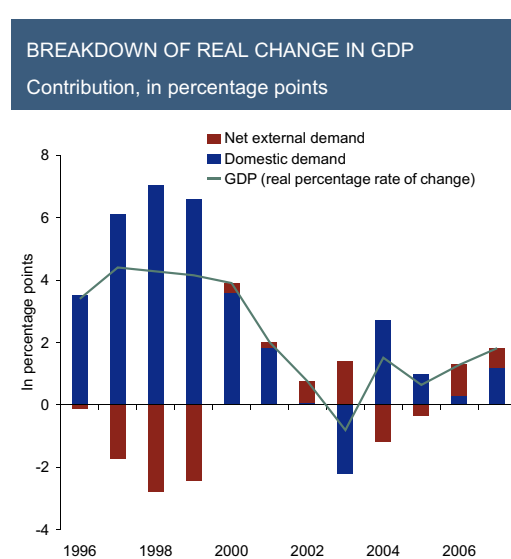
Notes: (a) Banco de Portugal estimates derived from the INE's National Accounts between 1995 and 2004 (ESA95). (b) Contribution to the rate of change in GDP in percentage points.

Chart 5.1



Sources: Eurostat, IMF, INE and Banco de Portugal.

Chart 5.2



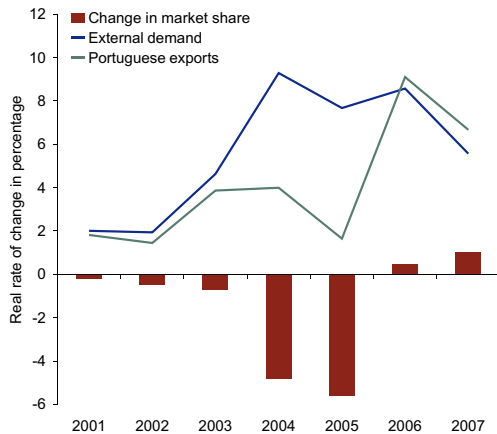
Sources: INE and Banco de Portugal.

Current estimates for the second half of the year indicate that average GDP growth shall be similar to that seen in the first half of the year. Such estimates point to a greater contribution of domestic demand in the second half of 2007, mainly reflecting a significant acceleration in GFCF during this period. In turn, exports are expected to ease somewhat in the second half of the year, following a strong deceleration between the first and second quarters.²⁷ However, estimates for the end of the year are surrounded by particularly high uncertainty. The current juncture, in addition to high volatility of external trade data, points to some uncertainty around the impact of the recent turbulence in international financial markets on the Portuguese economy.

(27) Current estimates for 2007 are based on data available up to late October. With regard to statistics on the external trade of goods, this corresponds to their developments in real terms up to May and, in nominal terms, up to July. The first estimate in nominal terms for August was published within the framework of the Special Data Dissemination Standard (SDDS). For more information on this procedure, see www.bportugal.pt.

Chart 5.3

MARKET SHARE OF PORTUGUESE GOODS AND SERVICES EXPORTS



Sources: ECB, UK Office for National Statistics and Banco de Portugal calculations.

Note: External demand adjusted for the effects of tax fraud in the United Kingdom.

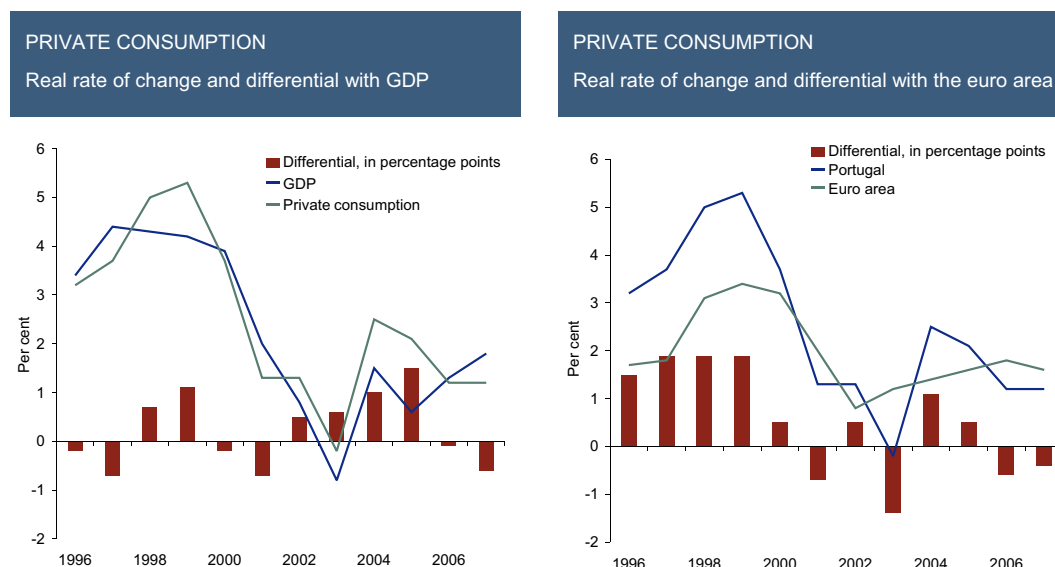
In 2007, according to Banco de Portugal estimates, private consumption shall continue to grow moderately, with a similar annual change as in 2006 (1.2 per cent). Thus, for the second consecutive year, private consumption growth shall be lower than growth of GDP and in the euro area as a whole (Chart 5.4). Lower private consumption growth in a context of GDP acceleration makes recent developments in economic activity rather distinctive. In fact, in contrast to the past two years, the periods where private consumption does not accelerate are typically associated with economic downturns. According to current estimates, in 2007 the savings rate shall interrupt the downward trend seen in recent years.

Several factors contributed to a decline in household consumption expenditure over the past two years. In particular, special mention should be made to the higher unemployment rate, the increase in tax burden, namely regarding indirect taxes, the deceleration in transfers to households – which is a component of disposable income typically associated with a greater propensity to consume –, and the gradual increase in interest rates.

Recent developments point to less favourable current credit conditions compared to those prevailing in 2004 and 2005. In fact, as from late 2005, ECB interest rates rose gradually, with a particular impact on the Portuguese economy. This is due to the relatively high level of household indebtedness and to the fact that most interest rates are indexed to money market rates.²⁸ However, the reduction of bank margins, as well as the supply of new credit products, seem to have helped contain the growth of instalments associated with the household debt burden, namely through the extension of deadlines for the repayment of loans. More recently, the October Bank Lending Survey indicated that most banking institutions tightened credit standards applied to the approval of loans to households in the third quarter of 2007. The degree of tightening shall increase somewhat in the last quarter. According to compiled data, greater difficulties faced by banks in obtaining funds from wholesale markets as a consequence of recent turbulence in financial markets contributed to this behaviour.

(28) From December 2005 to June 2007, ECB key interest rates recorded a 2 p.p. accumulated increase, the minimum rate of main refinancing operations standing at 4 per cent.

Chart 5.4



Sources: Eurostat, IMF, INE and Banco de Portugal.

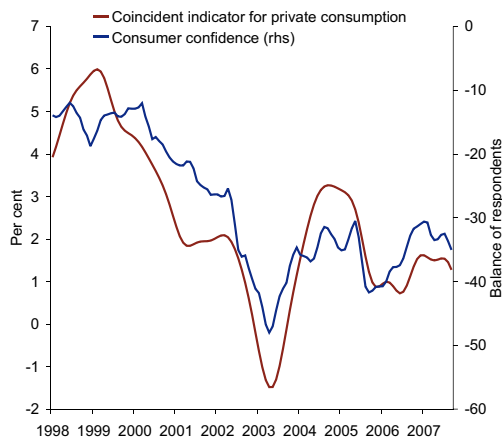
Current estimates point to some deceleration in private consumption in the second half of the year, in line with recent developments in consumer confidence and the coincident indicator for year-on-year trend developments in private consumption calculated by Banco de Portugal (Chart 5.5). However, the intra-annual behaviour of private consumption presents an irregular profile associated with developments in durable goods expenditure, namely motor vehicles. In fact, while non-durable goods consumption growth shall fluctuate significantly throughout the year, the consumption of durable goods, which grew very considerably in the second quarter, shall decelerate markedly in the second half of the year. This profile is associated with changes in taxes on vehicles, which entered into force in July and led to an anticipation of purchases of high-end cars during the second quarter. This is particularly apparent in the behaviour of motor vehicle sales in June.²⁹ Estimates for developments in consumption of durable goods point to a correction in the second half of the year due to the effect of anticipated purchases of motor vehicles, with an uncertain magnitude.

In 2007, according to Banco de Portugal estimates, and for the second consecutive year, government consumption shall record negative real changes, in the context of a fiscal consolidation process. This estimate is based on a decline in the number of civil servants, even after the adjustment for the effect of the corporatisation of some public hospitals. That decline shall be particularly significant in education and, as in 2006, will reflect the effect of new rules on public sector hiring. With regard to goods and services expenditure (adjusted for the above mentioned break in the series), mention should be made to the impact on benefits in kind of the reduction in pharmaceutical subsidies by the National Health Service.

Following declines over the past few years, GFCF shall record positive rates of change in 2007. Between 2002 and 2006, GFCF recorded a 15 per cent cumulative reduction, reflecting successive negative changes during most of this period. According to current estimates, GFCF shall grow by 2.1 per cent in 2007, after -3.1 and -1.8 per cent changes in 2005 and 2006, respectively. GFCF developments are consistent with the upward trend in services and manufacturing confidence since mid-2005 (Chart 5.6).

(29) In June, sales of motor vehicles grew by 21.8 per cent (8.2 per cent in the second quarter as a whole). This does not include the purchase of passenger cars by rental companies, which is considered to be corporate investment.

Chart 5.5

CONSUMER CONFIDENCE INDICATOR AND
COINCIDENT INDICATOR FOR PRIVATE
CONSUMPTION

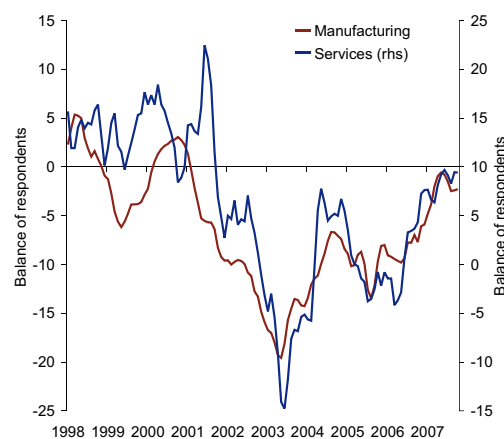
Sources: European Commission and Banco de Portugal.

Note: Confidence indicator calculated on the basis of the quarterly moving average of balance of respondents.

Chart 5.6

MANUFACTURING AND SERVICES CONFIDENCE
INDICATOR

Balance of respondents; quarterly moving average



Source: European Commission.

The recovery of GFCF in 2007 reflects the strong acceleration in “Machinery and equipment”, which shall grow by 5.6 per cent (0.7 per cent in 2006), but is also supported by a significantly less negative contribution of GFCF in “Construction” (Chart 5.7). Current estimates for this component point to an intra-annual acceleration profile throughout 2007, which is consistent with recent developments in the sector’s confidence and cement sales from Portuguese companies to the domestic market (Chart 5.8). In turn, GFCF in “Transport equipment” shall grow much less than in 2006, in spite of the acceleration expected in the second half of the year. The profile of intra-annual developments in this component in 2007 shall be irregular, reflecting the impact on decisions to purchase commercial vehicles of the entry into force of sundry legislation, both in 2006 and in 2007, as well as the behaviour of GFCF in “Other transport equipment”, associated in particular with the purchase of aircraft.³⁰ Purchases of aircraft, due to the size of the amounts involved and the discrete nature of related decisions, may significantly affect GFCF developments.³¹ This occurred particularly in the second quarter of 2006 and in mid-2007. According to Banco de Portugal estimates, in 2007 GFCF excluding “Other transport equipment” accelerated more markedly than the overall aggregate (Chart 5.9).

Stronger GFCF growth, in particular the corporate component, is essential to ensure more solid and sustained recovery of economic activity. GFCF behaviour in the recent past reflected deteriorating demand growth prospects, in a context of uncertainty regarding the correction of major macroeconomic imbalances. According to the Investment Survey of *INE*, disclosed in July, the percentage of companies in the various sectors that claim having faced investment restrictions in 2007 declined to 41.7 per cent (45.7 per cent in the January survey). Among the companies, deteriorating sales prospects continue to be indicated as the main limiting factor, albeit less significant in 2007 (Chart 5.10). In contrast, difficulties in obtaining credit and the interest rate level have become increasingly important, although

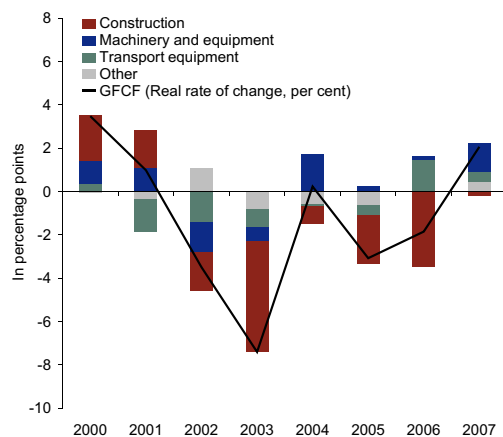
(30) Strong growth in heavy commercial vehicle sales in April and September 2006 mirrored the anticipated purchase of this type of vehicles, following the entry into force of Community legislation on the use of compulsory standard equipment (May) and a member of statutory environmental standards (October). In turn, significant growth in light commercial vehicle sales in the second quarter of 2007 was associated with changes in taxes on vehicles that entered into force in July.

(31) In addition to aircraft, GFCF in “Other transport equipment” includes purchases of ships and trains.

Chart 5.7

BREAKDOWN OF REAL CHANGE IN GFCF

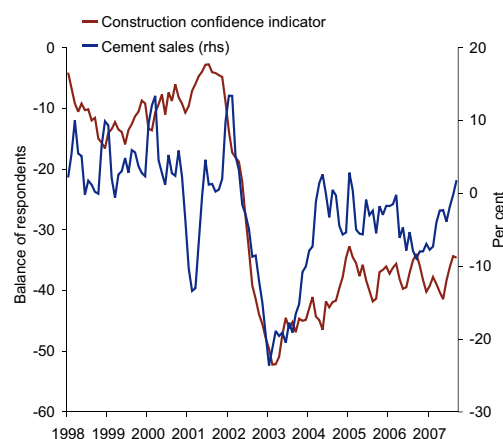
Contributions, in percentage points



Sources: INE and Banco de Portugal.

Chart 5.8

CONSTRUCTION CONFIDENCE INDICATOR AND CEMENT SALES IN THE DOMESTIC MARKET



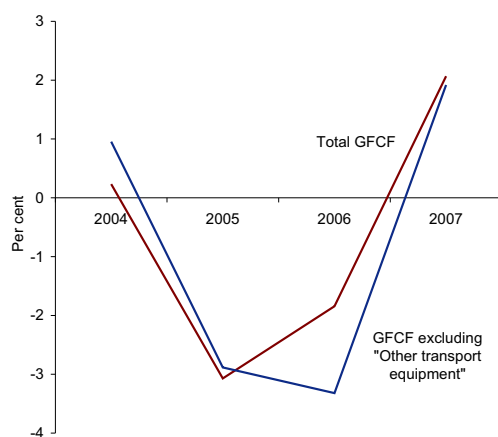
Sources: Cimpor, European Commission and Secil.

Note: Confidence indicator calculated on the basis of the quarterly moving average of percentage balances. Cement sales calculated on the basis of the quarterly year-on-year change in cement sales from Portuguese companies to the domestic market.

Chart 5.9

DEVELOPMENTS IN GFCF

Real rate of change

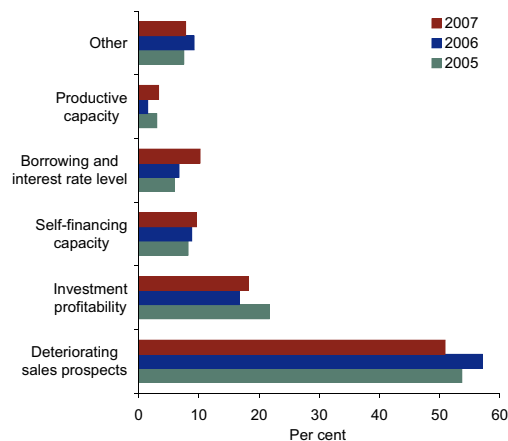


Sources: INE and Banco de Portugal estimates.

Chart 5.10

MAIN FACTOR LIMITING INVESTMENT

Per cent of total number of companies with investment restrictions



Source: INE (Investment Survey).

still in a limited manner. These factors are particularly relevant in the current context of turbulence in international financial markets, which, according to the October Bank Lending Survey, led surveyed institutions to tighten credit standards applied to the approval of loans to enterprises for investment financing in the third quarter of 2007.³²

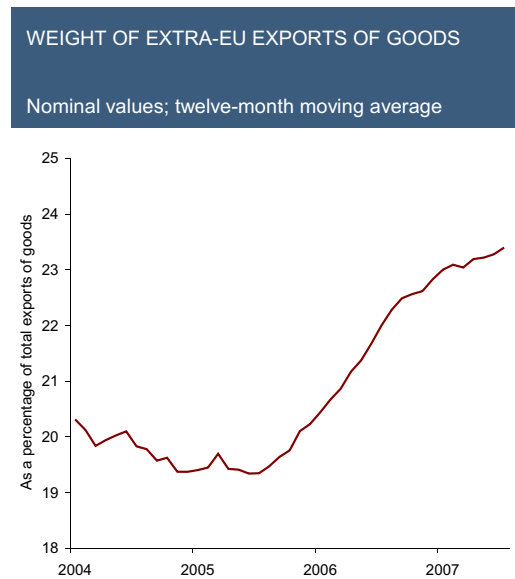
(32) According to data compiled, most banks plan to tighten credit standards applied to the approval of loans to enterprises in the last quarter of 2007.

In 2007 exports of goods and services are expected to record a 6.7 per cent rate of change, which accounts for a 2.4 p.p. decline from 2006. However, exports of goods and services shall continue to be the most buoyant component of overall demand, and the gain in market share is expected to be higher than in 2006. Export behaviour reflects less buoyant goods exports, which shall decelerate significantly in 2007 (from 8.3 per cent, in 2006, to 4.3 per cent), given that services exports shall continue to grow considerably (12.8 per cent, after 11.3 per cent in 2006).

Export behaviour in 2007 seems to confirm some trends observed over the past few years. In particular, the degree of openness of the Portuguese economy, measured on the basis of the ratio of exports to GDP, shall continue to increase in 2007.³³ Moreover, the structure of goods exports, in nominal terms, shall continue to reflect the growing weight of some specific sectors, namely “Machinery and appliances” and “Common metals”, as well as extra-EU markets, particularly the Angolan market (Chart 5.11).³⁴ Finally, the relative importance of nominal exports of services shall continue to increase in 2007, with protracted strong growth in exports of tourism and other services, such as those related to transport and the provision of techno-professional services (Chart 5.12).³⁵

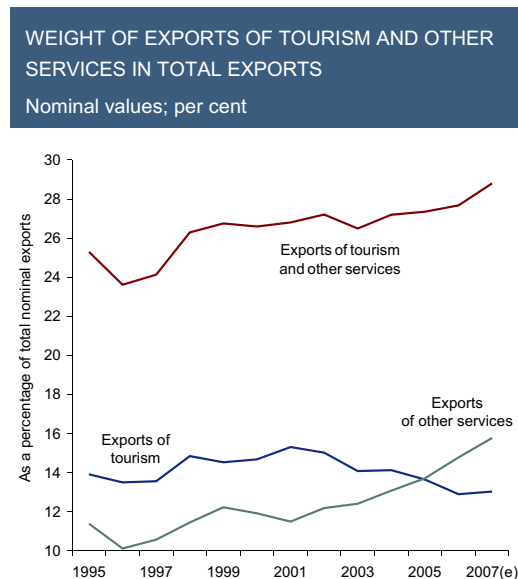
Deceleration in exports was particularly marked as from the second quarter of 2007, in a context of lower world trade.³⁶ This is particularly evident in some specific sectors that expanded strongly in 2006. In particular, fuel exports, namely to the United States, declined markedly since the beginning of the year, after growing sharply in 2006, in a context of worldwide lack of refining capacity (Table 5.2). In turn, exports of motor vehicles and other transport equipment, namely to Germany, decelerated significantly as from the second quarter, after growing strongly in 2006. This was particularly associated with

Chart 5.11



Sources: INE (International Trade Statistics) and Banco de Portugal calculations.

Chart 5.12



Sources: INE and Banco de Portugal estimates.

(33) In 2006 the ratio of nominal exports of goods and services to GDP stood at around 31 per cent. Between 1995 and 2005 this indicator was close to 28 per cent.

(34) The strong buoyancy of exports to Angola, which are broadly based across most sectors, has led to an increasing weight of this market in the Portuguese export structure. However, growth in specific sectors, such as food, chemical products and machinery and equipment, was particularly high.

(35) According to BoP data, in the first eight months of 2007, exports of services recorded a nominal year-on-year rate of change of 15.4 per cent, similar to that seen in 2006 as a whole.

(36) Between July and August, nominal exports of goods grew, year-on-year, by 5.7 per cent, after changes of 12.0 and 8.2 per cent in the first and second quarters respectively. This includes the first estimate for August published in the framework of SDDS, which points to a 1.0 per cent year-on-year nominal growth of exports (9.3 per cent in July).

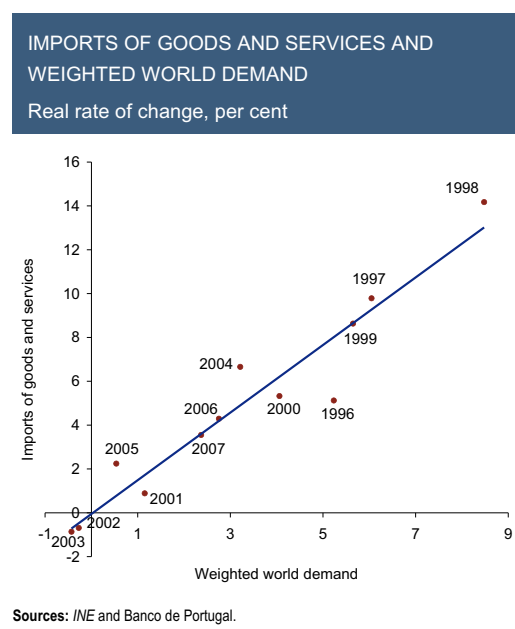
the production of a new model in a major company of the sector. Finally, exports of minerals grew less, in contrast to the strong buoyancy in 2006 following the price increases in these commodities in international markets. Less buoyant exports as from the second quarter are also observed in other sectors, particularly machinery, metal products and cellulose pulp. This particularly resulted in a significant reduction in the contribution of exports to the Spanish market, which are traditionally highly diversified by sector (Table 5.3).³⁷

As previously mentioned, uncertainty regarding developments in exports in the second half of the year is high. This is related to the volatility of external trade data and to uncertainty surrounding both the sustainability of the recent buoyancy in exports of goods and services, and the impact on world trade of developments in the economic and financial situation at the end of the year.

In 2007 imports shall grow less than in the previous year, both in terms of goods and services, which is consistent with the deceleration estimated for world demand weighted by import contents (Chart 5.13). Current estimates point to a 3.7 per cent growth in imports of goods and services (4.3 per cent in 2006), *i.e.* above the estimate for domestic demand (and weighted world demand), leading to a further increase in the penetration rate of imports in the Portuguese economy.

According to available data, in the first seven months of 2007 imports of goods grew by 4.0 per cent in nominal terms (8.1 per cent in 2006).³⁸ Deceleration in imports was largely determined by developments in fuel imports, which declined by 15.4 per cent, year-on-year, up to July. Excluding fuels, nominal growth of imports stood at 7.5 per cent in the first seven months of 2007 (7.2 per cent in 2006). Broken down by markets of origin, Spain continued to be Portugal's main partner, while imports of goods from Germany and Italy decelerated strongly during this period. In contrast, imports from Sweden increased very significantly.

Chart 5.13



(37) Deceleration in exports to Spain also reflected the strong decline in fuel sales since the beginning of the year.

(38) The first estimate for August published in the framework of SDDS points to a 5.9 per cent year-on-year nominal growth of imports (6.7 per cent in July).

Table 5.2

PORTUGUESE EXPORTS OF GOODS BY GROUPS OF PRODUCTS

Year-on-year rate of change and contributions; nominal values

	Weights 2006	Year-on-year rate of change (per cent)								Contribution to the year-on-year rate of change (p.p.)							
		2006	2006				2007		2006	2006				2007			
			Q1	Q2	Q3	Q4	Q1	Q2		Q1	Q2	Q3	Q4	Q1	Q2		
Total	100.0	12.4	11.5	12.3	13.1	12.7	12.0	8.2	12.4	11.5	12.3	13.1	12.7	12.0	8.2		
Agriculture	3.7	8.6	7.7	8.5	9.9	8.2	9.5	5.0	0.3	0.3	0.3	0.4	0.3	0.4	0.2		
Food	4.2	11.5	13.1	9.4	9.4	13.8	16.4	17.6	0.5	0.5	0.4	0.4	0.7	0.6	0.7		
Mineral fuels	5.5	44.1	69.0	131.2	6.5	16.9	-21.5	-24.2	1.9	2.3	4.0	0.4	0.8	-1.1	-1.5		
Chemicals	5.0	7.9	22.8	7.7	9.9	-7.3	0.1	8.5	0.4	1.2	0.4	0.5	-0.4	0.0	0.4		
Plastic, rubber products	5.3	13.4	14.5	15.8	11.4	12.0	13.6	9.7	0.7	0.7	0.8	0.6	0.6	0.7	0.5		
Leather, leather products	0.3	17.3	32.2	26.8	6.8	7.2	5.3	0.7	0.1	0.1	0.1	0.0	0.0	0.0	0.0		
Wood, cork	4.2	5.6	8.6	3.8	2.0	8.1	9.2	11.0	0.3	0.4	0.2	0.1	0.3	0.4	0.5		
Cellulose pulp, paper	4.5	10.4	8.8	15.8	12.4	5.1	10.8	2.9	0.5	0.4	0.7	0.6	0.2	0.5	0.1		
Textile products	4.7	4.6	2.7	0.7	9.0	6.7	6.4	2.2	0.2	0.1	0.0	0.4	0.3	0.3	0.1		
Clothing	7.2	-3.0	-1.2	-1.9	-5.8	-3.3	3.1	3.1	-0.3	-0.1	-0.2	-0.5	-0.3	0.3	0.2		
Footwear	3.7	-1.2	-1.4	-9.7	4.4	1.2	-0.4	4.1	-0.1	-0.1	-0.4	0.2	0.0	0.0	0.1		
Minerals, ores	5.4	20.9	16.9	21.0	20.7	24.5	16.5	13.7	1.0	0.8	1.1	1.0	1.2	0.8	0.8		
Common metals	8.4	26.6	30.8	24.7	29.3	22.2	17.4	15.7	2.0	2.3	1.9	2.1	1.7	1.5	1.3		
Machinery, appliances	19.8	19.0	15.2	9.9	26.3	24.7	20.8	18.2	3.6	2.8	1.9	4.8	4.7	3.9	3.4		
Motor vehicles, other transport equipment	13.2	6.2	-6.2	4.3	14.2	13.5	25.4	5.4	0.9	-0.9	0.6	1.8	1.9	3.1	0.8		
Optical and precision instruments	0.9	10.7	16.7	5.0	5.7	15.6	6.0	9.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1		
Other products	4.1	7.6	12.2	8.4	3.8	5.9	12.4	13.8	0.3	0.5	0.4	0.2	0.2	0.5	0.6		
Memo: Total excluding mineral fuels	94.5	11.0	9.5	8.6	13.5	12.5	13.8	10.4	10.5	9.1	8.3	12.7	11.9	13.1	9.8		

Sources: INE (International Trade Statistics) and Banco de Portugal.

Table 5.3

PORTUGUESE EXPORTS OF GOODS BY GEOGRAPHICAL AREAS

Year-on-year rate of change and contributions; nominal values

	Weights 2006	Year-on-year rate of change (per cent)								Contribution to the year-on-year rate of change (p.p.)							
		2006	2006				2007			2006	2006				2007		
			Q1	Q2	Q3	Q4	Q1	Q2			Q1	Q2	Q3	Q4	Q1	Q2	
TOTAL	100.0	12.4	11.5	12.3	13.1	12.7	12.0	8.2		12.4	11.5	12.3	13.1	12.7	12.0	8.2	
Intra-EU	77.4	8.7	7.9	7.8	8.4	10.8	10.2	6.5		6.9	6.5	6.3	6.6	8.3	8.1	5.1	
<i>of which:</i>																	
Spain	27.4	14.0	17.2	15.6	11.1	12.3	12.1	7.0		3.8	4.6	4.3	3.0	3.3	3.4	2.0	
Germany	13.1	21.6	4.9	22.0	26.1	34.4	28.3	9.0		2.6	0.6	2.6	3.1	4.0	3.4	1.2	
France	12.4	1.8	1.4	-3.2	1.8	8.0	12.6	8.5		0.2	0.2	-0.5	0.2	1.0	1.7	1.1	
United Kingdom	7.1	-7.9	-4.4	-11.8	-8.9	-6.2	-8.7	-1.1		-0.7	-0.4	-1.0	-0.8	-0.5	-0.6	-0.1	
Italy	4.1	5.3	9.9	9.0	11.4	-7.6	9.6	6.7		0.2	0.4	0.4	0.5	-0.3	0.4	0.3	
Extra-EU	22.6	26.9	27.6	31.4	30.2	19.3	18.9	14.6		5.4	5.0	5.9	6.5	4.4	3.9	3.2	
<i>of which:</i>																	
US	6.1	27.4	17.5	43.1	24.6	24.2	8.2	-17.3		1.5	0.9	2.2	1.5	1.3	0.4	-1.1	
PALOP	4.4	43.8	41.7	53.1	48.9	34.9	40.5	35.1		1.5	1.3	1.6	1.7	1.5	1.6	1.4	

Sources: INE (International Trade Statistics) and Banco de Portugal.

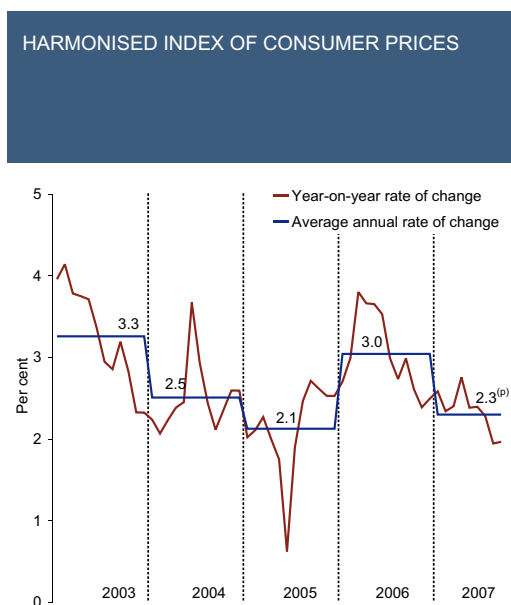
6. PRICES

In 2007 the inflation rate in Portugal, as measured by the average annual change in the Harmonised Index of Consumer Prices (HICP), is expected to stand at 2.3 per cent, accounting for a 0.7 p.p. decline from 2006 (Chart 6.1). Following the increase in April, associated in particular with the strong rise in hospital services prices, the year-on-year change in the HICP followed a downward trend, standing at 2.0 per cent in September (Table 6.1). The lower inflation rate in 2007 largely reflects the strong deceleration in energy prices, as well as lower growth of unit labour costs in the private sector and import prices of consumer goods. The latter is particularly associated with the strengthening of the globalisation process over the past few years.

The significant reduction in the contribution of the energy component to the inflation rate in 2007, namely in the first three quarters, reflected the base effect associated with the strong increase in euro-denominated oil prices during the same period in 2006 (Table 6.2).³⁹ In the third quarter of 2007, the contribution of energy industrial goods prices to the inflation rate stood at 0.2 p.p., *i.e.* clearly below the average of the past two years (Chart 6.2). Moreover, in 2007 the volatility of year-on-year rates of change in this HICP component declined significantly from that seen over the most recent years.

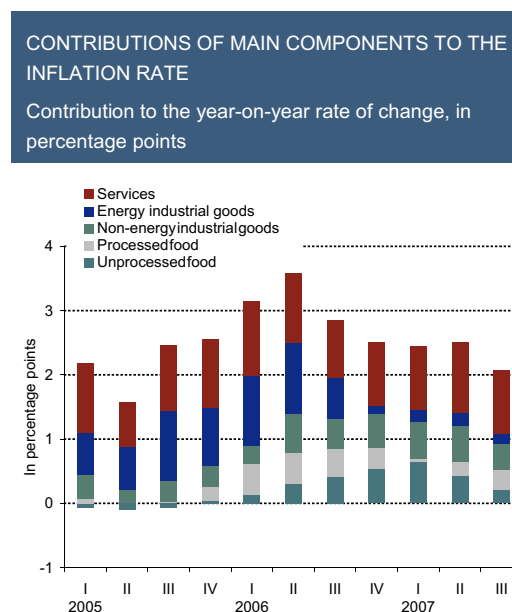
Lower growth of unit labour costs in 2007, particularly in the private sector, also contributed to the decline in the inflation rate in Portugal. According to Banco de Portugal estimates, deceleration in unit labour costs reflected higher productivity growth in 2007, in a context where wages shall continue to be highly resilient to slowdown, despite the less favourable labour market conditions (see “[Section 4 Supply](#)”).

Chart 6.1



Source: INE.

Chart 6.2



Source: INE.

Note: Due to rounding, the contributions may not add up exactly to the change in the overall index.

(39) Excluding energy goods, the average rate of change in the HICP in September remained unchanged from the end of 2006 (2.5 per cent).

Table 6.1

HICP – MAIN CATEGORIES AND AGGREGATES									
Average and year-on-year rates of change, per cent									
	Weights	Average annual rates of change				Year-on-year monthly rates of change			
		2004	2005	2006	2007	2006	2007		
					Sep.	Dec.	Mar.	Jun.	Sep.
Total	100.0	2.5	2.1	3.0	2.4	2.5	2.4	2.4	2.0
Total excluding energy	90.8	2.3	1.4	2.5	2.5	2.4	2.3	2.3	2.1
Total excluding unprocessed food and energy	79.4	2.6	1.7	2.4	2.3	2.1	2.0	2.4	2.2
Aggregates									
Goods	62.3	1.6	1.9	3.2	2.2	2.5	2.3	2.1	1.7
Food	21.9	1.4	0.1	3.6	3.1	3.9	2.6	2.1	2.4
Unprocessed	11.3	0.0	-0.5	3.2	4.2	5.1	5.2	2.3	1.4
Processed	10.6	2.8	0.8	4.1	2.1	2.8	0.1	2.1	3.5
Industrial	40.4	1.8	2.8	3.0	1.7	1.7	2.1	2.1	1.3
Non-energy	31.1	0.8	1.0	1.5	1.7	1.3	1.9	1.9	0.7
Energy	9.2	5.4	10.0	8.1	1.8	3.1	2.8	2.7	3.1
Services	37.7	3.9	2.5	2.7	2.7	2.5	2.6	2.9	2.5
Memo:									
CPI	-	2.4	2.3	3.1	2.4	2.5	2.3	2.4	2.1
Euro area HICP	-	2.1	2.2	2.2	1.9	1.9	2.1	1.9	2.1

Sources: Eurostat, INE and Banco de Portugal.

Table 6.2

MAIN INTERNATIONAL PRICE INDICATORS								
Rate of change, per cent								
	2006	2006				2007		
		Q1	Q2	Q3	Q4	Q1	Q2	Q3
Import prices of goods ^(a)								
Total	4.8	7.4	6.2	3.9	1.7	-0.6	0.5	-
Total excluding fuels	2.2	1.6	2.3	2.0	2.4	1.5	2.2	-
Consumer goods	1.6	1.2	0.9	2.2	1.9	-0.4	1.1	-
International commodity prices								
Oil prices (Brent Blend), EUR	19.0	43.1	33.2	10.1	-3.3	-14.4	-8.9	-3.1
Non-energy commodity prices, EUR	24.8	23.6	26.2	26.6	23.0	7.2	13.8	6.7
Memo:								
Nominal effective exchange rate index for Portugal ^(b)	0.2	-0.7	0.2	0.5	0.7	0.8	0.7	0.6

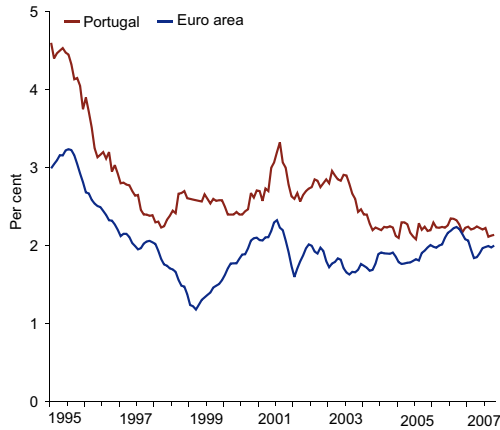
Sources: Eurostat, HWWI, INE, Thomson Financial Datastream and Banco de Portugal.

Notes: (a) Banco de Portugal calculations based on information provided by INE. The classification by broad economic categories shown in this table differs from that used by INE, given that light passenger vehicles are included in consumer goods rather than in capital goods. (b) A positive change corresponds to an appreciation of the index. For a detailed description of the methodology, see A. C. Gouveia and C. Coimbra, "New effective exchange rate index for the Portuguese economy", in the December 2004 issue of the *Economic Bulletin* of Banco de Portugal.

Chart 6.3

INFLATION EXPECTATIONS IN PORTUGAL

Expectations for the inflation rate one-year ahead



Sources: Consensus Economics and Banco de Portugal calculations.

Inflation behaviour in Portugal over the past few years has also benefited from participation in the economic and monetary union, which has made it possible for inflation expectations to remain at values close to those of the euro area as a whole (Chart 6.3).

Current estimates for the inflation rate in 2007 point to a downward revision by 0.2 p.p. compared to projections disclosed in the summer issue of the *Economic Bulletin*. This revision mirrors growth in energy and non-energy industrial goods prices below projections. In contrast, current estimates point to growth in food prices slightly higher than in the summer. With regard to non-energy industrial goods, special mention should be made to developments in prices of “New motor vehicles”, which, between July and September recorded a 2.5 per cent cumulative reduction. This is associated with the entry into force of changes in taxes on vehicles as from 1 July. Also within this component, prices of “Clothing and footwear” declined more between July and September than during the same period in 2006.

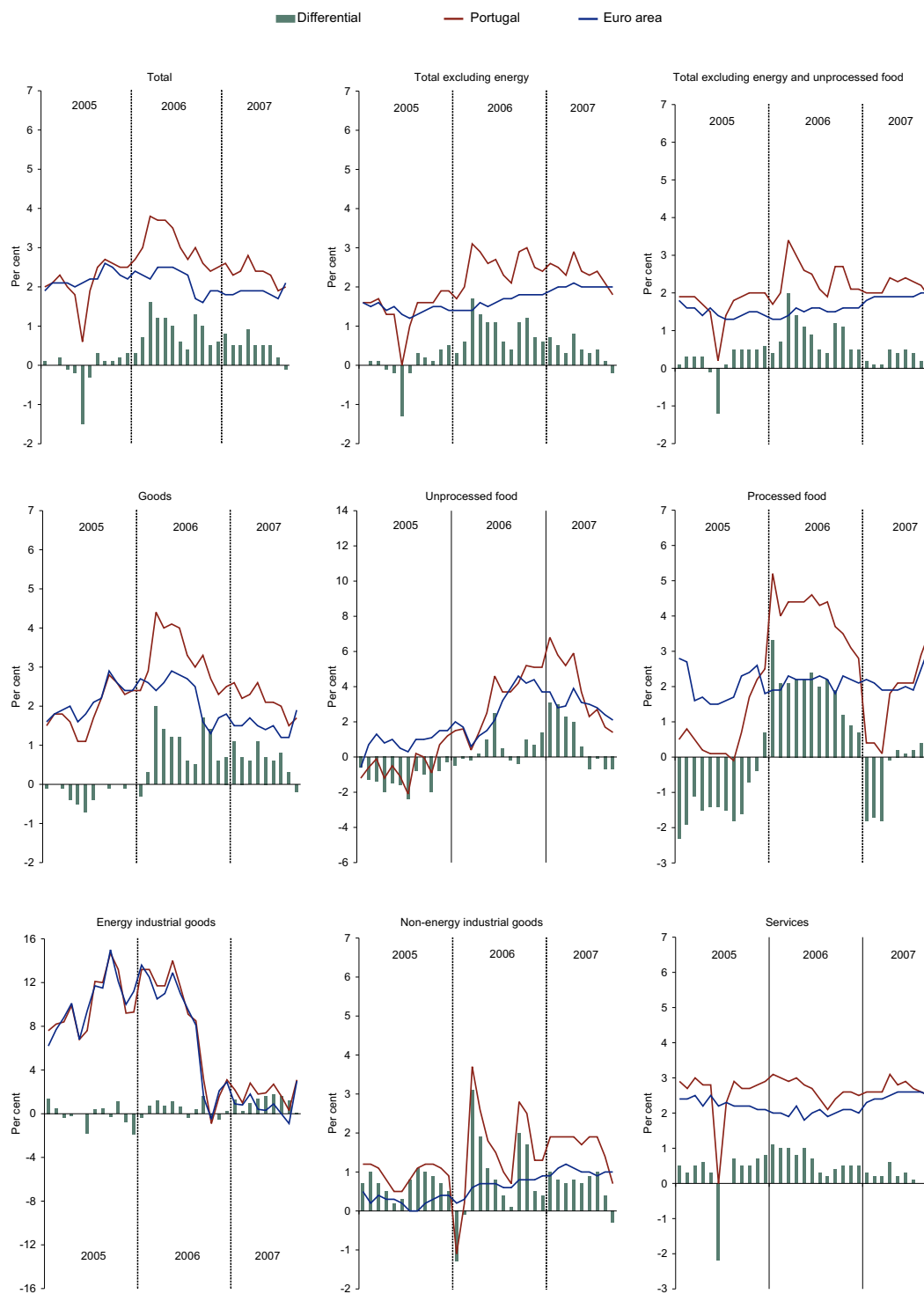
Taking as a reference the average value of the projection range prepared by the ECB staff and published in the September 2007 issue of the ECB Monthly Bulletin, the inflation differential to the euro area is expected to stand at 0.3 p.p., *i.e.* down by 0.5 p.p. from 2006. In contrast to Portugal, in 2007 average growth of unit labour costs for euro area total economy shall be higher, thus contributing to the expected decline in the inflation differential.⁴⁰ Following some relative stability up to July, the inflation differential to the euro area, measured on the basis of the year-on-year change in the HICP, declined in August and September, standing at -0.1 p.p. on the latter month (Chart 6.4). In annual average terms, the inflation differential declined by 0.3 p.p. between December 2006 and September 2007. With regard to the main aggregates, the inflation differential for energy goods increased, due to a more marked deceleration in prices of this component in the euro area compared to Portugal and, in contrast, the differential for processed food and, to a lesser extent, for services narrowed significantly.

(40) According to the most recent European Commission forecasts, unit labour costs for total economy in the euro area shall grow by 1.2 per cent, on average, in 2007, after 0.8 per cent in 2006.

Chart 6.4

HARMONISED INDEX OF CONSUMER PRICES

Year-on-year rates of change and differentials



Source: Eurostat.

Note: Differential expressed in percentage points.

7. BALANCE OF PAYMENTS

7.1. Borrowing requirements in 2007

Net external borrowing requirements of the Portuguese economy, as measured by the combined current and capital account deficit, are expected to stand at 7.7 per cent of GDP in 2007, *i.e.* a 0.9 p.p. decline from the previous year (Table 7.1.1). The deteriorating trend in the external imbalance of the Portuguese economy – which started in 2004 – was thus interrupted. Lower net borrowing requirements reflect higher domestic savings and, to a lesser extent, a slight decline in the investment rate (Chart 7.1.1). Current estimates for the combined current and capital account deficit are below those published in the summer issue of the *Economic Bulletin*, which pointed to 7.9 per cent of GDP, largely reflecting an increase in the income deficit below that forecast.

The reduction in the external deficit in 2007 mainly reflected the lower current account deficit. Such developments have resulted from the improvement in the goods and services balance, which more than offset the worsening of the income deficit associated with the gradual deterioration in the international investment position of the Portuguese economy and the rise in interest rates.

7.2. The balance of payments in the first half of 2007

In the first half of 2007, the combined current and capital account deficit declined to 8.0 per cent of GDP (10.1 per cent in the first half of 2006). These developments in the Portuguese external deficit mirrored an improvement in the balance of all main items, excluding the income account.

Table 7.1.1

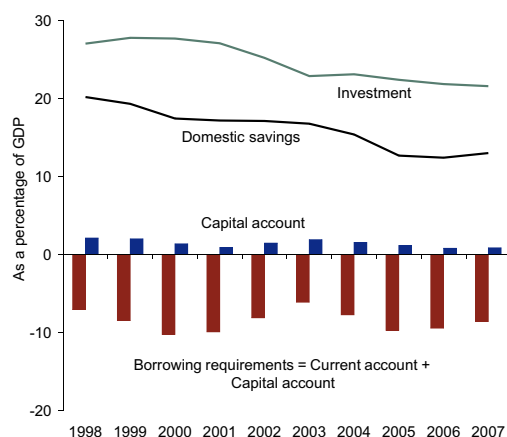
CURRENT AND CAPITAL ACCOUNTS						
Balance as a percentage of GDP						
	S1 ^(a)					
	2005	2006	2007 ^(b)	2005	2006	2007
Current account	-9.7	-9.4		-10.4	-10.8	-9.1
Goods	-11.2	-10.7		-11.1	-11.0	-9.5
Services	2.6	3.2		1.8	2.1	3.0
<i>of which:</i>						
Travel and tourism	2.5	2.6		1.9	1.8	2.0
Income	-2.6	-3.5		-2.7	-3.5	-4.3
Current transfers	1.5	1.6		1.6	1.7	1.7
<i>of which:</i>						
Emigrants/immigrants remittances	1.2	1.2		1.0	1.0	1.2
Capital account	1.2	0.8		0.8	0.6	1.1
<i>Memo:</i>						
Goods and services account	-8.7	-7.6	-6.2	-9.3	-8.9	-6.6
Current account + capital account	-8.5	-8.6	-7.7	-9.6	-10.1	-8.0

Sources: INE and Banco de Portugal.

Notes: (a) For the calculation of ratios of the various BoP components to GDP over the first semesters, six-month Banco de Portugal estimates of nominal GDP were used. (b) Banco de Portugal estimate.

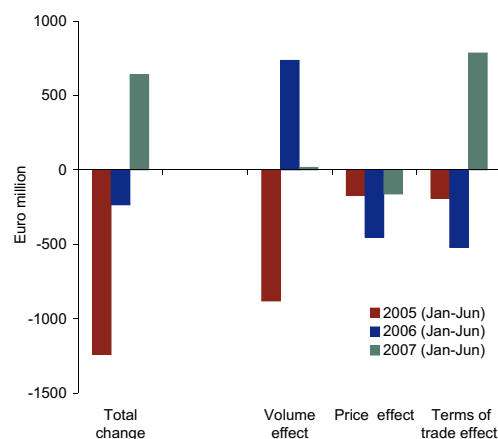
Chart 7.1.1

INVESTMENT, DOMESTIC SAVINGS AND BORROWING REQUIREMENTS



Sources: INE and Banco de Portugal.

Chart 7.2.1

CHANGE IN THE GOODS ACCOUNT ^(a)

Sources: INE and Banco de Portugal.

Note: (a) A positive (negative) change means an increase (decrease) in the goods balance. For a description of the methodology used to break down the change in the goods account, see page 179 of the 2003 issue of the *Annual Report* of Banco de Portugal.

In the first six months of 2007, the goods account recorded a cumulative deficit of 9.5 per cent of GDP. The strong deceleration in imported goods prices, particularly fuels, resulted in a significant gain in the terms of trade during this period (Chart 7.2.1). In fact, according to Banco de Portugal estimates, on the basis of data provided by INE, year-on-year rates of change in goods export and import prices stood at 3.8 and 0.1 per cent respectively, resulting in a 3.7 p.p. gain in the terms of trade in the first half of 2007. Excluding fuels, there is also a 2.3 p.p. gain in the terms of trade (in this case, changes in export and import prices stood at 4.2 and 1.9 per cent respectively). Despite having decelerated, exports continued to grow more rapidly than imports, resulting in a favourable volume effect, but significantly below that seen in the first half of 2006.

The current account balance also benefited from the increase in the services surplus, reflecting not only the significant growth in net exports of tourism services (14.3 per cent), but also other services, such as transportation and techno-professional services. In turn, the income deficit increased again in the first half of the year, which largely mirrors the deteriorating credit and loan income balance, consistent with the continued accumulation of net external debt by resident sectors and the increase in financing costs. Finally, the higher capital account surplus mainly reflected the greater inflow of public transfers from the European Union.

7.3. The financial account in the first half of 2007

In the first half of 2007, net inflows of funds in the financial account reached 7.9 per cent of GDP, compared with 8.4 per cent in the same period of 2006 (Table 7.3.1). As in previous years, the resident banking system continued to largely intermediate external financing of the Portuguese economy, through the issuance of medium and long-term securities to non-residents. In previous years, funds were obtained through subsidiaries and branches abroad and subsequently channelled to Portugal through intra-group interbank positions, reflected in the balance of payments under "Other investment". In the first half of 2007, securities were mainly issued by the headquarters in Portugal and, as

Table 7.3.1

FINANCIAL ACCOUNT
 As a percentage of GDP

	2006	January-June 2006			January-June 2007		
	Net change	Change in liabilities	Change in assets	Net change	Change in liabilities	Change in assets	Net change
Current and capital accounts	-8.6			-10.1			-8.1
Financial account	7.8	25.6 (24.1)	-17.2 (-15.7)	8.4	25.1 (23.2)	-17.2 (-15.4)	7.9
Direct investment	2.0	4.1	-1.9	2.2	3.0	-3.7	-0.6
<i>excluding Madeira and Santa Maria (Azores) off-shores</i>	1.8	3.9	-1.7	2.2	3.0	-3.6	-0.6
Portfolio investment	1.7	0.4	-13.3	-12.9	15.1	-9.3	5.8
Financial derivatives	-0.2	-3.7	3.4	-0.3	-3.5	3.9	0.4
Other investment	3.0	24.8 (23.3)	-7.4 (-5.9)	17.4	10.4 (8.5)	-8.4 (-6.5)	2.0
Reserve assets	1.2		2.1	2.1		0.2	0.2
By institutional sector of resident investor:							
Monetary authorities ^(a)	-3.3 (-3.0)	4.0 (2.6)	0.9	4.9 (3.4)	3.2 (1.3)	-0.4	2.9 (1.0)
Portfolio investment	0.1		0.9	0.9		2.7	2.7
Financial derivatives	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other investment	-4.6 (-4.3)	4.0 (2.6)	-2.2	1.9 (0.4)	3.2 (1.3)	-3.3	-0.1 (-2.0)
Reserve assets	1.2		2.1	2.1		0.2	0.2
General government	2.3	3.8	0.1	3.9	0.4	0.1	0.5
Direct investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>excluding Madeira and Santa Maria (Azores) off-shores</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Portfolio investment	2.3	4.3	-0.1	4.2	2.5	-0.4	2.1
Financial derivatives	-0.1	-0.6	0.3	-0.3	-0.6	0.6	0.0
Other investment	0.1	0.1	-0.1	0.0	-1.6	-0.1	-1.7
Other monetary financial institutions ^(a)	12.3 (12.1)	18.4	-4.9 (-3.4)	13.5 (15.0)	18.7	-4.7 (-2.8)	14.0 (15.9)
Direct investment	0.0	0.4	0.0	0.4	0.5	-0.4	0.1
<i>excluding Madeira and Santa Maria (Azores) off-shores</i>	0.0	0.4	0.0	0.4	0.5	-0.4	0.1
Portfolio investment	2.8	0.2	-4.6	-4.4	11.9	-3.1	8.7
Financial derivatives	-0.2	-2.3	2.1	-0.2	-2.2	2.4	0.3
Other investment	9.7 (9.4)	20.0	-2.4 (-0.9)	17.6 (19.1)	8.5	-3.6 (-1.7)	4.9 (6.8)
Non-monetary financial institutions	-1.5	-1.0	-6.8	-7.8	2.8	-8.1	-5.3
Direct investment	0.7	0.8	-0.1	0.7	0.7	-0.3	0.3
<i>excluding Madeira and Santa Maria (Azores) off-shores</i>	0.7	0.8	-0.1	0.7	0.7	-0.3	0.3
Portfolio investment	-2.4	-1.6	-7.5	-9.1	2.4	-7.1	-4.7
Financial derivatives	0.2	-0.5	0.7	0.2	-0.4	0.7	0.3
Other investment	0.0	0.3	0.1	0.4	0.1	-1.3	-1.2
Non-financial corporations and households	-2.1	0.4	-6.5	-6.2	0.1	-4.3	-4.2
Direct investment	1.3	2.9	-1.8	1.1	1.9	-3.0	-1.0
<i>excluding Madeira and Santa Maria (Azores) off-shores</i>	1.1	2.7	-1.7	1.1	1.9	-2.9	-1.0
Portfolio investment	-1.1	-2.6	-2.0	-4.6	-1.6	-1.4	-3.1
Financial derivatives	-0.2	-0.3	0.2	-0.1	-0.4	0.2	-0.1
Other investment	-2.2	0.4	-2.9	-2.5	0.2	-0.1	0.0
Errors and omissions	0.9			1.7			0.2

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 "Other monetary financial institutions" are adjusted for temporary end-of-year operations between the two sectors (reversed in the first days of the following year).

such, were recorded in the balance of payments under “Portfolio investment by non-residents”.

Also regarding to portfolio investment, it should be noted that investments by resident non-monetary financial institutions were high. As in previous years, this mainly reflected portfolio shifts of insurance corporations and pension funds, towards a greater share of medium and long-term debt securities. These changes mirror the pursuit of opportunities for portfolio diversification, within the scope of strategies followed by these institutions in order to improve their portfolio adequacy to their liability duration (typically with very long maturities). In turn, the purchase of Portuguese government debt securities by non-residents was clearly below that seen in the previous year, in line with lower general government borrowing requirements.

There was a significant redemption of securities issued by non-financial corporations to non-resident investors, mainly commercial paper, as well as the purchase of bonds and other medium and long-term debt securities by resident households.

Moreover, in the first half of 2007, direct investment operations, excluding those associated with companies located in the Madeira and Azores off-shore centres, corresponded to a net outflow of funds of 0.6 per cent of GDP. In fact, the increase in direct investment of Portugal abroad occurred in parallel with a decline in foreign direct investment in Portugal. As in previous years, most direct investment operations recorded in the financial account are associated with resident “financial holdings” companies. In recent years, the use of off-shore centres for investments in third countries by non-residents has been very low.

8. CONCLUSION

The recovery of the Portuguese economy in 2007 shares common features with the pattern observed in its recent expansion cycles. On the supply side, the acceleration in activity reflects the higher contribution of total factor productivity, associated with a greater utilization of capacity, the usual cyclical lag in job creation, and the gradual corporate restructuring, which fosters net creation of the most productive companies. On the demand side, the buoyancy of exports and, subsequently, investment, are the pillars sustaining the current expansion stage of economic activity.

However, the recovery cycle that started in 2006 presents specific features, not only in terms of the shocks affecting the economy but also in the structural environment determining its ability to react to such shocks. In this context, some of these more structural features should be highlighted, in order to evaluate the current performance of the Portuguese economy and the prospects regarding the real convergence process towards the European Union *per capita* income levels.

The first structural feature of the Portuguese economy in the current economic cycle is the increasing global financial and economic integration. In the context of the participation in the euro area, the increasing financial integration of the economy broadened the choice set of economic agents. This allowed, in particular, a sustained and equilibrium increase in indebtedness, as well as the smoothing of consumption decisions after temporary and idiosyncratic income shocks. However, it should be underlined that the agents’ intertemporal budgetary constraints continue to be active, and therefore the low household savings rate should imply a moderation in consumption *vis-à-vis* developments in current and permanent disposable income. The economic integration process has been characterised by the higher degree of openness abroad, a higher share of the services sector in total exports of goods and services, a higher share of extra-EU trade in total exports, as well as an increase in the share of machinery and appliances in total exports of goods (in parallel with the decline in the weight of textiles, clothing and footwear). The growing participation of the Portuguese economy in world trade and the

change in its pattern of comparative advantages are associated with the reduction in international barriers to trade over the past few years and the growing participation of emerging and developing economies in the world economy.

A second structural feature characterising the current expansion cycle is the definition of a stability-oriented macroeconomic regime. On the monetary policy side, the ECB's credibility and its orientation towards price stability translates into anchored inflation expectations, which contributes to a stable and foreseeable nominal framework for economic agents' decisions. With regard to fiscal policy, a balanced and sustainable fiscal position also contributes to the creation of a macroeconomic stability framework. This is possible by reducing economic agents' uncertainty – namely with the creation of a stable and foreseeable tax framework – by permitting the full operation of automatic stabilisers, and by facilitating the response to structural trends with a budgetary impact, such as population ageing. The current consolidation process of public accounts is a clear favourable development of the Portuguese economy over the past few years. It may be highlighted that the structural primary balance forecast for 2007 shall stand at the highest level in the last decade. In this context, the fulfilment of the commitments assumed in the framework of the Stability and Growth Pact is particularly important, namely the achievement of the medium-term objective of a 0.5 per cent structural deficit in 2010.

A third structural feature of the current economic cycle is the low trend growth in the economy compared to previous cycles. Such development results from the interaction of a wide group of factors, including the incentives generated by the above mentioned institutional and structural framework. Despite the difficulty in quantifying the respective contributions, several interlinked factors should be mentioned. First, the cumulative reduction in investment over the past few years implied a decline in the investment rate to historical lows in 2006. This shall also imply a reduction in the capital intensity of the economy in the near future, whose impact will be greater if it reflects developments in investment with high positive externalities on the economy. Second, the maintenance of a human capital stock with significant structural fragilities also constrains economic growth, particularly in the current context of technology changes biased towards more qualified individuals. Finally, the prevailing rigidity in goods and labour markets increases their segmentation and hampers resource mobility. This has an effect on the operation of these markets and on the incentives to agents, particularly the youngest, in terms of training and education. These elements are particularly relevant in the current context of worldwide competitive pressures, demanding rapid reallocations of physical and human resources.

As previously mentioned, future developments in the Portuguese economy depend not only on the combination of shocks that hit the economy at any given moment, but also on the incentives generated by the institutional and structural framework. In this context, special mention should be made to the potential impact – albeit in different time horizons – of measures aimed at changing the current fragility framework in terms of the quality of human and physical resources, the persistence of barriers to factor mobility and the continued segmentation of some markets. These measures would pave the way for promoting higher economic growth in longer horizons and also a better distribution of income in the economy.

In the short run, the current turbulence in international financial markets highlighted the importance of transparency and information symmetry for risk taking by investors and, ultimately, for the operation of a market economy. Taking into account the growing international integration of the Portuguese economy, the increase in uncertainty regarding the world economic and financial framework introduced clear downward risks to near future developments in the macroeconomic variables more sensitive to such developments, in particular exports and investment.

Box 1 Recent turbulence in international financial markets**Origins and pass-through channels to financial markets**

During the summer of 2007, a significant and abrupt risk reassessment by investors led to disruptions in international financial markets and to an increase in financing costs. These disruptions resulted from the materialisation of some interlinked risk factors, which had intensified over the previous months.¹ On the one hand, the persistence of historically low spreads in debt markets and the reduced differentiation in the returns of financial assets with different degrees of risk suggested that investors could be incorrectly assessing risks to their positions. On the other hand, the increased recourse to credit risk transfer instruments over the past few years had made the assessment of direct and indirect exposures to some counterparties more complex. The traditional paradigm in which lending and credit management were performed by financial institutions, has been gradually replaced by a new intermediation paradigm, according to which banks grant credit, structure standardised products on the basis of these credits and, finally, sell these products to third parties. It was generally considered that this type of financial innovation could promote a lower concentration of risk in banking systems. Nevertheless, the recent instability period showed that banking systems were much more exposed to risk than previous expectations, given the reduced transparency of instruments used in credit risk transfers, the degree of complexity entailed in their valuation and the uncertainty surrounding the underlying pass-through channels.

The materialisation of these risks was triggered by the growing concern of investors about developments in riskier US residential mortgage credit segments (subprime), which resulted in a period of strong instability and uncertainty in financial markets.² Over the past few years, prices in the US real estate market increased continuously and there was strong competition in the mortgage credit market. These developments, in parallel with credit risk dissemination through the securitisation of loans to investors strongly drawn by demand for higher returns, favoured the easing of credit standards. Even in the most recent period, characterised by interest rate increases, US households benefited from new types of loan contracts which tried to compensate for difficulties arising from higher debt servicing costs, such as loans contracts with increasing interest rates or with grace periods. In turn, given that higher prices imply a decline in the loan-to-value ratio, debt renegotiation was facilitated, fostering an improvement in financing conditions and an increase in home equity withdrawal, thus allowing to obtain additional liquidity for consumption purposes. In a context of decreasing residential mortgage credit quality, particularly in the subprime segment, higher interest rates and the slowdown in housing prices contributed to an increase in default rates, which led to growing solvency difficulties for credit institutions specialised in this segment. Consequently, ratings of securities collateralised by residential mortgages were negatively reviewed and investors lost confidence in US residential mortgage credit markets, which led to an abrupt liquidity shortage in asset-backed securities markets, in general.

The pass-through of these problems to international debt markets was faster and more intense than expected.³ In a context of increasing risk aversion and of a more prudent assessment of risks incurred, these disruptions extended to a number of corporate credit segments. In late July, previously planned financing operations, particularly leveraged buyouts, faced some difficulties. Also, uncertainty regarding the distribution of losses due to direct or indirect exposure to the subprime market, in both US financial institutions and European banks, increased significantly in early August. These problems led to a substantial decline in liquidity in commercial paper markets, particularly the US asset-backed commercial paper market (ABCP), which had grown considerably over the past few years (Chart 1). This decline passed through to corresponding European markets. Loans granted in securitisation operations are usually transferred to financial vehicles, which in some cases have been financed through the issuance of short-term securities collateralised by long-term assets with low liquidity. The abrupt reduction in demand for com-

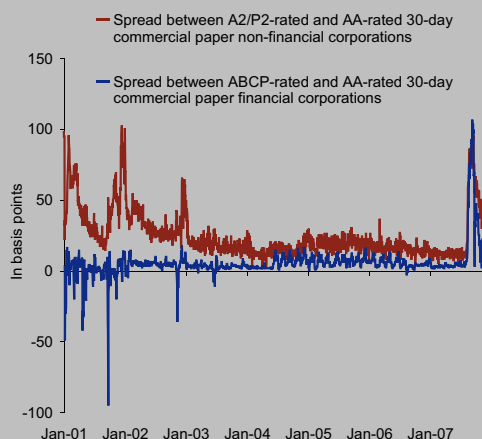
(1) See "Chapter 2 Macroeconomic and Financial Risks", *Financial Stability Report*, 2006, Banco de Portugal.

(2) The subprime segment mainly includes riskier customers, with low income or a default track record. This segment grew significantly over the past few years and, at the end of 2006, accounted for around 15 per cent of total residential mortgage credit in the United States. If the intermediate segment between the subprime and prime segments is considered (Alt-A segment), which mainly regards customers with a good credit track record but for whom less data on their income is available, this value rises to around 25 per cent.

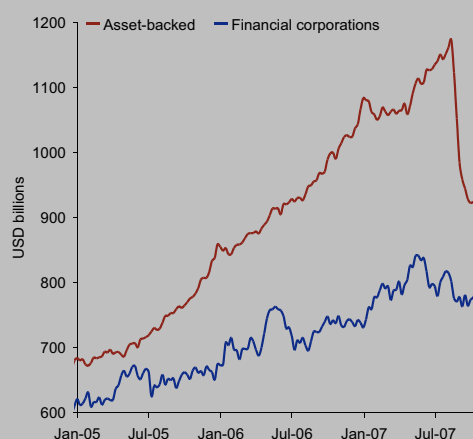
(3) During the first months of 2007, problems in the US subprime market mainly affected investors and financial institutions with direct exposure to this market. Taking into account the relatively reduced share of this segment in total US mortgage credit, losses were not estimated to be very significant in aggregate terms. For example, in mid-July the Federal Reserve estimated that these losses stood at around USD50 to USD100 billion, accounting for around 0.4-0.8 per cent of the US nominal GDP. In the September 2007 issue of the *Global Financial Stability Report*, the IMF pointed to losses between USD170 and USD200 billion.

Chart 1

COMMERCIAL PAPER SPREADS IN THE US



OUTSTANDING AMOUNTS OF COMMERCIAL PAPER IN THE US



Sources: Federal Reserve Board and Thomson Financial Datastream.

mercial paper hampered the refinancing of these financial vehicles, part of which benefited from support credit lines guaranteed by banks.

Situation in money markets and the behaviour of central banks

In a context of additional liquidity needs and increasing counterparty risk, banks also began to face substantial market financing constraints, namely in the interbank money market, where in early August the number of transactions declined and the differential between overnight interest rates and key interest rates widened. Subsequently, this differential narrowed after several central banks intervened in money markets as from 9 August. These interventions consisted in successive liquidity injections with the aim of promoting the smooth operation of these markets. In particular, the ECB conducted several overnight fine-tuning operations and made allotments above the benchmark amount in the main refinancing operations. Moreover, the ECB conducted two 3-month supplementary longer-term refinancing operations. The US Federal Reserve also increased liquidity available in short-term money markets through higher-than-usual open market operations. On 17 August, the Federal Reserve reduced the discount rate by 50 b.p. and adjusted financing conditions for maturities up to 30 days, renewable at the request of the counterparty. It should be noted that these measures did not aim at changing the monetary policy stance nor at helping specific banks facing difficulties. In fact, these were technical measures aimed at ensuring the normalisation of market liquidity conditions and at preventing monetary conditions from becoming significantly out of line with the monetary policy stance.⁴

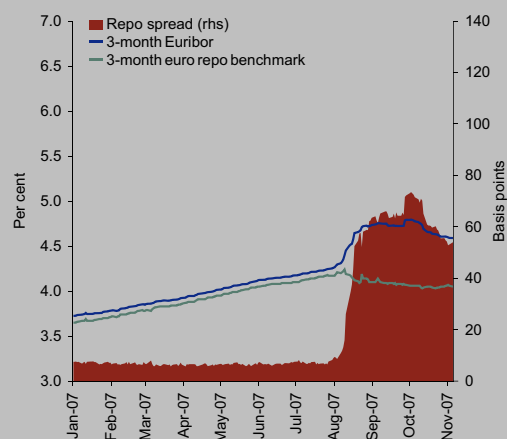
These decisions contributed to some normalisation of financing conditions in the shorter end of money market maturity structure, although disruptions in interbank money markets for maturities over one month persisted. A sign of the lack of confidence in these markets is the sustained high spread between bank interest rates on uncollateralised loan operations and interest rates on collateralised operations (repo rate) for these maturities, albeit somewhat below previous peaks (Chart 2).

Risk reassessment, instability in financial markets and uncertainty surrounding the impact of these disruptions in the medium-term economic activity resulted in the reassessment of the analysis underlying monetary policy decisions. In this context, the US Federal Reserve lowered the Fed Funds interest rate by 50 basis points on 18 September, with the purpose of easing potential negative impacts of financial market turbulence on economic growth.

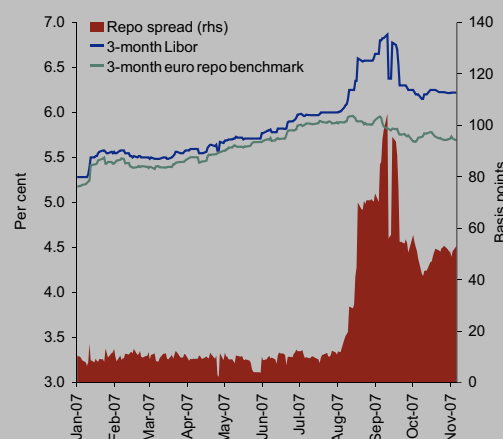
(4) Similar interventions were made by other central banks in advanced economies, namely Japan, Canada, Switzerland, Norway, Australia and New Zealand.

Chart 2

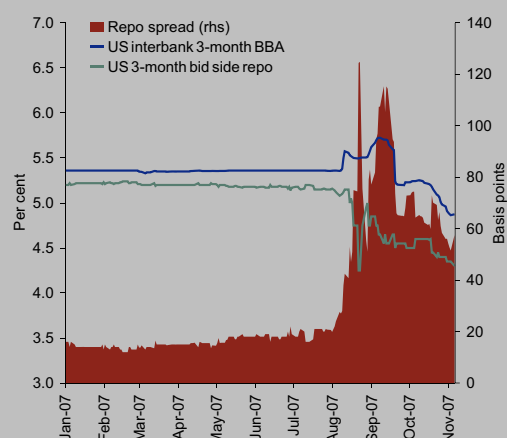
3-MONTH REPO SPREAD – EURO AREA



3-MONTH REPO SPREAD – UNITED KINGDOM



3-MONTH REPO SPREAD – UNITED STATES



Source: Thomson Financial Datastream.

In turn, the ECB decided to leave key interest rates unchanged in the September and October meetings, given that the uncertainty prevailing in financial markets made it appropriate to gather additional information before drawing further conclusions regarding the conduct of monetary policy. However, in several countries less affected by financial market turbulence and where inflationary pressures are more intense, monetary authorities increased key interest rates during this period.⁵

Implications for financial markets

As previously mentioned, significant risk reassessment by investors and the abrupt decline in liquidity in some markets led to strong disruptions in international financial markets during the summer of 2007. During this period, risk premia increased in private debt markets, after standing at historically low levels during a very protracted period. Between the end of July and mid-September, spreads of securities issued by non-financial corporations widened

(5) For example, since early August 2007, key interest rates moved upwards in the following economies: Mexico, Chile, Peru, Sweden, Norway, Czech Republic, Poland, Russia, South Africa, Switzerland, Australia, China, South Korea and Taiwan.

significantly (Chart 3). This was even more marked for securities issued by banks and, mainly, by other financial institutions, which was a noticeable feature of this turbulence period compared to previous episodes.⁶ These increases were more significant for longer maturities, which suggests greater financing difficulties in this segment. The increase in corporate financing costs was more marked in the United States, although substantial increases were also observed in the euro area. During this period, risk premia were also more differentiated according to ratings, with more significant increases for low-rated companies. Following the reduction of the key interest rate in the United States on 18 September, risk premia generally declined in the private debt market. Subsequently, they stabilised somewhat at levels above those seen in mid-July, both for non-financial corporations and for banks and insurance corporations. In the US commercial paper market, where spreads had increased by more than 100 b.p. and outstanding amounts had declined considerably, risk premia also reversed somewhat as from mid-September. This was followed by both a gradual recovery in amounts issued and signs of some stabilisation in outstanding amounts as from October.

Losses in stock markets were, in general, relatively subdued, namely compared to recent periods of strong disruptions in financial markets, such as the Long-Term Capital Management (LTCM) crisis in 1998, the aftermath of the speculative bubble in the technological sector in 2000, and September 11 2001 events. Between late July and mid-August, stock market volatility increased considerably and prices declined significantly, particularly for financial corporations. However, in mid-October losses in this period were almost fully reversed in several stock price indices. After the Federal Reserve reduced interest rates, stock prices of banks and insurance corporations also recovered, albeit less markedly than in indices for other sectors, particularly in the euro area. Stock market volatility declined in late September, although remaining above levels seen in the first half of 2007 (Chart 4). In late October, the disclosure of bank returns for the third quarter of 2007 led to a further increase in instability within a number of financial market segments.

With regard to financial markets of emerging market economies, the impact of these disruptions was relatively contained, particularly compared to previous crises. On the one hand, spreads of securities issued by these countries widened somewhat, albeit standing at historically low levels. On the other hand, losses in stock price indices of these countries were rapidly reversed, reaching new historical peaks in mid-October.

Increased uncertainty and risk aversion in the summer of 2007 resulted in higher demand for less risky assets, which led to a decline in yields on government debt securities and an increase in prices of other low-risk assets, e.g. gold. As from mid-September, medium and long-term interest rates on government debt stabilised somewhat. In the foreign exchange market, the US dollar firstly assumed its traditional role as 'safe heaven' currency, subsequently appreciating slightly against most major currencies. However, the euro appreciated strongly against the US dollar as from mid-August, partly reflecting diverging expectations regarding monetary policy decisions in both economies. During the periods with more intense financial market turbulence, positions in carry trades⁷ were off-set, which implied an appreciation of the yen against the US dollar. However, this was subsequently reversed.

Implications for banking systems

The persistence of financing difficulties for banks, particularly for those more dependent on wholesale market funding, may affect their activity, mainly in terms of lending growth. These constraints have been observed both for short maturities, namely in money and commercial paper markets, and for medium and long maturities, due to difficulties in both the issuance of debt securities and the allotment in securitisation operations.⁸ Therefore, competition might increase in terms of collection of deposits, as banks may partly want to replace market financing. Financing difficulties faced by banks, namely higher costs, may lead to an increase in credit costs and tighter credit standards. In this context, the maturity structure of credit granted is expected to be readjusted towards a lower av-

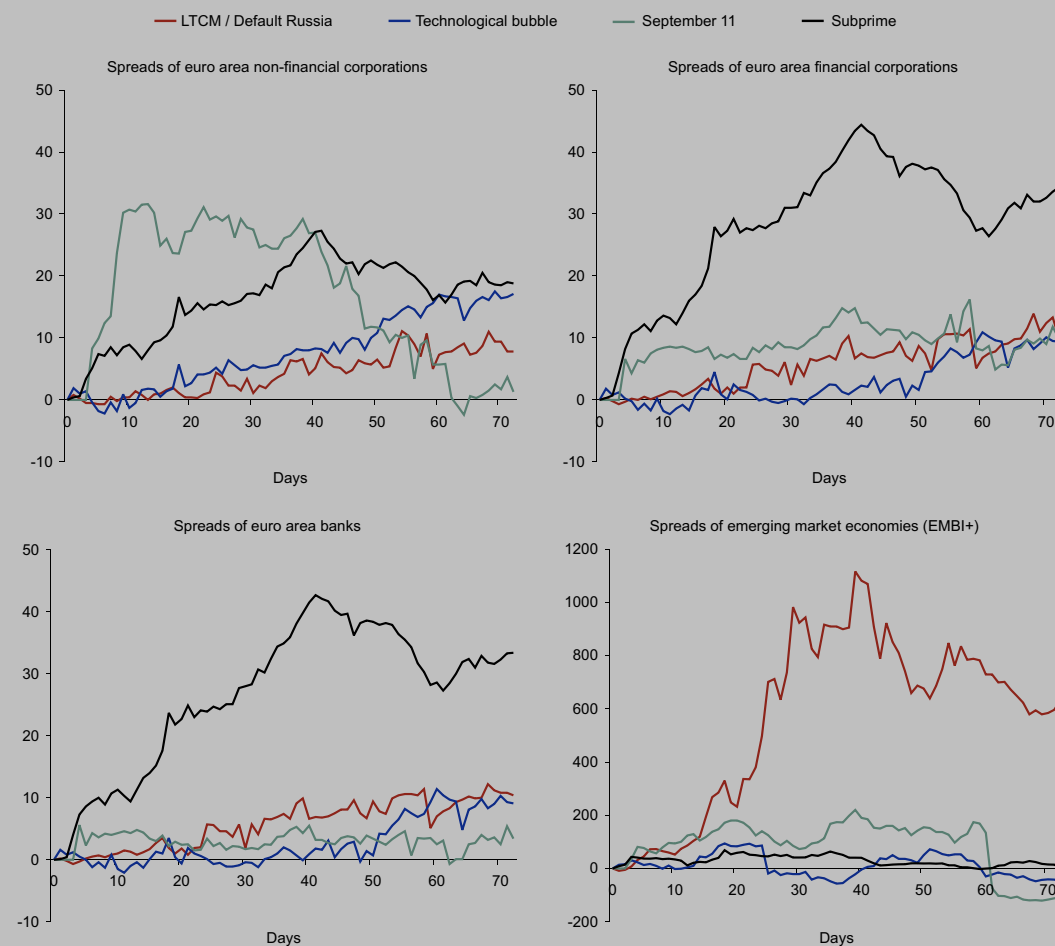
(6) For an analysis of the impact of disruptions in international financial markets on the Portuguese financial system, see "The Portuguese banking system in the course of 2007", in this issue of the Economic Bulletin.

(7) Carry trades are investment strategies by which an investor borrows in the currency of a country with low interest rates in order to invest in another country with higher interest rates. The close to zero level of interest rates in Japan over the past few years contributed to an increased use of these investment strategies.

(8) Difficulties faced by the English bank Northern Rock illustrate the potential implications of these problems for banks. In mid-September, this bank, which greatly depended on short-term market financing, was forced to turn to emergency liquidity assistance provided by the Bank of England. The disclosure of this information led customers to run on deposits.

Chart 3

DEBT MARKETS



STOCK MARKETS

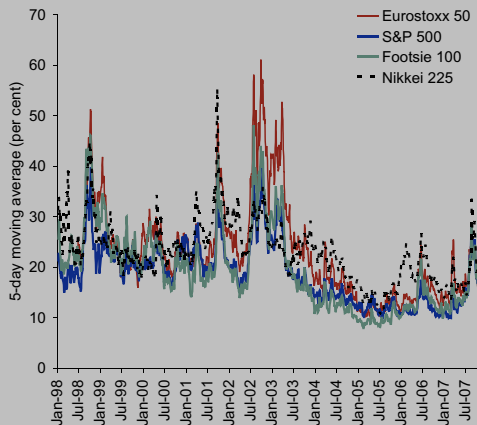


Sources: Bloomberg, JP Morgan, Merrill Lynch, Thomson Financial Datastream and Banco de Portugal.

Notes: The horizontal axis indicates the number of working days since the peak observed immediately prior to disruptions in each period. Specifically, for the LTCM crisis 17 July 1998 was taken as reference; for the technological bubble, 10 March 2000; for the September 11 events, 10 September 2001 and, finally, for the subprime crisis, 23 July 2007. Spreads are the differences, in basis points, vis-à-vis the reference day. In stock markets, the reference day was normalised to 100.

Chart 4

IMPLIED VOLATILITY IN THE MAIN STOCK MARKET INDEXES



Sources: Bloomberg and Banco de Portugal.

Note: Annualised implied volatilities of options on futures contracts. For Eurostoxx 50, figures are only available as from 19 June 1998.

erage maturity and credit to the private sector should slowdown. Bank profitability shall also be affected by financial market instability, through possible losses in their financial asset portfolios or lower returns in financial operations, such as asset management and corporate finance operations. Moreover, financial market uncertainty is not favourable to mergers and acquisitions, which over the past few years contributed very positively to bank profits.

Several euro area banks admitted having faced some difficulties in accessing market financing during the third quarter of 2007, which shall persist at least up to the end of the year, according to the Eurosystem's Bank Lending Survey results in October 2007.⁹ Consequently, some banks are considering the possibility of limiting lending. Moreover, surveyed banks reported some tightening in credit standards, which shall increase during the last quarter of the year. This tightening in credit standards shall affect mostly loans granted to firms, particularly large enterprises and loans for the financing of mergers and acquisitions and for investment financing.

Implications for economic activity

Disruptions in financial markets may affect consumption and investment decisions of economic agents through several pass-through channels. First, the reassessment of risk premia and financing difficulties faced by banks may imply an increase in financing costs, tighter standards in the approval of new loans and the resulting slowdown in loans to the private sector. Even if this reassessment may be regarded as a positive development from a medium-term perspective – as it should reflect a more adequate assessment of risks by investors –, the abrupt readjustment in the risk premium from its low level in the period prior to financial market turbulence may be negative in the short term. Second, increased uncertainty and lower real estate or financial asset prices may have negative effects on economic agents' confidence. In this respect, consumer and corporate prospects deteriorated somewhat in September and October, more markedly in the United States. Negative effects of the above mentioned factors on economic activity shall ultimately depend on their interaction with underlying vulnerability factors in the various economies, in particular excess growth of housing prices, the indebtedness ratios and the dependency on international capital flows, as well as their nature.

In this context, effects of recent financial market turbulence on global economic activity are highly uncertain, namely depending on the persistence and magnitude of these disruptions in the near future. In the October 2007 is-

(9) This survey included a group of extraordinary questions, in order to assess the impact of deteriorating credit market conditions on euro area bank activity.

sue of World Economic Outlook, the IMF moderately revised downwards world economic growth projections for 2008 (from 5.2 to 4.8 per cent). Projections for economic growth in the euro area in 2008 declined by 0.4 p.p., to 2.1 per cent. Revisions were more significant for the US economy (0.9 p.p., to 1.9 per cent) and for other economies where spillover effects of the slowdown in the US economy are greater. Less favourable projections for developments in US activity partly result from recent financial market turbulence, namely a protracted decline in residential investment resulting from difficulties in the mortgage credit market and the expected effect on private consumption of a slowdown in housing prices. This scenario is based on the assumption that market liquidity is gradually re-established and interbank market conditions are normalised in the near future, but considering the maintenance of debt market spreads at a higher level than that seen before the summer of 2007. The IMF considered that the balance of risks to projections is clearly biased downwards, particularly taking into account the possibility of a more significant credit contraction as a result of some instability remaining in financial markets.

THE PORTUGUESE BANKING SYSTEM IN THE COURSE OF 2007^{1,2}

1. OVERVIEW

The deterioration of the outlook for the US housing market and the intensification of default in the most vulnerable fringes (sub-prime) of the residential mortgage market in this economy acted as a catalyst for a series of events that resulted in an abrupt reversal of investor sentiment in international private debt markets in the summer of 2007. Up to the end of the first half of 2007, the environment in debt markets was quite favourable to position-taking in an increasingly comprehensive range of assets from the viewpoint of credit quality. This phenomenon, the so-called search for yield, in recent years has raised some concerns as to its sustainability. It was reflected in a narrowing of interest rate differentials in most markets and a higher propensity of investors to finance investments with more complex and leveraged financial structures. The recent period of instability led to a revaluation of the price demanded by investors to cover the risk assumed. This revaluation, although broadly-based across debt markets, has been particularly heightened in markets where financial institutions intervene as debtor counterparties, i.e. bond, loan securitisation, commercial paper and also short-term interbank markets. This is an important challenge for the international financial system, as it may restrain the liquidity management of banks in wholesale funding markets. Also, the breach of confidence underlying this did not translate an overall deterioration of the financial position of banks in the major developed economies, nor did it stem from a revaluation of the outlook for world economic growth. Instead, it results from increased uncertainty as to the size and distribution of losses arising from direct or indirect exposure to the sub-prime market and to the asset-backed commercial paper market.

In the course of 2007 the situation of Portuguese banks remained robust, which translated into the maintenance of profitability and of default levels in the credit portfolio, although solvency indicators declined somewhat. In fact, the accounts of the whole banking system for the first half of the year show an increase in income before minority interests of around 25 per cent, when adjusted for a series of special one-off operations which impact on the profit and loss for the previous year. In the context of a continuing expansion of credit at a significant pace and of strong activity and price growth in stock markets in spite of the rise in interest rates, both the most traditional intermediation activities and the activities of investment banking or intermediation in capital market operations saw an expansion. In fact, profit and loss growth was mainly due to gains in securities portfolios and in other positions assumed in capital markets, to contained growth in operational costs and, to a lesser extent, to the dynamics of the interest margin. Net commissions grew strongly when excluding commissions paid associated with the preparation and performance guarantee of a takeover bid between institutions of the banking system.

As far as liquidity is concerned, on a first stage, i.e. between the second week and the end of August, European debt markets in which Portuguese banks participate as debtor counterparties were almost paralysed. Subsequently, access to these markets was resumed, allowing banks to obtain the funding needed to expand lending activity. This notwithstanding, taking into account the persisting worsening of price conditions in most debt markets and the present aversion of investors to assume positions in

(1) The institutions analysed as a whole correspond to the 13 banking groups that adopted the International Accounting Standards (IAS) in the preparation of their financial statements in 2005. For more details on the universe of institutions under analysis and on the information sources used in this article, see "Box 1.1 Banking System data Used in the 2005 Financial Stability Report", *Financial Stability Report*, 2005, Banco de Portugal.

(2) Market information for the period up to 31 October 2007.

assets backed by securitised loans, the slowdown of credit to levels that are more consistent with deposit growth should not be ruled out. In this respect, it is important to note that although loan securitisations have been a source of liquidity, they have not significantly contributed to the decrease in regulatory capital requirements.

Qualitative data collected from the euro area Bank Lending Survey point to an ongoing tightening of credit standards for the private sector. This is likely to translate into a widening of spreads, the shortening of maturities or even into restraints in the amounts made available, especially to larger companies, which have recorded the strongest credit growth in the most recent period. In turn, there are a few signs that the financing strategy of banks with customers is itself gradually favouring the collection of deposits with more attractive interest rates, to the detriment of the investment in mutual funds or other saving instruments off the balance sheet of banks.

Nevertheless, data for the third quarter, already made publicly available for the main domestic banking groups, denote sustained profitability levels. This is in line with the maintenance of stock market prices at levels close to historical highs, in particular for emerging markets. This situation is positively reflected, although to different extents, on the value of securities portfolios of various banks. In turn, up to the end of the third quarter, credit portfolio default remained at historically low levels. It should also be noted that in the third quarter of 2007 and in contrast with a number of international banks the losses of Portuguese banks in the US sub-prime market were negligible, resulting from very low direct and indirect exposure to this market.

The maintenance of credit portfolio default at particularly low levels, when compared with similar stages of previous business cycles, occurs in a context of a substantially higher degree of financial leverage in the corporate and household sectors. This has been made possible in the framework of the participation in the euro area and, in general terms, of an international environment characterised by low levels of nominal and real interest rates that, together with new types of contract in the credit market, has provided debtors with greater flexibility to ensure debt servicing. However, in the most recent period the upward reassessment of the debt cost of banks in capital markets is likely to restrain this type of adjustment at the level of credit supply by banks. In particular, the restructuring of debts of companies and households in a more unbalanced financial position becomes more difficult, inducing a greater probability of occurrence of default.

According to the latest estimates, there was an acceleration of economic activity in 2007, and in particular a rebound in corporate investment. This notwithstanding, in the current context, risks to the macroeconomic framework in which banks operate are skewed to the downside. In fact, the upward reassessment of the financing cost of banks in wholesale markets is a potentially limiting factor for investment, either via the pass-through of that increase to bank lending rates or via a lower availability of credit to the private sector induced by the supply side.

In addition, it should be taken into account that instability in debt markets, although not stemming from a significant downward revision of growth in the major economies, reflects greater perceived uncertainty of capital market players. In this vein, instability in capital markets may translate into lower economic growth. In parallel, and in particular in the United States, there is a risk that the recent slowdown may be more abrupt than currently forecast. In the US economy, the future trend of the ongoing adjustment of the housing market and the intensity with which the tightening of financing conditions in the mortgage market will be felt are likely to be the factors conditioning household expenditure at a more immediate level. This is all the more relevant in the context of strong global external imbalances, which may imply an abrupt adjustment of exchange rates. A scenario of abrupt adjustment of global macroeconomic imbalances would tend to worsen the current turbulence in international financial markets,

reinforcing its impact in real terms. There is, however, high uncertainty surrounding these scenarios and their impact on the economy at global level.

The effects of such an adjustment process on the Portuguese economy essentially result from it being a small open economy strongly integrated at the economic and financial level, and much less from idiosyncratic adjustments. In particular, the situation in the real estate market in Portugal contrasts with that in other developed economies, given that the available evidence shows no overassessment in this market, with house prices growing below inflation this decade. In sum, the transmission channels of these shocks to the Portuguese economy are essentially via international trade, the increase in private sector financing costs and, in general, the heightened uncertainty as to the global economic and financial framework.

2. MACROECONOMIC AND FINANCIAL FRAMEWORK

In the first half of 2007 the Portuguese banking system's activity was developed within a globally favourable macroeconomic and financial framework, similar to that seen in 2006.³ The financial framework underwent significant changes in the course of the third quarter of 2007, in the wake of the marked deterioration in the US sub-prime mortgage market. This occurred in the context of a particularly complex assessment of the actual exposure to this market, given the broadly based and disseminated recourse to credit risk transfer instruments. In view of the high level of integration of international financial markets and the growing sophistication of the instruments used, US market developments spilled over to the various segments of Western financial markets, in particular asset-backed securities markets.⁴

Hence, in the first half of the year, world economic activity continued to grow at a robust pace, although there was a certain deceleration in some of the most advanced economies. In particular, US economic growth was relatively weak, characterised by the reduction in housing investment and the slowdown in private consumption (partly caused by the deceleration in real estate prices), in contrast to higher growth in exports and non-residential private investment. These developments materialised into a reduction of the private sector net borrowing requirements, thus contributing to some correction of the US external imbalance, although it remains high.⁵

Also, in most euro area economies, economic growth decelerated, albeit slightly, in the course of the first half of 2007. On the one hand, the slowdown in the US economy was reflected in a more subdued growth of European exports than in 2006. On the other hand, fixed capital investment decelerated throughout the second quarter (boosted by the fall in construction investment), while private consumption accelerated somewhat. Overall, in the first half of 2007, real estate markets in European countries that had expanded at a particularly high rate in the recent past remained on a trend of progressive cooling, in the context of a gradually less accommodative monetary policy.⁶

Portuguese economic activity accelerated in the first half of 2007, reflecting a greater contribution from domestic demand, essentially due to the acceleration in investment, and a lower (positive) contribution from net external demand. However, labour market conditions continued to deteriorate, with a rise in

(3) For more details on the national and international environment in 2007, see the section "*The Portuguese economy in 2007*" in this issue of the *Economic Bulletin*.

(4) For a detailed analysis of financial developments in the third quarter of 2007, see "*Box 1. Recent turbulence in financial markets*" in the section "*The Portuguese economy in 2007*" in this issue of the *Economic Bulletin*.

(5) For details on overall risks to and vulnerabilities of financial stability, namely the persistence of global macroeconomic imbalances, see "Chapter 2. Macroeconomic and Financial Risks", *Financial Stability Report*, 2006, Banco de Portugal.

(6) For more details on the ECB's monetary policy and the monetary and financial conditions of the Portuguese economy in the first half of 2007, see "*Section 3. Macroeconomic policies*" of the section "*The Portuguese economy in 2007*", in this issue of the *Economic Bulletin*.

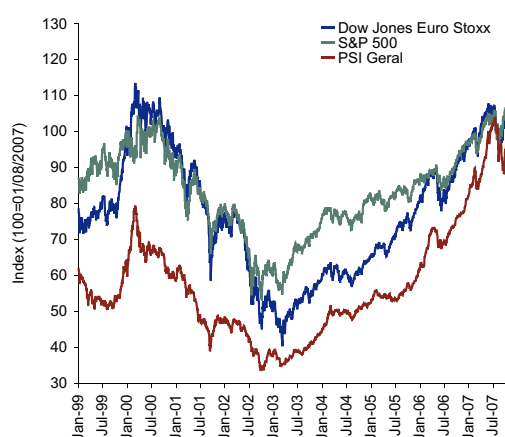
the unemployment rate and a decline in employment. In this period, general government borrowing requirements declined, while credit to the non-financial private sector recorded a further considerable expansion. This sector's net borrowing continued to be chiefly met by the non-resident sector, through the intermediation of the banking system. However, in contrast to previous years, when external financing was predominantly obtained in international markets via the issuance of bonds by branches and subsidiaries abroad of Portuguese banking groups, in the first half of this year there was a marked flow of net debt issuance by financial institutions in the domestic market, mostly underwritten by non-residents.⁷ As a whole, the net borrowing of the Portuguese economy declined from the first half of 2006, by around 2 percentage points of GDP.

In the first half of 2007 the activity of the Portuguese banking system took place in a context of tightened monetary conditions and overall favourable situation in international financial markets. Long-term interest rates remained on an upward trend, while spreads on private debt narrowed slightly from those observed in the second half of 2006. Stock price indices continued to grow strongly, notwithstanding a period of some turbulence at the end of February/early March. In Portugal, the valuation of the PSI Geral index, by around 20 per cent, was more significant than those of the S&P 500 and the Dow Jones Euro Stoxx (Chart 2.1). As far as public debt is concerned, the differential between yields of Portuguese and German Treasury bonds remained virtually unchanged.

In the first half-year, market indicators on Portuguese banks continued to evolve positively overall, keeping the trends of the previous year. The PSI index of Financial services increased by more than 30 per cent, i.e. above the PSI Geral index (Chart 2.2). In general, the stock prices of Portuguese banks followed this trend (Chart 2.3). Price developments in this market segment have been influenced since March 2006 by the takeover bid by Millennium BCP for BPI, announced on that date and closed in May 2007 with no effect on the structure of the Portuguese banking system. In the course of the first half of 2007, spreads between the fixed-rate debt of Portuguese banks and Treasury bonds remained relatively stable at low levels (Chart 2.4). In addition, rating agencies revised upwards the assessment of

Chart 2.1

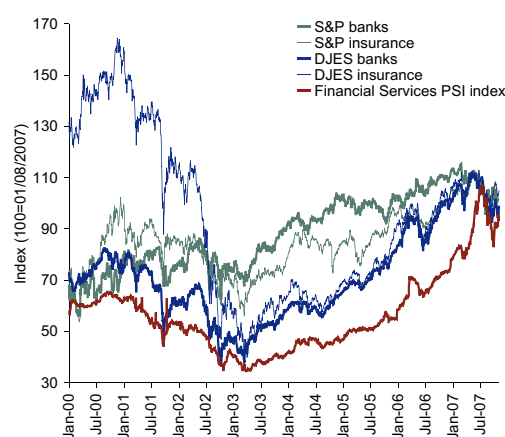
PRICE DEVELOPMENTS IN STOCK MARKETS



Source: Bloomberg.
Note: Latest observation: 31 October 2007.

Chart 2.2

DEVELOPMENTS IN THE STOCK PRICES OF FINANCIAL CORPORATIONS

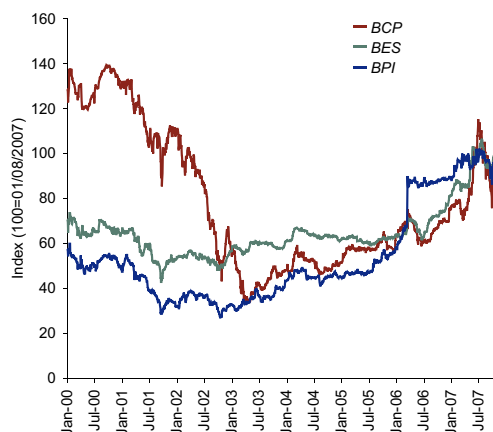


Source: Bloomberg.
Note: Latest observation: 31 October 2007.

(7) This procedure change by Portuguese banking groups was reflected in a change in the nature of the external financing flows corresponding to the already mentioned intermediation of the banking system and recorded in the financial account of balance of payments. For details on this subject, see "Section 7.3 The financial account in the first half of 2007" of the section "The Portuguese economy in 2007", in this issue of the *Economic Bulletin*.

Chart 2.3

DEVELOPMENTS IN THE STOCK PRICES OF THREE PORTUGUESE BANKS

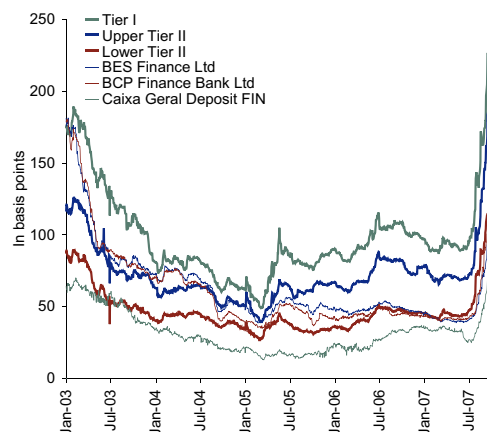


Source: Bloomberg.

Note: Latest observation: 31 October 2007.

Chart 2.4

SPREADS OF SUBORDINATED FIXED-RATE DEBT SECURITIES ISSUED BY EUROPEAN BANKS



Sources: Bloomberg, JP Morgan and Banco de Portugal.

Note: Spreads refer to three distinct levels of debt subordination. Tier one represents the highest degree of subordination (i.e. the riskier exposure), while lower tier two represents the lowest degree of debt subordination. Latest observation: 31 October 2007.

the major Portuguese banking groups. Hence, in March, Standard & Poor's upgraded the ratings given to Santander Totta and BES, having assigned a positive outlook to the Millennium BCP group. In the following month Moody's revised the methodologies used in rating analysis, giving rise to a positive revision of the ratings of several Portuguese banks.⁸ In May Fitch revised the outlook for CGD, following the revision of the outlook for the Portuguese Republic from negative to stable. More recently, at end-August, Standard & Poor's assigned a positive outlook to CGD, reflecting improved profitability and asset quality.

As previously mentioned, in the third quarter of the year the situation in the major international financial markets changed considerably. This materialised into a sharp increase in volatility in international financial markets and in uncertainty among their players, as well as into a substantial decline in liquidity in the wholesale funding markets of financial institutions.

In Portugal financial and money market turbulence was similar to that seen in most international markets, materialising through the upward readjustment of risk premia, with an increase in the demand for less risky assets. Initially, there was a decline in Portuguese Treasury bonds' yields, in parallel with the widening of the spread over German public debt.⁹ The upward trend of long-term interest rates was resumed in mid-September, and the risk premium underlying the Portuguese public debt returned to levels similar to those observed since mid-2005.

Spreads on the debt of Portuguese companies also widened considerably. As in most markets, risk premia on non-financial corporations' debt increased considerably since end-July, while for financial institutions the change was less sharp than in other markets. In late October, non-financial corporate bond spreads stood at levels close to those seen in the third quarter of 2006 (Chart 2.5).

(8) For more details on the revision of methodologies by Moody's, see "Section 4.4 Market risk", in *Financial Stability Report*, 2006, Banco de Portugal. Portuguese banks which had their ratings revised positively were the following: CGD, Millennium BCP, Montepio Geral, BES, BPI, Santander Totta, BANIF and BPN.

(9) For more details, see "*Monetary and financial conditions of the Portuguese economy*" in the section "*The Portuguese economy in 2007*", in this issue of the *Economic Bulletin*.

Developments in the risk premia of Portuguese financial institutions' securities were broadly in line with the increase recorded by most European banks, towards the end-2002 levels (Table 2.1, Charts 2.4 and 2.6).

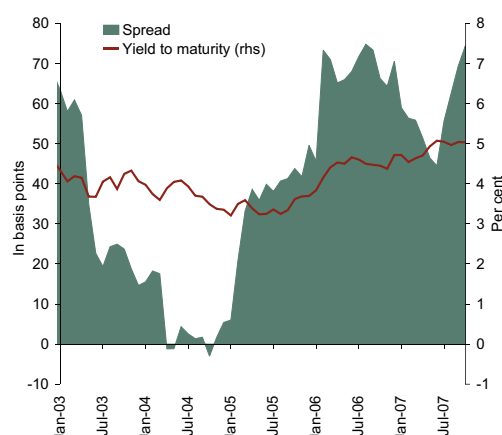
Between mid-September and mid-October, spreads over bonds issued by Portuguese banks moved in tandem with the general downward trend, remaining however far above the levels of end-July 2007. In the second half of October, though, the disclosure of income accounts by a number of companies, particularly banks, for the third quarter of 2007 and also the strong increase in oil prices gave rise to a further heightening of instability in some segments of international financial markets. This translated once more into increases in private debt spreads and sharp fluctuations in stock prices. Developments in the prices of Portuguese banks' shares were particularly affected by the merger proposal put forward by BPI for Millennium BCP on 25 October. Despite the fact that the terms initially proposed by BPI were not accepted by Millennium BCP, on the 30th both institutions agreed to enter into talks aiming at an agreement on the merger project.

Throughout the third quarter as a whole, the PSI Geral index declined by approximately 12 per cent. In the same period the fall in the Financial Services PSI index was more marked, reaching almost 20 per cent. Subsequently, similarly to the majority of international stock price indices, losses recorded in the most turbulent period were to a certain extent reversed (Chart 2.1). However, the recovery of the PSI Geral index has been more moderate than in other markets, though the change since the beginning of the year is positive and above those of S&P 500 and Dow Jones Euro Stoxx. In the specific case of financial services companies, the cumulative valuation of the stock price index amounted to 18 per cent from the beginning of the year up to the end of October.

The exposure of Portuguese banks to the sub-prime mortgage market is virtually non-existent, be it directly or indirectly. The impact of the international financial market turmoil on the Portuguese banking system has been most apparent in funding through wholesale markets. Similarly to European banks, Portuguese banks participating in the Bank Lending Survey of October reported a number of difficulties in tapping wholesale markets for funding in the course of the third quarter of 2007. These were seen not only in the interbank unsecured money market for operations with a maturity of more than one

Chart 2.5

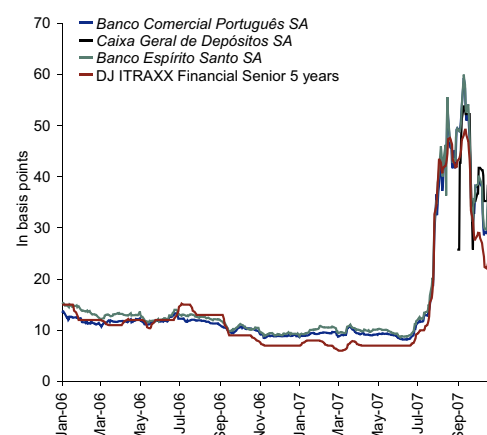
SPREADS OF BONDS ISSUED BY PORTUGUESE NON-FINANCIAL CORPORATIONS



Source: Lehman Brothers.
Note: Latest observation: October 2007.

Chart 2.6

CREDIT DEFAULT SWAP SPREADS OF PORTUGUESE BANKS (SENIOR 5 YEARS)



Sources: Reuters and Bloomberg.
Note: Latest observation: 31 October 2007.

Table 2.1

SPREADS OF FIXED-RATE SECURITIES ISSUED BY EUROPEAN BANKS^(a)

	Subordinated (Y/N)	Maturity	Rating Bloomberg Composite ^(b)	31-12-06	23-07-07	31-10-07			
				Spread (p.p.)	Spread (p.p.)	Spread (p.p.)	Change since 31 Dec. 2006 (p.p.)	Change since 23 Jul. 2007 (p.p.)	Change vis-à-vis the maximum ^(c) (p.p.)
BBV INT'L FIN (CAYMAN)	Y	24/12/2009	AA-	0.42	0.49	0.74	0.32	0.25	-0.14
ING BANK NV	Y	15/06/2010	AA-	0.25	0.23	0.38	0.13	0.15	-0.53
SANTANDER CENT HISP ISSU	Y	05/07/2010	AA-	0.34	0.28	0.55	0.21	0.27	-2.05
SANTANDER CENT HISP ISSU	Y	14/03/2011	AA-	0.37	0.31	0.65	0.28	0.35	-1.88
ING BANK NV	Y	19/12/2035	AA-	0.64	0.60	0.73	0.09	0.14	0.00
CAIXA GERAL DEPOSIT FIN	Y	12/10/2009	A+	0.37	0.37	0.74	0.37	0.37	-0.33
BANK OF IRELAND	Y	10/02/2010	A+	0.30	0.34	0.79	0.48	0.45	-0.15
BBV INTL FINANCE LTD	Y	25/02/2010	A+	0.31	0.30	0.71	0.40	0.41	-1.05
ABN AMRO BANK NV	Y	28/06/2010	A+	0.31	0.23	0.50	0.19	0.28	-0.61
POPULAR CAPITAL SA	Y	29/10/2049	A+	1.83	1.50	1.56	-0.26	0.07	-0.66
BCP FINANCE BANK LTD	Y	29/03/2011	A	0.43	0.46	0.91	0.48	0.45	-1.43
BES FINANCE LTD	Y	17/05/2011	A	0.45	0.45	0.97	0.52	0.51	-1.25
SNS BANK NEDERLAND	Y	15/04/2011	A	0.33	0.40	0.60	0.27	0.20	-0.39
HYPOVEREINS FINANCE NV	Y	25/02/2008	A-	0.38	0.35	0.94	0.56	0.58	-1.87
BANCO INTERCONTINENTAL	Y	29/05/2008	NR	1.20	1.80	3.01	1.81	1.21	0.00
BANKINTER SA	Y	18/12/2012	NR	0.53	0.58	0.94	0.41	0.35	0.00
BANCO SANTANDER SA	N	15/03/2009	AAA	0.23	0.17	0.41	0.17	0.23	-0.10
BANCO SANTANDER SA	N	19/12/2008	AAA	0.16	0.17	0.36	0.20	0.20	-0.13
BANCO SANTANDER SA	N	10/09/2010	AAA	0.15	0.20	0.36	0.21	0.16	-0.14
RABOBANK NEDERLAND	N	02/07/2010	AA+	0.02	0.02	0.12	0.09	0.09	-0.20
BANCO ESPANOL DE CREDITO	N	23/02/2011	AA+	0.19	0.26	0.40	0.20	0.13	-0.11
BANCO ESPANOL DE CREDITO	N	12/05/2010	AA+	0.16	0.21	0.37	0.21	0.16	-0.15
CAIXA GERAL DE DEPOSITOS	N	18/06/2008	AA	0.27	0.15	0.50	0.23	0.35	-0.17
CAIXA GERAL DE DEPOSITOS	N	18/10/2012	AA-	0.35	0.42	0.65	0.31	0.24	-0.03
BANK OF IRELAND	N	22/10/2010	AA-	0.34	0.37	0.61	0.27	0.24	-0.05
BCP FINANCE BANK LTD	N	31/03/2024	A+	0.68	0.56	0.56	-0.12	0.00	-0.74
BCP FINANCE BANK LTD	N	22/12/2008	A+	0.33	0.24	0.67	0.34	0.43	-0.13
BES FINANCE LTD	N	25/03/2010	A+	0.40	0.38	0.66	0.27	0.28	-0.14
SNS BANK NEDERLAND	N	12/11/2014	A+	0.38	0.47	0.71	0.33	0.25	0.00
BANCO BPI SA CAYMAN	N	14/11/2035	A	0.64	0.56	0.41	-0.23	-0.16	-0.98
BANCO PORTUGUES DE INVES	N	05/10/2009	A	1.82	1.94	2.38	0.55	0.44	-0.19
BCP FINANCE BANK LTD	N	12/07/2011	A	1.71	1.96	2.19	0.48	0.24	-0.21
SNS BANK NEDERLAND	N	14/02/2008	A	0.27	0.26	0.74	0.47	0.48	-0.26
SNS BANK NEDERLAND	N	28/05/2014	A	1.96	1.94	2.52	0.56	0.58	-0.24
BAYER HYPO- VEREINSBANK	N	17/03/2014	NR	0.24	0.28	0.39	0.15	0.11	-0.25
EUROHYPO SA DUBLIN	N	12/03/2009	NR	0.34	0.37	0.69	0.35	0.32	-0.22
BES FINANCE LTD	N	12/02/2009	NR	0.35	0.27	0.67	0.32	0.40	-0.11
BANCO SABADELL SA	N	15/06/2015	NR	0.28	0.41	0.51	0.22	0.10	-0.06
BANCO SABADELL SA	N	26/01/2011	NR	0.19	0.25	0.43	0.24	0.18	-0.09
BANCO POP VERONA NOVARA	N	21/01/2009	NR	0.33	0.33	0.65	0.32	0.32	-0.14
Average				0.51	0.52	0.82	0.31	0.29	-0.43

Sources: Bloomberg and Banco de Portugal.

Notes: (a) Sample of banks defined by taking into account banks whose size is comparable to that of the Portuguese banks considered. In addition, the ratings and maturities of bonds considered in this table are close to those of the Portuguese banks analysed, to ensure the comparability of spreads. (b) Bloomberg Composite - average of Moody's and S&P's ratings. (c) Maximum observed since the beginning of 2002.

week, but also in the short and medium to long-term debt markets, and in loan securitisation markets. In general terms, Portuguese banks anticipated a gradual improvement in the money market and in debt markets throughout the last quarter of the year. However, they foresaw a slight worsening of difficulties in loan securitisation markets, especially in loans for house purchase. In this context, for the fourth quarter respondent institutions expected to tighten their credit standards and criteria for the approval of loans to the non-financial private sector (already seen in the third quarter), materialised into higher spreads and possibly in restrictions in amounts granted.

Disturbances in international financial markets did not have a visible impact on the economic sentiment of Portuguese consumers and entrepreneurs, which generally continued to follow the previously observed trends.

3. DEVELOPMENTS IN THE BANKING SYSTEM IN THE COURSE OF 2007

3.1. Activity

In June 2007 the banking system's activity, assessed by total assets on a consolidated basis of the groups under analysis, increased by around 12 per cent year-on-year (Table 3.1.1). Loans to customers (including those securitised) continued to make the most important contribution to the expansion of assets, growing at a higher rate than loans granted by resident banks to the resident non-financial private sector. This demonstrated the growing role played by the activity of subsidiaries abroad of Portuguese banking groups.

In the domestic market, bank credit to the non-financial private sector accelerated slightly, mainly reflecting higher growth in credit to non-financial corporations. Lending to households remained on a decelerating trend, reflecting developments in loans for house purchase, given that consumer credit and other lending grew at a more robust pace.¹⁰

The positive performance of stock markets during the first half of the year translated into considerable growth in the portfolio value of capital instruments. Data point out also that net purchases of debt securities were recorded in the same period.

Liabilities represented by securities were again the main contributor to the financing of the institutions under analysis. In turn, resources from customers, the main item of banks' liabilities, continued to grow by around 5 per cent year-on-year.¹¹

Information released up to the cut-off date for this article on the main domestic banking groups points to the maintenance throughout the third quarter of the year of the trends seen in the first half-year, namely an expansion of assets essentially supported by credit granting.

3.2. Profitability

The banking system's profitability indicators on a consolidated basis declined somewhat in the first half of 2007 from the same period a year earlier (Table 3.2.1). However, the change observed mainly reflects a base effect associated with the particularly high level of the profitability indicators of one of the main banking groups in the first half of 2006. In fact, profits for the first half of 2006 largely reflected

(10) Developments in bank credit are analysed in greater detail in "[Section 3.5 Credit risk](#)".

(11) A more detailed analysis of developments in the financing of the banking system and its articulation with the liquidity risk can be found in "[Section 3.4 Liquidity risk](#)".

Table 3.1.1

BALANCE SHEET OF THE BANKING SYSTEM
On a consolidated basis

	EUR million				As a percentage of total assets				Year-on-year rate of change (per cent)			
	2005		2006		2005		2006		2005		2006	
	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun
Cash and claims on central banks	6 205	5 498	6 907	4 802	2.0	1.7	2.0	1.4	-17.9	20.0	11.3	-12.7
Claims and investment in other credit institutions	30 876	27 848	31 442	27 585	10.1	8.8	9.3	7.8	23.3	6.0	1.8	-0.9
Net credit to customers	199 873	207 980	222 898	235 354	65.3	65.8	65.9	66.7	9.4	8.3	11.5	13.2
Financial assets measured at fair value through profit or loss	18 150	20 527	20 137	23 171	5.9	6.5	6.0	6.6	40.7	13.1	11.0	12.9
Available-for-sale financial assets	14 037	16 667	17 965	21 305	4.6	5.3	5.3	6.0	-5.2	21.7	28.0	27.8
Held-to-maturity investments	718	746	663	583	0.2	0.2	0.2	0.2	38.0	15.6	-7.6	-21.8
Hedging derivatives	816	1 051	1 096	1 643	0.3	0.3	0.3	0.5	17.8	-25.8	34.3	56.3
Securitised non-derecognised assets	14 186	14 580	15 391	17 617	4.6	4.6	4.6	5.0	16.7	42.8	8.5	20.8
Investment in subsidiaries	3 475	3 752	4 070	2 988	1.1	1.2	1.2	0.8	33.0	10.6	17.1	-20.4
Tangible and intangible assets	3 886	3 939	4 232	4 275	1.3	1.2	1.3	1.2	7.6	2.8	8.9	8.5
Other assets	13 768	13 266	13 269	13 714	4.5	4.2	3.9	3.9	40.5	-8.5	-3.6	3.4
Total assets	305 989	315 853	338 070	353 037	100.0	100.0	100.0	100.0	12.3	9.4	10.5	11.8
Resources from central banks	6 215	8 450	1 739	1 977	2.0	2.7	0.5	0.6	75.5	45.1	-72.0	-76.6
Resources from other credit institutions	38 840	43 776	42 921	45 146	12.7	13.9	12.7	12.8	16.6	17.0	10.5	3.1
Resources from customers and other loans	149 139	146 871	156 633	153 692	48.7	46.5	46.3	43.5	4.5	4.7	5.0	4.6
Financial liabilities held for trading	4 306	5 626	5 397	6 967	1.4	1.8	1.6	2.0	66.3	37.9	25.3	23.8
Liabilities represented by securities	62 807	65 207	81 254	93 419	20.5	20.6	24.0	26.5	12.8	8.6	29.4	43.3
Subordinated debt	9 973	9 789	9 890	9 623	3.3	3.1	2.9	2.7	0.9	-3.2	-0.8	-1.7
Hedging derivatives	956	1 371	1 744	2 645	0.3	0.4	0.5	0.7	70.1	15.2	82.4	92.8
Liabilities for non-derecognised assets	2 363	2 681	4 130	4 852	0.8	0.8	1.2	1.4	n.a.	174.5	74.8	81.0
Other liabilities	13 608	11 988	12 641	11 862	4.4	3.8	3.7	3.4	35.9	-12.8	-7.1	-1.0
Total liabilities	288 208	295 759	316 349	330 183	94.2	93.6	93.6	93.5	11.5	8.1	9.8	11.6
Capital	17 782	20 095	21 721	22 855	5.8	6.4	6.4	6.5	26.8	32.8	22.2	13.7
Total equity and liabilities	305 989	315 853	338 070	353 037	100.0	100.0	100.0	100.0	12.3	9.4	10.5	11.8

Source: Banco de Portugal.

Note: n.a. not available.

Table 3.2.1

PROFIT AND LOSS ACCOUNT^(a)

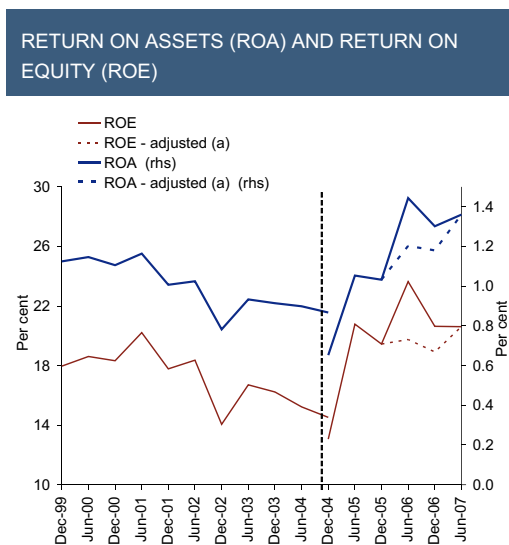
On a consolidated basis

	EUR million				As a percentage of average assets ^(b)				Year-on-year rate of change (per cent)	
	2005		2006		2005		2006		2006	2007
	Year	S1	Year	S1	Year	S1	Year	S1	S1	S1
1. Interest income	13 977	8 043	17 258	10 184	4.84	5.22	5.45	5.97	19.8	26.6
2. Interest expenses	8 601	5 163	11 273	6 908	2.98	3.35	3.56	4.05	26.4	33.8
3. Financial margin (1-2)	5 375	2 880	5 985	3 276	1.86	1.87	1.89	1.92	9.6	13.8
4. Income from capital instruments	217	138	164	150	0.08	0.09	0.05	0.09	-23.1	8.0
5. Income from net services and commissions	2 212	1 194	2 473	1 236	0.77	0.77	0.78	0.72	14.3	3.6
6. Income from financial assets and liabilities measured at fair value	505	-118	-40	273	0.17	-0.08	-0.01	0.16	-	-
7. Income from available-for-sale financial assets	663	230	455	403	0.23	0.15	0.14	0.24	149.1	75.6
8. Income from foreign exchange revaluation	53	281	498	113	0.02	0.18	0.16	0.07	-	-59.8
9. Income from the sale of other financial assets	366	505	758	168	0.13	0.33	0.24	0.10	381.6	-66.7
<i>9.a Income from the sale of other financial assets - adjusted</i>	<i>366</i>	<i>196</i>	<i>448</i>	<i>168</i>	<i>0.13</i>	<i>0.13</i>	<i>0.14</i>	<i>0.10</i>	<i>86.6</i>	<i>-14.1</i>
10. Other net operating profit and loss	417	283	596	256	0.14	0.18	0.19	0.15	-14.4	-9.8
<i>10.a Other net operating profit and loss - adjusted</i>	<i>417</i>	<i>263</i>	<i>577</i>	<i>256</i>	<i>0.14</i>	<i>0.17</i>	<i>0.18</i>	<i>0.15</i>	<i>-20.4</i>	<i>-3.0</i>
11. Gross income (3+4+5+6+7+8+9+10)	9 809	5 393	10 890	5 876	3.40	3.50	3.44	3.44	16.6	9.0
11.a Gross income - adjusted (3+4+5+6+7+8+9a+10a)	9 809	5 064	10 561	5 876	3.40	3.28	3.33	3.44	9.5	16.0
12. Staff costs	3 300	1 614	3 348	1 603	1.14	1.05	1.06	0.94	8.8	-0.7
13. General administrative costs	1 956	957	2 020	1 030	0.68	0.62	0.64	0.60	4.7	7.6
14. Depreciation and amortisation	465	215	445	228	0.16	0.14	0.14	0.13	-3.5	6.1
15. Provisions net of restitutions and annulments	187	55	129	116	0.06	0.04	0.04	0.07	82.9	110.3
16. Impairment losses and other net value adjustments	1 138	478	1 069	715	0.39	0.31	0.34	0.42	-18.5	49.6
17. Appropriation of income from associates and joint ventures (equity method)	217	152	231	139	0.08	0.10	0.07	0.08	62.3	-8.9
<i>17.a Appropriation of income from associates and joint ventures (equity method) - adjusted</i>	<i>217</i>	<i>110</i>	<i>189</i>	<i>139</i>	<i>0.08</i>	<i>0.07</i>	<i>0.06</i>	<i>0.08</i>	<i>17.4</i>	<i>25.9</i>
18. Income before taxes and minority interests (11-12-13-14-15-16+17)	2 981	2 226	4 109	2 322	1.03	1.44	1.30	1.36	50.2	4.3
18.a Income before taxes and minority interests - adjusted (11a-12-13-14-15-16+17a)	2 981	1 855	3 737	2 322	1.03	1.20	1.18	1.36	25.1	25.2
19. Taxes on profit	401	319	722	395	0.14	0.21	0.23	0.23	19.0	23.8
20. Income before minority interests (18-19)	2 580	1 907	3 387	1 927	0.89	1.24	1.07	1.13	57.1	1.1
20.a Income before minority interests - adjusted (18a-19)	2 580	1 535	3 015	1 927	0.89	1.00	0.95	1.13	26.5	25.5
21. Minority interests (net)	383	341	579	343	0.13	0.22	0.18	0.20	123.2	0.6
22. Net profit and loss (20-21)	2 197	1 566	2 807	1 584	0.76	1.02	0.89	0.93	47.6	1.2
22.a Net profit and loss - adjusted (20a-21)	2 197	1 194	2 436	1 584	0.76	0.77	0.77	0.93	12.6	32.6

Source: Banco de Portugal.

Note: (a) The adjustment in some of the items (namely in lines 9, 10 and 17) refers to the deduction of the effect of the restructuring of participating interests in companies of the insurance sector conducted by one of the major banking groups considered in the analysis in the first quarter of 2006. However, the corresponding adjustment was not made in the items of taxes on profit and minority interests (net) (lines 19 and 21). (b) Half-year data are annualised.

Chart 3.2.1



Source: Banco de Portugal.

Notes: The break in the series corresponds to the change in accounting standards, which also implied a redefinition of the group of banking institutions under analysis. (a) The adjusted indicator is obtained by deducting from profit and loss the impact of the restructuring of participating interests in companies of the insurance sector conducted by one of the major banking groups.

one-off operations associated with a restructuring of the participating interests of companies belonging to the group and operating in the insurance sector. Excluding the effect of these operations that occurred in the previous year, there was an increase in both the return on assets (ROA) and the return on equity (ROE) of the banking system (Chart 3.2.1).

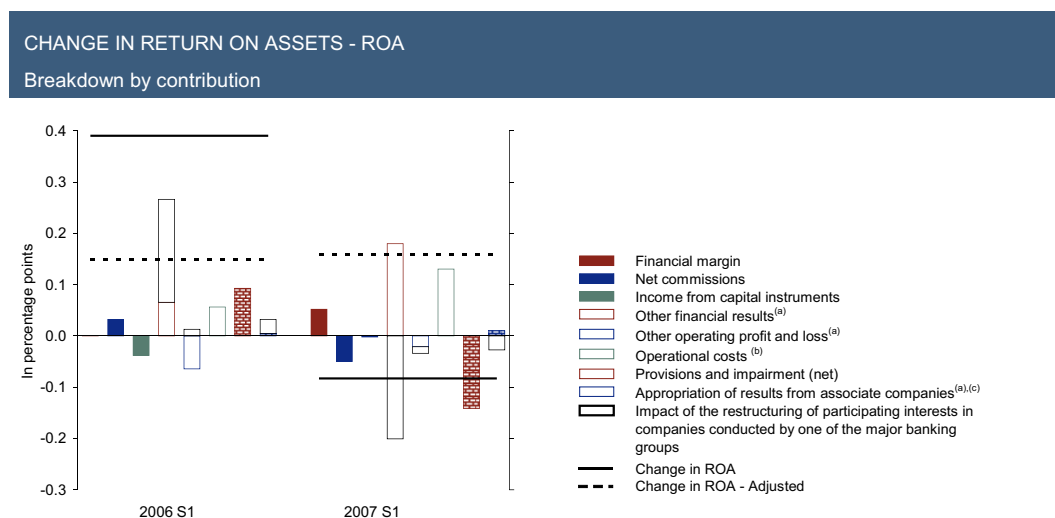
According to the results already presented for the first three quarters of the year, the main domestic banking groups seem to have maintained relatively high profitability levels, in spite of the negative impact of financial market developments throughout the third quarter of the year.

The said increase in ROA in the first half-year was mainly due to the very positive evolution of income associated with the holding of portfolios and positions assumed in capital markets, as well as to very subdued growth in operational costs and, albeit to a lesser extent, to the increase in the financial margin. By contrast, provisioning and impairment increased considerably, and net commissions grew more moderately. Developments in net commissions were essentially due to the costs assumed by one institution in the preparation of a takeover bid, while commissions received continued to grow strongly (Chart 3.2.2).

When adjusted for the impact of the above-mentioned restructuring of holdings conducted by one banking group in the first half of 2006 (which considerably affected profits from the sale of other financial assets), income from the portfolio of securities and financial investments made the most important positive contribution to developments in ROA.¹² This was observed in a context of rising money market interest rates, still low risk premia and increase in stock prices in international markets. Hence, debt and capital instruments in the banking system's securities portfolios made a considerable contribution to the increase in profits. This increase seems to have been partly countered, in aggregate terms,

(12) This concept of income from the portfolio of securities and financial investments corresponds to the sum of "Income from financial assets and liabilities measured at fair value through profit or loss", "Income from available-for-sale financial assets", "Income from the sale of other financial assets" and "Income from foreign exchange revaluation".

Chart 3.2.2

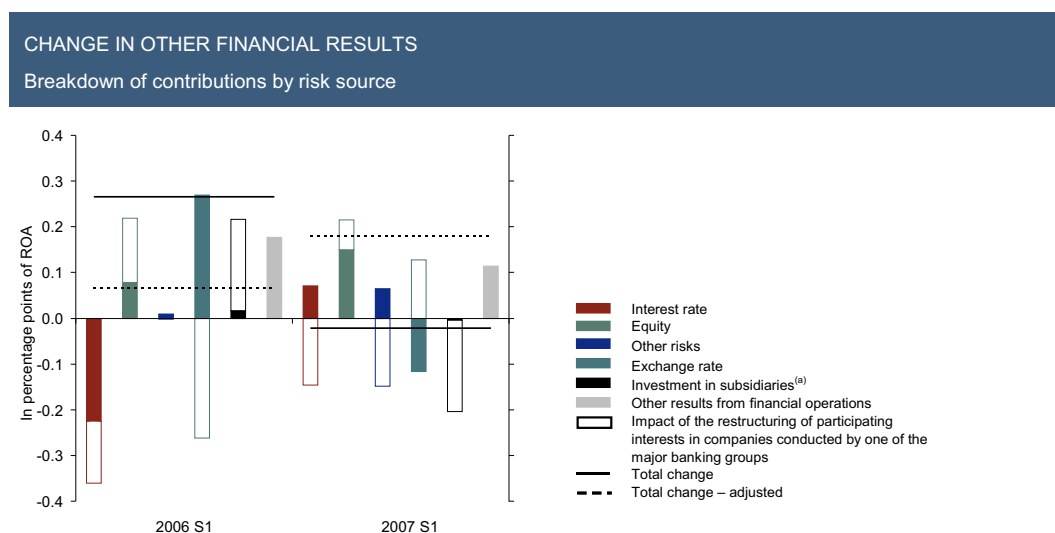


Source: Banco de Portugal.

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 companies (namely in the insurance sector) conducted by one of the major groups considered. (b) Operational costs include staff costs, general administrative spending and depreciation. (c) Income from associates and joint ventures (equity method).

by the negative contribution associated with derivative instruments, typically used to reduce exposure to fluctuations in financial markets¹³ (Chart 3.2.3).

Chart 3.2.3

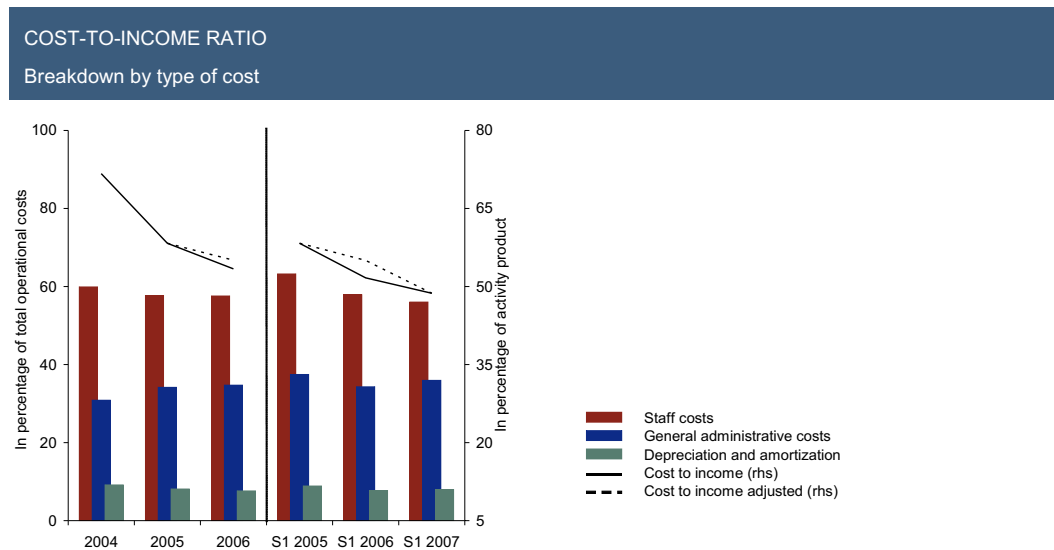


Source: Banco de Portugal.

Notes: The return on assets is calculated by considering income before taxes and minority interests. The dotted series correspond to the impact of derivative instruments associated with each risk source. (a) Excludes results associated with the restructuring of participating interests in companies (namely in the insurance sector) conducted by one of the major groups considered.

(13) With the introduction of the International Accounting Standards (IAS) in 2005, a significant part of banking assets started to be recorded at fair value, which rendered the financial statements of banking institutions more sensitive to fluctuations in financial markets.

Chart 3.2.4



Source: Banco de Portugal.

Notes: The break in the series corresponds to the change in accounting standards, which also implied a redefinition of the group of banking institutions under analysis. (a) The adjusted indicator is obtained by deducting from profit and loss the impact of the restructuring of participating interests in companies of the insurance sector conducted by one of the major banking groups.

Subdued growth in operational costs, in particular the virtual stabilisation of staff costs, also contributed to increase profitability. This largely resulted from the decrease in costs with early retirements (which had been significant in the first half of 2006) that almost entirely offset the rise in compensation of employees (excluding social charges), i.e. around 6 per cent. Hence, the cost-to-income ratio continued to follow the downward trend seen in previous periods¹⁴ (Chart 3.2.4).

The financial margin increased by 14 per cent in the first half of 2007 from the same period a year earlier, thus increasing its contribution to ROA. As a reflection of the rise in money market interest rates in the wake of the rise in the key ECB rates, average implicit interest rates in the total outstanding amounts of the main banking operations increased considerably, and there was a widening of the differential between implicit interest rates on assets and liabilities (Table 3.2.2). This evolution was essentially related to continuing strong growth in net credit to customers (one of the assets with the highest rates of return), limited by the fact that, in the period under review, financing was largely made through the issuance of debt securities, given the moderate growth that characterised developments in resources from customers. Yet, the volume effect was a determinant factor of the overall increase in the financial margin, in net terms.¹⁵

Against this background, the total interest rate margin in operations with customers increased again very slightly in the first half of 2007 (Chart 3.2.5). This widening of the total differential with customers mainly reflected the increase in the interest margin of deposit operations. In turn, the trend narrowing of the interest differential of lending operations, seen in all segments of credit granted to the non-financial private sector, continued to be observed. This behaviour of the differential is typically observed in periods of money market interest rate rise due to a lag in the pass-through of these rates to interest rates on the outstanding amount of operations with customers.¹⁶

(14) The cost-to-income indicator corresponds to the ratio of operational costs (defined as the sum of staff costs, administrative costs and depreciation and amortisation) to gross income.

(15) This means that the higher growth of assets compared to that of interest-bearing liabilities had a more significant impact on the positive change in the financial margin than the widening of the differential between the average rate of return on total amounts outstanding of assets and the average rate of return on liabilities.

(16) This does not necessarily reflect a widening of the differential between rates on new business.

Table 3.2.2

IMPLICIT AVERAGE INTEREST RATES OF THE MAIN BALANCE SHEET ITEMS ^(a)														
Per cent														
	2001		2002		2003		2004		2005		2006		2007	
	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	
Remunerated interest-bearing assets	5.78	5.44	4.56	4.24	4.12	3.88	3.51	3.30	4.33	4.22	4.31	4.56	5.14	
of which:														
Interbank assets ^(b)	4.46	4.09	3.00	2.79	2.47	2.23	1.91	1.77	2.38	2.69	3.05	3.71	3.81	
Non-interbank assets														
Credit	6.64	6.26	5.36	4.94	4.84	4.60	4.19	4.00	4.74	4.56	4.65	4.86	5.48	
Securities	5.43	5.05	4.31	4.08	4.11	3.96	3.62	2.94	5.17	4.85	4.51	4.52	5.37	
Remunerated interest-bearing liabilities	3.86	3.59	2.79	2.61	2.45	2.28	2.01	1.87	2.35	2.32	2.43	2.71	3.18	
of which:														
Interbank liabilities ^(c)	4.77	4.42	3.19	3.00	2.65	2.42	2.13	2.02	3.19	2.89	3.19	3.58	4.35	
Non-interbank liabilities														
Deposits	3.03	2.81	2.27	2.10	1.97	1.80	1.53	1.45	1.65	1.60	1.64	1.80	2.13	
Securities	4.51	4.12	3.41	3.17	3.14	3.12	2.81	2.46	3.21	3.03	3.15	3.72	4.00	
Subordinated liabilities	5.75	5.48	4.70	4.53	4.35	4.30	4.03	3.72	4.79	4.61	4.73	4.82	5.37	
Differentials (percentage points):														
Remunerated assets - remunerated liabilities	1.92	1.86	1.77	1.63	1.68	1.60	1.50	1.43	1.98	1.90	1.88	1.84	1.96	
Credit-deposits	3.61	3.45	3.09	2.84	2.87	2.81	2.66	2.56	3.09	2.96	3.01	3.05	3.35	

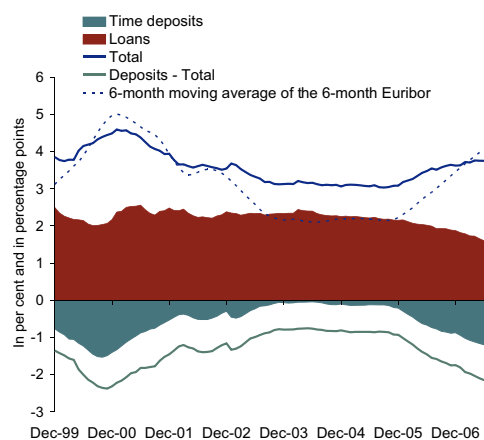
Source: Banco de Portugal.

Notes: The break in the series corresponds to the change in accounting standards, which also implied a redefinition of the group of banking institutions under analysis. (a) Implicit average interest rates calculated as the ratio of accumulated interest flows to the average stock of the corresponding item in the balance sheet. (b) Includes cash, demand deposits with Banco de Portugal, claims on credit institutions and investments in credit institutions. (c) Includes resources collected in central banks and other credit institutions.

In addition to this effect, other factors seem to have contributed to the widening of the total differential with customers. In deposit operations, the increase in the differential also reflects the significant weight that sight liabilities have in total deposits, since this type of resources typically has substantially lower

Chart 3.2.5

INTEREST RATE DIFFERENTIALS IN OPERATIONS WITH CUSTOMERS

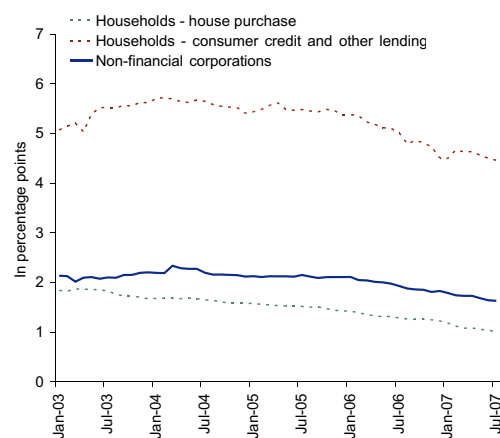


Source: Banco de Portugal.

Note: Differentials by type of operation were calculated as the difference between interest rates on outstanding amounts and a 6-month moving average of the 6-month Euribor. The total differential corresponds to the difference between the interest rate on loans and the interest rate on deposits.

Chart 3.2.6

INTEREST RATE MARGINS IN LOANS



Source: Banco de Portugal.

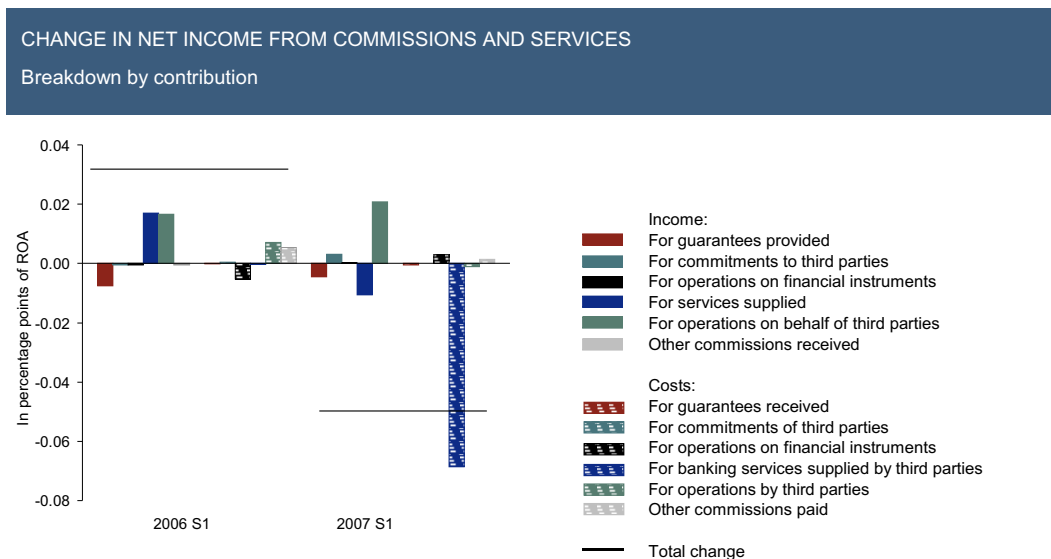
Note: Margins calculated as the difference between interest rates on outstanding amounts and a 6-month moving average of the 6-month Euribor.

remuneration than the remaining deposits and a lower sensitivity to changes in money market interest rates. With regard to lending operations, according to the results of the Bank Lending Survey of April and June 2007, competition among credit institutions, especially noticeable in the market segments of loans to households for house purchase and to non-financial corporations, should have continued to fuel the narrowing of interest margins, mainly as regards medium-risk customers. There was also a compression of the interest rate differential in the segment of consumer credit and other lending to households (Chart 3.2.6). In addition to the competition factor reported by banks participating in the survey, reference should be made to the significant growth in the first half of the year of consumer credit and other lending with a maturity of over five years, in line with 2006. These loans are generally associated with the purchase of durable consumer goods, namely cars. For this maturity, interest rates are, in general, lower than those for shorter maturities. Therefore, the reduction of the overall interest margin in this credit market segment continued to result in part from this change in the composition by maturities of the total amount outstanding of consumer credit and loans for purposes other than house purchase. In addition, some loans of this type contracted with a longer maturity may be associated with real collateral, which will allow for lower interest differentials than those typical of this loan category.

Developments in provisioning and impairment losses, which rose remarkably by around 55 per cent, made a negative contribution to the evolution of profitability in the first half of 2007, compared with the same period a year earlier. In this vein, and contrary to recent years, the contribution from commissions and other intermediation results to developments in ROA was negative. In fact, this type of income grew by 4 per cent, i.e. quite below average assets (around 10 per cent). However, the weak growth of this component was largely due to the increase in commissions paid for services supplied by third parties, in which costs relating to the takeover bid by Millenium BCP for BPI had a considerable impact (Chart 3.2.7). Excluding costs from commissions related to the takeover bid, developments in (net) income from commissions and services in the first half of 2007 would be in line with the trend followed in the most recent periods, i.e. around 10 per cent.

In the third quarter of the year developments in the profitability of the main domestic banking groups seem to have been negatively influenced by results associated with the portfolio of securities and, in some cases, to increases in impairment, in particular of credit. However, favourable developments in

Chart 3.2.7



Source: Banco de Portugal.

the stock markets of emerging economies seem to have benefited the portfolio of securities of banks, albeit in a less widespread manner.

3.3. Capital adequacy

In June 2007 the overall capital adequacy ratio of the institutions analysed, in consolidated terms, stood at 10.2 per cent (10.9 and 11.5 per cent respectively in December and June 2006) (Table 3.3.1). The decline in this ratio since June 2006 was associated, on the one hand, with a change in the second half of 2006 in regulations on deductions of participating interests and financial instruments held by banking institutions in companies related to the insurance sector, which affected own funds. On the other hand, it was also related to an acceleration in own funds requirements in the first half of 2007. Taking into account original own funds only, the ratio declined as well, for which also contributed the change in the method of deduction of the above-mentioned participating interests introduced in the first half of 2007.

At the end of the first half-year, total own funds grew by 1.6 per cent year-on-year. This growth was negatively influenced by the regulatory change mentioned above, due to which participating interests and instruments started to be included in the series of total deductions from total own funds, with an estimated impact on the overall capital adequacy ratio of slightly above 0.5 percentage points in December 2006 and June 2007.^{17,18} Conversely, favourable developments in financial markets made a positive contribution to income and revaluation reserves. Already in 2007 the prudential treatment of

Table 3.3.1

CAPITAL ADEQUACY							
On a consolidated basis, EUR million							
	2003	2004	2005	2006			2007
	Dec	Dec	Jun	Dec	Jun	Dec	Jun
1. Own funds							
1.1. Original own funds	11 629	13 729	13 947	14 891	16 928	17 851	17 212
1.2. Additional own funds	7 615	8 337	9 872	10 776	10 151	9 914	9 663
1.3. Deductions	2 365	2 092	2 685	1 948	1 695	2 405	1 097
1.4. Supplementary own funds	0	1	0	0	0	0	11
Total own funds	16 880	19 975	21 135	23 719	25 384	25 360	25 789
2. Own funds requirements							
2.1. Credit risk, counterparty risk and free deliveries	13 208	15 096	15 489	16 213	17 153	17 968	19 431
2.2. Position risks	261	488	573	493	451	468	565
2.3. Settlement risks	34	53	72	67	65	70	0
2.4. Foreign exchange risks	81	41	60	57	52	92	116
2.5. Operational risk							35
2.6. Other requirements	0	1	0	1	0	2	48
Total own funds requirements	13 584	15 679	16 194	16 830	17 721	18 599	20 194
3. Ratios (per cent)							
3.1. Own funds/total requirements	124.3	127.4	130.5	140.9	143.2	136.4	127.7
3.2. Own funds/(total requirements x 12.5)	9.9	10.2	10.4	11.3	11.5	10.9	10.2
3.3. Original own funds/(total requirements x 12.5)	6.8	7.0	6.9	7.1	7.6	7.7	6.8

Source: Banco de Portugal.

Note: The break in the series corresponds to a change in the prudential reporting models. Therefore, the analysis of own funds developments and of requirements shall be limited to total aggregates, not including the items that comprise them.

(17) In accordance with Notice No 12/2006, the holding of the direct or indirect participations that create durable links or account for at least 20 per cent of voting rights or of the capital of insurance and reinsurance undertakings and holding companies of the insurance sector, as well as the financial instruments referred to in 1(b) of paragraph 9-D of Notice No 12/92 held with these entities, are now deducted from total own funds, by the respective net value recorded on the assets side.

(18) This estimate was based on the assumption that the prudential rules in question remained unchanged from June 2006, and that institutions did not change their decisions following the new regulations.

the said deductions changed. Although not having impact at the level of the total amount of own funds, the change affected its composition, since deductions started to directly affect original own funds and additional own funds.^{19,20} This change made a contribution of slightly above 0.3 percentage points to the decline in the original own funds adequacy ratio.

Total own funds requirements increased by 14 per cent year-on-year. This chiefly reflected growth in requirements relating to credit risk, counterparty risk and free deliveries (similarly to the previously defined solvency ratio requirements).²¹ The rise in these requirements was associated with the expansion of bank credit, stress being laid on the growth of loans to non-financial corporations and to households for consumption and other purposes. These business segments are associated with higher capital requirements, when compared with the segment of loans to households for house purchase, typically with real collateral. In turn, this latter segment, notwithstanding the slowdown seen since the first half of 2006, continues to show robust growth rates, also considerably contributing to the increase in risk-weighted assets.

3.4. Liquidity risk

In late June 2007 the liquidity position of domestic banking institutions was to a certain extent similar to that seen at the end of June 2006. In fact, the respective liquidity gaps were, as a whole, virtually stable compared with those seen in June 2006. The gap for the horizon of up to one month remained positive and those for horizons of 3 months or more were negative (more significantly with the lengthening of maturities).²² In a context of stable international wholesale financing markets, the gaps observed would not be liable to condition prices, quantities and time structures of banking transactions. However, given the emergence of borrowing difficulties in these markets stemming from the instability in international financial markets, institutions seem to have changed some conditions in relationships with their customers already in the course of the third quarter of the year. This change translated into an increased tightening of the standards of credit supply to the non-financial private sector and into more competitive strategies in the collection of customer deposits.

In the 12-month period ended in June 2007, the financing structure of Portuguese banks maintained the main features of its evolution throughout recent years. These features integrate trends observed at the international level. There continued to be a significant gap between flows associated with credit to customers and resources obtained with them. These developments have been managed by banking institutions through increased recourse to market financing, mainly through the issue of debt securities (not of a subordinated nature). Likewise, loan securitisations have contributed to the raising of medium to long-term funds by the major Portuguese banking groups. Money market financing (net of investments) has been used in liquidity management on a more conjunctural basis, enabling to accommodate, generally in the first half of each year and on a temporary basis, imbalances associated with the

(19) Notice No 4/2007, which is part of the transposition of Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions, changed the method of deduction of participating interests and financial instruments held by banking institutions in companies related to the insurance sector, which are now deducted 50 per cent from original own funds and 50 per cent from additional own funds (after implementing the limits for eligibility of additional own funds according to original own funds).

(20) In June 2007 the time comparison of elements comprising own funds was also limited by the change in the prudential reporting tables introduced by Instruction No 23/2007, in the wake of a project of the Committee of European Banking Supervisors (CEBS). This project aims at developing a reporting model – common to different countries – for the capital adequacy ratio, in accordance with the new Community legislative framework governing the capital adequacy regime. Following this change, some components of the various prudential maps ceased to have a direct matching to the definitions of the previous models.

(21) The changing of the names of own funds requirements items is related to the introduction of the previously mentioned new prudential reporting tables.

(22) The liquidity gap is defined as the difference between liquid assets and liabilities due in each residual maturity ladder and provides an indication on the financing needs that banking institutions have to meet within the projection horizon (as a percentage of total assets less highly liquid assets). For a detailed description of the liquidity indicators usually used in the analyses of Banco de Portugal, see “Box 4.1 *Monitoring of the banking system's liquidity risk*, in the *Financial Stability Report*, 2004, Banco de Portugal.

Chart 3.4.1

LIQUIDITY SOURCES OF THE BANKING SYSTEM

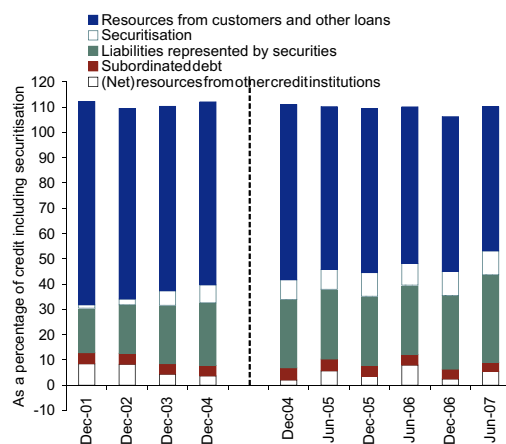
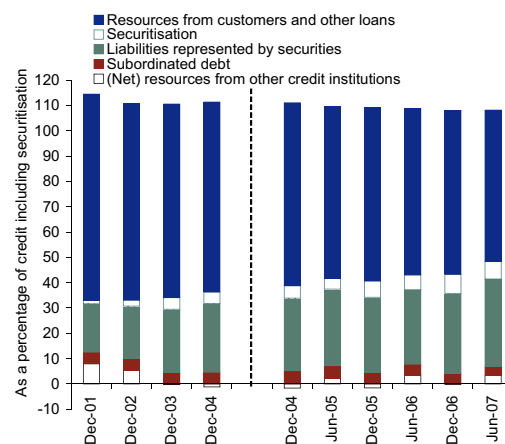


Chart 3.4.2

LIQUIDITY SOURCES OF THE BANKING SYSTEM

Domestic banks



Source: Banco de Portugal.

Notes: (Net) resources from other credit institutions include net resources from central banks. Securitisations include derecognised and non-derecognised transactions. The break in the series corresponds to the change in accounting standards, which also implied a redefinition of the group of banking institutions under analysis.

seasonal performance of some balance-sheet items. Yet, it should be noted that the importance of this recourse in total financing clearly decreased from the start of the decade (Charts 3.4.1 and 3.4.2).

As already mentioned, in comparison with the same month a year earlier, in June 2007 liquidity gaps of domestic banks underwent negligible changes in aggregate terms, although it is important to refer that the gap for the longest horizon of residual maturity widened further, keeping the trend seen since late 2004 (Chart 3.4.3).²³

Essentially, the evolution of the gap for the 1-year horizon is based on the increase in the forecast repayments of securitised liabilities, which are likely to imply the refinancing of the medium to long-term issues that took place in the most recent years (Chart 3.4.4). From June 2006 there was an increase in repayments forecast for all horizons, in particular 3 to 12 months.

The relative stability of the liquidity gaps of domestic institutions was seen in the context of a further rise in the ratio of credit to resources from customers. These developments are not qualitatively different when the calculation of the indicator includes securitised loans and an estimate of securities issued by institutions and held by the respective customers (Chart 3.4.5).

Loans to customers recorded a year-on-year rate of change of close to 13 per cent in June 2007.²⁴ In turn, resources from customers kept a year-on-year rate of change of close to 5 per cent (Chart 3.4.6). Resources collected with residents (essentially deposits) grew at a rate of close to 3 per cent. In turn, non-resident customer deposits recorded a rate of change of 13 per cent, also reflecting the expansion of activity carried on abroad by the major Portuguese banking groups.

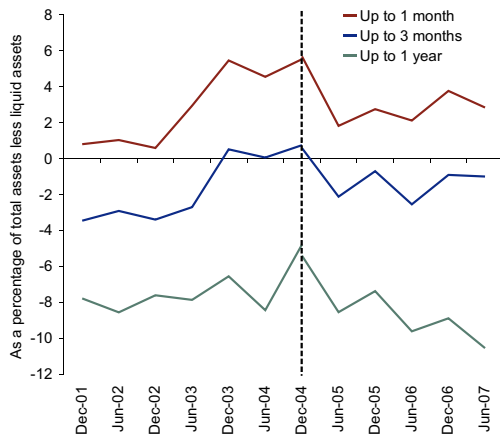
(23) Considering the structure of short-term (up to 1 year) assets and liabilities by residual maturities, the analysis of gaps allows for a more comprehensive characterisation of the liquidity situation of banks, compared with other indicators that are commonly used in liquidity analysis, such as the ratio of credit to deposits and the coverage ratio of interbank liabilities by highly liquid assets. This occurs namely for it taking into account a widened group of assets and liabilities that are materially relevant in determining the financing needs of their activities. A detailed description of liquidity indicators used in this section is presented in "Box 4.1 Monitoring of the banking system's liquidity risk", *Financial Stability Report*, 2004, Banco de Portugal.

(24) The importance of this change in balance sheet developments is analysed in "Section 3.1 Activity". "Section 3.5 Credit risk" analyses credit developments in terms of sectoral counterparty and portfolio quality.

Chart 3.4.3

LIQUIDITY GAP IN MATURITY LADDERS

Domestic banks

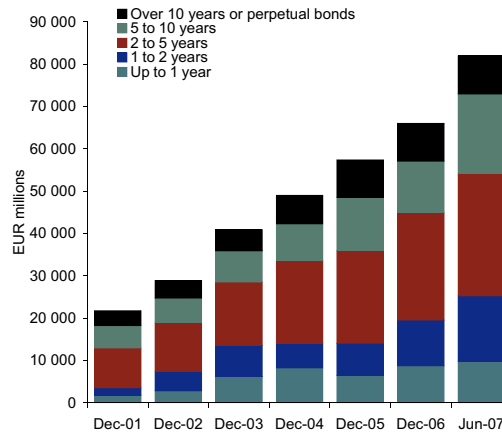


Source: Banco de Portugal.

Notes: Liquidity gap defined as (liquid assets - volatile liabilities)/(assets - liquid assets) x100 on each residual maturity ladder. The break in the series corresponds to the change in accounting standards, which also implied a redefinition of the group of banking institutions under analysis.

Chart 3.4.4

STRUCTURE BY RESIDUAL MATURITY OF THE OUTSTANDING AMOUNT OF BONDS ISSUED BY BANKING GROUPS

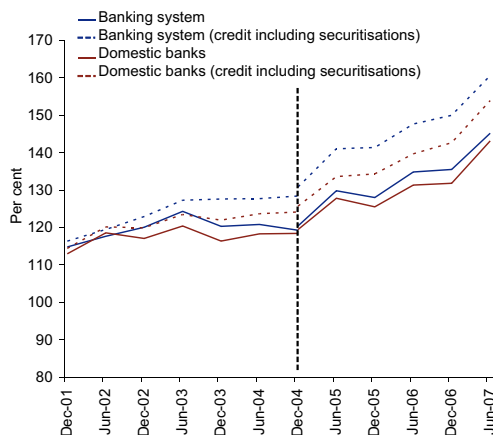


Sources: Dealogic Bondware, Bloomberg and Datastream.

The structural divergence between developments in credit and in resources from customers, against a background of relative stability in the remaining assets, has been essentially addressed through increased recourse to the issue of securities. In contrast to the situation until late 2006, stress should be laid on bond's issues in the domestic market in 2007, to the detriment of issues through branches and subsidiaries abroad (Chart 3.4.7). This was associated, on the one hand, with the amendment in 2006

Chart 3.4.5

RATIO OF CREDIT TO RESOURCES FROM CUSTOMERS (INCLUDING SECURITIES ISSUED AND PLACED WITH CUSTOMERS)



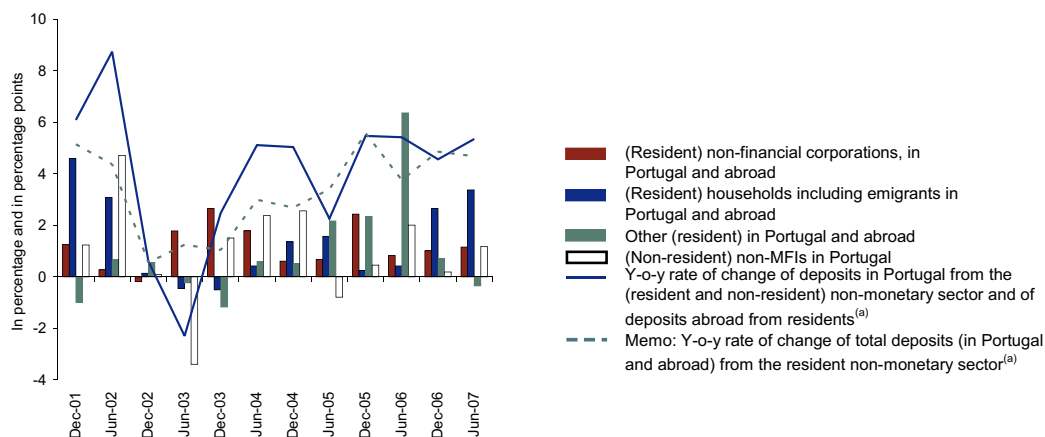
Source: Banco de Portugal.

Note: The break in the series corresponds to the change in the accounting standards, which also implied a redefinition of the group of banking institutions under analysis.

Chart 3.4.6

DEPOSITS FROM THE NON-MONETARY SECTOR

Contributions to the year-on-year rate of change



Source: Banco de Portugal.

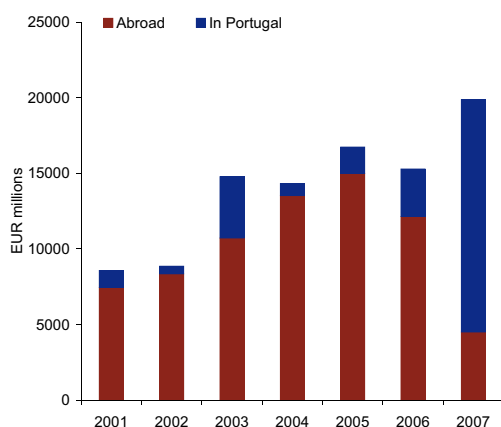
Note: (a) Excluding liabilities recorded as a counterpart of the liquidity received from non-derecognised securitisation transactions, recorded as deposits (and deposit-like instruments) of other financial intermediaries and auxiliaries.

of the Portuguese legislation on the issuance of mortgage bonds. This amendment facilitated the issue of securities backed by mortgage loans that constitute autonomous property, although they remain on the bank's balance sheet, allowing banks to obtain financing at lower costs compared with other types of securitised debt, such as the issue of bonds through EMTN (Euro-Medium Term Notes) programmes.²⁵ On the other hand, the European Central Bank ceased to accept as collateral in mone-

Chart 3.4.7

ISSUANCE OF BONDS OF BANKING GROUPS

By placement market

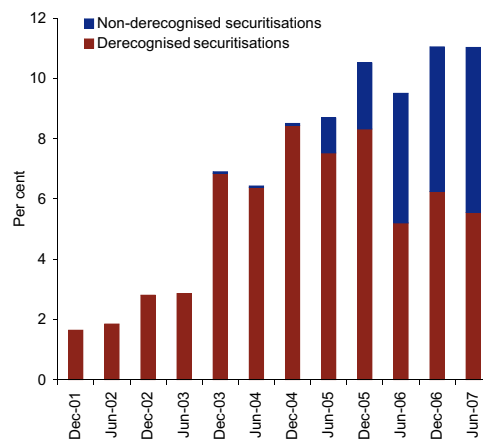


Sources: Dealogic Bondware, Bloomberg and Datastream.

Chart 3.4.8

DEVELOPMENTS OF LOANS GRANTED IN SECURITISATIONS

As a percentage of credit granted to the non-financial private sector



Source: Banco de Portugal.

(25) The fact that each issue has an assigned set of mortgage credits gives increased assurance of repayment. Hence, mortgage bonds have a lower credit risk premium, being also subject to a favourable prudential treatment in terms of solvency, within the framework of the new Community prudential regime, which reinforces its eligibility as a financial instrument for banks as investors.

tary policy operations securities of banks issued off-shore after 1 January 2007, thus reducing market receptiveness to securities issued through branches and subsidiaries abroad.

In addition, banking institutions have resorted to the securitisation of credits (Chart 3.4.8). At the end of the first half of 2007, financing associated with the conduct of these operations accounted for around 11 per cent of credit granted to the non-financial private sector (9.5 per cent in June 2006). Loans for house purchase continued to be the assets underlying most of the operations (around 20 per cent of this type of loans was securitised in June 2007).

In June 2007 the year-on-year change in borrowing (net of investments) in the money market with other credit institutions was marginally positive for the domestic institutions aggregate (for the non-domestic ones there was a significant reduction)²⁶ (Table 3.4.1).

In this context, as far as domestic institutions are concerned there was a year-on-year stabilisation of the coverage ratio of interbank liabilities by highly liquid assets, which include, in addition to interbank assets, debt securities eligible for monetary policy operations (which rose by around 12 per cent) (Chart 3.4.9).

Against a background of turmoil in international financial markets, liquidity management by banking institutions became particularly complex, taking into account the importance of resources collected in wholesale markets in the total financing of banks, in line with the growing financial integration of the Portuguese economy and with international trends.²⁷ In fact, institutions experienced borrowing difficulties with the usual sources, namely the (unsecured) interbank money market, securitised debt markets and credit securitisations. In general terms, these markets recorded considerable disturbances, which translated into a reduction in traded quantities and an increase in the respective prices. Up to the end of October the effects mentioned were somewhat reversed, and some institutions resumed the issue of debt securities in the market. However, the information available suggests that the quantities and prices remain at different levels than those observed in the period prior to the turbulence. The euro area money market moved broadly in tandem with these developments, although considerable differentials subsisted between interest rates on interbank operations for maturities of over one month and interest rates on collateralised operations as well as key ECB rates.

Responses to the October Bank Lending Survey confirmed financing difficulties in the wholesale market and their spillover to credit standards for households and companies in the third quarter of the year. In addition, reporting institutions indicated they expected continuing financing difficulties in the course of the last quarter of the year, which is likely to have additional impacts on interest rate spreads, amounts and also on the maturity structure of products that banks will provide to their customers.

The impact of turbulence may be not only reflected on loan conditions; there is also some evidence that institutions will adopt more active strategies in the collection of deposits. These strategies, which will probably translate into some compression of the deposit margin in relation to money market rates, will be matched, to a certain extent, on the supply side, given the greater risk-aversion of savers. Throughout the period of greater turbulence, considerable amounts of mutual fund units were redeemed.

For the purpose of monitoring the impacts of financial market turbulence on Portuguese banks, Banco de Portugal has been promoting regular contacts with them. In general, the institutions have reported no particular difficulties in the management of the respective liquidity positions for the months to come,

(26) In 2006 one of the major non-domestic banking groups operating in Portugal sold securities resulting from credit securitisations carried out by this group in previous years, which were used as collateral in monetary policy operations. This sale enabled a significant decrease in the group's recourse to longer-term refinancing operations (three months) with the central bank.

(27) In late June 2007 the balance of the financing of Portuguese domestic institutions with wholesale markets accounted for around 40 per cent of the total debt of these institutions, and was essentially comprised of medium to long-term securities.

Table 3.4.1

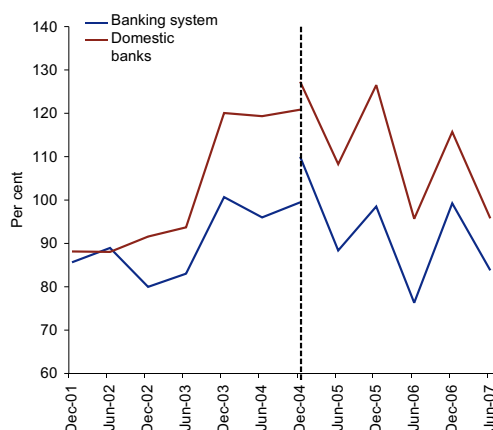
POSITION OF THE PORTUGUESE BANKS V/S-À-V/S OTHER CREDIT INSTITUTIONS AND CENTRAL BANKS

	EUR millions				Rate of change (per cent)			
	2005		2006		2005		2006	
	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun
Banking system								
(Net) resources from other credit institutions	7 974	18 880	6 311	14 736	87.2	52.3	-20.8	-22.0
Cash and claims on central banks	6 205	5 498	6 907	4 802	-17.9	20.0	11.3	-12.7
In Portugal	5 657	4 805	6 256	4 097	-19.7	15.9	10.6	-14.7
Abroad	548	693	651	705	6.7	59.6	18.8	1.7
Claims and investment in other credit institutions	30 876	27 848	31 442	27 585	23.3	6.0	1.8	-0.9
In Portugal	5 748	4 525	5 763	5 031	34.1	-3.4	0.3	11.2
Abroad	25 127	23 319	25 679	22 554	21.1	8.0	2.2	-3.3
Resources from central banks	6 215	8 450	1 739	1 977	75.5	45.1	-72.0	-76.6
In Portugal	5 464	7 337	8	14	69.0	41.6	-99.9	-99.8
Abroad	751	1 113	1 731	1 963	142.9	73.0	130.6	76.4
Resources from other credit institutions	38 840	43 776	42 921	45 146	16.6	17.0	10.5	3.1
In Portugal	5 384	5 545	4 077	3 928	33.1	30.3	-24.3	-29.2
Abroad	33 457	38 234	38 843	41 228	14.3	15.2	16.1	7.8
Domestic banks								
(Net) resources from other credit institutions	-3 036	6 754	- 263	7 468	7.6	77.1	-91.3	10.6
Cash and claims on central banks	5 548	4 927	6 200	4 119	-20.2	19.9	11.8	-16.4
In Portugal	5 022	4 258	5 576	3 440	-22.2	15.5	11.0	-19.2
Abroad	526	669	624	679	5.4	58.1	18.8	1.4
Claims and investment in other credit institutions	25 780	21 772	27 037	24 873	19.2	4.4	4.9	14.2
In Portugal	4 795	3 469	4 700	4 184	40.4	-10.4	-2.0	20.6
Abroad	20 985	18 298	22 337	20 689	15.2	7.7	6.4	13.1
Resources from central banks	851	1 705	1 736	1 970	-15.8	130.4	104.1	15.5
In Portugal	110	600	8	14	-84.2	451.8	-92.6	-97.7
Abroad	740	1 105	1 728	1 956	138.0	75.0	133.4	77.1
Resources from other credit institutions	27 441	31 747	31 238	34 490	10.9	13.2	13.8	8.6
In Portugal	4 610	5 065	3 569	3 694	33.0	32.5	-22.6	-27.1
Abroad	22 833	26 685	27 669	30 807	7.3	10.2	21.2	15.4

Source: Banco de Portugal.

Chart 3.4.9

COVERAGE RATIO OF INTERBANK LIABILITIES BY HIGHLY LIQUID ASSETS



Source: Banco de Portugal.

Note: The coverage ratio is defined as the ratio of highly liquid assets (interbank assets and debt securities eligible for monetary policy operations) to interbank liabilities. The break in the series corresponds to the change in the accounting standards, which also implied a redefinition of the group of banking institutions under analysis.

largely as a reflection of the fact that a substantial part of debt issue programmes for 2007 occurred before the start of the turbulence period and because conditions of access to international mortgage bond and commercial paper markets have meanwhile improved.

3.5. Credit risk

Developments in exposures

In June 2007 two thirds of the assets of the banking system corresponded to credit to customers. As referred to above, growth in the first half of the year reflected, on the one hand, some acceleration of credit granted in the domestic market to the non-financial private sector and, on the other, the increasing contribution of the local activity of subsidiaries abroad of Portuguese banking groups.

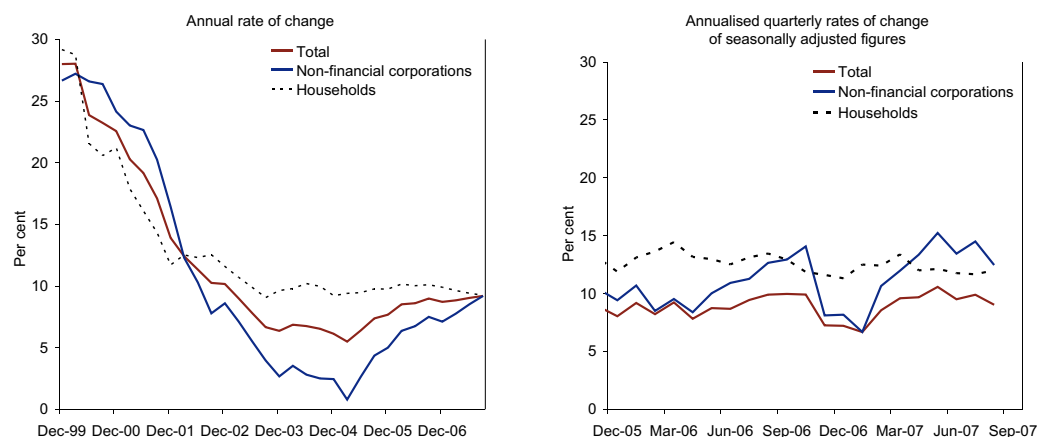
During the first half of 2007 bank credit to the resident non-financial private sector accelerated somewhat (from 8.7 per cent at the end of 2006 to 9.0 per cent in June and remained broadly unchanged in September at 9.2 per cent). These developments reflected higher growth of credit to non-financial corporations than in 2006 and a slight slowdown in loans to households (Chart 3.5.1).

According to data made available by the Central Credit Register (CCR), debt of non-financial corporations to resident credit institutions accelerated in June 2007, compared with both June and December 2006. This acceleration was more marked in big loans, which should be associated to larger enterprises (Table 3.5.1²⁸).

⁽²⁸⁾ The rates of change presented in Table 3.5.1 for the total differ from those included in Table 8 of the publication Monthly Economic Indicators and from Table 3.5.2 for several reasons: (i) they take into consideration not only loans granted by banks, savings banks and mutual agricultural credit banks, but also loans granted by other resident non-monetary financial institutions participating in the CCR (see note (a) to Table 3.5.1); (ii) non-financial corporations as a whole include some corporations that do not belong to the non-financial corporations' institutional sector (being part of other institutional sectors); (iii) rates of change are calculated on the basis of end-of-period outstanding amounts, which include derecognised credit sold in securitisation transactions but which are not adjusted for reclassifications, write-offs, exchange rate and price revaluations.

Chart 3.5.1

BANK LOANS TO THE NON-FINANCIAL PRIVATE SECTOR



Source: Banco de Portugal.

Note: Rates calculated from indices based on figures adjusted for securitisation, as well as for reclassifications, write-offs and exchange rate and price revaluations. Latest observation: September 2007.

According to the Portuguese banks participating in the Bank Lending Surveys of April and July 2007, in the first half of the year, there was a slight rise in the demand for loans by non-financial corporations. The factors contributing to increasing demand, continued to be debt restructuring, financing needs related to inventories and working capital and, to a lesser extent, the financing of mergers and acquisitions and corporate restructuring. In a context of competition among banking institutions, the

Table 3.5.1

CREDIT TO NON-FINANCIAL CORPORATIONS, BROKEN DOWN BY SIZE OF EXPOSURE ^(a)
Year-on-year rates of change (per cent) ^(b)

	2005		2006		2007	Memo (Jun 2007):		
	Jun	Dec	Jun	Dec	Jun	Lower limit ^(e)	Average outstanding amounts (10 ³ €)	Weight of outstanding amounts in the total (%)
Total	4.5	5.8	7.3	7.3	9.5			
Large exposures (percentile 90) ^(c)	4.3	5.7	7.1	7.3	9.7	450	3 900	89
of which:								
Very large exposures (percentile 99) ^(c)	4.0	6.1	7.1	7.7	10.5	6 011	24 948	59
of which:								
Larger exposures (percentile 99.5) ^(c)	3.2	5.6	7.0	7.7	11.2	11 331	41 988	49
Retail exposures ^(d)	5.9	6.4	8.5	7.1	8.3	-	53	11

Source: Banco de Portugal.

Notes: (a) Indicators based on information from the Central Credit Register (CCR). They correspond to credit granted by banks, savings banks, mutual agricultural credit banks, credit financial institutions, factoring companies, financial leasing companies, credit card issuing or management companies, credit purchase financing companies and other resident financial intermediaries. They include loans sold in securitisation and credit granted to non-financial corporations and to some corporations that do not belong to the institutional sector of financial corporations (thus belonging to other resident institutional sectors). (b) For the calculation of the year-on-year rates of change, the lower limits of each group of exposures were defined by consecutively applying the rates of change of total exposures in each period to the figures in June 2007. The rates of change are calculated on the basis of end-of-period outstanding amounts, with no adjustment. (c) Percentiles are defined on the basis of the number of corporations ordered according to the total amount of exposure. (d) Exposures with lower amounts than the lower limit of large exposures. They correspond to 90 per cent of corporations indebted to institutions participating in the CCR. (e) Exposure amount with the lowest value among the whole of exposures considered in the percentile. In thousands of euros.

narrowing of the spreads applied to medium-risk customers enabled the moderation of the effect on the overall cost of bank financing of non-financial corporations of the continued rise in interest rates. Also benefiting from favourable risk premia, Portuguese non-financial corporations issued significant amounts of bonds and commercial paper in the first half of 2007, which represented, in net terms, nearly 75 per cent of net debt issuance in 2006 as a whole. Reflecting these developments, the total financial debt of this sector at the end of June 2007 was 8.5 per cent higher than in June 2006²⁹ (compared with 5.7 per cent in December 2006). In the course of the first half year, there was also significant equity issuance by non-financial corporations, comprised mainly of unquoted shares.³⁰

In the first half of 2007 there was an increase in the contribution of credit granted to the construction sector to the total change in loans to non-financial corporations, amid the persistence of relatively subdued activity in the sector (Table 3.5.2). In turn, loans granted to companies providing real estate services and other services supplied mainly to companies (which include holding companies) continued to grow at far higher rates than the total.

In the third quarter of the year, according to the results of the Bank Lending Survey of October, the demand for bank loans by non-financial corporations remained basically unchanged. However, there was a significant increase in the contribution of debt restructuring to the rise in demand, while the financing of mergers and acquisitions and corporate restructuring started to contribute to its reduction. In turn, the financing of investment ceased to be considered as a factor inducing a decline in the demand for credit by non-financial corporations.

According to the results of this survey, in the third quarter of 2007 the credit standards applied by banks in the approval of loans to companies were tightened. The major factors that contributed to the tighten-

Table 3.5.2

LOANS GRANTED BY OTHER MONETARY FINANCIAL INSTITUTIONS TO NON-FINANCIAL CORPORATIONS ^(a)								
Sectoral breakdown, end-of-period annual rate of change								
	2003	2004	2005	2006		2007		Weight in the total Dec 2006
	Dec	Dec	Dec	Jun	Dec	Jun	Sep	
Total	2.7	2.4	5.0	6.7	7.1	8.5	9.2	100.0
By economic activity^(b):								
Agriculture, livestock, hunting, forestry and fishing	7.8	5.0	4.5	9.6	9.2	10.7	11.7	1.5
Mining and quarrying	15.4	-6.7	0.6	-8.5	-2.8	6.7	5.6	0.4
Manufacturing	0.5	-3.8	-3.0	-1.8	0.7	4.8	6.5	13.2
Generation and distribution of electricity, gas and water	4.8	-2.0	37.9	15.8	-11.5	-8.6	-2.1	2.1
Construction	3.8	6.0	10.7	6.9	5.3	8.9	10.7	19.8
Services	2.6	3.2	4.2	8.5	9.8	9.7	9.7	63.0
of which:								
Real estate activities	11.6	13.9	11.9	10.6	12.5	15.0	17.1	19.3
Other services provided mainly to corporations	-6.1	-1.7	6.7	14.8	14.4	16.7	14.9	14.4
Trade, hotels and restaurants	4.6	2.0	3.1	6.0	7.1	4.6	3.5	18.5
Transport, post and communication	3.7	-4.5	-10.6	-0.3	0.8	-3.6	-1.3	5.5

Source: Banco de Portugal.

Notes: (a) Rates of change are calculated on the basis of the relation between end-of-period outstanding amounts of bank loans and transactions, which are calculated from outstanding amounts adjusted for reclassifications, as well as for securitisation, write-offs and exchange rate and price revaluations. (b) The allocation of loans by economic activity is calculated on the basis of the structure of the Central Credit Register.

(29) Includes loans granted by resident and non-resident credit institutions, loans/additional capital granted by non-resident corporations belonging to the same economic group (excluding those granted to non-financial corporations having their head office in the Madeira offshore) and debt securities (commercial paper and bonds) issued by non-financial corporations held by other sectors.

(30) See "Monetary and financial conditions of the Portuguese economy", in the section "The Portuguese economy in 2007", in this issue of the *Economic Bulletin*.

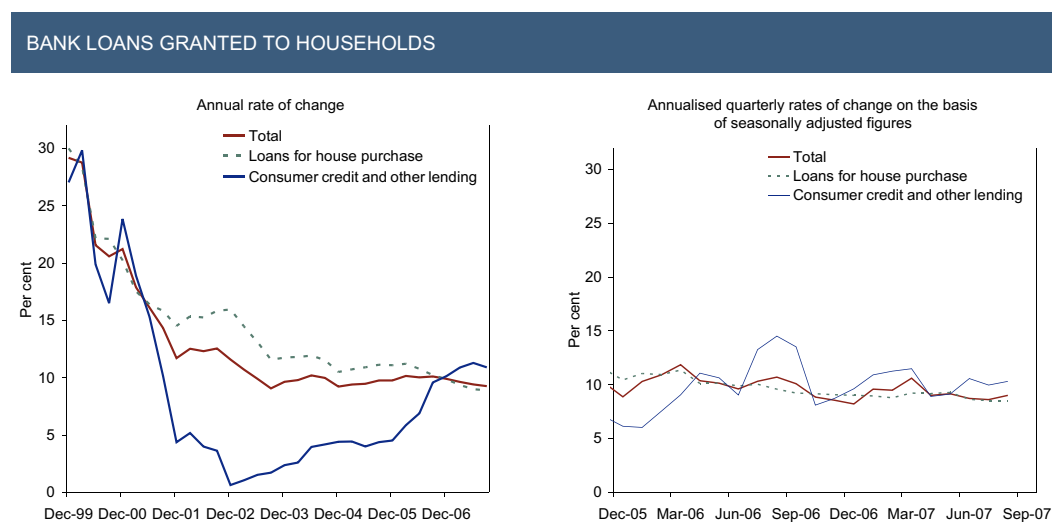
ing of supply were the rise in the cost of funds and balance sheet constraints (with particular emphasis on the conditions faced in market financing), a deterioration in the perception of risk and the reduction in competition from market financing (also suggesting increased difficulty of non-financial corporations in borrowing from the market). In addition, risks associated with industry or firm-specific prospects became more relevant.

For the last quarter of the year, banks participating in the Bank Lending Survey projected some difficulties in accessing the usual funding sources, in the wake of the instability in international financial markets, albeit to a lesser degree than in the third quarter. Respondent banks also mentioned that these difficulties in accessing funds will tend to be reflected in a slight tightening of credit standards applied to the approval of loans, both in terms of spreads and even of amounts available. According to respondent banks, this tightening may be more marked in the large enterprises segment. The impact will be more visible in the financing of investment projects, mergers and acquisitions and other corporate restructuring processes.

In turn, loans to households maintained a deceleration trend in the first half of the year, consistent with the rise in interest rates and the relatively high indebtedness level of Portuguese households. In this segment of the credit market, loans for house purchase continued to decelerate (to a rate around 9 per cent) (Chart 3.5.2). By contrast, consumer credit and other lending increased at rates above 10 per cent in the course of the first half year, keeping high growth in September (around 11 per cent). It should be noted that in this type of credit, there was an increase in the relative importance of both loans with a maturity of more than five years and bank overdrafts.

According to the Portuguese banking groups participating in the Bank Lending Survey, in the course of the current year the demand for bank loans by households continued to increase, both for house purchase and for consumption and other purposes. In the first half of the year, supply conditions remained broadly unchanged from end-2006, despite pressures from competition among banking institutions and from other non-bank financial institutions in these two segments of the market. In fact, despite the deceleration observed, the flow of bank credit granted to households in the first half of the year was still

Chart 3.5.2

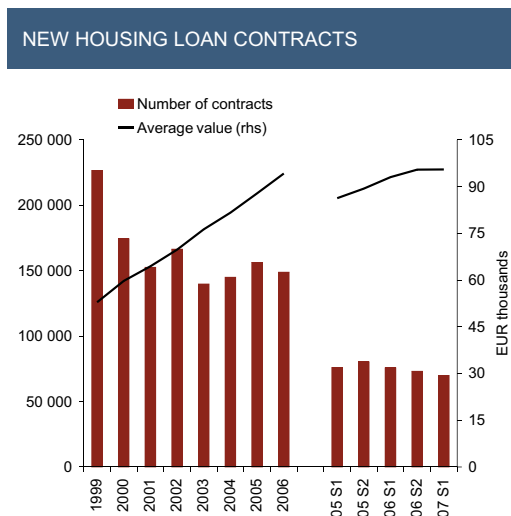


Source: Banco de Portugal.

Note: Rates calculated from indices based on figures adjusted for securitisation, as well as for reclassifications, write-offs and exchange rate and price revaluations. Latest observation: September 2007.

close to that recorded in the corresponding period of 2006. However, there was a reduction in the number and amount of new housing loan contracts while the average value per contract remained virtually

Chart 3.5.3



Source: Direcção Geral do Tesouro.

unchanged from the second half of 2006 (albeit higher than in the corresponding half of 2005) (Chart 3.5.3).³¹

According to the replies to the Bank Lending Survey of October, the credit standards for approving loans to households applied by the main Portuguese banking groups were somewhat tightened in the third quarter of the year, regarding loans for house purchase, consumer credit and other lending. The turmoil in international financial markets was reflected in a slight tightening of most supply conditions of bank credit to households, with the widening of spreads chiefly on riskier loans.

For the last quarter of the year, respondent banks expect a further tightening of credit standards for loans to households, reflecting the difficulties foreseen in accessing funds in wholesale markets, either the money market or the debt market via securitisation transactions (albeit to a lesser degree than in the third quarter). Overall, the impact on the financing conditions of households will be more marked in the spreads than in the amount of loans granted to this sector.

Quality of the credit portfolio

Throughout the past few years, credit default of the non-financial private sector declined to particularly low levels when compared with those observed in similar stages of previous business cycles. These developments have been shared in general by the other advanced economies and took place against a background in which corporate financial leverage and household indebtedness are higher than in similar stages of previous business cycles but with a structural lower level of interest rates. In the case of Portugal, between 2003 and 2005, these developments were favoured by the decline in interest rates to rather low levels, which persisted for a relatively long period. Subsequently, in a context of progressive rise in interest rates, banks adjusted their credit supply conditions to the current ability of both corporations and households to service debt.

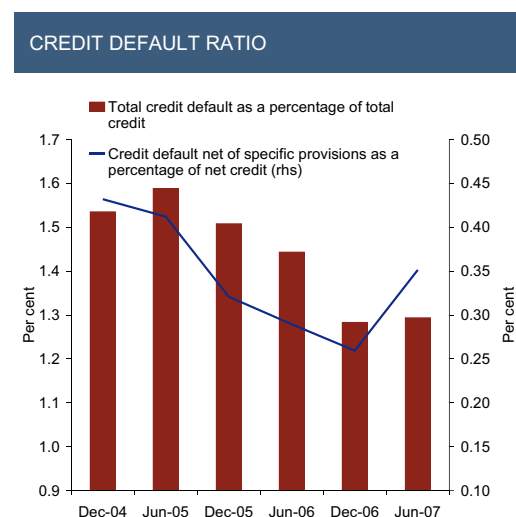
(31) It should be noted that this information is related not only to purchases of new houses but also to the negotiation of new contracts to replace loans previously obtained under less favourable conditions.

At the end of the first half of 2007, the weight of non performing loans on total credit stood at 1.29 per cent, which was below the level recorded in June 2006 (1.44 per cent) (Chart 3.5.4).³² Considering credit net of specific provisions, the ratio of default credit to total (net) credit increased to a value higher than that recorded in June 2006 (albeit still lower than in June 2005), reflecting in part a fall in the ratio of credit-specific provisions (to 73 per cent, which compares with approximately 80 per cent in June 2006) (Chart 3.5.5). These developments took place despite a significant increase in provisioning and impairment, chiefly in the second quarter of the year. Provisioning levels remained around 15 per cent above the minimum regulatory levels.

In the course of the first three quarters of the year, the credit default ratio of households remained relatively stable, at 1.77 per cent, at the end of September, i.e. below the value for the corresponding period one year earlier (Chart 3.5.6). However, developments in the weight of credit overdue and other non-performing loans on total credit have largely reflected significant amounts of write-offs of loans to households. In annual terms, write-offs represented, at the end of September 2007, around 20 per cent of credit overdue recorded under assets. It should be noted that similarly to write-offs, also the sales of credit overdue are mirrored in a reduction of the sector's ratio of credit overdue with actually no decrease in default. This was particularly important in 2006, when the default ratio of the households' sector declined considerably despite the significant rise in the annual flow of new credit overdue and other non-performing loans (which brought this indicator to a level close to that recorded in 2003). This path reflected, to a large extent, the sale of claims on households occurred during the year (which, as a whole, amounted approximately to 10 per cent of the total credit overdue and other non-performing loans recorded in the banks' balance sheet at the beginning of the year) (Chart 3.5.7).

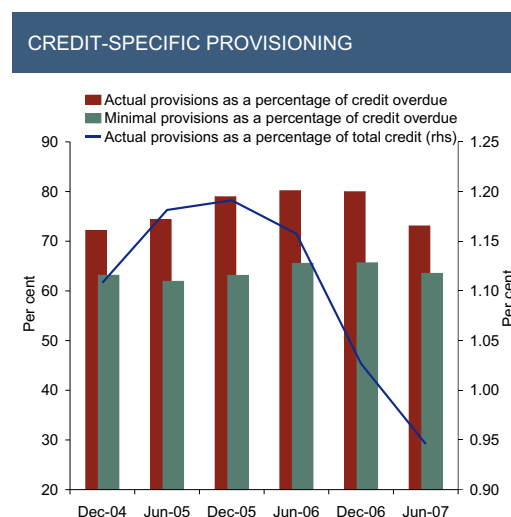
The high household indebtedness level, mainly related to housing loans, together with a significant increase in the interest rates of credit to households (approximately 165 basis points between October 2005 and September 2007, in the case of credit for house purchase) seems to have translated into substantial increases in the debt service burden of a significant share of Portuguese households. These developments will likely be reflected in increased default in this sector, chiefly by the most vul-

Chart 3.5.4



Source: Banco de Portugal.

Chart 3.5.5

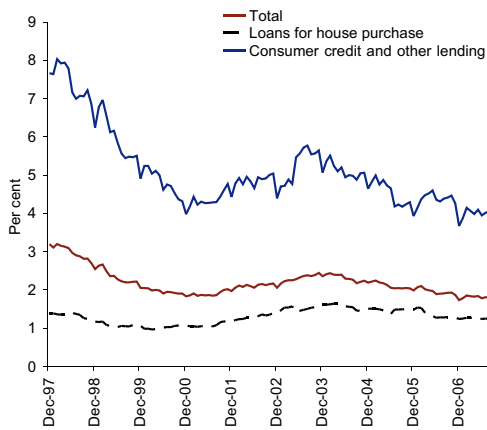


Source: Banco de Portugal.

(32) The prudential concept of default credit includes credit overdue for more than 90 days and non-performing loans reclassified as credit fallen due for provisioning purposes, in accordance with Notice of Banco de Portugal No 3/95. For further details, see Instruction of Banco de Portugal No 16/2004 and Notice of Banco de Portugal No 3/95 available from www.bportugal.pt/serv/sibap/sibap_p.htm.

Chart 3.5.6

CREDIT DEFAULT RATIOS OF 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 banks book. Latest observation: September 2007.

Chart 3.5.7

ESTIMATES OF NEW CREDIT OVERDUE AND OTHER NON-PERFORMING LOANS
Households

Source: Banco de Portugal.

Note: Estimate of the annual flow (ending in the quarter) of new credit overdue and other non-performing loans calculated adjusting the change in amounts outstanding of credit overdue and other non-performing loans for write-offs, as a percentage of bank loans (adjusted for securitisation). From December 2005 onwards, it is also adjusted for estimates of sales of credit overdue and other non-performing loans not written-off outside the banking system (dotted line).

nerable strata of the population, such as households with less financial wealth, lower income and higher propensity to move into unemployment or into lower paid jobs. However, the impact of that increase on the situation of the banking system will be relatively limited. On the one hand, the probability of default in this segment of the credit market is typically low, reflecting the high importance that home ownership has in the hierarchy of households' needs. On the other hand, loans for house purchase are generally associated with collateral whose value exceeds the total amount of the loan, thus providing a high recovery rate, in the event of default. Moreover, evidence available for Portugal suggests the non-existence of excessive valuations in the price of real estate assets liable of inducing significant negative corrections in the value of these assets.³³ In fact, taking as a basis the *Confidencial Imobiliário* index, it can be seen that, from 2001, the cumulative change in housing prices in Portugal was of approximately 10 per cent, i.e. around half of that recorded in consumer prices (Chart 3.5.8).

At the end of September 2007, the default ratio in the portfolio of credit to non-financial corporations was 1.71 per cent, i.e. slightly lower than one year earlier (Chart 3.5.9). The debt restructuring process involving companies with higher difficulty in servicing debt seems to have continued contributing to contain both the default ratio and the amount of new credit overdue and other non-performing loans of this sector. Indeed, in September 2007, the annual flow of new credit overdue and other non-performing loans, albeit higher than in September 2006, was still below the levels recorded throughout 2003 (Chart 3.5.10).

According to the Portuguese banks participating in the Bank Lending Survey, in 2007, debt restructuring continued to be the main factor contributing to the rise in demand for credit in this segment. In 2006 respondents had mentioned that the demand for credit by companies associated with debt restructuring chiefly reflected two distinct types of motivations. On the one hand, there were changes in contrac-

(33) For details, see "Box 6.1 Housing prices in Portugal and macroeconomic fundamentals: evidence of quantile regression", *Financial Stability Report*, 2005, Banco de Portugal.

Chart 3.5.8

CONFIDENCIAL IMOBILIÁRIO INDEX

Year-on-year rate of change

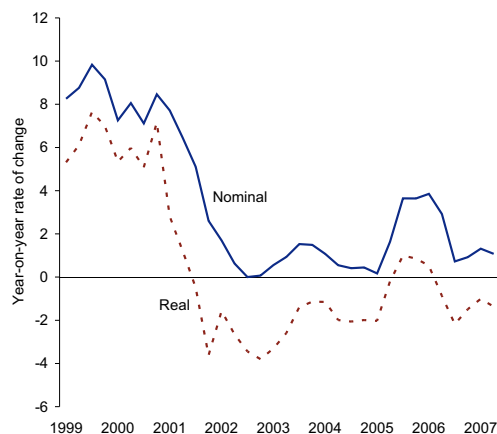
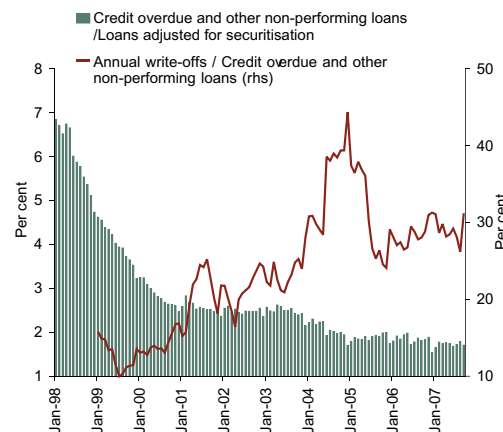
Sources: INE and Newsletter *Confidencial Imobiliário*.

Chart 3.5.9

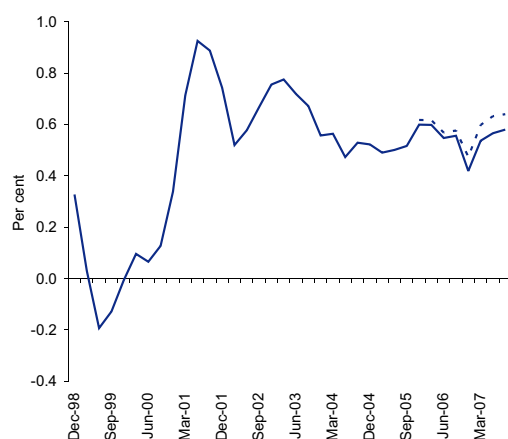
DEFAULT RATIOS OF LOANS TO RESIDENT
NON-FINANCIAL CORPORATIONSSource: Banco de Portugal.
Note: Latest observation: September 2007.

tual conditions (e.g. maturity or collateral demanded) on the initiative of the companies themselves, as well as the consolidation of liabilities with the purpose of reducing the overall financing costs. This situation had some relevance in the case of large enterprises, whose bargaining power enabled them to obtain more favourable conditions in their operations with banks. On the other hand, there were renegotiations of conditions on the initiative of banks. This happened for companies having difficulty in ser-

Chart 3.5.10

ESTIMATES OF NEW CREDIT OVERDUE AND
OTHER NON-PERFORMING LOANS

Non-financial corporations



Source: Banco de Portugal.

Note: Estimate of the annual flow (ending in the quarter) of new credit overdue and other non-performing loans calculated adjusting the change in amounts outstanding of credit overdue and other non-performing loans for write-offs, as a percentage of bank loans (adjusted for securitisation). From December 2005 onwards, it is also adjusted for estimates of sales of credit overdue and other non-performing loans not written-off to outside the banking system (dotted line).

Table 3.5.3

DEFAULT INDICATORS OF CREDIT GRANTED TO NON-FINANCIAL CORPORATIONS, BROKEN DOWN BY SIZE OF EXPOSURE ^(a)						
Per cent						
	2004		2005		2006	
	Dec	Jun	Dec	Jun	Dec	Jun
Total exposure						
Number of defaulters ^(b)	11.2	11.9	11.5	11.9	11.3	12.5
Credit and interest overdue ^(c)	2.0	2.0	1.8	1.8	1.5	1.6
Total outstanding amount of defaulters ^(c)	7.9	7.3	8.0	8.9	8.0	7.8
Large exposures (percentile 90)^(d)						
Number of defaulters ^(e)	9.7	10.8	9.4	10.6	9.7	10.9
Credit and interest overdue ^(f)	1.5	1.5	1.3	1.3	1.1	1.2
Total outstanding amount of defaulters ^(f)	7.3	6.6	7.5	8.4	7.6	7.2
<i>of which:</i>						
Very large exposures (percentile 99) ^(d)						
Number of defaulters ^(e)	6.1	6.9	5.6	6.7	6.2	8.2
Credit and interest overdue ^(f)	0.5	0.5	0.4	0.3	0.3	0.3
Total outstanding amount of defaulters ^(f)	6.0	4.3	6.5	7.2	6.4	5.3
<i>of which:</i>						
Larger exposures (percentile 99.5)^(d)						
Number of defaulters ^(e)	5.3	5.6	4.4	5.4	5.3	7.1
Credit and interest overdue ^(f)	0.3	0.3	0.2	0.1	0.1	0.2
Total outstanding amount of defaulters ^(f)	5.9	3.5	6.5	7.1	6.3	4.6
Retail exposures^(g)						
Number of defaulters ^(e)	10.3	10.8	10.5	10.8	10.4	11.4
Credit and interest overdue ^(f)	6.1	6.2	5.9	5.6	4.9	5.2
Total outstanding amount of defaulters ^(f)	12.4	12.8	11.6	12.4	11.7	12.7

Source: Banco de Portugal.

Notes: (a) Indicators based on information from the Central Credit Register (CCR). They correspond to credit granted by banks, savings banks, mutual agricultural credit banks, credit financial institutions, factoring companies, financial leasing companies, credit card issuing or management companies, credit purchase financing companies and other resident financial intermediaries. They include loans sold in securitisation. Figures relating to the total number of defaulters and amounts outstanding of credit and interest overdue differ from the corresponding values in the tables of chapter B.9 of the Statistical Bulletin, due to inclusion of some corporations that do not belong to the institutional sector of non-finance corporations (thus belonging to other resident institutional sectors). (b) As a percentage of the number of corporations indebted to financial institutions participating in the CCR. (c) As a percentage of total credit granted by financial institutions participating in the CCR to resident non-financial corporations. (d) Percentiles defined on the basis of the number of corporations ordered according to the total amount of exposure. (e) As a percentage of the number of defaulters in this portfolio. (f) As a percentage of total credit in this portfolio. (g) Exposures with lower amounts than the lower limit of large exposures. They correspond to 90 per cent of corporations indebted to institutions participating in the CCR.

ving debt; that is, companies that had defaulted already or whose default was imminent with high probability. This situation concerned mainly loans granted to small and medium-sized enterprises (SMEs).

In 2007, debt restructuring has remained important as a factor inducing higher demand for credit, thus suggesting that financial difficulties persist in some companies, mostly in branches that are more negatively affected by the ongoing processes of adjustment of macroeconomic imbalances and of sectoral restructuring in the Portuguese economy.

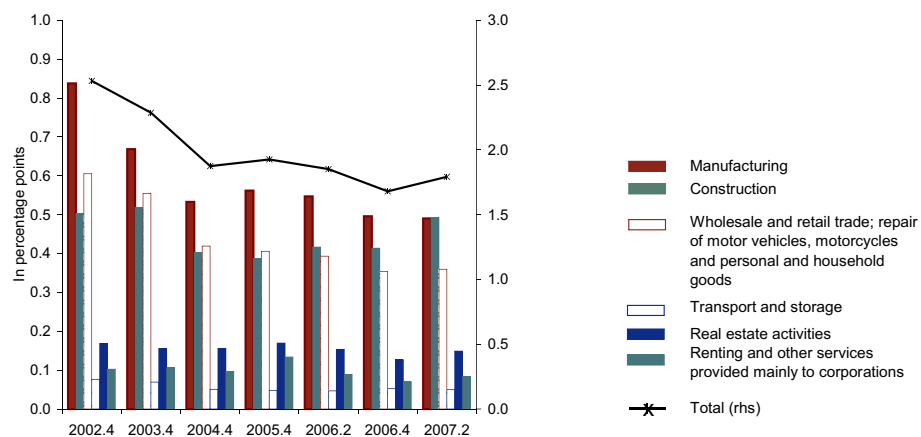
According to information made available by the CCR, there was an increase in the number of defaulters in June 2007 compared with June and December 2006. However, the amount of the total exposure to defaulters decreased, reflecting the concentration of the rise in default in SMEs. The decrease in default ratios (i.e. the amount of credit and interest fallen due as a percentage of total credit), which was observed despite the rise in defaulters, was recorded both in the portfolio of the larger debtors and in retail exposures. However, the latter recorded an increase, albeit slight, in the weight of the debt at risk in total (i.e. the total balance of defaulters as a percentage of total credit) (Table 3.5.3).

By branch, default by companies in the construction sector increased in the first half of 2007, bringing this ratio to 2.5 per cent at the end of June (Chart 3.5.11).

Chart 3.5.11

DEFAULT RATIO OF NON-FINANCIAL CORPORATIONS

By economic activity



Source: Banco de Portugal.



ARTICLES

[An Open Economy Model of the Euro Area and the Us](#)

[Financing Costs of Portuguese Companies](#)

[The Regressivity of Unemployment Insurance: Identification of the Income Effect Through the July 1999 Legislation](#)

[Export Specialization Over the Last Four Decades: How Does Portugal Compare With Other Cohesion Countries?](#)

AN OPEN ECONOMY MODEL OF THE EURO AREA AND THE US*

Sandra Gomes**

João Sousa**

1. INTRODUCTION

In this article we present the medium sized open-economy Dynamic Stochastic General Equilibrium (DSGE) model of the euro area and the US developed by Alves, Gomes and Sousa (2007). We take stock of recent developments of the so-called New Open Economy Macroeconomics. Therefore the model presented here shares a number of common features with models developed at other policy institutions (like the Global Economy Model (GEM) at the International Monetary Fund) as well as other central banks (for instance, with the New Area Wide Model at the European Central Bank).

The main purpose of the model is to provide a theoretically consistent representation of the behaviour of the euro area economy. Such model can then be used to study how various shocks are transmitted to the key euro area macroeconomic variables. Currently the model is calibrated drawing on the results of similar studies. At a later stage, an estimated version of the model will allow the identification of structural shocks which can be an important input for monetary policy analysis. A major advantage of the model presented here relative to traditional models is that it is derived from strong theoretical micro foundations. As such, it is likely to be less prone to stability problems such as those pointed out in Lucas's famous critique (see Lucas, 1976). These type of models have been gaining increasing popularity, both in the academia and in policy making institutions, as they are much more in line with current academic thinking than traditional macroeconometric models while at the same time displaying desirable empirical properties. A disadvantage of these models is that they cannot be of such a large scale as that of traditional macro models given problems of tractability. The model presented here reflects such simplification.

A distinguishing feature of the model presented in this article is the open economy dimension which, as can be inferred from the results, seems to be important even in the context of a large economy such as that of the euro area. This is confirmed by the results of other studies, such as that of Adolfson *et al.* (2005) who compare the empirical properties of a closed and an open economy model of the euro area and find differences in the transmission mechanism of monetary policy between the two types of models. They also find that open economy shocks are of high relevance in explaining the fluctuations in output and inflation in the short to medium term. In the case of our model we find that the inclusion of open economy features, in particular of the exchange rate, can lead to significant changes in the way the macro variables react to shocks. This is particularly striking in the case of the response of inflation to a monetary policy shock which tends to be much stronger in an open economy setting than in closed economy models.

* The opinions are solely those of the authors and do not necessarily represent those of the Banco de Portugal. The authors thank the comments of Isabel Horta Correia, José Ferreira Machado and Nuno Alves.

** Economics and Research Department, Banco de Portugal.

Even though the open economy setup seems more appropriate to deal with the euro area, any model is not without caveats. In respect to the model presented in this paper, one potentially important feature that we have left out at a first stage is the existence of tradable and non-tradables goods or of a distribution sector (as in Corsetti and Dedola, 2005 or Corsetti, Dedola and Leduc, 2006). This is important in particular to model the exchange rate passthrough to domestic prices, namely to reduce the tendency in these models for changes in exchange rates or foreign prices to be transmitted more quickly to domestic prices than is usually found in the data. However, we have excluded this given that we have in mind estimating the model and data for this sectoral breakdown is particularly difficult to find. Nevertheless, we have resorted to an alternative mechanism, namely the introduction of import adjustment costs, in order to slow down the passthrough.

The article is organised as follows. In the next section we present the model. In section 3 we discuss the calibration. In section 4 we analyse the impulse response functions to several shocks. Section 5 concludes.

2. THE MODEL

The model consists of two countries, the euro area and the US. The two countries may have a different size but they share the same structure. Therefore, in the presentation of the model we focus mainly on the euro area. The model features a number of frictions that have become quite standard in the related literature (e.g. as in the closed economy models by Christiano, Eichenbaum and Evans, 2005, or Smets and Wouters, 2003). The general structure of the model is summarised in Chart 1.

The model has four types of agents besides the monetary authority: firms, households, the government and a financial intermediary. Regarding firms, in each country there are firms producing intermediate goods sold both in the domestic and the foreign market. In the model only the intermediate goods are traded internationally. Markets are segmented and firms are local currency pricers, *i.e.* the price of their goods is set in the currency of the export market (for instance, the price of euro area exports is set in USD and not in euros). We assume that firms set their prices *à la* Calvo (Calvo, 1983).¹ In the case of the euro area, after log-linearising the corresponding first order condition, the following Philips curve relation for the goods sold domestically is obtained:

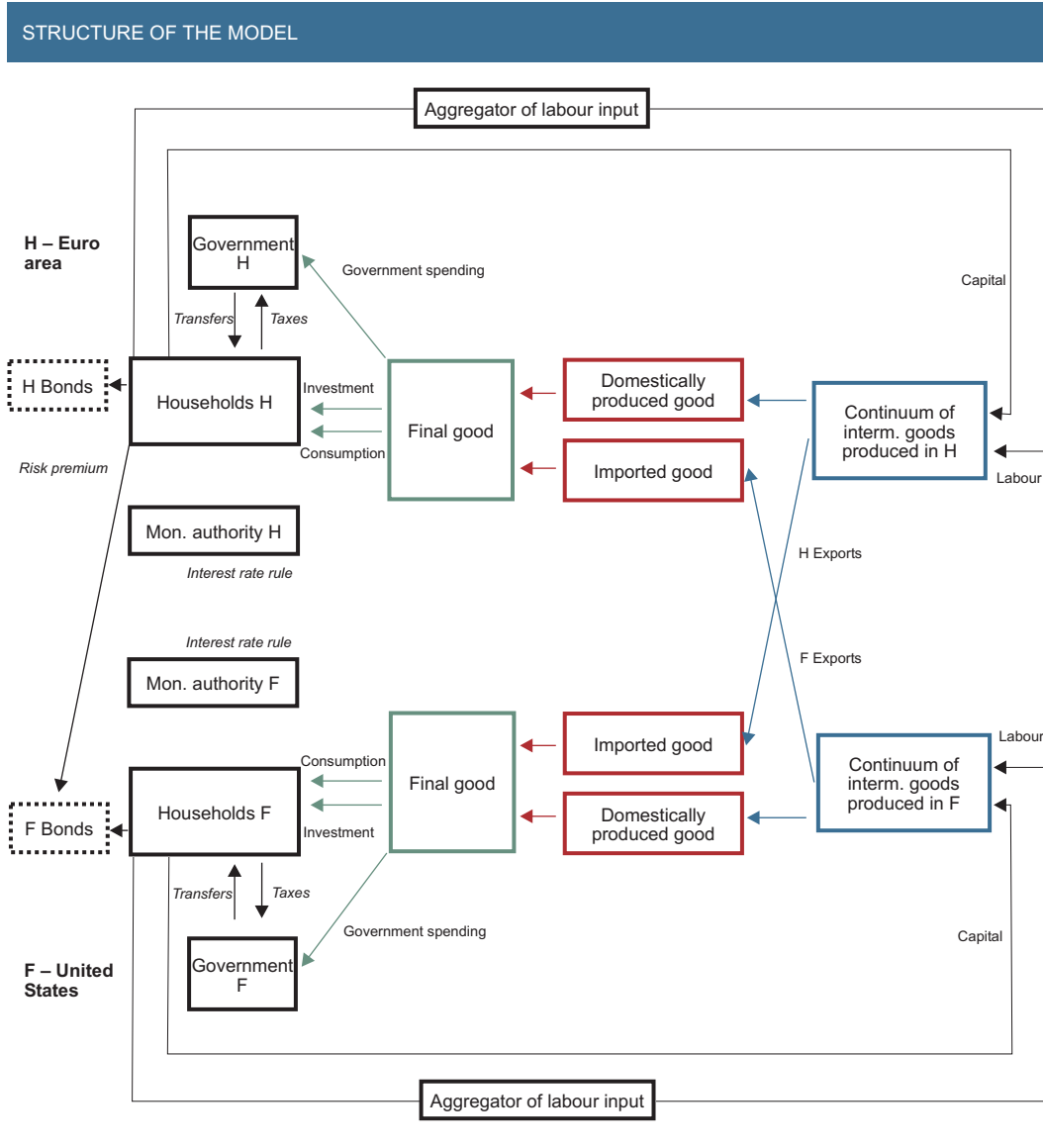
$$\begin{aligned} \hat{\pi}_{EA,t}^{EA} = & \frac{\gamma_D}{1+\beta\gamma_D} \hat{\pi}_{EA,t-1}^{EA} + \frac{\beta}{1+\beta\gamma_D} E_t \hat{\pi}_{EA,t+1}^{EA} + \frac{1-\gamma_D}{1+\beta\gamma_D} \hat{\pi}_{EA,t}^{EA} - \frac{\beta(1-\gamma_D)}{1+\beta\gamma_D} E_t \hat{\pi}_{EA,t+1}^{EA} \\ & + \frac{(1-\beta\xi_D)(1-\xi_D)}{(1+\beta\gamma_D)\xi_D} \widehat{RMC}_{EA,t}^{EA} \end{aligned}$$

where hatted variables denote variables in log-deviations from the steady state.² $\hat{\pi}_{EA,t}^{EA}$ is the rate of change of domestically produced prices which is a function of past and expected future domestic inflation and of past and expected values of the inflation objective ($\hat{\pi}_{EA,t}$) plus an additional term that constitutes a markup over real marginal cost ($\widehat{RMC}_{EA,t}^{EA}$). β , γ_D , and ξ_D are parameters. A similar expression is obtained for exports.

(1) Under Calvo pricing only a random fraction of the firms can change their prices optimally in each period. The other firms have either to keep their prices fixed or, as assumed in this paper, mechanically update their prices according to a scheme decided beforehand.

(2) The practice of log-linearising DSGE models which implies a first order approximation around the steady state is common in the literature. This aims at overcoming the difficulties in solving the exact model given that it is highly non-linear.

Chart 1



The production technology for each intermediate good i is Cobb-Douglas, combining capital services $(K_{EA,t}^s(i))$ with domestic labour $L_{EA,t}(i)$:

$$Y_{EA,t}(i) = \varepsilon_{EA,t}^N [K_{EA,t}^s(i)]^\alpha [z_{EA,t} L_{EA,t}(i)]^{1-\alpha}$$

where $\varepsilon_{EA,t}^N$ is a neutral technology shock which is assumed to be stationary but persistent. $z_{EA,t}$ is the level of technological progress. Note that we assume that there can be technological progress, i.e. $z_{EA,t}$ is assumed to be stochastic and has a unit root. This implies that all real variables will have a unit root and will have to be stationarised by dividing their level by $z_{EA,t}$.

As for the final good sector, there is a single final good produced in each country that can be used both for consumption (private and public) and for investment. The final good sector is perfectly competitive and merely combines a bundle of domestically produced intermediate goods ($Y_{EA,t}^{EA}$ for the euro area) and a bundle of imported intermediate goods (Y_{US}^{EA}) into the final good ($Y_{EA,t}^F$). The technology used to

produce the final good is a Constant Elasticity of Substitution (CES) production function:

$$Y_{EA,t}^F = \left[(d_F)^{\frac{\lambda_F}{1+\lambda_F}} (Y_{EA,t}^{EA})^{\frac{1}{1+\lambda_F}} + (1-d_F)^{\frac{\lambda_F}{1+\lambda_F}} (\zeta_Y Y_{US,t}^{EA})^{\frac{1}{1+\lambda_F}} \right]^{1+\lambda_F}, 0 < d_F < 1$$

where $\frac{1+\lambda_F}{\lambda_F}$ is the elasticity of substitution between domestic goods and imports and d_F is a parameter that governs the home bias in the final goods production (in this case, the higher d_F , the higher the preference for euro area goods). A quadratic adjustment cost (ζ_Y) to changing the composition of domestic and foreign components in the final good is introduced with the purpose of slowing down the pass-through of foreign production prices.

In each country, the representative household derives utility from consumption and money (which provides transaction services) and disutility from the amount of hours worked. In what regards consumption we assume internal habit formation.³ Households decide on how much to consume/spend and also set wages. We follow Erceg, Henderson and Levin (2000) and assume that, in each period, households face a constant probability of not being able to reoptimise their wage. When households are not reoptimising they update wages as a function of past inflation, the inflation target and a compensation for trend productivity growth. The households that are allowed to reoptimise choose the wage which approximately equates the present value of the marginal return to working (measured in consumption units) to the present value of the marginal cost of working (*i.e.* the disutility of working) plus a markup. As a result, the aggregate real wage is a function of expected and past real wages and expected, current and past inflation. Households own and rent capital to the intermediate goods firms. We assume that there are adjustment costs when there are changes in investment. Households can also change the degree of utilisation of the capital stock (*i.e.* the level of capital services that are rented), even though such changes also imply an adjustment cost.

The financial intermediary included in the model have a rather passive role as in Christiano, Eichenbaum and Evans (2005). Intermediate firms borrow the wage bill from the financial intermediary which creates a demand for funds. In turn, the supply of funds stems from the deposits of households in the financial intermediary and the increase of the money supply.

The model includes a simple government sector. The model does not include any fiscal rule. The government in each country buys the final good ($P_{EA,t} G_{EA,t}$), makes nominal transfers to households $TR_{EA,t}$ and receives taxes from households (both on payrolls $\tau_{W,t} W_{EA,t} \frac{L_{EA,t}}{n}$, where $\tau_{W,t}$ is the tax rate on the nominal wage $W_{EA,t}$ and $\frac{L_{EA,t}}{n}$ is the number of hours worked in the euro area; and on consumption expenditures $\tau_{C,t} P_{EA,t} C_{EA,t}$ where $\tau_{C,t}$ is the tax rate on consumption $P_{EA,t} C_{EA,t}$). The government budget is balanced every period which implies:

$$P_{EA,t} G_{EA,t} + TR_{EA,t} = \tau_{C,t} P_{EA,t} C_{EA,t} + \tau_{W,t} W_{EA,t} \frac{L_{EA,t}}{n}$$

we assume that government expenditures are exogenous, *i.e.* we assume that government purchases ($\hat{g}_{EA,t}$ log-linearised and stationary terms) in log-linearised and stationary terms follows an autoregressive process of the following form:

(3) Under habit formation, an increase in current consumption lowers the marginal utility of consumption in the current period and increases it in the next period. The fact that habits are considered internal means that the habit formation depends on the individual consumer's past consumption.

$$\hat{g}_{EA,t} = \rho^G \hat{g}_{EA,t-1} + e_{EA,t}^G$$

where $e_{EA,t}^G$ is a government spending shock.

As for the monetary authority, the central bank is assumed to set the short-term rate according to a generalised Taylor rule. In log-linearised terms:

$$\begin{aligned} \hat{R}_{EA,t} = & \phi_R \hat{R}_{EA,t-1} + (1 - \phi_R) \left[\hat{\pi}_{EA,t} + \phi_\Pi \left(\hat{\pi}_{EA,t} - \hat{\pi}_{EA,t-1} \right) + \phi_Y \left(\widehat{gdp}_{EA,t}^F \right) \right] + \\ & + \phi_{\Delta\pi} \left(\hat{\pi}_{EA,t} - \hat{\pi}_{EA,t-1} \right) + \phi_{\Delta Y} \left(\widehat{gdf}_{EA,t}^F - \widehat{gdf}_{EA,t-1}^F \right) + \hat{\varepsilon}_{EA,t}^R \end{aligned}$$

$0 < \phi_R < 1$ i.e. the short-term interest rate $\hat{R}_{EA,t}$ is set to the previous period interest rate (interest rate smoothing), the inflation objective $\left(\hat{\pi}_{EA,t} \right)$, deviations of inflation from the objective $\phi_\Pi \left(\hat{\pi}_{EA,t} - \hat{\pi}_{EA,t-1} \right)$ and deviations of Gross Domestic Product (GDP) from steady state $\left(\widehat{gdp}_{EA,t}^F \right)$. As in Smets and Wouters (2003), two additional terms are included, namely the change in inflation and the change in deviations of GDP from steady state. Finally $\hat{\varepsilon}_{EA,t}^R$ is the monetary policy shock which is assumed to be i.i.d.

Finally, international financial markets are incomplete and foreign bond holdings are subject to a risk-premium, following Benigno (2001). This leads to the following modified uncovered interest parity (UIP) condition (all variables in deviation from steady state):

$$E_t \left(\Delta \hat{S}_{t+1} \right) = \hat{R}_{US,t} - \hat{R}_{EA,t} + \chi' \left(\right) \hat{b}_{US,t}^{EA} + \hat{\varepsilon}_t^S$$

where the expected change in the euro dollar exchange rate for one period ahead $\left(E_t \left(\Delta \hat{S}_{t+1} \right) \right)$ is a function of the interest rate differential between the two economies $\left(\hat{R}_{US,t} - \hat{R}_{EA,t} \right)$ plus a risk premium component which is proportional $\left(\chi' \left(\right) < 0 \right)$ to the euro area's net external assets $\left(\hat{b}_{US,t}^{EA} \right)$. $\hat{\varepsilon}_t^S$ is a shock to UIP.

3. CALIBRATION

The model is calibrated for the euro area and the US at a quarterly frequency. Table 1 in Annex 1 summarises the calibration made indicating the sources of the parameter values. Most parameters are obtained from the calibrated version of the New Area Wide Model of Coenen, McAdam and Straub (2007) which in turn largely rely on the estimated closed economy model for the euro area of Smets and Wouters (2003). The remaining parameters are either implicitly obtained or assumed. The only exception is the risk premium parameter which is obtained from Adolfson *et al.* (2007). In the assumptions made we have closely followed the literature. In addition, we keep the differences between the two economies as small as possible i.e., we chose different parameter values for the two economies only when we found evidence strongly favouring that choice. The main differences in the calibration of the euro area and the US correspond to the population size, the tax rates (with a labour income tax rate of almost 46 per cent in the euro area and about 30 per cent in the US and a tax rate on consumption of around 18 per cent in the euro area and close to 8 per cent in the US), the share of imports (where the share of US goods in euro area imports, 18 per cent, is larger than vice-versa, 13 per cent) and also the parameters governing the home bias.

4. MODEL RESPONSES TO SHOCKS

In this section we illustrate the properties of the model by comparing the impulse responses of a number of variables of the model to standard shocks.⁴ In particular we show the responses of real GDP, consumption, investment, hours worked, the real wage, the short-term interest rate (quarterly rate, annualised), inflation (year-on-year rate), the real exchange rate, exports and imports. The shocks we consider are monetary policy shocks, technology shocks, a government spending shock and a risk premium shock. For illustrative purposes, for the first three shocks we show a comparison with a version of the Smets-Wouters (2003) model calibrated with similar parameters as the ones of the open economy model. In the following all variables shown are expressed in percentage deviations from steady state with the exception of the interest rate, inflation and the real exchange rate which are expressed as percentage point deviations from steady state.

4.1. Monetary policy shock

Chart 2 displays the dynamic responses of several variables to a one-period monetary policy shock *i.e.* an exogenous change in $\hat{e}_{EA,t}^R$ which is i.i.d. The shock is calibrated so that the annualised interest rate in the euro area falls on impact by 25 basis points. Once the shock hits the economy, the nominal interest rate is determined endogenously by the monetary policy rule.

According to the model, the policy rate remains below its steady state level for almost two years. At the same time, the decrease in the interest rate stimulates demand. The monetary policy shock leads to a hump-shaped increase in real GDP, real consumption and real investment in the euro area. As expected, real investment responds more strongly than consumption. The peak impact on real GDP occurs about 6 quarters after the shock. The fact that it takes time for the economy to return to the steady state reflects the nominal rigidities introduced in the model that increase the propagation of the shock. Features such as habit persistence in consumption, sticky prices and wages and adjustment costs in investment lead to persistent responses of the macroeconomic variables to the single period monetary policy shock.

The open economy framework introduces a new channel for the transmission of monetary policy shocks, namely the exchange rate channel. The decrease in the euro area interest rate, together with a muted response to the shock by the US monetary authority, leads to a real exchange rate depreciation. In fact, the real exchange rate depreciates on impact and then returns to its steady state value, consequently implying a competitiveness gain. This is translated into a slight decline in imports and, initially, a rise in exports that is later reversed.

Following the shock, hours worked increase, as firms want to produce more to satisfy increased demand. Higher demand for labour puts upward pressure on nominal wages. The effect on real wages will depend on the nominal rigidities (on both wages and prices), on the degree of workers' market power and also on the utility parameters (governing the disutility from work). In the model, real wages increase following a surprise decline in interest rates, in line with the stylised facts following an unanticipated monetary policy shock in the euro area (Peersman and Smets, 2001, Alves *et al.*, 2006). Note that the increases in hours

(4) All the results are obtained with Dynare, a matlab toolbox aimed at simulating and estimating DSGE models. The Dynare code used can be obtained from the authors.

Chart 2 (to be continued)

IMPULSE RESPONSES TO A MONETARY POLICY SHOCK

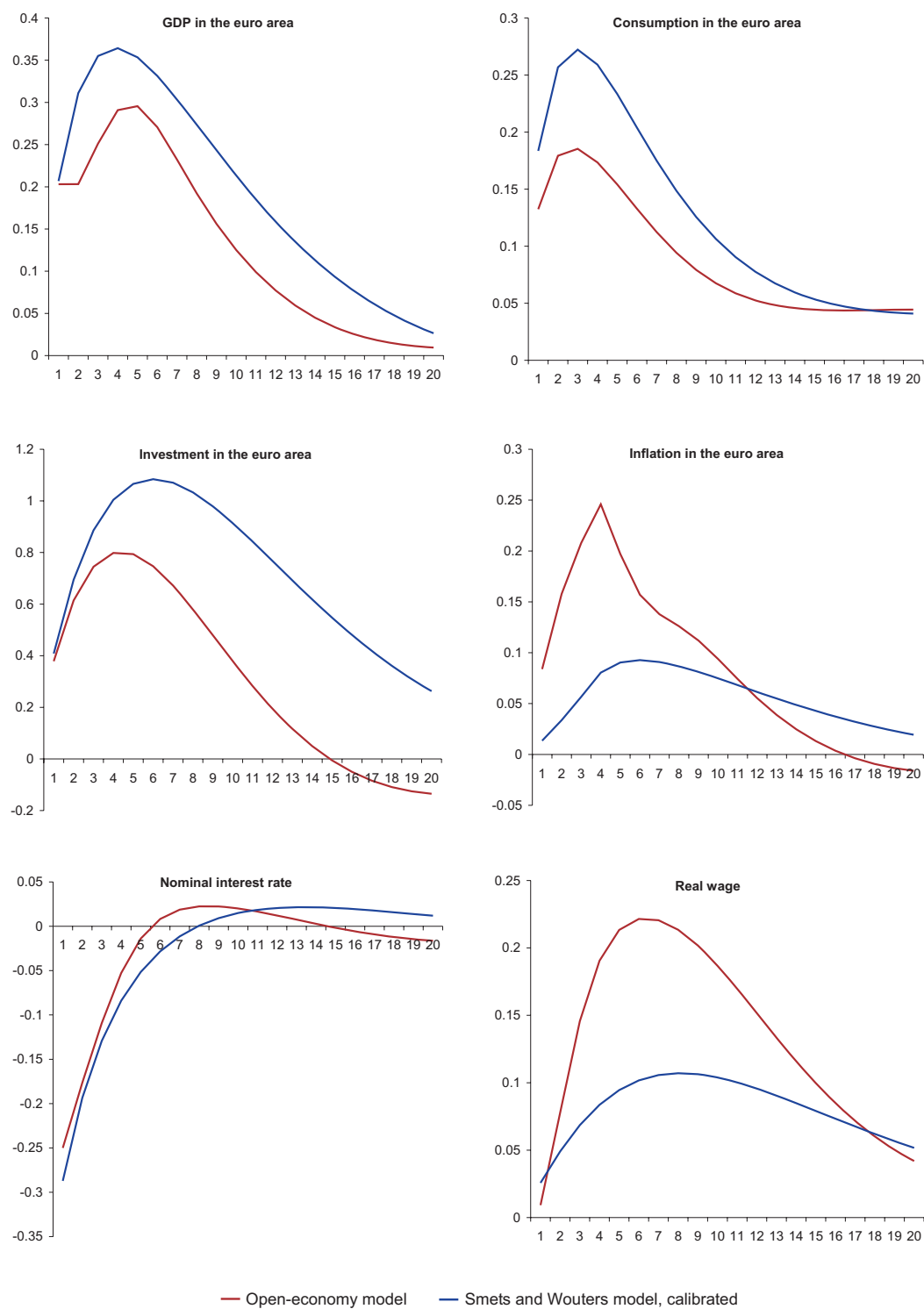
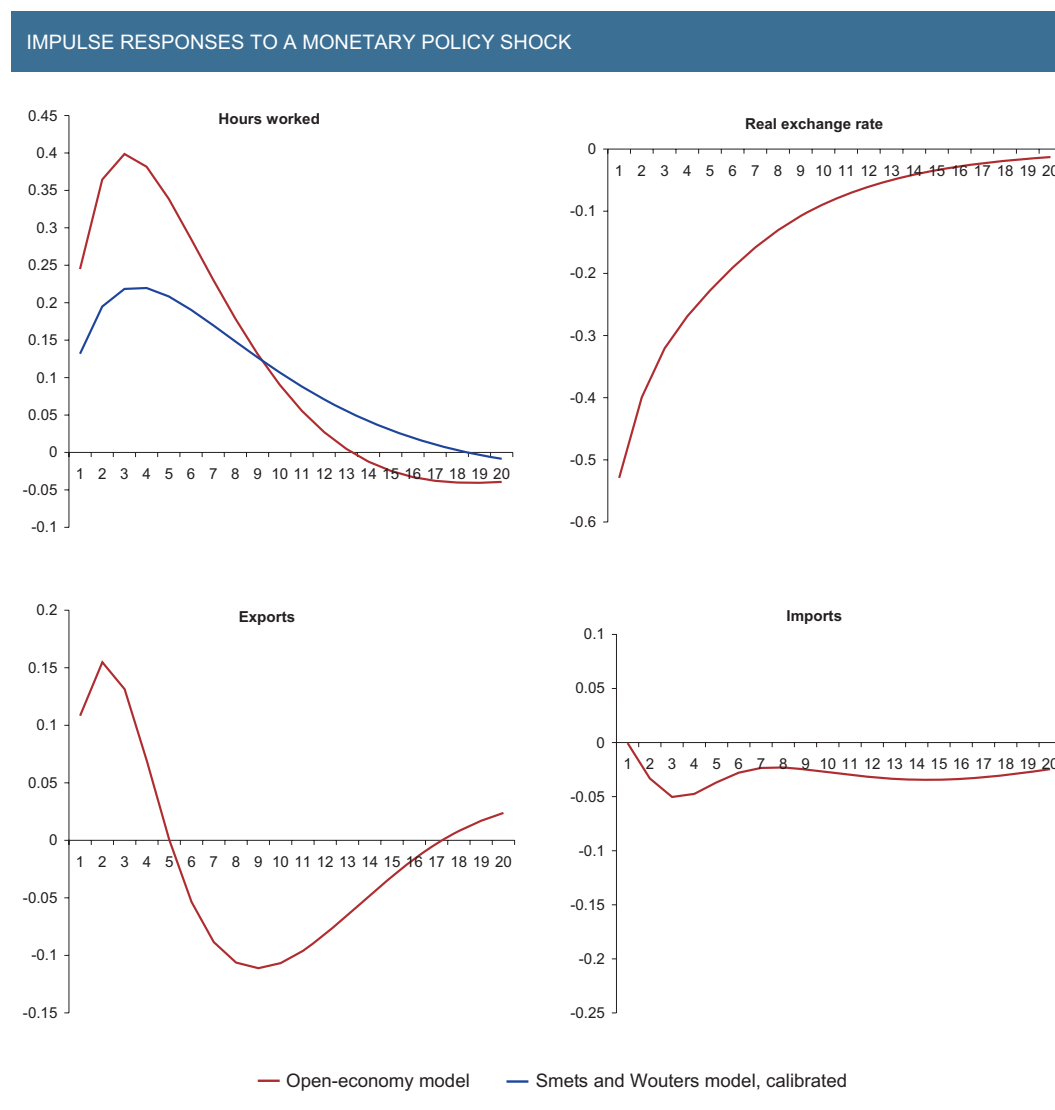


Chart 2 (continued)



worked and the real wage contribute to the expansion in consumption. As regards inflation, the annual rate increases after the shock and then gradually returns to the steady-state.

As regards the comparison with the closed economy model, it can be seen that the response of GDP is similar in both models. However, consumption and investment tend to increase more in response to the monetary policy shock in the case of the closed-economy model used in the comparison. An interesting difference regards the response of inflation. In the open economy model inflation rises much more in response to the monetary policy shock which partly seems to result from the nominal depreciation of the currency brought about by the shock. Thus, for monetary policy shocks, the open economy dimension seems to play an important role.

4.2. Technology shock

Chart 3 depicts the impulse responses to a transitory, though persistent, technology shock (*i.e.* an exogenous increase in $\varepsilon_{EA,t}^N$). The shock is calibrated such that the maximum effect on GDP in the euro

Chart 3 (to be continued)

IMPULSE RESPONSES TO A TECHNOLOGY SHOCK

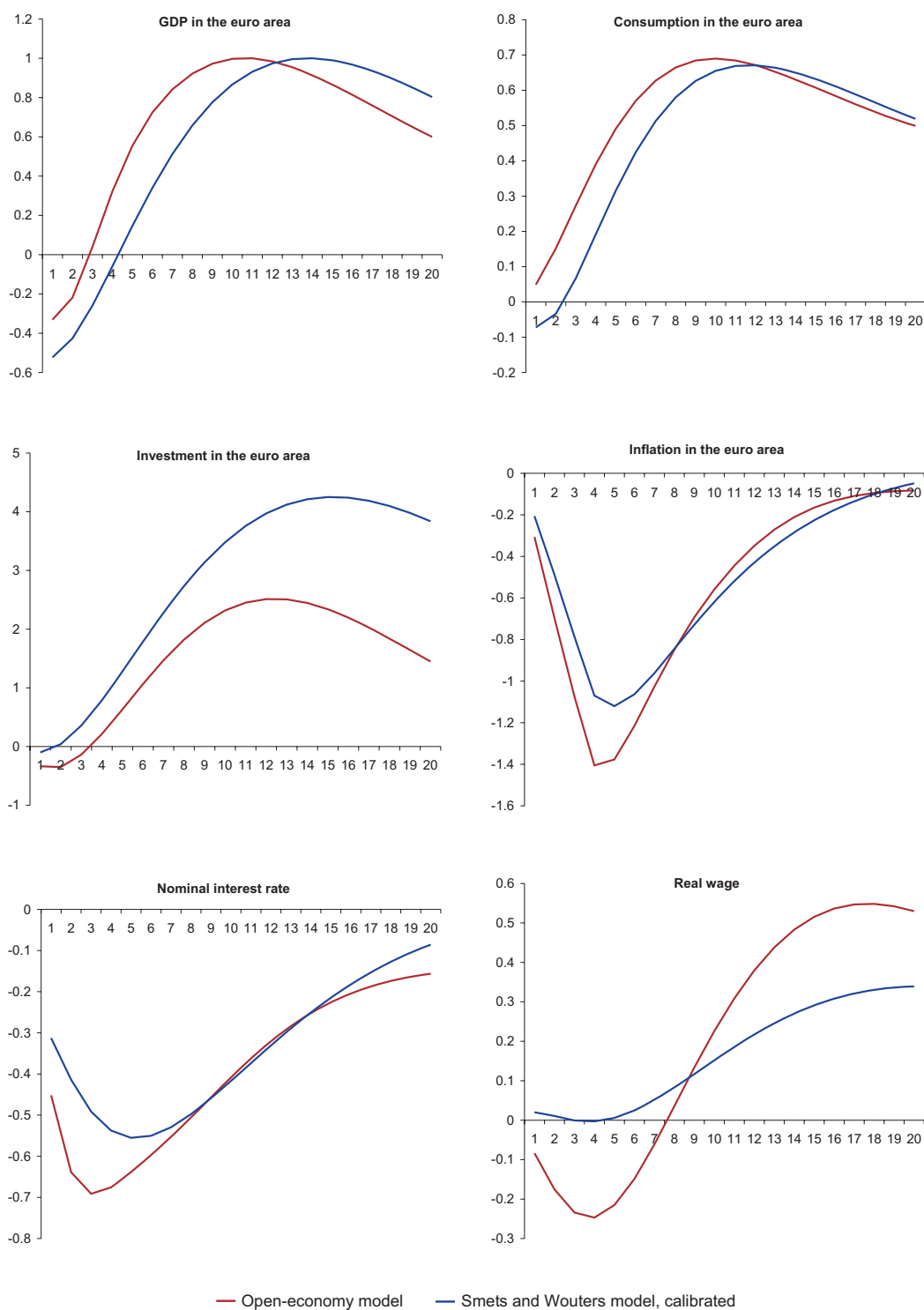
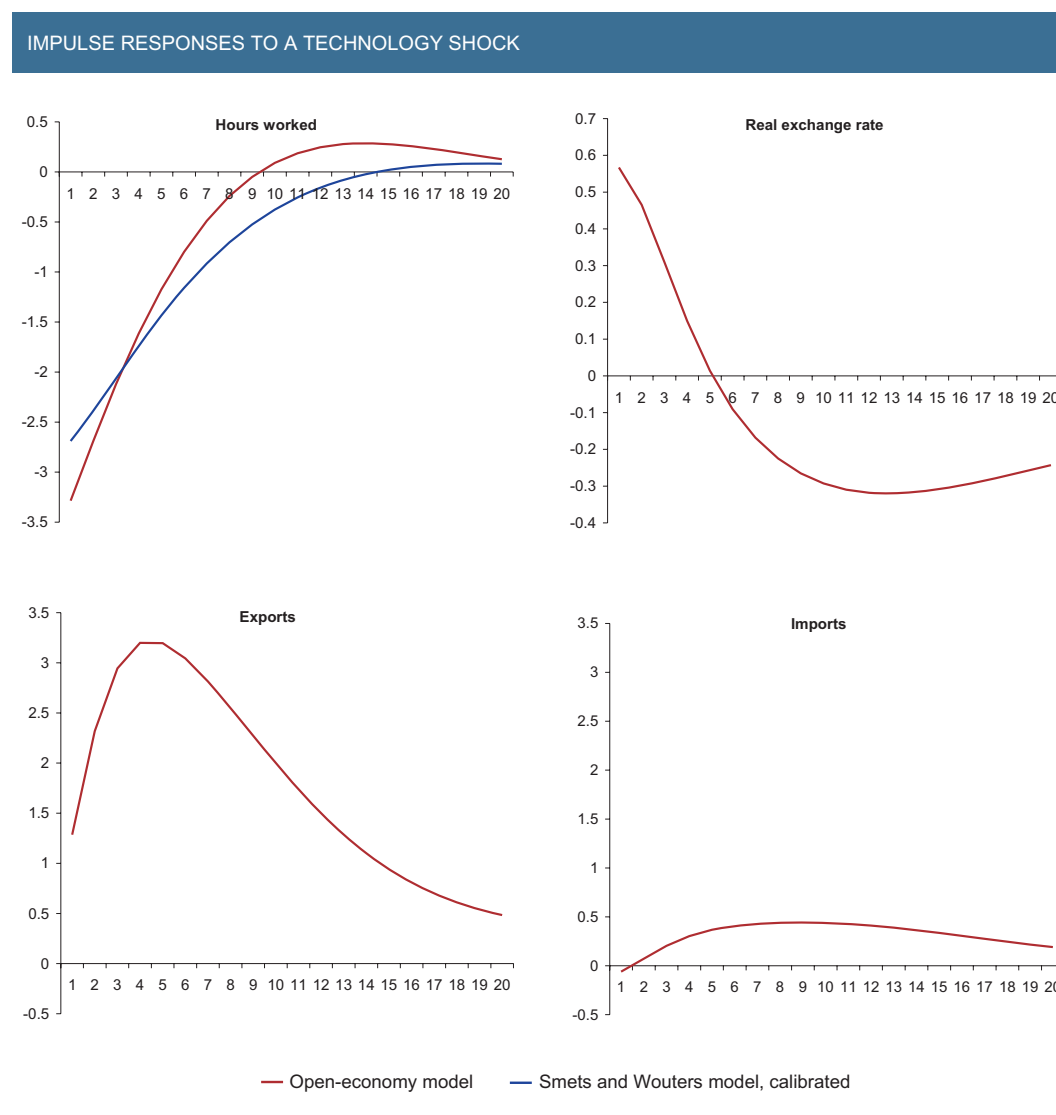


Chart 3 (continued)



area is one per cent (in deviations from the steady state).

The impulse responses of the model to a positive technological shock show that both consumption and investment rise after the shock.⁵ Hours worked fall initially which is a result similar to the one found in Smets and Wouters, 2003, and Alves, *et al.*, 2006. One explanation for this fall is that when labour becomes more productive it may be more profitable for firms to use less of this input to produce more output, given that the real wage will rise. Given the general equilibrium setup, this also corresponds to the optimal decision of households given the constraints they face.

The technology shock expands temporarily the production capacity of the economy and therefore lowers the marginal cost of production. Therefore, firms want to lower their prices but, given that only a fraction of the firms are re-optimizing in each period, this will happen only gradually. The decline in inflation explains why the short-term interest rate declines while GDP is increasing. The real exchange rate appreciates but then falls and returns to the steady-state from below. The real exchange rate ap-

(5) Given that in the short-term the technology shock leads to a stronger fall in quarterly inflation than the decline in the quarterly interest rate, the real interest rate increases in the short-term. This helps to explain the initial temporary fall of GDP and investment below steady state.

preciation explains the rise in imports. Given that we also see an expansion in the foreign country, euro area exports also increase.

In terms of the comparison with the closed economy model, the responses of the open and closed economy models are broadly similar, notwithstanding some differences in terms of the strength of the response. This is particularly the case of investment, which seems much more reactive in the closed economy version of the model, and also regarding the real wage which in the case of the euro area open economy model shows a decline in the first year and a half while in the closed economy version the real wage increases.

4.3. Government spending shock

The government spending shock is calibrated such that the government spending-to-output ratio increases by one percentage point on impact. Government spending is modelled as an autoregressive process with an autoregressive coefficient of 0.9. The increase in government spending leads to an initial rise in GDP but crowds out investment and consumption (see Chart 4). Even though the effect on consumption is at odds with the results in the VAR literature (where usually consumption either does not react or rises following an unanticipated increase in government spending, see Adão and Brito, 2006, for example), this result is found in New-Keynesian models with Ricardian agents. The explanation for this behaviour is that the increase in government spending lowers the present value of after tax income and therefore generates a negative wealth effect that induces the fall in consumption. Additionally, the shock implies an increase in the number of hours worked and initially a rise in the real wage.⁶ The euro real exchange rate *vis-à-vis* the dollar depreciates slightly. Nevertheless, exports show a very slight decline and imports show an increase that is reversed later. Inflation increases slightly which, together with higher GDP, leads to a tightening of monetary policy.

In comparison with the closed economy model, the main differences in the impulse responses occur in the case of investment, which declines by less in the open economy model, and that of inflation, which seems to react more to the shock, probably reflecting the exchange rate depreciation. It should be noted though that the response of inflation is very small.

4.4. UIP shock

The risk premium shock is a shock to the modified uncovered interest rate parity equation. This open-economy shock is defined so that the euro real exchange rate depreciates by 1 per cent on impact, as can be seen in Chart 5. Initially, the real exchange rate depreciation, by generating a negative wealth effect associated with the deterioration of the terms of trade, leads to a drop in consumption and in investment in the euro area. At the same time the real depreciation leads to a shift in demand towards domestic goods. Therefore euro area exports increase while imports decline. GDP increases above its steady state value following the shock, as a result of the improved contribution from net external demand. The increased demand for euro area goods is translated into an increase in hours worked. The real wage initially declines but recovers after a period of around one year. Given the increase in inflation the monetary authority reacts by raising interest rates.

(6) It should be noted that given the restriction that the government budget be balanced every period, the initial positive shock to government spending is to a large extent off-set by a decline in transfers. In addition, there is also a small off-setting effect due to an increase in labour income tax revenues (as the real wage increases) which more than compensates the decline in tax revenues due to the fall in consumption.

Chart 4 (to be continued)

IMPULSE RESPONSES TO A GOVERNMENT SPENDING SHOCK

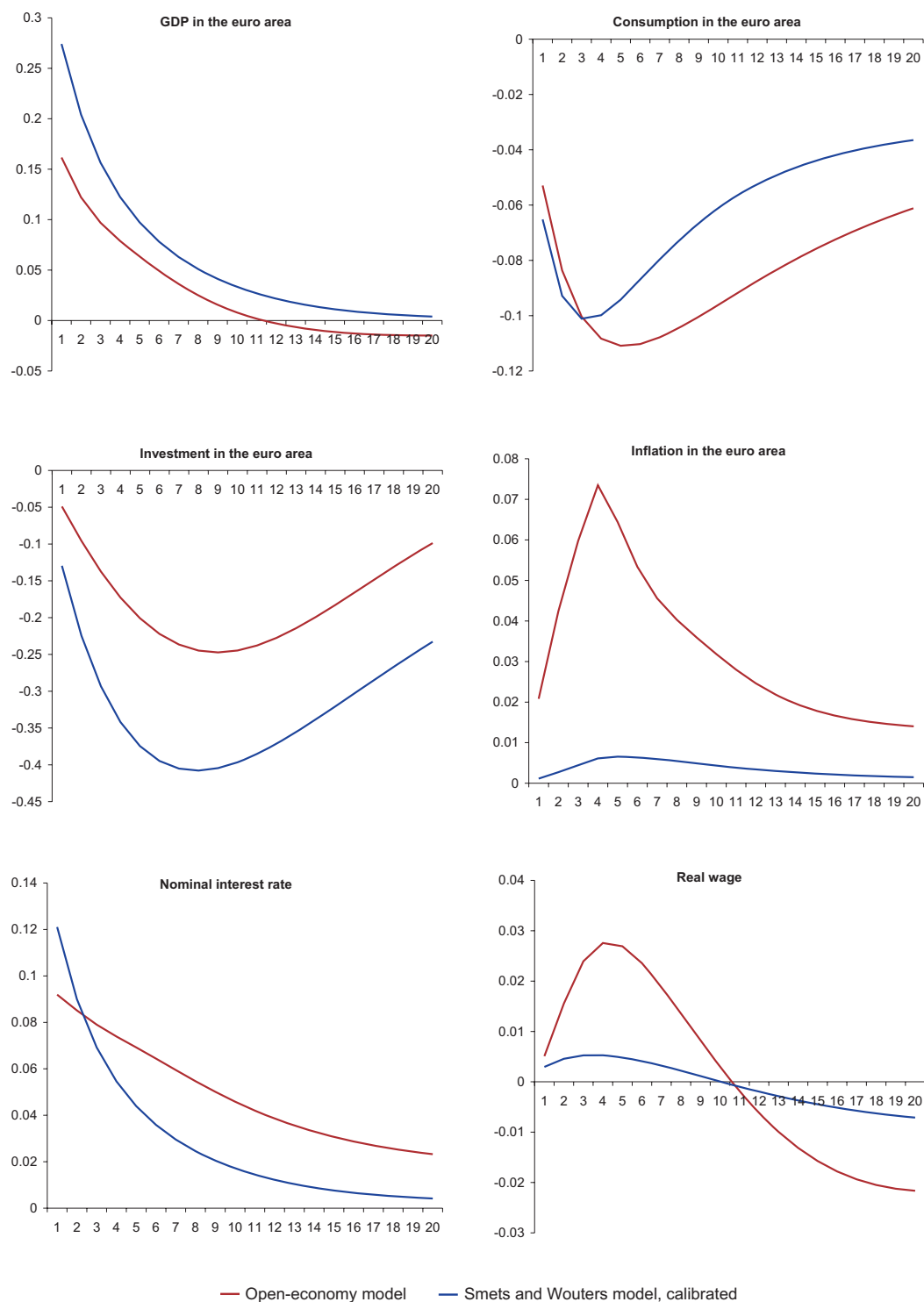


Chart 4 (continued)

IMPULSE RESPONSES TO A GOVERNMENT SPENDING SHOCK

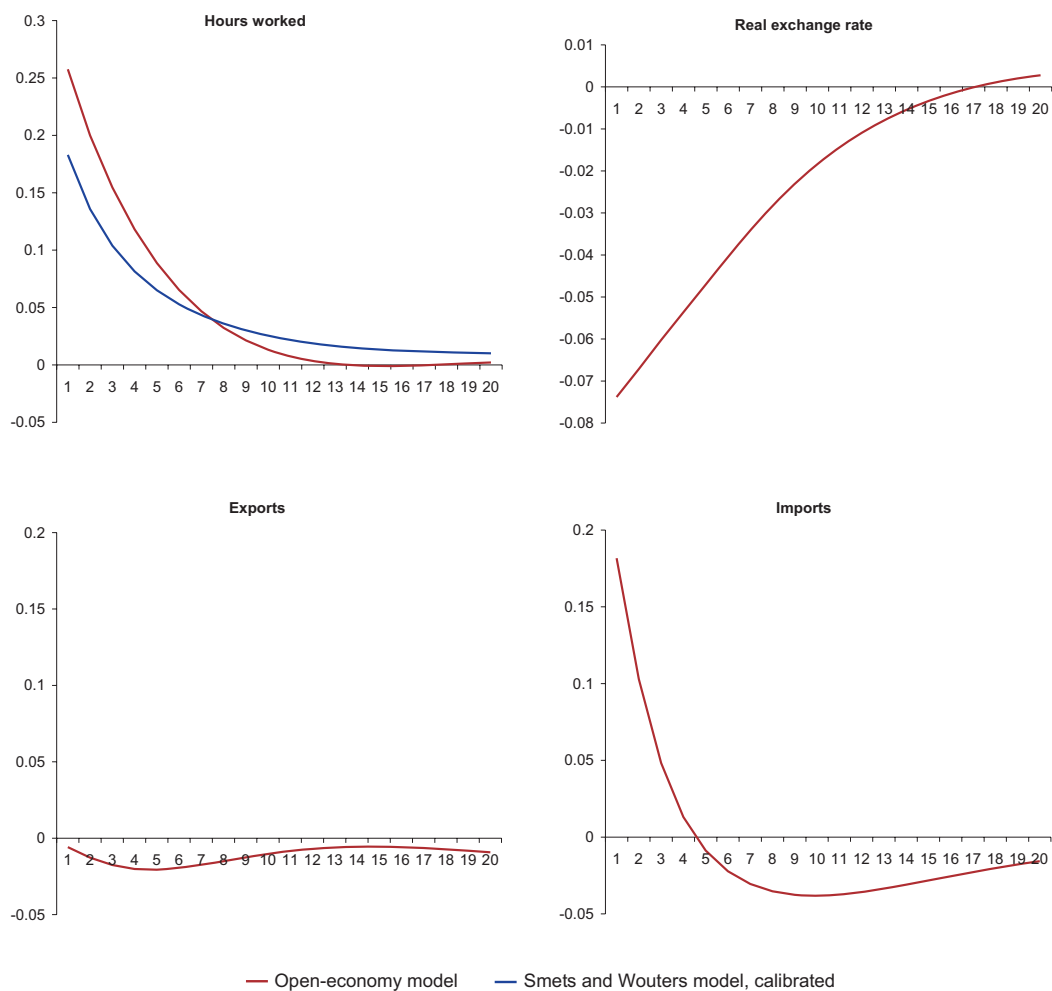


Chart 5 (to be continued)

IMPULSE RESPONSES TO AN UNCOVERED INTEREST RATE PARITY SHOCK

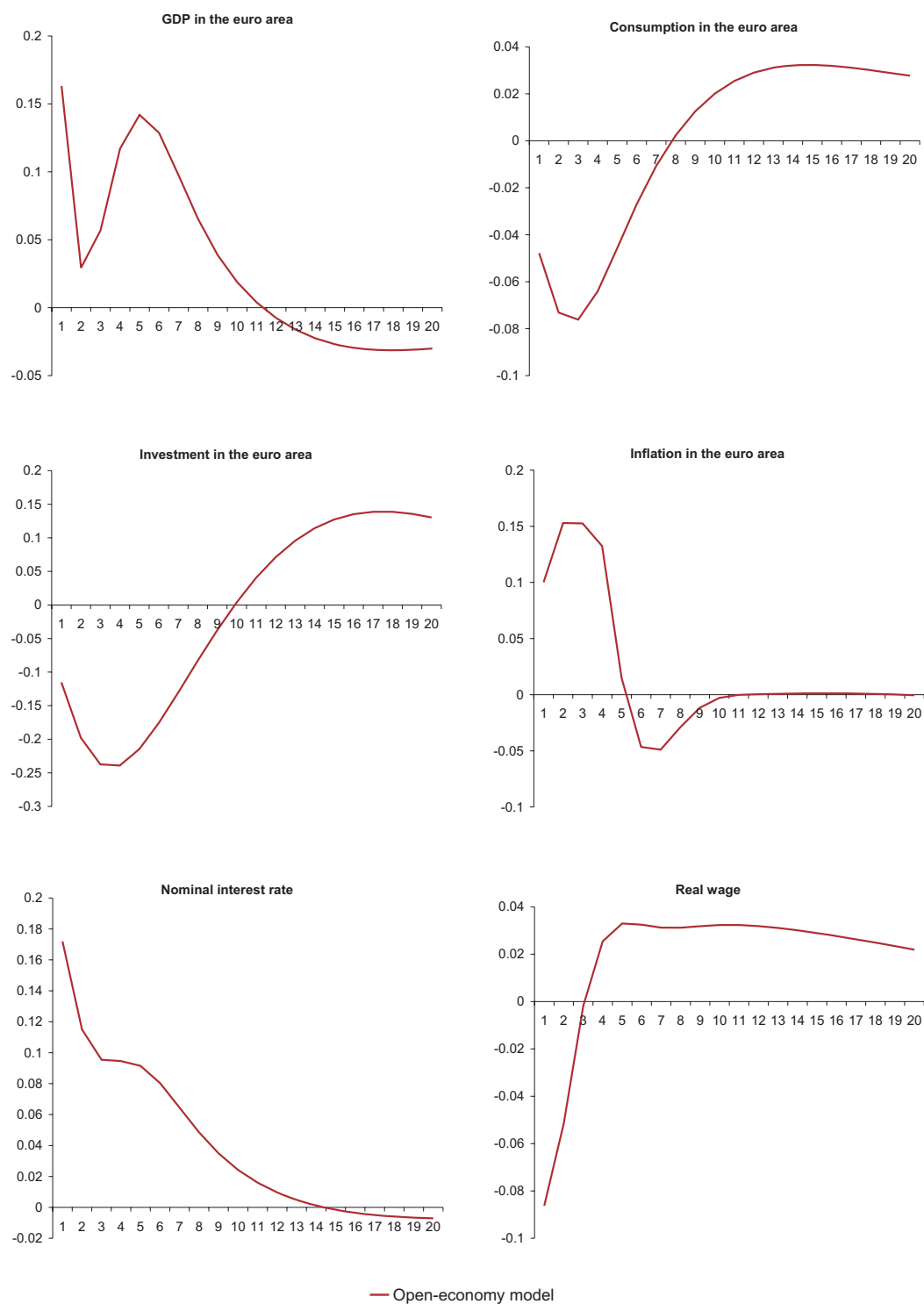
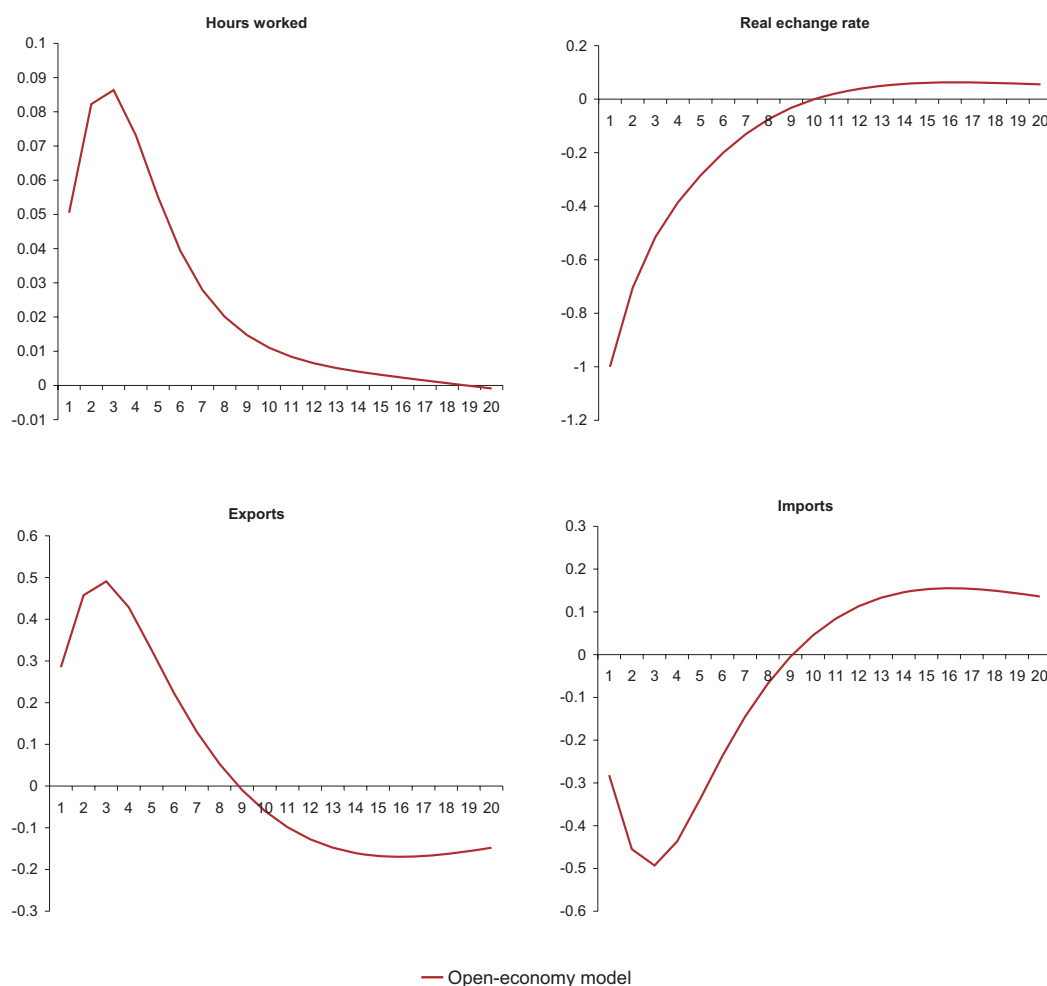


Chart 5 (continued)

IMPULSE RESPONSES TO AN UNCOVERED INTEREST RATE PARITY SHOCK



5. CONCLUDING REMARKS

DSGE models are being increasingly used by central banks for modelling and forecasting and in some countries replacing traditional large-scale macroeconomic models. Nevertheless, the use of these models for policy analysis is still undergoing a learning phase. This article aims at contributing to the current state of knowledge by considering the implications of the open economy dimension. The results suggest that this feature is indeed important, in particular for assessing the impact of monetary policy shocks. A follow up study will estimate the model for the euro area and the US in order to test whether the results obtained still apply when confronted with the data. Further refinements of the model for introducing other channels of transmission of shocks in the economy could also be envisaged (for instance more detailed open economy features, richer government or financial sectors or frictions in the labour market to allow for unemployment).

REFERENCES

- Adão, B. and J. B. Brito (2006), "The Effects of a Government Consumption Shock", *Economic Bulletin*, Spring, Banco de Portugal.
- Adolfson, M. S. Laséen, J. Lindé and M. Villani (2005), "Empirical properties of Closed and Open Economy Models of the Euro area", *Macroeconomic Dynamics*, forthcoming.
- Adolfson, M. S. Laséen, J. Lindé and M. Villani (2007), "Bayesian Estimation of an Open Economy DSGE Model with Incomplete Pass-Through", *Journal of International Economics*, 72, pp. 481-511.
- Alves, N., J. B. Brito, S. Gomes and J. Sousa (2006), "The Transmission of Monetary and Technology Shocks in the Euro Area", *Working Paper* No. 2, Banco de Portugal.
- Alves, N., Gomes, S. and J. Sousa (2007), "An open economy model of the euro area and the US", *Working Paper* No. 18, Banco de Portugal.
- Altig, D., Christiano, L., Eichenbaum, M. and Linde, J. (2005), "Firm-specific capital, nominal rigidities and the business cycle", *CEPR Discussion Paper* No. 4858.
- Benigno, P. (2001), "Price stability with imperfect financial integration", *CEPR Discussion Paper* No. 2854.
- Calvo, G. (1983), "Staggered prices in a utility-maximizing framework", *Journal of Monetary Economics*, 12(3), pp. 383-398.
- Christiano, L., M. Eichenbaum and C. Evans (2005), "Nominal Rigidities and the Dynamic Effects of a Shock to Monetary Policy", *Journal of Political Economy*, 113(1), pp. 1-45.
- Christiano, L. J., Motto, R. and Rostagno, M. (2005), "Financial Factors in Business Cycles", manuscript.
- Coenen, G. and P. McAdam (2005), "Tax Reform and Labour Market Reform in the Euro Area: A Macroeconomic Assessment", paper presented at the conference DSGE Modeling at Policy Institutions: Progress and Prospects, US Federal Reserve.
- Coenen, G., P. McAdam and R. Straub (2007), "Tax Reform and Labour-Market Performance in the Euro Area: A Simulation-Based Analysis Using the New Area-Wide Model", *ECB Working Paper* No. 747.
- Corsetti, G. and Dedola, L. (2005), "A macroeconomic model of international price discrimination," *Journal of International Economics*, Elsevier, vol. 67(1), pp. 129-155.
- Corsetti, G., Dedola, L. and Leduc, S. (2006) "DSGE models with high exchange rate volatility and low pass-through", *International Finance Discussion Papers* of the Federal Reserve Board, no. 845; CEPR dp 5377.
- Erceg, Christopher J., Henderson, Dale W., and Levin, Andrew T. (2000), "Optimal monetary policy with staggered wage and price contracts", *Journal of Monetary Economics*, 46(2), pp. 281-313.
- Lucas, R. (1976), "Econometric Policy Evaluation: a Critique", *Carnegie-Rochester Conference Series on Public Policy* 1, pp. 19-46.
- Peersman, G. and F. Smets (2003), "The Monetary Transmission Mechanism in the Euro Area: Evidence from VAR Analysis, in *Monetary Policy Transmission in the Euro Area*", Eds. Angeloni, Kashyap and Mojon.
- Smets, F. and R. Wouters (2003), "An estimated dynamic stochastic general equilibrium model of the euro area", *Journal of the European Economic Association*, 1(5), pp. 1087-1122.

Annex 1 Calibration

The parameter values are shown in Table 1. The two countries are of slightly different size, namely the euro area stands for 42 per cent of total population (*i.e.* the euro area plus the US). The utility function parameter values are the same in both economies. In particular, the habit persistence (b) parameter is set to 0.6 in both the euro area and the US.

In both countries we set the discount factor of consumers (β) to around 0.99 and the per capita gross growth rate of technology (μ_{zEA}) to 1.004 quarterly (*i.e.* 1.6 per cent in terms of the annual rate). Together with an annual gross inflation of 1.02 this implies a long run gross nominal interest rate of 1.0165 quarterly in both economies. We calibrate the depreciation rate (δ) to 0.025 quarterly.

Regarding the production function, the Cobb-Douglas parameter α is set to 0.3 in both countries while the CES function parameter (λ_F) is set to 2 both in the euro area and the US, which implies an intratemporal elasticity of substitution between home and foreign goods of 1.5. The consumption to output ratio is calibrated to be 0.6 in the euro area and 0.62 in the US.

As for price setting, the average duration of price contracts is set to 10 quarters in the domestic sector ($\xi_D=0.9$) and 1.4 quarters in the export sector ($\xi_X=0.3$). The degree of price indexation (γ_D) is set to 0.5 in both economies. The price markup is set to 0.3 both in the domestic and the import sector in the two economies (λ_D and λ_M).

Wage contracts last on average 4 quarters ($\xi_W=0.75$) and the degree of wage indexation is set to 0.75 (γ_W) in the two countries. The wage markup is set to 0.3 (λ_W). *Per capita* hours worked ($\frac{L_{EA}}{n}$) are calibrated so that households spend roughly 30 per cent of their time working.

The import adjustment cost parameter ζ is set to 2.5 in both economies and the parameter of the risk premium function (*i.e.* the first derivative of the risk premium), χ' , is calibrated to -0.1 following the estimates of Adolfson *et al.* (2005). The share of imports on domestic output is set to 18 per cent in the euro area while for the case of the US it is derived from the other parameters of the model resulting in a share of imports of 13 per cent. d_F and d_F^* are determined by solving a non-linear system and using the values for the other model parameters (see Alves, Gomes and Sousa, 2007).

The tax rate on consumption is 0.183 in the euro area and 0.077 in the US. The tax rate on labour income (including social security contributions) is 0.46 in the euro area and 0.3 in the US.

The parameters assumed in the monetary policy rule are close to those estimated in Smets and Wouters (2003), namely a coefficient of 1.5 on inflation and coefficients of 0.1 on output, changes in inflation and changes in output. Following Coenen, McAdam, Straub, we chose a parameter of 0.9 for the interest rate smoothing parameter which is close to the value estimated in Smets and Wouters (2003).

As for the autoregressive coefficients in the shock processes, we have assumed a high degree of persistence for technology, labour supply, consumer preference, government spending and risk premium shocks and no persistence for the remaining shocks.

Table 1

CALIBRATED PARAMETERS AND RATIOS					
	Euro area		United States		Source
Population size	n	0.42	$1 - n$	0.58	CMS
Inflation rate (gross)	π_{EA}	$1.02^{*0.25}$	π_{US}	$1.02^{*0.25}$	Assumption
Per capita hours	$\frac{L_{EA}}{n}$	0.285	$\frac{L_{US}}{1 - n}$	0.285	Assumption
Consumption-output ratio	$\frac{C_{EA}}{Y_{EA/n}^F}$	0.6	$\frac{C_{US}}{Y_{US/(1-n)}^F}$	0.62	CMS
Share of government spending	$\frac{g_{EA}}{Y_{EA/n}^F}$	0.21	$\frac{g_{US}}{Y_{US/(1-n)}^F}$	0.20	Implicit (US)
Share of investment	$\frac{i_{EA}}{Y_{EA/n}^F}$	0.188	$\frac{i_{US}}{Y_{US/(1-n)}^F}$	0.179	Implicit (US)
Share of imports	$\frac{Y_{US}^{EA}}{Y_{EA/n}^F}$	0.18	$\frac{Y_{US}^{US}}{Y_{US/(1-n)}^F}$	0.13	Implicit (US)
Productivity growth (gross)	μ_{zEA}	$1.016^{*0.25}$	μ_{zUS}	$1.016^{*0.25}$	Assumption
Discount factor	β	$1.03^{*0.25}$	β^{*}	$1.03^{*0.25}$	CMS
Depreciation rate	δ	0.025	δ^{*}	0.025	Assumption
Tax rate on consumption	τ_C	0.183	τ_C^{*}	0.077	CMS
Tax rate on labour income	τ_W	0.459	τ_W^{*}	0.296	CMS
Share of capital income in value added	α	0.3	α^{*}	0.3	Assumption
Habit persistence parameter	b	0.6	b^{*}	0.6	CMS
Import adjustment cost	ζ	2.5	ζ^{*}	2.5	CMS
CES parameter of imported and domestic interm. goods	λ_F	2	λ_F^{*}	2	CMS
CES parameter of imported and domestic interm. goods	d_F	0.83	d_F^{*}	0.87	Implicit
Goods markup	λ_D		λ_D^{*}		
Wage markup	λ_W	0.3	λ_W^{*}	0.3	CMS
Import price markup	λ_M		λ_M^{*}		
Degree of price indexation	γ_D	0.5	γ_D^{*}	0.5	CMS
Degree of wage indexation	γ_W	0.75	γ_W^{*}	0.75	CMS
Calvo setting					
Domestic goods	ξ_D	0.9	ξ_D^{*}	0.9	
Exports	ξ_X	0.3	ξ_X^{*}	0.3	CMS
Wages	ξ_W	0.75	ξ_W^{*}	0.75	
	ϕ_R	0.9	ϕ_R^{*}	0.9	
	ϕ_{Π}	1.5	ϕ_{Π}^{*}	1.5	
Taylor rule parameters	ϕ_Y	0.1	ϕ_Y^{*}	0.1	Assumption
	$\phi_{\Delta\Pi}$	0.1	$\phi_{\Delta\Pi}^{*}$	0.1	
	$\phi_{\Delta Y}$	0.1	$\phi_{\Delta Y}^{*}$	0.1	
Shock processes					
	Euro area		United States		Source
Shock AR, interest rate	ρ_R	0	ρ_R^{*}	0	Assumption
Shock AR, government	ρ_G	0.9	ρ_G^{*}	0.9	Assumption
Shock AR, technological	ρ_{μ_z}	0.9	$\rho_{\mu_z}^{*}$	0.9	Assumption
Other					
	Euro area		United States		Source
Stationary holdings of United States bonds	b_{US}^{EA}		0		Assumption
Relative United States / Euro area price	p_{US}		1		Implicit
Risk premium	$\chi'()$		-0.1		Adolfson, <i>et al.</i> (2005)
Shock AR, exchange rate	ρ_S		0.9		Assumption

CMS-Coenen, McAdam and Straub (2007).

FINANCING COSTS OF PORTUGUESE COMPANIES*

*Isabel Marques Gameiro***

*Nuno Gonçalo Ribeiro***

1. INTRODUCTION

The financing conditions faced by the non-financial private sector are classical determinants of investment and consumption decisions and, consequently, of economic activity and prices. In the case of companies, financing costs are dependent inter alia on the initial financing structure (namely the share of debt, the maturity structure and/or the interest resetting period), the depth, liquidity and cross-border integration of capital markets, as well as by both investors' and savers' preferences. Thus, monetary policy impulses are likely to be transmitted heterogeneously to corporate financing conditions across individual euro area countries, thereby inducing differentiated effects on future economic and price developments. Although the price formation mechanism in financial markets provides information on financing conditions, it should be borne in mind that information asymmetries in this market are likely to lead to quantitative restrictions, by rationing funds available at the prevailing market price (Stiglitz and Weiss (1981)).

This paper aims at obtaining a set of measures of developments in the real financing costs of Portuguese companies. To this end, calculation procedures are established and their methodological options discussed. Such measures are proxies for the actual costs incurred by companies in various financing market segments, which, taking into account the corporate financial structure, may be aggregated into a synthetic indicator for total funds obtained by these companies. The proposed indicators give additional information¹ for the establishment of a coherent framework for the analysis of the financial conditions faced by the private sector. In fact, such measures facilitate the monitoring over time of overall corporate financing conditions and the analysis of developments in corporate financing and may contribute to improve forecast tools for corporate investment.

The article is structured as follows: Section 2 presents the financing structure of Portuguese non-financial corporations and compares it with that of the euro area as a whole. Section 3 proposes measures of real corporate financing costs for the broad categories of financial instruments, namely equity, bank loans, short-term market-based debt and medium and long-term market-based debt. Section 4 presents a synthetic indicator, illustrating real total financing costs, that results from the aggregation of partial indicators for each instrument using their outstanding amounts as weights. Finally, Section 5 summarises the main results.

* The analyses, opinions and findings of this article represent the views of the authors, they are not necessarily those of the Banco de Portugal.

** Economics and Research Department, Banco de Portugal.

(1) Among the elements that must be taken into account when assessing corporate financing conditions are the dynamics of corporate financing volumes, the way they meet the sector's aggregate borrowing needs, as well as qualitative information from surveys to companies (e.g. Investment Survey) or banks (e.g. Euro Area Bank Lending Survey).

2. FINANCING STRUCTURE OF COMPANIES

Among the forms of corporate external financing, two types should be distinguished: financing through equity and financing through debt, which, in turn, includes loans by credit institutions and market-based debt. Table 1 presents the weight of each of these external financing components for companies in Portugal and the euro area at the end of 1998 and 2006.

Equity is the main source of financing of Portuguese companies, accounting for 60 per cent of total financing at the end of 2006, compared with around 73 per cent in the euro area. The largest part of equity of Portuguese companies is non-quoted, amounting to 67 per cent of all equity at the end of 2006. The weight of unquoted shares is related to the fact that the Portuguese corporate structure comprises a large proportion of small and medium-sized enterprises. This is also observed in the euro area as a whole (unquoted shares amounted to 63 per cent of equity financing in 2006), where small and medium-sized enterprises account for a significantly higher share than in the United States and Japan.² It should be noted that, between end-1998 and end-2006, the weight of equity financing of Portuguese companies declined and was largely counterbalanced by an increase in the weight of bank loans. In turn, the financing structure in the euro area was more stable in the period as a whole, although there were significant fluctuations associated with swings in international stock market prices during this period.

Bank financing is very significant in the corporate financing structure in Portugal, accounting for 31 per cent of total financing in 2006, i.e. considerably higher than in the euro area as a whole. In Portugal, most loans have an original maturity of up to 1 year, in contrast to the euro area where bank financing with maturities of over 5 years predominates. Moreover, it should be noted that in Portugal, even for longer maturities, interest rates on bank loans to companies are indexed to short-term interest rates, conversely to what is typically observed in some major euro area economies, where interest rates on bank loans with longer maturities are strongly correlated with medium and long-term government bond yields.

Financing through the issuance of debt securities accounts for a small share of external financing of Portuguese companies (9 per cent in 2006), of which more than half concerns short-term debt securi-

Table 1

FINANCING STRUCTURE OF COMPANIES IN PORTUGAL AND THE EURO AREA (AMOUNTS OUTSTANDING)
As a percentage of the total

	Loans				Debt securities			Shares		
	Total	Up to 1 year	Between 1 and 5 years	Over 5 years	Total	Short-term	Long-term	Total	Quoted	Unquoted
December 1998										
Portugal	23	14	5	4	6	1	5	71	28	43
Euro area	25	9	3	12	4	1	3	72	31	41
December 2006										
Portugal	31	13	8	10	9	5	4	60	20	40
Euro area	23	7	4	12	4	2	3	73	27	46

Sources: ECB and Banco de Portugal.

(2) In Portugal, employment in small and medium-sized enterprises stands at around 87 per cent, compared with 66 per cent in Europe, 46 per cent in the United States and 33 per cent in Japan (for a comparison between Europe, United States and Japan, see Hartman et al (2003)).

ties, namely commercial paper that is a close substitute for short-term bank loans. Nonetheless, the weight of financing through the issuance of debt securities in Portugal is higher than in the euro area as a whole, where the weight in total external corporate financing reached only 4 per cent in 2006.

3. INDICATORS OF REAL FINANCING COSTS OF NON-FINANCIAL CORPORATIONS

This section proposes methodologies for the calculation of corporate financing cost indicators of the previously mentioned broad categories of financial instruments. For the purpose of monitoring developments in the Portuguese economy in the context of the euro area, and in order to have a benchmark to better interpret results, each subsection of this paper includes similar indicators constructed for the euro area as a whole.

3.1. Cost of equity financing

The measurement of the cost of equity financing, seen as the rate of return demanded by investors for holding stocks, presents various methodological difficulties. First, while for listed companies a market price for equity is available, for unlisted companies, which represent the majority, this information is absent. Moreover, even for listed companies the cost of equity is not directly observable in the market, implying that an indirect analytical approach must be chosen.

We take the cost of quoted equity as indicative for the cost of unquoted equity. This approach consists in assuming that there is an implicit shadow price for the equity of unlisted companies, which is similar, in aggregated terms, to that of listed companies. This corresponds to assuming that the structure in terms of sectoral composition, size and transparency is similar in both groups of companies. In general, unlisted companies are smaller and more opaque than listed companies, due either to the greater proportion of unlisted companies in the early phases of companies life cycle or to less strict requirements regarding the disclosure of information to the public. Thus, it may be argued that the cost of equity of these companies is underestimated when this procedure is used.

With regard to the analytical approach for the calculation of equity financing costs, it should be noted that the price of a stock is equal to the discounted values of future dividends, considering the equity risk premium in the discount rate. Thus, the operationalisation of a methodology to calculate the cost of equity implies the availability of information on stock prices and all future corporate cash flows. The simplest approach consists in setting a real long-term growth rate for future dividends and to assume that it remains constant when discounting the value of future expected dividends. Long-term dividend growth rates are typically fixed by using an estimate of the potential growth rate of the economy. This rate is assessed when the cost of equity is estimated. In this context, the cost of equity can be residually calculated using the so-called Gordon formula (Gordon (1962)):

$$C_e = \frac{D_t}{P_t} (1 + g) + g \quad (1)$$

where C_e is the cost of equity, D_t / P_t the current dividend yield and g the growth rate of dividends in the long run. Equation (1) can be interpreted as follows: for the same current dividend yield, a higher expected growth rate of dividends will only be compatible with a higher cost of equity. In other words, exogenous changes in the expected growth rate of dividends must be reflected in the current price of equity. Although this set of assumptions simplifies the problem, it is considered to be rather limited as it does not take into account all the information available in financial markets, in particular investors' percep-

tions regarding earnings' growth rates in the short-term (see ECB (2002) and Panigirtzoulou and Scammel (2002)). Thus, the methodology used in this paper is a generalisation of the Gordon formula to estimate the cost of equity and assumes three stages for the development of the dividend growth rate (Three Stage Dividend Discount Model).³ More specifically, the first stage includes the first four years and it is assumed that the growth rate of dividends is that obtained by analysts' forecasts regarding corporate earnings; the second stage corresponds to the next eight years, when dividends are expected to converge in a linear fashion to the constant long-term growth rate, which is assumed to prevail throughout the third and last stage. Fuller and Hsia (1984), based upon the Three Stage Dividend Discount Model, show that the cost of equity may be residually obtained by:

$$C_c = \frac{D_t}{P_t} [(1+g) + 8(ga - g)] + g \quad (2)$$

where ga is the forecast of the average growth rate of dividends over the next four years. Equation (2) has an interpretation similar to equation (1), i.e. for the same dividend yield a change in the forecast of the average four-year dividend growth rate is only compatible with a correspondent change in the cost of equity. The cost of equity was calculated on the basis of the Morgan Stanley Capital International index for Portugal (MSCI-Portugal). This index is representative of the Portuguese stock market with a composition similar to that of PSI 20. Thomson Financial Datastream provides data on the dividend yield and on earnings per share growth forecast of the International Brokers Estimate System (IBES) for the MSCI-Portugal. Earnings growth rate forecast provided by analysts are used to determine the four-year average dividend growth rate, assuming a constant payout ratio. Thus, the expected growth rate of dividends for the next four years is calculated as the average of earnings per share (EPS) forecast by analysts for the following periods: current year, 1 year ahead, 2 years ahead and 3 years ahead. This rate was deflated by Consensus Economics expected inflation for Portugal. The real growth rate of dividends in the long run is assumed to be equal to the estimate for potential output growth in Portugal, as would happen if the Gordon formula were used. In fact, in the long run, aggregate corporate earnings growth should be consistent with the income growth of the economy as a whole. More specifically, it was assumed that $g = 2.0\%$, in line with the Almeida and Félix (2006) results for the 1999-2005 period.⁴

Chart 1 shows the real cost of equity financing for MSCI-Portugal between January 1999 and October 2007.⁵ In addition, an estimate of the cost of equity in the euro area is presented for the Dow Jones Eurostoxx index, calculated on the basis of the same methodology.^{6,7} As shown in the chart, over the period under review the estimate for the real cost of equity financing in Portugal was significantly volatile, being on average around 0.8 p.p. higher than in the euro area. Between January 1999 and January 2001, the real cost of equity in Portugal fluctuated around 5.8 per cent and subsequently started an upward movement, reaching peaks slightly above 11 per cent in the second half of 2004. Since then, it has fallen significantly, standing systematically below the historical average since early 2006. In the same period, the euro area real cost of equity was less volatile, with slight fluctuations around 4.5 per

(3) Panigirtzoulou and Scammel (2002) show that the use of the Three Stage Dividend Discount Model for the assessment of stock prices offers a relatively good explanation for the past behaviour of stock indices in the United Kingdom and the United States.

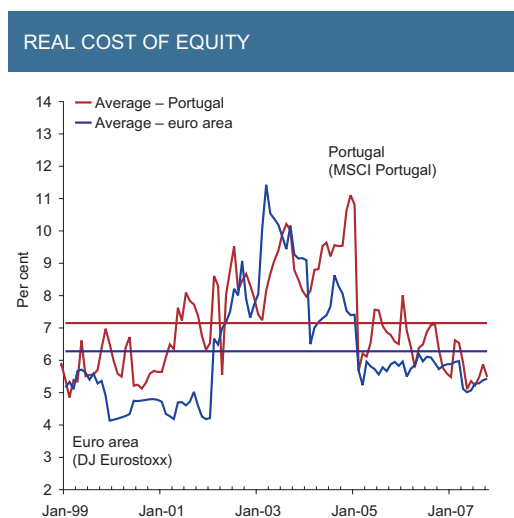
(4) The assumption for the growth rate of dividends in the long run only influences the level of the estimated cost of equity, but does not condition its developments. For instance, a growth rate of potential output 0.5 p.p. higher than that assumed would imply an increase in the estimated cost of equity, on average, of around 0.4 p.p. over the period under review.

(5) The cut-off date for the charts included in this section was 31 October 2007.

(6) For the real growth rate of dividends over the first four years, analysts' forecasts regarding earnings per share of the Dow Jones Eurostoxx index were considered in the current year, 1 year ahead, 2 years ahead and 3 years ahead. For the real growth rate of dividends in the long run, a value of 2.0 per cent was assumed, in line with estimates for potential output growth in the euro area in the 1995-2006 period (see ECB(2005b)).

(7) Both indices comprise financial corporations (namely banks). This may give rise to some bias in the indicator as a proxy for the cost of capital of non-financial corporations, namely in periods of significant corrections in financial corporations shares, as was recently seen. The weight of financial sector shares on the market value of the stock indices considered is around 30 per cent, both in Portugal and the euro area.

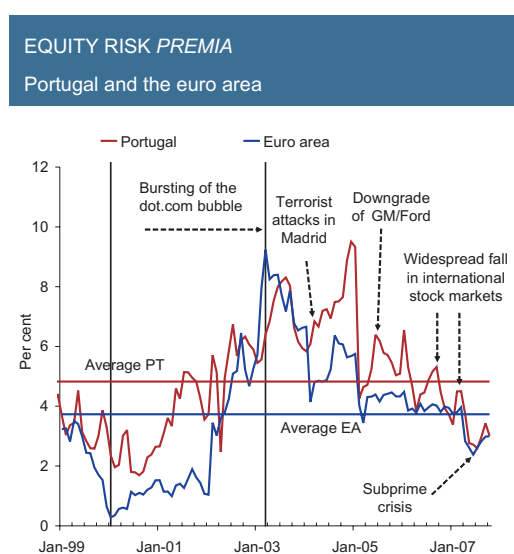
Chart 1



Sources: Thomson Financial Datastream, Consensus Economics and Banco de Portugal calculations.

cent up to January 2002 and a strong increase to a peak of around 11 per cent in March 2003. Since that date, the cost of equity in the euro area declined considerably to levels below the historical average since early 2005. Another way to assess developments in the cost of equity is through the behaviour of the equity risk premium demanded by investors to invest in the stock market. Chart 2 shows estimates for the equity risk *premia* implied in stock markets in Portugal and the euro area, which is calculated by subtracting the risk-free real interest rate from the real cost of equity. The risk-free real interest rates used are the government bond yield in Portugal and the euro area, deflated by the corresponding Consensus Economics long-term inflation expectations. According to these measures, the equity risk premium increased considerably throughout 2002, but less markedly in Portugal than in the euro area. These developments occurred in the context of corporate accounting scandals in

Chart 2



Sources: BIS, Consensus Economics, Thomson Financial Datastream and Banco de Portugal calculations.

particular in the United States and heightened geopolitical tensions, associated with a possible military intervention in Iraq. Between March 2003 and March 2004, the risk premium was corrected downwards, both in Portugal and the euro area. This correction was fully reversed in Portugal in the second half of 2004, when the risk premium reached peak levels (around 10 per cent at the end of 2004). Likewise, in the euro area, the equity risk premium increased in the second half of 2004, albeit less markedly. Investors' fears about the impact of the strong increase in international oil prices on corporate earnings may have contributed to these developments, which in the case of Portugal might have been aggravated by some political instability in the context of the persistence of major external and fiscal imbalances.

As from the beginning of 2005, the risk premium in the Portuguese stock market declined gradually to levels below the average for the past few years, in tandem with the euro area stock market. In general, the risk premium in Portugal was more sensitive than in the euro area to episodes of some financial markets turbulence as illustrated in the chart. Very recently, in the context of changes in the perception of risk by international investors associated with concerns regarding the size and allocation of losses related with the US subprime mortgage market, as well as of other strongly leveraged debt markets, the equity risk premium increased in the Portuguese and in the euro area stock markets. However, this premium remained below the average for the past few years.

3.2 Bank loan costs

In Portugal, the interest rate on corporate bank loans is determined almost exclusively by money market interest rates, either because loans with an original maturity of up to 1 year predominate, or because in longer maturities interest rates are index-linked to short-term interest rates, and are also periodically revised at short intervals. In this context, interest rates on outstanding amounts, applied to all operations outstanding during the reference period (comprising those negotiated in that period and those negotiated in previous periods) reflect very rapidly changes in expectations regarding the key monetary policy interest rate. This is particularly relevant in the case of Portugal, given that some problems were identified regarding data on interest rates on new business that advise against their use when assessing the cost of corporate bank loans in Portugal. In fact, in the context of the euro area harmonised MFI lending rates, interest rates on new business are provided, i.e. interest rates for any new agreement between a customer and a MFI (new contracts and renegotiations of existing contracts), which, theoretically, are a better tool to monitor the marginal cost of corporate borrowing. However, the method of aggregating these statistics can lead to biases and to spurious volatility in aggregate statistics, as is observed in Portugal according to Banco de Portugal (2003) and ECB (2006).⁸ Therefore, this paper exclusively analyses interest rates on outstanding amounts, using harmonised MFI statistics for the period after January 2003; up to December 2002 series were estimated on the basis of data available in that period and published according to the methodology presented in Banco de Portugal (2003).

For the purpose of calculating the interest rate on bank loans prevailing in Portugal, the almost exclusive indexation of corporate interest rates to key money market interest rates renders the breakdown by maturity categories unnecessary, given that, by definition, interest rates on both short and longer-term operations similarly reflect developments in their reference rates. Interest rates on bank loans in the euro area as a whole, on the other hand, include a relevant share of long-term fixed-rate

(8) The aggregation problems identified are associated with the fact that in Portugal loans frequently have very short maturities (being consequently overrepresented in aggregate statistics) and relatively high interest rates compared to the remaining operations, possibly reflecting the refinancing of trade credits by the financial system.

operations. For this reason, there is an analytical advantage in using the breakdown by original maturity.

As discussed above, the real interest rate on loans to non-financial corporations in Portugal directly results from the average rate weighted by end-of-period outstanding amounts in all operations, deflated by Consensus Economics expectations for the average inflation expected over the relevant horizon. It was assumed that this was a one-year horizon, in line with the interest rate resetting maturity of up to 12 months characterising almost all operations.

The same procedure is applicable to the calculation of real interest rates on outstanding amounts with an original maturity of up to 1 year for the euro area as a whole. However, the approach to longer maturities requires some additional research, given that statistics available for interest rates on outstanding amounts do not make it possible to identify the structure of the interest rate revision periods for operations with maturities of over 1 year. In order to obtain an indication of this structure, the correlation between the level of each of the above-mentioned categories and government bond yields in that period was calculated. Interest rates on loans with maturities between “1 and 5 years” have a maximum correlation with two-year government bond yields, while interest rates on loans with maturities of “over 5 years” have a maximum correlation with seven-year government bond yields. This procedure led to the choice of the average inflation rates expected for the next 2 and 7 years in order to deflate nominal interest rates.

Similarly to Portugal, the series of bank interest rates in the euro area recorded a methodological break in January 2003. In fact, bank interest rates used for the period prior to January 2003 correspond to the aggregation of statistics published by national central banks on a best effort basis, but are not harmonised in terms of concepts and calculation methodologies. As from January 2003, harmonised statistics of euro area MFI interest rates were used.⁹

Chart 3 shows the interest rate representative of real cost of bank lending to companies in Portugal from early 1990 to August 2007.¹⁰ Throughout the 1990s the real cost of bank lending to Portuguese companies declined significantly, moving from values around 13 per cent during the 1990-1992 period

Chart 3

**REAL COST OF BANK LOANS TO PORTUGUESE
NON-FINANCIAL CORPORATIONS**



Sources: Consensus Economics and Banco de Portugal calculations.

(9) These replaced the statistics on retail bank interest rates previously produced on the basis of statistics on national interest rates.

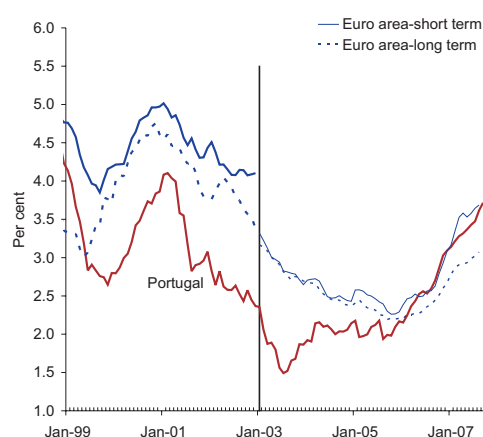
(10) Unless otherwise indicated, the cut-off date for the charts included in this section was September 2007.

to around 4 per cent in January 1999. Since the creation of the euro area, the real cost of bank lending to Portuguese companies fluctuated within an interval between 1.7 and 4.2 per cent. After recording troughs of 1.7 per cent in mid-2003, the real cost of bank financing recorded an upward trend, which was more marked as from the third quarter of 2005, standing at 3.7 per cent in September 2007.

Chart 4 shows real cost of bank lending to companies in Portugal compared to the euro area in the two above-mentioned maturity categories after January 1999. The vertical line in January 2003 illustrates the break in the series with the introduction of harmonised statistics. From a conceptual perspective, the real interest rate for Portugal directly compares with the real short-term interest rate for the euro area. Between early 1999 and the end of 2005, the real cost of bank loans in Portugal was systematically lower than in the euro area, largely reflecting relatively higher short-term inflation expectations in Portugal (Chart 5). From that date onwards, the cost of bank financing in Portugal converged to the euro area, and is now virtually at the same level.

Chart 4

REAL COST OF BANK LOANS TO NON-FINANCIAL CORPORATIONS IN PORTUGAL AND THE EURO AREA

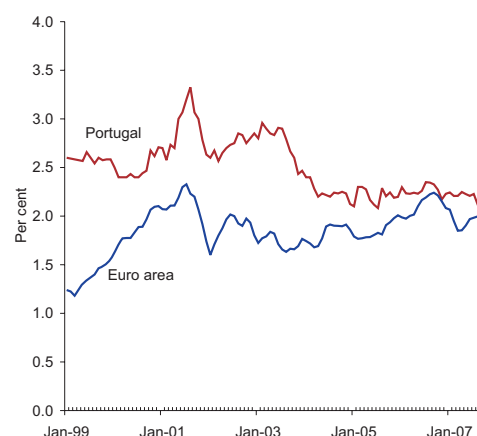


Sources: ECB, Consensus Economics and Banco de Portugal calculations.

Note: The vertical line in January 2003 indicates the break in the series following the introduction of harmonised MFI statistics. For the euro area, the short-term interest rate corresponds to loans up to 1 year and the long-term interest rate corresponds to loans over 1 year.

Chart 5

ONE-YEAR INFLATION EXPECTATIONS



Source: Consensus Economics and Banco de Portugal calculations.

3.3. Cost of securitised debt

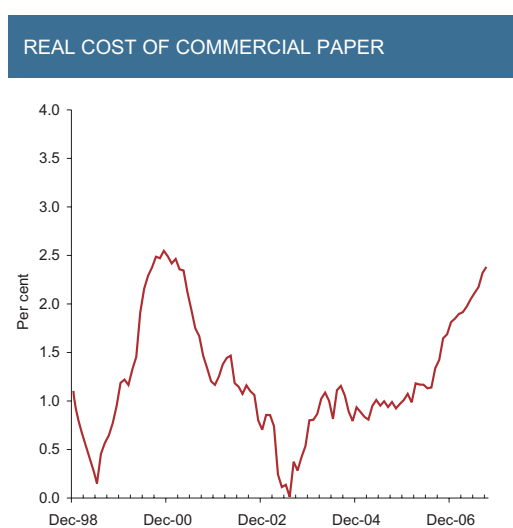
When calculating the real cost of securitised debt financing, it is important to distinguish between short-term debt and long-term debt, given that the relevant horizon for the expected inflation rate to be used in the deflation of nominal interest rates is different in both cases.

3.3.1. Short-term debt

In Portugal, short-term debt securities issued by non-financial corporations comprises almost exclusively commercial paper of highly rated large companies. Some characteristics make this instrument a very close substitute for bank credit such as the fact that issuances are usually guaranteed by a bank syndicate. Interest rates correspond to interest rate averages in the primary market of commercial paper for maturities of “25 up to 35 days”, “85 up to 95 days” and “180 up to 190 days”, double weighted by the corresponding amounts issued and the average maturity of each of the three above-mentioned maturity categories. In addition, in order to reduce the excessive volatility in this series, associated with the fact that a relatively small number of large issuers participate in this market, the resulting series was smoothed through a three-month moving average and subsequently it was deflated by Consensus Economics inflation expectations over a one-year horizon (Chart 6). Unfortunately, the lack of available data hampers the construction of an indicator for this market segment in the euro area as a whole.

As shown in Chart 6, the real cost of financing through the issuance of commercial paper, after reaching values close to zero in the second half of 2003, has been gradually increasing to levels close to the peaks. In September 2007 the real cost of this type of financing stood at 2.4 per cent.

Chart 6



Sources: Consensus Economics and Banco de Portugal calculations.

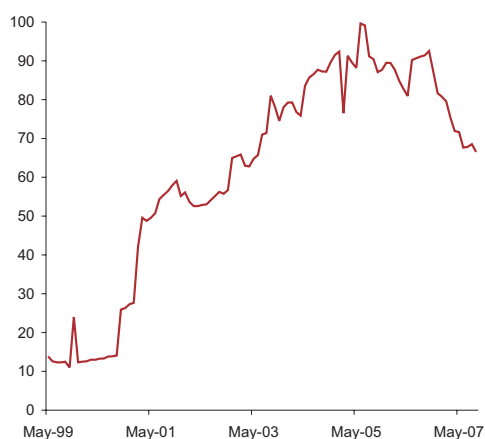
3.3.2. Medium and long-term debt

The calculation of long-term debt securities real financing costs is based on the yield of the Lehman Brothers index for bonds with a maturity of over 1 year issued by Portuguese investment grade non-financial corporations.¹¹ As shown in Chart 7, this index is a good representative of the market for long-term debt securities issued by Portuguese non-financial corporations.¹²

Chart 8 shows the real cost of borrowing in the bond market by Portuguese companies, assessed by the Lehman Brothers index, together with an indicator of the euro area bond market financing costs, measured by the Merrill Lynch index of bonds with a maturity of over 1 year issued by euro area investment grade non-financial corporations. Index yields were deflated by Consensus Economics inflation expectations in line with the average duration of indices (approximately 5 years in Portugal and the euro area). As expected, in the period under review the cost of borrowing by Portuguese companies is virtually equal to that of European companies. In Portugal, the real cost of debt securities reached a peak around 4.0 per cent in mid-2000, and subsequently moved back to values between 1 and 2 per cent from mid-2003 to the last quarter of 2005. Since then, an upward trend has been observed, with the financing cost standing at around 3.0 per cent in October 2007.

Chart 7

COVERAGE OF THE LEHMAN BROTHERS INDEX FOR MEDIUM AND LONG-TERM DEBT SECURITIES OF PORTUGUESE NON-FINANCIAL CORPORATIONS^(a)

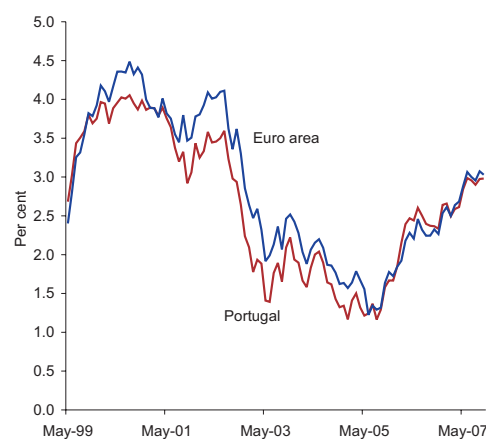


Sources: Lehman Brothers and Banco de Portugal.

Note: (a) Ratio of the market value of the Lehman Brothers index for medium and long-term debt securities of Portuguese non-financial corporations to total outstanding amounts of this instrument.

Chart 8

REAL COST OF BOND FINANCING OF NON-FINANCIAL CORPORATIONS IN PORTUGAL AND THE EURO AREA



Sources: Lehman Brothers, Consensus Economics, Thomson Financial Datastream and Banco de Portugal calculations.

(11) Issuances with ratings equal to or higher than Baa3/BBB-/BBB- according to the scales defined by Moody's, Standard & Poors and Fitch respectively.

(12) The cut-off date for the charts included in this section was 31 October 2007.

4. AGGREGATE INDICATOR OF CORPORATE FINANCING COSTS

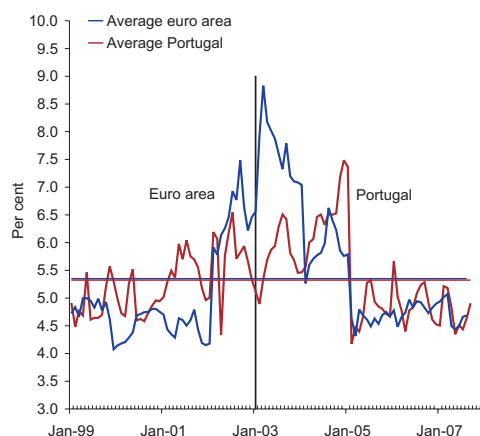
In order to obtain a synthetic indicator of the real financing cost incurred by Portuguese companies, indicators presented in the previous sections were aggregated using the corresponding outstanding amounts as weights. It should be noted that in this article the cost of unquoted equity is proxied by the cost of quoted shares, and therefore the weight associated with the real cost of equity corresponds to total outstanding amounts of “shares and other equity” recorded under the liability side of non-financial corporations balance sheet, as published in financial accounts. In fact, for the purpose of aggregating the various partial indicators, it could have been possible not to consider unquoted equity, as it might be suggested by some previous applications used by other central banks (see ECB (2005a)). However, such procedure would represent a very significant omission, as it would not take into account the largest share of financing of Portuguese companies. This is particularly relevant to ensure higher comparability of results of the application of this type of methodology to different economies. In fact, the analysis of the financial structure of Portuguese companies and companies in the euro area as a whole presented in Table 1, shows that there is a larger relative proportion of quoted shares in the euro area than in Portugal. This, together with the fact that equity capital is the most expensive source of financing, would mechanically and somewhat spuriously lead to a systematically higher average real cost of financing of euro area companies compared to that of Portuguese companies. In addition, the fact that all equity is taken into account makes it possible to internalise the effects of corporate listing and delisting dynamics, whose impact on aggregation weights, if only quoted shares were used, would have no economic relevance.

Chart 9 shows a synthetic indicator of the real cost of total financing of Portuguese non-financial corporations in the period between January 1999¹³ and September 2007, as well as an equivalent indicator calculated for the euro area using a similar methodology.¹⁴ The aggregation procedure described and the resulting indicator, in terms of concept, is similar to the weighted average cost of capital (or “wacc”) recurrently used in financial economics literature. Thus, it should not be interpreted as a mere mechanical aggregation of the cost associated to very different financial instruments. In other words, the fact that a given financial instrument has a circumstantial or a structurally lower cost than other instruments does not lead to the conclusion that the companies’ choice of one of them is strictly better, as the financing cost of each instrument is not independent from the corporate financial structure and from the interest rate or refinancing risk inherent in different instruments. If, on the one hand, equity financing is the most stable, given that through it a company obtains funds which are not liable to investors ex-ante when a company is going concern, on the other hand, by giving their holders residual rights on corporate assets, subordinated to the payment of all remaining liabilities, it introduces a risk premium demanded by the shareholder. The overall financial debt cost is endogenous regarding the debt to equity ratio in the financing structure, i.e. the lower the ratio the lower the cost. Turning to the structure of debt maturities, all other things being equal, the cost of longer-term debt should be higher than that of short-term debt, both because uncertainty as to debtor credit risk increases over the time horizon, and because debtors are willing to pay a higher cost so as not to assume the risk of not being able to roll-over as in their short-term debt. The same rationale applies to the legitimacy to compare, in absolute terms, indicators for different economies, which are characterised by diverse financial structures and market conventions.

(13) Given that there are no data available on the cost of medium and long-term debt securities for the period between January 1999 and May 1999, a constant yield was assumed, similar to that observed in May 1999.

(14) The indicator for the euro area corresponds to the average weighted by the outstanding amounts recorded in euro area financial accounts of bank interest rates on outstanding amounts, securitised debt market financing cost (based on a weighted average of yields in two indices of corporate bonds compiled by Merrill Lynch, one for investment grade companies and another for high yield companies) and the stock market financing cost.

Chart 9

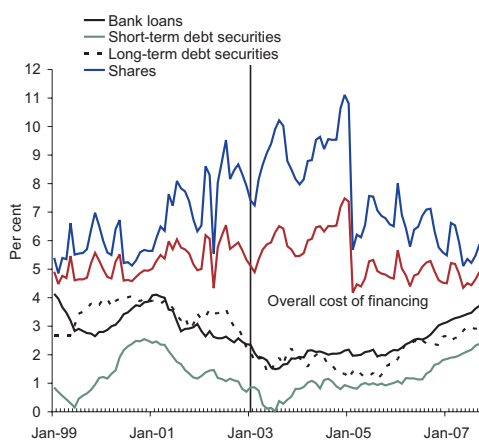
OVERALL REAL COST OF FINANCING OF
NON-FINANCIAL CORPORATIONS IN PORTUGAL
AND THE EURO AREA

Sources: ECB, Consensus Economics, Lehman Brothers, Thomson Financial Datastream and Banco de Portugal calculations.

Note: The vertical line in January 2003 indicates the break in the series following the introduction of harmonised MFI statistics.

Bearing in mind that some caution is warranted when comparing estimates for different economies, and despite the various financing structures, it is interesting to note that the overall real financing cost of Portuguese companies was, on average, virtually equal to that of euro area companies over the period under review. In Portugal, the overall real cost of financing reached peaks of around 7.5 per cent in the second half of 2004, while in the euro area the peaks occurred in March 2003 (around 8.8 per cent). In the past few years, the average cost of corporate financing, as measured by these indicators, has remained relatively stable at levels below the averages for the period. This is due to diverging de-

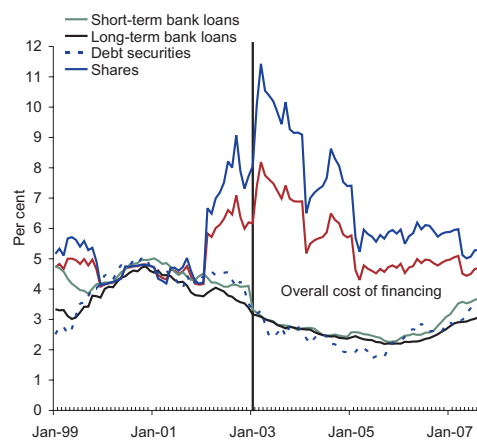
Chart 10

REAL COST OF FINANCING OF PORTUGUESE
NON-FINANCIAL CORPORATIONS

Sources: ECB, Consensus Economics, Lehman Brothers, Thomson Financial Datastream and Banco de Portugal calculations.

Note: The vertical line in January 2003 indicates the break in the series following the introduction of harmonised MFI statistics.

Chart 11

REAL COST OF FINANCING OF EURO AREA
NON-FINANCIAL CORPORATIONS

Sources: ECB, Consensus Economics, Thomson Financial Datastream and Banco de Portugal calculations.

Note: The vertical line in January 2003 indicates the break in the series following the introduction of harmonised MFI statistics.

velopments in the cost of debt financing and in the cost of equity financing, which seem to be negatively correlated (Charts 10 and 11). In fact, favourable conditions in stock markets counterbalanced the upward trend in the real cost of debt securities and bank loan financing. This trend started in late 2005 and led to the virtual stabilisation of the overall cost of corporate financing. However, this should be interpreted with caution, due to high uncertainty associated with the calculation of the cost of equity vis-à-vis the cost of other financing sources. In any case, it is relatively safe to argue that, in terms of prices, financing conditions faced by Portuguese and euro area companies over the past two years have remained favourable by historical standards.

5. CONCLUSIONS

This article proposes measures of the costs of financing of Portuguese non-financial corporations companies in the broad categories of financial instruments (equity, bank loans and debt securities), and whenever possible a comparison is made with the euro area. Moreover, a synthetic indicator has been constructed in order to illustrate the overall cost of financing of non-financial corporations, which results from the aggregation of partial cost indicators, by using the outstanding amounts of each instrument as a weight. The financing cost is assessed in real terms, on the basis of Consensus Economics inflation expectations over the relevant horizons.

Although some colinearity exists with the euro area as a whole, the estimate for the cost of equity financing of Portuguese companies is slightly more volatile and, on average, higher.

Up to the end of 2005, the cost of bank financing in Portugal was systematically lower than that of the euro area, reflecting higher inflation expectations in Portugal over the short-term horizon. As from January 2006, the cost of bank financing of Portuguese companies has converged to that resulting from short-term financing operations in the euro area and, since then, they have been broadly at the same level.

In Portugal short-term debt securities financing consists almost exclusively of the issuance of commercial paper of highly rated large enterprises. The cost of this type of financing follows closely the official interest rate cycle, having reached figures close to zero in real terms in the second half of 2003. Since then it has increased gradually to levels close to the peaks reached in the period. Unfortunately, the lack of available data hampers the comparison with the euro area in this market segment. With regard to long-term debt securities, the results show that the cost of financing of Portuguese companies virtually coincides with that of European companies, having recorded an upward trend since the end of 2005.

Despite the methodological limitations associated with the different financing structures and market conventions, an indicator of the overall cost of financing of Portuguese and euro area companies was constructed, as an average weighted by outstanding amounts of the financing cost of each financial instrument. Although the resulting synthetic indicator should be seen as an illustrative measure, the historical average for Portugal is virtually coincident with that of the euro area. In recent years, the average corporate financing cost was relatively stable at levels below the historical average. This is due to diverging developments in the debt financing cost and the equity financing cost, which seem to be negatively correlated. In other words, favourable conditions in stock markets over the most recent period counterbalanced the upward trend in the real cost of debt securities and bank loan financing, leading to the virtual stabilisation of the overall cost of corporate financing.

REFERENCES

- Almeida, V. and Félix, R. (2006) "Computing the potential output and the output gap for the Portuguese economy", autumn issue of the *Economic Bulletin* of Banco de Portugal.
- Banco de Portugal (2003), "New series on banks' interest rates: long series for the average rates on outstanding amounts", December issue of the *Economic Bulletin* of Banco de Portugal.
- ECB (2002), "The stock market and monetary policy", February issue of the *ECB Monthly Bulletin*.
- ECB (2005a), "Box 4. A measure of the real cost of the external financing of euro area non-financial corporations," March issue of the *ECB Monthly Bulletin*.
- ECB (2005b), "Box 5. Trends in euro area potential output growth", July issue of the *ECB Monthly Bulletin*.
- ECB (2006), *Differences in MFI interest rates across euro area countries*, September 2006.
- Fuller, R. J. and Hsia, C. (1984), "A simplified common stock valuation model", *Financial Analysts Journal*, September-October.
- Gordon, M. J. (1962), "The Investment, Financing, and Valuation of the Corporation", *Homewood, Ill.*: R.D. Irwin.
- Hartmann, P., Maddaloni, A. and Manganelli, S. (2003), "The euro area financial system: structure, integration and policy initiatives", *ECB Working Paper* No.230, May 2003.
- Panigirtzoglou, N. and Scammell, R. (2002), "Analysts' earnings forecasts and equity valuations", Bank of England *Quarterly Bulletin*, Spring 2002.
- Stiglitz, J. E. and Weiss, A. (1981), "Credit Rationing in Markets with Imperfect Information", *The American Economic Review*, Vol. 71, No 3, pp. 393-410.

THE REGRESSIVITY OF UNEMPLOYMENT INSURANCE: IDENTIFICATION OF THE INCOME EFFECT THROUGH THE JULY 1999 LEGISLATION*

Mário Centeno**

Álvaro A. Novo**

1. INTRODUCTION

Program administrators face important trade-offs when setting up an (optimal) unemployment insurance (UI) system. For instance, they must strike for a balance between the possible positive impacts on consumption smoothing for liquidity constrained individuals and on increased match quality,¹ and the undesired distortion to job search intensity caused by the provision of benefits. The first task is achieved by issuing unemployment insurance, which allows workers to keep a percentage of pre-unemployment income. But, it is precisely this insurance that, by changing the relative price of leisure, has a negative impact on the incentive to search for a job. UI decrease the cost of unemployment or, alternatively, makes employment less attractive in relative terms.² This dimension corresponds to the substitution effect that the literature has highlighted. However, UI can also have an income effect that varies with the degree of liquidity constraints faced by the unemployed, generating a heterogeneous impact on unemployment duration. If this proposition is empirically relevant, then the UI system is fulfilling one of its primary objectives.

In this paper, we take advantage of the exogenous July 1999 legislative extension the UI entitlement period to assess the impact of UI on the duration of unemployment. The analytical advantage of this legal reform is that it allows for the construction of a quasi-experimental setting.

The results show that the UI entitlement period extension prolongs subsidized unemployment spells, but that its effect decreases, typically, with the degree of liquidity constraint (indexed by the pre-unemployment wage quintiles). Thus, we identify a non-distortionary income effect of UI, generated by the reduction in the liquidity constraints of the unemployed. The behavior of individuals in the first quintile is the exception. The fact that individuals with the largest constraints extended the least their unemployment spells is consistent with a nonstationary job search model. Overall, these results suggest that the extension of the entitlement period may introduce regressive elements in the UI system by benefiting the least individuals in the lower part of the income distribution. In normative terms, the results suggest that the UI entitlement period should be shortened, as well as a decreasing function of pre-unemployment income, similarly to the financial generosity of the system.

* We would like to thank the *Instituto de Informática da Segurança Social (IISS)* for making available the data. The opinions expressed do not necessarily coincide with those of Banco de Portugal or IISS.

** Economics and Research Department, Banco de Portugal.

(1) Belzil (2001), Centeno (2004) and Centeno and Novo (2006b) present evidence, respectively, for Canada and the United States, that a financially more generous unemployment benefits result in better jobs, measured in terms of wage gains and job stability.

(2) Yet another less desirable impact of unemployment insurance is the crowding-out effect in other forms of private savings (insurance), but that in practice are difficult to measure.

2. LITERATURE: THEORY AND EMPIRICAL

2.1. Theory

The main theoretical results that motivate the empirical exercise in this paper are derived from the standard nonstationary job search model in Mortensen (1986). The simple result of observing longer unemployment spells as a response to increased UI generosity, usually interpreted as a distortionary substitution effect, does not preclude the existence of a non-distortionary income effect for agents who face liquidity constraints. The income effect introduces heterogeneity in the UI impact on unemployment duration for constrained and unconstrained individuals. If the income effect is important, the total effect of UI becomes less distortionary than previously thought, a result recently emphasized in Chetty (2007).

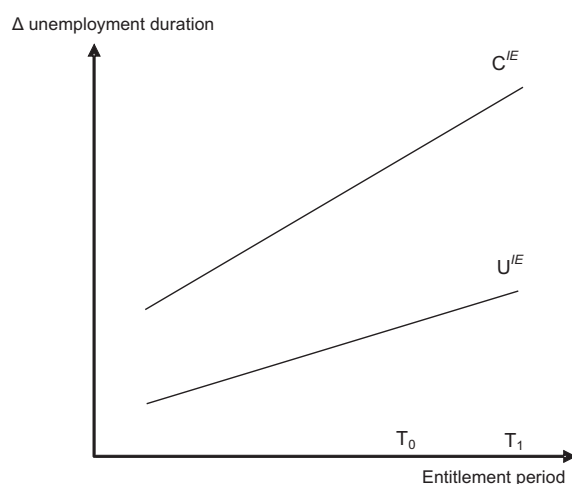
To add intuition for these outcomes, first we think of the workers' liquidity constraints as in Mortensen (1986), where the worker is able to self-finance the search costs only for a finite period of time. This implies that constrained workers find it more difficult to smooth consumption over labor market states, and for them, UI might create an income effect that occurs in addition to, and independently, of the usual substitution effect. When a constrained worker relies on UI benefits to maintain consumption, increases in the benefit generosity would reduce the pressure to find a job, without changes in the relative prices of leisure and work, therefore, in a non-distortionary form. On the contrary, if the worker is unconstrained, the income effect channel is less relevant, since UI benefits would be a small portion of the lifetime wealth. Chart 1 illustrates this effect in a stylized way. After the increase in the entitlement period, from T_0 to T_1 , the income effect will produce a larger increase in unemployment duration for constrained individuals (C^{IE}) than for unconstrained (U^{IE}).

Notice that in Chart 1 the impact in unemployment duration is increasing. This also follows from the nonstationary job search. At the beginning of the unemployment spell, an extension of the entitlement period entails only small immediate disincentive effects for workers; most of the action occurs just before the benefit exhaustion in the old system. This is because extended benefits delay the spike in the unemployment exit rate that is characteristic of a system with time-limited UI benefits; Katz and Meyer (1990) and Lalive *et al.* (2006) present evidence of these effects.

In van den Berg (1990), Mortensen's model is extended with the inclusion of other exogenous variables, namely, the arrival rate of job offers and the wage offers distribution. All these variables can cause nonstationarity if their values are dependent on unemployment duration. The literature on the nonstationary job search model, recently reviewed in Eckstein and van den Berg (2007), points out to the importance of these variables in shaping the unemployment duration distribution, through their impact on the reservation wage. The exogenous variables determine the search environment at the individual level and, as shown in Addison *et al.* (2004) for a sample of European households, this environment has a great deal of heterogeneity among the unemployed. In particular, their results show that low-wage, older and less educated workers have a lower job offers arrival rate. In turn, these individual characteristics are highly correlated with the existence of liquidity constraints. If more constrained individuals face a worse labor market environment, the model predicts that they will react less to the increased generosity.

Chart 1

INCOME EFFECT



Note: Illustration of the impact on unemployment duration after an increase in the UI entitlement period. *Ceteris paribus*, the reaction of individuals with financial constraints, C^{IE} , is greater, at all durations, than the reaction of unconstrained individuals, U^{IE} . The difference between the two curves identifies the income effect.

In a nutshell, in a nonstationary environment, the most constrained individuals may find it difficult to adjust their behavior to the increased generosity. As Cahuc and Zylberberg (2006) put it, although low-income individuals ought to be more responsive to increased benefits, they enjoy a narrower margin of maneuver, which may prevent them to take full advantage of the additional benefits. Thus, the relative position of the two curves in Chart 1 – the income effect – becomes an empirical question.

2.2. Empirical evidence

There is a large body of empirical literature estimating the effects of UI on labor supply, starting with the seminal study by Ehrenberg and Oaxaca (1976). Nickell (1979) and Lancaster (1979) showed that higher benefits are associated with longer unemployment spells, and these findings were followed by a wealth of new results that showed how this effect operates, with due attention paid to other aspects of the UI system. The papers by Meyer (1990) and Katz and Meyer (1990) were the first to show that the hazard from unemployment is highly affected by the approximation of the UI exhaustion date, pointing to a decreasing reservation wage.

Recently, several studies apply new developments in the treatment effects literature to explore quasi-experimental settings generated by reforms in European countries' regulations. However, most studies assume homogeneous responses, as in van Ours and Vodopivec (2006) and Lalive *et al.* (2006). Quantile regression techniques are applied by Kyrya and Wilke (2007) to the study of a UI reform in Finland and by Fitzenberger and Wilke (2007) to the characterization of unemployment duration in Germany. All these studies show that unemployed workers have larger exit rates in less generous UI systems.

The evidence on the heterogeneity of UI impact is more scant. Gruber (1997) and Browning and Crossley (2001) show evidence that more liquidity constrained individuals benefit the most from UI generosity in terms of consumption changes in the unemployment state. Chetty (2007) shows that UI raises durations primarily because of an income effect, induced by the inability to save, rather than by moral hazard motives arising from distorted incentives.

3. METHODOLOGY

In the context of a nonstationary job search model, we expect an extension of the UI entitlement period to increase the length of unemployment spells in a non-uniform way, with a larger impact occurring around the previous entitlement period limits. If this is the case, then the predominant effect of extension should be felt in the upper part of the distribution of unemployment durations. In other words, we expect differentiated impacts at different locations of the distribution, which can be fully captured with quantile regression.

3.1. Quantile regression

Quantile regression, first introduced by Koenker and Bassett (1978), specifies and estimates a family of conditional quantile functions, $Q_{y|x}(\tau|x) = X\beta(\tau)$, where Q is the conditional quantile function of Y given X , a vector of conditioning variables, and τ is a quantile in the interval $[0, 1]$. In this respect, quantile regression is similar to the rather more ubiquitous mean regression method. The least squares estimator also specifies a linear function of conditioning variables, namely, the conditional mean function, $E[Y|X = x] = x\beta$.

Thus, quantile regression has a descriptive advantage over least squares – it provides several summary statistics of the conditional distribution function, rather than just one characteristic, namely, the mean. Ultimately, with point estimates of $\beta(\tau)$, quantile regression allows us to characterize and distinguish the effects of covariates on the upper and lower quantiles of the distribution. Thus, if the effect of the entitlement period extension is felt primarily at longer durations, then, for instance, the 75th percentile β will be larger than the 25th percentile β .

Furthermore, quantile regression is very well suited for the specific duration-related questions arising in the context of the nonstationary job search model, which we address in this paper. Recent applications of quantile regression to duration models can be found in Koenker and Biliias (2001), Machado and Portugal (2002), Centeno and Novo (2006), Fitzenberger and Wilke (2007) and Kyyra and Wilke (2007).

3.2. Quantile treatment effect

The concept of quantile treatment response was first proposed by Lehmann (1975). In practical terms, Lehmann's definition is easy to implement. It is heuristically convenient to establish a parallel with the average treatment effect on the duration of subsidized unemployment. This effect is computed as the difference between the average duration of unemployment in the treatment group (those subjected to the policy intervention) and the average for the control group (those not subjected to the policy intervention). In the case of the median treatment effect, for instance, one starts by computing the (empiri-

cal) median unemployment duration for the treatment group; the procedure is repeated for the control group. The difference between the two median durations yields the median treatment effect in the distribution of subsidized unemployment durations. Its interpretation is also rather simple; it tells us, for the case of the median, that it would be n days higher (smaller if n is negative) than in the absence of treatment. For other percentiles of the distribution, the procedure and interpretation are the same. Relatively to the average treatment effect, the quantile treatment effect has a descriptive advantage because it allows us to characterize the impact of the policy along the distribution of subsidized unemployment spells.

The observation of individuals belonging to the treatment and control groups in the periods before and after the policy intervention allows us to refine the estimate of the quantile treatment effect. The existence of observations before and after the treatment for the control group provides an estimate of the impact of the macroeconomic environment on the labor market outcomes. If we assume that such environment would affect equally the treatment group in the absence of UI entitlement extension, then we should discount this value to the evolution through time of the treatment group unemployment durations. In other words, we could say that the simple difference of behavior of the treatment group between the before and after period would be contaminated/affected by effects not attributable to the UI extension (macroeconomic effects). Thus, one must subtract the control group difference to the treatment group difference, resulting in the quantile treatment effect difference-in-differences estimate. Formally, the estimate is obtained as: for each time period, the impact of the treatment is computed as described in the previous paragraph and the difference between the estimate for the before period and estimate of the after period gives us the final impact (see Centeno and Novo (2007) and Koenker (2005) for a technical discussion of the quantile treatment effect).

4. THE UI REFORM AND THE ECONOMY

4.1. The extension of some entitlement periods

The Portuguese UI legislation established only one eligibility criterion, namely, a minimum of 540 days of social contributions in the 24 months before unemployment. Benefits are then set as a percentage of the 12-month average of the previous wages. Chart 2 illustrates the financial generosity of the system expressed in terms of the gross replacement rate (GRR).

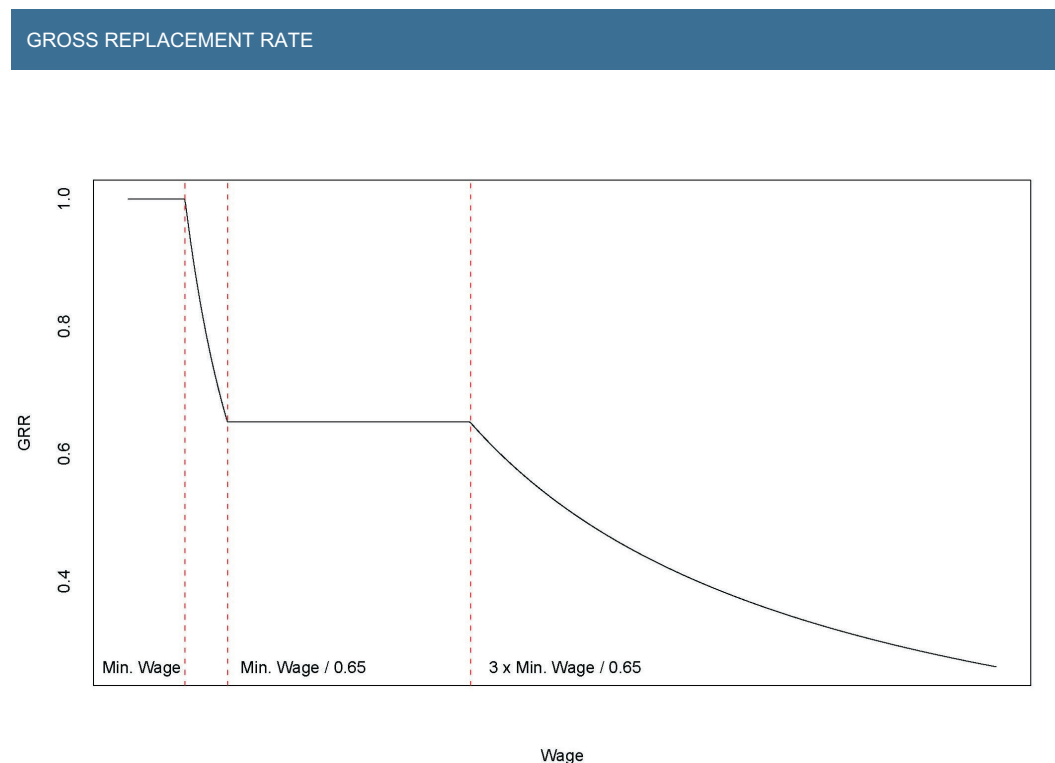
Our analysis will focus on the unemployed with GRRs of 65 percent, which translates roughly into average monthly earnings ranging from 1.5 to 4.5 minimum wages.³ This choice, while still allowing for substantial wage variability, aims at guaranteeing a similar impact of the substitution effect of UI, therefore eliminating a possible source of differentiated behavior among individuals.⁴

One peculiar feature of the Portuguese system is the definition of the entitlement period, which is fully determined by the individual's age at the beginning of the unemployment spell. In July 1999, the entitlement period increased for some age groups in the population. Before the reform, the Portuguese legislation divided workers into 8 age-groups with different entitlement periods. The reform made this period longer for 6 out of the 8 groups, leaving the remaining two groups unchanged (see Table 1). The

(3) In the data, some ratios are not exactly equal to 65 per cent, which lead us to preserve all observations with GRR in the interval [63, 67] per cent.

(4) Indeed, for Germany, Fitzenberger and Wilke (2007) report evidence of a large disincentive effects on labor supply attributable to high replacement rates.

Chart 2



Note: The gross replacement rate (GRR) is computed as the ratio of UI benefits to pre-tax income. Individuals with average income in the 12-months prior to unemployment inferior to the minimum wage have GRR of 100 per cent; individuals with average income greater than 4.5 minimum wages receive UI benefits worth 3 minimum wages.

Table 1

ENTITLEMENT PERIODS (IN MONTHS) BEFORE AND AFTER JULY, 1999			
Before		After	
Age (years) ^(a)	Entitlement period	Age (years) ^(a)	Entitlement period
[15, 24]	10		
[25, 29]	12	[15, 29]	12
[30, 34]	15		
[35, 39]	18	[30, 39]	18
[40, 44]	21	[40, 44]	24
[45, 49]	24		
[50, 54]	27		
[55, 64]	30	[45, 64]	30(+8) ^(b)

Notes: (a) Age at the beginning of the unemployment spell. (b) For unemployed aged 45 or more, 2 additional months of UI can be claimed for each 5 years with social contributions.

pre-1999 duration of benefits ranged from a minimum of 10 months for those aged less than 25 to a maximum of 30 months for those aged 55 or more. The new legislation changed the lower bound to 12 months, while the upper bound increased to up to 38 months.

The methodology used to estimate the impact of the new legislation consists in defining two groups from the population with different exposure to the legislation: (i) the age group [30, 34], whose entitle-

ment period increased from 15 months to 18 months and (ii) the age group [35, 39], whose entitlement period remained unchanged at 18 months. The first group is identified as the treatment group and the second as the control group.

These two groups are particularly comparable given the age proximity and the fact that, after the reform, they share the same entitlement period. Indeed, the treatment group, [30, 34], is likely to share similar labor market characteristics with the [35, 39] control group, for instance, in terms of schooling, marital status and child-bearing decisions. In our case, this ex-ante comparability gains additional importance because of the limited information on workers' characteristics available in the dataset.

4.2. Economic conditions

At the moment of the reform, the Portuguese labor market and the economy were buoyant (see Table 2). In the period just prior the reform, real GDP growth exceeded 4 percent and employment was growing consistently above 2 percent. The unemployment rate was at or below 5 percent, showing signs of a tight labor market situation.

The business cycle started to change only in the second half of 2001, with both GDP and employment growth rates declining. This is also visible in the turning point in unemployment.

It is worth noting that the good economic conditions prevailing at the moment of the reform are favorable for our empirical strategy. Indeed, they suggest that the policy change was not driven endogenously by the evolution of the labor market. Furthermore, the groups studied, prime-age workers, usually suffer less with labor market swings and do not face the type of retirement decisions common to older workers. This makes our comparison of pre-and post-reform outcomes more convincing, as it is not driven by a specific trend in the labor market or to questions related with population ageing. By the same token, we need to exercise caution when extrapolating the results for the population. The specificity of the studied group and the distinct characteristics of the remaining population are potential external threats to the validity of these results for the population.

Table 2

THE PORTUGUESE ECONOMY BEFORE AND AFTER JULY, 1999				
Year	GDP growth rate	Employment growth rate	Unemployment rate	Long term unemployment (%)
1997	4.2	1.9	5.8	43.6
1998	4.7	2.3	5.0	45.4
1999	3.9	1.9	4.4	41.2
2000	3.9	2.3	3.9	43.8
2001	2.0	1.5	4.0	40.0
2002	0.8	0.5	5.0	37.3
2003	-1.2	-0.4	6.3	37.7
2004	1.1	0.1	6.7	46.2

Sources: National accounts, INE; *Inquérito ao Emprego*, INE.

5. DATA

Our study is based on administrative data collected by the Portuguese government's agency *Instituto de Informática da Segurança Social (I/SS)*. The dataset recorded all subsidized unemployment spells initiated between January 1, 1998 and June 30, 2003, which we are able to follow until they are terminated, either before or on the exhaustion date. The dataset contains very detailed and reliable information on the type, amount and duration of benefits and the previous wage. The socio-demographic variables available are limited to gender, age, nationality and place of residence. However, the availability of the previous wage allows us to partially overcome the problem posed by the lack of more detailed individual characteristics. Table 3 contains descriptive summary statistics of the key variables before the reform.

With the aforementioned restriction of GRRs to the interval [63, 67] per cent, we have a total of 40,982 subsidized unemployment spells. The treatment group comprises 23,226 observations, of which 3,145 are from the period before July 1999. The control group has 3,631 observations in the before period and 14,125 in the after period. The differences in the 12-month average values of real previous wages between treatment and control groups are minor.

A simple difference-in-differences (D-in-D) estimate yields an impact on subsidized unemployment duration for the treated group of approximately 83 days (see Table 4). The interpretation of this result is straight forward: if there was not an extension of the UI entitlement period, individuals aged 30 to 34, who benefited from a 90 days extension, would, on average, spent 83 days less in subsidized unemployment.

The analysis of survival rates, Kaplan-Meyer estimates (Chart 3), confirms these results and illustrates the quality of the quasi-natural experiment. The before-after difference between the two curves drawn for the treatment group suggests that the reform significantly increased the survival rates in unemploy-

Table 3

SUMMARY STATISTICS: BEFORE JULY, 1999		
	Treatment	Control
Age (in years)	31.88	36.94
Proportion of women	0.34	0.35
Real wage ^(a)		
Full sample	696.27	726.42
1 st wage quintile	496.08	500.55
2 nd wage quintile	583.11	581.83
3 rd wage quintile	681.58	681.69
4 th wage quintile	838.11	842.51
5 th wage quintile	1 160.99	1 191.24
Minimum	353.10	350.10
Maximum	1 487.55	1 561.98
Number of observations	3 145	3 631

Sources: I/SS. Authors' computations.

Note: (a) The pre-unemployment wage for each individual is computed as the 12-month average of wages reported in the period that precedes unemployment in 2 months. Real wages expressed in 1999 euros.

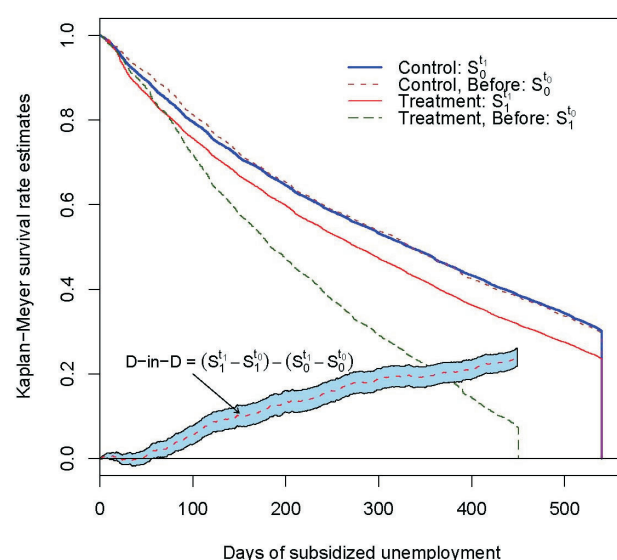
Table 4

	Treatment		Control	
	Before	After	Before	After
Average duration of unemployment (in days)	210.58	291.16	321.95	319.68
Differences		80.57		-2.27
Difference-in-differences			82.84	
Number of observations	3 145	20 081	3 631	14 125

Sources: //SS. Authors' computations.

Chart 3

SUBSIDIZED UNEMPLOYMENT SURVIVAL RATES



Sources: //SS. Authors' computations.

Note: Estimates based on the Kaplan-Meier's estimator. The impact of the extension is measured by the difference in the survival rates between the 4 groups and it is represented by the "D-in-D" line, at the bottom of the chart, with a 95 per cent interval drawn around it.

ment. The same exercise for the control group results in virtually imperceptible differences in the survival rates, which reinforces our case for an exogenously driven reform. Using this difference to adjust for aggregate conditions, we compute a simple D-in-D estimator from these Kaplan-Meier survival rates. The D-in-D estimates show a positive impact of the reform on subsidized unemployment duration of the treated group. In view of the wealth of previous empirical evidence, these results are nothing but expected. Notice that, as predicted by theory for the case of an extension in the entitlement period, the impact is larger at longer durations (closer to the previous entitlement period).

6. INCOME EFFECT: CAUSAL INFERENCE EVIDENCE

In order to establish the heterogeneous impact of the increased generosity of the UI system and, in particular, to identify the income effect, we now explore our data in a different fashion. We split the sample by degrees of liquidity constraints and use quantile regression tools to capture the nonstationary nature of the duration process. An assessment of the financial costs of the reform is also provided.

6.1. Measuring liquidity constraints

The identification of the income effect rests on individual differences in the degrees of liquidity constraints. To capture such differences, we split the sample into three subsamples, using the 12-month average of pre-unemployment wages as an index for the distribution of liquidity constraints. We resort to wages because our data lacks the information on asset holdings for the unemployed, a more direct measure of their degree of liquidity constraints. The quality of pre-unemployment wages as an index for the distribution of savings in the Portuguese economy can be assessed with data from the *Inquérito ao Património e Endividamento das Famílias (IPEF)* for 2000, a household assets and debt survey.

Table 5 shows information on financial assets holdings for the wage groups defined by the 1st quintile, the 2nd and 3rd quintiles, and the 4th and 5th quintiles for the full sample of unemployed aged 30 to 39 (in 2000 prices). For each of the 3 subsamples, which we will refer to as bottom, intermediate and top wages subsamples, the last two columns report the average level of financial assets hold by each group, respectively, as (i) a percentage of the average level of financial assets for the *IPEF* sample aged [30, 39], and (ii) as a percentage of the median wage level of each group. The three groups differ clearly in terms of their financial assets holdings, suggesting that previous wages are a good index for the degree of constraint. For instance, the bottom wages group holds financial assets worth only 2.9 group-median wages, while the remaining groups hold assets worth 4.5 and 7.5 times the respective group median wage.

Table 5

MONTHLY WAGES AND LEVEL OF FINANCIAL ASSETS					
Group	Wages (in euros, 2000)			Financial assets expressed in terms of:	
	Minimum	Median	Maximum	Average assets level ^(a)	Median wage ^(b)
1 st quintile	358.15	533.00	551.73	0.18	2.90
2 nd and 3 rd quintiles	551.74	634.50	757.76	0.34	4.52
4 th and 5 th quintiles	757.77	980.68	1 655.10	0.87	7.51

Sources: *IPEF*, 2000. Authors' computations.

Notes: (a) Average level of financial assets expressed in percentage of the average level of financial assets for the sample of *IPEF* individuals aged 30 to 39. (b) Average level of financial assets expressed as a percentage of the median wage level of each group.

6.2. Quantile treatment effects

The quality of the quasi-experimental setting of was confirmed in the previous analysis. However, there are possible confounding factors that can be controlled for with quantile regression. The primary reason for using this method is to unveil potential heterogeneous responses to changes in the entitlement generosity of the UI system over the unemployment duration distribution, a result that follows from nonstationarity job search theory.

The quantile regression model assumes that the logarithm of subsidized unemployment days, $\log(T)$, has linear conditional quantile functions, Q , of the form:

$$Q_{\log(T)}(\tau) = \beta_0(\tau) + \beta_1(\tau) \textit{After} + \beta_2(\tau) \textit{Treat} + \beta_3(\tau) \textit{After} \times \textit{Treat} + X'\lambda(\tau)$$

where *After* is an indicator variable for the after-July 1999 period, *Treat* indicates the age group affected by the new legislation, and, therefore, the coefficient on *After* \times *Treat* identifies the impact of the legislation. Additionally, the vector X includes the following list of variables: logarithm of the pre-unemployment wages; logarithm of the individual's age at the beginning of the unemployment spell; a gender (female) indicator; regional (22 districts) dummies; and indicators of the month in which the unemployment spell started. This model is estimated for each of the 3 wages-based subsamples.

The estimation results are presented in a concise format in Chart 4. Each column of panels presents the quantile regression estimates for each of the 3 subsamples (from most to least constrained).⁵ Each panel depicts the point estimates of the coefficient associated with the respective variable for each quantile. We chose to limit our attention to the quantiles [0.15, 0.70], ignoring, in practice, the very short duration (less than 2 months) and the longer durations (more than 470 days). The shaded areas represent 90 percent confidence intervals.

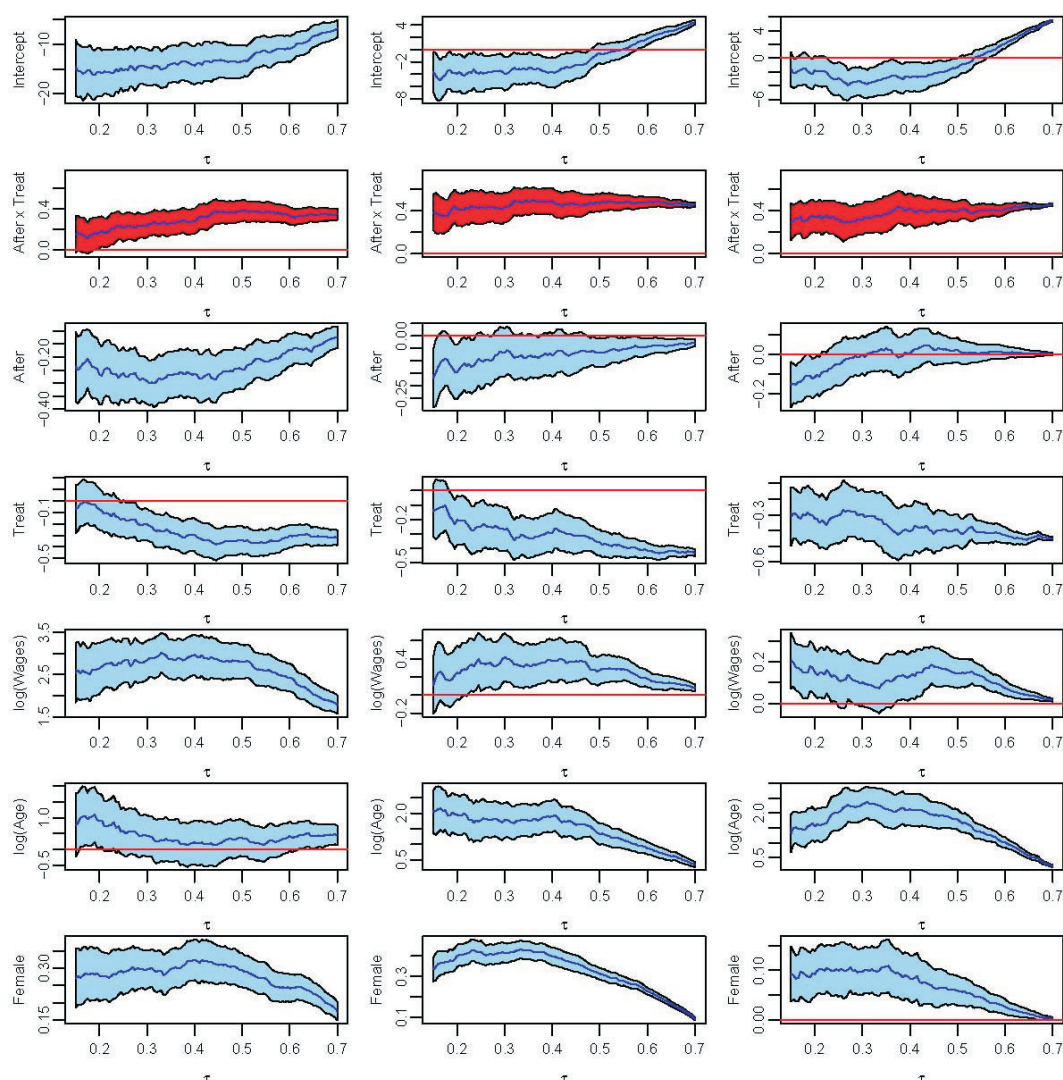
To highlight the differences in the treatment effect across the degrees of liquidity constraints, we present these 3 curves together in Chart 5. The most constrained reacted the least at all durations, although the impact increases over the unemployment spell. For the intermediate group, the impact is the largest, with point estimates hovering 0.4, *i.e.*, an increase in the duration of unemployment of approximately 40 per cent. Finally, the unconstrained group has impacts larger than those observed for the most constrained, but always lower than for the intermediate group. The graph confirms the existence of two levels of heterogeneity: between degrees of liquidity constraints and within each group along the distribution of subsidized unemployment spells.

These results have multiple interpretations. First, notice that there is evidence of differentiated behavior between the subsamples of intermediate and top pre-unemployment wages. At all durations of unemployment, and in response to the same incentive, the impact on the more constrained group is larger. This conforms to the idea that there is an important income effect dimension to the UI system. Secondly, the behavior of individuals at the bottom wages quintile yields two interesting results. First, it has the smallest reaction to the increased generosity at all durations. However, it also has the steepest increase until the median duration. Both results can be explained in the context of the nonstationary job search model. These workers are the least able to anticipate the effect of a benefit extension, but given

(5) To preserve space, we omitted from this plot the results on the month and region indicator variables.

Chart 4

QUANTILE REGRESSION ESTIMATES BY LEVEL OF LIQUIDITY CONSTRAINT



Sources: IJSS, Authors' computations.

Note: Regression quantile models for the dependent variable log(duration) by level of liquidity constraints. The first column depicts estimates for individuals with pre-unemployment wages in the first quintile; the second column for individuals with pre-unemployment wages in the 2nd and 3rd quintiles; and the third column for individuals with pre-unemployment wages in the 4th and 5th quintiles of the wage distribution.

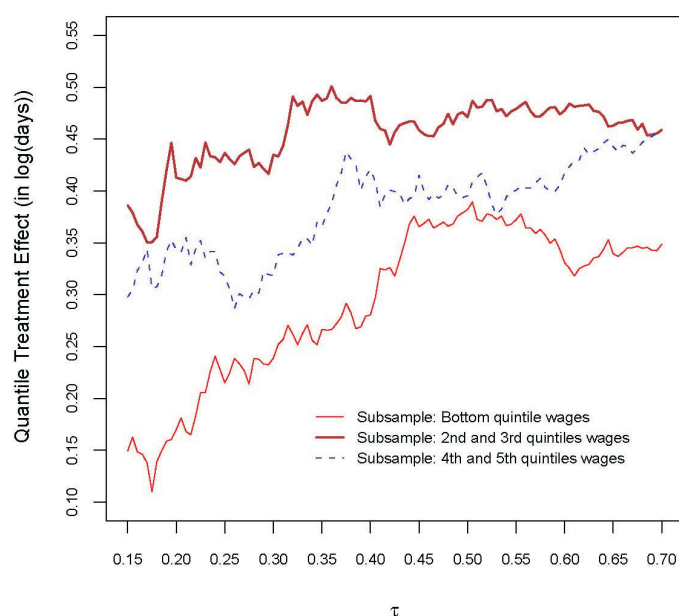
their degree of liquidity constraint, they should remain quite responsive as the unemployment spell progresses. This brings us to another key feature of the results.

6.3. The financial cost and the redistributive impact

Assessing the financial cost of the reform is of great economic interest. Ultimately, for the country's public finances, longer unemployment spells increase the financial burden of the system. In order to evaluate the extra costs, it is necessary to first express the impact in terms of additional subsidized

Chart 5

PERCENTAGE QUANTILE TREATMENT EFFECT ON THE DISTRIBUTION OF SUBSIDIZED UNEMPLOYMENT DURATIONS



Sources: I/SS. Authors' computations.

Note: The logarithmic variation approximates the percentage impact on the duration of subsidized unemployment, for instance, the 40th percentile ($\tau = 0.40$) in the distribution of unemployment spells for individuals with the largest liquidity constraints increased approximately 25 per cent due to the entitlement extension.

days. This can be adequately done by using the equivariance to monotone transformations of quantiles, which allows us to transform back into days the estimated impacts in $\log(\text{days})$.

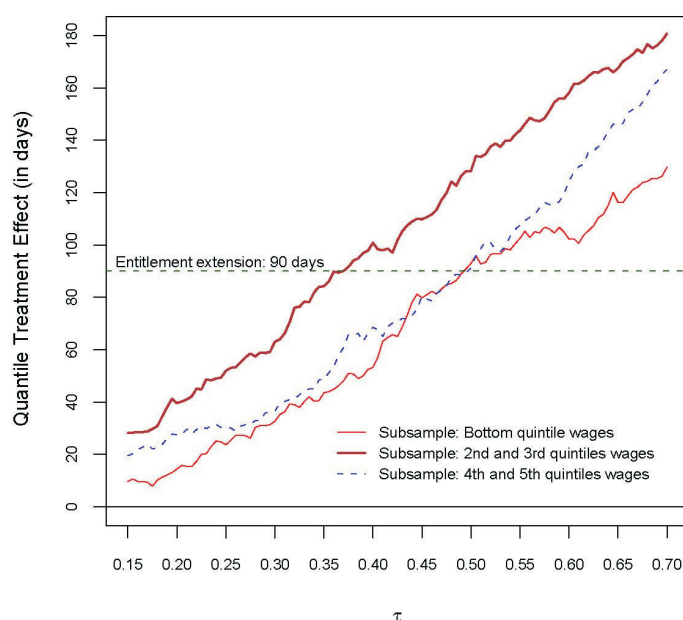
Chart 6 presents in days the QTE for the same quantiles shown before. For the bottom and top subsamples, the median duration increased by slightly over 90 days, close to the entitlement extension, but by almost 130 days for the intermediate subsample.

It is now possible to approximate the additional financial burden to the public UI system. To do that, at each unemployment duration (quantile) and for each subsample, we compute the average daily UI received by the unemployed. For instance, for the bottom wages group and for individuals who left the UI system at the median duration, the average daily UI received amounted to 10.91 euros. Then, we multiply the daily UI by the QTE expressed in days. For this group the extension was 93 days, therefore, the additional financial costs were 1,014.45 euros. For the remaining groups, the intermediate and top wage groups, the financial impact was 1,830.61 and 1,907.33 euros (in 1999 prices), respectively. This represents a substantial increase in cost for the system, which expressed in terms of the average UI paid to the unemployed in the bottom wage quintile represents, respectively, 82.4 and 85.9 per cent.⁶ In other words, with the additional financial resources spent with these groups, the UI system could

(6) See Centeno and Novo (2007) for additional details, in particular, for computations at other percentiles of the distribution of subsidized unemployment.

Chart 6

QUANTILE TREATMENT EFFECT ON THE DISTRIBUTION OF
SUBSIDIZED UNEMPLOYMENT DURATIONS, EXPRESSED IN DAYS



Sources: I/SS. Authors' computations.

Note: The median (0.50) of the distribution of subsidized unemployment durations for individuals with the largest liquidity constraints increased 93 days due to the entitlement extension.

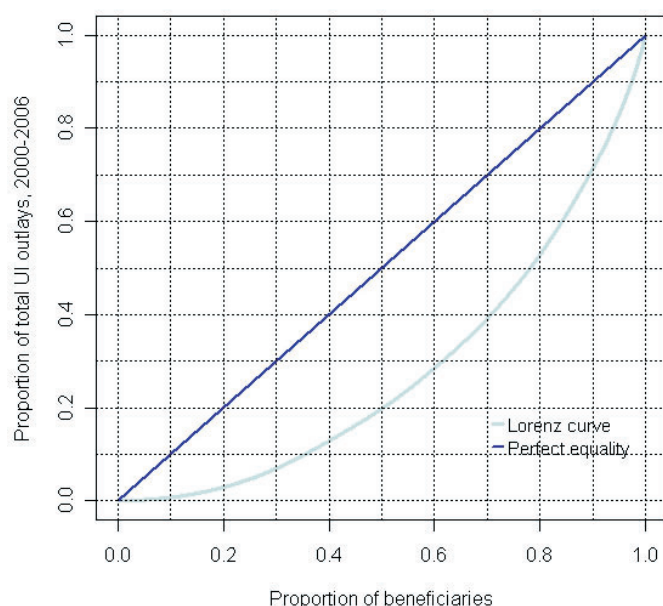
have financed a full spell of unemployment with median duration for an individual in the bottom wages group.

These results show that the majority of the additional financial resources were directed towards unemployed who had higher wages before unemployment. Besides the differences in the amount of UI received, this result is associated with the lowest extension of the period of subsidized unemployment for individuals with the lowest wages. Given that the GRR are the same for all individuals considered in the study, this phenomenon reflects itself in the regressiveness of the UI system. Thus, the UI transfers promoted by the system favor individuals with higher income.

The UI system contains regressive characteristics applicable to the population of UI beneficiaries. In practice, the longer durations of subsidized unemployment are observed for individuals with higher pre-unemployment income. Thus, the fact that these individuals also have longer subsidized unemployment spells accentuates the disparity of UI expenses. Chart 7 plots a Lorenz curve, used to measure inequality; the larger the area between the two curves, the larger the inequality. In the 2000 to 2006 period, this area, measured by the Gini coefficient, is 0.43 (with 0 indicating perfect equality and 1 perfect inequality). Not surprisingly, the current UI system has a degree of inequality that is larger than the wage inequality, which has a value of 0.34. The data show that 10 per cent of the unemployed receive approximately 30 per cent of the outlays with UI, while 35 per cent of the unemployed less subsidized receive only 10 per cent of the total UI outlays.

Chart 7

LORENZ CURVE FOR THE DISTRIBUTION OF UI BENEFITS PAID BETWEEN 2000 AND 2006



Note: The value of the area between the two curves, designated as the Gini coefficient, measures the degree of inequality in the GRR (unemployment insurance); the larger the Gini coefficient, which varies between 0 and 1, the larger the inequality. In the data, the Gini coefficient is 0.43, while for the distribution of wages the coefficient is 0.34.

7. CONCLUSIONS

This paper addresses the question of how the generosity of the UI entitlement period affects the duration of subsidized unemployment. The agenda for unemployment insurance reform points, without exception, towards a significant reduction of its generosity in order to limit moral hazard problems, which ultimately lead to longer unemployment spells. However, the non-distortionary income effect of UI has been neglected. This income effect generates a significant heterogeneous UI impact over the wages distribution, associated with differences in the degrees of liquidity constraints faced by workers. We stress that these effects operate in a nonstationary job search environment, which ultimately strongly influences the observed behavior of individuals with worse labor market prospects, usually those who face tight liquidity constraints.

The identification of the effect relies on a reform of the Portuguese UI system introduced in July 1999, which extended significantly the entitlement periods for some age groups of the population, while maintaining the same benefit limit for other (adjacent) age groups. The treatment group is composed of individuals in the age group that benefited from the extension (30-34 years old, from 15 to 18 months) and the control group by individuals aged 35-39 years, whose entitlement period remained constant (exactly at 18 months).

We present evidence of a heterogeneous impact on the duration of subsidized unemployment. The results point towards the existence of an important income effect, identified by a stronger reaction to generosity by individuals in the intermediate wages group (2nd and 3rd wage quintiles). Individuals in the bottom wage quintile increased the least their unemployment spells, which constitutes an interesting result in light of the nonstationary job search models.

This result shows that a UI system that is very generous in the duration of the benefits can become fiscally regressive, because the extension in the entitlement ends up benefiting the least individuals at the bottom of the wage distribution. Given the smaller reaction of these individuals, who are more affected by the nonstationarity in the labor market environment, the weight of UI expenses with this group of individuals decreases.

The results point towards the importance of changing the UI concession rules. In this context, one proposal would set shorter entitlement periods and set them as a decreasing function of pre-unemployment income. Complementarily, to reach a higher impact of the income effect, it is preferable to increase the financial generosity of the UI towards the most constrained, rather than granting them longer entitlement periods, which they find harder to take up.

REFERENCES

- Addison, J., Centeno, M. and Portugal, P. (2004), "Reservation wages, search duration, and accepted wages in Europe", *Working Paper* 13-04, Banco de Portugal.
- Belzil, C., 2001, "Unemployment insurance and subsequent job duration: Job matching versus unobserved heterogeneity", *Journal of Applied Econometrics*, 16, pp. 619-636.
- Browning, M. and Crossley, T. (2001), "Unemployment insurance levels and consumption changes", *Journal of Public Economics* 80(1), pp. 1-23.
- Cahuc, P. and Zylberberg, A. (2006), "The Natural Survival of Work", MIT Press, Cambridge, MA.
- Centeno, Mário (2004), "The match quality gains from unemployment insurance", *Journal of Human Resources*, 39(3), pp. 839-863.
- Centeno, Mário and Novo, Álvaro A. (2006a), "The impact of unemployment insurance generosity on match quality distribution", *Economic Letters* 93, pp. 235-241.
- Centeno, Mário and Novo, Álvaro A. (2006b), "The impact of unemployment insurance on the job match quality: A quantile regression approach", *Empirical Economics*, 31, pp. 905-919.
- Centeno, Mário and Novo, Álvaro A. (2007), "Identifying Unemployment Insurance Income Effects with a Quasi-Natural Experiment", *Working Paper* 2007-10, Banco de Portugal.
- Chetty, R. (2007), "Why do unemployment benefits raise unemployment durations? The role of borrowing constraints and income effects", NBER 11760.
- Eckstein, Z. and van den Berg, G. J. (2007), "Empirical labor search: A survey", *Journal of Econometrics* 136(2), pp. 531-564.
- Ehrenberg, R. and Oaxaca, R. (1976), "Unemployment insurance, duration of unemployment, and subsequent wage gain", *American Economic Review* 66(5), pp. 754-766.

- Fitzenberger, B. and Wilke, R. (2007), "New insights on unemployment duration and post unemployment earnings in Germany: Censored Box-Cox quantile regression at work", *IZA* 2609.
- Gruber, J. (1997), "The consumption smoothing benefits of unemployment insurance", *American Economic Review* 87(1), pp. 192–205.
- Katz, L. F. and Meyer, B. D. (1990), "Unemployment insurance, recall expectations, and unemployment outcomes", *Quarterly Journal of Economics* 105, pp. 973–1002.
- Koenker, R. (2005), *Quantile regression*, Cambridge University Press, Cambridge.
- Koenker, R. and Bassett, G. (1978), "Regression quantiles", *Econometrica* 46, pp. 33–50.
- Koenker, R. and Biliias, Y. (2001), "Quantile regresion for duration data: A reappraisal of the Pennsylvania reemployment bonus experiments", *Empirical Economics* 26, pp. 199–220.
- Kyyra, T. and Wilke, R. (2007), "Reduction in the long-term unemployment of the elderly: A success story from Finland revisited", *Journal of the European Economic Association* 5(1), pp. 154–182.
- Lalive, R., van Ours, J. C. and Zweimueller, J. (2006), "How changes in financial incentives affect the duration of unemployment", *Review of Economic Studies* 73, pp. 1009–1038.
- Lancaster, T. (1979), "Econometric methods for the duration of unemployment", *Econometrica* 47(4), pp. 939–956.
- Lehmann, E. (1975), "Nonparametrics: Statistical Methods Based on Ranks", Holden-Day, San Francisco.
- Machado, J. and Portugal, P. (2002), "Exploring transition data through quantile regression methods: An application to U.S. unemployment duration", in Y. Dodge, ed., "Statistical data analysis based on the L1 norm and related methods", Birkhauser Verlag, Basel.
- Marimon, R. and Zilibotti, F. (1999), "Unemployment vs. mismatch of talents: Reconsidering unemployment benefits", *The Economic Journal* 109, 266–291.
- Meyer, B. D. (1990), "Unemployment insurance and unemployment spells", *Econometrica* 58(4), pp. 757–782.
- Mortensen, D. (1986), "Job search and labor market analysis", in O. Ashenfelter e R. Layard, eds, "Handbook of Labor Economics", Vol. 2, North-Holland, Amsterdam, pp. 849–919.
- Nickell, S. J. (1979), "The effect of unemployment and related benefits on the duration of unemployment", *Economic Journal* 89(353), pp. 34–49.
- van den Berg, G. J. (1990), "Nonstationarity in job search theory", *The Review of Economic Studies* 57(2), pp. 255–277.
- van Ours, J. C. and Vodopivec, M. (2006), "How changes in benefits entitlement affect job-finding: Lessons from the Slovenian "Experiment", *Journal of Labor Economics* 24(2), pp. 35

EXPORT SPECIALIZATION OVER THE LAST FOUR DECADES: HOW DOES PORTUGAL COMPARE WITH OTHER COHESION COUNTRIES?*

João Amador**

Sónia Cabral**

José Ramos Maria**

1. INTRODUCTION

Over the last four decades, trade openness has increased and international trade patterns have evolved significantly. Several papers have studied changes in specialization patterns.¹ From an individual country's perspective it is interesting to identify the modifications in the trade pattern because they may provide insights on the underlying structural changes in the economy, namely in its structure of production. In addition, the magnitude and the pace of such changes is an indirect indicator of the flexibility of the economy in allocating resources between sectors. Therefore, these elements are relevant to understand the growth performance of the economy. This type of analysis can be enhanced by taking a set of countries as a benchmark, thereby investigating their relative behaviours. In this article, we are particularly interested in understanding how does the relative sectoral specialization of Portuguese exports compare with that of the other initial EU Cohesion Fund beneficiaries (Spain, Greece and Ireland).² The article adopts a fact-finding approach, making extensive use of the standard Balassa (1965) index to assess the technological content of these countries' manufacturing exports. The evolution of the sectoral specialization of Portuguese exports naturally depends on aspects that are well identified in international trade theory, such as factor endowments, technologies, consumer preferences, market structures and geographical factors. Nevertheless, the article does not proceed in testing the relevance of these determinants or any specific trade model. Instead, it aims at identifying a set of stylized facts over a long period of time.

The results are derived from the CEPIL-Chelem database covering the period from 1967 to 2004. The available 120 manufacturing products are grouped together in four main categories following the OECD classification of manufacturing industries according to technology intensity: high-technology, medium-high-technology, medium-low-technology and low-technology. Over the last four decades, the Portuguese export structure converged towards the world structure and, therefore, Portugal showed a reduction in its overall degree of export specialization. However, significant differences against the world average still remain. The same behaviour is found in Greece and, more strongly, in Spain, which is the least specialized country. Conversely, Ireland shows the strongest export specialization and there is evidence of an increase over this period. One striking feature of the evolution of

* This article presents some of the results included in Amador *et al.* (2007a). The authors thank Nuno Alves, Mário Centeno, Jorge Correia da Cunha and Ana Cristina Leal for their comments. The views expressed are of the authors and do not necessarily reflect those of the Bank of Portugal.

** Economics and Research Department.

(1) See De Benedictis *et al.* (2006) for a synopsis of the recent empiric literature on trade specialization dynamics.

(2) The Cohesion Fund, which started in 1994, is a structural instrument that helps European Union (EU) Member States to reduce economic and social disparities and to stabilize their economies. Eligible Member States of the Union are those whose gross national product (GNP) per capita is below 90 per cent of the EU-average. Four Member States, Spain, Greece, Portugal and Ireland, were eligible under the Cohesion Fund until the end of 2003. The European Commission's mid-term review of 2003 deemed Ireland (GNP average of 101 per cent) as ineligible under the Cohesion Fund as of 1 January 2004.

Portuguese international trade was the continuous decline in the export share of low-tech products over the last four decades. This decline was particularly sharp in food products, and textile and footwear products. Notwithstanding, Portugal remains more specialized than the world average in this technological category. In addition, there was a marked increase of the share of medium-high-tech exports over time, in particular motor vehicles and some machinery items since the nineties. Conversely, the Portuguese economy maintains a strong comparative disadvantage in high-tech products over the whole period.

The article is organized as follows. In the next section we briefly describe the methodology and the database used. Section 3 is devoted to the study of the evolution of the Portuguese export pattern. The section starts by examining the export structure of Portugal over the last forty years, using the shares of each sector in total manufacturing exports. The analysis is then developed using the Balassa (1965) index. This indicator, which aims to capture revealed comparative advantages, has been extensively employed in the empirical trade literature.³ A special focus is placed on the behaviour of the indices grouped by technological content and on how country differences are explained by the contributions of the different sub-sectors. This section ends with an analysis of the shape of the distribution of the indicator to infer on the overall degree of specialization of the four countries considered. Section 4 presents some concluding remarks.

2. DATA AND METHODOLOGY

The empirical analysis included in this article is based on the CEPII – CHELEM database, which reports bilateral trade flows for goods in value terms (the unit being the US dollar). The sample period starts in 1967 and ends in 2004, with a product breakdown at the four digits level of the ISIC classification (rev.3), which includes 120 manufacturing products. These 120 manufactured goods are grouped in accordance with their technological intensity, following the OECD classification of R&D intensities.⁴ This technological classification includes four main sectors: high-technology (HT), medium-high-technology (MHT), medium-low-technology (MLT) and low-technology (LT); and a second breakdown level containing twenty sub-sectors. This standard classification can bring important insights on the evolution of export patterns over the last forty years. Notwithstanding, this relatively broad sectoral breakdown can include activities at different levels of technological complexity under the same category.⁵ In addition all intra-category relative changes, like the upgrading of quality and technology within existing activities, are not captured with this classification. Moreover, like all industry-based classifications, the existence of firm heterogeneity within each sector is not taken into account here.

The empirical trade literature suggests several methods to evaluate the trade specialization of a given country, most of them aiming at identifying the comparative advantages revealed *ex-post* by international trade. The methods solely based on trade flows can be divided in two broad groups. The first group only uses export data and the second uses both export and import data. The most widely used indicator in the first group is the Balassa index, as suggested in Balassa (1965), while the most popular

(3) In Amador *et al.* (2007b), we introduced an alternative index - the so-called B* - with suitable cardinal properties for a cross-country analysis within one single sector. For the sake of comparability with other studies, this alternative index was not adopted in this article.

(4) The OECD classification of manufacturing industries according to technology intensity was based on the analysis of R&D expenditures of 12 OECD countries in the period 1991-99 (see OECD (2005)).

(5) See Peneder (2003) for an analysis of the major classifications used in applied economic studies and Lall *et al.* (2005) for a discussion of the problems associated with the different product classifications, focusing on those dealing with technology intensities.

in the second group is the Lafay index, as suggested in Lafay (1992).⁶ The analysis carried out in this article fits in the first group and is mainly based on the Balassa index.

The Balassa index can be defined as follows. Assume that the world economy comprises N countries and m products. Country i exports of product j are x_{ij} and total exports of country i are given by $X_i = \sum_{j=1}^m x_{ij}$. World exports of product j amount to $x_{wj} = \sum_{i=1}^N x_{ij}$, while total world exports can be seen either as the sum of all products or as the sum of all countries, i.e. $X_W = \sum_{j=1}^m x_{wj} = \sum_{i=1}^N X_i$. Using relative export structures, the Balassa (1965) index can be written as:

$$B_{ij} = \frac{\frac{x_{ij}}{X_i}}{\frac{x_{wj}}{X_W}} \quad \text{country } i = 1, 2, \dots, N; \text{ product } j = 1, 2, \dots, m \quad (1)$$

According to (1), if the share of sector j in total exports of country i is higher than the equivalent share of sector j in world exports, i.e. $\left(\frac{x_{ij}}{X_i}\right) > \left(\frac{x_{wj}}{X_W}\right)$, then $B_{ij} > 1$ and country i is classified as having a *revealed*

comparative advantage in sector j . Note also that, for each sector j , the denominator $\frac{x_{wj}}{X_W}$ can be decomposed as a weighted average of all $\frac{x_{ij}}{X_i}$, where the weights are country-dependent and given by $\frac{X_i}{X_W}$. Henceforth, the denominator will be simply designated as “world average”.

At any point in time, the cross-country differences of export specialization can be further examined by decomposing the differential of the Balassa indices in each broad technological category in the following way:

$$(B_{PT,J} - B_{i,J}) = \sum_j \alpha_j (B_{PT,j} - B_{i,j}) \quad \text{where } \alpha_j = \frac{x_{wj}}{X_W} \text{ and } \sum_j \alpha_j = 1 \quad (2)$$

where PT stands for Portugal and i for the other countries; J represents the main aggregate (LT, MLT, MHT and HT sectors) and j all second-level sub-sectors of each aggregate J ; α_j is a set of weights that are not country-dependent.⁷ If, for instance, the Balassa index in the main aggregate J is higher in Portugal than in country i , then $(B_{PT,J} - B_{i,J}) > 0$ and this difference can be split into the contributions of all sub-sectors. In this example, there must exist at least one sub-sector j that verifies the condition $(B_{PT,j} - B_{i,j}) > 0$, which is simply implying a higher export share of that product in total Portuguese exports than in the other country. Thus, each term $\alpha_j (B_{PT,j} - B_{i,j})$ can be seen as the contribution of sub-sector j to the differential registered in the aggregate J .

The use of the Balassa index, which follows an asymmetric distribution with a fixed lower bound of 0, a variable upper bound and a variable mean, either across countries or across time, has been subject to several critiques, leading some authors to propose several modified versions. However, the popularity of the original suggestion remains in place and the traditional Balassa index has been used extensively

(6) The Lafay index, defined as the contribution of a product to the overall trade balance, is a country-based indicator of specialization that does not show the relative position vis-à-vis other countries. Therefore it is not the most appropriate indicator for the kind of analysis proposed here. Even if net exports are the theory-based measure of revealed comparative advantages, the Balassa index allows for comparisons between different countries with regard to a common benchmark, contrarily to the Lafay index. Nevertheless, we replicated most of the analysis using the Lafay index and, in the Portuguese case, the main results remain broadly unchanged. However, such outcome should not be seen as a general result for all countries. The most suited metrics and related theoretical motivations are a rather extensive subject in trade literature. For a discussion see Bowen (1983), Yeats (1985), Ballance *et al.* (1987), Vollrath (1991) and Lapadre (2001).

(7) The weights are, nevertheless, changing in time.

in the literature.⁸ The transformation suggested by Laursen (1998) is very useful to analyse the entire distribution of the specialization indicator, given the typical high asymmetry of the traditional B_{ij} index. Laursen (1998) labelled this new index as “Revealed Symmetric Comparative Advantage”, which is defined as:

$$BS_{ij} = \frac{B_{ij} - 1}{B_{ij} + 1}$$

Note that BS_{ij} ranges from -1 to 1 and has a threshold value in 0, leaving the rank-order and the specialization status of the sectors within each country unchanged.⁹ The levels of the BS_{ij} have no longer an intuitive reading, with the exception of $BS_{ij} = 0$, which implies that $B_{ij} = 1$.

3. PORTUGUESE EXPORT PATTERN OVER FOUR DECADES

This section starts by examining the export structure of the Portuguese economy, *i.e.* the numerator of equation (1). The Portuguese export pattern underwent important changes over the last four decades. At the first product breakdown level, the most striking feature is the continuous decline over time of the LT sector share in total manufacturing exports (Chart 1(a)). On the contrary, the more marked increase took place in the MHT sector. Comparing the beginning and the end of the sample period at the second product breakdown level, there was a decline of the export share of all LT sub-sectors and, to a much lesser extent, of all chemical products (including pharmaceuticals), and an increase of the share in total exports of all other sub-sectors (Table 1).

LT exports, which represented 76 per cent of Portuguese manufacturing exports in 1967-69, declined to 42.4 per cent in the 2000-04 period. This decline was extensive to all sub-sectors, but was particularly sharp in “Food products, beverages and tobacco” and in “Textiles, textile products, leather and footwear” (Chart 1(b)). The reduction of export share of the former sub-sector was rather continuous until the beginning of the nineties, stabilizing at around 6.5 per cent of total Portuguese exports (from 23.5 per cent in 1967-69). In the latter sub-sector, the loss of importance was only visible after 1993, since its export share has even increased until that year. Thereafter the decline of the share of textiles and footwear exports was rather marked, which may reflect, at least partly, the increased competition from some developing countries.¹⁰ In spite of the strong decrease of the LT sector share, it is still the most important technological category in Portuguese manufacturing exports.

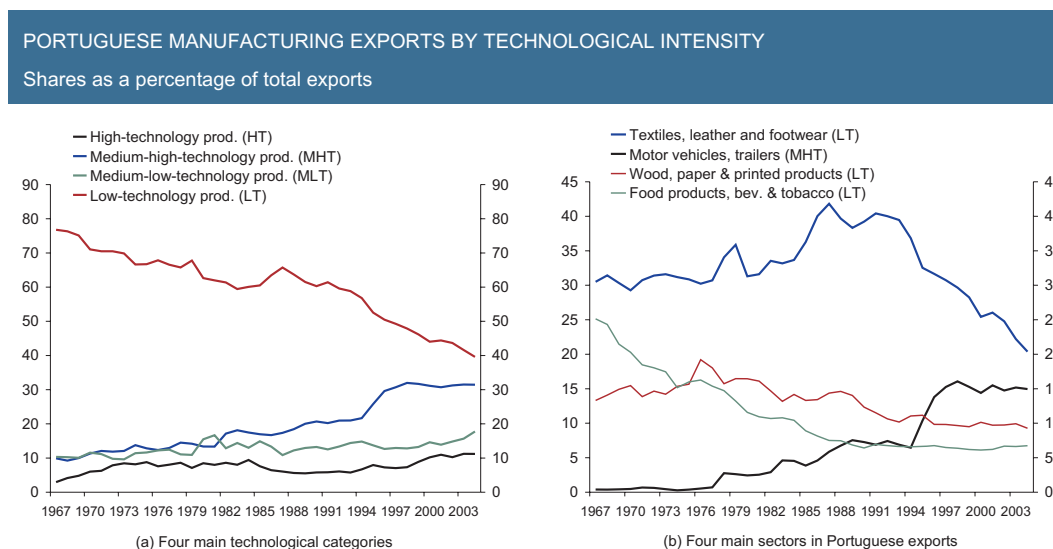
On the contrary, a very strong increase of MHT exports has occurred: its share in total Portuguese manufacturing exports rose from 9.7 per cent in 1967-69 to 31.2 per cent in 2000-2004. In particular, there was a sharp increase of the export share of “Motor vehicles, trailers and semi-trailers”, particularly in the second half of the nineties. This evolution was largely influenced by increases in the export capacity resulting from the entry into operation of industrial production units associated with foreign direct investment projects. There was also an increase of Portuguese exports of “Other electrical ma-

(8) Modified versions of the original Balassa index may be found, for instance, in Proudman and Redding (1997, 2000) and in Amador *et al.* (2007b). A list of references where the original version was used is included in Hinloopen and Marrewick (2001). See Widgrén (2005) for an application to Asian, American and European countries; and Shafaeddin (2004) and Hinloopen and Marrewick (2004) to China. US revealed comparative advantages by trading partner are mapped in Richardson and Zhang (1999). A recent application in another context can be found in Hidalgo *et al.* (2007). De Benedictis and Tamberi (2002), who discuss in detail the characteristics of the B_{ij} and the suggestion of Proudman and Redding (1997, 2000), end up using the original formulation of the index. Vollrath (1991), who surveys alternative measures of revealed comparative advantage states that, among the measures using only export data, the traditional Balassa index is one of “the most satisfying”.

(9) See Laursen (1998) for detailed discussion of this transformation, Dalum *et al.* (1998) for an application of this indicator to twenty OECD countries and Vollrath (1991) for an alternative log-transformation.

(10) For instance, Cabral and Esteves (2006), using a sample of 96 individual (product and geographical) markets representing 70 per cent of Portuguese manufacturing exports, found that in the markets where Portugal's export share losses were the most significant, namely in textiles, clothing and footwear products, the biggest share gains were mostly achieved by developing Asian economies and by Central and Eastern Europe countries.

Chart 1



Sources: Chelem database and own calculations.

chinery and apparatus” and of “Other machinery and equipment”, which sum up to 11.5 per cent of total manufacturing exports in the 2000-2004 period (3.7 per cent in the 1967-69 period).¹¹ Although marginally, the only MHT sub-sector that has lost some ground over the last four decades was the “Chemicals excluding pharmaceuticals” sub-sector, specially due to its evolution since the second half of the eighties. In 2000-04, the aggregated MHT sector stands out as the second most important export sector in Portugal.

The share of MLT and HT sectors in total Portuguese exports also increased over the last four decades, but to a much lesser extent than the MHT sector. In HT products, all sub-sectors increased their export share, with the exception of “Pharmaceuticals”. The highest increase took place in “Radio, TV and communications equipment” (from 1.9 per cent in 1967-69 to 6.1 per cent in 2000-04). In MLT exports, the evolution was more similar across sub-sectors, with the main increase being in “Rubber and plastics products” (from 1.2 per cent in 1967-69 to 3.3 per cent in 2000-04).

Although the Portuguese export structure underwent major changes over the last decades, such developments must be placed in perspective against the world, which has also changed dramatically over the same period. In particular, the technological content of world manufacturing trade rose markedly over the last forty years. The share of high-tech goods increased by around 15 percentage points, accounting for more than 25 per cent of total exports in the 2000-2004 period, while the share of low and medium-low-tech decreased by around 9 and 7 percentage points, respectively.

In general, the Portuguese manufacturing export structure converged towards the world weighted average, *i.e.* the denominator of (1). This can be illustrated by the evolution of the sectoral Balassa indices included in Table 2. Portuguese export shares above the world average showed a general downward movement; export shares below the world average tended to increase. The most striking exception is the HT sector: the Balassa index for this broad sector was 0.4 both in 1967-69 and 2000-04, pointing to the maintenance of a strong comparative disadvantage of the Portuguese economy in these products. In particular, the Portuguese “Pharmaceuticals” sub-sector moved in the oppo-

(11) Portuguese exports of machinery and equipments showed high growth rates in 2006 and in the first half of 2007, strongly contributing to the favourable behaviour of total exports.

Table 1

STRUCTURE OF PORTUGUESE MANUFACTURING EXPORTS BY TECHNOLOGICAL INTENSITY
As a percentage of total exports

	1967-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
High-technology products	4.0	7.7	7.9	8.5	6.1	6.0	7.7	10.8
Aircraft and spacecraft	0.2	0.1	0.2	0.5	0.2	0.3	0.4	0.7
Pharmaceuticals	1.5	1.3	1.0	0.9	0.7	0.5	0.8	1.2
Office, accounting and computing machinery	0.3	1.2	1.2	1.6	0.8	0.5	0.4	1.8
Radio, TV and communications equipment	1.9	4.3	4.5	4.6	3.6	3.9	5.2	6.1
Medical, precision and optical instruments	0.2	0.7	1.1	0.9	0.6	0.8	1.1	1.0
Medium-high-technology products	9.7	12.5	13.5	16.0	18.2	20.9	30.0	31.2
Other electrical machinery and apparatus	1.5	2.3	2.3	1.7	2.9	5.2	7.0	5.7
Motor vehicles, trailers and semi-trailers	0.4	0.5	1.6	3.5	6.1	7.0	14.2	15.0
Chemicals excluding pharmaceuticals	5.3	6.3	5.1	6.6	5.3	4.2	3.8	4.5
Railroad equipment and other transport equip.	0.3	0.6	0.3	0.3	0.2	0.3	0.4	0.4
Other machinery and equipment	2.2	2.9	4.2	3.9	3.8	4.3	4.5	5.8
Medium-low-technology products	10.2	10.7	11.5	14.4	12.7	13.7	13.1	15.6
Coke, refined petroleum prod. and nuclear fuel	1.3	2.2	1.5	5.3	2.9	3.2	2.1	2.1
Rubber and plastics products	1.2	1.0	0.6	0.7	1.2	1.6	2.2	3.3
Other non-metallic mineral products	3.0	2.7	2.7	3.0	3.7	4.7	4.1	3.8
Building and repairing of ships and boats	0.1	0.8	1.4	0.7	0.9	0.5	0.3	0.2
Basic metals	2.1	1.4	2.8	2.2	1.8	1.3	1.5	2.9
Fabricated metal products, excluding machinery	2.5	2.5	2.6	2.5	2.2	2.4	2.8	3.3
Low-technology products	76.0	69.2	67.0	61.1	63.1	59.3	49.2	42.4
Other manufacturing and recycling	7.6	6.1	2.4	2.6	2.1	2.4	2.2	2.7
Wood, pulp, paper and printed products	14.2	14.7	16.9	14.9	14.1	11.1	10.0	9.7
Food products, beverages and tobacco	23.5	17.3	14.9	10.9	7.6	6.7	6.5	6.5
Textiles, textile products, leather and footwear	30.7	31.0	32.9	32.7	39.4	39.2	30.5	23.4

Sources: Chelem database and own calculations.

site direction of that recorded in the world, particularly after the period 1970-74. The same has happened in the MHT sub-sector of "Chemicals excluding pharmaceuticals", but to a much lesser extent.

Portugal reveals a sustained and clear comparative advantage in the broad LT sector since 1967 (Table 2). The sub-sectors of "Textiles, textile products, leather and footwear" and "Wood, pulp, paper and printed products" have rather high Balassa indices during the entire period. In the latter there is even a slight increase of the index from the first to the last period of the sample. The MLT sub-sector of "Other non-metallic mineral products" shows also high specialization coefficients over the whole period, with an upward trend since the eighties. This leads to an increase of the difference against the world average from the beginning to the end of the sample. Other sub-sectors have $B_{ij} > 1$ but only over the last decade: "Fabricated metal products, excluding machinery", "Rubber and plastics products", "Other electrical machinery and apparatus" and "Motor vehicles, trailers and semi-trailers". Finally, there was a temporary revealed comparative advantage in "Radio, TV and communications equipment" in the seventies. All other sub-sectors have indices lower than 1.

In the 2000-2004 period, and despite the broad convergence of the Portuguese export structure towards the world average over the past decades, significant differences are still in place. The proportion of the LT sector is still twice the world average, specially concentrated in "Textiles, textile products, leather and footwear" and in "Wood, pulp, paper and printed products", which include cork products, where Portugal has a particularly high export market share.¹² In MHT and MLT sectors, the Balassa index remains below 1 in the broad sector but the difference with the world average is not very significant

(12) The Balassa index can also be written with export market shares. Regarding products of wood, articles of cork, straw and plaiting materials (ISIC 2029), almost 12 per cent of total world exports have their origin in Portugal, compared with a share in total world manufacturing exports of around 0.5 per cent in 2000-04.

Table 2

RELATIVE EXPORT SPECIALIZATION OF THE PORTUGUESE ECONOMY, BALASSA INDEX								
	1967-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
High-technology products	0.4	0.7	0.7	0.6	0.4	0.3	0.3	0.4
Aircraft and spacecraft	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3
Pharmaceuticals	0.9	0.9	0.7	0.7	0.5	0.3	0.3	0.4
Office, accounting and computing machinery	0.2	0.7	0.6	0.6	0.2	0.1	0.1	0.3
Radio, TV and communications equipment	0.6	1.2	1.1	1.0	0.6	0.6	0.6	0.6
Medical, precision and optical instruments	0.1	0.3	0.4	0.3	0.2	0.2	0.3	0.3
Medium-high-technology products	0.3	0.4	0.4	0.4	0.5	0.6	0.8	0.9
Other electrical machinery and apparatus	0.5	0.8	0.7	0.5	0.8	1.3	1.5	1.2
Motor vehicles, trailers and semi-trailers	0.0	0.0	0.1	0.3	0.5	0.6	1.2	1.3
Chemicals excluding pharmaceuticals	0.6	0.7	0.6	0.7	0.6	0.5	0.4	0.5
Railroad equipment and other transport equip.	0.5	0.7	0.4	0.4	0.3	0.4	0.8	0.7
Other machinery and equipment	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.6
Medium-low-technology products	0.4	0.4	0.5	0.6	0.6	0.7	0.8	0.9
Coke, refined petroleum prod. and nuclear fuel	0.3	0.5	0.3	0.7	0.6	0.9	0.7	0.6
Rubber and plastics products	0.7	0.6	0.3	0.3	0.5	0.6	0.8	1.1
Other non-metallic mineral products	1.8	1.6	1.5	1.7	2.2	2.7	2.6	2.6
Building and repairing of ships and boats	0.1	0.4	0.7	0.5	0.8	0.5	0.4	0.3
Basic metals	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.5
Fabricated metal products, excluding machinery	0.9	0.9	0.8	0.9	0.8	0.9	1.0	1.3
Low-technology products	2.5	2.4	2.6	2.5	2.5	2.4	2.1	2.0
Other manufacturing and recycling	2.2	1.8	0.8	0.9	0.6	0.7	0.7	0.9
Wood, pulp, paper and printed products	2.2	2.5	3.3	3.1	2.8	2.2	2.1	2.3
Food products, beverages and tobacco	2.1	1.6	1.6	1.2	1.0	0.9	0.9	1.1
Textiles, textile products, leather and footwear	3.3	3.5	3.9	4.0	4.4	4.3	3.7	3.1

Sources: Chelem database and own calculations.

Note: All Balassa indices higher than 1 are highlighted.

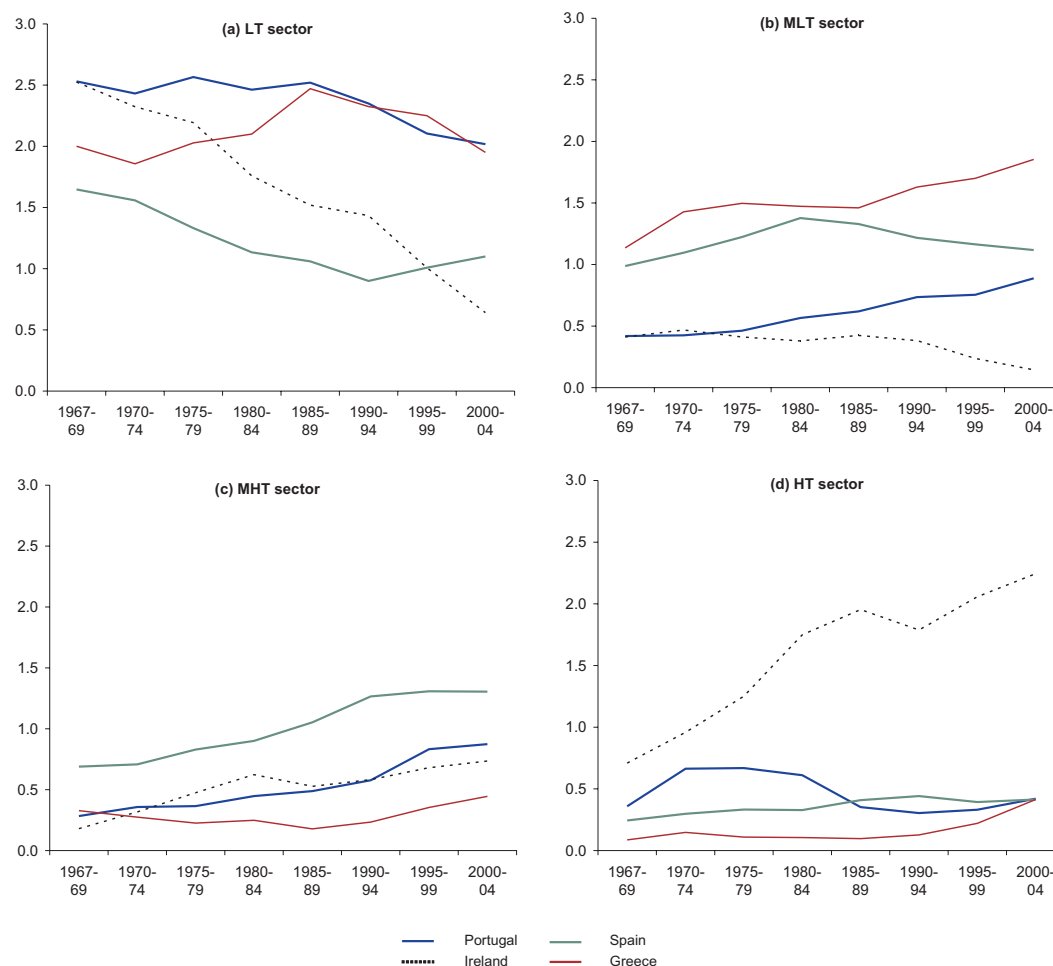
and has been decreasing over the last two decades. In the 2000-2004 period, Portuguese exports are relatively more specialized than the world average in some MLT sub-sectors, like "Other non-metallic mineral products", and, less importantly, "Fabricated metal products, excluding machinery" and "Rubber and plastics products". Portuguese exports also reveal a comparative advantage in some MHT sub-sectors in the most recent period, namely "Motor vehicles, trailers and semi-trailers" and "Other electrical machinery and apparatus". As regards HT products, the difference with the world export structure is considerable: the high-tech export share in Portugal is less than 1/2 the world average, with all sub-sectors revealing very low indices. Overall, the stronger trends identified in Portuguese exports over the last two decades were the decreasing specialization in LT products and the increased export share of MLT and MHT sectors.

The analysis of the Portuguese relative export structure can be further enhanced with a direct comparison with the ones of Spain, Greece and Ireland. Charts 2(a) to 2(d) depict the evolution of the Balassa indices of the main sectors over the last forty years in these four countries and Table 3 reports the situation at a more disaggregated level for the period 2000-04. In order to explore the differences in these countries' export structures at each point in time, the differential of the Balassa indices of the four broad sectors was subject to decomposition (2) as described in Section 2. Charts 3(a) to 3(l) plot the result of these decompositions.

In the LT broad sector, the main features can be summarized as: (i) Portugal has the highest specialization coefficient during most of the sample, although in a downward path since mid-eighties; (ii) the path of Greece is very similar to the Portuguese one since mid-eighties; (iii) Spain has the lowest index until the nineties, being the only country evidencing an upward trend in the last decade; (iv) having

Chart 2

BALASSA INDICES BY TECHNOLOGICAL INTENSITY



Sources: Chelem database and own calculations.

started with a Balassa index almost identical to the Portuguese, Ireland has the sharpest downward trend during the whole period and ends up with the lowest index in this sector. Using decomposition (2), the contributions of the sub-sectors “Wood, pulp, paper and printed products” and “Textiles, textile products, leather and footwear” are always positive, although in the latter sub-sector it has virtually disappeared against Greece in the last two decades. In comparison with Ireland, the diverging path depicted in Chart 2(a) is also explained by the less negative contribution of the sub-sector “Food products, beverages and tobacco”, as the high share of these products in Irish exports declined steadily. On the contrary, Greece has a larger export share of “Food products, beverages and tobacco” than Portugal over the whole period.

In the MLT sector, Chart 2(b) reveals that (i) Greece is the country more specialized in this category during the whole period, evidencing an upward trend since mid-eighties; (ii) the specialization coefficient of Spain has been decreasing in the last 20 years; (iii) the Portuguese index increases over the whole sample, leading to a smaller gap with Spain in the most recent period; (iv) on the contrary, Ireland shows again a decreasing trend and has the lowest coefficient over the last three decades. Using decomposition (2), the stable negative contributions of the sub-sectors “Basic metals” and “Coke, refined petroleum products and nuclear fuel” mostly explain the lower levels of the Balassa index for Por-

Table 3

MANUFACTURING EXPORTS BY TECHNOLOGICAL INTENSITY (SHARES AS A PERCENTAGE OF TOTAL EXPORTS AND BALASSA INDICES)									
Average 2000-2004									
	Shares in total exports					Balassa indices			
	World	Portugal	Spain	Ireland	Greece	Portugal	Spain	Ireland	Greece
<i>Memo item:</i>									
Share in total world manufacturing exports	100.0	0.5	2.2	1.5	0.2				
High-technology products	26.0	10.8	10.6	57.7	10.6	0.4	0.4	2.2	0.4
Aircraft and spacecraft	2.6	0.7	1.3	0.5	1.3	0.3	0.5	0.2	0.5
Pharmaceuticals	3.4	1.2	3.4	21.1	4.7	0.4	1.0	6.2	1.4
Office, accounting and computing machinery	6.1	1.8	1.3	22.0	0.8	0.3	0.2	3.6	0.1
Radio, TV and communications equipment	10.1	6.1	3.3	8.0	2.9	0.6	0.3	0.8	0.3
Medical, precision and optical instruments	3.8	1.0	1.4	6.1	1.0	0.3	0.4	1.6	0.3
Medium-high-technology products	35.6	31.2	46.6	26.3	15.9	0.9	1.3	0.7	0.4
Other electrical machinery and apparatus	4.6	5.7	3.7	2.3	2.8	1.2	0.8	0.5	0.6
Motor vehicles, trailers and semi-trailers	11.9	15.0	26.8	0.6	1.7	1.3	2.2	0.0	0.1
Chemicals excl. pharmaceuticals	8.6	4.5	7.9	21.2	6.6	0.5	0.9	2.5	0.8
Railroad equipment and other transport equip.	0.6	0.4	0.9	0.0	0.1	0.7	1.5	0.1	0.3
Other machinery and equipment	9.8	5.8	7.3	2.1	4.6	0.6	0.7	0.2	0.5
Medium-low-technology products	17.5	15.6	19.6	2.5	32.5	0.9	1.1	0.1	1.9
Coke, refined petroleum prod. and nuclear fuel	3.7	2.1	3.1	0.3	10.3	0.6	0.8	0.1	2.8
Rubber and plastics products	2.9	3.3	3.5	0.7	3.2	1.1	1.2	0.2	1.1
Other non-metallic mineral products	1.5	3.8	3.6	0.5	3.1	2.6	2.4	0.3	2.1
Building and repairing of ships and boats	0.8	0.2	1.1	0.0	0.9	0.3	1.3	0.0	1.1
Basic metals	6.1	2.9	5.2	0.5	12.3	0.5	0.9	0.1	2.0
Fabricated metal products, excl. machinery	2.6	3.3	3.1	0.6	2.7	1.3	1.2	0.2	1.0
Low-technology products	20.9	42.4	23.1	13.5	41.0	2.0	1.1	0.6	2.0
Other manufacturing and recycling	3.2	2.7	2.4	0.7	1.3	0.9	0.8	0.2	0.4
Wood, pulp, paper and printed products	4.2	9.7	4.1	4.0	2.5	2.3	1.0	1.0	0.6
Food products, beverages and tobacco	6.1	6.5	9.5	7.9	16.1	1.1	1.6	1.3	2.7
Textiles, textile products, leather and footwear	7.5	23.4	7.1	0.8	21.1	3.1	0.9	0.1	2.8

Sources: Chelem database and own calculations.

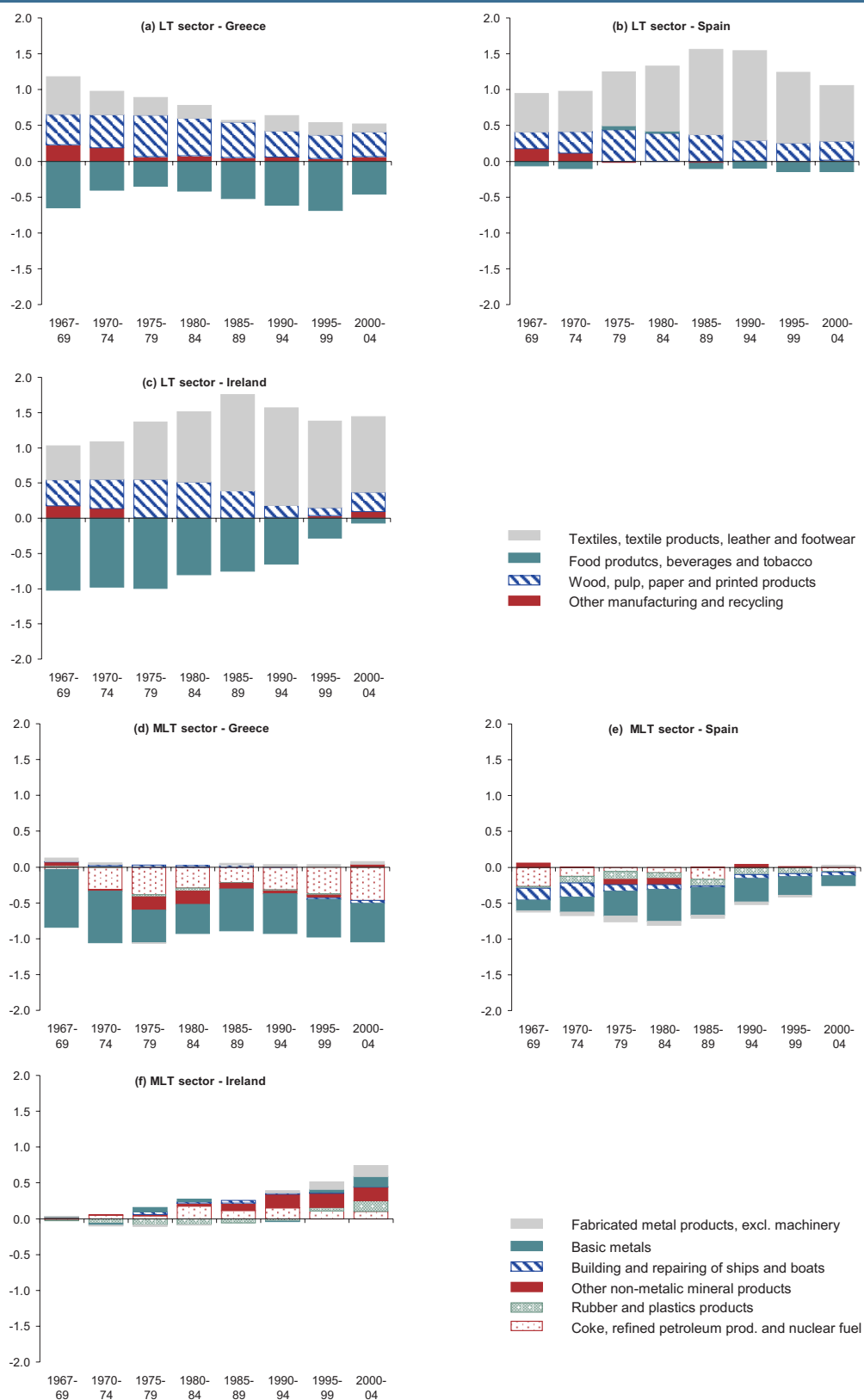
tugal against Greece. Against Spain, a broad convergence has taken place over all sub-sectors of this aggregate, although "Basic metals" still account for a lower share in Portuguese exports. The increasing gap between Portugal and Ireland is broadly based across sub-sectors.

In general, the four countries tended to increase their specialization in the MHT sector, with the exception of Greece until the eighties (Chart 2(c)). The Balassa indices were rather close among Portugal, Ireland and Greece in the beginning of the sample. Spain has the largest share of MHT exports over the whole period. The negative gap of Portugal against Spain, which has remained relatively stable over the last forty years, is basically explained by the sub-sector "Motor vehicles, trailers and semi-trailers". Against Greece and Ireland, Portugal shows a higher degree of specialization in this sub-sector, specially after mid-eighties. In the case of Ireland, this increasing gap has not created a larger difference in terms of specialization in the MHT sector as a whole, being compensated by the higher importance of the Irish sub-sector "Chemicals excluding pharmaceuticals", particularly since the eighties.

In the HT sector, Portugal, Spain and Greece show a high resemblance over the entire sample period, always with coefficients below 1. Portugal had a slightly higher specialization index than Spain and Greece until mid-eighties, but that difference disappeared in the most recent period. On the contrary, Ireland stands out by its substantial and increasing share of HT exports, which represent almost 60 per cent of total Irish manufacturing exports in the period 2000-04 (10.8 per cent in Portugal). Using de-

Chart 3 (to be continued)

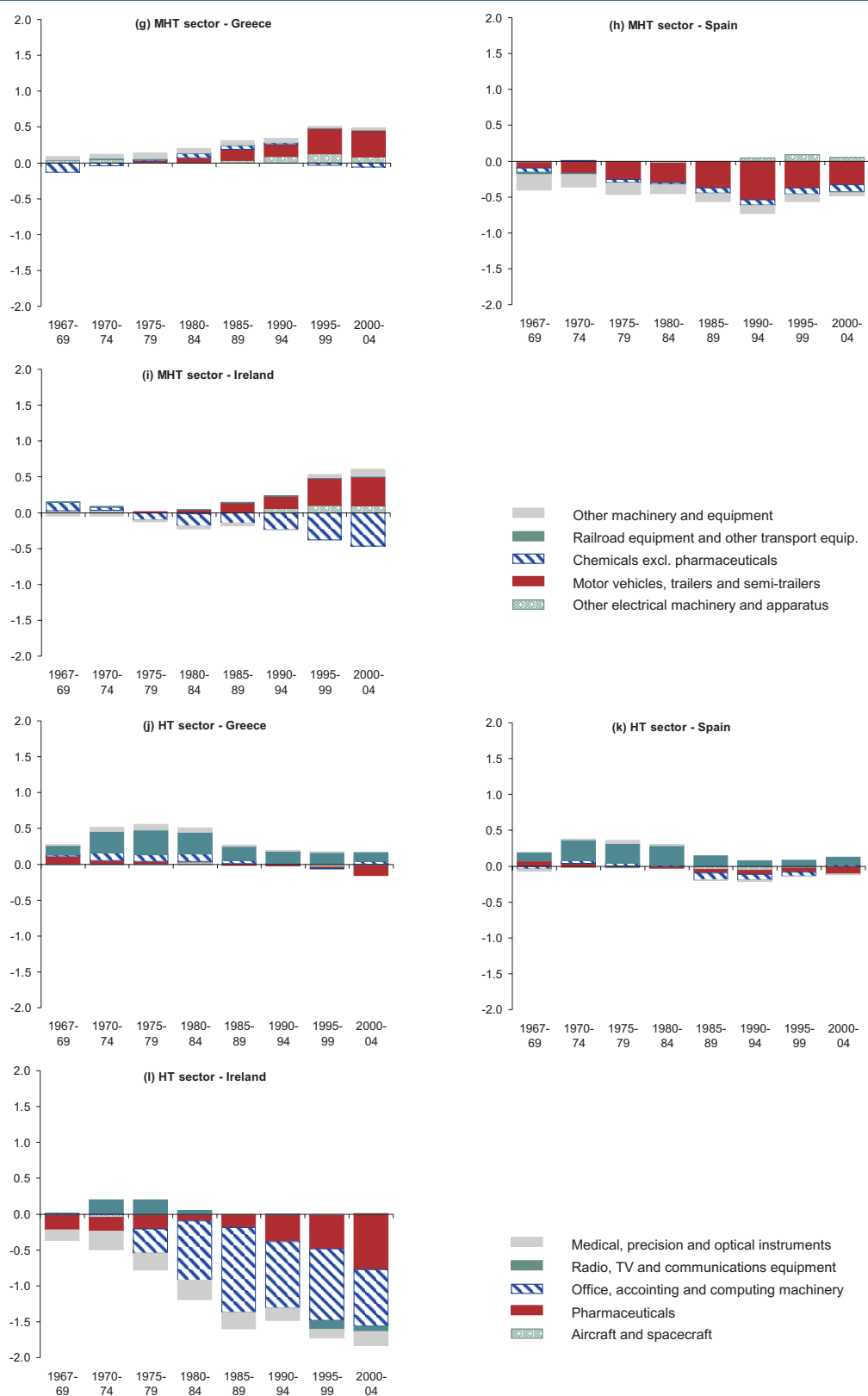
DIFERENTIAL OF THE BALASSA INDICES RELATIVELY TO PORTUGAL $\alpha_j(B_{PT,j} - B_{i,j})$



Sources: Chelem database and own calculations.

Chart 3

DIFERENTIAL OF THE BALASSA INDICES RELATIVELY TO PORTUGAL $\alpha_j(B_{PT,j} - B_{i,j})$



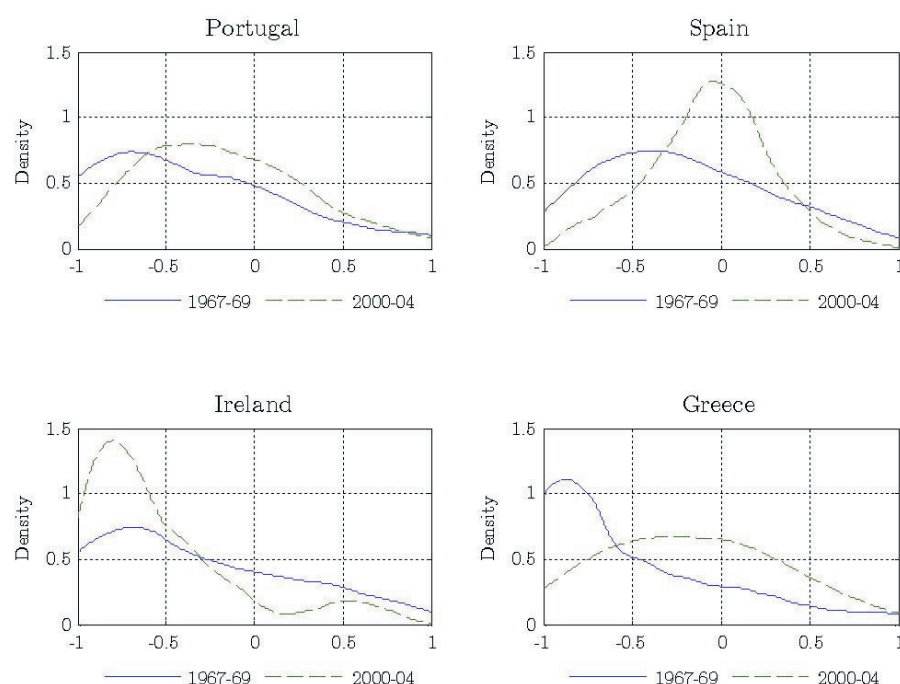
Sources: Chelem database and own calculations.

composition (2), the diverging path of Ireland is mostly due to higher exports of “Office, accounting and computing machinery” and “Pharmaceuticals”. The approximation between the indices of Portugal against both Greece and Spain reflects mainly the reduction of the positive gap in “Radio, TV and communication equipment”.

The export specialization pattern of a given country can be characterized by the cross-industry distribution of its Balassa indices and changes in the overall extent of export specialization relate to the evolution of the external shape of the distribution over time. Empirical research on the dynamics of trade patterns using the entire distribution was pioneered by Proudman and Redding (1997, 2000). Since then, several empirical studies analysed the product specialization of a given country (or group of countries) by estimating the entire (cross-sector) distributions over time.¹³ Changes in the overall extent of export specialization depend on whether there is an increasing concentration in a limited number of sectors or whether the specialization becomes more uniformly distributed across industries. Chart 4 shows the results of estimated kernel densities with 120 manufacturing products, for each country, using an Epanechnikov kernel function in the first and last periods of the sample.¹⁴ Given that the high asymmetry of the traditional index complicates the interpretation of the estimated distribution,

Chart 4

EXPORTS - ESTIMATED KERNEL DENSITIES



Sources: Chelem database and own calculations.

Note: The higher the probability mass around zero, the closer are the country's export shares to the equivalent world averages and the lower is the overall degree of specialization.

(13) See Brasili *et al.* (2000), De Benedictis (2005) and Di Maio and Tamagni (2006).

(14) Kernel density estimation is a method for adjusting probability density functions from the available observations. Density estimates depend crucially on the choice of the bandwidth or smoothing parameter. Several bandwidths variations were tested and the results were qualitatively similar. We used the optimal bandwidth for estimating densities for the normal distribution as the optimal smoothing parameter for the Epanechnikov kernel function, as suggested by Silverman (1986), seemed to oversmooth the results.

the original Balassa indices were subject to the transformation suggested by Laursen (1998) (see Section 2).

The visual inspection of the density estimates confirms the existence of important differences in terms of specialization among the four countries. In the Irish case, the density function is markedly more right skewed than that of the other countries, indicating a higher overall degree of specialization. On the contrary, the density function of Spain is much more symmetric and roughly centered around the demarcation value in the most recent period. Over time, the density estimates of Portugal, Spain and Greece tend to become more symmetric, pointing to a general decrease of the overall degree of specialization in these countries.¹⁵ The opposite happens with Ireland, whose distribution becomes more polarized in the most recent period, with the density concentrating more around extreme values.

4. CONCLUSIONS

Over the last decades, Portugal and the other EU15 Cohesion countries (Spain, Greece and Ireland) significantly increased their trade openness. In Ireland, however, the gap relatively to the other countries has increased over time and, at present, its degree of openness is substantially higher than that of Portugal, Spain and Greece, which are clustered around similar figures. This article focuses on the evolution of the export pattern of Portugal over the last forty years and confronts it with developments in the other three EU15 Cohesion countries. In general, the changes seen in Portugal bear similarities with those observed in Spain and Greece. Conversely, Ireland shows remarkable differences in many aspects of the evolution of its pattern of international specialization.

The aggregation of the available 120 manufacturing products into four broad categories with distinct technological intensities (high, medium-high, medium-low and low-technology) reveals that one striking feature of the evolution of Portuguese international trade was the continuous decline in the export share of low-tech products over the last four decades. This decline was particularly sharp in “Food products, beverages and tobacco” and “Textiles, textile products, leather and footwear”. On the contrary, there was a marked increase of the share of medium-high-tech exports, in particular “Motor vehicles, trailers and semi-trailers” since the second half of the nineties.

The four countries considered have become less specialized in low-tech products over the last four decades, as measured by the evolution of the Balassa (1965) index of revealed comparative advantage. This trend was especially strong in Ireland, which is the only country where a specialization in low-tech products is not present in the most recent period. On the contrary, Portugal still has a clear specialization in this type of products in the 2000-04 period, similar to that of Greece. In what concerns medium-low-tech products, there was an increase of its export share in Portugal, although still showing a Balassa index below 1. The same upward trend was observed in Greece, whose specialization index has always been the highest. On the contrary, Ireland and Spain showed a decreasing trend over the last 20 years, although the later country maintains a higher specialization in these products. As for medium-high-tech products, all countries increased their export share of these products, though Spain shows values substantially higher than those of the other countries and above the world average since mid-eighties. In the case of high-tech products, Portugal, Spain and Greece show a high resemblance over the entire sample period, always with coefficients below 1. Portugal had a slightly higher special-

(15) This result is in line with other empirical studies of specialization patterns using export data. Proudman and Redding (2000) that analyse the international trade dynamics of the G5 economies only find evidence of an increase of specialization in Japan. Brasili *et al.* (2000) examine the dynamics of trade patterns of some developed and emerging countries studying the shape of the sectoral distribution and conclude that, although emerging countries are still more specialized than the industrialized countries, both groups show a tendency towards a reduced polarization and a more symmetric distribution of the specialization index. Similarly, De Benedictis *et al.* (2005) and De Benedictis *et al.* (2006) conclude that sectoral export diversification tends to increase over time, as countries continuously diversify along their path of economic development.

ization index than Spain and Greece until mid-eighties, but that difference disappeared in the most recent period. The specialization index in Portugal is broadly similar in the beginning and the end of the sample period, pointing to the maintenance of a strong comparative disadvantage of the Portuguese economy in these products. The striking point in this technological category is the sharp increase of export specialization observed in Ireland, partly associated with its participation in vertical specialization activities.

Our results point to a decline of the overall degree of specialization of Portuguese exports between 1967-69 and 2000-04. There is evidence of some diversification of the range of products in which Portugal specializes, with smaller differences among them. However, in spite of the convergence of the Portuguese export structure to the world average, significant differences still remain. The same convergence movement is evident in Greece and, in a much larger extent, in Spain, which is the least specialized of the four countries. On the contrary, the Irish export structure is the most concentrated and substantially different from the world benchmark, with its specialization relying in fewer products. Additionally, Ireland is the only of the four countries considered where there is an increase of the overall extent of specialization from the beginning to the end of the sample period.

REFERENCES

- Amador, J., Cabral, S. and Maria, J. R. (2007a), International trade patterns in the last four decades: How does Portugal compare with other Cohesion countries?, *Working Paper 14-2007*, Banco de Portugal.
- Amador, J., Cabral, S. and Maria, J. R. (2007b), Relative export structures and vertical specialization: A simple cross-country index, *Working Paper 1-2007*, Banco de Portugal.
- Balassa, B. (1965), 'Trade liberalization and "revealed" comparative advantage', *The Manchester School of Economic and Social Studies* 33(2), 99-123.
- Ballance, R., Forstner, H. and Murray, T. (1987), 'Consistency tests of alternative measures of comparative advantage', *The Review of Economics and Statistics* 69(1), 157-161.
- Bowen, H. P. (1983), 'On the theoretical interpretation of indices of trade intensity and revealed comparative advantage', *Weltwirtschaftliches Archiv* 119(3), 464-472.
- Brasili, A., Epifani, P. and Helg, R. (2000), 'On the dynamics of trade patterns', *De Economist* 148(2), 233-258.
- Cabral, S. and Esteves, P. S. (2006), 'Portuguese export market shares: an analysis by selected geographical and product markets', Banco de Portugal *Economic Bulletin* Summer, 57-74.
- Dalum, B., Laursen, K. and Villumsen, G. (1998), 'Structural change in OECD export specialisation patterns: de-specialisation and "stickiness"', *International Review of Applied Economics* 12(3), 423 - 443.
- De Benedictis, L. (2005), 'Three decades of Italian comparative advantages', *The World Economy* 28(11), 1679-1707.
- De Benedictis, L., Gallegati, M. and Tamberi, M. (2005), Semiparametric analysis of the specialization-income relationship, Available at SSRN: <http://ssrn.com/abstract=732263>.
- De Benedictis, L., Gallegati, M. and Tamberi, M. (2006), Overall specialization and development: Countries diversify!, Paper presented at the European Trade Study Group 8th Annual Conference, Wien 7-9 September 2006.

- De Benedictis, L. and Tamberi, M. (2002), A note on the Balassa index of revealed comparative advantage, *Working Paper* 158, Università Politecnica delle Marche, Dipartimento di Economia.
- Di Maio, M. and Tamagni, F. (2006), The evolution of world trade and the Italian “anomaly”: a new look, *Temì di discussione* 39, Università degli Studi di Macerata - Dipartimento di Istituzioni Economiche e Finanziarie.
- Hidalgo, C., Klinger, R., Barabasi, L. and Hausmann, R. (2007), ‘The product space conditions the development of nations’, *Science* 317, 482-487.
- Hinloopen, J. and Marrewick, C. v. (2001), ‘On the empirical distribution of the Balassa index’, *Weltwirtschaftliches Archiv* 137(1), 1-35.
- Hinloopen, J. and Marrewick, C. v. (2004), Dynamics of Chinese comparative advantage, *Discussion Paper* 034/2, Tinbergen Institute.
- Iapadre, P. L. (2001), ‘Measuring international specialization’, *International Advances in Economic Research* 7(2), 173-183.
- Lafay, G. (1992), “The measurement of revealed comparative advantages”, in M. Dagenais and P.-A. Muet, eds, *International Trade Modelling*, Chapman & Hall, chapter 10, pp. 209-234.
- Lall, S., Weiss, J. and Zhang, J. (2005), The sophistication of exports: A new measure of product characteristics, *Working Paper* 123, Queen Elisabeth House, University of Oxford.
- Laursen, K. (1998), Revealed comparative advantage and the alternatives as measures of international specialisation, *Working Paper* 30, Danish Research Unit for Industrial Dynamics.
- OECD (2005), *OECD Science, Technology and Industry Scoreboard 2005*, OECD.
- Peneder, M. (2003), ‘Industry classifications: Aim, Scope, and Techniques’, *Journal of Industry, Competition and Trade* 3(1/2), 109-129.
- Proudman, J. and Redding, S. (1997), Persistence and mobility in international trade, *Working Paper* 64, Bank of England.
- Proudman, J. and Redding, S. (2000), ‘Evolving patterns of international trade’, *Review of International Economics* 8(3), 373-396.
- Richardson, J. D. and Zhang, C. (1999), Revealing comparative advantage: Chaotic or coherent patterns across time and sector and U.S. trading partner?, *Working Paper* 7212, NBER.
- Shafaeddin, S. (2004), ‘Is China’s accession to WTO threatening exports of developing countries?’, *China Economic Review* 15(2), 109- 144.
- Silverman, B. W. (1986), “Density estimation for statistics and data analysis”, *Monographs on statistics and applied probability* No. 26, Chapman & Hall, London.
- Vollrath, T. L. (1991), ‘A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage’, *Weltwirtschaftliches Archiv* 127(2), 265-280.
- Widgrén, M. (2005), Revealed comparative advantage in the Internal Market, *Working Paper* 989, The Research Institute of the Finnish Economy.
- Yeats, A. J. (1985), ‘On the appropriate interpretation of the revealed comparative advantage index: Implications of a methodology based on industry sector analysis’, *Weltwirtschaftliches Archiv* 121(1), 61-73.



CHRONOLOGY OF MAJOR FINANCIAL MEASURES

January to October 2007

January

- 4 January (Notice of Banco de Portugal No 1/2007, Official Gazette No 5, Series I)**
 Introduces changes in Notice of Banco de Portugal No 1/93, of 8 June 1993, extending to 31 December 2007 the transitional regimes therein envisaged relating to the application of the solvency ratio.
- 10 January (Circular Letter of Banco de Portugal No 2/2007/DET)**
 Following complaints by the public regarding some credit institutions' practice of refusing to carry out cash exchange operations, makes known that credit institutions must perform over-the-counter cash exchange operations, including to non-clients, within reasonable amounts.
- 17 January (Instruction of Banco de Portugal No 1/2007, distributed with Circular Letter No 4/2007/DSB)**
 Establishes that the BPnet system shall be used for the supply of information by entities subject to the supervision of Banco de Portugal. This Instruction shall enter into force on 31 May 2007.
- 19 January (Instruction of Banco de Portugal No 2/2007, distributed with Circular Letter No 9/2007/DSB)**
 Provides for the supply of data on credit portfolio developments.
- 22 January (Decree-Law No 18/2007, Ministry of Economy and Innovation, Official Gazette No 15, Series I)**
 Establishes the value-date of any credit and debit entries in deposit demand accounts and transfers in euro, and the respective effect on the date on which funds become available for the beneficiary. This decree-law shall enter into force on 15 March 2007. At the end of the first year of validity of this decree-law, Banco de Portugal shall prepare and publish a progress report on the impact of its application.

February

- 2 February (Notice of Banco de Portugal No 2/2007, Official Gazette No 28, Series I)**
 Amends Notice of Banco de Portugal No 11/2005 of 13 July, governing the general terms and conditions for the opening of bank deposit accounts.
- 6 February (Notice of Banco de Portugal No 3/2007, Official Gazette No 30, Series I)**
 Harmonizes the procedures to be adopted by credit institutions regarding the compliance with the legal provisions governing the availability of funds and the value date of movements in demand deposit accounts, namely, the delivery of funds for deposit and certification, referred to in Decree-Law No 18/2007 of 22 January. This Notice shall enter into force on 15 March 2007.
- 8 February (Notice of Banco de Portugal No 2/2007, Official Gazette No 28, Series I)**
 Introduces changes in Notice of Banco de Portugal No 11/2005, of 21 July, relating to the general terms and conditions governing the opening of demand deposit accounts. This Notice shall enter into force on the 90th day following its publication.
- 12 February (Notice of Banco de Portugal No 3/2007, Official Gazette No 30, Series I)**
 Provides clarification on banking operations outside the scope of Decree-Law No 18/2007, of 22 January and lays down the treatment to be given to funds delivered for deposit without the immediate certification of deposited amounts. This Notice shall enter into force on 15 March 2007.

- **20 February (Decree-Law No 39/2007, Official Gazette No 36, Series I)**

Introduces a third amendment to Law No 5/98 of 31 January 1998, which approves the Organic Law of the Banco de Portugal. Clarifies a number of issues regarding the term of office of the members of the Board of Directors of the Banco de Portugal, in line with the revision of the Public Manager Statute (*Estatuto do Gestor Público*).

March

- **7 March (Decree-Law No 51/2007 of the Economy and Innovation Ministry of 7 March, Official Gazette No 47, Series I)**

Regulates the business activities of credit institutions and ensures the transparency of information provided by them when credit agreements are concluded for the purchase, construction and improvement of permanent or secondary residential property or residential leased property, as well as for the acquisition of land for the construction of owner-occupied housing. The commission to be charged on the total or partial repayment of the loan shall be applied on the principal to be repaid and shall not exceed 0.5% in floating rate contracts, and 2% in fixed rate contracts. The criteria used in the calculation of interest - 365-day count convention - are also harmonised. At the end of the first year after entry into force of this Decree-Law, the Banco de Portugal shall prepare and disclose a report assessing the impact of its implementation. This Decree-Law shall enter into force on the 30th day after its publication.

- **15 March (Instruction of the Banco de Portugal No 3/2007)**

Amends Instruction No 26/2005 on prevention of the use of the financial system for the purpose of money laundering and terrorist financing (Official Bulletin No 3/2007).

April

- **3 April (Decree-Law No 103/2007, Ministry of Finance and Public Administration, Official Gazette No 66, Series I)**

Transposes into Portuguese law Directive No 2006/49/EC of the European Parliament and of the Council of 14 June 2006 on the capital adequacy of investment firms and credit institutions.

- **3 April (Decree-Law No 104/2007, Ministry of Finance and Public Administration, Official Gazette No 66, Series I)**

Introduces the ninth amendment in the Legal Framework of Credit Institutions and Financial Companies (*Regime Geral das Instituições de Crédito e Sociedades Financeiras*) and transposes into Portuguese law Directive No 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions.

- **18 April (Notice of Banco de Portugal No 4/2007, Official Gazette No 82, Series II)**

Following the publication of Decree-Law No 104/2007 of 3 April, which transposed into Portuguese law Directive 2006/48/EC of the European Parliament and of the Council of 14 June, amends Notice No 12/92, which lays down the main rules on the composition of the own funds of credit institutions and financial companies, for the purposes of calculating prudential ratios and limits.

- **18 April (Notice of Banco de Portugal No 5/2007, Official Gazette No 82, Series II)**

Following the publication of Decree-Law No 104/2007 and Decree-Law No 103/2007 both of 3 April, which transposed into Portuguese law respectively Directive 2006/48/EC of the European Parliament and of the Council of 14 June and Directive 2006/49/EC of the European Parliament and of the Council of 14 June, regulates the calculation of the amount of own funds requirements of credit institutions and investment firms to cover credit risk.

- **18 April (Notice of Banco de Portugal No 6/2007, Official Gazette No 82, Series II)**

Following the publication of Decree-Law No 104/2007 and Decree-Law No 103/2007 both of 3 April, which transposed into Portuguese law respectively Directive 2006/48/EC of the European Parliament and of the Council of 14 June and Directive 2006/49/EC of the European Parliament and of the Council of 14 June, sets out the limits to the concentration of risks of credit institutions and financial companies, having their head office in Portugal – referred to in Article 6 (1) (a) to (g) and (j) of the Legal Framework of Credit Institutions and Financial Companies, approved by Decree-Law No 298/92 of 31 December 1992 – and of the branches set up in Portugal of credit institutions having their head office in non-European Union countries.
- **18 April (Notice of Banco de Portugal No 7/2007, Official Gazette No 82, Series II)**

Following the publication of Decree-Law No 104/2007 of 3 April, which transposed into Portuguese law Directive 2006/48/EC of the European Parliament and of the Council of 14 June, sets out the methodologies for the calculation of the amount of own funds requirements of credit institutions and investment firms to cover credit risk in securitisation transactions.
- **18 April (Notice of Banco de Portugal No 8/2007, Official Gazette No 82, Series II)**

Pursuant to Article 8 (1) (a) and (b) of Decree-Law No 103/2007 of 3 April, which transposed into Portuguese law Directive 2006/49/EC of the European Parliament and of the Council of 14 June, lays down the procedures to be adopted in the calculation of the amount of own funds requirements to cover market risk.
- **18 April (Notice of Banco de Portugal No 9/2007, Official Gazette No 82, Series II)**

Pursuant to Article 7 (1) (d) of Decree-Law No 104/2007 of 3 April, which transposed into Portuguese law Directive 2006/48/EC of the European Parliament and of the Council of 14 June, lays down the procedures to be adopted in the calculation of the amount of own funds requirements to cover operational risk.
- **18 April (Notice of Banco de Portugal No 10/2007, Official Gazette No 82, Series II)**

Following the transposition of Directive 2006/48/EC and Directive 2006/49/EC both of the European Parliament and of the Council of 14 June, sets out a reference framework for the disclosure of information by credit institutions and investment firms on risks and respective assessment methods.
- **27 April (Commission Decision 2007/327/EC, OJ L 122)**

Commission Decision on the clearance of the accounts of the paying agencies of Member States concerning expenditure financed by the European Agricultural Guidance and Guarantee Fund (EAGGF), Guarantee Section, for the 2006 financial year (notified under document number C(2007) 1901).
- **30 April (Executive Order No 499/2007 of the Presidency of the Council of Ministers, of the Ministry of Finance and Public Administration and of the Ministry of Justice, Official Gazette No 83, Series I)**

In accordance with the provisions set out in Article 4 (1), Article 6 (2) and Article 9 (1) and (2) of Decree-Law No 8/2007 of 17 January, lays down the rules on the reporting of simplified corporate data by electronic means. In parallel, this Executive Order regulates the way how the Ministry of Finance and Public Administration makes available the information to be sent to the Ministry of Justice, *Instituto Nacional de Estatística* (National Statistical Institute), and Banco de Portugal.
- **30 April (Instruction of Banco de Portugal No 9/2007, BNPB No 5/2007)**

Lays down that the External Credit Assessment Institutions' (ECAIs) credit assessment may be used for the determination of the risk-weighted exposure amounts and securitisation positions.

- **30 April (Instruction of Banco de Portugal No 10/2007, BNPB No 5/2007)**

For the purposes of calculating risk-weighted exposure amounts, indicates the recognised External Credit Assessment Institutions (ECAIs), and determines with which credit quality step each credit assessment shall be associated (mapping).
- **30 April (Instruction of Banco de Portugal No 11/2007, BNPB No 5/2007)**

Indicates the specific items of information that institutions shall communicate to the Banco de Portugal for the purposes of compiling the application for authorisation to use the Internal Ratings Based Approach (IRB) (credit risk), the Standardised Approach and the Advanced Measurement Approach (AMA) (operational risk).
- **30 April (Instruction of Banco de Portugal No 12/2007, BNPB No 5/2007)**

Sets out the procedures to be adopted (methodologies) in the internal validation process of rating systems.
- **30 April (Instruction of Banco de Portugal No 13/2007, BNPB No 5/2007)**

Regulates the involvement and implicit support in securitisation transactions. Revokes Instruction No 1/2005, published in the Official Bulletin No 3 of 15 March 2005, which however shall remain in force until 31 December 2007, as regards the institutions exercising the discretion laid down in Article 33 (1) of Decree-Law No 104/2007 of 3 April.
- **30 April (Instruction of Banco de Portugal No 14/2007, BNPB No 5/2007)**

Sets out the indices and correlated currency pairs and recognises the eligible investment firms, stock exchanges and clearing houses for the purposes of capital adequacy. Revokes Instruction No 23/97, published in BNPB No 4 of 15 April 1997, which however shall remain in force until 31 December 2007, as regards the institutions exercising the discretion laid down in Article 23 (1) of Decree-Law No 103/2007 of 3 April, or in Article 33 (1) of Decree-Law No 104/2007 of 3 April.
- **30 April (Instruction of Banco de Portugal No 15/2007, BNPB No 5/2007)**

Lays down that institutions shall have an assessment process to ensure that the internal capital is adequate to cover risks and that it remains proportionate to the risk profile. This Instruction shall enter into force on 1 January 2008 as regards the institutions exercising the discretion laid down in Article 17 (5), Article 26 (4), or in Article 33 (1), all of Decree-Law No 104/2007 of 3 April.
- **30 April (Instruction of Banco de Portugal No 17/2007, BNPB No 5/2007)**

Defines risk concentration and sets out the different types of risk monitoring by institutions.
- **30 April (Instruction of Banco de Portugal No 18/2007, BNPB No 5/2007)**

Defines the legal framework for the carrying out of stress tests and for the adoption of corrective measures. This Instruction shall enter into force on 1 January 2008, as regards the institutions covered by the derogations foreseen in Articles 33 and 34 of Decree-Law No 104/2007 of 3 April and in Article 23 of Decree-Law No 103/2007 of 3 April.
- **8 May (Decree-Law No 171/2007 of the Ministry of Economy and Innovation, Official Gazette No 88, Series I)**

Lays down the rules governing interest rate rounding when applied to credit and financing contracts signed by credit institutions and financial corporations not covered by the provisions laid down in Decree-Law No 240/2006 of 22 December. This Decree-Law shall apply to credit and financing contracts signed after its entry into force,

May

as well as current contracts, regardless of the borrowed amount and the purpose of the loan. With regard to current contracts, this Decree-Law shall apply as from the date of interest rate refixing, for rounding purposes, which should immediately follow its entry into force. This Decree-Law shall enter into force on the 30th day following its publication.

- **9 May (Decree-Law No 180/2007 of the Ministry of Finance and Public Administration, Official Gazette No 89, Series I)**

Amends Decree-Law No 12/2006 of 20 January, regulating the setting up and operation of pension funds and managing entities of pension funds.
- **10 May (Decree-Law No 184/2007 of the Ministry of Finance and Public Administration, Official Gazette No 90, Series I)**

Regulates the recycling of euro coins by all professional cash handlers, transposing into Portuguese law Commission Recommendation of 27 May 2005 concerning authentication of euro coins and handling of euro coins unfit for circulation. This Decree-Law shall apply to credit institutions and other cash handlers, namely cash-in-transit companies. Such entities shall submit information on their recycling activity to Banco de Portugal, according to the schedule defined by the bank.
- **11 May Decree-Law No 188/2007 of the Ministry of Finance and Public Administration, Official Gazette No 91, Series I**

Harmonises the rules regarding the publication of accounting data of entities subject to the supervision of Banco de Portugal and *Instituto de Seguros de Portugal* (Portuguese Insurance Institute).
- **14 May (Decree-Law No 191/2007 of the Ministry of Finance and Public Administration, Official Gazette No 92, Series I)**

Authorises the issue and sale by *Imprensa Nacional – Casa da Moeda* (the Portuguese Mint) of two silver coins on the European Year of Equal Opportunities for All and the 100th Anniversary of the World Scouting, with a face value of €5, and sets their issue ceilings at €537,500 and €800,000 respectively.
- **15 May (Instruction of Banco de Portugal No 19/2007, BNP 5/2007)**

Lays down the rules and conditions to be complied with by credit institutions and individuals regarding the deposit and exchange of banknotes damaged by anti-theft devices.
- **15 May (Instruction of Banco de Portugal No 20/2007, BNP 6/2007)**

Establishes the places, timetables, rules and conditions according to which euro banknotes may be deposited and withdrawn at Banco de Portugal.
- **15 May (Decree-Law No 195/2007 of the Ministry of Finance and Public Administration, Official Gazette No 93, Series I)**

Regulates the recycling of euro coins by all professional cash handlers, as set forth in Council Regulation (EC) No 1338/2001 of 28 July laying down measures necessary for the protection of the euro against counterfeiting, and the sorting of unfit notes. This Decree-Law shall apply to credit institutions and other cash handlers, namely cash-in-transit companies. Recycling activity shall only be carried out after a contract has been signed with Banco de Portugal.
- **17 May (Notice of Banco de Portugal No 11/2007, Official Gazette No 99, Series II)**

Amends Notice No 6/2003, which lays down the terms and conditions of the publication of accounts of institutions subject to the supervision of Banco de Portugal. This Notice shall enter into force on the date of its publication, and applies to the publication of annual accounts for the 2006 fiscal year.

- **18 May (Notice of Banco de Portugal No 12/2007, Official Gazette No 101, Series II)**

Determines that credit institutions shall allow individuals making credit transfers through ATMs to see the name of the bank account owner or the bank account number prior to the confirmation of the transfers. This Notice shall enter into force 120 days following its publication.
- **21 May (Circular Letter No 19/2007/DPG)**

Requests credit institutions to submit to Banco de Portugal information on the impact of the implementation of Decree-Law No 18/2007 of 22 January, which regulates issues relating to the value date of overnight deposits and transfers made in Portugal and the corresponding deadline for the provision of funds to the beneficiary.
- **23 May (Circular Letter No 41/07/DSBDR)**

Expresses Banco de Portugal's view on the interpretation of Article 8 of Decree-Law No 51/2007 of 7 March, with regard to expenses or fees charged by institutions for the earlier repayment of housing loans or the transfer of such loans to another institution.
- **28 May (Notice of Banco de Portugal No 13/2007, Official Gazette No 107, Series II)**

Amends Notice No 3/2006, in order to render the internal control system more effective and efficient.
- **1 June (Commission Regulation (EC) No 610/2007, OJ L 141)**

In the Annex to Regulation (EC) No 1725/2003, "International Financial Reporting Interpretations Committee's (IFRIC) Interpretation 10 Interim Financial Reporting and Impairment", is inserted as set out in the Annex to this Regulation. Each company shall apply IFRIC 10, as set out in the Annex to this Regulation, as from the commencement date of its 2007 financial year at the latest, except for companies with a November or December commencement date which shall apply IFRIC 10 as from the commencement date of the 2006 financial year at the latest. This Regulation shall enter into force on the 3rd day following its publication in the Official Journal of the European Union.
- **1 June 2007 (Commission Regulation (EC) No 611/2007, OJ L 141)**

In the Annex to Regulation (EC) No 1725/2003, "International Financial Reporting Interpretations Committee's (IFRIC) Interpretation 11 Interim Financial Reporting and Impairment", is inserted as set out in the Annex to this Regulation. Each company shall apply IFRIC 11, as set out in the Annex to this Regulation, as from the commencement date of its 2008 financial year at the latest, except for companies with a January or February commencement date which shall apply IFRIC 11 as from the commencement date of the 2009 financial year at the latest. This Regulation shall enter into force on the 3rd day following its publication in the Official Journal of the European Union.
- **5 June (2006 Annual Report and Accounts Official Gazette No 108, Series II)**

Publishes the 2006 Annual Report and Accounts of Banco de Portugal.
- **6 June (Circular Letter No 18/2007/DET)**

Makes known on the procedures to be observed when signing a contract with Banco de Portugal, resulting from the new legal framework of euro banknotes recycling laid down in Decree-Law No 195/2007 of 15 May. It defines the contract model, provides for migration plans adaptable to the relatively prolonged transition period

June

envisaged in that Decree-Law, and expresses the total availability by Banco de Portugal for the co-operation, training and clarification of any issues.

- **28 June (Circular Letter No 23/2007/DET)**

Provides information on the training courses on euro banknote expert knowledge and detection of counterfeit euro banknotes, which have been promoted by Banco de Portugal for the entities engaged in the recycling of euro banknotes, in accordance with the provisions laid down in Decree-Law No 195/2007 of 15 May. Annexes a questionnaire on the technological and functional needs required for the development of specific training contents (e-learning format).

July

- **8 July (Law No 25/2007 of 18 July, Official Gazette No 137, Series 1)**

Authorises the Government to adjust the legal framework for breaches of regulations within the scope of the implementation of Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004, Commission Directive 2006/73/EC of 10 August 2006, Directive 2004/109/EC of the European Parliament and of the Council of 15 December 2004 and Commission Directive 2007/14/EC of 8 March 2007, to establish limits on the provision of investment advice in financial instruments and marketing of goods and services allocated to investment in tangible assets, and to adapt the legal framework for breaches of regulations to the specificities of this activity. The legal authorisations provided for in this law are valid for 180 days.

- **16 July (Instruction of Banco de Portugal No 21/2007, BNPB 7/2007)**

Revokes Instruction No 29/96, published in the BNPB No 1 of 17 June 1996, on compensatory interest.

- **16 July (Circular Letter No 41/2007/DSB)**

Discloses the understanding of Banco de Portugal regarding the interpretation of Article 8 of Decree-Law No 51/2007 of 7 March, i.e. no fees or commissions shall be charged in the advance repayment of housing loans or when housing credit is transferred from one institution to another, save for the costs borne before a third party, where duly documented.

August

- **1 August (Circular Letter No 63/07/DSBDR)**

Publishes the opinion of Banco de Portugal on credit substitution in securitisation operations, in the wake both of the recent publication of legislation and of developments in market conditions. It replaces Circular-Letter No 75/2003/DSB of 18 August.

- **16 August (Instruction of Banco de Portugal No 23/2007, BNPB 8/2007)**

Determines the prudential information, on an individual or on a consolidated basis, to be mandatorily supplied by credit institutions and some financial corporations. Revokes Instruction No 25/97 published in the BNPB No 5 of 15 May 97. Observations: Instruction published with Circular Letter No 62/2007/DSB of 30 July 2007.

October

- 15 October (Instruction of Banco de Portugal No 24/2007, BNPB 10/2007; entry into force on 1 January 2008)
- 15 October (Instruction of Banco de Portugal No 25/2007, BNPB 10/2007; entry into force on 1 January 2008)

Sets at 0.03% the contributory rate used to calculate the contributions of participating institutions to the Deposit Guarantee Fund in 2008.

Sets at 10% the limit for irrevocable payment commitments applicable to annual contributions in 2008.