Banco de Portugal

EUROSISTEMA

Financial Stability Report | *2007*

Available at
www.bportugal.pt
Publications

BANCO DE PORTUGAL

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Av. Almirante Reis, 71-6th floor
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Distributed by
Administrative Services Department
Av. Almirante Reis, 71-2nd floor
1150-012 Lisboa

Printed by
Tipografia Peres, S.A.

Number of copies printed
180 issues

Legal Deposit no. 227536/05
ISBN 978-989-8061-03-4
ISSN 1646-2246

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PART I – FINANCIAL SYSTEM STABILITY

1. OVERALL ASSESSMENT

The potential for an abrupt correction of the imbalances identified in previous years, which were mainly reflected in the persistence of historically low and poorly differentiated risk *premia* across most credit risk classes, has been a key vulnerability of the global financial systems over the past few years. Since the beginning of the summer of 2007, the deterioration of credit quality in the riskier segment of the US mortgage market (sub-prime) – still surrounded by significant uncertainty regarding the magnitude and distribution of losses amongst the large internationally active banking groups – has transmitted strong instability to the international financial system. The ongoing turbulence in international financial markets, due to its extent and duration, is one of the most serious episodes of recent financial history. In fact, this is an unprecedented situation, considering the difficulties witnessed in most segments of the debt markets in which the financial institutions of advanced economies participate as funds raisers, including the money markets. These events are illustrative of the interconnection between liquidity risk and market risk. In this context, central banks in major advanced economies have paid particular attention to the normalisation of money markets in a wide range of maturities, as they are essential for the monetary policy transmission mechanism.

Instability in international markets, which in the initial phase was more evident in debt markets, but was subsequently reflected in stock price falls and higher volatility in equity markets, has already affected in 2007 the profits and the own funds of Portuguese banks. With regard to profits, there was a reduction in the value of bank portfolios, on the income from services more directly associated with capital market activities, as well as on a lower financial margin growth, the latter reflecting, in part, the rise in financing costs. Nevertheless, the indicators of return on assets (ROA) and return on equity (ROE) adjusted for non-recurrent operations recorded a virtual stabilisation compared to the previous year. In addition, in the second half of 2007, the negative impact on banks' securities portfolios recognised at fair value, but not directly reflected in the profit and loss account (e.g. portfolio of available-for-sale assets), had a direct impact on regulatory own funds, through a reduction in reserves. Still regarding developments in own funds, the high pace of expansion of credit activity, together with the reduced willingness of investors to participate in the primary market for common stock over the second half of 2007, exerted additional pressure on solvency ratios, which decreased significantly in most institutions. Nevertheless, they remained above the regulatory minimum levels. In turn, default indicators based on the outstanding amount of credit overdue (and other non-performing loans) remained at very low levels, similar to those recorded in the previous year. The analysis of the materialisation of credit risk in terms of flows of credit that became non-performing in 2007, shows a significant increase in the figures concerning loans to companies and in the case of households, a stabilisation around the level recorded in 2006 and close to that of 2003.

In the current environment, the main risks to financial stability in Portugal are intrinsically associated with uncertainty about the duration, extent and implications of financial market turbulence, in particular as regards their interaction with developments in economic activity. In this context, Portuguese banks that are the main providers of financing to the non-financial private sector, started to operate in a far less favourable environment, regarding their funding in wholesale international markets.

As the share of credit obtained through funding in these markets accounts for more than half of the resources taken from customers, the persistence of instability in debt markets may imply restrictions on banks' capacity or a reduced willingness to continue accommodating a demand for credit at the pace posted over the last years. According to the replies to the Bank Lending Survey, conducted by the Eurosystem, Portuguese banks started to tighten the credit standards applied to the approval of loans,

although it is not possible to conclude through available evidence that there was a reduction in loans to the non-financial private sector of a quantitative nature and driven by supply. Conversely, persisting pressure in the money market, mirrored in increases in the reference rates more commonly used in credit indexation in Portugal, seems to be already reflected in higher bank lending rates.

Likewise, the rise in financing costs in wholesale markets increased the incentives that banking groups have to compete more actively in attracting savings from the public, and to tailor their marketing strategies in order to attract to their own balance sheet substantial amounts of funds placed in mutual funds or in other banks' off-balance sheet saving instruments. As a result of market turbulence, there were changes in the behaviour of economic agents, who started to prefer investment in instruments not impacted by market conditions. The most immediate results of these changes were the generalised rise in the interest rate of time deposits, the acceleration of resources from retail customers, as well as the strong mutual fund redemptions, in the risk categories traditionally assessed as more similar to bank deposits (money market funds, cash funds and indexed bonds). In addition, maturities of banks' market financing were shortened.

As discussed earlier, the capacity of Portuguese banks to withstand the unfavourable conditions in funding markets is remarkable, in particular, if account is taken of the magnitude, extent and persistence of instability in these markets that largely reflected a broadly based decline in counterparties' confidence. Indeed, the pressure faced by Portuguese banks in their liquidity position as from the second half of 2007 has translated into a deterioration of liquidity indicators, which mirror the use of assets and the refinancing at the shorter maturities. This has occurred against a background of unchanged pace of growth of credit to the non-financial private sector. In line with the above, these events strengthen the importance of banks having in place liquidity management systems that take into account sudden changes in market conditions, namely by establishing and maintaining counterparty relationships in several financial market segments. In this context, it is desirable that financing sources are diversified by type of instrument, investor, and geographical market of debt placement, in order to create additional buffers to accommodate shocks of this nature, without the financial intermediation functions of banks being affected.

The evidence already available for first quarter of 2008 points to a significant reduction in earnings of the main listed banking groups, resulting chiefly from unfavourable developments in stock prices. It should be noted that persistent volatility in stock prices remains one of the major risk factors conditioning the profitability and solvency of Portuguese banks in 2008, either via the direct impact on their own portfolio of shares or indirectly through the pension funds of their employees, or via the impact on those fees related to intermediation of capital market operations or asset management. With respect to solvency, still in 2007, some of the major banking groups started to plan capital increases through the issuance of common stock. These operations have already been concluded by the two largest banks. Already in the second quarter of 2008 financing conditions in debt markets have been eased. This followed a relatively protracted period of unfavourable market conditions to the conduct of operations and enabled Portuguese banks to issue significant amounts of debt in May, albeit with shorter maturities than in previous years.

Nevertheless, in the current environment, a large degree of uncertainty remains around the repercussions of instability in the wholesale funding markets of banks in advanced economies and, in particular in what concerns the outlook for global economic growth. In this context, one of the vulnerabilities of the global economy relates to the how the housing market will continue to adjustment, in particular in the economies that had recorded continued high growth in housing prices and, more generally, from the ensuing consequences for the functioning of the mortgage market. In turn, there are some signs that credit risk may be materialising more intensely in a wider range of credit market segments in the

United States, namely a reduction of corporate earnings growth in cyclical sectors and in the deteriorating prospects for concerning demand faced by companies. Potential exchange rate instability and its implications for the global economy, associated with a possible abrupt correction of the global macroeconomic imbalances, remain risk factors for financial stability. Moreover, the conduct of monetary policy is facing challenges, as a result of the strong rise in energy and food prices, which may exert inflationary pressures, against a background of foreseeable slowdown in economic activity.

Looking ahead, in the current context of increased difficulties in wholesale market funding by banks, it is important to understand the factors behind the maintenance of historically low default levels in the credit portfolios of Portuguese banks, in line with what has been witnessed in most banking systems in the advanced economies. In fact, the aggregate indebtedness of the non-financial private sector is among the highest within the European Union and its growth remains robust. This has raised questions about its sustainability in the most vulnerable segments of the household and corporate sectors. Turning to companies, it should be noted that the profitability of a panel of large companies, for which more accurate and timely data are available, which represent a very significant share of the portfolio of credit granted by banks to companies, remained favourable in 2007, despite the rise in interest rates. By contrast, data on the remaining smaller companies continue to point, albeit more indirectly and with a higher degree of uncertainty, to a reduction in earnings in 2007, largely associated with an increase in expenditure on debt interest. With regard to households, according to the latest microeconomic data available, between 2000 and 2006 the household participation rate in the credit market continued to increase as well as average indebtedness. Some more vulnerable situations have also been detected, in particular among youngsters and in the segments of the population with lower income. However, more intense default in these segments are not assessed as putting financial stability at stake, as these households account for a relatively small share of banks' portfolios. Nevertheless, the persistence of instability in wholesale funding markets may restrict the adoption of strategies by banks enabling the adjustment of contractual conditions to the ability of debtors to service debt. In previous years, this involved, inter alia, the lengthening of loan maturities and the postponement of principal repayments in loans to the private sector. This scenario is a good example of the close connection between banks' liquidity risk and credit risk, as households and companies that are expected to be more intensively constrained in the rescheduling and/or restructuring of their debt, also have higher default probabilities.

In turn, the disturbances seen in the past few months made it clear that the functioning and regulation of the global financial system needs to be revisited. Although Portuguese banks are not exposed to the sub-prime market, its developments are relevant for Portuguese banking groups, as they are financially integrated at the global level, either through the transaction of other financial instruments (for their own account or for the account of customers), or through the way they access wholesale funding markets. Thus, although it may be too early to draw a conclusion on the impact and consequences of the events occurred in this period, it is already possible to enumerate several issues that should be discussed in greater detail at international level. At a first glance, recent events illustrate that under the current framework, the financial intermediation model based upon the "originate and distribute" concept, in many cases, implied a misalignment of the incentives between several players in the process. These players include not only the parties directly intervening in the transaction of assets in securitisations, but also the rating agencies, whose role should be reassessed, in particular taking into account the conflicts of interest in the rating of the securities resulting from these transactions. Another lesson to be drawn relates to the strategic role of liquidity assessment and management in banks' and other financial institutions overall management. This process should not only encompass clearly identified on-balance sheet liabilities, but also contingent and/or reputational liabilities, namely those associated with the issuance of financial instruments related to these institutions (e.g. conduits).

Hence, it may require a revision of the regulatory framework, as well as of the cooperation and coordination mechanisms between authorities with responsibilities in this field, namely, supervisory authorities, central banks and supra-national institutions in charge of monitoring national economies and financial systems. In this sense, the greatest challenge ahead consists in the design of regulatory frameworks, supervisory instruments, transparency and information dissemination requirements compatible with the current level of development and sophistication of the global financial system, while avoiding the assumption of disproportionate risks.

The cut-off date for data was mid-May 2008, except the IMF World Economic Outlook and Monetary and Financial Statistics.

MAIN INDICATORS (to be continued)
Per cent; end-of-period figures

	2001	2002	2003	2004	2005	2006	2007
Macroeconomic and financial indicators							
Real GDP (rate of change)							
US	0.8	1.6	2.5	3.6	3.1	2.9	2.2
Euro area	1.9	0.9	0.8	2.1	1.6	2.8	2.6
Portugal	2.0	0.8	-0.8	1.5	0.9	1.3	1.9
Fiscal Balance (as a percentage of GDP)							
US	-0.4	-3.8	-4.8	-4.4	-3.6	-2.6	-2.5
Euro area	-1.9	-2.6	-3.1	-2.9	-2.6	-1.4	-0.6
Portugal	-4.3	-2.9	-2.9	-3.4	-6.1	-3.9	-2.6
Current account balance (as a percentage of GDP)							
US	-3.8	-4.4	-4.8	-5.5	-6.1	-6.2	-5.3
Euro area	0.1	0.7	0.5	1.1	0.2	-0.1	-0.2
Portugal	-9.9	-8.1	-6.1	-7.6	-9.5	-10.1	-9.9
Oil price (USD brent; y-o-y rate of change)	-13.6	46.6	-1.2	34.0	44.4	5.5	56.1
Key interest rates - Monetary policy							
US	1.75	1.25	1.00	2.25	4.25	5.25	4.25
Euro area	4.25	3.75	3.00	3.00	3.25	4.50	4.00
3-month Euribor	3.3	2.9	2.1	2.2	2.5	3.7	4.7
Yields on (10-year) Government bonds							
US	5.0	3.8	4.3	4.2	4.4	4.7	4.0
Euro area	5.0	4.2	4.3	3.7	3.3	4.0	4.3
Stock markets (annual rate of change)							
S&P 500	-13.0	-23.4	26.4	9.0	3.0	13.6	3.5
Dow Jones Euro Stoxx	-19.7	-34.5	18.1	10.0	23.0	20.3	4.9
PSI Geral	-19.0	-20.7	17.4	18.0	17.2	33.3	18.3
PSI Financial Services	-14.6	-24.8	4.0	12.0	24.4	34.8	4.9
Financial situation of the non-financial private sector							
Households							
Indebtedness							
As a percentage of GDP	64	68	73	78	83	88	91
As a percentage of disposable income	90	97	103	110	116	123	129
Loans granted by resident financial institutions [a]							
Annual rate of change	12.7	11.3	11.0	9.8	10.1	9.8	9.2
of which:							
Housing purposes	14.9	16.0	11.8	10.5	11.1	9.9	8.5
Consumption and other purposes	7.5	-0.1	8.7	7.4	6.8	9.4	11.7
Net lending (+) / borrowing (-) [b]							
As a percentage of GDP	2.7	3.0	3.1	2.8	3.2	1.8	1.3
As a percentage of disposable income	3.8	4.3	4.4	4.0	4.5	2.5	1.8
Currents savings [b]							
As a percentage of GDP	7.8	7.5	7.5	6.9	6.6	6.0	5.5
As a percentage of disposable income	10.9	10.6	10.5	9.7	9.2	8.4	7.9
Investment in real assets [b]							
As a percentage of GDP	6.5	6.1	5.1	5.1	5.1	4.9	4.7
Non-financial corporations							
Total debt [c]							
As a percentage of GDP	95	95	100	99	104	107	114
Annual rate of change	12.6	5.2	7.1	5.6	7.8	7.0	12.4
Financial debt [d]							
As a percentage of GDP	90	91	94	91	96	99	107
Loans granted by resident financial institutions [a]							
Annual rate of change	15.5	7.3	5.4	3.2	4.1	6.2	12.5
Net lending (+) / borrowing (-) [b]							
As a percentage of GDP	-7.2	-6.4	-4.7	-4.5	-5.9	-7.8	-8.8
Currents savings [b]							
As a percentage of GDP	7.6	7.6	8.2	8.1	6.6	5.0	4.3
Investment in real assets [b]							
As a percentage of GDP	15.9	14.9	13.8	13.6	13.7	13.0	14.2

Notes: y-o-y year-on-year. n.a. not available. **(a)** Loans granted by monetary financial institutions and other financial intermediaries adjusted for securitisations conducted through non-resident special purpose vehicles. **(b)** Net lending / borrowing, savings and investment ratios to GDP up to 2005 use National Accounts base 2000; 2006 and 2007 ratios correspond to Banco de Portugal estimates. **(c)** It includes loans granted by resident and non-resident credit institutions, loans/additional capital by non-resident intra-group corporations (excluding those granted to non-financial corporations having their head-office in Madeira's off-shore), commercial paper and bonds issued by non-financial corporations held by other sectors and trade credits received from other sectors. **(d)** Total debt excluding trade credits and including loans granted to non-financial corporations having their head-office in Madeira's off-shore. It corresponds to the financial accounts instruments "Securities other than shares" and "Loans".

MAIN INDICATORS (continued)
Per cent; end-of-period figures

	2001	2002	2003	2004	2004*	2005*	2006*	2006**	2007**
Profitability									
ROE - Return on equity [e]	17.8	14.1	16.2	14.5	13.1	19.4	20.6	20.6	18.0
ROE - Return on equity - ajusted [e], [f]							18.9	18.8	
ROA - Return on assets [e]	1.01	0.78	0.91	0.87	0.65	1.03	1.30	1.25	1.13
ROA - Return on assets - ajusted [e], [f]							1.18	1.15	
Financial margin (as a percentage of average assets)	2.24	2.12	2.00	1.94	1.91	1.86	1.89	1.87	1.86
Income from services and commissions (net, as a percentage of average assets)	0.63	0.63	0.69	0.76	0.72	0.77	0.78	0.75	0.74
Cost to income ratio	57.6	59.1	57.4	57.2	71.7	58.3	53.4	53.5	53.2
Capital adequacy									
Overall capital adequacy ratio	9.5	9.8	10.0	10.4	10.2	11.3	10.9	11.0	10.2
Market risk									
Net open position in equities to regulatory capital	n.a.	n.a.	n.a.	n.a.	1.8	1.3	2.6	2.6	2.3
Coverage ratio of the pension funds of bank employees (as a percentage of regulatory capital)	-1.8	-0.8	0.1	-0.4	-0.4	1.2	5.3	5.1	4.9
Liquidity risk									
Credit-to-deposit ratio	122.7	129.5	129.1	128.3	130.9	137.5	145.6	146.7	154.9
Coverage ratio of interbank liabilities by highly liquid assets	85.6	80.0	100.7	99.5	110.0	98.5	99.2	87.6	77.1
Liquidity gap [g]									
Up to 3 months	-2.2	-2.4	1.6	2.4	1.4	-0.9	-1.5	-0.6	-1.9
Up to 1 year	-6.4	-7.2	-6.3	-3.6	-5.4	-8.2	-8.9	-7.1	-9.7
For domestic banks									
Credit-to-deposit ratio	121.1	125.6	124.8	127.2	129.2	134.2	140.6	139.3	149.0
Coverage ratio of interbank liabilities by highly liquid assets	88.1	91.6	120.1	120.8	127.3	126.5	115.7	118.1	107.2
Liquidity gap [g]									
Up to 3 months	-3.5	-3.4	0.5	0.7	0.6	-0.7	-0.9	-0.8	-2.1
Up to 1 year	-7.8	-7.6	-6.5	-4.8	-5.4	-7.4	-8.9	-8.5	-9.9
Credit risk									
Loans granted by resident financial institutions to the non-financial private sector [a]									
Annual rate of change	14.1	9.3	8.3	6.6	6.6	7.4	8.2	8.2	10.7
Credit and interest overdue (on a consolidated basis)									
As a percentage of credit to customers	2.2	2.3	2.4	2.0	1.8	1.7	1.5	1.5	1.5
As a percentage of assets	1.4	1.6	1.6	1.3	1.3	1.1	1.0	1.0	1.0
Non-performing loans of households									
As a percentage of loans to households	2.0	2.1	2.4	2.2	2.2	2.0	1.7	1.7	1.7
Non-performing loans of non-financial corporations									
As a percentage of loans to non-financial corporations	2.4	2.4	2.1	1.7	1.7	1.7	1.5	1.5	1.5
Annual flow of new credit overdue and other credit considered to be doubtful [h]									
As a percentage of bank loans adjusted for securitisation transactions									
Households	0.43	0.38	0.58	0.21	0.21	0.22	0.36	0.36	0.44
Adjusted for sales outside the banking system						0.28	0.47	0.47	0.47
Non-financial corporations	0.74	0.76	0.56	0.52	0.52	0.60	0.42	0.42	0.56
Adjusted for sales outside the banking system						0.62	0.47	0.47	0.61
International exposure (for domestic banks):									
Share of external assets in total assets [i]	19.8	18.1	21.6	20.5	30.3	27.6	29.0	31.7	26.0
of which:									
Local assets denominated in local currency	1.8	1.2	1.7	1.6	7.1	6.4	6.4	7.0	7.8
International assets by counterparty sector:									
Banking sector	10.6	8.3	14.1	14.8	13.6	12.7	13.6	14.8	8.2
Non-banking sector	7.4	8.5	5.8	4.0	9.6	8.5	9.0	9.8	10.0

Sources: Bloomberg, IMF, *INE*, Reuteurs, Thomson Financial Datastream and Banco de Portugal.
Notes: y-o-y year-on-year; n.a. not available. *The break in the series results from the implementation of the International Accounting Standards (IAS), which also implied a redefinition of the group of banking institutions under analysis. ** Break in the series related to the widening of the group of banking institutions under analysis, due to the inclusion of institutions that only started preparing their financial statements according to the IAS in 2006. Breaks in the series do not apply to indicators based on Monetary and Financial Statistics, which consider resident banking institutions. **(e)** ROE and ROA indicators are based on Income before taxes and minority interests, considering average values for the period for the stocks variables. **(f)** The adjusted profitability indicators are obtained after deducting from profit and loss account the impact of the restructuring of participating interests in companies (namely in the insurance sector) in one of the major banking groups considered in the analysis. **(g)** 2005, 2006 and 2007 figures were reported according to the valuation criteria used in the IAS. **(h)** Change in amounts outstanding of credit overdue and other non-performing loans recorded in the balance sheet of resident MFIs plus write-offs/write-downs as a percentage of bank loans adjusted for securitisations. Sales outside the banking system included in the adjusted flow correspond to credit overdue and other non-performing loans not written-off, in accordance with the quarterly report defined in Instruction of Banco de Portugal No 2/2007. **(i)** From 2004 onwards, figures on external assets are based on a new information report. Comparable figures for 2004, 2005 and 2006 are based on estimates on total assets for the whole set of domestic banks. Comparable figures for 2006 and 2007 are based on assets for domestic institutions.

BALANCE SHEET OF THE BANKING SYSTEM
On a consolidated basis

	EUR millions			As a percentage of total assets					Year-on-year rate of change (per cent) [a]				
	2006	2007		2006	2007				2006	2007			
	Dec.	Jun.	Dec.	Dec.	Mar.	Jun.	Sep.	Dec.	Dec.	Mar.	Jun.	Sep.	Dec.
Cash and claims on central banks	7 156	5 144	8 105	1.9	1.6	1.3	1.5	1.9	11.3	19.3	-9.8	6.3	13.3
Claims on other credit institutions	3 991	3 314	4 022	1.1	0.8	0.8	1.0	1.0	11.5	2.1	-17.2	22.1	0.8
Investment in credit institutions	37 850	38 730	36 981	10.2	8.8	9.7	9.5	8.8	0.7	4.0	18.7	13.2	-2.3
Portfolio of financial asset securities	49 607	57 372	55 264	13.3	14.3	14.4	13.6	13.2	18.1	15.9	21.5	12.7	11.4
Financial assets at fair value through profit or loss	22 635	26 644	22 742	6.1	6.5	6.7	6.2	5.4	11.0	11.3	18.8	5.8	0.5
Equity	1 684	1 544	1 691	0.5	0.5	0.4	0.3	0.4	52.6	6.7	26.9	-28.4	0.4
Debt instruments	14 500	17 261	13 173	3.9	4.3	4.3	3.9	3.1	4.2	7.7	13.0	1.1	-9.1
Other	6 451	7 839	7 877	1.7	1.7	2.0	1.9	1.9	20.2	23.4	32.2	27.3	22.1
Available-for-sale financial assets	20 323	24 244	26 566	5.5	6.1	6.1	5.9	6.3	28.0	21.7	29.7	25.6	30.7
Equity	6 153	7 903	7 766	1.7	1.8	2.0	1.8	1.9	45.8	43.1	68.0	29.6	26.2
Debt instruments	13 724	15 865	18 100	3.7	4.0	4.0	4.0	4.3	28.7	18.5	22.9	23.6	31.9
Other	446	475	700	0.1	0.2	0.1	0.2	0.2	-56.2	-40.1	-55.6	35.3	57.0
Investment held to maturity	1 060	1 090	1 116	0.3	0.3	0.3	0.3	0.3	-7.6	9.6	20.9	26.5	5.3
Hedging derivatives	1 501	2 058	1 376	0.4	0.4	0.5	0.3	0.3	34.3	48.9	44.4	-0.4	-8.3
Investment in subsidiaries	4 089	3 335	3 465	1.1	1.1	0.8	0.9	0.8	17.1	6.0	-11.6	-6.4	-15.3
Net credit to customers	239 028	254 727	275 676	64.1	64.7	64.0	65.1	65.8	11.5	13.0	14.0	16.9	15.3
Gross credit	244 434	260 493	281 666	65.6	66.2	65.4	66.6	67.3	11.2	12.6	13.8	16.4	15.2
of which: overdue credit to customers	3 604	4 068	4 252	1.0	1.1	1.0	1.0	1.0	-4.7	5.3	8.1	5.9	18.0
Impairment and value adjustments in credit to customers	-5 405	-5 766	-5 990	-1.5	-1.5	-1.4	-1.4	-1.4	-1.2	0.0	3.5	-0.8	10.8
Securitised non-derecognised assets	16 199	18 541	19 317	4.3	5.0	4.7	4.7	4.6	8.5	28.4	26.3	3.9	19.2
of which: credit to customers	16 181	18 541	19 320	4.3	5.0	4.7	4.7	4.6	8.4	28.1	26.3	3.9	19.4
Tangible and intangible assets	4 401	4 627	4 880	1.2	1.2	1.2	1.1	1.2	8.9	13.0	12.5	9.8	10.9
Other assets	14 441	15 784	14 415	3.9	3.6	4.0	3.5	3.4	-3.6	0.3	14.5	7.3	-0.2
Total assets	**372 674**	**398 238**	**418 660**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**10.5**	**12.7**	**15.3**	**14.7**	**12.3**
Resources from central banks	1 901	2 213	5 550	0.5	0.5	0.6	1.0	1.3	-72.0	-75.3	-74.2	139.8	191.9
Resources from other credit institutions	60 862	67 496	66 671	16.3	16.7	16.9	16.1	15.9	10.5	14.7	14.1	5.1	9.5
Resources from customers and other loans	166 678	165 971	181 815	44.7	42.8	41.7	42.5	43.4	5.0	6.6	6.4	11.8	9.1
Liabilities represented by securities	82 774	95 502	96 875	22.2	23.4	24.0	23.8	23.1	29.4	32.0	43.5	23.0	17.0
Subordinated liabilities	10 112	10 099	11 142	2.7	2.7	2.5	2.5	2.7	-0.8	1.4	1.2	5.1	10.2
Financial liabilities held for trading	7 277	9 848	9 985	2.0	2.1	2.5	2.5	2.4	25.3	36.5	40.8	46.3	37.2
Hedging derivatives	1 881	2 777	2 002	0.5	0.5	0.7	0.5	0.5	82.4	62.9	81.1	5.0	6.4
Liabilities for non-derecognised assets in securitisation operations	4 226	4 941	4 592	1.1	1.3	1.2	1.5	1.1	74.8	73.7	77.5	45.9	8.7
Other liabilities	13 831	14 242	14 053	3.7	3.5	3.6	3.5	3.4	-7.1	-2.3	12.5	14.2	1.6
Total liabilities	**349 543**	**373 089**	**392 685**	**93.8**	**93.5**	**93.7**	**93.8**	**93.8**	**9.8**	**12.1**	**15.1**	**14.9**	**12.3**
Capital	23 131	25 149	25 974	6.2	6.5	6.3	6.2	6.2	22.2	22.1	17.9	12.5	12.3
Total liabilities and net wealth	**372 674**	**398 238**	**418 660**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**10.5**	**12.7**	**15.3**	**14.7**	**12.3**

Source: Banco de Portugal.
Note: (a) In 2006 year-on-year rates of change were based on the thirteen banking groups considered in the Banco de Portugal *Financial Stability Report-2006*, due to lack of comparable financial statements for the banking sector as a whole in 2005 and 2006.

PROFIT AND LOSS ACCOUNT

On a consolidated basis

	EUR millions				As a percentage of average assets [a]				Year-on-year rate of change (per cent) [b]			
	2006	2007			2006	2007			2006	2007		
	Year	S1	S2	Year	Year	S1	S2	Year	Year	S1	S2	Year
1. Interest income	18790	11294	13194	24488	5.43	5.94	6.48	6.21	23.5	28.7	31.7	30.3
2. Interest expenses	12322	7715	9434	17149	3.56	4.06	4.63	4.35	31.1	36.8	41.1	39.2
3. Financial margin (1-2)	**6468**	**3579**	**3760**	**7339**	**1.87**	**1.88**	**1.85**	**1.86**	**11.3**	**14.2**	**12.8**	**13.5**
4. Income from capital instruments	168	158	46	203	0.05	0.08	0.02	0.05	-24.2	12.1	68.1	21.1
5. Income from services and commissions (net)	2602	1333	1600	2933	0.75	0.70	0.79	0.74	11.8	7.1	17.8	12.7
6. Income from financial assets and liabilities measured at fair value	-54	303	-473	-170	-0.02	0.16	-0.23	-0.04	-	-	-	213.4
7. Income from available-for-sale financial assets	445	400	683	1083	0.13	0.21	0.34	0.27	-31.4	77.5	210.5	143.2
8. Income from foreign exchange revaluation	563	110	293	403	0.16	0.06	0.14	0.10	837.8	-64.9	17.4	-28.4
9. Income from the sale of other financial assets	777	194	112	306	0.22	0.10	0.06	0.08	107.3	-61.4	-59.3	-60.6
9.a) Income from the sale of other financial assets - adjusted	*468*	*194*	*112*	*306*	*0.14*	*0.10*	*0.06*	*0.08*	*22.7*	*0.8*	*-59.3*	*-34.6*
10. Other operating profit and loss	643	265	355	619	0.19	0.14	0.17	0.16	42.8	-13.6	5.2	-3.7
10.a) Other operating profit and loss – adjusted	*624*	*265*	*355*	*619*	*0.18*	*0.14*	*0.17*	*0.16*	*38.1*	*-7.6*	*5.2*	*-0.7*
11. Gross income (3+4+5+6+7+8+9+10)	**11612**	**6341**	**6375**	**12716**	**3.35**	**3.34**	**3.13**	**3.23**	**11.0**	**10.6**	**8.4**	**9.5**
11.a) Gross income - adjusted (3+4+5+6+7+8+9.a+10.a)	***11283***	***6341***	***6375***	***12716***	***3.26***	***3.34***	***3.13***	***3.23***	***7.7***	***17.4***	***8.4***	***12.7***
12. Staff costs	3530	1719	2000	3719	1.02	0.90	0.98	0.94	1.5	1.1	9.3	5.4
13. General administrative costs	2226	1165	1363	2528	0.64	0.61	0.67	0.64	3.3	11.1	15.8	13.6
14. Depreciation and amortisation	462	239	276	515	0.13	0.13	0.14	0.13	-4.2	7.0	15.5	11.4
15. Provisions net of restitutions and annulments	149	125	67	192	0.04	0.07	0.03	0.05	-30.7	98.0	-22.2	28.8
16. Impairment losses and other net value adjustments	1135	736	870	1606	0.33	0.39	0.43	0.41	-6.0	43.4	39.8	41.4
17. Negative consolidation differences	0	-4	-9	-12	0.00	0.00	0.00	0.00	-	-	-	-
18. Appropriation of income from associates and joint ventures (equity method)	231	190	108	298	0.07	0.10	0.05	0.08	6.4	24.7	36.7	28.8
18. a) Appropriation of income from associates and joint ventures (equity method) - adjusted	*189*	*190*	*108*	*298*	*0.05*	*0.10*	*0.05*	*0.08*	*-13.0*	*72.3*	*36.7*	*57.5*
19. Income before taxes and minority interests (11-12-13-14-15-16-17+18)	**4341**	**2552**	**1915**	**4467**	**1.25**	**1.34**	**0.94**	**1.13**	**37.8**	**9.2**	**-4.5**	**2.9**
19a) Income before taxes and minority interests - adjusted (11.a-12-13-14-15-16-17+18.a)	***3970***	***2552***	***1915***	***4467***	***1.15***	***1.34***	***0.94***	***1.13***	***25.4***	***29.8***	***-4.5***	***12.5***
20. Taxes on profit	776	434	276	710	0.22	0.23	0.14	0.18	80.0	25.6	-35.9	-8.5
21. Income before minority interests (19-20)	**3565**	**2118**	**1639**	**3757**	**1.03**	**1.11**	**0.80**	**0.95**	**31.2**	**6.4**	**4.1**	**5.4**
21.a) Income before minority interests - adjusted (19.a-20)	***3194***	***2118***	***1639***	***3757***	***0.92***	***1.11***	***0.80***	***0.95***	***16.9***	***30.7***	***4.1***	***17.6***
22. Minority interests	607	388	295	683	0.18	0.20	0.14	0.17	51.2	8.4	18.6	12.6
23. Net profit and loss (21-22)	**2958**	**1729**	**1344**	**3074**	**0.85**	**0.91**	**0.66**	**0.78**	**27.8**	**5.9**	**1.4**	**3.9**
23.a) Net profit and loss - adjusted (21.a-22)	***2587***	***1729***	***1344***	***3074***	***0.75***	***0.91***	***0.66***	***0.78***	***10.9***	***37.1***	***1.4***	***18.8***

Source: Banco de Portugal.

Note: The adjustment in some of the items in 2006 refers to the deduction of the effect of the restructuring of participating interests in corporations of the insurance sector carried out by one of the major banking groups considered in the analysis. However, the corresponding adjustment was not made in the items of taxes on profits and (net) minority interests (20 and 22). (a) Half-year data are annualised. (b) In 2006 year-on-year rates of change were based on the thirteen banking groups considered in Banco de Portugal, *Financial Stability Report-2006* due to lack of comparable financial statements for the banking sector as a whole in 2005 and 2006.

CAPITAL ADEQUACY OF THE BANKING SYSTEM
On a consolidated basis

	EUR millions						Year-on-year rate of change	
	2004	2005	2006	2006	2007		2005	2006
	Dec.	Dec.	Dec.	Dec.	Jun.	Dec.	Dec.	Dec.
							Per cent	
1. Own funds	19 975	23 719	25 360	26 582	27 346	28 680	7.1	7.9
1.1. Original own funds	13 729	14 891	17 851	18 917	18 495	18 806	20.0	-
1.2. Additional own funds	8 337	10 776	9 914	10 076	9 932	10 603	-7.7	-
1.3. Deductions	2 092	1 948	2 405	2 415	1 102	745	23.4	-
1.4. Supplementary own fund	1	0	0	4	20	17		
2. Own funds requirements	15 679	16 830	18 599	19 292	21 055	22 431	10.5	16.3
							Percentage points	
3. Ratios (per cent)								
3.1. Own funds / Total requirements	127.4	140.9	136.4	137.8	129.9	127.9	-4.2	-9.9
3.2. Own funds / (Total requirements x 12.5)	10.2	11.3	10.9	11.0	10.4	10.2	-0.3	-0.8
3.3. Original own funds / (Total requirements x 12.5)	7.0	7.1	7.7	7.8	7.0	6.7	0.6	-1.1

Source: Banco de Portugal.
Note: The break in the series corresponds to a widening of the group of institutions under analysis in this Report to include institutions that adopted the IAS in 2006. In 2007 it is not possible to calculate the rates of change for own funds items, since some items previously belonging to "Deductions" are now directly deducted from original and additional own funds.

2. MACROECONOMIC AND FINANCIAL RISKS

2.1. Overview

The 2006 issue of Banco de Portugal's Financial Stability Report identified a number of risks and vulnerabilities for global financial stability, which were closely interlinked. The financial market turmoil observed since the summer of 2007 showed that some of these vulnerabilities did pose important challenges to global financial stability. In the present juncture, the main risk to financial stability at a global level is related to the uncertainty surrounding the duration, extent and implications of financial market turbulence. Risk dissemination across the financial system and the economy worldwide has been giving rise to increased difficulties in its identification and evaluation. Moreover, the management and alignment of the incentives of agents involved in this process has also been originating some moral hazard problems. Against this background, some uncertainty persists as to the magnitude and distribution of losses of large internationally-active banking groups, due to their exposure, either direct or indirect, to the US subprime market and to related structured products.

Financial market instability has more markedly affected financial sector firms, which have experienced some difficulties in access to wholesale market funding. The overall increase in bank financing costs has spilled over into a tightening of credit standards applied in loans in the United States, the United Kingdom and the euro area. In general, the financial market turmoil is contributing to a decline in the profitability of the banking system worldwide, exerting some pressure on its liquidity and capital base. The tightening of credit standards for loans and the increase in financing costs are expected to have an effect on consumption and investment decisions of the non-financial private sector. The prevailing uncertainty, the fall in confidence among economic agents and the negative shocks on wealth shall contribute to worsen this situation. Projections for economic growth worldwide have therefore been revised downwards, with risks strongly biased to the downside. The deceleration of economic activity should be particularly significant in the United States, in the context of a deterioration of the situation in the real estate market. However, the consequences of the current financial market turmoil and the slowdown in the US economy may also negatively affect economic growth in other advanced economies (including the euro area) and emerging market economies.

Against this background, interactions between the financial system and the real economy gain particular relevance. In effect, a strong slowdown in the economy would give rise to additional pressures on the international financial system. In turn, this may raise restrictions on credit, and lead to an additional deterioration of economic growth prospects. The amplifying effect of these interaction mechanisms between the real economy and the financial system is one of the major risks to global financial stability and economic growth.

In the current instability and uncertainty situation, there are some intertwined elements of risk and vulnerability at a global level, which may be critical to financial stability in the near future. First, the ongoing adjustment process in real estate markets in the US and in other countries with recent episodes of buoyant growth in real estate prices is critical to global financial stability. In turn, the difficulties in access to financing and the deterioration of macroeconomic conditions may give rise to significant downward pressures on the profitability of non-financial corporations worldwide, which may trigger additional disturbances in financial markets, in particular in stock markets. The increase in credit risk, which has been spilling over into different credit market segments in the United States, is also an important risk to overall financial stability. In addition, the persistence of global macroeconomic imbalances and the implications for the world economy of a possible abrupt correction of such imbalances

Table 2.1.1

MAIN MACROECONOMIC INDICATORS

	2003	2004	2005	2006	2007
Rate of change in real GDP					
United States	2.5	3.6	3.1	2.9	2.2
Euro area	0.8	2.1	1.6	2.8	2.6
Portugal	-0.8	1.5	0.9	1.3	1.9
Year-on-year rate of change in the Consumer Price Index					
United States	2.3	2.7	3.4	3.2	2.9
Euro area (harmonised index)	2.1	2.1	2.2	2.2	2.1
Portugal (harmonised index)	3.3	2.5	2.1	3.0	2.4
Current account balance (as a percentage of GDP)					
United States	-4.8	-5.5	-6.1	-6.2	-5.3
Euro area	0.5	1.1	0.2	-0.1	-0.2
Portugal	-6.1	-7.6	-9.5	-10.1	-9.9
Fiscal balance (as a percentage of GDP)					
United States	-4.8	-4.4	-3.6	-2.6	-2.5
Euro area	-3.1	-2.9	-2.6	-1.4	-0.6
Portugal	-2.9	-3.4	-6.1	-3.9	-2.6

MAIN FINANCIAL INDICATORS

	Change between:				
	31-12-2005 and 31-12-2006	31-12-2006 and 31-12-2007	31-12-2006 and 23-07-2007	23-07-2007 and 31-12-2007	31-12-2007 and 30-04-2008
Equity market					
(*per cent change*)					
General indices					
S&P 500	13.6	3.5	8.7	-4.7	-5.6
Dow Jones Euro Stoxx	20.3	4.9	9.8	-4.5	-11.7
PSI Geral	33.3	18.3	26.7	-6.6	-14.2
Financial sector					
S&P Banks	12.3	-32.5	-7.4	-27.2	-10.1
Dow Jones Euro Stoxx Banks	22.6	-9.0	3.2	-11.8	-11.2
PSI Financial	34.8	4.9	32.4	-20.8	-25.1
Bond market					
(*change in levels, basis points*)					
United States					
Industrial corporations spreads					
Rating AAA	-14	86	12	74	46
Rating AA	7	85	15	70	39
Rating A	-5	100	15	85	51
Rating BBB	-2	125	17	108	84
Financial corporations spreads					
Rating AAA	-2	71	20	51	52
Rating AA	-5	126	26	99	61
Rating A	1	171	31	139	123
Rating BBB	-10	328	47	281	34
Banks' spreads	2	175	19	156	80
Euro area					
Non-financial corporations spreads					
Rating AAA	22	45	10	34	-8
Rating AA	8	32	7	25	-3
Rating A	8	43	5	38	6
Rating BBB	12	56	-2	58	36
Financial corporations spreads					
Rating AAA	5	47	16	31	-2
Rating AA	12	61	14	47	50
Rating A	16	119	20	99	75
Rating BBB	25	149	27	122	115
Banks' spreads	13	82	10	72	41
Credit default swaps, 5 years, euro area					
DJ iTraxx	-	27	13	14	23
DJ iTraxx financial sector (senior)	-	38	14	24	19
Exchange rate					
(*per cent change*)					
EUR/USD	11.6	11.8	4.9	6.5	5.6
Oil price					
(*per cent change in USD*)					
Spot price (Brent)	5.5	56.1	27.9	22.1	20.9

Sources: Bloomberg, Eurostat, IMF, iBoxx, iTraxx, Merrill Lynch, Thomson Financial Datastream and Banco de Portugal.

also pose an important challenge for financial stability. Finally, heightened inflationary pressures as a result of the strong growth in energy and food prices have raised important challenges to the conduct of monetary policy, against a background of some slowdown in economic activity.

Strong economic and financial integration in Portugal implies that these global elements of risk may negatively affect its economic growth and financial stability. As a small open economy, the economic activity in Portugal is particularly vulnerable to a sharp slowdown in external demand, in a context of economic slowdown and heightened uncertainty. In addition, constraints in access to wholesale market funding by Portuguese banks may affect their financial intermediation functions, requiring an adjustment of their strategic behaviour in terms of loans and fund raising, in order to ensure the maintenance of adequate liquidity and solvency levels. In effect, banks have adopted tighter credit standards for loans, which may in the future lead to a deceleration of credit to the non-financial private sector, which in turn may affect corporate investment, household consumption and residential investment.

2.2. Global risks and vulnerabilities

In the course of 2007 global financial stability was significantly affected by a number of shocks originating from the US subprime mortgage market. The financial market turmoil was the result of the materialisation of some interlinked risk factors that had been building up in previous months. Some of these elements of risk were discussed in the 2006 issue of the Financial Stability Report of Banco de Portugal. On the one hand, persistent historically low levels of bond spreads and the reduced price discrimination between financial assets with very different degrees of risk suggested that investors could be under-evaluating the risks involved in their positions. On the other hand, although it was considered that higher recourse to credit risk transfer instruments could reduce risk concentration in banks' balance-sheets, this trend raised doubts as to how these risks should be monitored and evaluated, as well as to how the valuation and liquidity of these instruments could change in adverse market situations.

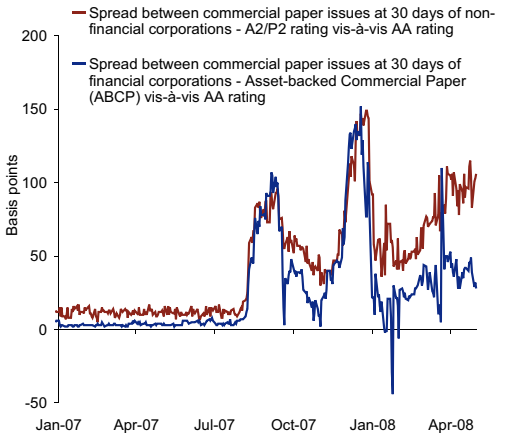
In addition, there were several economic and financial imbalances which, if abruptly corrected, could generate serious disruptions in global financial stability and economic growth. First, the increasing financial leverage of firms raised some doubts concerning its medium-term sustainability. Second, the external deficit of the US economy remained at very high levels, being offset by a significant trade surplus in some emerging market economies. The possibility of a sharp adjustment of these overall macroeconomic imbalances had been identified as an important risk to financial stability. Finally, the process of correction in real estate markets in the United States and in other countries with a strong increase in these asset prices in previous years was also a challenge to financial system stability. Growing concerns of investors as to developments in the US subprime market turned out to be a catalyst element of a period of strong instability and uncertainty in financial markets since the summer of 2007[1].

Problems in the subprime market became visible early in 2007, with a strong increase in default rates in this mortgage market segment. This increase was preceded by an interest rate rise and by some correction of housing prices in the United States in the last few years, resulting in soaring losses posted by financial institutions specialising in this type of financing. Early in the summer of 2007, these problems intensified. Rating agencies downgraded a number of asset-backed securities. This contributed to a sharp and broadly-based fall in liquidity in asset-backed securities markets and to a general revaluation of risk premia, vis-à-vis their previous historically low levels (Chart 2.2.1). During this period, there were some news referring to difficulties in executing planned leverage buyouts. Given that credit

(1) See "Box 1 *Recent turbulence in international financial markets*", Banco de Portugal, *Economic Bulletin - Autumn 2007*.

Chart 2.2.1

COMMERCIAL PAPER INTEREST RATE SPREADS IN THE UNITED STATES



Sources: Federal Reserve Board and Thomson Financial Datastream.

risk was widely disseminated through a wide range of investors and also the complexity and reduced transparency of some credit risk transfer instruments, there was a strong increase in uncertainty as to the magnitude, valuation and distribution of losses associated with direct and indirect exposures to the subprime market.

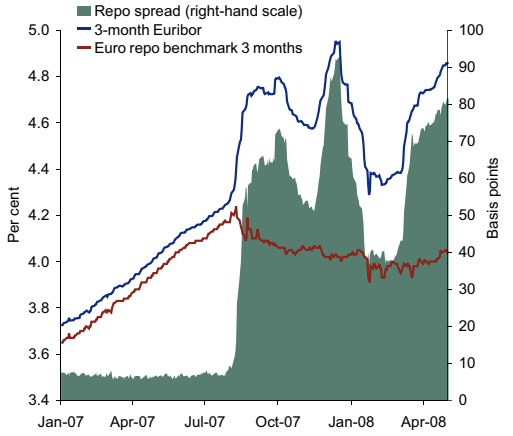
In this context of additional liquidity needs and increased counterparty risk, some banks began to face difficulties in access to wholesale market funding, which was reflected in tensions in the interbank money market. In early August, the number of transactions in this market declined and the interest rate spread between non-collateralised and collateralised transactions widened (Chart 2.2.2).[2] A number of central banks successively injected liquidity after 9 August, in order to ensure that banks had enough liquidity to smoothly perform their regular operations. Liquidity injections by central banks and the cut in the US Fed funds rate in mid-September contributed to some decline in risk premia in the autumn. As from the end of October, however, the disclosure of results of the banking sector in the third quarter and the realisation that the subprime market crisis and financial market turbulence might have strong economic impacts, particularly in the United States, led to further instability in some financial markets. In the last weeks of 2007, tensions in interbank money markets intensified, associated with concerns related to the year end. In this period, central banks in several countries showed again some flexibility in the management and creation of liquidity-providing instruments, which contributed to smoothening the situation in interbank money markets in the last days of the year.

In the first months of 2008, the disclosure of losses by some internationally active large banking groups and the increase in the probability of a recession in the United States contributed to strong falls in stock markets. In addition, further problems arose in some credit market segments, chiefly related to possible difficulties faced by large US monolines, resulting in a broadly-based rise in risk premia and in increased demand for safer assets. These disturbances were amplified in mid-March, when the problems faced by Bear Sterns, one of the largest North-American investment banks, were made public, requiring intervention by the US Federal Reserve. After late March, US spreads in debt markets started to narrow somewhat, although remaining at high levels, while stock markets recovered slightly.

(2) The evolution of risk *premia* in the euro area interbank money market is analysed in further detail in *"Box 2.1.Risk premium in the money market during the period of financial market turmoil: credit or liquidity risk*? ", in this Report.

Chart 2.2.2

3-MONTH MONEY MARKET INTEREST RATES
Euro area



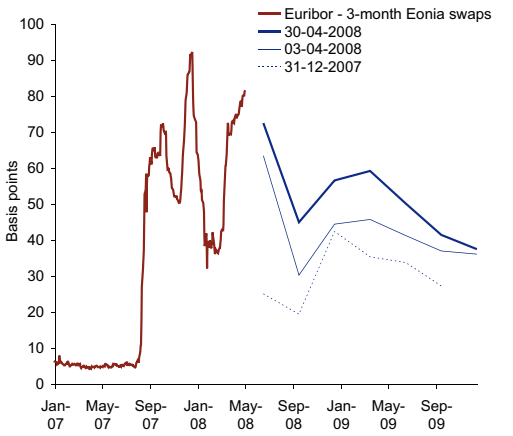
Source: Thomson Financial Datastream.
Note: Repo spread calculated as the difference between the interest rate on non-collateralised money market operations (3-month Euribor) and the interest rate on collateralised operations in this market (3-month euro repo benchmark).

The persistence of tensions in interbank money markets, however, shows that the factors behind instability in international financial markets have not yet been overcome (Chart 2.2.3).

In the present context, the major risks to financial stability are closely related to **uncertainty as to the duration, extension and implications of financial market turbulence**, in particularly as regards their interaction with economic activity. The financial market situation continues to be dominated by uncertainty and volatility, and estimates suggest that a significant share of losses associated with the

Chart 2.2.3

ACTUAL AND EXPECTED SPREADS BETWEEN EURIBOR AND 3-MONTH EONIA SWAPS[(a)]



Sources: Bloomberg, Reuters and Banco de Portugal calculations.
Note: (a) Expected spread measured as the difference between the three-month Euribor implied in futures contracts and the forward rate of the 3-month Eonia swap starting from the future's maturity date.

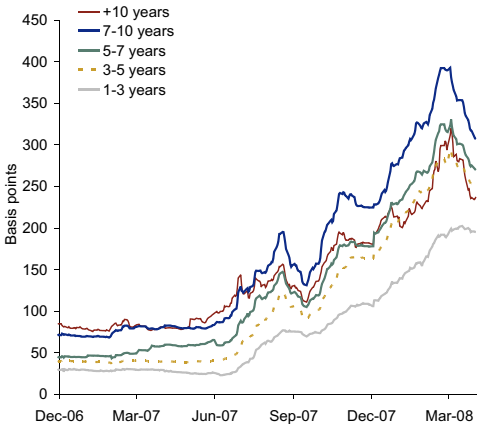
subprime market has not yet been disclosed. Although it was recognised that some correction was required in risk premia at a global level, given that investors were not correctly valuing and differentiating the risks assumed, this correction has been particularly abrupt and sharp.

Financial market instability has mainly affected financial sector firms, which have been facing some difficulties in access to wholesale market funding in this period (Charts 2.2.4 and 2.2.5). In effect, a distinctive element of this instability episode, when compared with previous episodes such as the LTCM and the Russian default crises, the bursting of the technological bubble or the accounting frauds in 2002, is the strong increase in private debt market spreads, in particular for financial sector firms in advanced economies (Chart 2.2.6). Banks have been facing financing difficulties, mainly in medium and long maturities, with some constraints in the issue of debt securities and placement of securitisations, but also in short maturities, namely in commercial paper markets and, in an unprecedented manner, in interbank money markets. Competition for the collection of deposits is therefore likely to strengthen further, as banks may try to partly replace market funding. Moreover, difficulties in asset securitisation and risk transfer may give rise to some reintermediation of bank activity. In recent years, financial intermediation had been converging to a model usually known as originate and distribute. In this model, banks would grant credit, structure standardised products based on those credits and, finally, sell those products to third parties. In the present context, the originate and distribute intermediation model may to some extent converge to a more traditional financial intermediation model. In effect, the disturbances observed in financial markets since the summer of 2007 evinced some fragilities of this new financial intermediation model, such as: the difficulty in identifying and valuating risks taken, as a result of the complexity and lack of transparency of some instruments used; the excessive dependence on the assessment of rating agencies and on the assumption of permanent liquidity in the markets; and the difficulty in aligning the incentives of the different agents participating in this risk dissemination process.[3]

Chart 2.2.4

SPREADS OF FINANCIAL CORPORATIONS ISSUES IN EUROS

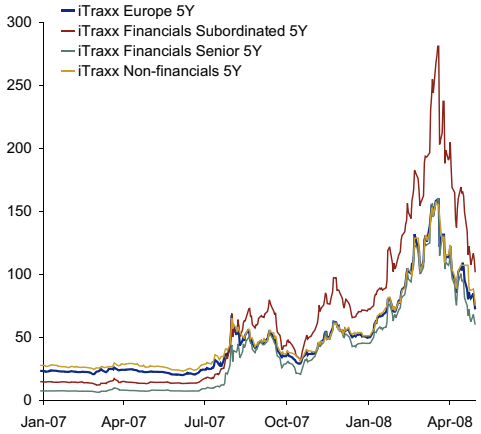
A rating



Sources: iBoxx and Thomson Financial Datastream.

Chart 2.2.5

CREDIT DEFAULT SWAPS



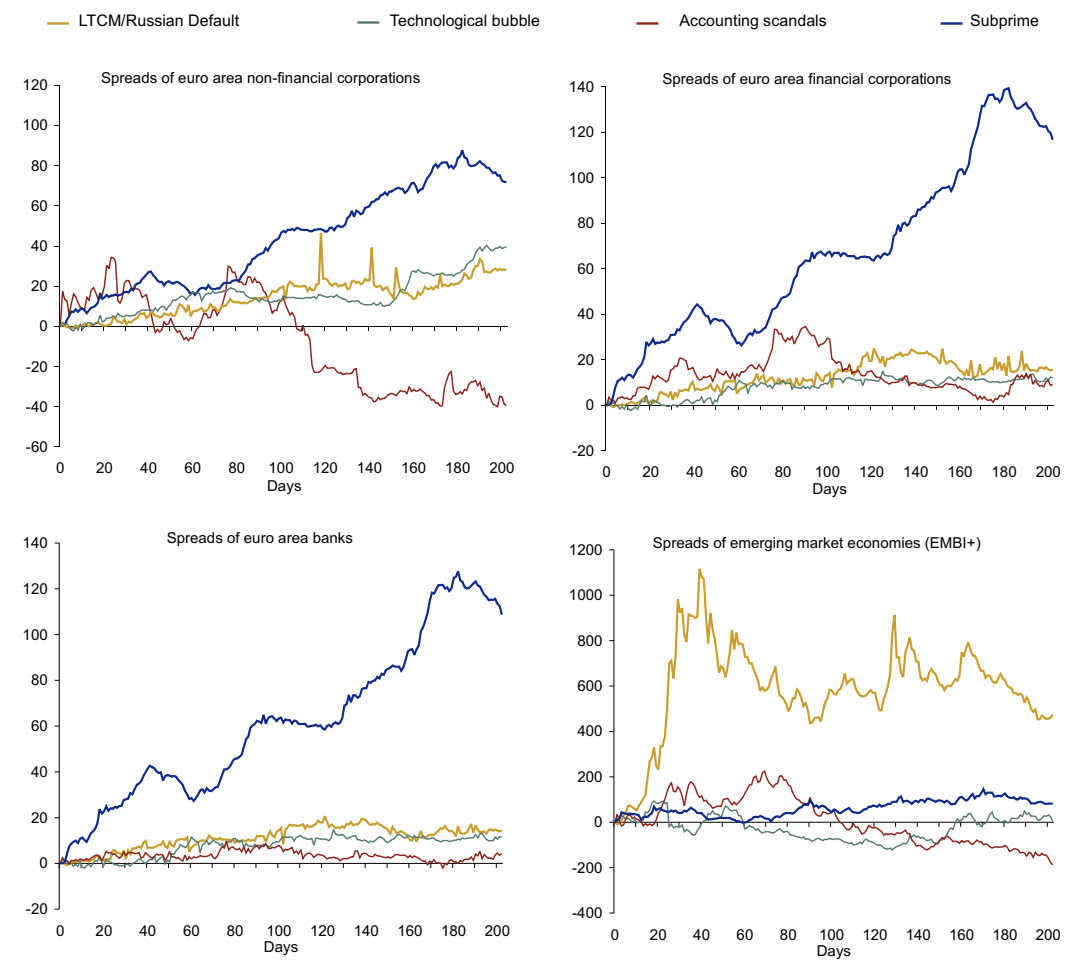
Sources: iTraxx and Thomson Financial Datastream.

(3) In the credit risk transfer process, originators usually continue to ensure the management function and to control the risk of loans granted. However, credit risk transfer contracts do not always ensure that the originators have the appropriate incentives to continue to monitor the risks underlying the loans they grant, which may have contributed to the recent increase in default in some credit market segments.

Chart 2.2.6

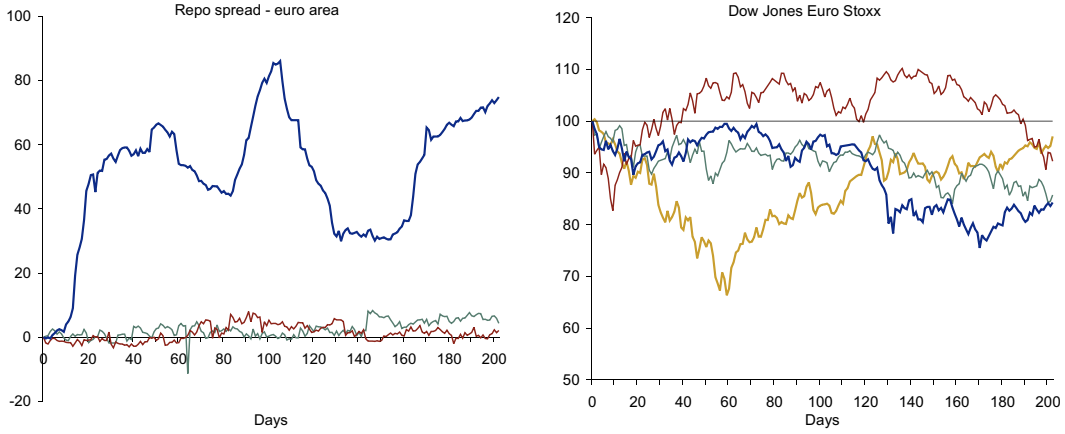
COMPARISON WITH PREVIOUS TURMOIL EPISODES (to be continued)

Debt markets



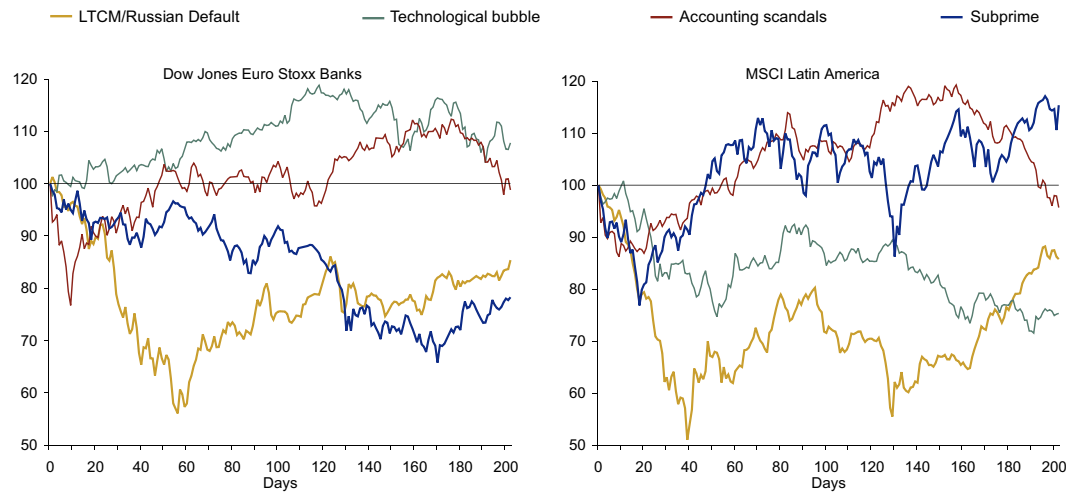
Interbank money markets

Equity markets



COMPARISON WITH PREVIOUS TURMOIL EPISODES (continued)

Equity markets



Sources: Bloomberg, JP Morgan, Merrill Lynch, Thomson Financial Datastream and Banco de Portugal.
Notes: The x-axis indicates the number of working days since the peak immediately before the disturbances observed in each period. Specifically, 17/07/1998 was taken as the reference date in the LTCM crisis, 10/03/2000 in the technological bubble, 25/06/2002 in the accounting scandals and, finally, 23/07/2007 in the sub-prime crisis. Spreads are the difference, in basis points, vis-à-vis the reference date. In stock price indices, the reference date was standardised at 100.

The overall increase in bank funding costs has been leading to some tightening of credit standards for loans in the euro area and, chiefly, in the United Kingdom and in the United States. In the latter case, the significant loosening of these criteria in previous years seems to have contributed to the recent growth in default rates in some segments of the US mortgage market.

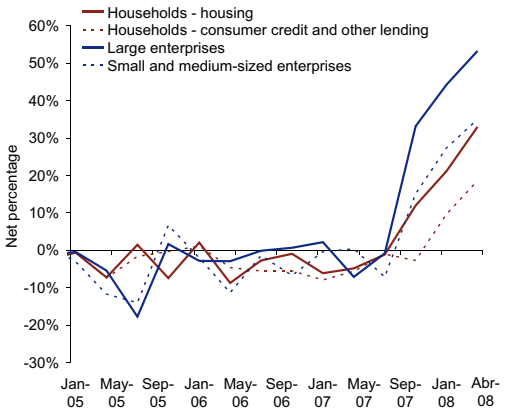
In the Unites States, the consequences of the tightening of credit standards for loans may be partly mitigated by fiscal stimulus measures (although the impact of these measures on household expenditure and corporate investment is estimated to be relatively low) and, chiefly, by the accommodating monetary policy of the US Federal Reserve, whose reference interest rate declined by 325 b.p. from September 2007 to April 2008. However, evidence available indicates that the pass-through from the US monetary policy to bank interest rates has been slow and moderate. The tightening of credit standards seems to be contributing to a deceleration of loans to the non-financial private sector. In fact, in the first months of 2008, loans to firms slowed down somewhat, and loans for house purchase maintained its strong decelerating trend.

In turn, in the euro area, available evidence does not point to changes in the evolution of loans granted by banks, which have continued to grow at high rates. According to the results of the Bank Lending Survey, the tightening of standards for loans in the euro area is mainly affecting loans to non-financial corporations, in particular for large firms and loans intended to finance mergers and acquisitions and investment (Chart 2.2.7). It is worth noting that, in the euro area, financial intermediation by the banking system assumes a prominent role in funding economic activity, as euro area companies, in general, resort less to financial markets as a source of funds than US firms.

Overall, disturbances in financial markets will probably continue to negatively affect bank profitability, due to additional losses in their financial asset portfolios or to the decline in fees and commissions associated with capital market operations, such as asset management and corporate finance. Moreover, uncertainty prevailing in financial markets is not favourable to mergers and acquisitions, which in recent years had contributed rather positively to banks' profits. In turn, a deterioration of the financial situation of the non-financial private sector will probably imply an increase in credit risk, generating additional pressures on bank profitability and solvency. The bank financing difficulties and the losses in

Chart 2.2.7

CREDIT STANDARDS IN THE EURO AREA



Source: Bank Lending Survey.
Note: The net percentage refers to the difference between the sum of percentages of banks reporting that their credit standards "tightened considerably" and "tightened somewhat" from the previous quarter and the sum of percentages of banks reporting that their credit standards "eased somewhat" and "eased considerably". Thus, a positive value means a tightening of standards (in net terms) from the previous quarter, while a negative value means an easing of credit standards.

direct or indirect exposures to the subprime market have exerted high pressure on the capital ratios of a number of internationally active large banking groups. Nonetheless, the international financial system recorded a favourable situation before the summer of 2007. The capital levels of internationally active large banking groups seemed to be adequate and their profitability evolved positively. However, the recognition of sizeable losses due to exposures to the subprime market and the revaluation of assets and off-balance-sheet exposures are likely to require further capital base funding of some banking groups.

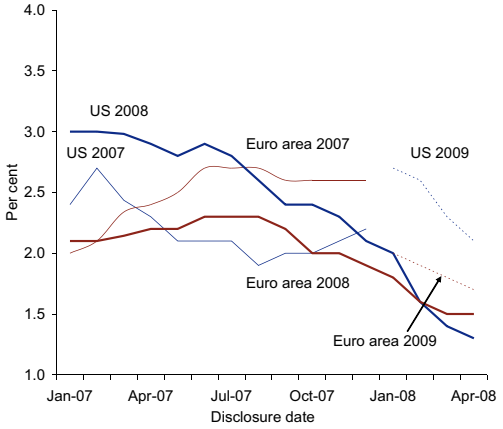
The tightening of credit standards for loans and the increase in financing costs, which may translate into a sharp deceleration of credit to the private sector, may come to affect consumption and investment decisions by the non-financial private sector. In turn, the prevailing uncertainty, the lack of confidence of the economic agents and the negative shocks on wealth will likely contribute further aggravate this situation. The impact of these disturbances on economic activity will ultimately depend on their interaction with the underlying vulnerabilities in each economy, such as the situation in real estate markets (and their interaction with the degree of financial leverage in the mortgage market), the indebtedness level of the private and public sectors, the labour market situation, the degree of financial intermediation and the importance of international wholesale markets in bank financing, as well as the average maturity of this financing.

Against this background, projections for global economic growth have been revised downwards, with strong downside risks, in particular for the Unites States (Chart 2.2.8). In effect, the deceleration in economic activity should be particularly significant in that country, in the wake of the deteriorating situation in the real estate market. According to the International Monetary Fund (IMF) April 2008 forecasts, growth of world economic activity may decelerate somewhat, and is estimated to stand at 3.7 per cent in 2008 (compared with the 4.8 per cent forecast published in October 2007). Uncertainty surrounding these forecasts is rather high, and depends on a wide range of downside risks, namely fears that disturbances in financial markets may contribute to a sharp deceleration of loans, constraining domestic demand in the United States and, to a lesser extent, in the euro area. Indeed, forecasts for economic

Chart 2.2.8

DEVELOPMENTS IN ECONOMIC GROWTH FORECASTS

Rate of change in GDP
United States and Euro Area



Source: Consensus Economics.

growth in the euro area have also been revised downwards, reflecting the lagged impact of the slowdown of the US economy (not only via the effect on external trade, but also via the financial system and the deterioration of confidence of economic agents). The overall repricing of risks, the appreciation of the euro and disturbances in the financial system have also contributed to the deterioration of economic growth prospects in the euro area. In addition, the heightened inflationary pressures due to growth of international prices of oil and other commodities, and the persistence of global macroeconomic imbalances are risks underlying the forecasts for world economic growth.

Overall, emerging market economies have been much less affected by the current turbulence in financial markets than in previous instability episodes (Chart 2.2.6), against a background of robust domestic demand and current account surpluses. Although these economies now seem to have improved their ability to react to external shocks, some vulnerabilities persist, that may jeopardise the development of their economic activity and their performance in capital markets. This is especially the case of countries where credit growth is based on external financing and where current account deficits are significant. Therefore, a negative shock on external demand for goods and services of these economies is likely to negatively affect their economic growth, either through direct effects on exports, or through indirect effects on consumption and investment. The slowdown in activity in advanced economies has affected some emerging market economies, in particular those with important trade relations with the United States. Moreover, some of these economies are facing the challenge of containing inflationary pressures, which have assumed a larger magnitude than in advanced economies, given the buoyancy of domestic demand and the higher weight of energy and food in expenditure.

Interactions between the financial system and economic activity gain particular relevance in the present juncture. In effect, a strong slowdown in global economic activity may give rise to additional pressures on the international financial system, chiefly if the situation in real estate markets continues to deteriorate in some advanced economies (especially in the United States). The persisting difficulties in wholesale financing markets, in particular for financial institutions, should also aggravate this situation. In turn, an additional worsening in the financial situation of banks is likely to give rise to tighter credit

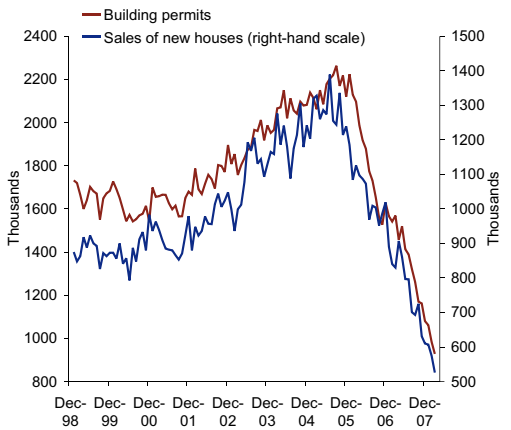
standards, thus inducing an additional deterioration of economic growth prospects. The amplifier effect of these interaction mechanisms between the real economy and the financial system is one of the main risks for global financial stability and economic growth.

In this context, it is possible to identify a number of interlinked macroeconomic and financial risks, with implications for the stability of the global financial system, particularly against a background of continued financial market turbulence. The materialisation of these risks would inevitably imply a substantial deterioration of the currrent financial system situation and, as a result, of the prospects for economic activity. Among these risks, the following are worthy of note: (i) the process of **correction of real estate markets** in the United States and in some advanced economies which recorded strong price growth in those markets in previous years; (ii) the likely occurrence of more significant **stock market adjustments**, as a result of a possible deterioration of corporate profits, given the slowdown in economic activity and rising uncertainty; (iii) the **increase in credit risk**, as a result of a potential deterioration of the financial situation of companies and households; (iv) the persisting **global macroeconomic imbalances** and the implications for the world economy of an abrupt correction of such imbalances; and finally (v) increasing **inflationary pressures** as a result of the strong growth of energy and food prices, which raises challenges for the conduct of monetary policy in a context of slackening economic activity. These elements of risk have intensified in the course of last year, surrounded by uncertainty as to the duration of this turbulence period and, chiefly, as to its global implications.

In 2007 the deep crisis in the US subprime mortgage market contributed decisively to trigger strong disturbances in international financial markets. One of the main risks behind the economic situation and global financial stability emerges from the **ongoing adjustment process in real estate markets** in the United States and in other countries with a lasting period of strong activity and valuation. In effect, early in the decade, buoyancy was strong in the real estate markets of several advanced economies, particularly in the residential sector, which translated into significant and continued increases in housing prices and strong growth of mortgages. In recent years, real estate asset prices decelerated gradually in some of these countries. In the United States, in particular, housing prices had been recording a decelerating trend since mid-2005, which intensified in 2007, accompanied by a very significant decline in sales (Chart 2.2.9). In recent months, different price indices point to negative changes in housing prices in nominal terms in the United States.

Chart 2.2.9

US HOUSING MARKET



Source: Thomson Financial Datastream.

Demand in the real estate market will tend to decline substantially, as a result of a significant deceleration in economic activity and an increase in unemployment. This decline in demand may generate additional pressures on housing prices in the United States. In turn, the possible persistence of expectations as to continued falls in prices may contribute to further retracting demand, which generally declines in periods of negative changes in prices of those assets. The deceleration in housing prices is expected to exert a negative effect on private consumption, since an important part of consumption growth in the United States in previous years had been funded through equity withdrawal. In addition, the decline in house prices may also have implications for credit risk. In effect, in case of a widespread fall in the prices of assets used as collateral in bank loans, debtors have fewer incentives to guarantee the debt service, in particular when the asset price drops to a value well below the amounts due. For banks, in turn, the value of the collateral underlying becomes lower, what may lead to additional constraints on credit supply.

In Europe, some countries, such as the United Kingdom, Ireland and Spain, which had also recorded significant real estate asset valuation in previous years, have seen a gradual slowdown in prices of those assets (Chart 2.2.10). Available evidence suggests that real estate assets may still be over-valued in some countries, wherefore the correction of prices in these markets is likely to persist. However, if this correction is abrupt and significant, there will be substantial risks to the construction sector, private consumption, and possibly the banking system, since it would imply the deterioration in the quality of collateral, a decline in the demand for loans and a broadly-based deterioration in the operating conditions of banks.

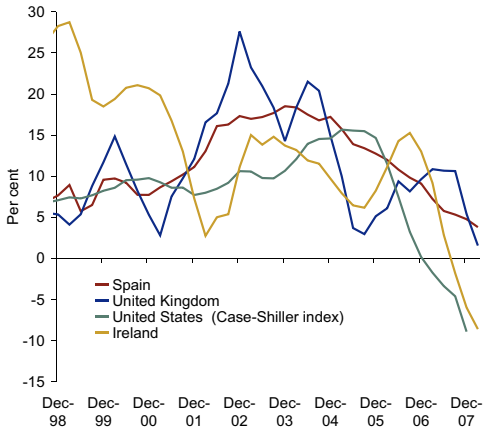
In addition to risks underlying the correction process in course in residential real estate markets in a number of countries, some concerns have emerged about developments in non-residential real estate markets, particularly in commercial property. The latter are generally more sensitive to cyclical fluctuations. In addition, in previous episodes of deterioration of the real estate market situation, the spillovers of negative developments in this real estate segment into the banking system were more significant, in terms of credit risk, than those associated with disturbances in the residential segment.

In addition to the adjustment in course in real estate asset prices in different countries, financial asset prices have also been adjusting since the summer of 2007. This adjustment has been particularly

Chart 2.2.10

HOUSING PRICES

Year-on-year rate of change



Source: Thomson Financial Datastream.

sharp in markets where risk premia was not being adequately evaluated, in particular private debt markets. In stock markets, in turn, equity prices of non-financial corporations dropped only moderately in the second half of 2007, in spite of substantial falls in the stock prices of financial sector firms in this period. In the first quarter of 2008, the deterioration of economic growth expectations and the disclosure of some losses for non-financial companies and mainly for financial sector firms led to substantial falls in the stock markets, particularly for financial institutions' securities. In the course of April, losses recorded in the first quarter were partly reversed.

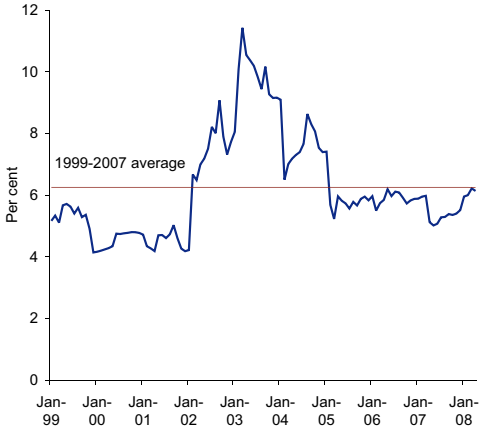
In spite of the substantial growth of stock market prices in recent years, this valuation was broadly associated with the good performance of non-financial corporations. Hence, there is no evidence of a significant overvaluation in these markets (Chart 2.2.11). However, the disturbances observed in financial markets in recent months and their effects on economic activity are likely to have an impact on the performance of non-financial corporations, and may significantly affect their profitability. This would inevitably translate into **sharper falls in stock markets** worldwide (Chart 2.2.12). Negative pressures are likely to emerge on profits of non-financial corporations, as a result of a broadly-based decline in demand for goods and services (which may be particularly sharp in activity sectors more sensitive to cyclical fluctuations), as well as of restrictions in access to finance (both from banks and financial markets).

A possible **substantial increase in credit risk** is another important element of risk to global financial stability, and may contribute to deteriorate the situation of the international banking system, translating into an increase in losses and a global slowdown of its activity.

The strong increase in default rates in the subprime segment of the US real estate market was one of the factors that triggered the disturbances observed since the summer of 2007. Even though this segment of the mortgage market was relatively small, the risks underlying these exposures were very large. The correction of prices in the US housing market and the monetary policy tightening since mid-2005 contributed to the increase in default rates in this market to much higher levels than initially expected, resulting in losses for financial institutions specialising in this mortgage market segment.

Chart 2.2.11

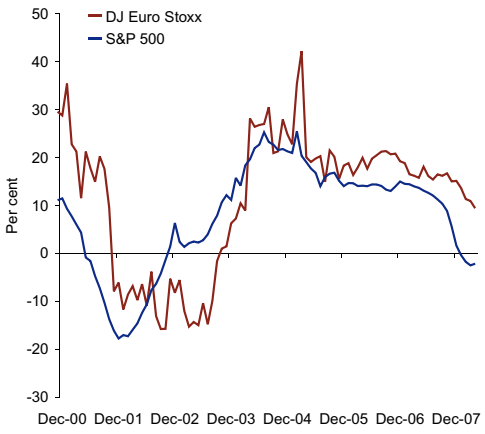
REAL COST OF EQUITY FINANCING - EURO AREA



Sources: Consensus Economics, Thomson Financial Datastream and Banco de Portugal calculations.
Note: Based on the methodology described in Gameiro and Ribeiro (2007), "Financing Costs of Portuguese Companies", Banco de Portugal, *Economic Bulletin - Autumn*.

Chart 2.2.12

ANNUAL RATE OF CHANGE IN EARNINGS PER SHARE (EPS)



Source: Thomson Financial Datastream I/B/E/S.

Evidence available suggests that the historically high default rates in the subprime market will likely continue to rise.

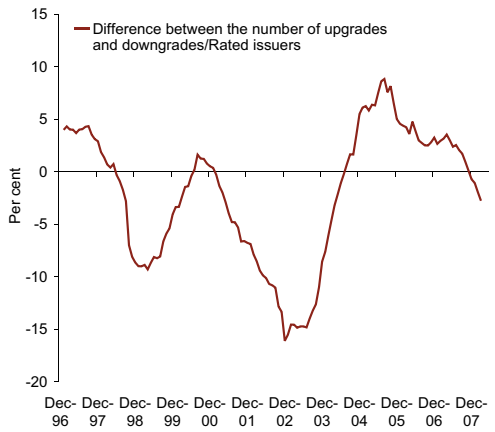
In this field, risks for financial stability arise not only from the increase of credit risk in specific sectors, but also from a broadly-based upsurge in credit risk, as a result of a possible deterioration of the financial situation of companies and households, associated with difficulties in access to funds, a decline in real estate and financial asset prices and a possible hike in unemployment. Hence, the rise in default rates in the United States is likely to occur also in other segments of the credit market. In effect, in recent months, credit quality has been deteriorating somewhat in prime mortgage loans, commercial property loans and consumer credit. The increasing number of downgrades by rating agencies (Chart 2.2.13) and the forecasted future developments of default rates in bond markets (Chart 2.2.14) also illustrate the gradual deterioration of credit quality in some segments. Some decline in credit quality may also occur in the euro area, particularly in countries with strong growth in loans and real estate asset prices in previous years. The increase in credit risk will likely imply an additional tightening of credit standards for loans, thus inducing additional constraints in loan supply.

The deterioration of corporate debt quality may be closely related to its high financial leverage. In previous years, recourse to debt by companies increased noticeably. Limitations on access to funds associated with disturbances in financial markets and with the general tightening of credit standards for loans may contribute to some deleveraging of companies. If gradual and moderate, this adjustment may be a positive development from a financial stability perspective. However, the adjustment process of corporate balance-sheets may lead to some pressures on firms' activity, such as difficulties in financing investment projects and mergers and acquisitions.

One of the main elements of risk for financial stability identified in previous years was related to persisting **global macroeconomic imbalances**, which raised some questions regarding the implications of a possible **abrupt correction** of such imbalances. In 2007, the slowdown in the US economy and the devaluation of the US dollar contributed to a higher-than-expected decline in the US external deficit. The US current account deficit narrowed from 6.2 per cent of GDP in 2006 to 5.3 per cent in 2007 (Chart 2.2.15), as a result of robust growth of exports and some deceleration in imports, against a background of high growth of external demand and strong depreciation of the US dollar (Chart 2.2.16).

Chart 2.2.13

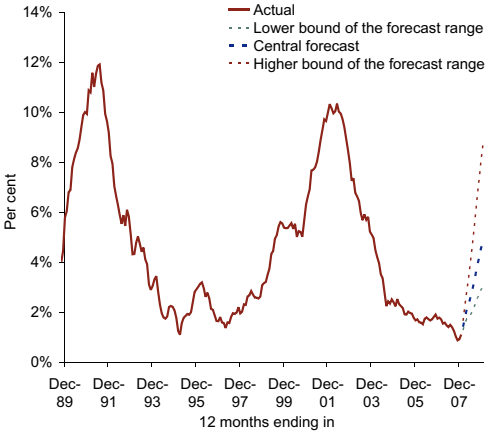
GLOBAL CHANGES IN RATINGS



Sources: Moody's and Thomson Financial Datastream.

Chart 2.2.14

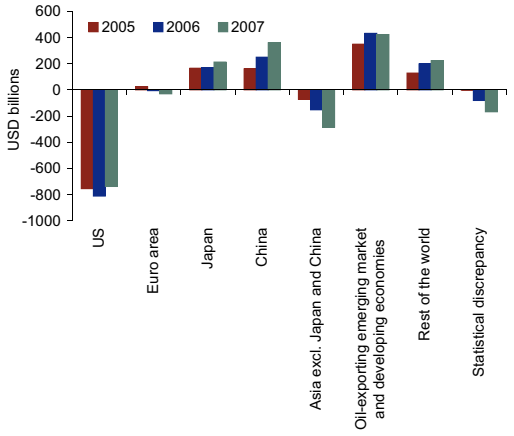
FORECASTS OF GLOBAL DEFAULT RATES



Source: Moody's.
Note: Forecasts of default rates for speculative grade bonds.

Chart 2.2.15

CURRENT ACCOUNT BALANCE



Source: IMF.

Chart 2.2.16

FOREIGN EXCHANGE MARKETS

Sources: ECB and Bloomberg.

The marked decline in residential investment and a possible increase in the US savings rate may contribute to maintaining the downward trend of the US external deficit. However, the process of correction of global macroeconomic imbalances continues to pose risks to global financial stability and to economic growth.

The external deficit of the US economy has been partly financed by reserves accumulated by emerging market economies, in particular China and oil-exporting countries. In 2007, China's trade surplus rose further, reflecting the higher buoyancy of exports than of imports, whereas the current account surplus of oil-exporting countries declined slightly, notwithstanding the strong growth of the oil price. More recently, the US external deficit has been chiefly financed through sovereign wealth funds, which have also been behind part of the capital injections made in large internationally active banking groups, mostly in the US, with losses due to exposures to the subprime market and associated structured products. These funds manage reserves accumulated by countries with trade surpluses, namely China and oil-exporting countries, partly replacing the central banks of those countries in the management of such reserves. From a financial stability perspective, the growing role of these sovereign wealth funds in international financial markets has given rise to some concerns. First, the lack of transparency of some of these funds may lead to an increase in protectionism in advanced economies. In turn, given their size, these funds may make a very important contribution to the future development of the present macroeconomic imbalances at a global level. As these sovereign funds tend to privilege a more diversified asset allocation with less risk aversion, when compared with the application of reserves of the central banks of these countries, there may be a decline in demand for dollar-denominated assets, which may contribute to a more abrupt correction of macroeconomic imbalances. Finally, the growing relative weight of sovereign wealth funds in international financial markets may give rise to distortions in financial asset prices due to political or strategic reasons. The transparency of funds must therefore be improved, in line with the procedures required for other large international investors, such as pension and investment funds.

In general, **inflationary pressures** are a critical element of risk for financial stability, not only in emerging market economies, but also in advanced economies. In 2007, US dollar-denominated commodity prices continued to increase sharply in international markets. Oil prices, in particular, followed an upward trend in the course of the year, only interrupted in August, reflecting persistent high demand

(chiefly by emerging market economies), the levelling-off of supply and geopolitical tensions in some regions (Chart 2.2.17). In addition, in a framework of financial market instability and US dollar depreciation, oil has been used as safe-haven, which has contributed to heighten its demand. According to investors' expectations, oil prices will likely remain high in 2008, given that limits to productive capacity, possible shocks on supply, and political tensions in regions of strategic interest in terms of production and distribution of this commodity may limit the quantities available in the markets.

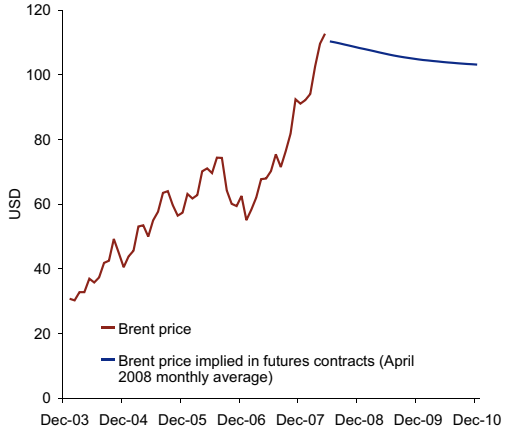
US dollar-denominated non-energy commodity prices also increased significantly in 2007, in particular food prices. This increase was the result, on the one hand, of strong demand for these products, associated with the expansion of global economic activity and the use of some cereals and oilseeds for the production of biofuels. On the other hand, supply constraints due to disturbances in production in some countries as a result of adverse weather conditions also led to increases in food prices (Chart 2.2.18). Moreover, some elements suggest that these rises may take on a relatively permanent nature. Indeed, demand for food will probably continue to be high, given the positive prospects for economic growth in emerging market economies and the increasing demand for these commodities for the production of biofuels. In addition, the responsiveness of supply of these goods to meet increased demand depends on factors such as the availability of soils and climate conditions.

The increase of international commodity prices has been contributing to heighten inflationary pressures worldwide. The situation deteriorated in early 2008 (Chart 2.2.19). In the United States, the Federal Reserve has pursued an accommodating monetary policy, seeking to mitigate the risks for economic activity arising from problems in the US housing market and in global financial markets. Against this background, the US monetary policy has been facing the complex challenge of maintaining inflation at low levels and, simultaneously, mitigating risks for economic growth. A possible deceleration of economic activity, however, may contribute to countering inflationary pressures in the US economy. In the euro area, in turn, inflationary pressures have been weaker, in spite of some strong upward pressures on prices in the short-term.

Chart 2.2.17

OIL PRICE (BRENT)

Monthly average

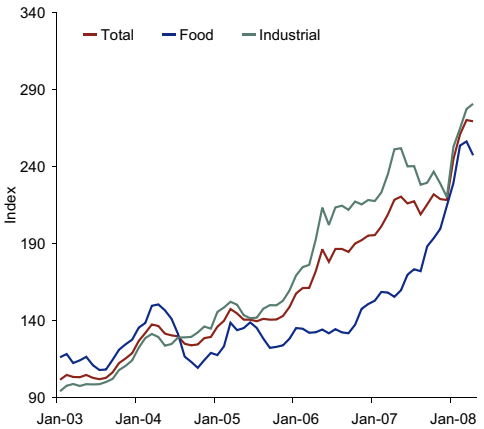


Source: Bloomberg.

Chart 2.2.18

INTERNATIONAL PRICE OF NON-ENERGY COMMODITIES

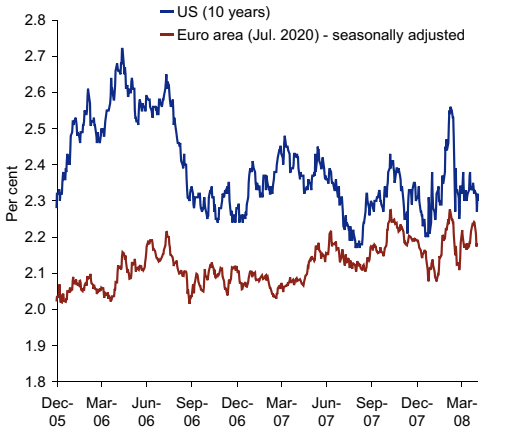
USD



Source: HWWI.

Chart 2.2.19

INFLATION EXPECTATIONS DERIVED FROM INDEX-LINKED BONDS



Source: Bloomberg.

2.3. Risks and vulnerabilities in Portugal

In the context of strong economic and financial integration, the Portuguese economy and the financial system are exposed to the **consequences of the international financial market turbulence**. Even though Portuguese banks were not significantly exposed to the US subprime market, the indirect effects spilling over from disturbances on international financial markets may be substantial. The effects may potentially materialise via two transmission channels. On the one hand, via their impact on the banking system, which in recent years has channelled international funds to finance investment and consumption in Portugal. This has translated into a strong deterioration of the international investment position. On the other hand, via the substantial deterioration of the macroeconomic environment, in a context of slowdown in global economic activity, sharp deceleration in external demand, heightened uncertainty and appreciation of the euro. A possible deterioration of prospects for economic growth in Portugal might be an additional channel leading to disturbances in the activity of the national banking system.

Some of the other risks identified in the previous section may also affect financial stability and economic growth in Portugal. In particular, heightened inflationary pressures as a result of the price growth of energy and processed food also influence the development of prices and costs in Portugal. In addition, the Portuguese economy may also be negatively affected by an abrupt correction of global macroeconomic imbalances or by the situation in real estate markets in some countries with strong valuations in previous years, in particular Spain and the United Kingdom, which are among Portugal's main trading partners.

The access of Portuguese banks to funding in wholesale markets has been facing some restrictions in recent months. According to the results of the Bank Lending Survey, the largest Portuguese banking groups have been facing some financing difficulties in access to wholesale financial markets, particularly in what concerns the issue of debt securities and loan securitisation. Most surveyed banks considered that the situation in international financial markets had some impact on loans granted and on banks' cost of capital. The persisting disturbances in financial markets may therefore imply a decelera-

tion in loans and an increase in financing costs of the non-financial private sector. However, the growth rates of loans to the non-financial private sector continued to be robust in the first quarter of 2008. A tightening of credit standards for loans, in combination with increased uncertainty, falling confidence of the economic agents and possible wealth effects due to losses in financial asset portfolios, may influence the evolution of private consumption and investment, affecting the recovery trajectory of the Portuguese economy.

The recent financial market turbulence occurred in a context where Portuguese banks recorded relatively high profitability and solvency levels. Liquidity indicators on domestic institutions, however, maintained a downward trend since end-2004 (as discussed in "Chapter 4. Banking system"). Hence, the persisting difficulties in wholesale market funding may pose important challenges to banks' liquidity management, in particular for those whose credit expansion strategy was being significantly supported by market funding. In addition, these disturbances may continue to negatively affect bank profitability, via an increase in financing costs, a decline in income from fees and financial transactions, and losses in their financial asset portfolios.

The maintenance of some buoyancy in credit growth, in combination with losses in financial asset portfolios, have exerted some pressure on bank's solvency ratios, leading banks to raise (or consider raising) capital. Nonetheless, the solvency of Portuguese banks may come under additional pressure, via increased impacts from international financial market turbulence on their profitability and on the value of their financial asset portfolios. It is important to consider that some contingent liabilities may become materially relevant for banks, namely those related to the funding of liabilities of bank employees pension funds. This is a relevant risk especially if stock market conditions deteriorate further, taking into account the asset portfolio structure of these pension funds, which are heavily exposed to the stock markets.

Overall, the framework of bank activity since the summer of 2007 has been an important test to the ability of banks to withstand adverse shocks. Hence, it is crucial that banks continue to have adequate liquidity and solvency levels, which may require some adjustments in their activity expansion strategies to the conditions prevailing in international financial markets.

As previously mentioned, as a small open economy deeply integrated from an economic and financial perspective, the Portuguese economy and its financial stability are particularly vulnerable to external shocks. Thus, the current disturbances in the international financial system and the deterioration of prospects for world economic growth will continue to affect the performance of the Portuguese economy and of the Portuguese banking system. Its ability to react and adjust to these external shocks, however, also depends on a range of latent vulnerabilities.

First, the **high level of household indebtedness** may limit their shock-adjustment capacity, particularly in a context of maintenance of the interest rates at higher levels than those observed in recent years.[4] Loans to households for house purchase have slowed down somewhat since mid-2006, which may reflect a slight deterioration of the housing market prospects and a fall in consumer confidence, in particular at the end of 2007 and early 2008. In turn, consumer credit revealed strong buoyancy in 2007, largely associated with the increase in consumption of durable goods. However, the high level of household indebtedness and the corresponding debt burden may constitute a binding restriction to the evolution of private consumption and residential investment. In addition, the tightening of credit standards applied on loans as a result of the financing difficulties faced by banks may substantially affect the development of private consumption and the demand in the real estate market. In this context, it is

(4) The risks underlying household indebtedness are discussed in more detail in "Chapter 3 *Financial situation of the non-financial private sector*" and in Farinha, L. (2008), "Indebtedness of Portuguese households: recent evidence based on the results of the Household Wealth and Indebtedness Survey 2006-2007", in this Report.

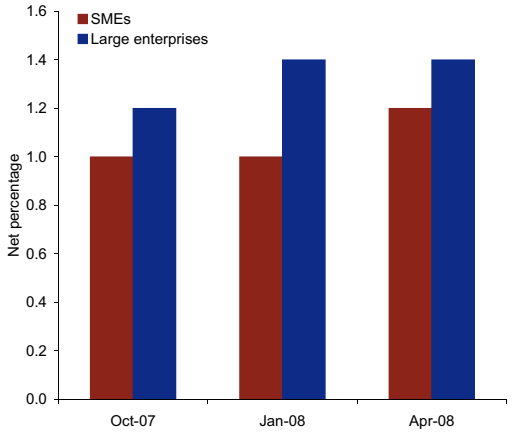
important to note that, contrary to developments in some other countries, available evidence does not point to an overvaluation of housing prices in Portugal, where growth rates have been rather moderate in recent years (negative in real terms).

Second, another element of risk is related to the possibility that non-financial corporations may face **difficulties in access to financing**, which may contribute to limiting the development of corporate investment. In 2007, bank debt and the debt securities of non-financial corporations accelerated strongly. According to the results of the Bank Lending Survey, the acceleration of bank loans to companies seems to be associated with debt restructuring, the financing of inventories and working capital and, more recently, with investment funding. In case of persisting disturbances in international financial markets, banks will continue to be more demanding when granting loans to companies, and some difficulties may arise in access to bank financing by companies. These difficulties may be more severe for large loans, in particular if intended to finance mergers and acquisitions, business restructuring and investment (Chart 2.3.1). In this context, the lower availability of Portuguese banks to finance corporate investment projects may contribute to mitigate the recovery of economic activity in Portugal. In turn, the willingness of banks to conduct corporate debt restructuring operations may be more limited.

Evidence available suggests that Portuguese non-financial corporations continued to have access to market funding in the second half of 2007. It is important to note, however, that even under normal conditions, only a small number of large companies have access to capital market funding. Therefore, given the importance of banks to finance the economy, prospects for economic activity are not independent from the capacity of Portuguese banks to continue to ensure their intermediation functions, in a framework of persistent unfavourable financing conditions arising from the current international financial market turmoil.

Chart 2.3.1

EXPECTED IMPACT OF THE FINANCIAL MARKET TURMOIL ON CREDIT STANDARDS FOR LOANS TO ENTERPRISES IN PORTUGAL IN THE THREE MONTHS FOLLOWING THE SURVEY



Source: Bank Lending Survey.
Note: Net percentage calculated as the weighted mean of responses, in a scale from -2 to 2. A positive value represents a tightening of standards.

Box 2.1. Risk premium in the money market during the period of financial market turmoil: credit or liquidity risk?

The crisis in the US subprime market has, directly or indirectly, affected the banking system worldwide, especially after the end of July 2007. On the one hand, several banks have been posting losses in exposures to the subprime market and to financial instruments used in the transfer of risks underlying these exposures. On the other hand, the broadly-based increase in credit risk premia in the financial sector and the difficulty in access to different financing sources have put pressure on bank liquidity and capital at the international level. In this context, the interbank money market has been severely affected, with a sharp increase in interest rate spreads between uncollateralised and collateralised operations. The rise of these spreads reflects pressures towards an increase in demand and a decline in liquidity supply in these markets. While some banks experienced additional financing needs in this period (to cover losses and sudden liquidity needs related to the subprime crisis or to sustain the expansion of their activity), other banks reduced their availability to supply uncollateralised funds in interbank money markets. Given the prevailing uncertainty, these banks face some problems in forecasting daily cash flows and, simultaneously, they fear they will face future difficulties in access to funds, and therefore try to maintain adequate liquidity buffers. In addition, due to lack of transparency and to the complexity of the financial instruments associated with exposures to the subprime market, some uncertainty prevails as regards the distribution and magnitude of the exposures and losses in the banking system. Although a significant share of these losses has already been made public by the respective holders, the total amount of losses disclosed continues to be well below overall estimates. Therefore, high uncertainly persists as to the distribution of the exposures not yet disclosed, thus affecting the evaluation of counterparty risk in most debt markets involving financial institutions.

Hence, the historically high levels of risk premia in the interbank money market have been chiefly associated with two factors: on the one hand, these premia may reflect a general increase in liquidity risk and, on the other hand, this additional premium may incorporate an increase in counterparty credit risk. The purpose of this box is to evaluate which of the two forces has had a dominant influence on the widening of spreads in this market since August 2007. The results, albeit preliminary, indicate that credit risk is the dominant factor, particularly in longer maturities. It must be borne in mind, however, that it is rather complex to clearly identify and distinguish between credit risk and liquidity risk, particularly in the present juncture, when these two elements of risk are deeply intertwined.

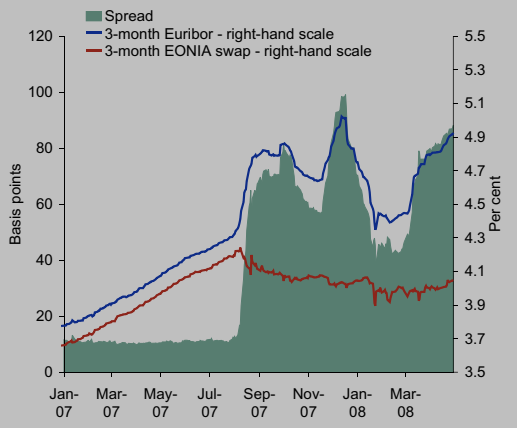
Money market finance premia may be evaluated through the spread between Euribor (interest rate offered in uncollateralised loans by a panel of euro area banks) and the EONIA swap for the corresponding maturity (reflecting market expectations for the overnight interest rate at a given time horizon). From late July 2007 to late April 2008, this spread widened by around 75 basis points. However, as shown in Chart 1, this widening was more significant in certain periods. At a first stage, this spread widened sharply as of early August. Nevertheless, the successive liquidity injections by a number of central banks and the decline in the US reference interest rate in mid-September contributed to some decline in these premia during autumn. In the last weeks of 2007 tensions in this market intensified, associated with increased concerns that, in the present context, liquidity would turn out to be insufficient at the end of the year (a period when demand for short-term financing usually increases). The concerted measures taken by some central banks and the unlimited liquidity supply at the end of the year announced by the ECB contributed to a substantial decline in risk premia in the interbank money market after mid-December. As from the end of February, however, disturbances in money markets rose again, even in longer maturities. In spite of the additional measures of several central banks, these tensions still persisted at the end of April.

As observed in Chart 2, the evolution of risk premia in the interbank money market seemed to keep pace with the evolution of the DJ iTraxx Financial index, which is a measure of credit risk of European financial institutions.[1] The similarity in the evolution of these series suggests that the money market spreads may partly reflect changes in the evaluation of the credit risk underlying euro area financial institutions, even though with some lag. In order to test the validity of this hypothesis, univariate regressions were estimated, by evaluating the extent to which the evolution of the spread between Euribor and EONIA swap is associated with changes in the DJ iTraxx Financial index, i.e. the extent to which tensions in the money market reflected banks' credit risk. The residual component is deemed to include liquidity risk, in addition to a random error.

(1) *The DJ iTraxx Financial index aggregates data on premia of the 25 more liquid credit default swaps of European financial institutions.*

Chart 1

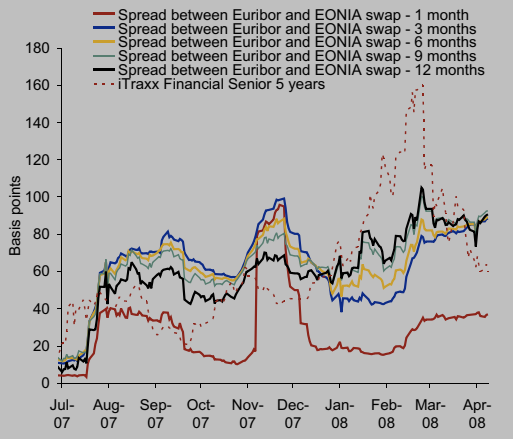
SPREAD BEWTEEN EURIBOR AND EONIA SWAP



Source: Thomson Financial Datastream.

Chart 2

INTERBANK MONEY MARKET SPREADS AND ITRAXX EUROPE FINANCIALS



Source: Thomson Financial Datastream.

Panel A of Table 1 presents the results of these regressions, where the dependent variable is the spread between Euribor and EONIA swap at 1, 3, 6, 9 and 12 months and the only explanatory variable is the DJ iTraxx Financial Senior at 5 years. Estimations were made for the period from 9 August 2007 to 30 April 2008. Based on the analysis of the lagged correlations between these series, the DJ iTraxx Financial Senior index at 5 years is introduced in the regression with a lag of 19 working days. In spite of the simplicity of this regression, the high explanatory power of the credit risk premia regarding the evolution of the interbank money market spreads suggests that tensions in

Table 1

RESULTS OF THE ECONOMETRIC REGRESSIONS

Spread	1 month	3 months	6 months	9 months	12 months
Panel A					
constant	26.06	56.82	53.50	49.54	40.11
	9.40	*26.71*	*37.97*	*47.24*	*36.07*
iTraxx	0.09	0.17	0.23	0.32	0.41
	2.09	*5.33*	*11.10*	*20.87*	*24.92*
Adjusted R-square	0.02	0.13	0.39	0.70	0.77
Panel B					
constant	60.55	-24.59	-25.86	-3.87	15.54
	0.94	*-0.50*	*-0.80*	*-0.16*	*0.60*
iTraxx	0.08	0.18	0.24	0.33	0.41
	1.93	*5.58*	*11.52*	*21.11*	*24.60*
ln (amounts)	-3.17	7.48	7.29	4.91	2.26
	-0.54	*1.66*	*2.47*	*2.23*	*0.96*
Adjusted R-square	0.01	0.13	0.41	0.70	0.77

Notes: Regressions based on daily amounts from 9 August 2007 to 30 April 2008. The dependent variable is the spread between uncollateralised interest rates and EONIA spread at different money market maturities in the euro area. The DJ iTraxx Financial Senior index at 5 years had a 19 working-day lag. The ln(amounts) variable is related to the amounts traded on the euro area overnight money market. t-ratios in italics.

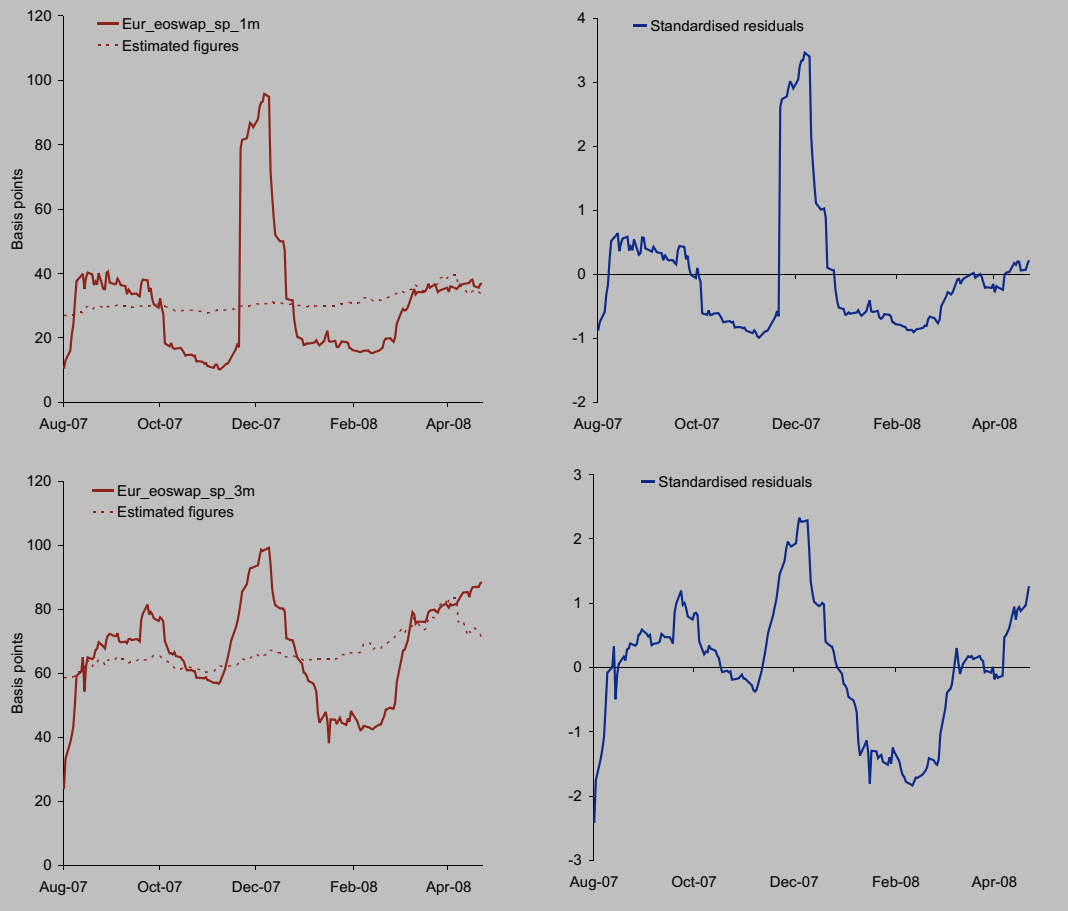
this market should be chiefly associated with an increase in credit risk of euro area financial institutions and less with liquidity problems, most notably in longer maturities of these markets (Chart 3).

Indeed, the quality of adjustment of the regressions in shorter maturities is much lower, suggesting that liquidity risk may have a higher contribution to explain spreads in these shorter time horizons. The residuals of the estimated equations were particularly high during August and, most notably, in the last weeks of 2007, when tensions in the money market partly reflected concerns associated with liquidity levels at the end of the year. On 17 December the ECB announced an unlimited supply of liquidity for bids above 4.21 per cent, thus contributing to some smoothing of money market conditions. In this context, the residuals for 1 and 3-month equations declined markedly after that date. However, after March, the residuals of these equations increased again somewhat, chiefly in the 3-month equation.[2]

As mentioned above, the residual in these univariate regressions would tend to integrate the component associated with liquidity risk. This analysis would not be complete, though, unless a measure of liquidity risk in interbank money markets were included in the regressions. Overall, there are some difficulties in measuring liquidity risk in financial markets. Some common indicators in this analysis are the bid-ask spread or market turnover. On the one hand, since the Euribor is defined as a bid rate, it is not possible to calculate these spreads. On the other hand,

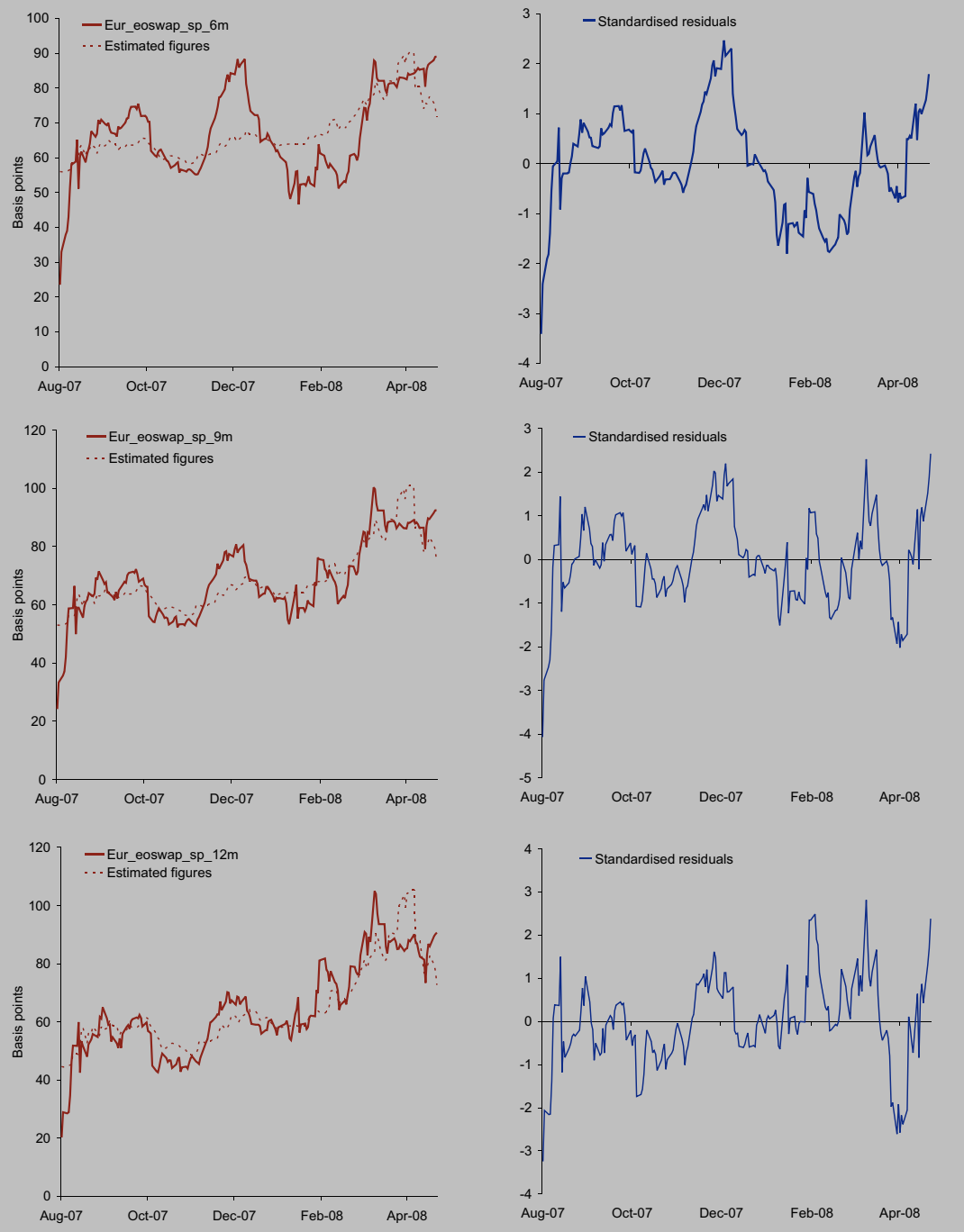
Chart 3

RESULTS OF THE REGRESSIONS (to be continued)



(2) *From late January to mid-March the premia underlying credit default swaps rose very significantly, partly due to uncertainty as to the protection actually provided by these instruments, given the problems observed in several US monolines. This period also coincided with the emergence of doubts regarding the solvency of some of the major US investment banks. Subsequently, these risk premia declined somewhat, in particular after the intervention of the Federal Reserve to help solve Bear Sterns' liquidity problems. Notwithstanding this decline in premia associated with credit default swaps, these remained at high levels. In turn, the money market spreads only started to widen significantly in mid-March.*

RESULTS OF THE REGRESSIONS (continued)



Sources: Thomson Financial Datastream and Banco de Portugal calculations.

there is no information available on the amounts traded in this market. An alternative measure would be the amount traded in the euro area overnight market by the panel of banks that contributes to the calculation of the EONIA. The utilisation of this measure is warranted by the fact that the evidence available suggests that, when banks face difficulties in access to financing in the interbank money market at longer maturities, the underlying borrowing requirements tend to pass through to shorter segments (typically lower than one week). The results for these regressions are presented in panel B of Table 1. Indeed, the coefficient associated with the amount traded in the overnight market assumes, in general, a positive value, providing some support to the assumption that in periods of difficulties in financial markets, the very short-term money market may tend to accommodate bank's financing needs. However, the contribution of this variable to explain the development of this spread is relatively small, when compared with the variable introduced to measure credit risk.

Therefore, the analysis suggests that the increase in the perception of credit risk underlying euro area financial institutions has been one of the major factors behind tensions in the interbank money market in longer maturities. In shorter maturities, credit risk seems to have a relatively small contribution to explain the evolution of interbank money market spreads. Hence, in these maturities, disturbances observed may, in general, be associated with liquidity risk, particularly in the period of tensions related to the situation at the end of the year.

However, this is a relatively simple analysis of the problem, and is subject to some caveats. First, the short period of observation curtails the validity of the conclusions. In addition, the money market situation is not yet stabilised, wherefore future developments in these markets may allow for the incorporation of further information in the estimation of these regressions. On the other hand, the bank panel considered in the Euribor differs from the range of banks (and other financial institutions) considered in the DJ iTraxx Financial index. Moreover, rather different maturities underlie these indicators. Finally, it may be argued whether the iTraxx index measures only credit risk premia, particularly in situations of market instability. In effect, credit default swap premia may have increased, chiefly in early 2008, due to fears arising from possible difficulties in executing these contracts in the event of a widespread increase in defaults, thus raising some concerns about the solvency of several monoline insurers. In addition, the increase in these risk premia might also reflect less availability of the institutions usually trading these instruments to remain active in these markets. Against this background, it should be borne in mind that the distinction between liquidity risk and credit risk in not always clear. In particular, in a context of instability and uncertainty in financial markets, these two elements of risk are closely intertwined.

3. FINANCIAL SITUATION OF THE NON-FINANCIAL PRIVATE SECTOR

3.1. Overview

From a financial stability perspective, 2007 will be globally marked by the turmoil in international financial markets, triggered by the crisis in the US subprime mortgage market. Against this international background, the maintenance of an upward trend in the non-financial private sector indebtedness in Portugal led domestically to a discussion on the debt sustainability of this sector, i.e. on the maintenance of its capacity to meet debt service. In fact, if the capacity to continue servicing debt in a regular and timely manner declined significantly and a high number of households and/or corporations became insolvent, consequences for financial stability would be immediate. In the case of households, mortgage activation would have serious social consequences, given the importance of housing as a primary necessity and the deficient functioning of the renting market. In the case of corporations, the increase in the number of business failures would have an immediate impact on unemployment. In these circumstances, in the case of financial institutions the risk of incurring in losses would depend on their exposure amount vis-à-vis the non-financial private sector, the degree of concentration in their credit portfolios and the recovery rate of default credit. However, in relation to housing loans, the situation of the Portuguese financial system benefits from evidence that prices in the residential property market are not overvalued. In addition, defaulting credit in banks' portfolios has remained at historically low levels both in loans to households and to corporations. In the recent past, this situation was favoured by factors on the supply side of credit, namely changes in the pattern of contractual conditions such as the lengthening of housing loan maturities. These changes aimed at countering the effect of the interest rate increases on debt service. It should also be noted that Portuguese banks significantly concentrate their credit portfolio in a small group of large firms, which have outperformed the average for the non-financial corporate sector, and which are in general associated with very low default ratios and higher profitability.

The non-financial private sector debt grew markedly during the second half of the 1990s, at a stronger pace than that of other relevant variables in nominal terms, namely GDP and household disposable income. It should be noted that this increase was partly driven by the structural adjustment process of Portuguese economic agents to lower and less volatile interest rates than those prevailing prior to participation in the euro area. This suggests that the current indebtedness of both households and corporations corresponds to a change in their equilibrium levels. At the start of this decade corporate indebtedness grew at a rate close to or even lower than that of GDP during the downturn of the present business cycle. The relatively weak upward trend of corporate indebtedness seen since 2004 seems to have become more marked in 2007, with indebtedness rising to 114 per cent of GDP. The growth of the average cost of debt may have translated into an increase in financial pressure, measured by the ratio of interest to corporate operating income, even in the case of larger corporations, whose profitability in general continued to grow above the average. In relation to households, indebtedness continued to grow throughout the decade at rates far above their disposable income. Taking only into account loans, household indebtedness reached 129 per cent of disposable income (corresponding to 91 per cent of GDP).

Information on the sectors' financial situation, based on aggregate data, is very limited regarding the characterisation of the relevant variables distribution, namely the degree of indebtedness or the debt burden associated with debt servicing. The latest microeconomic data on the financial situation of households are based upon the results of the latest Survey on Household Wealth and Indebtedness

(*Inquérito ao Patrimómio e Endividamento das Famílias* - IPEF), carried out by *INE* and Banco de Portugal during the last quarter of 2006 and in the first quarter of 2007. According to this information, the current financial situation of households is not expected to threaten financial stability, although situations of vulnerability can be found, in particular among the younger and lower-income households. However, as their participation in the credit market is relatively limited, the share of their debt in total debt is small.

The outlook for developments in the financial situation of the non-financial private sector is conditional on the current background of increased difficulties for Portuguese banks in borrowing from the wholesale market. These difficulties are already affecting their credit policies, through the tightening of the credit standards applied to loans to households and corporations. In particular, banks' room for manoeuvre to adjust their credit policies to interest rate increases or to restructure and renegotiate loans will be more limited than in the past, a situation that may translate into an increase in default of the non-financial sector.

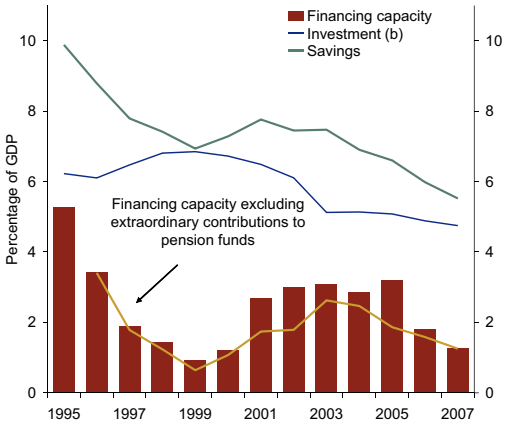
3.2. Households

In 2007 household net lending declined further, to 1.3 per cent of GDP, i.e. 0.5 percentage points less than in the previous year (Chart 3.2.1). Household savings followed the downward trend observed since 2004 and investment stood at broadly the same level as in the previous year, when these aggregates are measured as a percentage of GDP.

In aggregate terms, the net financial position of households is a measure of this sector's capacity to meet the financial liabilities incurred, through the mobilisation of its financial assets. In 2007 the net financial position of households, measured as a percentage of GDP, declined slightly by 3.5 percentage points (Chart 3.2.2). An alternative measure of this capacity is the difference between more-liquid assets and liabilities, which decreased slightly from around 31 per cent to 30 per cent of GDP. However, a substantial part of household wealth is made up of non-financial assets, mostly housing that is used

Chart 3.2.1

SAVINGS, INVESTMENT AND FINANCING CAPACITY OF HOUSEHOLDS [(a)]



Sources: *INE* and Banco de Portugal.
Notes: (a) The ratios of financing capacity, savings and investment to GDP are calculated using data from the National Accounts (base 2000-2005). Since 2005, the ratios are Banco de Portugal estimates. (b) Including net acquisition of land and intangibles.

as collateral. Thus, the ratio of debt to total household wealth is also an important measure of its net lending in aggregate terms.

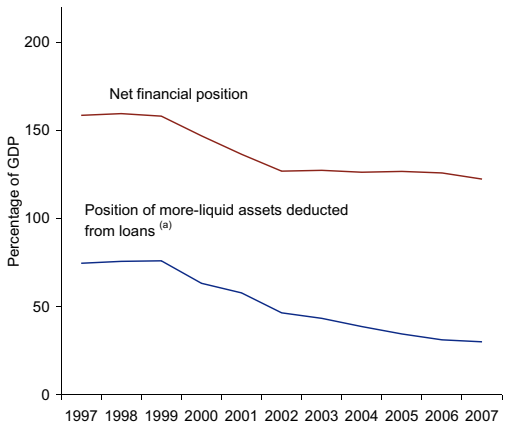
Recent developments in the financial position of households in Portugal may be broadly characterised by two general features. The first, with financial stability implications, regards the high level of this sector's of indebtedness. In 2007 total household liabilities in aggregate terms increased by 4 percentage points when measured as a percentage of GDP, reaching 101 per cent by the end of the year (Chart 3.2.3).[1] Considering only interest bearing liabilities, household indebtedness measured as a percentage of disposable income reached 129 per cent, compared with 123 per cent in 2006 (Chart 3.2.4). In the majority of European countries, the degree of household indebtedness has also increased, not only in countries such as Greece or Italy, traditionally considered to have relatively low degrees of indebtedness, but also in countries such as the United Kingdom, the Netherlands or Denmark, where households are heavily indebted. In Portugal, the degree of household indebtedness, although below the EU15 average, has remained one of the highest in the euro area, only below that of the Netherlands (Chart 3.2.5).

In 2007 the other notable feature of the progress of households' financial position is related to developments in financial assets. These increased by 0.5 percentage points, as a percentage of GDP, but were chiefly characterised by portfolio shifts. In effect, household investment in mutual fund units has fallen in the year as a whole, countering the trend observed over the past 10 years. In turn, other components have been reinforced, in particular deposits (Chart 3.2.4). These developments occurred in the second half of the year and were associated with the turbulence in international financial markets, leading to a reassessment of risk by economic agents. In early 2008 yields on savings certificates, included in deposits for financial accounts purposes, decreased, also implying a portfolio shift towards bank deposits.

As a whole, loans granted to households increased by around 9 per cent in 2007, slightly strengthening the downward trend of the previous year. However, this rate is still rather high when compared with

Chart 3.2.2

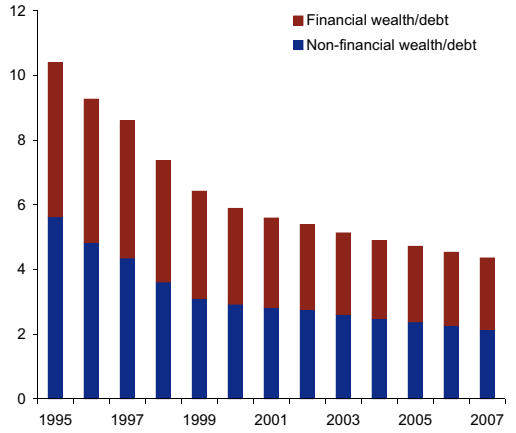
FINANCIAL POSITION OF HOUSEHOLDS



Sources: *INE* and Banco de Portugal.
Note: (a) Including deposits, debt securities, quoted shares and mutual fund units, excluding pension fund units.

Chart 3.2.3

WEALTH/DEBT RATIO



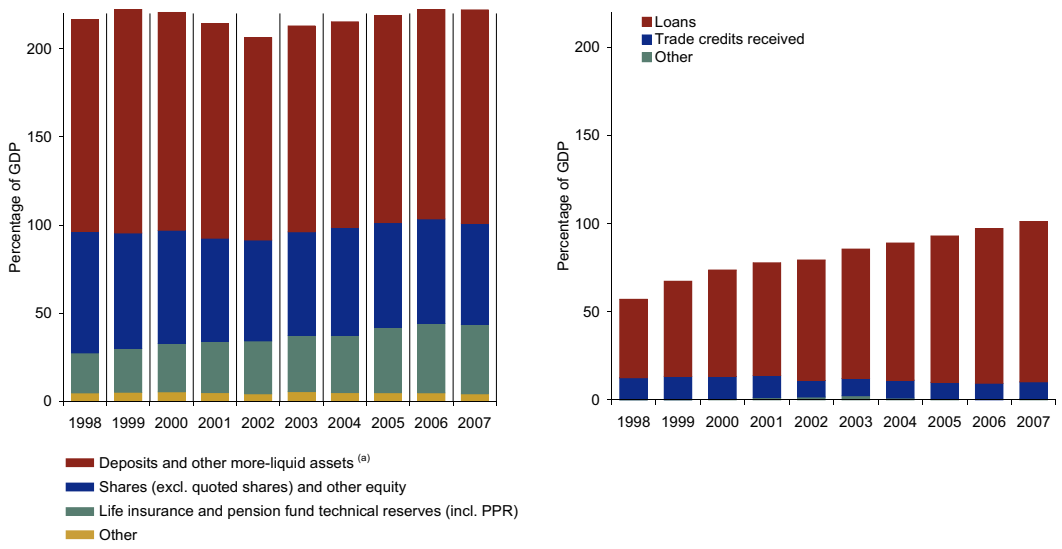
Source: Banco de Portugal.

(1) Note that data on household wealth was revised. For the methodological issues in the revision of non-financial wealth data see "*Box 3.1 Non-financial wealth of Portuguese households: revised series*"

Chart 3.2.4

FINANCIAL ASSETS AND LIABILITIES OF HOUSEHOLDS

End-of-year positions

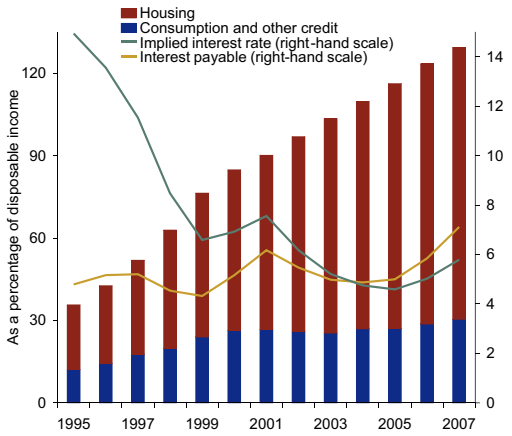


Sources: *INE* and Banco de Portugal.
Note: (a) Including deposits, debt securities, quoted shares and mutual fund units, excluding pension fund units.

growth in other nominal variables in the economy (GDP increased by around 5 per cent and disposable income by around 3.7 per cent). In addition, the increase in household loans is the result of different trends in the housing and consumer credit and other lending segments (Chart 3.2.7). The first segment, with an annual rate of change of 8.5 per cent, had showed a downward trend since mid-2005, although maintaining a rather high rate of growth, in particular considering the upward trend in interest

Chart 3.2.5

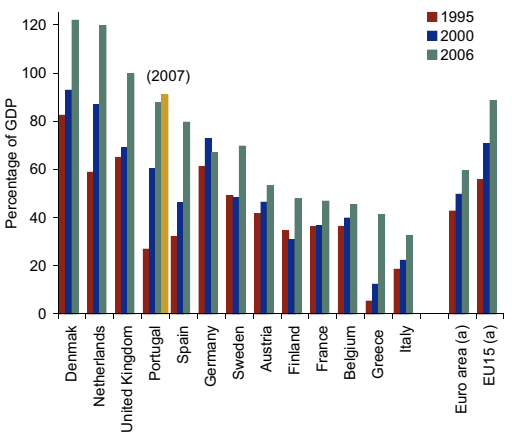
INDEBTNESS AND INTEREST PAYABLE



Sources: *INE* and Banco de Portugal.
Note: Interest payable, as a percentage of disposable income, is estimated by Banco de Portugal in relation to total loan interest.

Chart 3.2.6

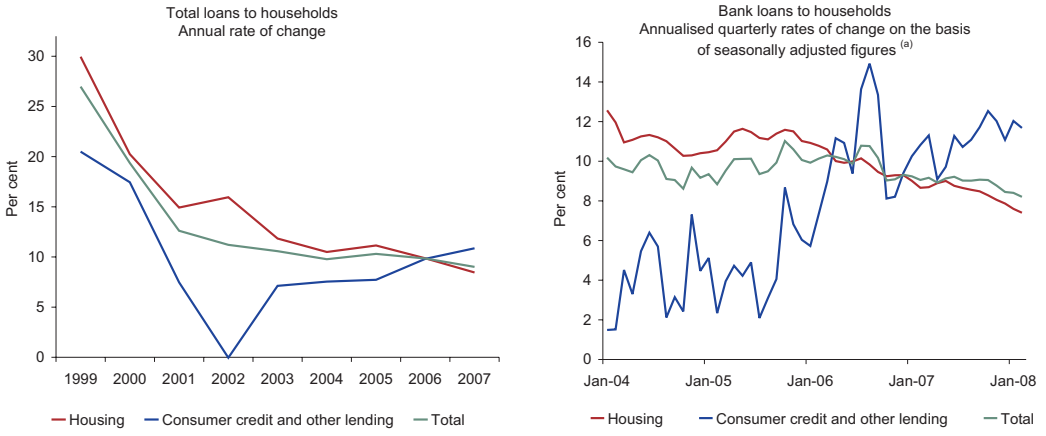
HOUSEHOLD FINANCIAL DEBT



Sources: Eurostat, *INE* and Banco de Portugal.
Note: The euro area and EU aggregates exclude Ireland and Luxembourg.

Chart 3.2.7

LOANS TO HOUSEHOLDS

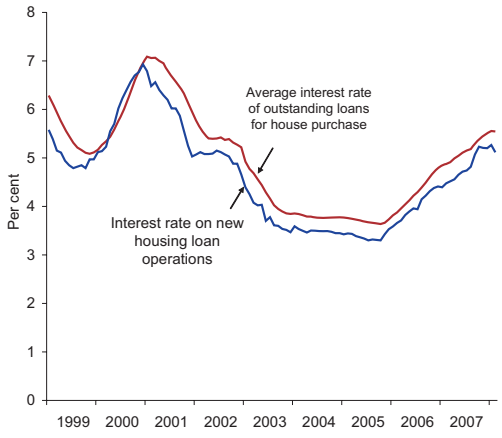


Source: Banco de Portugal.
Note: (a) Rates calculated from figures adjusted for securitisation and reclassifications, write-offs/write-downs and exchange rate and price revaluations.

rates. In fact, the upward trend in interest rates on housing loans continued throughout the year. However, the rise in interest rates on new loans was more marked towards the end of the year, being somewhat reversed in early 2008, in line with developments in money market rates (Chart 3.2.8). Some factors on the supply side of credit have been essential to the maintenance of high growth rates in housing loans in recent years. In effect, some changes have occurred in loan contract conditions, namely the lengthening of loan maturities in order to counteract the effect of the interest rate increase in debt-servicing costs. These changes contributed significantly to support the demand for loans. Information provided by *Direcção Geral do Tesouro* (Directorate-General of the Treasury) regarding the number and value of new housing loan contracts, points to some stabilisation in both the number and

Chart 3.2.8

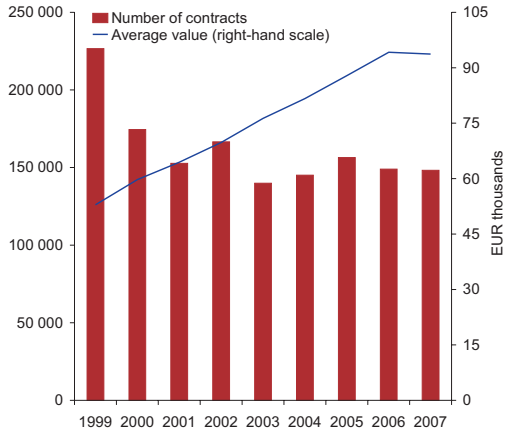
INTEREST RATES ON LOANS TO HOUSEHOLDS FOR HOUSE PURCHASE



Source: Banco de Portugal.

Chart 3.2.9

NEW HOUSING LOAN CONTRACTS



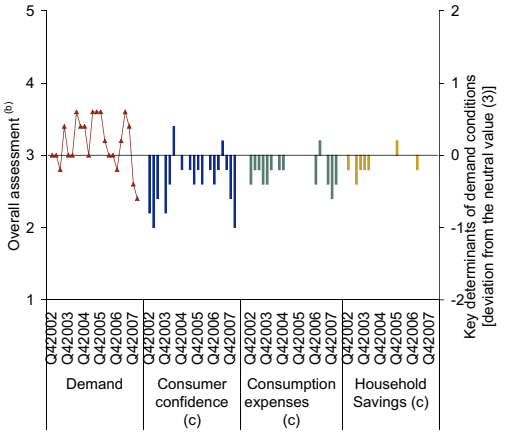
Source: *Direcção Geral do Tesouro.*

average value of contracts compared with the previous year (Chart 3.2.9).[2] According to the banks participating in the euro area bank lending survey, there was a slowdown in demand in the housing credit market in the second half of 2007 and in the first quarter of 2008, mainly due to a decline in consumer confidence (Chart 3.2.10).

Overall, housing loans are considered to have a lower degree of risk, since repayments are largely backed by residential mortgages and there is evidence that the real estate prices in Portugal are not overvalued (Chart 3.2.11).[3] Furthermore, credit delinquency is in general relatively low in housing loans, due to the importance of housing in family life and to a stronger social stigma attached to delinquency in the housing credit segment. In principle, consumer credit and other lending, usually highly correlated with the purchase of durable consumer goods, are also backed, in some cases, by the value of these goods. However, the depreciation rate of durable consumer goods is relatively high and therefore it may be more difficult to recover the full amount of a loan in the event of default. Consumer credit and other lending kept on an upward trend, growing by 10.9 per cent, in annual average terms, in line with the rebound in the consumption of durable goods, in particular motor vehicles (Chart 3.2.12). According to the banks participating in the euro area bank lending survey, i.e. the five major banking groups, demand for consumer credit and other lending has been less affected than demand for housing loans by a drop in consumer confidence. It remained stable throughout the year, in spite of the drop in consumer confidence, in particular in the second half of 2007 and in the first quarter of 2008 (Chart 3.2.13). The results of the survey suggest a tightening of credit supply conditions for consumer credit and other lending, mainly reflected in higher spreads and shorter maturities (see "Chapter 4 *Banking System*"). Nevertheless, available information on the maturity structure and interest rate spreads for consumer credit and other lending for banks as a whole suggests a lengthening of maturities and a tightening of spreads (Chart 3.2.14a and Chart 3.2.14b). These developments may be related to differ-

Chart 3.2.10

DEVELOPMENTS IN DEMAND FOR LOANS TO HOUSEHOLDS FOR HOUSE PURCHASE AND KEY DETERMINANTS [a]

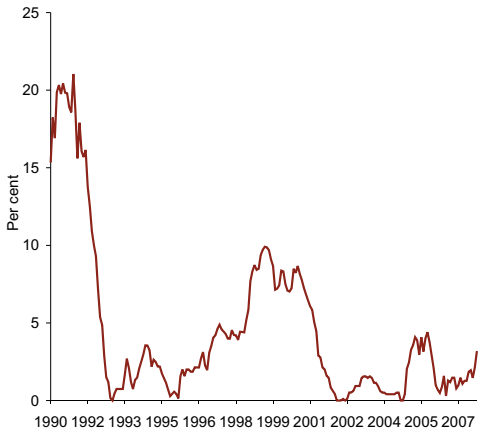


Source: Banco de Portugal.
Notes: (a) The last figure corresponds to the first quarter of 2008. (b) Average responses of the five Portuguese banking groups to the euro area Bank Lending Survey. Figures below 3 correspond to factors contributing to the decline in demand for credit compared to the previous quarter, while figures above 3 represent factors driving an increase in demand for credit. (c) Right-hand scale.

Chart 3.2.11

HOUSE PRICE DEVELOPMENTS IN PORTUGAL

Year-on-year rate of change



Source: *Índice Confidencial Imobiliário*.

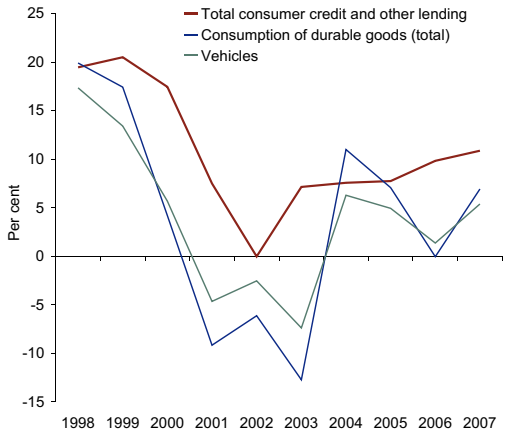
(2) These data also consider loan substitutions due to contract changes as new loan contracts.

(3) See the "Box *Housing prices in Portugal and macroeconomic fundamentals: evidence of quantile regression*", Banco de Portugal, *Financial Stability Report 2005*.

Chart 3.2.12

CONSUMPTION OF DURABLE GOODS AND CONSUMER CREDIT AND OTHER LENDING

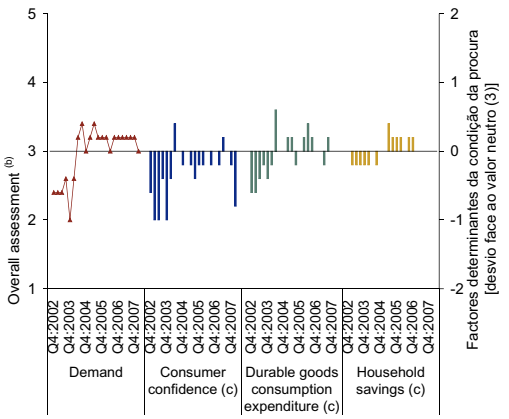
Annual rate of change (nominal)



Sources: *INE* and Banco de Portugal.

Chart 3.2.13

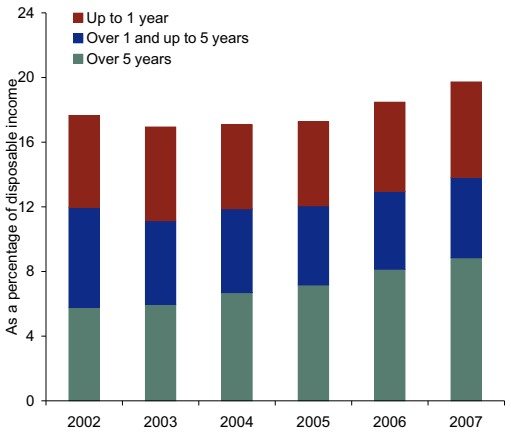
DEVELOPMENTS IN DEMAND FOR CONSUMER CREDIT AND OTHER LENDING AND KEY DETERMINANTS [a]



Source: Banco de Portugal.
Notes: **(a)** The last figure corresponds to the first quarter of 2008. **(b)** Average responses of the five Portuguese banking groups to the euro area Bank Lending Survey. Figures below 3 correspond to factors contributing to the decline in demand for credit compared to the previous quarter, while figures above 3 represent factors driving an increase in demand for credit. **(c)** Right-hand scale.

Chart 3.2.14a

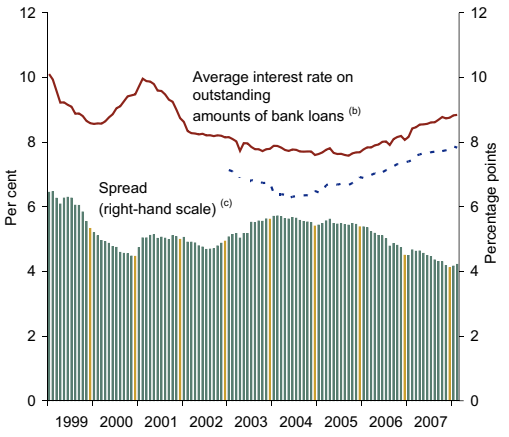
BREAKDOWN BY MATURITY OF BANK CONSUMER CREDIT AND OTHER LENDING [a]



Source: Banco de Portugal.
Note: **(a)** Annual average values of the stock of credit granted by other monetary financial institutions.

Chart 3.2.14b

INTEREST RATE OF BANK CONSUMER CREDIT AND OTHER LENDING AND SPREAD VIS-À-VIS THE MONEY MARKET RATE [a]



Source: Banco de Portugal.
Notes: **(a)** Rates and spread refer to end-of-period outstanding amounts. **(b)** Up to December 2002, average interest rates on outstanding amounts are estimates. Since January 2003, the dotted line shows the rate on loans with a maturity over 5 years. **(c)** The spread is calculated as the difference between the interest rate on outstanding amounts and the six-month moving average of six-month Euribor. Red bars refer to December each year.

ent credit policies from institutions specialised in granting this type of credit (in particular for car purchase), which gained market share in this segment. In turn, it may reflect the fact that some of these loans, whose share has increased, are associated with a lower degree of risk, since they are secured collateral, as is the case with loans for car purchase (see "Chapter 4 *Banking System*").

In 2007 from a financial stability perspective, the international environment was marked by the turmoil in financial markets triggered by the subprime mortgage crisis in the United States. In Portugal, the upward trend continued in the level of household indebtedness and delinquency situations increased in household credit, giving rise to concerns about debt sustainability in this sector. In fact, from a financial stability perspective, the rapid accumulation of household debt justifies stronger monitoring of their capacity to repay loans. If the ability of households to service debt in a regular and timely fashion were particularly affected and a significant number of households stopped repaying their loans, there would be immediate repercussions on their own financial situation, which would certainly have social consequences. In this context, the Portuguese financial system benefits from evidence that prices in the real estate market are not overvalued. Therefore, the financial system is not likely to face a situation where real estate used as collateral has a market value below that of the outstanding value of debts.

An analysis of the financial position of households based on aggregate data has revealed that household credit risk as a whole is moderate, since bank portfolio delinquency has remained at historically low levels ("Chapter 4 *Banking System*"). In spite of the upward trend in interest rates, the interest burden, on average, represents a relatively small share of their disposable income (Chart 3.2.5). However, in 2007 this share stood at its highest level since entry into the euro area, which is associated with a regime characterised by lower and less volatile interest rates.

The analysis presented so far is based on aggregate data, which, albeit relevant, give a very partial picture of reality. With aggregate data, it is not possible, for example, to characterise the situation of indebted households or to have information on the number of indebted households. To assess the implications of indebtedness both from a financial stability perspective and from a macroeconomic perspective, it is essential to know in detail the distribution of relevant variables – such as income, wealth or indebtedness – relate these variables to certain socio-economic characteristics of households and characterise the tails of the distribution.

Thus, it is particularly important to assess the financial position of households based on data from the latest Survey on Household Wealth and Indebtedness (*Inquérito ao Patrimómio e Endividamento das Famílias* - IPEF), conducted during the last quarter of 2006 and in the first quarter of 2007.[4] This survey combines microeconomic data on wealth and debt, income and other socio-economic and demographic characteristics, collected through direct interviewing to a sample of households.[5]

Based on the IPEF, it is possible to analyse in greater detail measures usually used to assess households' ability to service debt: the ratio of debt to annual income, the ratio of the monthly debt burden to monthly income, and the ratio of debt to household assets. In the case of indebted households, the IPEF results suggest that debt market participation, the average level of debt and the average debt burden associated with debt servicing increased between 2000 and 2006/07. In particular, results indicate that access to the debt market for purposes other than house purchase has increased, especially by middle-income households and by households whose head is less than 50 years of age. Conclusions drawn as regards the degree of indebtedness and the debt burden contrast with those derived

(4) This survey was carried out by *INE* and Banco de Portugal.

(5) See Farinha (2008): "The indebtedness of Portuguese households: recent evidence based on IPEF results" in this report. Comparisons with results of the IPEF conducted in 2000 based merely on a descriptive analysis should be avoided, since it may be particularly affected by sample representativeness problems. However, the article's main conclusions are based on a regression analysis, potentially less affected by those problems.

from comparing the results from the 1994 and 2000 surveys. This is particularly relevant considering that interest rates were lower in 2006 than in 2000.

Results suggest that debt market participation and the degree of indebtedness are particularly sensitive to household income and to the age of the household reference person. They increase in line with income until reaching a peak in an intermediate range. They decrease with the reference person's age and level of education, and are higher when the reference person is employed. It should be noted that access to the credit market (in particular loans for house purchase) is fairly limited among lower-income households. The ratio of debt service to monthly income is particularly high among younger households. As to the debt-to-assets ratio, debt represents just over a quarter of total assets for the household sector as a whole.

In order to identify current cases of greater vulnerability, the tails of the distribution of ratios relating to the degree of indebtedness and the debt burden may give useful information. The situations of greater vulnerability are found among the younger and lower-income households. However, the financial system stability does not seem to be threatened, since more vulnerable households account for a relatively small share of the total debt. Furthermore, results shown is this chapter's box, "Sensitivity of the household debt burden to changes in interest rates", suggest that the percentage of very vulnerable households would remain relatively low, even if interest rates were to increase by 2 percentage points.

In conclusion, the financial position of households does not jeopardise financial stability, according to both aggregate and microeconomic data. Even though there is some vulnerability, mainly in younger and lower-income households. However, their participation in the credit market is relatively limited; thus the share of their debt in total debt is small. The outlook for the financial position of households is more uncertain than usual due to the current international financial market turbulence, which constrains the financing of Portuguese banks in wholesale markets. This situation is likely to continue to be reflected in the financing conditions applied to bank customers. In particular, banks' room for manoeuvre to adjust the credit policy to interest rate increases will be more limited than in the past.

3.3. Non-financial corporations

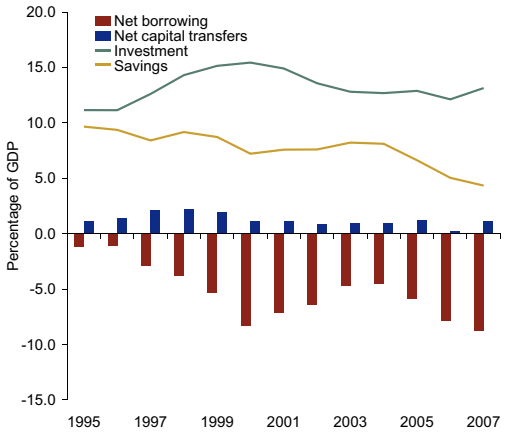
In 2007, in an environment characterised by a recovery in the level of investment of non-financial corporations, measured as a percentage of GDP, this sector's net borrowing increased from 7.8 to 8.8 per cent of GDP. Current savings as a percentage of GDP for the sector as a whole continued the downward trend seen over the past few years (Chart 3.3.1a). On the financial flows side, the increase in net borrowing as a percentage of GDP was reflected in a slightly higher increase in liabilities than in assets (Chart 3.3.1b).

In 2007 the Portuguese economy continued on a path of gradual recovery. One of its most salient features was the buoyancy of investment, which is strongly pro-cyclical and particularly volatile. The growth of investment was more significant in machinery and transport equipment.

Savings of non-financial corporations, measured as a percentage of GDP, decreased further. These developments may reflect in part some compression of margins due to high increases in costs, namely in energy and some commodities, and to the rise in interest rates in annual average terms. In addition, revenue from corporate taxes increased markedly in 2007. This can be chiefly explained by the broadening of the tax base, the recovery of debt and the good results of large taxpayers in the previous year. More recent developments in corporate savings continue to indicate that aggregate developments reflect differing performances depending on the type of company, namely, on the degree of internationalisation and size. In 2007 Portuguese exports of goods and services seem to have been particularly

Chart 3.3.1a

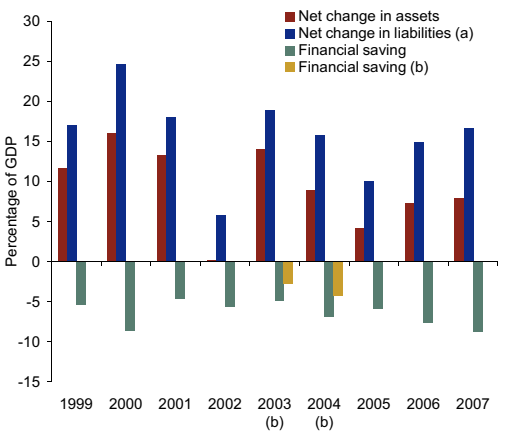
NET BORROWING, SAVINGS AND INVESTMENT OF NON-FINANCIAL CORPORATIONS



Sources: *INE* and Banco de Portugal.

Chart 3.3.1b

FINANCIAL OPERATIONS OF NON-FINANCIAL CORPORATIONS



Sources: INE and Banco de Portugal.
Notes: (a) Excluding operations related to Portuguese direct investment abroad and foreign direct investment in Portugal of companies having their head office in Madeira's offshore. (b) Figures adjusted for temporary fiscal measures.

dynamic. This translated into an overall gain in market shares. Regarding size, available information suggests the maintenance of relatively higher growth in profits of larger companies.

The latest data available on the performance of non-financial corporations relate to larger companies, which although in minority, have a very significant weight in the economy. From a financial stability perspective, large companies are particularly important, since Portuguese banks' credit portfolios show a significant concentration in a small group of large companies. However, in general their probability of default is very low.

In 2007 Portuguese listed non-financial corporations, showed a valuation in annual average terms compared to 2006 in most sectors of activity, which is reflected in the trend of the sectoral PSI indices (Chart 3.3.2). In the second half of the year, developments in the stock prices of these companies were also affected by the situation in international financial markets, which was characterised by a drop in stock prices as a result of an increase in risk premia, although the steepest falls were experienced by financial corporations.

Likewise, data from the Central Balance Sheet Database of Banco de Portugal already available for 2007 relate mainly to the accounts of larger companies that constitute the sample of the quarterly Central Balance Sheet Database.[6] According to these data, the profitability of the companies in the sample has remained on an upward trend in average terms, as shown by the performance of the usual ratios, i.e. return on equity (ROE) and the ratio between operating profits (i.e. results before the deduction of interest) and assets (Chart 3.3.3).[7] In line with developments in market interest rates, the interest rate

(6) It should be noted that larger companies are overrepresented in the samples of the annual and, in particular, the quarterly Central Balance Sheet Databases. From 2006 onwards, annual information is based on the new simplified reporting system for corporate data (IES – *Informação Empresarial Simplificada*), as yet only available for this year, which have a considerably wider coverage of small and medium-sized enterprises.

(7) These ratios are defined as:

Return on equity = $\frac{R}{C}$

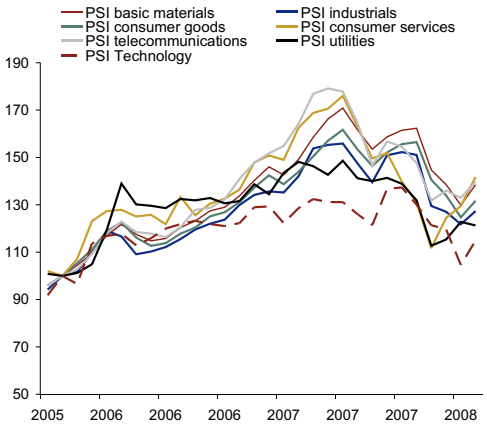
Operating prfitability of assets: $\frac{R \quad J}{A}$

where R is current results, C is equity, J is interest and A is assets.

Chart 3.3.2

STOCK PRICE INDICES: SECTORAL PSI

Index: December 2005=100

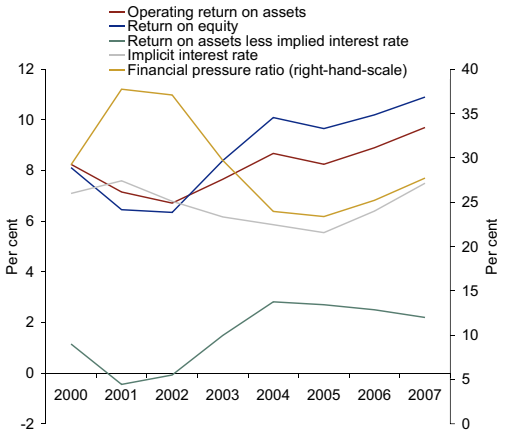


Source: Euronext Lisboa.

Chart 3.3.3

PROFITABILITY OF NON-FINANCIAL CORPORATIONS

Central Balance Sheet Database - Quarterly



Source: Central Balance Sheet Database of Banco de Portugal - Quarterly.
Note: Operating return on assets = (R + J) / A, return on equity = R / A, interest rate implied in debt = J / D, financial pressure ratio = J / (R+J), where R is current results, J is interest paid, A is net assets, C is equity and D is financial debt; the ratios were calculated by applying rates of change based on joint undertakings to the last available value obtained.

implicit in these companies' debt increased in 2006 and 2007, and the margin between profitability and the interest rate faced by these companies narrowed. In turn, the ratio of interest to corporate operating results is a proxy for the "financial pressure" faced by corporations. Through this ratio it is possible to assess these companies' capacity to make interest payments through internally generated resources.[8] It should be noted that this indicator summarises several financial features of companies, since it is the arithmetic result of the composition of the financial leverage ratios (of debt to assets), interest rate implicit in debt (of interest paid to debt) and ROA (of operating results to assets)[9]. In 2007, as in 2006, financial pressure on these companies seems to have increased, mainly via the rise in debt costs, whose impact more than offset the opposite sign effect resulting from the increase in operational profitability. Against this background, it should also be noted that the financial leverage ratio of non-financial corporations as a whole seems to have increased slightly in 2007 (Chart 3.3.4). In turn, data from national accounts by institutional sector, only available up to 2005, show that the profitability level of large companies is significantly different from that of companies as a whole (Chart 3.3.5).

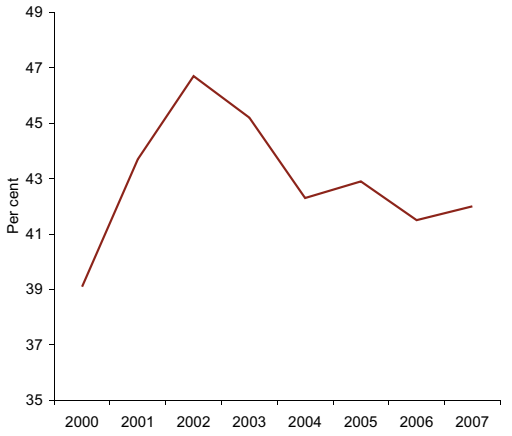
According to the results of the Investment Survey, in 2007 compared to 2006, investment profitability and self-financing capacity were reported by fewer companies as factors limiting corporate investment, while the level of interest rates was more frequently mentioned (Chart 3.3.6). As usual, sales prospects remained the factor limiting investment most frequently mentioned by companies participating in the survey. Monitoring the financial situation of companies is very relevant both in terms of financial stability and of its macroeconomic implications. In fact, empirical evidence suggests that, against a background of frictions and information asymmetries in financing markets, the financial situation of

(8) See Barbosa, Lacerda and Ribeiro (2007), "*Investment decisions and financial standing of Portuguese firms*", Banco de Portugal, Economic Bulletin - Winter.

(9) It should be noted that $\frac{J}{R\ \ J} \quad \frac{J}{D} x \frac{D}{A} \quad \frac{1}{R\ \ J\ /A}$ where J is interest paid, D is financial debt, A is net assets and R is current results.

Chart 3.3.4

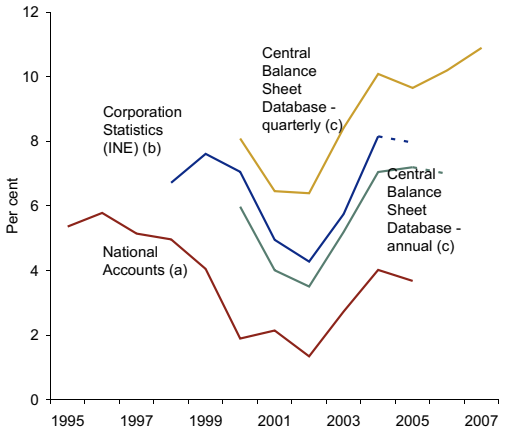
FINANCIAL LEVERAGE RATIO
Non-financial corporations (Financial Accounts)



Sources: Financial Accounts of Banco de Portugal.
Note: Financial leverage ratio = D / (A+D), where D is the value of financial debt and A is the value of shares and other units (liabilities).

Chart 3.3.5

RETURN ON EQUITY OF NON-FINANCIAL CORPORATIONS



Sources: *INE*, National Accounts and Integrated System of Corporation Statistics, and Banco de Portugal, Financial Accounts and Central Balance Sheet.
Notes: (a) Ratio of net savings in the sector, plus distributed income of corporations and reinvested profits of foreign direct investment (employment in the sector), to the annual average stock of shares and other non-consolidated equity (liabilities) in the non-financial corporations sector, based on the stock at market prices in t-1 and t, where the stock in t is adjusted for annual capital gains and losses. (b) Ratio of net profit/loss for the year to the annual average value of the equity. Up to 2004, it refers to non-financial corporations with more than 20 workers. In 2005 the ratio corresponds to total companies considered in the Integrated System of Corporation Statistics. (c) Ratio of current profit and loss (operational profit and loss plus financial profit and loss) to the value of shares and other equity (equity plus provisions and adjustments). Calculated by applying rates of change based on joint undertakings to the last available value obtained for two consecutive years. From 2006, the ratio relating to the annual Central Balance Sheet Database is calculated based on data from the simplified corporate data.

companies may have an impact on real activity.[10] In particular, financial pressure faced by companies is relevant for the behaviour of corporate investment, especially for smaller companies, which participate less in international trade and have a smaller number of bank relationships.

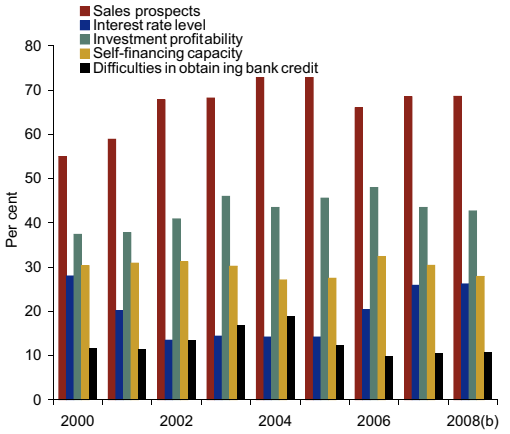
According to the replies of the Portuguese banks participating in the Bank Lending Survey in the euro area (the five largest banks), debt restructuring and working capital needs remained, in that order, the main factors contributing to some increase in the demand for loans throughout the year (Charts 3.3.7a and 3.3.7b). In addition, according to this survey, some slowdown was observed towards the end of 2007. In the second half of the year, investment financing may have also induced an increase in the demand for loans. In turn, banks may have started to apply tighter credit standards to the approval of loans, which mostly resulted in wider spreads, shorter maturities and limits to loan size. This was essentially due to changes in accessing wholesale funding as a result of international financial market turbulence. For the second quarter of 2008, banks forecast a global stabilisation in the demand for loans and intend to continue applying tighter credit standards to the approval of loans.

For banks as a whole, there are also indications that bank lending rates have reflected wider spreads, as seen in particular in data for 2008 (Chart 3.3.8). Banks have in general more room to introduce changes in contractual terms in loans to non-financial corporations than, for example, in loans to households, in particular housing loans. Therefore, these changes will tend to be introduced relatively quickly in loans to corporations.

(10) See Barbosa, Lacerda and Ribeiro (2007), "*Investment decisions and financial standing of Portuguese firms*", Banco de Portugal, Economic Bulletin – Winter.

Chart 3.3.6

MAIN FACTORS LIMITING INVESTMENT BY NON-FINANCIAL CORPORATIONS [a]

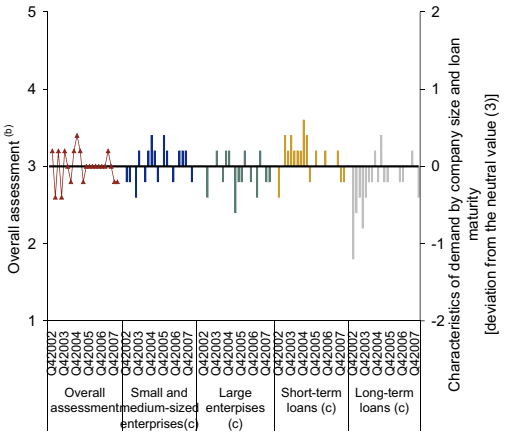


Source: *INE, Inquérito de Conjuntura ao Investimento.*
Notes: **(a)** Percentage of corporations indicating each of the factors limiting investment, from among the whole of corporations indicating restrictions on investment. **(b)** Intentions.

Chart 3.3.7a

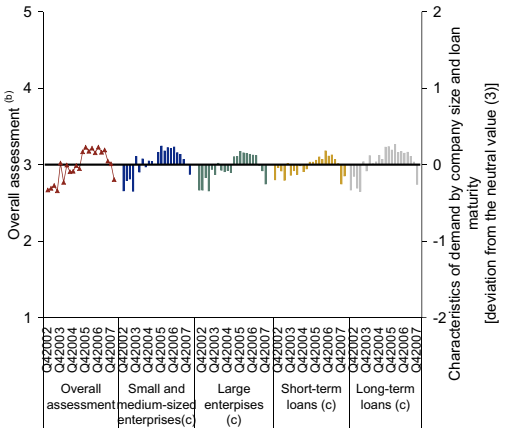
TRENDS IN DEMAND FOR LOANS [a]

Portugal



Source: Banco de Portugal.
Notes: **(a)** The last figure corresponds to Q1 2008. **(b)** Average responses given by the 85 national banks in the euro area Bank Lending Survey. Figures below 3 correspond to factors contributing to the decline in demand for credit compared to the previous quarter, while figures above 3 represent factors driving an increase in demand for credit. **(c)** Right-hand scale.

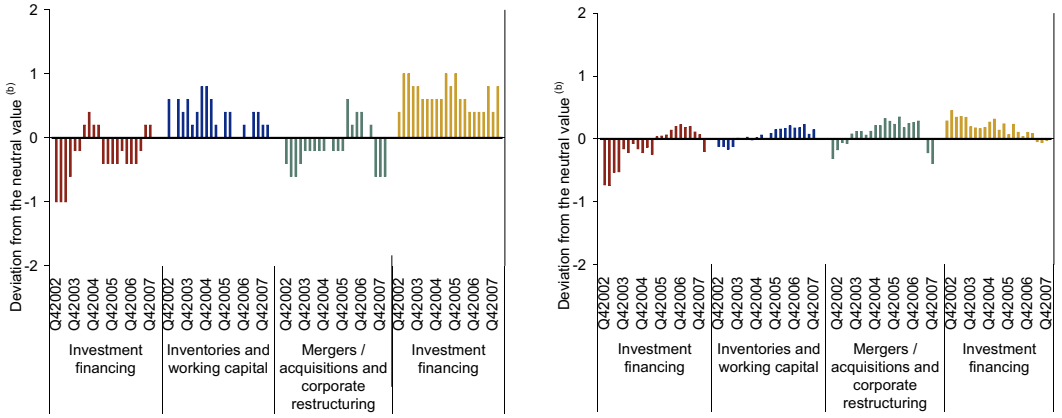
Euro area



Source: Banco de Portugal.
Notes: **(a)** The last figure corresponds to Q1 2008. **(b)** Average responses given by the 85 national banks in the euro area Bank Lending Survey. Figures below 3 correspond to factors contributing to the decline in demand for credit compared to the previous quarter, while figures above 3 represent factors driving an increase in demand for credit. **(c)** Right-hand scale.

Chart 3.3.7b

FACTORS AFFECTING DEMAND FOR LOANS BY NON-FINANCIAL CORPORATIONS [a]



Source: Banco de Portugal.
Notes: (a) The last available figure corresponds to Q1 2008. (b) Average responses given by the five Portuguese banking groups in the euro area Bank Lending Survey. Figures below 3 (neutral value) correspond to factors contributing to the decline in demand for credit compared to the previous quarter, while figures above 3 represent factors driving an increase in demand for credit.

Source: Banco de Portugal.
Notes: (a) The last available figure corresponds to Q1 2008. (b) Average responses given by the 85 national banks in the euro area Bank Lending Survey. Figures below 3 (neutral value) correspond to factors contributing to the decline in demand for credit compared to the previous quarter, while figures above 3 represent factors driving an increase in demand for credit.

Corporate indebtedness, measured as a percentage of GDP, grew markedly during the second half of the 1990s and is currently on a less marked upward trend, after stagnation or even slight decrease during the downturn of the current economic cycle. However, the increase in corporate indebtedness was largely caused by a structural adjustment process of Portuguese economic agents to lower and less volatile interest rates than those prevailing prior to participation in the euro area. It is therefore important to qualify the performance of this indicator through indicators that measure the ability of companies to service their debt, as for example, the above-mentioned ratio of interest to corporate results. It should be noted that the reduction in this indicator over this period partly reflects the marked fall in risk premia for these companies and suggests that the current indebtedness level of companies in part corresponds to a structural change associated with the new economic regime underlying the participation in the euro area.[11] From a financial stability perspective, it should also be noted that larger companies showed a higher growth pace of indebtedness. At the same time, these companies have undergone a more intense accumulation of financial assets, as a result of the restructuring and internationalisation dynamics of Portuguese large non-financial economic groups.

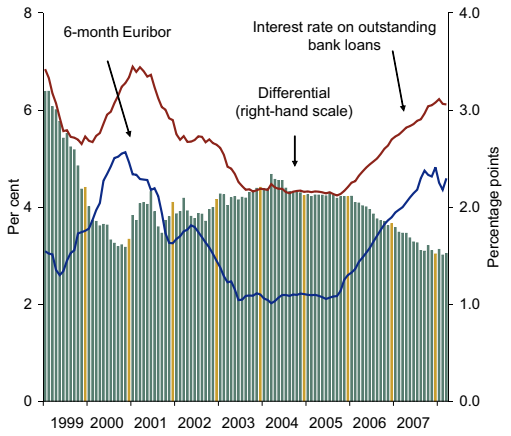
In 2007 the indebtedness of non-financial corporations increased significantly, more markedly than in previous years, reaching 114 per cent of GDP (Chart 3.3.9). These developments, together with the increase in interest rates, which occurred on average in the year as a whole, led to an increase in the weight of interest paid by companies, from 4 to 5 per cent of GDP (Chart 3.3.10). Portuguese non-financial corporations currently have a higher degree of indebtedness than the European Union average and the second highest in the euro area, according to data for 2006 (Chart 3.3.11).

Considering the different corporate financing sources, bank loans to non-financial corporations accelerated throughout 2007. However, in contrast to financial corporations, non-financial corporations do not seem to have found it hard until the end of 2007 to obtain funding through the issuance of debt securities, both long-term (bonds) and, in particular, short-term (commercial paper). Equity financing was

(11) See Barbosa, Lacerda and Ribeiro (2007), "*Investment decisions and financial standing of Portuguese firms*", Banco de Portugal, Economic Bulletin – Winter.

Chart 3.3.8

MONEY MARKET INTEREST RATES, INTEREST RATES ON BANK LOANS TO NON-FINANCIAL CORPORATIONS AND RESPECTIVE SPREADS [a]

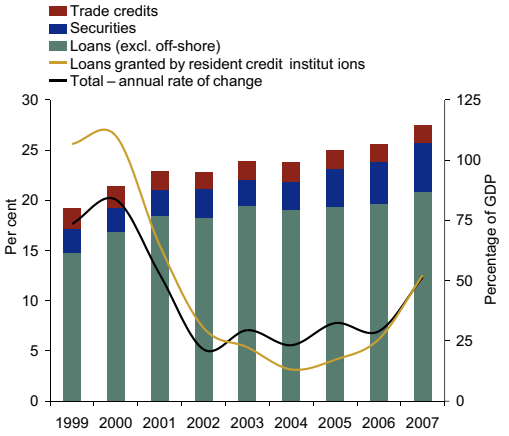


Source: Banco de Portugal.
Note: (a) Rates and spreads refer to end-of-period outstanding balances. The end of each year is highlighted. Up to December 2002, interest rates on outstanding balances are estimates. Spreads are calculated as the difference between the interest rate on outstanding balances and the six-month moving average of the six-month Euribor. Last value: March 2008.

Chart 3.3.9

TOTAL DEBT OF NON-FINANCIAL CORPORATIONS[a]

Annual rate of change and end-of-period positions (right-hand scale)

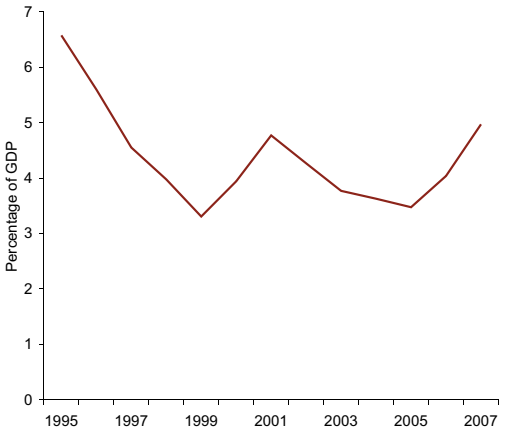


Source: Banco de Portugal.
Note: (a) Including loans granted by resident and non-resident credit institutions; loans/additional capital by non-resident intra-group corporations (excluding those granted to non-financial corporations having their head-office in Madeira's off-shore); commercial paper and bonds issued by non-financial corporations held by other sectors and trade credits received from other sectors.

slightly lower than in the previous year (Chart 3.3.12). It should also be noted that, in 2007, as in 2006, the vast majority of the gross issuance of bonds was at a fixed rate, in contrast to bank loans in which a floating rate or initial rate fixation of up to one year continue to predominate (Chart 3.3.13).

Chart 3.3.10

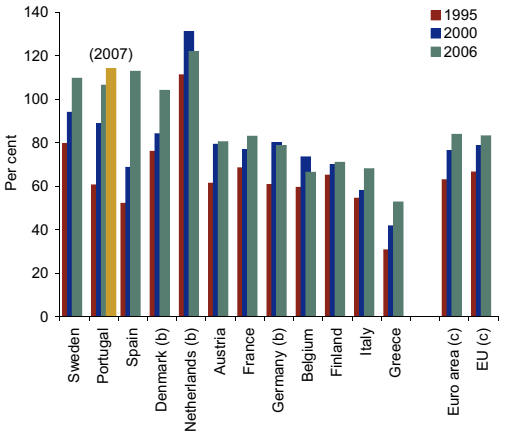
INTEREST PAYABLE BY NON-FINANCIAL CORPORATIONS



Source Banco de Portugal.
Note: Estimates for interest payable on loans and debt securities.

Chart 3.3.11

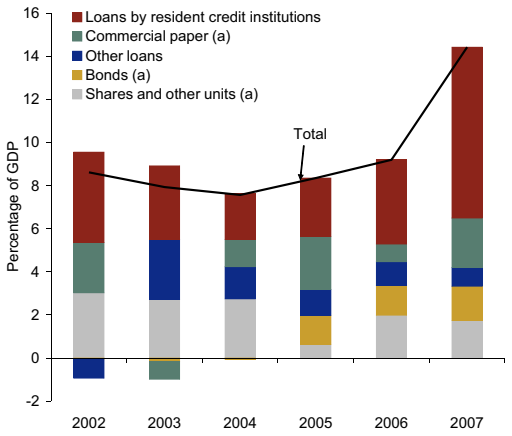
RATIO OF TOTAL DEBT IN GDP [a]



Source: Eurostat and Banco de Portugal.
Notes: (a) Total debt corresponding to the sum of loans, debt securities and trade credit liabilities. (b) Also includes other accounts payable. (c) EU15, excluding the United Kingdom, Ireland and Luxembourg. The last two are also excluded from the euro area aggregate.

Chart 3.3.12

MAIN FINANCING FLOWS OF NON-FINANCIAL CORPORATIONS



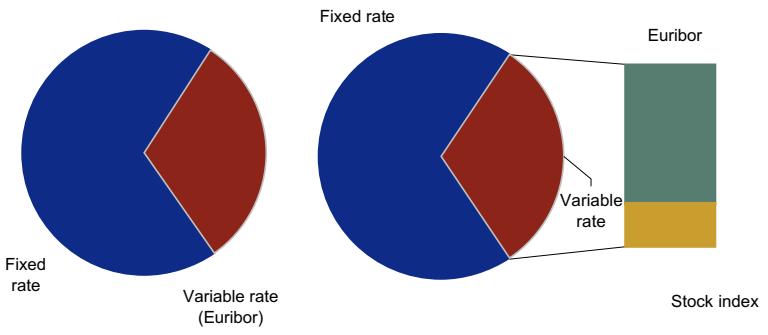
Source Banco de Portugal.
Note: (a) Non-consolidated amounts.

As mentioned above for the financial position of households, the existence of disaggregated microeconomic data enables a more detailed characterisation of the situation of non-financial corporations. In particular, information from the Central Credit Register (CCR) helps to identify in credit developments the increase in the number of participants in the credit market – in this case non-financial corporations – and developments in the average exposures of those corporations. With the information from the CCR, it is possible to make this distinction regarding exposures to resident financial institutions. The results of this exercise for the period 1995-2007 are shown in "Box 3.3. Access to credit by Portuguese companies". According to these results, during the period under review, the total increase in corporate bank debt was due to an increase in the number of participants in the credit market, as well as an increase in already existing exposures. The rise in credit seems to have mainly resulted from an im-

Chart 3.3.13

GROSS ISSUANCE OF BONDS BY NON-FINANCIAL CORPORATIONS

2006 2007



Source: Banco de Portugal.

provement in access conditions to the credit market deriving from the reduction in nominal interest rates, since results are particularly significant for the period up to 2001. It is interesting to compare this result with those obtained for the household sector based on microeconomic data.[12] As to households, there is evidence suggesting that, in the second half of the 1990s, the increase in indebtedness was mainly a consequence of the increase in the number of households with access to credit. Nevertheless, the latest information suggests that, as with companies, from 2000 to 2006 the increase in debt was likely a result of both an increase in credit market participation and an increase in the average household indebtedness levels. In both cases, it would be particularly relevant to understand which factors are behind the increase in access to credit, i.e. it would be important to distinguish credit supply-side from credit demand-side factors, through a more in-depth study.

Prospects regarding developments in the financial situation of non-financial corporations are also conditional on the current background of increased difficulties for Portuguese banks in obtaining financing in the wholesale market. These difficulties are affecting their credit policy, via the tightening of credit standards. Difficulties may increase if financial market turbulence extends over time and it becomes difficult for large companies to obtain financing in the international market through loans or securitised debt. Finally, it is also important to outline that the materialisation of a downward revision of economic growth that would translate into a marked deceleration in activity would have inevitable consequences for the financial situation of companies.

(12) See "*Section 3.1 Overview*".

Box 3.1. Non-financial wealth of Portuguese households: revised series

Aggregate data on the financial component of household wealth is chiefly based on the National Financial Accounts, which for a significant share of assets and liabilities is obtained from the counterparty sectors, largely banks. Thus, in aggregate terms, relatively accurate estimates are obtained for a large share of household financial wealth. By contrast, the non-financial wealth of this sector is particularly difficult to estimate, given that base data available allowing for their direct estimation are scarce. One possible way of overcoming this difficulty consists in utilising estimated values of investment flows in fixed capital by households, and summing them cumulatively, by postulating reasonable hypotheses for the expected useful lifetime of the assets and the respective depreciation rate. This procedure, called perpetual inventory method, is normally used to obtain estimates of the capital stock. In the case of Portuguese households, this method was also used to obtain an estimate of housing wealth for the period 1980-2004.[1] However, more recent evidence, based on the results of the Household Wealth and Indebtedness Survey (Inquérito ao Património e Endividamento das Famílias – IPEF), suggests that estimates based on the perpetual inventory method may significantly underestimate the real value of the housing stock owned by households.[2]

In the (few) countries that collect data on household wealth through direct surveys, results obtained are normally used as a supplementary information source to obtain estimates of household wealth in aggregate terms. More specifically, information can be particularly useful to estimate the non-financial component of household wealth, given that alternative information sources are scarce. In the case of Portuguese households, the results of the latest IPEF (2006/2007) have been used in the revision of the housing wealth series that had been previously obtained on the basis of the perpetual inventory method. According to data from the IPEF, approximately 73 per cent of Portuguese households are the owners of their main residence with a median housing value of EUR 95,000. In addition, around 10 per cent of households also own a residence other than their main one with a median value of around EUR 81,000 euros.[3] Taking as a basis IPEF data, a point value can be obtained for aggregate household wealth in housing in 2007, given by the following expression:

$$\sum_{i}^{N} Housing_i * w_i$$

i.e., by extrapolating the individual values reported by each household in the sample, $Housing_i$, using the respective weightings w_i[4]. This figure represents an upward revision of around 49 per cent of household wealth in housing. Starting from this new point value, the new series was retropolated on the basis of the rates of change implicit in the old series, derived from developments in value and volume of GFCF in housing.[5] Thus, comparing the relationship between non-financial wealth and household disposable income on the basis of the new and old series a level change is observed (Chart 1). With regard to the ratio of household non-financial wealth to household debt, the new series suggest a globally more favourable situation than the old series (Chart 2). However, a trend decline in this ratio can also be observed, albeit considerably less marked since 2000.

(1) See Cardoso and Cunha (2005), "Household wealth in Portugal: 1980-2004", *Banco de Portugal Working Paper 4/2005*.

(2) See Coimbra, Farinha and Lameira (2008), "How to generate macro data relying on survey micro data on household's wealth?", BIS, *IFC Bulletin* 28, forthcoming.

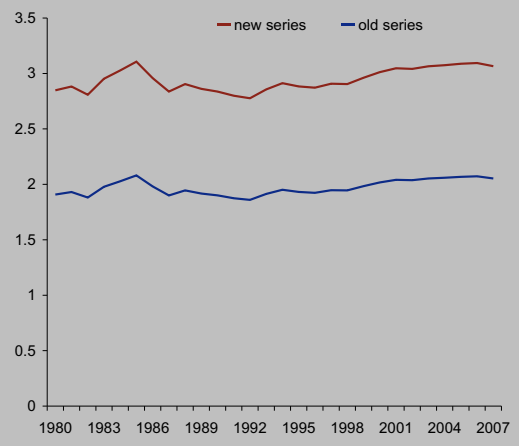
(3) By way of comparison, it should be noted that, according to data from Encuesta Financeira de las Familias conducted by Banco de España, in 2005, 81 per cent of Spanish households were the owners of their main residence and the median housing value was around EUR 180,000; in Spain, 35 per cent of households also own other real estate, with a median value of EUR 103,000 (see Economic Bulletin 12/2007, Banco de España).

(4) Households reporting ownership, but presenting no value for the property have been excluded from the observations. When only the acquisition value of property was available, it was used as a proxy for its current value.

(5) For more detailed information, see Cardoso, Farinha and Lameira (2008), "Household wealth in Portugal: revised series", Banco de Portugal, forthcoming.

Chart 1

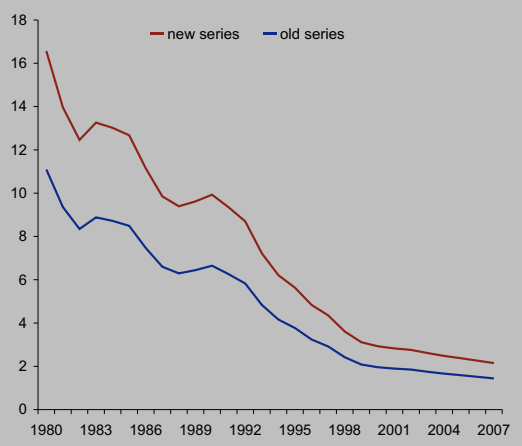
HOUSEHOLD HOUSING WEALTH
As a percentage of disposable income



Source: Banco de Portugal.

Chart 2

RATIO OF HOUSING WEALTH TO DEBT



Source: Banco de Portugal.

Box 3.2. Sensitivity of household debt burden to changes in interest rates

Households' capacity to continue servicing their debts may be particularly affected by macroeconomic conditions, namely the level of interest rates. This is particularly important in the Portuguese credit market, since loan contracts in general continue to be mainly based on variable interest rates (linked to a benchmark, usually a money market interest rate). Therefore, an increase in interest rates is quickly reflected in debt service ratio, i.e. the weight of interest and loan repayments on household income. This situation may affect particularly the households facing more critical situations.

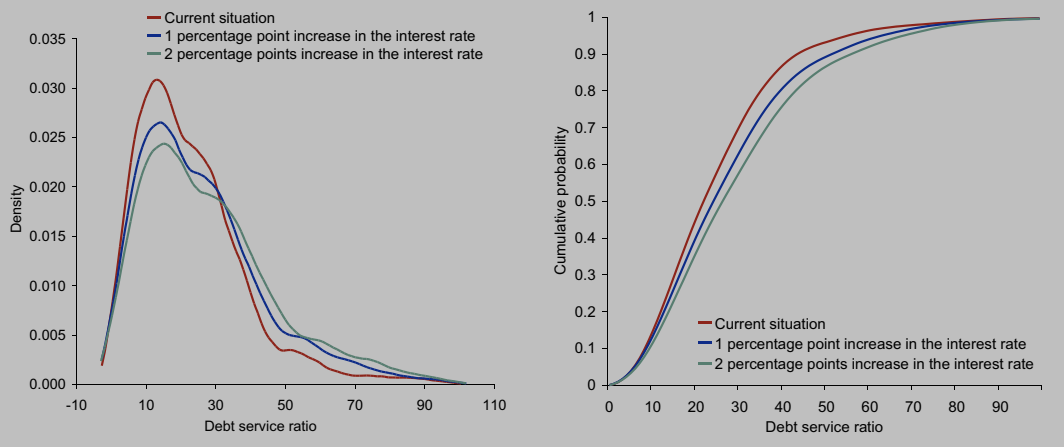
Information on how the debt service ratio is distributed among indebted households is necessary in order to analyse its sensitivity to changes in the interest rate. Data from the latest Household Wealth and Indebtedness Survey (Inquérito ao Património e Endividamento das Famílias - IPEF), conducted during the last quarter of 2006 and the first quarter of 2007, are particularly useful for an updated outlook on changes in households' ability to service debt due to interest rate changes.

This box presents a very simplified simulation exercise on the effect of 1 and 2 percentage point increases in interest rates on the density and cumulative probability functions of household debt service ratio. The exercise is based on the distribution of households as given by the IPEF. The reasoning behind the choice of 1 and 2 percentage points for the increases in interest rates takes into account the relatively high starting point of interest rates, as well as the range of market interest rates since the start of the euro area.[1] It should also be noted that this analysis only considers interest rate changes, all other variables remaining constant.

In the first part of the chart it can be seen that the density function clearly moves to the right, indicating greater potential upsurge of households with particularly high ratios. In the second part of the chart, the estimated effect of the interest rate increase on the share of households with certain critical levels of debt service ratio can be directly observed. For example, in the extreme situation considered here of a 2 percentage point increase in the interest rate, the median value of the ratio increases from 22 to 26 per cent, i.e. 50 per cent of indebted households would have a debt service corresponding to more than 26 per cent of their income. In the higher percentiles, differences are slightly higher. Percentile 75 increases from 32 to 39 per cent and percentile 90 from 44 to 56 per cent, i.e. 25 per cent of indebted households would have a debt service of more than 39 per cent of their income, while 10 per cent

Chart 1

SENSITIVITY OF DEBT SERVICE TO CHANGES IN THE INTEREST RATE



Source: Banco de Portugal.

(1) *In February 2008 average bank interest rates on loans to households for house purchase and consumer credit and other lending stood at around 5.6 and 8.8 per cent respectively, corresponding to increases of 0.8 and 0.7 percentage points compared with December 2006, at the time of the IPEF.*

of indebted households would have a debt service of more than 56 per cent of their income. These results suggest that even if interest rates were to rise quite sharply, the percentage of more vulnerable households would remain limited. This is consistent with the evidence that the debt of highly indebted households, in particular the lower-income households, is relatively low.

Box 3.3. Access to credit by Portuguese companies

This box outlines developments in access to bank credit by resident companies in Portugal in the period from 1995 to 2007. The analysis will be focused in particular on the change in the average number of bank relationships (or, equivalently, credit relationships), the total exposure by company and the total number of companies with bank relationships. These indicators can provide an idea on how easy it is for companies to resort to bank lending. This is an important issue as distortions in the market of credit to companies may have major consequences on the aggregate level of productivity of the economy. For instance, if a company intends to start a project but does not manage to have access to credit under fair conditions due to inefficiencies in the financial sector, the opportunity to create value and employment is lost. If this is a broadly based phenomenon, it is reasonable to assume that the aggregate effect may be significant.

There are at least two orders of factors that seem to have triggered the increase in credit granted to companies since the mid-1990s. The first is the generalised fall in interest rates in the 1990s, in the context of the nominal convergence process of the Portuguese economy, through participation in the euro area. The second is related to institutional changes with consequences for both the supply and demand for credit, such as competition in the banking industry, the implementation of new methods for the assessment of credit risk by banks, or the progressive sophistication of companies as regards the use of credit instruments. Given that it is difficult to quantify the contribution of each factor, this box analyses access to credit by using simple indicators, such as the number and amount of bank relationships per company, or the number of companies with access to debt.

There is an extensive literature on the interdependence between the number of bank relationships of companies and the conditions of access to credit.[1] Some authors argue that companies should have a reduced number of bank relationships, in order to reduce monitoring costs. Others argue that companies with a higher number of bank relationships are less prone to the so-called "hold-up problem", i.e. a financial institution profiting from an exclusive relationship will exploit the asymmetry of information between the company and other potential lenders in order to take extra profits from the lending relationship. The structure of bank relationships of companies may help assess credit market developments in terms of agency and information asymmetry problems, especially in the case of smaller companies.

Another simple measure of the access to bank credit is the average amount of the total exposure of each company to the financial system. This indicator enables the assessment of developments in the depth of access to credit, as the average indebtedness reflects the extent to which financial institutions are willing to lend.

Finally, the number of companies with bank debt can also be interpreted as a measure of the degree of universality of access to credit.

Data used are provided by the Central Credit Register of Banco de Portugal and concern all Portuguese legal persons (which for the sake of simplicity are called "companies") that have borrowed from resident financial entities.[2] In order to eliminate the general price effect, the nominal values referred to in this box have been deflated by the private consumption deflator based on September 2007. Annual data with end-year figures have been used, except for 2007 where data for the end of the third quarter was used. Each observation relates to a company-financial institution pair, in a given year. The database contains 4.5 million observations for a total of 402,151 companies.

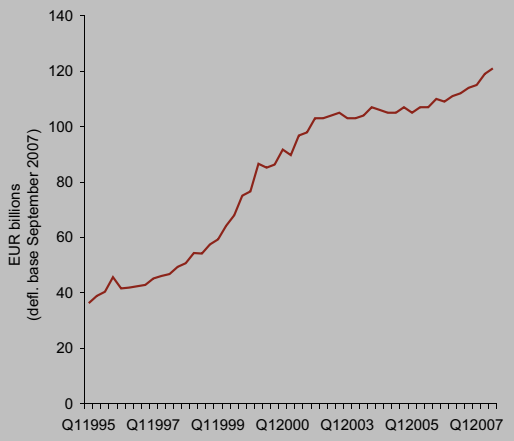
First, this box documents the growth of bank credit in Portugal in the period from 1995 to the third quarter of 2007. Chart 1 shows the stock of credit granted to companies during this period. Marked growth can be seen in total credit granted until end-2001, followed by more moderate growth. This chart shows total credit growth, in real terms and using log growth rates of approximately 3.8 per cent per quarter until end-2001, declining to 0.3 per cent until end-2004, and going up to 1.3 per cent from 2005 onwards.

(1) *For a discussion of this issue, see Farinha and Santos (2004) "Switching from single to multiple bank lending relationships: determinants and implications", Journal of Financial Intermediation, 11, pages 124-151.*

(2) *More specifically, all legal persons with a Legal Person Identification Number starting with 5. This definition in addition to non-financial corporations also includes non-profit institutions or non-central government public-sector bodies. The share of non-financial corporations in the total was higher than 98 per cent in September 2007. The findings of this box cannot be directly compared with most values published in academic magazines and Banco de Portugal papers on bank relationships of Portuguese companies, as this box focuses on the universe of firms that meet the conditions mentioned above rather than on any subgroup, as those studies.*

Chart 1

STOCK OF CREDIT GRANTED TO COMPANIES



Source: Central Credit Register of Banco de Portugal.

The initially strong expansion of total credit, followed by moderate growth, may be associated with an increase in the number of exposures of each company, a rise in the average amount of already existing exposures, or a higher number of companies having access to credit.

Before starting the analysis, it is important to define the concept of "bank relationship" in this context. In this box, a bank relationship of a company with a financial institution means that the balance sheet of that financial institution registers a positive amount of debt from that company.[3] The total amount per company (or total exposure) shall be the sum of the amounts of all bank relationships of the company. Table 1 represents the number of companies (from among those that have some debt vis-a-vis the financial system) according to the number of bank relationships for the period from 1995 to 2007. This table shows that in general the structure remained broadly unchanged during this period: around three quarters of the companies considered have 1 or 2 bank relationships and the share of companies with 5 or more bank relationships dropped from 8.3 per cent in 1995 to 6 per cent in 2007. These figures seem to suggest that the mechanism of increase in access to credit was not due to a reduction of the "hold-up problem" or to other frictions typical of less than perfect information, as the choices of companies in terms of the number of bank relationships did not change significantly.

However, this conclusion may depend on the size of the company exposure. This box defines three categories of exposure size: "small" exposures corresponding to companies whose total exposure is lower than EUR 1 million. To this category belonged 94.2 per cent of the companies at the end of 1995, and 93.7 per cent of the companies in the third quarter of 2007 (see Table 2). As a percentage of the total aggregate value of exposures, this category accounted for 21.4 per cent of the total in 1995, and 17.6 per cent of the total in 2007 (see Table 2);[4] "medium" exposures corresponding to companies whose total exposure ranges between EUR 1 million and EUR 10 million. To this category belonged between 6.4 and 5.3 per cent of the companies, depending on the date chosen, and their weight in the aggregate value of exposures stood at 31.1 per cent in 1995 and 30.1 per cent in 2007; "large" exposures corresponding to companies whose stock of outstanding debt to financial institutions is higher than EUR 10 million, accounting for less than 0.67 per cent of total companies. As a percentage of total exposures considered, the value increased from 47.5 per cent in 1995 to 52.3 per cent in 2007.

(3) *For a detailed description of the Central Credit Register, see Banco de Portugal (2003) "Central Credit Register", Banco de Portugal Booklet No. 5. The following types of credit have been excluded from the analysis: type 6 – credit lines, type 9 – written-off loans and type 10 – restructured loans.*

(4) *The aggregate value of exposures does not correspond to the amount represented in Chart 1 for total credit granted to companies, as Table 2 considers for each company both the exposures in which the company is the sole debtor, and those in which the company is jointly debtor with other entities, giving rise to double counting. However, the findings of this box would not be substantially affected if double counting were eliminated, i.e. if only the exposures in which the company is the sole debtor or the main debtor were considered.*

Table 1

NUMBER OF BANK RELATIONSHIPS PER COMPANY
As a percentage of total companies

Year	1	2	3	4	5 or more
1995	51.5	23.3	11.2	5.7	8.3
1996	52.0	23.1	11.2	5.6	8.0
1997	52.9	23.4	10.7	5.6	7.4
1998	56.3	23.1	10.0	4.7	5.8
1999	54.7	23.7	10.4	5.0	6.2
2000	54.2	23.8	10.9	5.1	6.0
2001	51.2	24.3	11.6	5.8	7.1
2002	51.3	24.0	11.5	5.9	7.3
2003	51.2	24.1	11.5	5.9	7.3
2004	53.6	23.8	10.8	5.5	6.3
2005	54.6	23.7	10.6	5.2	6.0
2006	54.7	23.8	10.7	5.1	5.7
2007	54.0	23.8	10.9	5.2	6.0

Source: Central Credit Register of Banco de Portugal.

Table 2

PERCENTAGE OF COMPANIES AND WEIGHT IN THE AGGREGATE VALUE OF EXPOSURES BY EXPOSURE SIZE
All figures as a percentage

	Percentage of companies			Weight in aggregate exposures		
	Exposure size			Exposure size		
Year	Small	Medium	Large	Small	Medium	Large
1995	94.2	5.3	0.52	21.4	31.1	47.5
1996	94.2	5.3	0.45	24.9	35.2	39.9
1997	93.9	5.6	0.50	24.0	35.1	40.8
1998	93.6	5.9	0.52	22.2	33.7	44.1
1999	93.2	6.2	0.56	19.8	32.0	48.2
2000	92.9	6.4	0.62	18.6	31.9	49.5
2001	93.2	6.1	0.64	18.0	30.8	51.1
2002	93.5	5.8	0.63	18.2	30.3	51.5
2003	93.7	5.7	0.63	18.1	30.2	51.7
2004	93.7	5.6	0.63	18.4	31.0	50.6
2005	93.7	5.6	0.66	18.3	30.9	50.7
2006	93.6	5.7	0.67	18.0	30.7	51.3
2007	93.7	5.7	0.67	17.6	30.1	52.3

Source: Central Credit Register of Banco de Portugal.

Table 3 presents the average number of bank relationships by company "size" and for the whole group of companies. The table confirms the findings of several studies documenting a positive correlation between company size and the number of bank relationships. In addition, the table shows a marked decline in the number of bank relationships from 1995 to 2007 for companies whose stock of outstanding debt is higher than EUR 1 million (medium and large exposures). The decline is far lower for companies with small exposures. These two factors do not necessarily contradict the previous conclusion that the increase in access to credit was not due to a reduction of the "hold-up

Table 3

AVERAGE NUMBER OF BANK RELATIONSHIPS

Year	All companies	Company size		
		Small	Medium	Large
1995	2.1	1.9	5.5	8.1
1996	2.1	1.9	5.3	7.8
1997	2.0	1.8	5.1	7.6
1998	1.9	1.7	4.4	6.5
1999	1.9	1.7	4.4	6.7
2000	1.9	1.8	4.1	5.9
2001	2.0	1.9	4.3	5.8
2002	2.0	1.9	4.3	5.6
2003	2.0	1.9	4.3	5.4
2004	2.0	1.8	4.1	5.1
2005	1.9	1.8	4.0	5.0
2006	1.9	1.8	4.0	5.0
2007	1.9	1.8	4.0	5.2

Source: Central Credit Register of Banco de Portugal.

problem" or to other frictions typical of less than perfect information. In fact, information asymmetry problems are more serious in younger companies, which are typically smaller. With regard to companies with small exposures, the share of companies with only one credit relationship has been stable over time (54 per cent in 1995, 56.4 per cent in 2007) and the share of companies with small exposures and two credit relationships has also been fairly stable over time (24.2 per cent on average in the period under review).

The reduction in the number of credit relationships observed in larger companies may be partly explained by phenomena like the progressive concentration in the Portuguese banking system, which via a mechanical effect reduces the number of company relationships. For example, 11 institutions accounted for around two thirds of the aggregate value of exposures in 1995; in 2007 only 6 institutions held the same share in total exposures (see Table 4). Given that companies with larger exposures are those with a higher number of bank relationships, this concentration of institutions may have had a stronger effect, in terms of the number of bank relationships, on the larger companies. On the other hand, Table 3 illustrates that the increase in the total stock of credit observed in Chart 1 does not result from an increase in the number of bank relationships, as they decreased for all sizes.

With regard to the average size of the total exposure of each company, Table 5 shows that the average exposure does not exhibit a clear growth pattern, ranging between EUR 390,000 and EUR 540,000. This performance does not suffice to explain an increase of more than 230 per cent in the stock of credit seen in Chart 1. Besides it extends to each size category: in real terms, each exposure did not change as much as it would have been necessary to explain the huge increase in total credit granted.[5] Likewise, the asymmetry between large and small exposures does not seem to have changed significantly in the period under review, as can be inferred from the performance of the Gini coefficient for exposures as a whole.

The previous discussion suggests that the increase in credit from 1995 to 2007 was chiefly due to a rise in the number of companies with bank relationships. Table 6 and Chart 2 support these findings. The number of companies with at least one credit relationship increased from 102,000 in 1995 to 238,000 in 2007, largely explaining the rise in the amount of aggregate credit. Until end-2001, the growth rate of the number of companies with bank relationships stood at around 2.4 per cent per quarter. Subsequently, this pace of growth slowed down to 1 per cent per quarter. These figures are consistent with the picture outlined for the growth of aggregate credit.

(5) *It should be noted that the changes observed between 1999 and 2002 in the average value of large exposures result from one-off huge operations in this period, as well as from the reduced number of exposures in this category.*

Table 4

NUMBER OF FINANCIAL INSTITUTIONS REPRESENTING TWO THIRDS OF THE AGGREGATE EXPOSURE VALUE

Year	Number of institutions
1995	11
1996	12
1997	11
1998	9
1999	8
2000	7
2001	7
2002	7
2003	7
2004	7
2005	6
2006	6
2007	6

Source: Central Credit Register of Banco de Portugal.
Note: End-year figures except for 2007, where figures refer to the third quarter.

Table 5

AVERAGE SIZE AND GINI COEFFICIENT OF EXPOSURES

	Average exposure size in 10^6 euros (defl. base September 2007)				Gini coefficient
	All companies	Exposure size			All companies
Year		Small	Medium	Large	
1995	0.45	0.10	2.63	41.40	0.90
1996	0.39	0.10	2.57	34.60	0.89
1997	0.41	0.11	2.59	33.80	0.89
1998	0.46	0.11	2.62	38.70	0.89
1999	0.51	0.11	2.62	44.10	0.90
2000	0.54	0.11	2.67	43.10	0.90
2001	0.54	0.10	2.69	42.70	0.91
2002	0.52	0.10	2.69	42.50	0.91
2003	0.51	0.10	2.69	41.70	0.91
2004	0.49	0.10	2.70	39.30	0.91
2005	0.49	0.10	2.71	38.00	0.91
2006	0.50	0.10	2.71	38.40	0.91
2007	0.51	0.10	2.72	39.60	0.91

Source: Central Credit Register of Banco de Portugal.

Moreover, it is possible to assess whether the increase in the share of large exposures – accounting for more than 50 per cent of the aggregate value of exposures in 2007 – was due to new companies or to companies that moved up from lower categories. Chart 3 shows that among the large companies the share of new exposures remained relatively low over time. For example, in 2007 only 3.4 per cent of the aggregate amount of large exposures corresponded to companies that in the previous year had no bank relationships. By contrast, until 2001 the share of exposures of companies that in the previous year were small or medium remained far higher than that of new companies with credit relationships (on average, nearly the triple). Subsequently, this effect faded away considerably. This suggests that until 2001 there was a strong increase in terms of size of companies with previous credit rela-

Table 6

NUMBER OF COMPANIES WITH AT LEAST ONE BANK RELATIONSHIP
In thousands

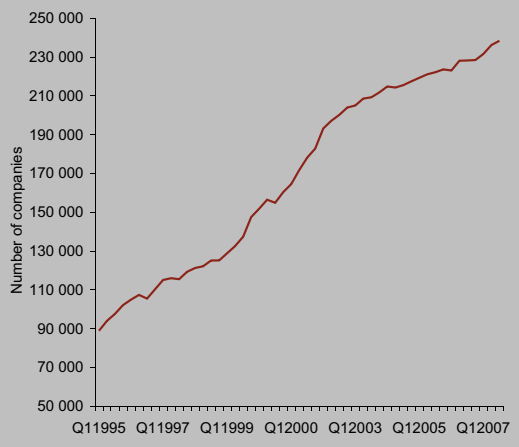
		Exposure size		
Year	Total	Small	Medium	Large
1995	102.15	96.20	5.42	0.53
1996	110.34	103.97	5.87	0.50
1997	119.32	112.03	6.69	0.60
1998	125.18	117.12	7.40	0.65
1999	147.49	137.49	9.18	0.82
2000	160.41	149.09	10.33	0.99
2001	182.81	170.40	11.23	1.17
2002	203.99	190.81	11.90	1.28
2003	211.80	198.39	12.07	1.34
2004	217.52	203.87	12.28	1.38
2005	223.63	209.63	12.54	1.47
2006	228.47	213.92	13.02	1.53
2007	238.40	223.31	13.48	1.61

Source: Central Credit Register of Banco de Portugal.

tionships, while the share of direct entries in the large exposures category remained low throughout the whole period under review. This analysis suggests that already existing exposures increased over the period, but there is no evidence whether these exposures emerged during the period or already existed in 1995. A very simple way of investigating this matter consists in measuring the share in total exposures in 2007 of already existing exposures in 1995. For the aggregate of exposures that share corresponded to 44.2 per cent.[6] Of the increase in total exposures during the period under review, approximately 30 per cent resulted from already existing exposures in 1995 and the remainder from exposures that emerged in the meantime. It should be noted that the contribution of new expo-

Chart 2

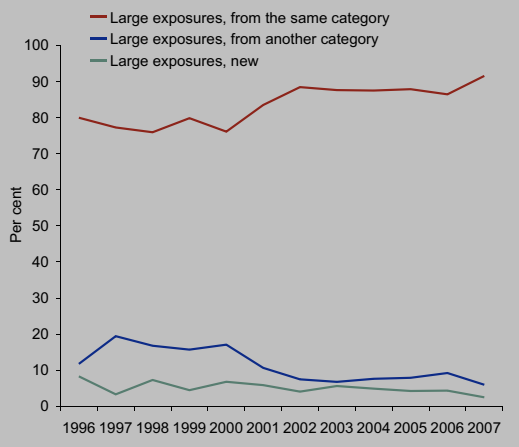
NUMBER OF COMPANIES WITH AT LEAST ONE BANK RELATIONSHIP



Source: Central Credit Register of Banco de Portugal.

Chart 3

PERCENTAGE OF TOTAL LARGE EXPOSURES BY ORIGIN COMPARED TO THE PREVIOUS YEAR



Source: Central Credit Register of Banco de Portugal.

(6) *Taking only into account large exposures (in 2007), this weight corresponded to 48 per cent.*

sures is not immediately felt. Calculations outside the scope of this box suggest that the share in total exposures of a generation of new exposures reaches a peak approximately five years after the emergence of the exposure.

The main conclusion to be drawn is that in the period under review growth of total exposures of companies (and therefore of credit) was due to both new exposures that emerged in the period under review and their growth dynamics (around 70 per cent of the increase), and to already existing exposures in 1995 (the remaining 30 per cent of the increase). At the same time, larger companies reduced the number of bank relationships, with the total average exposure remaining virtually unchanged, irrespective of the size. Growth of already existing exposures was particularly strong until 2001. The increase in credit seems to have been chiefly driven by improved access conditions to credit in terms of price, as the rise was stronger during the period of declining interest rates.

More in-depth studies will reveal the share of the increase in credit granted that was due to the fact that banks made easier the access to debt (more competition, better risk assessment methods, etc.), and the share that was due to a process of convergence of interest rates, which was largely independent from the Portuguese financial system.

4. BANKING SYSTEM[1]

4.1. Overview

In 2007 the environment in which the Portuguese banking system had been carrying out its activity changed significantly. In fact, international financial markets recorded a broadly based strong turbulence, in the wake of the deterioration of the US subprime mortgage sector. In 2007 the effects of this situation were already apparent in the Portuguese banking system, in particular in the profitability, liquidity and solvency indicators. Developments in the first months of 2008 until the date of publication of this report, clearly point to an intensification of these effects and to their increasing spill-over to the relationship between banks and their customers, in terms of both price and amounts, as well as in lending or borrowing transactions.

Over the past few years, the activity of the Portuguese banking system has been carried out in a particularly favourable international financial environment. Against a background of overall deepening of financial and economic integration, the Portuguese economy benefited from ample liquidity in international financial markets at reduced cost, which translated into favourable financing conditions in the large majority of the advanced economies over a relatively protracted period. Due to Portugal's participation in the euro area, Portuguese economic agents in general and banks in particular had easier access to financing markets without exchange rate risk. In addition, since 2004 risk *premia* had been gradually decreasing to historically low levels in most international financial markets, even in riskier asset classes. In parallel with substantial valuation and low volatility in stock markets, these developments have considerably made easier the financing in wholesale debt markets of the large majority of financial institutions in advanced economies. This has fostered the expansion of their activity and the development of new and more sophisticated products. With regard to the Portuguese economy, this environment led to the maintenance of a significant imbalance between domestic savings and investment, resulting in a progressive deterioration of the international investment position, with banks playing a key role in the raising of funds abroad. One of the most visible results of these developments has been the growing discrepancy between growth in domestic credit and in resources from resident customers, which banks have mainly counterbalanced by issuing medium and long-term debt securities, as well as by securitisations, largely with non-resident entities. More specifically, this environment has contributed to marked growth in bank credit, as well as to limited delinquency in banks' credit portfolios and, ultimately, to the improvement of their profitability and solvency indicators, despite the unfavourable macroeconomic environment of the Portuguese economy, mirrored in a low trend growth. In contrast, liquidity indicators have been deteriorating progressively since 2005, reflecting the growing

(1) The International Accounting Standards (IAS) were implemented in 2005 and introduced significant changes in the accounting of some of the main on-balance-sheet and off-balance-sheet items of financial institutions, giving rise to new financial statement presentations in the banking system. However, the adoption of IAS did not extend to the whole Portuguese banking system, given that in the course of 2005 and 2006 different accounting systems coexisted among the banking institutions analysed. The difficulty in preparing robust compared analyses between the different accounting systems required a redefinition of the universe of banking institutions to be analysed. Hence, in the 2005 and 2006 Financial Stability Reports, the analysis covered the thirteen banking groups that had adopted the IAS (or the Adjusted Accounting Standards) in the preparation of their financial statements in 2005, accounting for around 87 per cent of the total assets of the Portuguese banking system at the end of 2004. In this *Financial Stability Report*, the group of banking institutions under analysis was revised to also include institutions that adopted the IAS in 2006. With the exception of SICAM (Integrated System of Mutual Agricultural Credit), which only adopted the IAS in 2007 in the preparation of their financial statements, the group of institutions under analysis in this report is similar to that analysed up to 2004 (about 96 per cent of assets of the group of institutions under analysis at the time). Thus, the aggregate considered for the Portuguese banking system refers to the group of banks and savings banks, excluding banks having their head office or carrying on activities exclusively in the Madeira off-shore and/or dealing predominantly with non-residents. Branches of credit institutions having their head office in another EU Member State are also considered as banks and included in this aggregate – except for those that are not classified as monetary financial institutions (MFIs) – as well as branches of credit institutions having their head office in non-EU countries. Finally, due to the implementation of the new accounting standards and the consequent change in the group of institutions, as well as the broadening of the group of institutions under analysis, there is a break in the series between 2004 and 2005 and between 2006 and 2007. Hence, the analysis of developments in indicators should take this into account. For clarity purposes, whenever necessary, in this chapter's charts a vertical line signals breaks in the series.

volume of issuance that must be refinanced on maturity. At the end of 2007 liabilities on account of wholesale market financing represented about 45 per cent of the loans registered in the balance sheet of domestic institutions. Thus, the Portuguese banking system is sensitive to changes in international financial market conditions.

In the first half of 2007 developments remained positive for Portuguese banks, in line with the trend seen in recent years. This was mirrored in a sustained pace of expansion of activity and favourable profitability and asset quality levels. Financing in wholesale markets was high, reflecting significant recourse to the issuance of debt securities, namely mortgage bonds. The slight decline in the overall capital adequacy ratio mainly reflected a significant expansion of activity. In the same vein, market indicators and rating agency assessments showed favourable developments.

In the second half of 2007 turbulence in international financial markets, triggered by the subprime credit crisis in the United States, have changed dramatically the conditions in which financial institutions operate. Following a global risk reassessment, the value of some financial assets (both shares and debt securities) has declined sharply, in particular those issued by financial institutions. In addition, funding conditions in wholesale markets of financial institutions in advanced economies have been considerably affected, namely due to the significant pricing in of risk *premia*. Therefore, although Portuguese banks have limited direct exposure to the US subprime market, these developments contributed negatively to profitability developments *via* an increase in borrowing costs already in the second half of 2007. This was due to a decrease in the contribution of the financial margin, a decline in gains arising from fees and financial operations and a decrease in the value of banks' financial asset portfolios. On the other hand, these developments have contributed to a deterioration of the solvency indicators through both a compression of net income and a reduction in revaluation reserves associated with available-for-sale assets, against a background of continued strong expansion of activity. Nevertheless, ratings given by international rating agencies to Portuguese banks have remained broadly unchanged in the second half of the year and were overall quite positive. Furthermore, the approval of loans, the main asset underlying developments in own funds requirements, has remained very buoyant, despite a significant change in the environment and although the major Portuguese banks have been reporting tighter credit standards for the approval of loans since the third quarter of 2007, which *inter alia* may be related to lags in the transmission mechanism.

The persistence of financial market instability in the first months of 2008, the continued high uncertainty on how it will be overcome and the amplifying effect of the mechanisms involved in the interaction between the financial and real segments of the economy are fundamental factors in assessing its potential impact on the performance of the Portuguese banking system in the near future. In the absence of a rapid normalisation of international financial markets, the reduction in profitability will tend to be more marked not only in the context of a foreseeable slowdown in credit and some deterioration in credit quality but also of a reduction in the value of bank securities portfolios, as already reported for the first quarter of the year by some banking groups. These developments will also tend to be more strongly reflected in 2008 than in 2007 in a compression of own funds, mirroring not only the impact on bank securities portfolios and financial holdings but also on pension fund portfolios of bank employees. In this context, it is extremely important that banks increase their own funds to adequate levels, enabling them to permanently cope with unexpected adverse shocks of unknown nature and magnitude.

Finally, against the current background, changes are to be expected in the strategic behaviour of banks in some areas. On the one hand, banks should continue to apply tighter credit standards to loans, which will likely be reflected in a slowdown in credit. The tightening of credit standards may result in the adoption of higher interest rate spreads in lending operations compared with money market

interest rates, as well as of other tighter standards, which may in turn prevent bank counterparties from mitigating the negative impact of the increase in bank interest rates. It should be noted that, in a context of increasing key ECB interest rates since the end of 2005, banks have allowed counterparties to accommodate the increase in financing costs by adopting other more favourable conditions (namely the lengthening of loan maturities and a reduction in lending margins compared with money market rates), which seem to have favoured not only the maintenance of loan flows but also the limited emergence of new credit portfolio defaults. Therefore, some increase, albeit limited, is to be expected in the delinquency ratios of the private non-financial sector.

On the other hand, banks will probably maintain their strategies started in the second half of 2007 regarding the collection of customer deposits. In fact, despite some improvement in bond markets since the end of March 2008, which enabled some of the major Portuguese banking groups to issue significant amounts of debt in May, available evidence suggests that financing conditions in the wholesale market are still far from becoming normal. This has translated into relatively high costs in raising significant funding through the issuance of securities or securitisations, and into significant refinancing risk in the money market (given the short maturity of accepted operations). A higher remuneration of resources from customers will add to the sustained growth of this aggregate – seen since the third quarter of 2007 – and contribute to an improvement in banks' liquidity position, given the greater stability of this resource. This, together with the maintenance of adequate capital levels, is essential to prevent the adjustment of banks' asset position from jeopardising the key role played by banks as financial intermediaries in the economy.

4.2. Activity and profitability

Activity

In 2007 the banking system activity, assessed in terms of total assets on a consolidated basis, maintained a robust pace of growth, around 12 per cent, with credit to customers contributing the most to this expansion (Table 4.2.1).

International financial market instability, which emerged in the summer of 2007 and has since then significantly affected the financing structure of financial institutions, seems not to have disturbed the Portuguese banks' lending capacity to the non-financial private sector in the second half of 2007 and the first months of 2008. Nonetheless, these developments may have led to changes in bank behaviour regarding credit standards and resources from customers.

Credit to customers, the main component of assets, continued to grow significantly, by 15.3 per cent in December 2007 (estimated at 15.7 per cent when adjusted for securitisation operations). These developments have reflected the expansion of activity in subsidiaries abroad of major Portuguese banking groups, as well as the continued buoyancy in the domestic market (Chart 4.2.1).[2] In this market, loans to resident non-financial corporations have accelerated significantly (with the rate of change increasing from 6.2 per cent at the end of 2006 to 12.6 per cent at the end of 2007).[3] In the case of households, rates of change in loans for house purchase have continued to be high (8.5 per cent at the end of 2007), despite a downward trend since early 2006. In turn, consumer credit and other lending have accelerated further, standing at 11.7 per cent at the end of 2007.

(2) For further details on bank lending developments, see "*Section 4.6 Credit risk*".

(3) The annual rate of change in loans by institutional sector is based on loans granted by resident financial institutions adjusted for credit securitisation operations conducted through non-resident special purpose vehicles. The financial institutions aggregate includes resident monetary financial institutions and other credit institutions included in the other resident financial intermediaries and financial auxiliaries sector.

Table 4.2.1

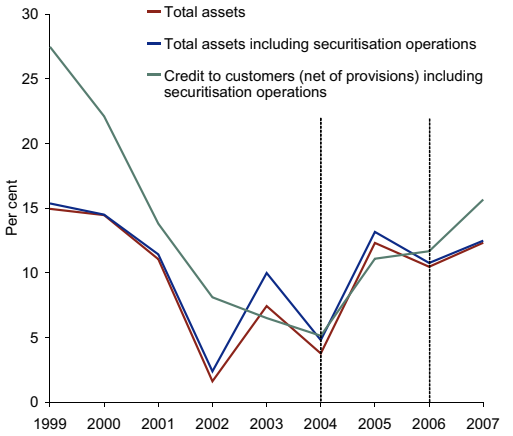
BALANCE SHEET OF THE BANKING SYSTEM
On a consolidated basis

	EUR millions			As a percentage of total assets					Year-on-year rate of change (per cent) [a]				
	2006	2007		2006	2007				2006	2007			
	Dec.	Jun.	Dec.	Dec.	Mar.	Jun.	Sep.	Dec.	Dec.	Mar.	Jun.	Sep.	Dec.
Cash and claims on central banks	7 156	5 144	8 105	1.9	1.6	1.3	1.5	1.9	11.3	19.3	-9.8	6.3	13.3
Claims on other credit institutions	3 991	3 314	4 022	1.1	0.8	0.8	1.0	1.0	11.5	2.1	-17.2	22.1	0.8
Investment in credit institutions	37 850	38 730	36 981	10.2	8.8	9.7	9.5	8.8	0.7	4.0	18.7	13.2	-2.3
Portfolio of financial asset securities:	49 607	57 372	55 264	13.3	14.3	14.4	13.6	13.2	18.1	15.9	21.5	12.7	11.4
Financial assets at fair value through profit or loss	22 635	26 644	22 742	6.1	6.5	6.7	6.2	5.4	11.0	11.3	18.8	5.8	0.5
Equity	1 684	1 544	1 691	0.5	0.5	0.4	0.3	0.4	52.6	6.7	26.9	-28.4	0.4
Debt instruments	14 500	17 261	13 173	3.9	4.3	4.3	3.9	3.1	4.2	7.7	13.0	1.1	-9.1
Other	6 451	7 839	7 877	1.7	1.7	2.0	1.9	1.9	20.2	23.4	32.2	27.3	22.1
Available-for-sale financial assets	20 323	24 244	26 566	5.5	6.1	6.1	5.9	6.3	28.0	21.7	29.7	25.6	30.7
Equity	6 153	7 903	7 766	1.7	1.8	2.0	1.8	1.9	45.8	43.1	68.0	29.6	26.2
Debt instruments	13 724	15 865	18 100	3.7	4.0	4.0	4.0	4.3	28.7	18.5	22.9	23.6	31.9
Other	446	475	700	0.1	0.2	0.1	0.2	0.2	-56.2	-40.1	-55.6	35.3	57.0
Investment held to maturity	1 060	1 090	1 116	0.3	0.3	0.3	0.3	0.3	-7.6	9.6	20.9	26.5	5.3
Hedging derivatives	1 501	2 058	1 376	0.4	0.4	0.5	0.3	0.3	34.3	48.9	44.4	-0.4	-8.3
Investment in subsidiaries	4 089	3 335	3 465	1.1	1.1	0.8	0.9	0.8	17.1	6.0	-11.6	-6.4	-15.3
Net credit to customers	239 028	254 727	275 676	64.1	64.7	64.0	65.1	65.8	11.5	13.0	14.0	16.9	15.3
Gross credit	244 434	260 493	281 666	65.6	66.2	65.4	66.6	67.3	11.2	12.6	13.8	16.4	15.2
of which: Overdue loans to customers	3 604	4 068	4 252	1.0	1.1	1.0	1.0	1.0	-4.7	5.3	8.1	5.9	18.0
Impairment and value adjustments in credit to customers	-5 405	-5 766	-5 990	-1.5	-1.5	-1.4	-1.4	-1.4	-1.2	0.0	3.5	-0.8	10.8
Securitised non-derecognised assets	16 199	18 541	19 317	4.3	5.0	4.7	4.7	4.6	8.5	28.4	26.3	3.9	19.2
of which: Credit to customers	16 181	18 541	19 320	4.3	5.0	4.7	4.7	4.6	8.4	28.1	26.3	3.9	19.4
Tangible and intangible assets	4 401	4 627	4 880	1.2	1.2	1.2	1.1	1.2	8.9	13.0	12.5	9.8	10.9
Other assets	14 441	15 784	14 415	3.9	3.6	4.0	3.5	3.4	-3.6	0.3	14.5	7.3	-0.2
Total assets	**372 674**	**398 238**	**418 660**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**10.5**	**12.7**	**15.3**	**14.7**	**12.3**
Resources from central banks	1 901	2 213	5 550	0.5	0.5	0.6	1.0	1.3	-72.0	-75.3	-74.2	139.8	191.9
Resources from other credit institutions	60 862	67 496	66 671	16.3	16.7	16.9	16.1	15.9	10.5	14.7	14.1	5.1	9.5
Resources from customers and other loans	166 678	165 971	181 815	44.7	42.8	41.7	42.5	43.4	5.0	6.6	6.4	11.8	9.1
Liabilities represented by securities	82 774	95 502	96 875	22.2	23.4	24.0	23.8	23.1	29.4	32.0	43.5	23.0	17.0
Subordinated liabilities	10 112	10 099	11 142	2.7	2.7	2.5	2.5	2.7	-0.8	1.4	1.2	5.1	10.2
Financial liabilities held for trading	7 277	9 848	9 985	2.0	2.1	2.5	2.5	2.4	25.3	36.5	40.8	46.3	37.2
Hedging derivatives	1 881	2 777	2 002	0.5	0.5	0.7	0.5	0.5	82.4	62.9	81.1	5.0	6.4
Liabilities for non-derecognised assets in securitisation operations	4 226	4 941	4 592	1.1	1.3	1.2	1.5	1.1	74.8	73.7	77.5	45.9	8.7
Other liabilities	13 831	14 242	14 053	3.7	3.5	3.6	3.5	3.4	-7.1	-2.3	12.5	14.2	1.6
Total liabilities	**349 543**	**373 089**	**392 685**	**93.8**	**93.5**	**93.7**	**93.8**	**93.8**	**9.8**	**12.1**	**15.1**	**14.9**	**12.3**
Capital	23 131	25 149	25 974	6.2	6.5	6.3	6.2	6.2	22.2	22.1	17.9	12.5	12.3
Total liabilities and net position	**372 674**	**398 238**	**418 660**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**10.5**	**12.7**	**15.3**	**14.7**	**12.3**

Source: Banco de Portugal.
Note: (a) In 2006 year-on-year rates of change were based on thirteen banking groups considered in the Banco de Portugal, *Financial Stability Report-2006* due to lack of comparable financial statements for the banking sector as a whole in 2005 and 2006.

Chart 4.2.1

TOTAL ASSETS AND CREDIT TO CUSTOMERS
Year-on-year rate of change



Source: Banco de Portugal.
Note: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis. The new accounting standards introduced stricter criteria for the full derecognition of securitised assets. According to the IAS, the said derecognition shall only occur when all the rights and obligations associated with those assets are fully transmitted. Series adjusted for securitisation operations include derecognised and non-derecognised operations.

In a context of rising interest rates and gradual upturn in economic activity, the maintenance of a high growth pace of credit to customers and very low default ratios in the portfolio of loans to the non-financial private sector has been associated with the adequacy of bank credit standards to the financial capacity of customers over the past few years.

In early 2008 credit to the non-financial private sector continued to grow at a robust pace. In March the annual rates of change in bank loans to households and non-financial corporations stood close to 9 and 13 per cent respectively.[4] This was observed even though Portuguese banking institutions responding to the Bank Lending Survey had reported that banks' difficulties in obtaining wholesale market financing, as from early August 2007, were being reflected in tighter credit standards.

Although contributing less to the increase in total assets in 2007, securities portfolio growth was also significant (around 11 per cent). However, there were rather mixed behaviours among its components, special mention an increase in available-for-sale financial assets. With regard to financial instruments, in the first half of the year the equity portfolio seems to have benefited from significant valuation in equity market. Nonetheless, as a result of international financial market turmoil over the second half of the year, part of that valuation has been reversed. In turn, the increase in the debt instruments portfolio has benefited from the purchase, by one major non-domestic banking group, of sizeable debt securities issued in the context of securitisation operations (which contributed to around half the increase in this portfolio).[5]

(4) Information for the first quarter of 2008 is only available regarding resident monetary financial institutions as a whole, based on Monetary and Financial Statistics data. The annual rate of change was obtained from the relation between outstanding amounts of bank loans, adjusted for securitisation operations, and the monthly transactions (which are calculated from the outstanding amounts corrected of reclassifications, write-offs and exchange rate and price revaluations).

(5) For further details on the securities portfolio of the banking system, see "*Section 4.4 Market risk*".

Resources from customers and other loans have continued to be the main source of financing for banking activity, with a rate of change close to 9 per cent at the end of 2007.[6] This increase was particularly relevant in the third quarter, a period in which, given the deteriorating wholesale financing market conditions, in the context of international financial market turmoil and uncertainty, banks seem to have adopted more competitive deposit collection strategies. At the same time, developments in customer deposits should have resulted from portfolio shifts in financial assets of economic agents, reflecting the international financial instability. Acceleration in resources from customers have significantly contributed to activity expansion in the second half of 2007, given that it was the main counterpart of changes in bank loans. In early 2008 available data pointed to further significant increases in customer deposits.[7]

Liabilities represented by securities grew by around 17 per cent, mainly benefiting from favourable financing conditions in international financial markets in the first half of 2007. In fact, in the first half of the year, banks issued a very high volume of debt securities (particularly mortgage bonds), and most major banking groups implemented in this period a significant part of their financing programmes scheduled for the year as a whole. In the second half of the year, amid deteriorating international financial market conditions, particularly in wholesale debt markets, net issuance of debt securities declined significantly from the first half of the year.

Recourse to the money market to obtain financing (net of investments) increased significantly in 2007. These developments were mainly concentrated in the first half of the year, and, as in previous years, made it possible to accommodate financing needs resulting from the seasonal nature of some balance sheet items. In the second half of the year, transactions with central banks were particularly noteworthy, which, however, continued to account for a small share in total bank financing. This seemed to be associated with turmoil in wholesale financing markets in this period, including the interbank money market.

Profitability

In 2007 income before taxes and minority interests of the banking system, on a consolidated basis, grew by around 3 per cent, while profitability indicators of the banking system declined (Table 4.2.2). However, this decrease was strongly conditioned by income level in 2006, which was positively influenced by a non-recurring operation related to the restructuring of participating interests in insurance companies by one major banking group. Excluding the effect associated with this operation, income would have grown by around 13 per cent and profitability indicators would have declined more slightly (Chart 4.2.2). However, in 2007 profitability was also affected by a range of non-recurring factors, with negative impact on income developments, particularly costs associated with the takeover bid involving *Millennium BCP* and *BPI* banking groups and the subsequent merger bid by *BPI*. Adjusted for non-recurring operations in 2006 and 2007, growth of profits for 2007 would have been close to 15 per cent. Moreover, although direct exposure of Portuguese banks to the US subprime market has not been significant, the effects of international financial market turmoil has started to negatively spill over into developments in profit and loss of the Portuguese banking system, in particular due to the increase in bank financing costs, developments in the value of financial instruments portfolio, and the slowdown in some number of fees.

In 2007 the distribution curve of return on assets (ROA) shifted slightly to the left, reflecting the deterioration in profitability of some of the main banking groups (Chart 4.2.3). However, profitability develop-

(6) For a more in-depth analysis of developments in the banking system financing and its interlinking with liquidity risk, see "*Section 4.5 Liquidity risk*".

(7) In March 2008 the year-on-year rate of change in deposits of the non-financial private sector with resident monetary financial institutions (the main component of resources from customers) stood at 10.1 per cent, compared with 5.7 per cent at the end of 2007.

Table 4.2.2

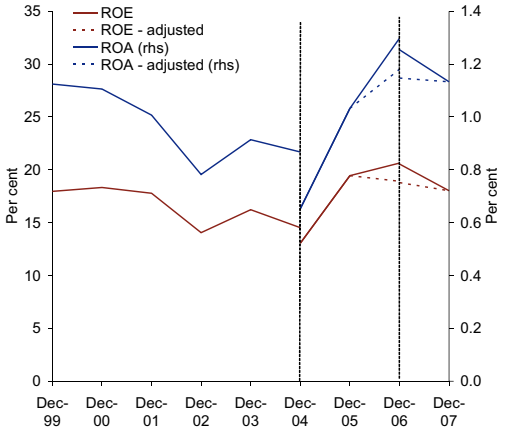
PROFIT AND LOSS ACCOUNT OF THE BANKING SYSTEM
On a consolidated basis

	EUR millions				As a percentage of average assets [a]				Year-on-year rate of change [b] (per cent)			
	2006	2007			2006	2007			2006	2007		
	Year	S1	S2	Year	Year	S1	S2	Year	Year	S1	S2	Year
1.Interest income	18 790	11 294	13 194	24 488	5.43	5.94	6.48	6.21	23.5	28.7	31.7	30.3
2.Interest expenses	12 322	7 715	9 434	17 149	3.56	4.06	4.63	4.35	31.1	36.8	41.1	39.2
3.Financial margin (1-2)	**6 468**	**3 579**	**3 760**	**7 339**	**1.87**	**1.88**	**1.85**	**1.86**	**11.3**	**14.2**	**12.8**	**13.5**
4.Income from capital instruments	168	158	46	203	0.05	0.08	0.02	0.05	-24.2	12.1	68.1	21.1
5.Income from services and commissions (net)	2 602	1 333	1 600	2 933	0.75	0.70	0.79	0.74	11.8	7.1	17.8	12.7
6.Income from financial assets and liabilities measured at fair value through profit or loss	-54	303	-473	-170	-0.02	0.16	-0.23	-0.04	-	-	-	213.4
7.Income from available-for-sale financial assets	445	400	683	1 083	0.13	0.21	0.34	0.27	-31.4	77.5	210.5	143.2
8.Income from foreign exchange revaluation	563	110	293	403	0.16	0.06	0.14	0.10	837.8	-64.9	17.4	-28.4
9.Income from the sale of other financial assets	777	194	112	306	0.22	0.10	0.06	0.08	107.3	-61.4	-59.3	-60.6
9.a Income from the sale of other financial assets - adjusted	*468*	*194*	*112*	*306*	*0.14*	*0.10*	*0.06*	*0.08*	*22.7*	*0.8*	*-59.3*	*-34.6*
10.Other operating profit and loss	643	265	355	619	0.19	0.14	0.17	0.16	42.8	-13.6	5.2	-3.7
10.a) Other operating profit and loss- adjusted	*624*	*265*	*355*	*619*	*0.18*	*0.14*	*0.17*	*0.16*	*38.1*	*-7.6*	*5.2*	*-0.7*
11.Gross income (3+4+5+6+7+8+9+10)	**11 612**	**6 341**	**6 375**	**12 716**	**3.35**	**3.34**	**3.13**	**3.23**	**11.0**	**10.6**	**8.4**	**9.5**
11.a) Gross income - adjusted (3+4+5+6+7+8+9+10.a)	***11 283***	***6 341***	***6 375***	***12 716***	***3.26***	***3.34***	***3.13***	***3.23***	***7.7***	***17.4***	***8.4***	***12.7***
12.Staff costs	3 530	1 719	2 000	3 719	1.02	0.90	0.98	0.94	1.5	1.1	9.3	5.4
13.General administrative costs	2 226	1 165	1 363	2 528	0.64	0.61	0.67	0.64	3.3	11.1	15.8	13.6
14.Depreciation and amortisation	462	239	276	515	0.13	0.13	0.14	0.13	-4.2	7.0	15.5	11.4
15.Provisions net of restitutions and annulments	149	125	67	192	0.04	0.07	0.03	0.05	-30.7	98.0	-22.2	28.8
16.Impairment losses and other net value adjustments	1 135	736	870	1 606	0.33	0.39	0.43	0.41	-6.0	43.4	39.8	41.4
17.Negative consolidation differences	0	-4	-9	-12	0.00	0.00	0.00	0.00	-	-	-	-
18. Appropriation of income from associates and joint ventures (equity method)	231	190	108	298	0.07	0.10	0.05	0.08	6.4	24.7	36.7	28.8
18.a) Appropriation of income from associates and joint ventures (equity method) - adjusted	*189*	*190*	*108*	*298*	*0.05*	*0.10*	*0.05*	*0.08*	*-13.0*	*72.3*	*36.7*	*57.5*
19. Income before taxes and minority interests (11-12-13-14-15-16-17+18)	**4 341**	**2 552**	**1 915**	**4 467**	**1.25**	**1.34**	**0.94**	**1.13**	**37.8**	**9.2**	**-4.5**	**2.9**
19.a) Income before taxes and minority interests - adjusted (11.a-12-13-14-15-16-17+18.a)	***3 970***	***2 552***	***1 915***	***4 467***	***1.15***	***1.34***	***0.94***	***1.13***	***25.4***	***29.8***	***-4.5***	***12.5***
20.Taxes on profit	776	434	276	710	0.22	0.23	0.14	0.18	80.0	25.6	-35.9	-8.5
21.Income before minority interests (19-20)	**3 565**	**2 118**	**1 639**	**3 757**	**1.03**	**1.11**	**0.80**	**0.95**	**31.2**	**6.4**	**4.1**	**5.4**
21.a) Income before minority interests - adjusted (19.a-20)	***3 194***	***2 118***	***1 639***	***3 757***	***0.92***	***1.11***	***0.80***	***0.95***	***16.9***	***30.7***	***4.1***	***17.6***
22.Minority interests	607	388	295	683	0.18	0.20	0.14	0.17	51.2	8.4	18.6	12.6
23.Net profit and loss (21-22)	**2 958**	**1 729**	**1 344**	**3 074**	**0.85**	**0.91**	**0.66**	**0.78**	**27.8**	**5.9**	**1.4**	**3.9**
23.a) Net profit and loss - adjusted (21.a-22)	***2 587***	***1 729***	***1 344***	***3 074***	***0.75***	***0.91***	***0.66***	***0.78***	***10.9***	***37.1***	***1.4***	***18.8***

Source: Banco de Portugal.
Notes: In 2006, the adjustment in some of the items refers to the deduction of the effect of the restructuring of participating interests in insurance companies by one of the major banking groups considered in the analysis. However, the corresponding adjustment was not made in the items of taxes on profit and net minority interests (20 and 22). **(a)** Half-year data are annualised. **(b)** In 2006 year-on-year rates of change were based on thirteen banking groups considered in Banco de Portugal, *Financial Stability Report-2006* due to lack of comparable financial statements for the banking sector as a whole in 2005 and 2006.

Chart 4.2.2

RETURN ON ASSETS (ROA) AND ON EQUITY (ROE)

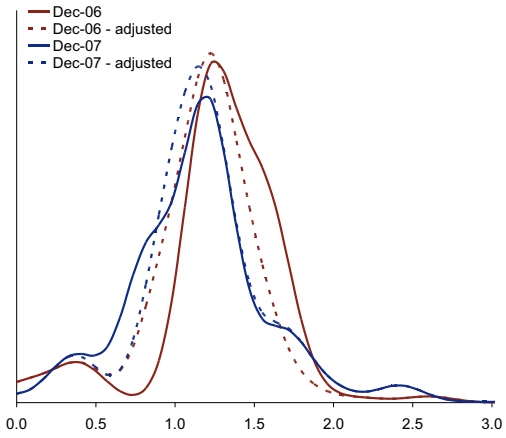


Source: Banco de Portugal.
Note: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis. The adjusted profitability indicators are obtained after deducting from profit and loss account the impact of the restructuring of participating interests in companies (namely, insurance companies) by one of the major banking groups considered.

ments have been somewhat mixed across the major banking groups, as shown by increased dispersion in distribution. In turn, the distribution of return on equity (ROE) has shown a similar behaviour (Chart 4.2.4). In international terms, according to data reported available for a European bank

Chart 4.2.3

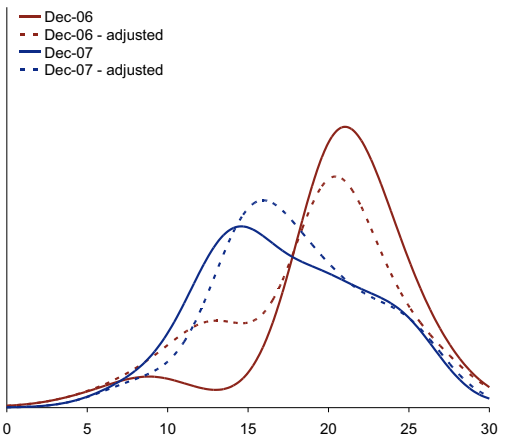
RETURN ON ASSETS
Empirical distribution



Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to a Gaussian kernel that weighs institutions by their assets; indicator calculated taking into account income before taxes and minority interests. The adjusted indicators are obtained deducting from profit and loss account the impact of the restructuring of participating interests in companies (namely insurance companies) by one of the major groups considered in 2006 and of costs associated with the takeover bid involving the Millennium BCP and BPI banking groups in 2007.

Chart 4.2.4

RETURN ON EQUITY
Empirical distribution

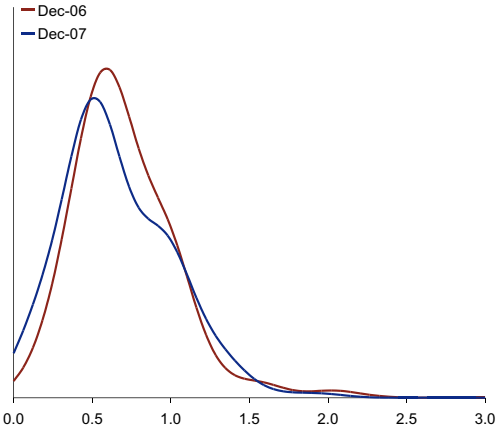


Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to a Gaussian kernel that weighs institutions by their assets; indicator calculated taking into account income before taxes and minority interests. The adjusted indicators are obtained deducting from profit and loss account the impact of the restructuring of participating interests in companies (namely insurance companies) by one of the major groups considered in 2006 and costs associated with the takeover bid involving Millennium BCP and BPI banking groups in 2007.

Chart 4.2.5

RETURN ON ASSETS OF AN EUROPEAN BANK PANEL

Empirical distribution

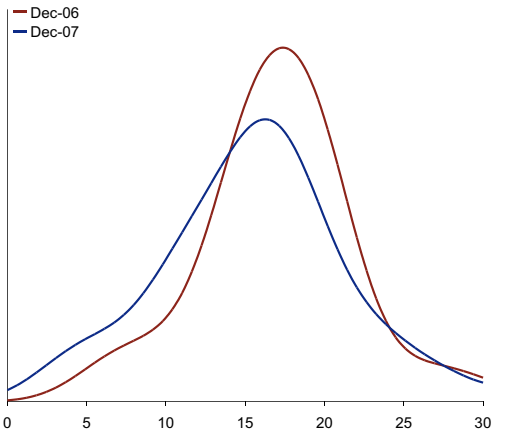


Source: Bureau Van Dijk – Bankscope.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets. Based on a range of 83 banking institutions from 14 European Union countries whose accounts for the 2007 fiscal year were available at the above mentioned source at the cut-off date of data for this Report.

Chart 4.2.6

RETURN ON EQUITY OF AN EUROPEAN BANK PANEL

Empirical distribution



Source: Bureau Van Dijk – Bankscope.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets. Based on a range of 83 banking institutions from 14 European Union countries whose accounts for the 2007 fiscal year were available at the above mentioned source at the cut-off date of data for this Report.

panel, both ROA and ROE declined in 2007 (Charts 4.2.5 and 4.2.6).[8] In this context, the Portuguese banking system seems to have maintained relatively favourable profitability levels.

The slight decline in ROA in 2007 as a whole, adjusted for the restructuring of participating interests in 2006 (with an impact mainly on income from the sale of other financial assets), was predominantly due to the increase in provisions and impairment. In turn, favourably contributing to changes in ROA, special mention should be made to developments in operational costs (Chart 4.2.7). Hence, contributions to changes in profitability associated with provisions and impairment and operational costs remained in line with developments in the first half of 2007, while the positive impact of the behaviour of income from financial operations dissipated over the second half of the year.

The financial margin, the main component of income (corresponding to 58 per cent of gross income), grew by around 13 per cent in 2007, with its contribution to ROA remaining close to that seen in the previous year. Reflecting the increase in money market interest rates and costs associated with other financing sources, implicit average interest rates in total outstanding amounts of main assets and liabilities followed an upward path, with a widening of the implicit interest rate spread on assets and liabilities in the year as a whole (Table 4.2.3). Despite the increase in costs related to both liabilities represented by securities and resources from customers, the expansion of net loans to customers, whose gross remuneration rate is one of the highest among banking assets, made it possible to offset this increase (according to available data, the volume effect associated with credit contributed the most to the increase in the financial margin, particularly in the second half of the year). Moreover, in the second half of 2007 and in the context of a broadly based increase in interest rates, the higher margin in operations with customers made it possible to offset the deterioration in the margin underlying assets and liabilities in wholesale market instruments.

(8) The international comparison presented in this chapter is based on a range of banks from 14 EU countries whose accounts for the 2007 fiscal year are available in the Bureu Van Dijk – Bankscope database. Therefore, there are some differences in terms of concepts and consolidation perimeter among institutions with regard to data on the Portuguese banking system, which limits their comparability.

Table 4.2.3

IMPLICIT AVERAGE INTEREST RATES OF THE MAIN BALANCE SHEET ITEMS [a]

Per cent

	2001	2002	2003	2004	2005	2006	2006	2007	*Memo:* [b] 2006 S1	*Memo:* [b] 2006 S2	*Memo:* [b] 2007 S1	*Memo:* [b] 2007 S2
Interest-bearing assets	**5.44**	**4.24**	**3.88**	**3.30**	**4.22**	**4.56**	**4.60**	**5.43**	**4.38**	**4.81**	**5.16**	**5.69**
of which:												
Interbank assets [c]	4.09	2.79	2.23	1.77	2.69	3.71	3.87	4.21	3.48	4.22	4.07	4.36
Non-interbank assets												
Credit	6.26	4.94	4.60	4.00	4.56	4.86	4.88	5.77	4.69	5.08	5.50	6.02
Securities	5.05	4.08	3.96	2.94	4.85	4.52	4.32	5.70	4.07	4.56	5.59	5.92
Interest-bearing liabilities	**3.59**	**2.61**	**2.28**	**1.87**	**2.32**	**2.71**	**2.77**	**3.51**	**2.51**	**3.01**	**3.25**	**3.77**
of which:												
Interbank liabilities [d]	4.42	3.00	2.42	2.02	2.89	3.58	3.50	4.51	3.14	3.89	4.22	4.80
Non-interbank liabilities												
Deposits	2.81	2.10	1.80	1.45	1.60	1.80	1.91	2.44	1.80	2.03	2.24	2.62
Securities	4.12	3.17	3.12	2.46	3.03	3.72	3.68	4.37	3.12	4.11	4.01	4.73
Subordinated liabilities	5.48	4.53	4.30	3.72	4.61	4.82	4.82	5.44	4.76	4.92	5.37	5.51
Spreads (percentage points):												
Interest-bearing assets - Interest-bearing liabilities	1.86	1.63	1.60	1.43	1.90	1.84	1.83	1.92	1.87	1.80	1.92	1.92
Credit-deposits	3.45	2.84	2.81	2.56	2.96	3.05	2.97	3.33	2.90	3.05	3.26	3.39

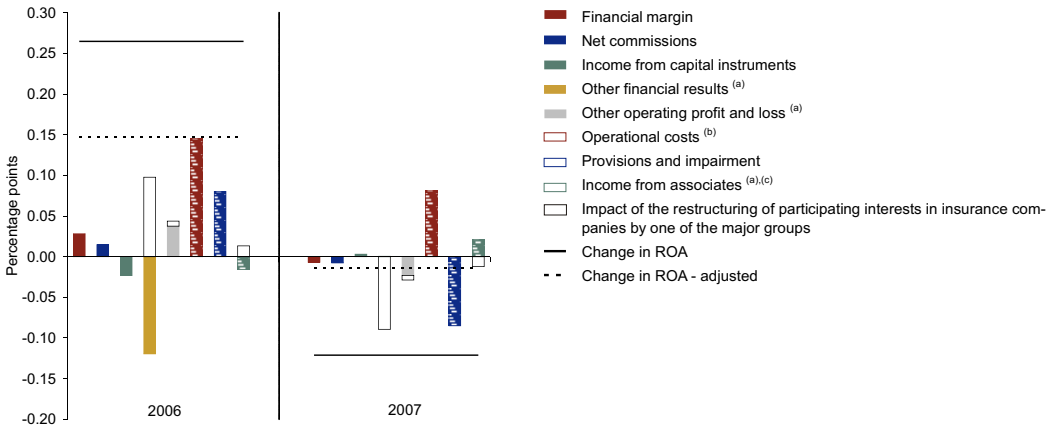
Source: Banco de Portugal.

Notes: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis. **(a)** Implicit average interest rates calculated as the ratio of interest flows accumulated in the year to the average stock of the corresponding item in the balance sheet. **(b)** Implicit average interest rates calculated as the ratio of interest flows to the average stock of the corresponding item in the half-year balance sheet. **(c)** Includes cash, demand deposits with Banco de Portugal, claims on credit institutions and investments in credit institutions. **(d)** Includes resources from central banks and other credit institutions.

Chart 4.2.7

CHANGE IN RETURN ON ASSETS – ROA

Breakdown of contributions



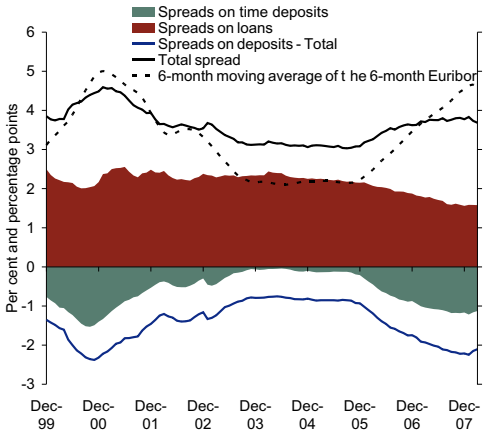
Source: Banco de Portugal.
Notes: Return on assets is calculated by taking into account income before taxes and minority interests. The break in the series corresponds to a change in the set of banking institutions under analysis, due to an increase in the number of institutions that prepared their financial statements according to the International Accounting Standards. (a) Excludes income associated with a restructuring of participating interests in companies (namely insurance companies) by one of the major groups considered in 2006. (b) Operational costs include staff costs, general administrative costs and amortisation and depreciation. (c) Income from associates and joint ventures (equity method).

The total interest margin in operations with customers has increased further, following the trend observed since the end of 2005. This increase has mainly resulted from a widening in the spread between deposit rates and money market interest rates, given that the spread between lending rates and money market rates followed a downward path, although remaining relatively stable in the last quarter of the year (Chart 4.2.8). Generally, in periods of rising money market interest rates, the total spread widens due to the time lag in the pass through of changes in these rates to interest rates on outstanding amounts of operations with customers, which is more marked in deposit operations. Moreover, the fact that sight deposits from customers are remunerated at a significantly lower rate than other resources from customers and are less sensitive to changes in money market interest rates, in a context of rising interest rates, also contributes to a widening of the spread between lending and deposit rates. However, in the fourth quarter of the year, the spread on time deposits stabilised somewhat, which was associated with the adoption by banks of more competitive strategies for collecting resources from customers, in a context of deteriorating financing conditions in wholesale international markets.

The narrowing of the interest rate spread in lending operations with customers across all loan segments should has continued to reflect competitive pressures among banking institutions, according to the responses of major banking groups to the Bank Lending Survey (Charts 4.2.8 and 4.2.9). However, at the end of 2007 this factor may have lost some relevance, mainly in terms of loans to households for house purchase. At the same time, the narrowing of this spread may have also been related to changes in the maturity structure of outstanding amounts of consumer credit and other lending to households. In fact, in 2007 the relative weight of loans over five years increase further, in line with an acceleration in consumption of durable goods, whose interest rate on outstanding amounts is comparatively low (Chart 4.2.10). Finally, although banks referred the adoption of tighter credit standards, such as higher spreads, the total spread between lending operations with customers and money market interest rates stabilised somewhat at the end of 2007.

Chart 4.2.8

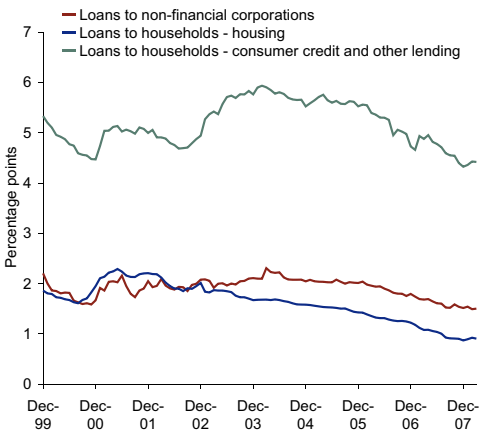
INTEREST RATE SPREADS IN OPERATIONS WITH CUSTOMERS



Source: Banco de Portugal.
Note: Spreads by type of operation were calculated as the difference between interest rates on outstanding amounts (made available by Monetary and Financial Statistics) and a 6-month moving average of the 6-month Euribor. Total spread corresponds to the difference between the interest rate on loans and the interest rate on deposits. Latest observation: March 2008.

Chart 4.2.9

INTEREST RATE SPREADS IN LENDING OPERATIONS WITH CUSTOMERS



Source: Banco de Portugal.
Note: Spreads calculated as the difference between annual averages of interest rates on outstanding amounts (made available by Monetary and Financial Statistics) and a 6-month moving average of the 6-month Euribor. Latest observation: March 2008.

Income from (net) services and commissions grew by around 13 per cent, which was reflected in a marginal decline in its contribution to ROA.[9] However, these developments have been negatively influenced by the strong increase in fees charged by services supplied by third parties, related to costs with the takeover bid and merger bid involving *Millennium BCP* and *BPI* banking groups. Excluding these costs, the increase in income from services and commissions would have stood at 17 per cent, while its contribution to profitability would have increased (Chart 4.2.11). Underlying this increase were mainly fees associated with services (in particular those related to other services and credit operations) and transactions with securities on behalf of third parties.

Income from financial operations, adjusted for the impact of the above-mentioned restructuring of participating interests in 2006, has grown close to 14 per cent, which corresponds to a negligible contribution to changes in ROA.[10] In this aggregate, special mention should be made to positive results associated with the sale of available-for-sale financial assets, including capital gains from the sale of participating interests. The behaviour of other income components has led to a negative contribution to profitability developments, reflecting the decline in income associated with foreign exchange revaluations and other financial assets, as well as the impact of international financial market turmoil in the second half of the year on financial assets and liabilities measured at fair value through profit or loss.[11]

In the wake of the above developments, gross income has had a lower contribution to banking system profitability, with a rate of change around 13 per cent (excluding the impact of the above-mentioned restructuring of participating interests from profit or loss in 2006).

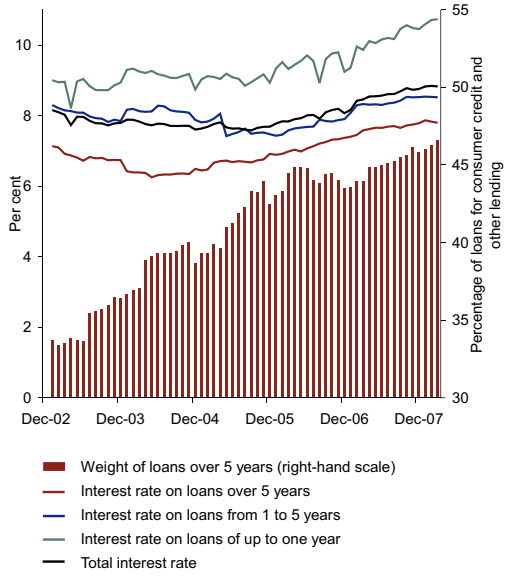
(9) In 2007 Decree-Law No 51/2007 of 7 March 2007 and the subsequent Circular Letter of Banco de Portugal No 93/07 established a new legal framework for fees related to loans for house purchase. According to the new regulations, fees associated with the early repayment of loans for house purchase or transfers of this credit to other institutions were limited.

(10) Income associated with financial operations 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 foreign exchange revaluation and income from the sale of other financial assets.

(11) For further details on income associated with financial operations, see "*Section 4.4 Market risk*".

Chart 4.2.10

INTEREST RATES ON LOANS TO HOUSEHOLDS FOR CONSUMER CREDIT AND OTHER LENDING

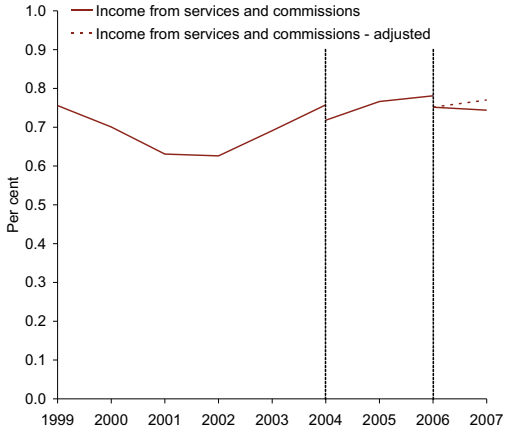


Source: Banco de Portugal.
Note: Data underlying this chart were provided by Monetary and Financial Statistics. Interest rates were calculated based on outstanding amounts of loans under analysis. Latest observation: March 2008.

Chart 4.2.11

INCOME FROM SERVICES AND COMMISSIONS (NET)

As a percentage of average assets



Source: Banco de Portugal.
Note: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis. The adjusted indicator was obtained after the deduction of costs associated with the takeover bid involving Millennium BCP and BPI banking groups.

In 2007 developments in operational costs continued to contribute favourably to ROA, despite an increase in costs inherent in the expansion of the banking network, particularly in external markets, and costs with early retirements. Staff costs (the main component of operational costs) grew by around 5 per cent, chiefly reflecting an increase in compensation of employees, which was partly offset by a decrease in compulsory social charges (particularly with pension funds). Therefore, in 2007 the cost-to-income indicator continued to follow a slightly downward trend, standing at around 53 per cent[12] (Chart 4.2.12). Although the distribution in this indicator continued to be bi-modal in 2007, there was a higher concentration around lower levels, compared to adjusted distribution in the previous year (Chart 4.2.13). Available data for a range of European banks suggest an improvement in the cost-to-income indicator also at the international level (Chart 4.2.14). Despite some conceptual differences, Portuguese banks have continued to compare favourably with the sample of European banks used.[13]

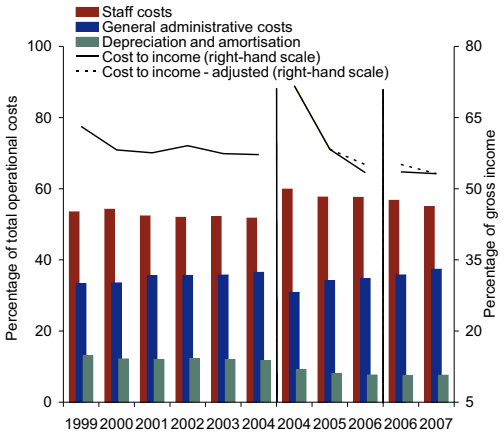
The significant increase in provisions and impairment, by around 40 per cent, was reflected in the main negative contribution to ROA developments in 2007. This behaviour has resulted mainly from the increase in provisions and impairment associated with credit to customers, reflecting a less favourable assessment by banking institutions of the financial capacity of customers. In the last quarter of the year, special mention should be made to impairment growth associated with the revaluation of assets, concentrated in one major banking group, which was related to the financial market turmoil.

(12) 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.

(13) The cost-to-income concept used in this international comparison corresponds to a wider definition of profit and, mainly, of costs than that used by Banco de Portugal to assess the efficiency in generating income (on the basis of operational costs and banking product). This is due to the impossibility to obtain sufficiently broken down information in the Bankscope in order to apply the calculation of the latter ratio to other European countries.

Chart 4.2.12

COST-TO-INCOME RATIO

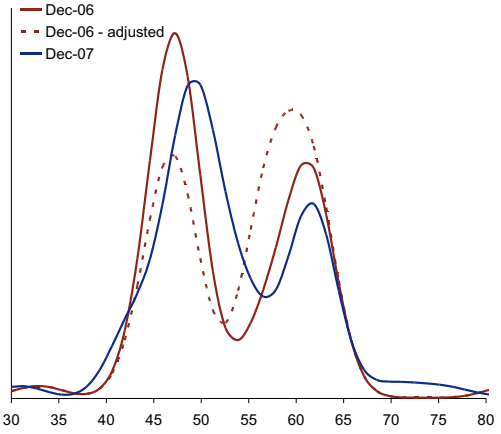


Source: Banco de Portugal.
Notes: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis. The adjusted indicator is obtained after deducting from profit and loss account of 2006 the impact of the restructuring of participating interests in insurance companies by one of the major banking groups.

Chart 4.2.13

COST-TO-INCOME RATIO

Empirical distribution

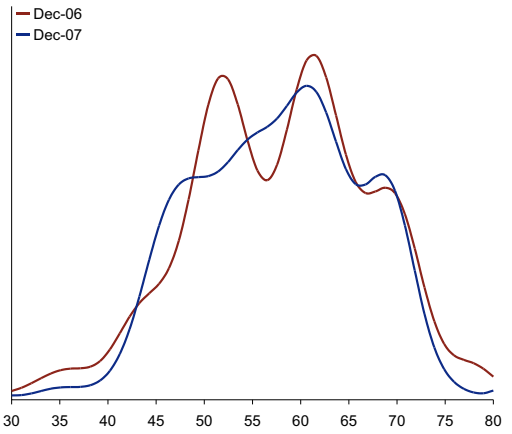


Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to a Gaussian kernel that weights institutions by their total assets; indicator calculated as the ratio of operational costs (defined as the sum of staff costs, administrative costs and depreciation and amortisation) to gross income. The adjusted indicator is obtained after deducting from gross income the impact of the restructuring of participating interests in companies (namely insurance companies) by one of the major groups considered.

Chart 4.2.14

COST-TO-INCOME RATIO OF AN EUROPEAN BANK PANEL

Empirical distribution



Source: Bureau Van Dijk – Bankscope.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets. Based on a range of 80 banking institutions from 14 European Union countries whose accounts for the 2007 fiscal year were available at the above mentioned source at the cut-off date of data for this Report.

Finally, international activity growth has led to an increase in its importance in total income of banking institutions, accounting for around 20 per cent of consolidated profit and loss in 2007 according to available data (Table 4.2.4). As in the past few years, results related to more traditional financial intermediation and the charge of commissions have been the main factors underlying the increase in income, with growth rates above 30 per cent. In contrast, staff costs and administrative costs have grown significantly, in line with expansion of activity in these markets, which has corresponded to a relevant contribution to developments in this aggregate in consolidated terms.

Table 4.2.4

INTERNATIONAL ACTIVITY
Contribution of the aggregate of foreign subsidiaries
Per cent

	Year-on-year rate of change	Relative weight for total aggregate	
	2007	2006	2007
Financial margin	37.8	13.3	16.1
Commissions	38.0	15.7	19.2
Gross income	33.7	13.7	16.8
Administrative costs	24.2	36.9	40.4
Staff costs	25.2	12.7	15.1
Impairment	54.7	9.2	10.0
Income before taxes and minority interests	39.9	15.4	20.9

Source: Banco de Portugal.
Note: Banco de Portugal estimates based on information required by Instruction No 14/2006.

4.3. Capital adequacy

The New Capital Accord, also known as Basel II, started to be implemented in 2007. One of the objectives associated with Basel II prudential regime aims at ensuring greater sensitivity of capital requirements to the actual risk profile of institutions, including wider coverage of risks, *e.g.* operational risks.[14] However, in accordance with Directive 2006/48/EC, in 2007 banking institutions could still opt for the previous prudential regime, *i.e.*, Basel I. This prerogative was used by most banking institutions in Portugal, while only two institutions adopted the new regime (although in early 2007 a significantly higher number of institutions had intended to adopt the new Accord during that year).[15] However, as from the beginning of 2008 all institutions had to adopt the Basel II prudential regime for the calculation of capital requirements.

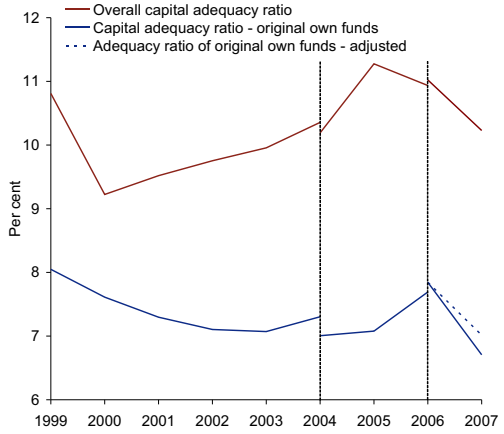
The overall capital adequacy ratio of the banking system in 2007, on a consolidated basis, declined to 10.2 per cent (11.0 per cent in December 2006) (Chart 4.3.1). Ratio developments reflected the significant increase in own fund requirements, of around 16 per cent, which was only partly offset by increasing total own funds, close to 8 per cent (Table 4.3.1). Over the same period, the adequacy ratio of

(14) The objectives and main features of the New Capital Accord were presented in "Chapter 7 *Regulatory Framework*", Banco de Portugal, *Financial Stability Report 2004*. In turn, the document aggregating all changes to the original Capital Accord was published in July 2006 and can be found in *http://www.bis.org/publ/bcbs128.htm*. For more details on the adoption of the New Capital Accord in Portugal, see "Box 4.2 *The adoption of Basel II rules in Portugal*", Banco de Portugal, *Financial Stability Report 2006*. However, some of the institutions that had initially intended to adopt Basel II in 2007 did not follow through with that plan.

(15) The two banking institutions that adopted the prudential regime associated with Basel II in 2007 accounted for a little over 1 per cent of total assets of institutions under review at the end of 2007.

Chart 4.3.1

CAPITAL ADEQUACY RATIO



Source: Banco de Portugal.
Note: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis. The adjusted adequacy ratio of original own funds was calculated taking into account original own funds before associated deductions.

original own funds (Tier I) also declined from 7.8 per cent to 6.7 per cent, although this reduction partly reflected a regulatory amendment introduced in 2007 related to deductions from own funds (with an estimated impact on this ratio of 0.3 p.p.).

In the first half of the year, the increase in total own funds reflected positive contributions from income developments, the increase in minority interests and developments in revaluation reserves related to value changes in available-for-sale financial assets. However, in the second half of the year the latter component was affected by international financial market turmoil, reverting part of realised gains in the first half of the year. In the second half of the year, the increase in subordinate loans and, to a lesser extent, capital increases by some banks contributed positively to own fund developments.

Developments in components of own funds were influenced by a regulatory amendment introduced in 2007 on the deduction method in a number of participating interests and financial instruments held by banking institutions. According to the new prudential treatment, part of previous deductions from total own funds are now directly deducted from original own funds and additional own funds.[16] Therefore, although not directly affecting the amount of total own funds, the new calculation method has changed the concepts associated with original own funds and additional own funds eligible for solvency purposes and deductions from total own funds.[17]

The increase in risk-weighted assets was in line with the expansion of credit granted to the non-financial private sector. In this context, special mention should be made to a significant acceleration in loans

(16) Regulatory amendment introduced by Notice of Banco de Portugal 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. According to this regulation, items identified in paragraph 8 (2) of Notice of Banco de Portugal No 12/92, including participating interests and financial instruments held by the institution in other financial institutions or insurance companies (when higher than 10 and 20 per cent respectively of these institutions' capital), are now deducted by 50 per cent from original own funds and by 50 per cent from additional own funds, after the application of the limits for eligibility of additional own funds on the basis of original own funds.

(17) The time comparison of aggregates comprising own funds was also limited by the change in prudential reporting tables introduced by Instruction of Banco de Portugal No 23/2007, in the wake of a Committee of European Banking Supervisors (CEBS) project. This project aims at developing a reporting model – common to different countries – for the capital adequacy ratio, in accordance with the new Community legal framework governing the capital adequacy regime. Following this change, some components of the various prudential tables ceased to be directly matched to the definitions of the previous models regarding both own funds and own funds requirements.

Table 4.3.1

CAPITAL ADEQUACY OF THE BANKING SYSTEM

On a consolidated basis

	EUR millions						Year-on-year change	
	2004	2005	2006	2006	2007		2006	2007
	Dec.	Dec.	Dec.	Dec.	Jun.	Dec.	Dec.	Dec.
							Per cent	
1. Own funds	19 975	23 719	25 360	26 582	27 346	28 680	7.1	7.9
1.1 Original own funds	13 729	14 891	17 851	18 917	18 495	18 806	20.0	-
1.2 Additional own funds	8 337	10 776	9 914	10 076	9 932	10 603	-7.7	-
1.3 Deductions	2 092	1 948	2 405	2 415	1 102	745	23.4	-
1.4 Supplementary own funds	1	0	0	4	20	17		
2. Own funds requirements	15 679	16 830	18 599	19 292	21 055	22 431	10.5	16.3
							Percentage points	
3. Ratios (per cent)								
3.1. Own funds/Total requirements	127.4	140.9	136.4	137.8	129.9	127.9	-4.2	-9.9
3.2. Own funds/(Total requirements x 12.5)	10.2	11.3	10.9	11.0	10.4	10.2	-0.3	-0.8
3.3. Original own funds/(Total requirements x 12.5)	7.0	7.1	7.7	7.8	7.0	6.7	0.6	-1.1

Source: Banco de Portugal.
Note: The break in the series corresponds to a widening of the group of institutions under analysis in this Report to include institutions that adopted the International Accounting Standards in 2006. In 2007 it is not possible to calculate the rates of change for own fund components, since some items previously belonging to the "Deductions" component are now directly deducted from original and additional own funds.

to non-financial corporations and to households for consumption and other purposes, given that these loans result in higher capital requirements compared with loans for house purchase (since, in general, they are not associated with real collateral). Despite an easing in terms of own fund requirements, the maintenance of high growth rates of loans for house purchase has also presented a relevant contribute to the increase in risk-weighted assets.

The deterioration in the overall capital adequacy ratio seems to have been common to most banking institutions under review, as shown by the shift to the left evidenced by the corresponding distribution (Chart 4.3.2). This has been in line with developments in a number of European banks, with Portuguese banks recording some of the lowest solvency ratios (Chart 4.3.3).[18] With regard to major banking groups, the overall adequacy ratio of one group has declined markedly, while the bank with the lowest ratio at the end of 2006 has improved somewhat. In terms of the adequacy ratio of original own funds (Tier 1), distribution has also shifted to the left, which was strengthened by the above-mentioned change in the deduction method, with Portuguese banks comparing unfavourably with other European banks (Charts 4.3.4 and 4.3.5).

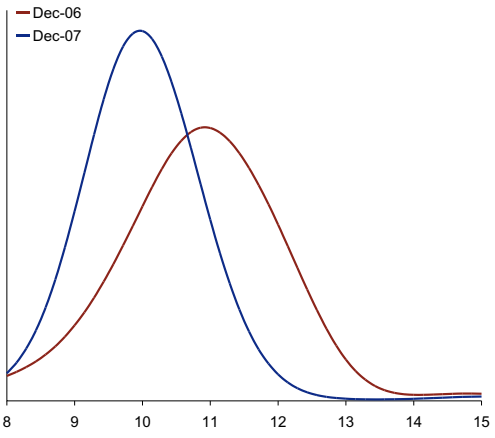
Taking into account these developments, on the occasion of the presentation of their profit and loss accounts for 2007, a number of banking groups mentioned their intention to raise capital in 2008, with a view to improving capital adequacy ratio levels. In some cases, capital has already been raised or shall be raised before the end of the first half of the year. However, international financial market turbulence in 2008 is likely to influence conditions under which future increases will take place.

The persistent unfavourable behaviour in international capital markets may adversely limit developments in total own funds. In fact, own funds may decline due to value changes in the available-for-sale

Chart 4.3.2

CAPITAL ADEQUACY RATIO

Empirical distribution

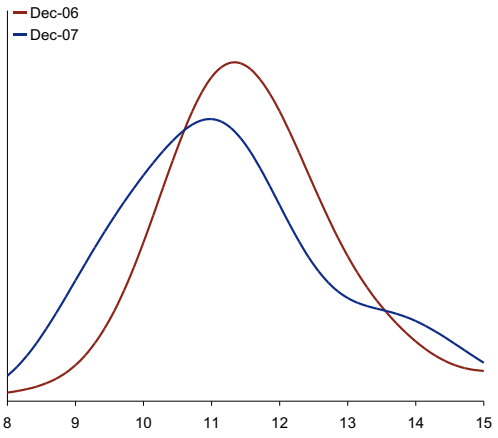


Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to a Gaussian kernel that weights institutions by total assets. Indicator defined as Own funds / (Total requirements * 12.5).

Chart 4.3.3

CAPITAL ADEQUACY RATIO OF AN EUROPEAN BANK PANEL

Empirical distribution

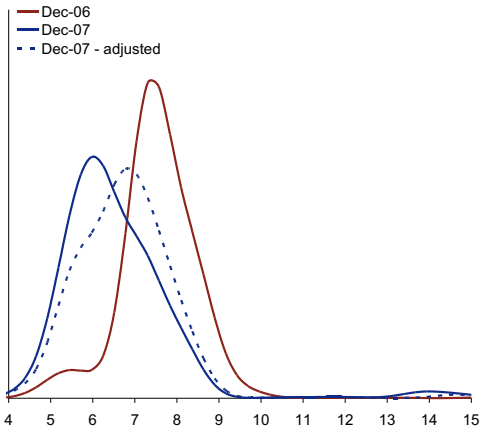


Source: Bureau Van Dijk – Bankscope.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets. Based on a range of 60 banking institutions from 14 European Union countries whose accounts for the 2007 fiscal year were available at the above mentioned source at the cut-off date of data for this Report.

(18) However, the international comparison of solvency ratios is limited by differences in prudential regulations across countries and by a number of banking system features that influence capital formation in excess of the regulatory minimum, such as asset profitability and the relative weight of major banks in the total banking system. In this context, for a literature review and empirical approach to the Portuguese case, see the article by Boucinha, M. and Ribeiro, N. entitled "*The determinants of Portuguese banks' excess capital*", in this Report.

Chart 4.3.4

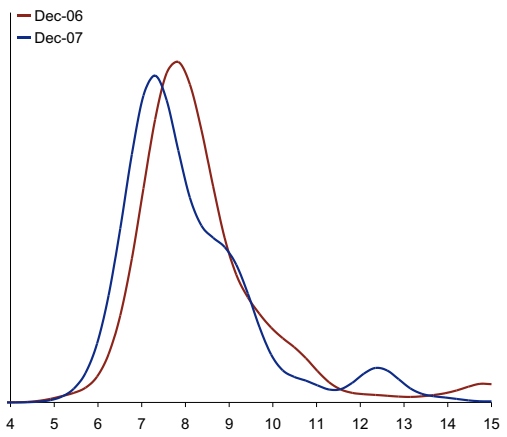
ADEQUACY RATIO OF ORIGINAL OWN FUNDS – TIER I
Empirical distribution



Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to a Gaussian kernel that weights institutions by total assets. Indicator defined as Original own funds / (Total requirements * 12.5). The adjusted indicator was obtained taking into account original own funds excluding deductions, which, from 2007, are directly deducted from these funds, whereas previously they belonged to the total own fund deductions component.

Chart 4.3.5

ADEQUACY RATIO OF ORIGINAL OWN FUNDS – TIER I – OF AN EUROPEAN BANK PANEL
Empirical distribution



Source: Bureau Van Dijk – Bankscope.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets. Based on a range of 59 banking institutions from 14 European Union countries whose accounts for the 2007 fiscal year were available at the above mentioned source at the cut-off date of data for this Report.

portfolio, given that unrealised gains in this portfolio are recognised to 45 per cent under additional own funds, while unrealised losses are fully recognised under original own funds. This situation may be particularly important to determine total own funds given that the eligible amount of additional own funds shall not exceed original own funds, *i.e.*, the amount of additional own funds may not be fully recognised for solvency purposes due to restrictions to the value of original own funds. At the same time, the negative impact on own funds may occur through the increase in employees' pension fund liabilities, which are particularly sensitive to stock market price fluctuations. Finally, special mention should be made to the impact on own funds resulting from less favourable behaviour of results, associated with greater impairment and losses in assets at market value.

4.4. Market risk

Assessment of the banking system from a financial market perspective

Over the past few years, the activity of the Portuguese banking system was conducted in an especially favourable international financial environment, which was characterised by gradual globalisation and particularly benign financing conditions both in terms of costs and of availability of funds. In fact, since early 2004, and in addition to significant stock market valuations and low stock market volatility, risk *premia* in most financial markets has gradually declined to historically low levels, even in riskier asset classes. The persistence of this situation, although indicating a less appropriate risk assessment by investors, has significantly facilitated fund raising by most financial institutions in advanced economies, which have expanded their activity and developed new and increasingly sophisticated products. In turn, their profitability and risk indicators have improved considerably, reflecting inter alia marked growth in credit activity and relatively low-cost financing. In a context of strong economic and financial integration, developments in the Portuguese banking system over the past few years evolved as

described above for most financial institutions, both in the euro area and in other advanced economies.

In 2007 the assessment of the Portuguese banking system by financial market participants was characterised by two separate stages. At the first stage, which largely corresponded to the first half of the year, market indicators for Portuguese banks evolved favourably, following trends seen over the past few years and reflecting very high asset profitability and quality levels. During this period, banking activity was conducted in a generally positive financial framework, which was characterised by an overall favourable situation in international financial markets and by tighter monetary conditions than in previous years, as a result of the continued upward cycle of ECB key interest rates that started at the end of 2005. In the second half of the year, this situation changed significantly due to strong international financial market instability, following the deterioration in the US subprime mortgage credit (see "Chapter 2 *Macroeconomic and Financial Risks*"). After a global risk reassessment, risk *premia* on debt securities of Portuguese financial institutions increased significantly, and stock prices of this sector reversed an important part of gains accumulated in the first half of the year, in line with observed developments in most banks of advanced economies. Moreover, in the last quarter of 2007, specific factors related to the management of the largest Portuguese private banking group influenced price developments in a number of Portuguese bank shares. In the first months of 2008 instability in international financial markets increased, with marked falls in stock price indices and deteriorating money and debt market conditions, which mirrored growing uncertainty persisting among participants in these markets. Between mid-March and late April, this situation was somewhat reversed in stock and debt markets, while tensions increased in money markets, where interbank financing *premia* reached historically high levels.

As previously mentioned, in the first half of 2007 the international financial environment remained favourable, as in the previous year. Long-term interest rates followed an upward path, while the spread between private and government debt narrowed slightly compared to the second half of 2006. Stock market indices continued to grow strongly, despite a period of some turbulence in late February and early March.[19] In Portugal, the PSI Geral index valuation, by around 20 per cent, was more marked than that of the S&P 500 and Dow Jones Euro Stoxx indices (Chart 4.4.1). The valuation of the PSI Financial Services index exceeded 30 per cent, *i.e.*, well above the corresponding euro area indices and the PSI Geral index[20] (Chart 4.4.2). In this framework, market indicators regarding Portuguese banks have maintained an overall positive behaviour, following trends seen in 2006. In particular, the valuation of Portuguese bank stock prices was significant, partly due to developments following the takeover bid launched by *Millenium BCP* on *BPI*, which was announced in March 2006 and closed in May 2007, with no effect on the Portuguese banking system (Chart 4.4.3). The price-to-earnings ratio for Portuguese banks grew significantly, mainly in the second quarter, standing well above its historical average and more markedly following developments in the corresponding ratio for the euro area as a whole (Chart 4.4.4).

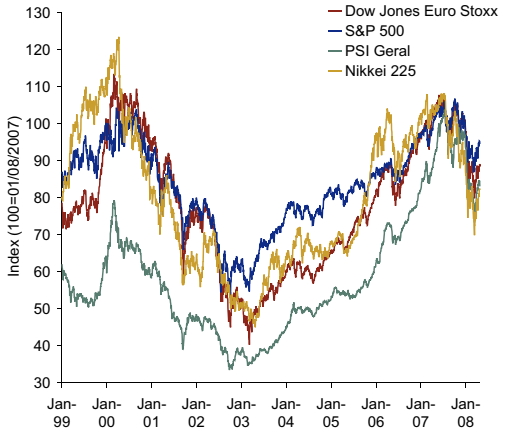
In the first half of 2007 fixed-rate debt spreads of Portuguese banks remained relatively stable at historically low levels. During this period, rating agencies favourably revised ratings assigned to a number of major Portuguese banking groups. Therefore, in March Standard & Poor's upgraded ratings given to *Santander Totta* and *BES* and assigned a positive outlook to *Millennium BCP* group. In the following month, Moody's revised the methodologies used to assess ratings, which resulted in a positive revi-

(19) Instability over this period was associated with specific developments in the Chinese stock market, together with the release of relatively negative prospects regarding developments in the US economy and the gradual deterioration in credit quality of riskier US mortgage market segments. For further details, see "Box 2.1 *Volatility in international financial markets: a comparison of the May 2006 and February 2007 episodes*", Banco de Portugal, *Financial Stability Report 2006*.

(20) The valuation of the DJES indices for banks and insurance corporations stood at around 3 per cent in the first half of 2007.

Chart 4.4.1

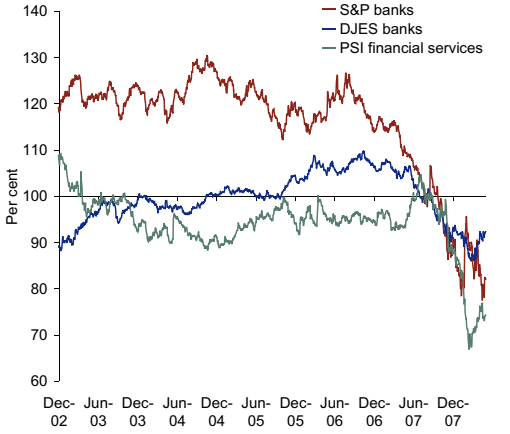
STOCK MARKET DEVELOPMENTS



Source: Bloomberg.
Note: Latest figures: 30 April 2008.

Chart 4.4.2

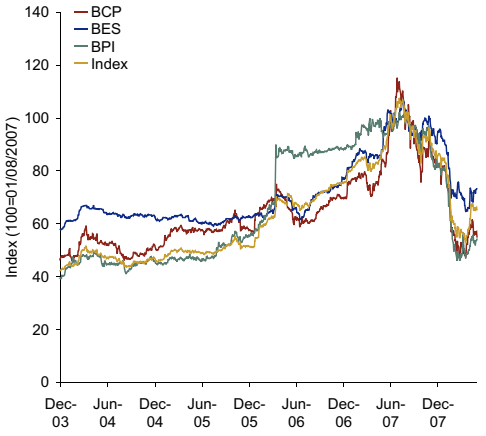
RELATIVE DEVELOPMENTS IN STOCK PRICES OF THE BANKING SECTOR COMPARED WITH THE RESPECTIVE STOCK MARKET



Source: Bloomberg.
Note: Ratio of the stock price index of the banking sector (based on 1 August 2007) to a general stock index of the respective market (also based on 1 August 2007). The market index used was S&P500 for the US market, DJES for the euro area and PSI Geral for Portugal. Latest figures: 30 April 2008.

Chart 4.4.3

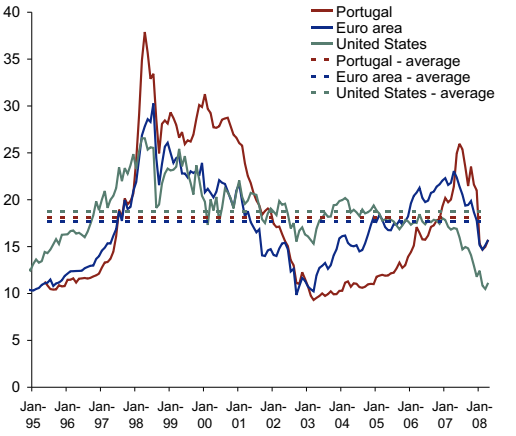
STOCK MARKET DEVELOPMENTS
Portuguese banks



Source: Bloomberg.
Note: Latest figures: 30 April 2008.

Chart 4.4.4

PRICE-TO-EARNINGS RATIO OF THE BANKING SECTOR



Sources: Thomson Financial Datastream and Banco de Portugal.
Note: Historical averages for the period between January 1995 and December 2006. PER calculated as the ratio of the price index to the moving average of earnings in the previous five years. Latest figures: 30 April 2008.

sion of ratings given to several Portuguese banks.[21] In May, Fitch revised the outlook for *CGD*, following the revised outlook for Portugal from "negative" to "stable".

The financial framework changed significantly over the third quarter of 2007 as a result of developments in the US subprime mortgage market. Uncertainty regarding real exposure to the subprime market has affected the confidence of financial institutions participating in wholesale financing markets and has generally passed through to a number of segments in advanced economy financial markets, particularly asset-backed securities markets.[22] These developments have led to significant losses in stock markets, particularly for financial companies. In debt markets, risk *premia* associated with financial institutions have increased significantly and, in money markets, the spread between interbank interest rates on uncollateralised loans and on collateralised loans (repo rate) has widened considerably, reflecting difficulties in obtaining liquidity in a context of increasing counterparty risks. At the end of 2007 risk premia of euro area banks were far higher than in August (when turbulence emerged) (Chart 4.4.5).

In the first months of 2008 the financial market situation deteriorated significantly. The release of losses by some major internationally active banking groups associated with exposure to the subprime market or to structured investment vehicles, as well as deteriorating prospects regarding the US economic activity in 2008, were reflected in significant falls in the main stock price indices, particularly for financial corporations.[23] In turn, private debt differentials *vis-à-vis* government debt continued to widen significantly, following the trend seen in the second half of 2007. In mid-March this situation changed slightly and, despite persistently high volatility in these markets, losses in stock markets were somewhat reversed and private debt risk *premia* declined to levels that, nonetheless, remained well above those seen at the end of 2007 (Charts 4.4.1, 4.4.2 and 4.4.5). Also in money markets, developments were unfavourable since the beginning of 2008, as the interest rate spread between uncollateralised and collateralised loans continued to widen. This widening was particularly significant for longer money market maturities (6, 9 and 12 months), with spreads in these maturities standing at higher levels than in shorter maturities, which indicates upward expectations for spreads in shorter maturities over the time horizon under review. During the first four months of 2008 historically high financing *premia* in the interbank money market may have reflected an overall increase in liquidity risk and higher premium for the increasing counterparty credit risk. In fact, this higher premium is likely to have been the dominant effect, mainly in longer maturities (for further details, see "Box 2.1 *The money market risk premium during the period of financial market turbulence: credit or liquidity risk?*", in this Report). Higher credit risk has also implied a significant increase in *premia* for credit default swaps of euro area financial corporations (which reinforced the increase in debt risk *premia*). However, it should be noted that the particularly high increase in risk *premia* for credit default swaps over the first months of 2008 has extended across the entire market, reflecting a specific increase in risk *premia* for financial institutions as well as higher risks inherent in this instrument. These developments mirrored the fact that the ratings of a number of credit insurers (which cover contracts underlying these assets) were considerably downgraded, which was significantly reversed later on. Nonetheless, risk *premia* for credit default swaps of euro area financial corporations were higher at the end of April 2008 compared to the beginning of the year (Chart 4.4.6).

In Portugal, the decline in stock prices and the increase in debt differentials following the onset of international financial market turbulence were also more marked for financial institutions than in the case of

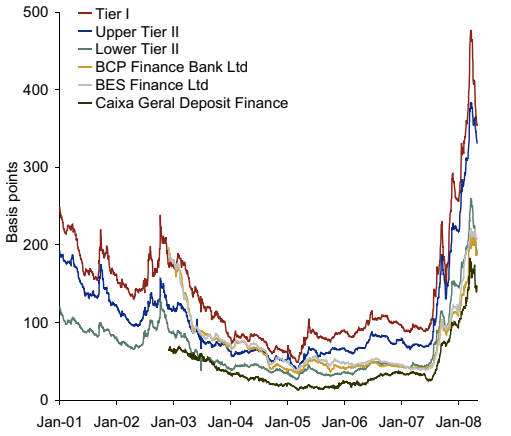
(21) Ratings were positively revised for the following Portuguese banks: *CGD*, *Millenium BCP*, *Montepio Geral*, *BES*, *BPI*, *Santander Totta*, *BANIF* and *BPN*.

(22) For a detailed analysis of financial instability that started in the third quarter of 2007, see "Box 1 *Recent turbulence in international financial markets*" in article The Portuguese economy in 2007, Banco de Portugal, *Economic Bulletin - Autumn 2007*.

(23) Structured investment vehicles (SIVs) are funds that borrow by issuing short-term securities at relatively low interest (mainly commercial paper) in order to invest in higher-yielding long-term assets, making a profit for investors from the interest spread. SIVs are a type of structured credit product particularly affected by liquidity shortage in commercial paper markets, due to the frequent need to refinance.

Chart 4.4.5

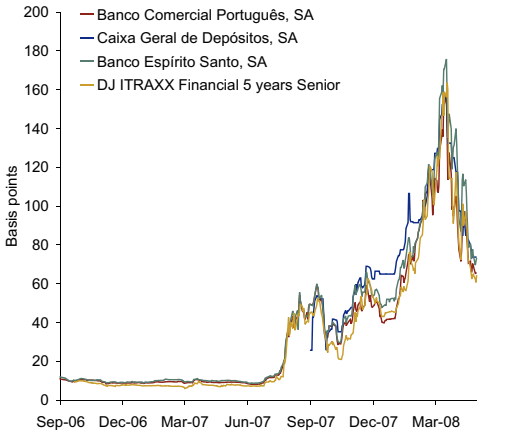
SPREADS OF SUBORDINATED DEBT ISSUED BY EUROPEAN BANKS



Sources: Bloomberg and JP Morgan.
Note: Spreads refer to three distinct levels of debt subordination. Tier one represents the highest degree of subordination (*i.e.*, the riskier exposure), and lower Tier two represents the lowest degree of subordination. Latest figures: 30 April 2008.

Chart 4.4.6

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



Sources: Bloomberg and Thomson Financial Datastream.
Note: Latest figures: 30 April 2008.

the non-financial sector (Chart 4.4.2). With regard to the stock market, the PSI Geral index fell by 5 per cent in the second half of 2007, although in the year as a whole it appreciated by around 18 per cent, *i.e.*, above the rises in S&P 500 and Dow Jones Euro Stoxx. The fall in the PSI Financial Services index in the second half of 2007 reached 20 per cent, thus reversing most gains in this index in the first half of the year. In the year as a whole, however, the appreciation in the PSI Financial Services index was positive (around 5 per cent), in contrast to significant losses in corresponding euro area and, in particular, US indices. Nonetheless, this changed in the first quarter of 2008, with higher losses in Portugal than in the euro area as a whole and the United States. In the first four months of 2008 the decline in the PSI Geral index amounted to around 14 per cent, *i.e.*, close to that of the Dow Jones Euro Stoxx but higher than that recorded by S&P 500. During this period, the Portuguese index for financial service companies declined by 25 per cent, *i.e.*, more markedly than the corresponding indices for the euro area and the United States (Chart 4.4.1). However, developments in this index over the last months of 2007 and in early 2008 were particularly influenced by *BPI*'s proposal for a merger with *Millenium BCP*, which was not sealed. Moreover, the shareholders' dispute over the control of the latter private banking group, together with suspected irregularities regarding the bank's management, also raised disturbances in stock price developments for a number of Portuguese banks (Chart 4.4.3) (for further details, see "*Box 4.1 Oversight of Banco Comercial Português: some issues on the controversy surrounding public denounces in 2007*", in this Report).

Financing conditions of Portuguese banks have been significantly affected by international financial market turbulence, similarly to most banks in advanced economies (see "*Section 4.5 Liquidity risk*"). In particular, the spreads of subordinated debt securities issued by Portuguese banks has widened significantly, reaching record levels for the current decade (Chart 4.4.5). On average, the risk premium underlying subordinated debt security issuance by Portuguese banks increased by around 60 basis points from the second to the last quarters of 2007, rising further in the first quarter of 2008. From the end of July to December 2007 there were slightly more marked changes in some issues of securities without a subordination clause (Table 4.1.1). In the first months of 2008 the increase in risk *premia* for securities issued by a number of Portuguese banks was more marked than for European banks on av-

Table 4.4.1

SPREADS OF FIXED-RATE SECURITIES ISSUED BY EUROPEAN BANKS [a]

	Subordinated (Y/N)	Maturity	Bloomberg Composite Rating [b]	Spread 31/12/06 (p.p.)	Spread 23/07/07 (p.p.)	Spread 31/12/07 (p.p.)	Change between 31/12/06 and 31/12/07 (p.p.)	Change between 23/07/07 and 31/12/07 (p.p.)	Change between 31/12/07 and 30/04/08 (p.p.)
BBV INT'L FIN (CAYMAN)	Y	24/12/2009	AA-	0.42	**0.49**	1.07	0.65	0.58	0.00
ING BANK NV	Y	15/06/2010	AA-	0.25	**0.23**	0.64	0.39	0.41	0.32
SANTANDER CENT HISP ISSU	Y	05/07/2010	AA-	0.34	**0.28**	0.66	0.32	0.38	0.81
SANTANDER CENT HISP ISSU	Y	14/03/2011	AA-	0.37	**0.30**	0.84	0.47	0.53	0.40
ING BANK NV	Y	19/12/2035	AA-	0.64	**0.60**	0.88	0.25	0.29	0.13
CAIXA GERAL DEPOSIT FIN	**Y**	**12/10/2009**	**A+**	**0.37**	**0.37**	**0.93**	**0.56**	**0.56**	**0.28**
BANK OF IRELAND	Y	10/02/2010	A+	0.30	**0.34**	1.22	0.91	0.88	0.30
BBV INTL FINANCE LTD	Y	25/02/2010	AA-	0.31	**0.30**	0.86	0.55	0.56	0.18
ABN AMRO BANK NV	Y	28/06/2010	A+	0.31	**0.23**	0.61	0.30	0.39	0.40
POPULAR CAPITAL SA	Y	29/10/2049	A+	1.83	**1.50**	1.63	-0.20	0.13	-0.13
BCP FINANCE BANK LTD	**Y**	**29/03/2011**	**A**	**0.43**	**0.46**	**1.08**	**0.65**	**0.62**	**0.78**
BES FINANCE LTD	**Y**	**17/05/2011**	**A**	**0.45**	**0.45**	**1.12**	**0.67**	**0.67**	**0.96**
SNS BANK NEDERLAND	Y	15/04/2011	A-	0.33	**0.40**	0.59	0.26	0.19	0.51
HYPOVEREINS FINANCE NV	Y	25/02/2008	NR	0.38	**0.35**	3.54	3.16	3.19	-
BANCO INTERCONTINENTAL	Y	29/05/2008	NR	1.20	**1.80**	4.12	2.92	2.32	-2.82
BANKINTER SA	Y	18/12/2012	NR	0.53	**0.58**	1.16	0.63	0.58	0.49
BANCO SANTANDER SA	N	15/03/2009	AAA	0.23	**0.17**	0.57	0.34	0.40	0.16
BANCO SANTANDER SA	N	19/12/2008	AAA	0.16	**0.17**	0.59	0.43	0.42	0.25
BANCO SANTANDER SA	N	10/09/2010	AAA	0.15	**0.20**	0.43	0.28	0.23	0.56
RABOBANK NEDERLAND	N	02/07/2010	AA+	0.02	**0.02**	0.22	0.20	0.20	0.32
BANCO ESPANOL DE CREDITO	N	23/02/2011	AA+	0.19	**0.26**	0.51	0.31	0.25	0.44
BANCO ESPANOL DE CREDITO	N	12/05/2010	AA+	0.16	**0.21**	0.53	0.37	0.31	0.60
CAIXA GERAL DE DEPOSITOS	**N**	**18/06/2008**	**AA**	**0.27**	**0.15**	**0.70**	**0.43**	**0.55**	**0.20**
CAIXA GERAL DE DEPOSITOS	**N**	**18/10/2012**	**AA-**	**0.35**	**0.42**	**0.73**	**0.39**	**0.31**	**0.24**
BANK OF IRELAND	N	22/10/2010	AA-	0.34	**0.37**	0.75	0.41	0.38	0.46
BCP FINANCE BANK LTD	**N**	**31/03/2024**	**A+**	**0.68**	**0.56**	**0.69**	**0.01**	**0.13**	**0.18**
BCP FINANCE BANK LTD	**N**	**22/12/2008**	**A+**	**0.33**	**0.24**	**1.06**	**0.73**	**0.82**	**0.27**
BES FINANCE LTD	**N**	**25/03/2010**	**A+**	**0.40**	**0.38**	**0.89**	**0.49**	**0.50**	**0.32**
SNS BANK NEDERLAND	N	12/11/2014	A+	0.38	**0.47**	0.84	0.46	0.38	0.23
BANCO BPI SA CAYMAN	**N**	**14/11/2035**	**A**	**0.64**	**0.56**	**0.58**	**-0.06**	**0.01**	**0.13**
BANCO PORTUGUES DE INVES	**N**	**05/10/2009**	**A**	**1.82**	**1.94**	**2.31**	**0.49**	**0.37**	**0.92**
BCP FINANCE BANK LTD	**N**	**12/07/2011**	**A**	**1.71**	**1.96**	**2.13**	**0.42**	**0.18**	**1.19**
SNS BANK NEDERLAND	N	28/05/2014	A	1.96	**1.94**	2.03	0.06	0.09	-0.38
BAYER HYPO- VEREINSBANK	N	17/03/2014	NR	0.24	**0.28**	0.47	0.24	0.19	0.08
EUROHYPO SA DUBLIN	N	12/03/2009	NR	0.34	**0.37**	0.91	0.57	0.54	0.45
BES FINANCE LTD	**N**	**12/02/2009**	**NR**	**0.35**	**0.27**	**1.05**	**0.70**	**0.79**	**0.31**
BANCO SABADELL SA	N	15/06/2015	NR	0.28	**0.41**	0.61	0.32	0.20	0.24
BANCO SABADELL SA	N	26/01/2011	NR	0.19	**0.25**	0.56	0.37	0.31	0.49
BANCO POP VERONA NOVARA	N	21/01/2009	NR	0.33	**0.33**	0.91	0.58	0.58	0.26
Average				**0.51**	**0.53**	**1.05**	**0.54**	**0.52**	**0.28**

Sources: Bloomberg and Banco de Portugal.
Notes: (a)Sample based on 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 under review, to ensure the comparability of spreads. (b) Bloomberg Composite – average of Moody's and S&P's ratings.

erage (Chart 4.4.5). This may have reflected a more cautious assessment of specific vulnerabilities of the Portuguese banking system, particularly in a context of protracted difficulties in wholesale financing markets (see "Section 2.3 *Risks and vulnerabilities in Portugal*", in this Report). Also, the investors' preference for more liquid assets may have led to lower demand for bonds issued by Portuguese banks (whose market is relatively shallow, in international terms), which was reflected in higher debt issuance costs. In late March the upward trend evinced by risk *premia* regarding debt of Portuguese banks came to a halt, and these *premia* declined, in line with developments in European banks on average. Moreover, increases in risk *premia* for credit default swaps of Portuguese banks observed in the

first quarter were partly reversed, following the average trend of euro area financial corporations[24] (Chart 4.4.6). In May the improving situation in bond markets enabled some Portuguese banking groups to place significant amounts of debt on the market.

Despite the significant increase in risk *premia* of Portuguese banks since mid-August 2007, ratings given by international agencies remained virtually unchanged and, in general, continuing as very positive. At the onset of financial market turbulence in late August, Standard & Poor's assigned a positive outlook to *CGD*, which reflected improved profitability and asset quality. In late December the same rating agency announced its revised outlook for *Millenium BCP*, from "stable" to "negative", due to concerns that *CMVM*'s (the Portuguese Securities Market Commission) investigation outcome and the shareholders' dispute could affect the future performance and brand of the institution. In late April 2008 Standard & Poor's upgraded the outlook for *Millennium BCP*, from "negative" to "stable", given that the bank recovered its stability "after a turbulent 2007". Moreover, S&P's confirmed ratings for this bank's long and short-term debt (A/A-1), reflecting "its dominant market position, the sound and strong brand it represents, the growing geographical diversification of the group, the quality of domestic assets and good operational profitability".

Impact of capital market developments on Portuguese banks

In 2007 developments in the overall portfolio of securities and financial investments held by the Portuguese banking system differed in the two halves of the year, in line with developments in the international financial environment. Therefore, in the first half of the year the securities portfolio held by the banking system reflected the overall favourable situation in international financial markets, with an increase by around 16 per cent in its value, similarly to total assets. The strong international financial market instability since mid-August was reflected in a lower portfolio value over the second half of the year, particularly in the case of domestic banking groups, and in the reversal of gains recorded in the first half of the year. Nonetheless, in the year as a whole, the value of the portfolio of securities and financial investments held by the banking system increased by around 7 per cent, with a slight decline in its weight in total assets.[25] The contribution of income associated with the portfolio of securities and financial investments to both banking income and total earnings declined also in 2007 from the previous year. This development was particularly apparent for domestic banks as a whole. This decline has partly reflected the base effect associated with non-recurring profit recorded in 2006 by one major domestic banking group resulting from the restructuring of participating interests in insurance corporations. Excluding the impact of this operation, the contribution of income from securities portfolio to asset profitability has changed only marginally.[26] In turn, gains from fees associated with financial operations have increased, albeit slightly, compared to the previous year. This increase was largely due to greater contribution of fees charged for trading listed securities. The portfolio value of bank employees' pension funds, whose liabilities are to be covered by banking groups, has increased slightly, reflecting lower asset profitability and smaller contributions than in the previous year. Pension fund liabilities have also increased, less than the portfolio value, leading to a slight improvement in funds coverage.

(24) The reversal in risk *premia* implied in credit default swaps of financial corporations may have largely corresponded to a correction of developments in this market, which were generally associated with risk assessment by a number of credit insurance corporations.

(25) In this section, the portfolio of securities and financial investments includes financial assets at fair value through profit or loss including trading derivatives (net of financial liabilities held for trading purposes), available-for-sale financial assets, held-to-maturity investments, investments in branches and hedging derivatives.

(26) In 2007, and excluding the impact of the restructuring of participating interests, the contribution of earnings related to the banks' portfolios of securities and financial investments to asset profitability increased slightly for the banking system and declined somewhat for domestic banks as a whole.

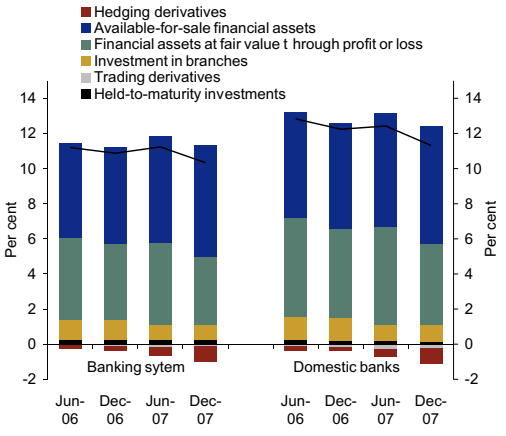
In 2007 the value of banks' financial asset portfolios (excluding derivatives) increased significantly, which was partly offset by a larger negative contribution of derivative portfolios and, to a lesser extent, from lower investments in branches (Chart 4.4.7). In particular, the portfolio of available-for-sale financial assets grew by 30 per cent, with the portfolio of financial assets at fair value through profit or loss virtually stabilising from the end of the previous year. With regard to available-for-sale financial assets, one major banking group purchased a significant amount of debt securities issued in the context of securitisations (in both the first and second halves of the year) and another group sold a number of participating interests in financial and non-financial corporations (at the end of the year). Despite these sales, the equity component of this portfolio grew significantly in the last quarter of 2007, reflecting, on the one hand, improvements in segments of international stock price indices related to non-financial corporations and, on the other hand, portfolio shifts during the assessment of the merger bid proposed by *BPI* to *Millennium BCP*. In turn, financial assets at fair value through profit or loss evolved differently in the two halves of the year, influenced by financial developments. In the first half of the year the value of this portfolio increased in tandem with the value of the total portfolio, benefiting from considerable valuations in the equity segment and, to a lesser extent, in debt securities (Chart 4.4.8). Turbulence in most financial markets after mid-August led to a significant deceleration in the value of this portfolio. Also, the debt securities component declined, reflecting strong instability in money and debt markets. Finally, the reduction in the portfolio of investment in branches was due to changes in the consolidation method of one branch of a major domestic banking group. The activity of this branch is now recognised under different asset items.

According to the International Accounting Standards (IAS), which were adopted by the main institutions of the Portuguese banking system in 2005, most securities held by banks are recorded at market value (fair value). However, gains and losses on securities are posted separately in profit and loss accounts, depending on their realisation and the portfolio where they are included. Therefore, gains and losses on financial assets at fair value through profit or loss are recorded under results, regardless of whether they are realised or not. Conversely, in the case of available-for-sale financial assets, only realised gains and losses are posted under results, while unrealised gains and losses are recorded un-

Chart 4.4.7

FINANCIAL ASSETS PORTFOLIO OF PORTUGUESE BANKS ACCORDING TO THE IAS CLASSIFICATION

As a percentage of assets

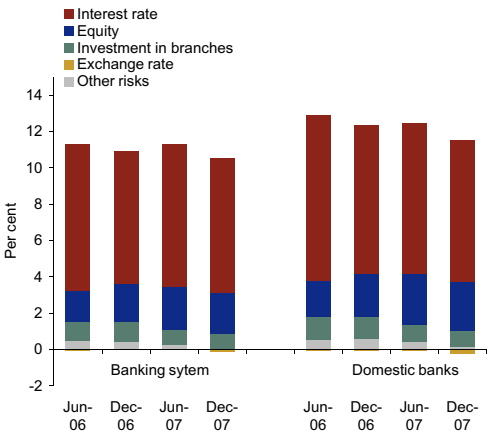


Source: Banco de Portugal.

Chart 4.4.8

FINANCIAL ASSETS PORTFOLIO OF PORTUGUESE BANKS ACCORDING TO RISK SOURCE

As a percentage of assets

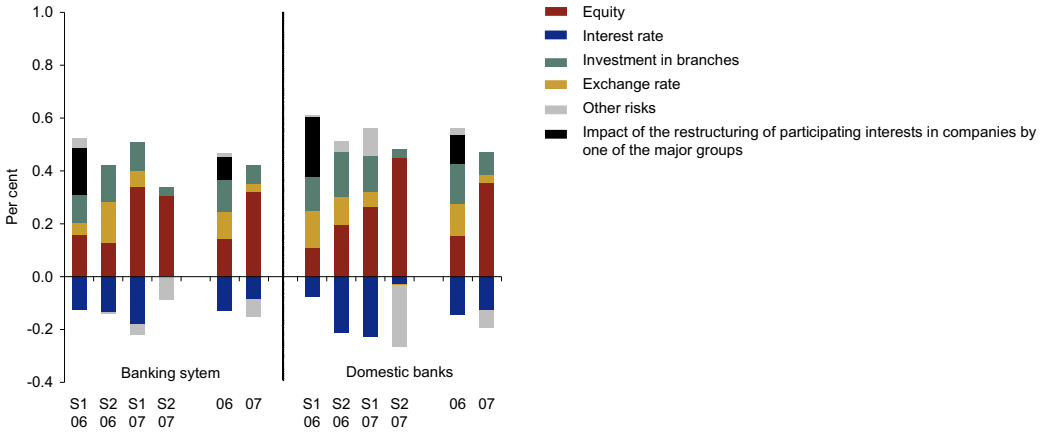


Source: Banco de Portugal.

Chart 4.4.9

INCOME FROM FINANCIAL OPERATIONS OF PORTUGUESE BANKS ACCORDING TO RISK SOURCE

As a percentage of average assets in the year



Source: Banco de Portugal.
Note: Six-month annualised figures.

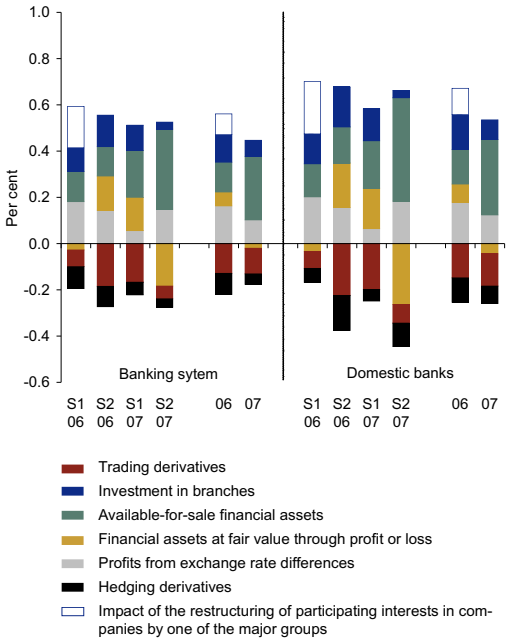
der capital in reserve accounts. As a result, the contribution of the securities portfolio to banking system profits reflects realised gains and losses from the sale (or in case of impairment) of securities in the portfolio of available-for-sale financial assets and fluctuations in the value of securities remaining in the portfolio of financial assets at fair value through profit or loss. This differentiated record of unrealised gains and losses hinders the assessment of results associated with each risk element in the portfolio of securities and financial investments held by banks, given that these results may not simultaneously pass through to profit and loss for the year. Concerning exchange rate risk, it exists in securities portfolio segments where the interest rate risk and the stock price risk predominate (because they include securities denominated in foreign currency) hindering its specific assessment. Moreover, the use of derivatives to cover a significant part of risks underlying banking activity, by making it possible to offset fluctuations in the value of other financial assets in the banks' portfolios, hampers an accurate assessment of the banking system's exposure to each identified risk factor and its impact in terms of results. In effect, substantial gains in some segments of the portfolio of securities and investments held by banks have co-existed with significant losses in derivative portfolios, which were reflected in relatively subdued and stable contributions of the overall portfolio's income to the total profits and losses of the banking system.

Taking into account the portfolio of securities and other financial assets held by the banking system from the perspective of risk sources, developments in 2007 generally followed the trends seen in the previous year. Therefore, the interest rate has continued to be the main source of risk for this portfolio, reflecting the weight of bonds and other debt securities in banks' investment portfolios (Chart 4.4.8). The share of financial assets particularly sensitive to the interest rate risk accounted for around 70 per cent of the total portfolio value at the end of the year. In the year as a whole, these assets increased by almost 14 per cent (7 per cent, in the portfolio of domestic banking groups), largely reflecting purchases of securities issued in the context of securitisations. Components of unsubordinated debt issued by non-residents and of foreign government debt have also increased slightly. In turn, the segment of financial assets particularly sensitive to price changes in shares and other capital instruments rose by around 20 per cent in the year as a whole (around 30 per cent, in the case of the domestic banks' portfolios). Positive developments in stock markets over the first half of the year were

Chart 4.4.10

INCOME FROM FINANCIAL OPERATIONS OF PORTUGUESE BANKS ACCORDING TO THE IAS CLASSIFICATION

As a percentage of average assets in the year

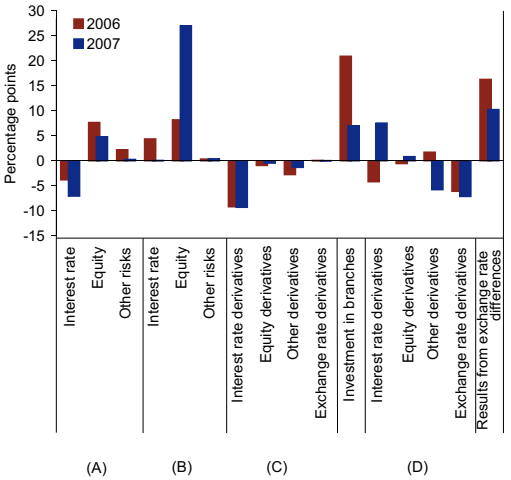


Trading derivatives
Investment in branches
Available-for-sale financial assets
Financial assets at fair value through profit or loss
Profits from exchange rate differences
Hedging derivatives
Impact of the restructuring of participating interests in companies by one of the major groups

Source: Banco de Portugal.
Note: Six-month annualised figures.

Chart 4.4.11

CONTRIBUTION OF THE PORTFOLIO OF SECURITIES AND FINANCIAL INVESTMENTS TO RETURN ON ASSETS OF THE BANKING SYSTEM ACCORDING TO RISK SOURCE AND BY SEGMENT ACCORDING TO THE IAS CLASSIFICATION



(A) Financial assets at fair value through profit or loss.
(B) Available-for-sale financial assets.
(C) Hedging derivatives.
(D) Trading derivatives.

Source: Banco de Portugal.

reflected in significant growth (above 60 per cent year-on-year) of the share component in the banks' portfolios. The situation changed in the second half of the year, when demand moved towards less risky assets.

With regard to the income from the portfolio of securities and financial investments held by the banking system in 2007, special mention should be made to the very positive contribution of gains from shares (Chart 4.4.9). However, as already stated, most shares held by banks are included in the portfolio of available-for-sale assets, and thus changes in the valuation of these securities, when kept in the portfolio, shall not significantly affect profit and loss accounts. Therefore, the positive contribution of shares to asset return may largely reflect sales of these assets, which were particularly significant in the case of domestic banking groups (Charts 4.4.10 and 4.4.11 and Table 4.4.2). In turn, income associated with investments in branches, which in the previous year accounted for a significant share of gains from banks' financial operations and investments (related to the restructuring of participating interests in insurance corporations by one major domestic banking group), declined significantly, partly reflecting the non-recurring character of gains recorded in 2006. Excluding the impact of these gains, the contribution of gains from investments in branches to asset return declined somewhat in 2007. Changes in the consolidation method of one branch of a major domestic banking group (which affected this portfolio's segment, as previously mentioned) may have also contributed to the decline in these gains, given that income generated by the branch's activity is now posted under other profit and loss items. The contribution to asset return of income related to securities with a high interest rate risk was negative and close to that seen in the previous year. Moreover, securities portfolio results associated with unspecified risks in derivatives made a particularly significant negative contribution in the case of

Table 4.4.2

CONTRIBUTION OF THE PORTFOLIO OF SECURITIES AND FINANCIAL INVESTMENTS TO RETURN ON ASSETS

	Banking system						Domestic banks					
	2006			2007			2006			2007		
	S1	S2	Year	S1	S2	Year	S1	S2	Year	S1	S2	Year
According to the IAS classification												
Financial assets at fair value through profit or loss	-0.03	0.15	0.06	0.15	-0.19	-0.02	-0.04	0.19	0.08	0.18	-0.27	-0.04
Available-for-sale financial assets	0.13	0.12	0.13	0.21	0.34	0.27	0.15	0.15	0.15	0.21	0.44	0.33
Results from exchange rate differences	0.19	0.14	0.16	0.06	0.15	0.10	0.21	0.15	0.18	0.07	0.18	0.12
Hedging derivatives	-0.07	-0.18	-0.13	-0.17	-0.05	-0.11	-0.07	-0.22	-0.15	-0.21	-0.07	-0.14
Investment in branches	0.29	0.13	0.21	0.11	0.03	0.07	0.37	0.16	0.26	0.14	0.03	0.09
Excluding the impact of the restructuring of participating interests in companies in the insurance sector by one of the major groups	0.11	0.13	0.12	-	-	-	0.13	0.16	0.15	-	-	-
Trading derivatives	-0.10	-0.09	-0.09	-0.06	-0.03	-0.05	-0.06	-0.15	-0.11	-0.05	-0.10	-0.08
According to risk source												
Interest rate	-0.13	-0.13	-0.13	-0.18	0.01	-0.09	-0.08	-0.21	-0.14	-0.24	-0.02	-0.13
Equity	0.17	0.12	0.14	0.35	0.29	0.32	0.11	0.19	0.15	0.27	0.44	0.36
Other risks	0.04	-0.01	0.01	-0.04	-0.09	-0.06	0.01	0.04	0.02	0.11	-0.24	-0.07
Exchange rate	0.05	0.16	0.10	0.06	0.00	0.03	0.14	0.10	0.12	0.06	-0.01	0.03
Investment in branches	0.29	0.13	0.21	0.11	0.03	0.07	0.37	0.16	0.26	0.14	0.03	0.09
Total	0.41	0.27	0.34	0.30	0.24	0.27	0.55	0.29	0.42	0.35	0.20	0.28
Excluding the impact of the restructuring of participating interests in companies in the insurance sector by one of the major groups	0.23	0.27	0.25	-	-	-	0.32	0.29	0.30	-	-	-

Source: Banco de Portugal
Note: As a percentage of average assets in the year. Six-month annualised figures.

one major domestic group in the second half of the year. Finally, results specifically associated with exchange rate risks have made a further positive contribution to asset profitability, in a context of continued appreciation of the euro against the US dollar and the yen.

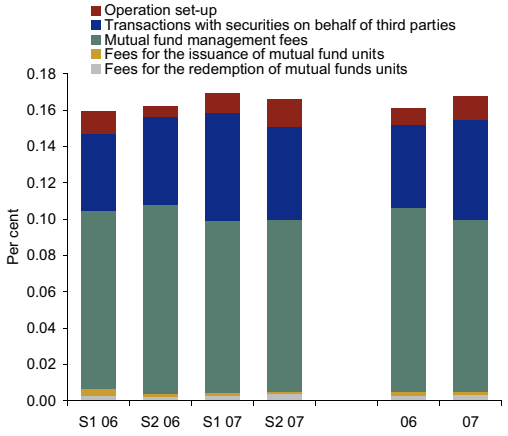
In 2007 income from fees associated with other financial operations continued to contribute significantly to banks' asset profitability, mainly in the period prior to the international financial market turbulence (Chart 4.4.12). In net terms, these fees (which account for around 5 per cent of the banking product) grew by almost 20 per cent over the year, with developments being negatively influenced by international financial market developments after mid-August (mainly in the most buoyant segments). In fact, fees associated with the purchase and sale of securities on behalf of third parties, which increased by around 60 per cent in the first half of the year reflecting positive financial market developments and a significant turnover, decelerated strongly over the second half of the year. Nonetheless, with regard to fees associated with other financial operations as a whole, those associated with the purchase and sale of securities on behalf of third parties contributed the most to the change in return on assets over the year. In turn, fees from mutual fund operations (including fees for the management, issuance and redemption of mutual fund units, which in 2007 accounted for 60 per cent of total fees associated with other financial operations charged by Portuguese banks) slowed down somewhat in the second half of the year, with a contribution close to that seen in 2006. Developments in this component mirrored the lower investors' appetite for mutual fund units following the onset of financial market instability, in a context of growing risk aversion and significant reductions in the return of these investments.

In 2007 the portfolio value of bank employees' pension funds increased by around 5 per cent, *i.e.*, considerably less than in the previous year (by nearly 20 per cent) (Table 4.4.3). This reflected, on the one hand, lower fund profitability, which was most likely influenced by developments in international financial markets over the second half of the year, and, on the other hand, smaller contributions paid to funds compared to 2006. In turn, pension fund liabilities increased slightly more than in the previous year, which has largely reflected different developments and changes in several actuarial assumptions from previously expected. Reflecting a more significant increase in the portfolio value than in liabilities,

Chart 4.4.12

NET FEES ASSOCIATED WITH FINANCIAL OPERATIONS

As a percentage of average assets in the year



Source: Banco de Portugal.
Note: Six-month annualised figures.

Table 4.4.3

PENSION FUNDS – BANKING SYSTEM
EUR millions

	2006	2007
Annual increase in liabilities	191	501
of which:		
Actuarial gains and losses	-315	254
of which:		
Actuarial gains and losses arising from differences between assumptions and realised values	-249	196
Actuarial gains and losses arising from changes in assumptions and, where applicable, in the plans' conditions	-66	58
Increase in liabilities arising from early retirement programmes	212	66
Liabilities		
Total liabilities	13 444	14 189
Minimum level of liabilities to be covered	12 579	13 456
Pension funds		
Pension funds value at the beginning of the year	11 501	13 550
Net income of the funds (+)	1 243	1 065
Contributions to the funds (+)	1 021	401
Contributions made by the beneficiaries (+)	50	49
Retirement pensions paid by the funds (-)	561	595
Survivors pensions paid by the funds (-)	28	30
Changes in the value of the funds resulting from termination (+)	0	-2
Other net changes (+)	290	1
Pension funds value at the end of the year	13 515	14 438
Coverage of the funds (Pension funds value at the end of the year – Minimum liability level to be covered)	936	982
Other coverage	422	410
Coverage of the funds (Pension funds value at the end of the year (incl. other coverage) – Minimum liability level to be covered)	1 358	1 392

Source: Banco de Portugal.

the coverage of bank employees' pension funds improved slightly. However, the deterioration in international financial markets in the first months of 2008 and the persistence of marked uncertainty in most international financial markets may have a significant impact on the future performance of pension funds. This may occur if the above developments lead to more significant declines in the degree of coverage, making necessary banks' extraordinary contributions to pension funds, which may generate greater tensions in terms of banks' profitability and solvency levels.

4.5. Liquidity risk

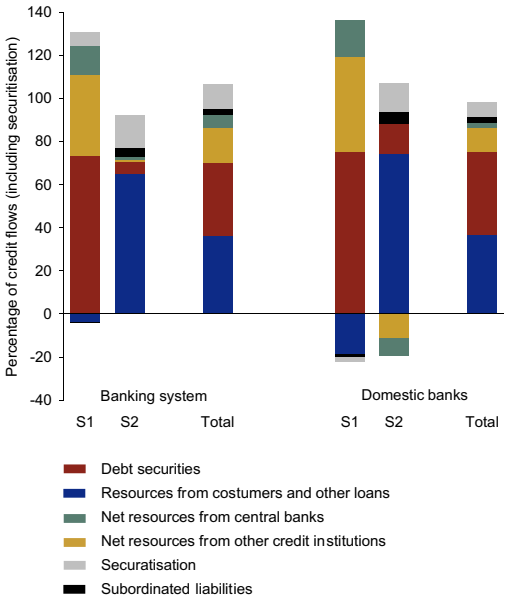
In 2007 activity of the Portuguese banking system continued to expand at a robust pace, largely reflecting credit portfolio growth (see "*Section 4.2 Activity and profitability*"). In the year as a whole, these developments were mainly counterbalanced by resources from customers, (net) issuance of debt securities and, to a lesser extent, financing (net of investments) with other credit institutions (Chart 4.5.1). However, the relative importance of these financing sources changed significantly between the first

and the second halves of the year, reflecting the behaviour of international wholesale financing markets, with mixed developments in domestic and non-domestic institutions.

At the end of 2007 the rate of change in resources from customers was close to 9 per cent, *i.e.*, far higher than in 2005 and 2006 (around 4.5 per cent). Changes in the stock of deposits collected from customers accounted for around 37 per cent of the annual flow of credit granted. Intra-annual development profiles of domestic and non-domestic institutions were clearly different for resources from customers, although recording similar annual rates of change at the end of the year. Over the year, customer deposits with domestic institutions evolved in line with the usual pattern, *i.e.*, a decrease in the first quarter of the year, which was partly offset by an upturn in the second quarter. Subsequently, in the second half of the year, these deposits accelerated significantly year on year. This acceleration was particularly noticeable in the third quarter, when the financial asset portfolio of economic agents was shifted, reflecting financial market turbulence and its impact on profitability of the different instruments. In this regard, in the last two quarters of the year, mutual fund share redemptions were significant, particularly in terms of cash, money market and bond funds, *i.e.*, investments that are generally assessed as close substitutes for bank deposits (Chart 4.5.2). In the context of the current international financial market turbulence, risk associated with portfolios of this type of investment fund was reassessed. In turn, financial market instability has also hampered access to wholesale financing markets, resulting in increased competition among banks in the collection of customer deposits, which was reflected in higher remuneration of time deposits. With regard to non-domestic institutions, the development profile of resources from customers followed an upward path during the year, more significantly during the first half of the year.[27]

Chart 4.5.1

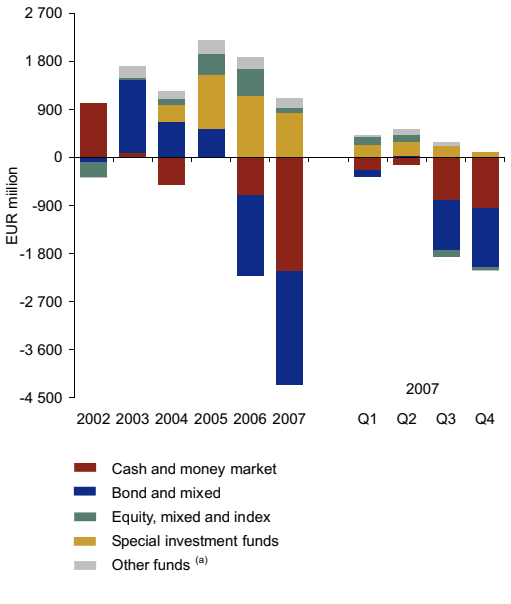
FINANCING FLOWS OF THE BANKING SYSTEM IN 2007



Source: Banco de Portugal.

Chart 4.5.2

NET SUBSCRIPTIONS OF MUTUAL AND MONEY MARKET FUNDS



Source: *APFIPP*.
Notes: Adjusted for investment in national fund units since 2004. (a) Includes other funds, flexible funds and guaranteed capital funds.

(27) The six-month annualised rates of change in resources from customers stood at -4 and 23 per cent, in the case of domestic institutions, in the first and second halves of the year respectively. In the case of non-domestic institutions, the corresponding rates stood at 16 and 5 per cent.

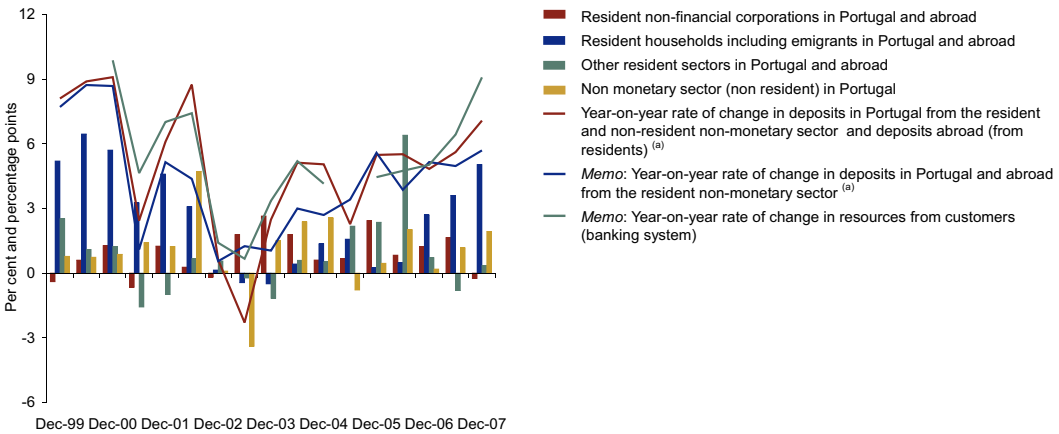
Overall, the acceleration in resources from customers in the second half of 2007 reflected the expansion of deposits by residents and, to a lesser extent, resources from non-residents (despite the decline, in absolute terms, recorded by non-domestic institutions over that period) (Chart 4.5.3). On the basis of Monetary and Financial Statistics and International Investment Position data, the acceleration in deposits by residents was mainly associated with household deposits, while the acceleration in deposits by non-residents was due to deposits by both households and non-financial corporations. Deposits by resident non-financial corporations, despite of having followed an upward path during the year, recorded a negative year-on-year change at the end of 2007. The fact that the expansion of resources from customers was supported by deposits from resident households may contribute favourably to their stability given that, on the one hand, household deposits tend to be (individually) smaller and distributed by a larger number of depositors and, on the other hand, investments in household deposits tend to offer relatively longer actual maturities, even in case of short-term contractual maturities. This generally stands in contrast with deposits in Portugal by non-residents, which, together with deposits by large enterprises, frequently reflect wholesale market operations. The balances on these deposits tend to be more volatile and more concentrated in a lower number of depositors, which are very sensitive to the remuneration offered.

Regardless of continued strong credit growth, the acceleration in resources from customers during the year led to a decline in the credit-to-deposits ratio over the second half of the year (Charts 4.5.4 and 4.5.5). Nevertheless, at the end of the year and compared to the end of the previous year, this ratio increased significantly further, in line with developments in the previous two years, particularly in the case of domestic institutions. Only one major domestic institution showed favourable developments regarding this indicator, reflecting very significant growth of resources from customers (Chart 4.5.6). In contrast, the credit-to-deposits ratio increased significantly in two other systemically important institutions. This assessment is not qualitatively changed when taking into account a wider aggregate of resources from customers, which also includes debt securities issued by banks and placed with customers, although investments in these securities have increased significantly, particularly in the second half of the year, with the corresponding year-on-year rate of change reaching around 20 per cent at the end of 2007.

Chart 4.5.3

DEPOSITS FROM THE NON-MONETARY SECTOR

Contributions to the year-on-year rate of change

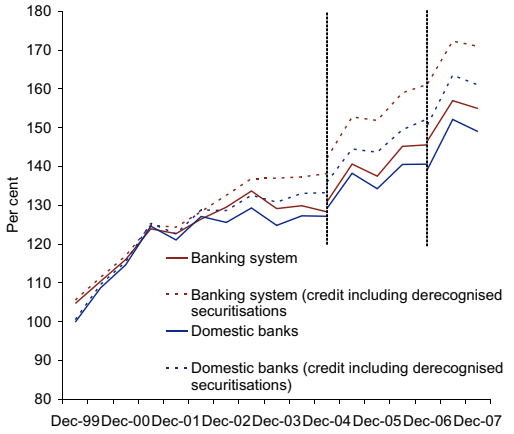


Source: Banco de Portugal (Monetary and Financial Statistics; International Investment Position).
Note: (a) Excluding liabilities recorded as a counterpart of the liquidity received from non-derecognised securitisation transactions, recorded as deposits (and deposit-like instruments) of other financial intermediaries and auxiliaries.

Developments in the ratio of credit to resources from customers of major domestic institutions of the Portuguese banking system contributed to the maintenance of this indicator in Portugal as one of the highest within the European Union (Chart 4.5.7).

Chart 4.5.4

RATIO OF CREDIT TO RESOURCES FROM CUSTOMERS

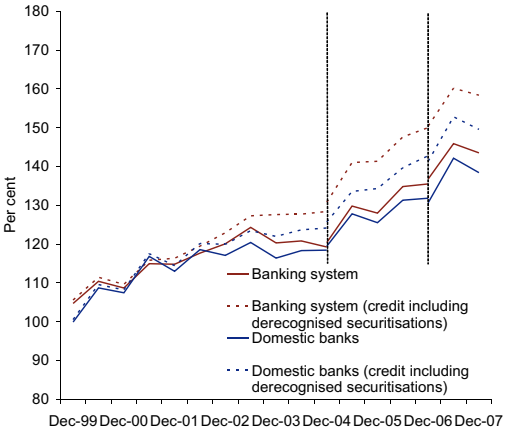


Source: Banco de Portugal.
Note: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis.

Chart 4.5.5

RATIO OF CREDIT TO RESOURCES FROM CUSTOMERS

Including securities issued by banks and placed with customers

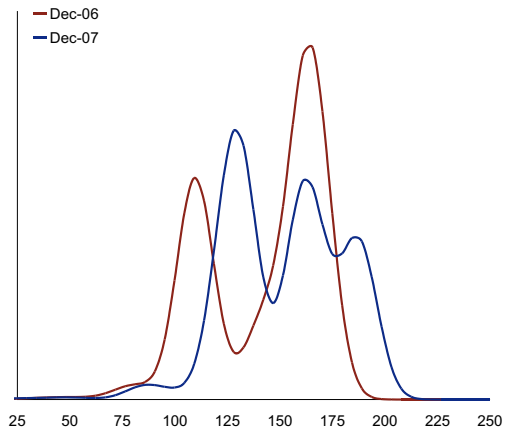


Source: Banco de Portugal.
Note: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis.

Chart 4.5.6

CREDIT-TO-DEPOSITS RATIO OF DOMESTIC INSTITUTIONS

Empirical distribution

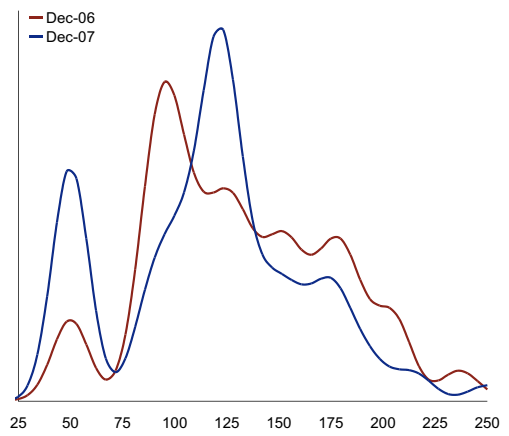


Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets.

Chart 4.5.7

CREDIT-TO-DEPOSITS RATIO OF AN EUROPEAN BANK PANEL

Empirical distribution



Source: Bureau Van Dijk – Bankscope.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets. Based on a range of 89 banking institutions from 14 European Union countries whose accounts for the 2007 fiscal year were available at the above mentioned source at the cut-off date of data for this Report.

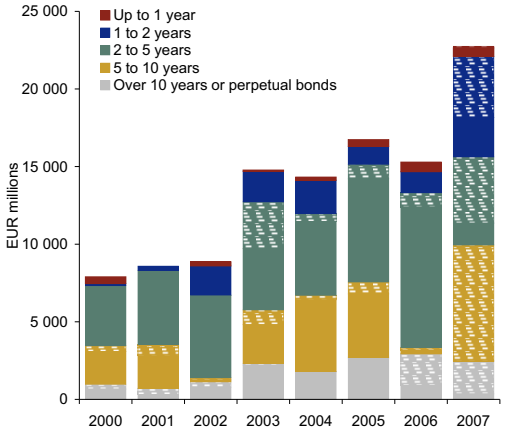
In annual terms, medium and long-term debt securities were also an important source of activity financing, with very significant net bond issuance in 2007 (Charts 4.5.8 and 4.5.9 and Table 4.5.1). In the year as a whole, around 90 per cent of total issuance of debt securities was made by domestic institutions, which were particularly active in the second quarter. In fact, similarly to the euro area, Portuguese banks recorded a fairly high issuance volume in the first half of the year. In a context of favourable financing conditions, institutions seem to have largely accomplished in this period their financing programmes forecast for the year as a whole. Together with the subsequent deterioration in financing conditions in international financial markets, this contributed to significant slowdown in net issuance of debt securities in the second half of the year. Nevertheless, despite international financial market turbulence over this period, liabilities represented by Portuguese bank securities increased further. Some securitisation operations were also conducted (albeit involving relatively low amounts). Notwithstanding the financial market turbulence, Portuguese banks managed to maintain some bond issuance, although involving low amounts and with higher costs than in the first half of the year (see "*Section 4.4 Market risk*").[28] In line with previous years, most issues in 2007 were conducted at floating rate, more markedly in the second half of the year.

In contrast to developments up to 2006, debt securities were mainly issued in the Portuguese market, but continued to be largely placed with international investors. This was associated, on the one hand, with amendments introduced in 2006 in Portuguese legislation on the issuance of mortgage bonds. These amendments have facilitated the issue of mortgage backed securities that are 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.[29] On the other hand, the Eurosystem has specified that, as

Chart 4.5.8

BOND ISSUANCE BY PORTUGUESE BANKING GROUPS

By original maturity

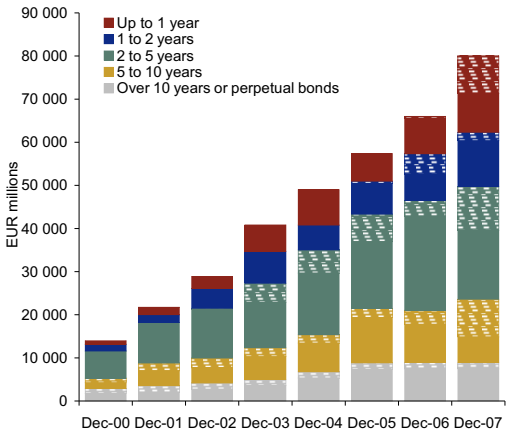


Sources: Bloomberg, Thomson Financial Datastream and Dealogic Bondware.
Note: Series in solid colours refer to issues by branches and subsidiaries abroad of Portuguese banking groups; series in striped patterns refer to issues in Portugal for the maturities mentioned.

Chart 4.5.9

OUTSTANDING AMOUNTS OF BONDS BY PORTUGUESE BANKING GROUPS

By residual maturity



Sources: Bloomberg, Thomson Financial Datastream and Dealogic Bondware.
Note: Series in solid colours refer to issues by branches and subsidiaries abroad of Portuguese banking groups; series in striped patterns refer to issues in Portugal.

(28) In the first three months of 2008 risk *premia* on securities issued by banks followed an upward path, which was interrupted at the end of March, with a subsequent decline in these *premia*. In this context, major Portuguese banking groups issued bonds worth EUR 6 billion in May 2006.

(29) Since each issue is allocated a set of mortgage credit, increased repayment assurance is hence offered. Therefore, mortgage bonds have lower credit risk premium and are also subject to favourable prudential treatment in terms of solvency, in the framework of the new prudential regime, which reinforces its eligibility as financial instrument for banks as investors.

Table 4.5.1

STRUCTURE OF TOTAL OUTSTANDING AMOUNTS OF BONDS ISSUED BY PORTUGUESE BANKING GROUPS

By type of rate and residual maturity

As a percentage of total outstanding amounts

	Up to 1 year	1 to 2 years	2 to 5 years	5 to 10 years	Over 10 years or perpetual bonds	Total
Total						
31-Dec-2006	13.2	16.4	38.6	18.3	13.6	100.0
30-Jun-2007	12.6	18.8	36.2	21.0	11.5	100.0
31-Dec-2007	22.1	15.7	32.7	18.3	11.2	100.0
of which						
Variable rate	16.7	12.8	19.2	9.9	5.2	63.8
Fixed rate and other	5.5	3.0	13.5	8.4	5.9	36.2

Sources: Bloomberg, Thomson Financial Datastream and Dealogic Bondware.

from 1 June 2007 and with the exception of international or supranational institutions, issuers of marketable assets eligible for Eurosystem credit operations must be established either in the European Economic Area (EEA) or in one of the four non-EEA G10 countries (namely, Canada, Japan, Switzerland and the United States). Thus, assets issued after 1 January 2007 by entities domiciled outside the EEA or non-EEA G10 countries are not eligible, irrespective of any guarantee provided by an entity established in the EEA. This change has reduced market receptiveness to securities issued in other financial centres (as off-shore centres, for instance) through branches and subsidiaries abroad.[30]

In 2007 as a whole, financing (net of investments) with other credit institutions increased significantly (Table 4.5.2). Nevertheless, despite the break in the downward trend seen since the beginning of the decade in the importance of these resources as source of financing for banks, their weight in total resources remains relatively small. In fact, in the context of an expansion in activity supported by financing through the issuance of medium and long-term securities and credit securitisation (which allowed for some improvement in the general liquidity situation of institutions, due to an increase in residual maturities of liabilities), money market financing, net of investments, has been used in liquidity management on a more conjunctural basis. In the first half of each year, and on a temporary basis, this type of financing allowed for the accommodation of imbalances associated with the seasonal behaviour of some balance-sheet items (*e.g.* customer deposits).

In the first quarter of 2007 increased recourse to financing (net of investments) with other credit institutions mainly reflected a decline in investments in central banks and other credit institutions by domestic institutions, which during that period recorded a seasonal reduction of resources from customers.[31] The significant issuance of securities in the second quarter, the conduct of a number of securitisation operations, and the acceleration in resources from customers in the second half of the year made it possible for domestic institutions to reduce, as a whole, the balance of financing with other credit institutions. In the second half of the year, claims and, to a lesser extent, liabilities against central banks increased, as opposed to transactions with other credit institutions. This seems to be in line with the interbank money market situation, which has been characterised by a strong increase in counterparty risk. This rise has led to a clear widening of the spread between interest rates on uncollateralised interbank operations and comparable rates on interbank collateralised operations, particularly for longer

(30) Assets issued before 1 January 2007 will remain eligible until 31 December 2011 and will only become ineligible after that date.

(31) Opposite developments were seen in non-domestic institutions, *i.e.*, these investments increased, although involving considerably lower amounts.

Table 4.5.2

POSITION OF PORTUGUESE BANKS *VIS-À-VIS* OTHER CREDIT INSTITUTIONS AND CENTRAL BANKS
EUR millions

Banking system	Dec-06	Jun-07	Dec-07
Net resources from other credit institutions	**13 767**	**22 522**	**23 113**
of which *vis-à-vis* central banks	-5 254	-2 930	-2 555
Cash and claims on central banks	**7 156**	**5 144**	**8 105**
Claims and investment in other credit institutions	**41 841**	**42 043**	**41 003**
in the country	7 848	7 003	10 720
abroad	33 993	35 041	30 283
Resources from central banks	**1 901**	**2 213**	**5 550**
Resources from other credit institutions	**60 862**	**67 496**	**66 671**
in the country	4 863	4 912	5 962
abroad	55 999	62 584	60 709
Domestic banks	**Dec-06**	**Jun-07**	**Dec-07**
Net resources from other credit institutions	**-1 407**	**7 182**	**3 152**
of which *vis-à-vis* central banks	-4 452	-2 061	-3 763
Cash and claims on central banks	**6 254**	**4 174**	**7 084**
Claims and investment in other credit institutions	**30 240**	**28 942**	**27 491**
in the country	5 650	5 050	8 448
abroad	24 590	23 892	19 044
Resources from central banks	**1 803**	**2 112**	**3 320**
Resources from other credit institutions	**33 285**	**38 186**	**34 407**
in the country	4 028	4 265	5 084
abroad	29 257	33 921	29 322

Source: Banco de Portugal.

maturities of the interbank money market, which implied a reduction of market depth in these maturities.[32]

The reversal of the net position in the interbank market, from an asset position at the end of 2006 to a liability position in December 2007, associated with an increase in liabilities and a decline in assets (in approximate amounts), led to a further narrowing of the coverage ratio of interbank liabilities by highly liquid assets of domestic institutions (which include interbank assets and eligible securities in monetary policy operations) (Chart 4.5.10).[33] However, these developments were largely affected by the behaviour of one major domestic bank, which, following a change in its financing strategy, reduced its investments (net of the collection of resources) in the money market.[34] Therefore, distribution in this indicator was less dispersed across domestic institutions as a whole, given that this bank had recorded the highest indicator in 2006 (Chart 4.5.11). In line with developments since 2004, deterioration in this indicator for domestic institutions was mitigated by the increase in the portfolio of eligible securities in monetary policy operations (by around 19 per cent in December 2007).

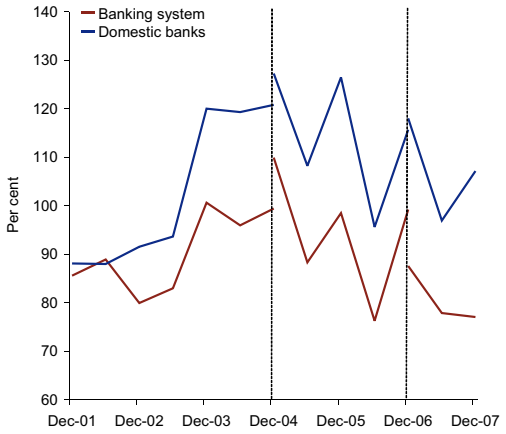
(32) In a context of euro money market uncertainty, several institutions may have tried to obtain liquidity at longer maturities, subsequently placing it at shorter maturities with the central bank and other credit institutions.

(33) This indicator facilitates a first assessment of the institutions' ability to meet some of their most immediate liabilities using highly liquid assets. However, its information content is limited, given that, on the one hand, it is based on accounting information that does not take into account the residual maturities of items used in its calculation and, on the other hand, it does not consider other balance-sheet items maturing in the short term, which are key determinants for the institutions' current liquidity management.

(34) At the end of 2006 this bank had a position as net fund provider in this market of around 7 per cent of total assets, compared to a position as net fund receiver for domestic institutions as a whole close to 2 per cent of assets.

Chart 4.5.10

COVERAGE RATIO OF INTERBANK LIABILITIES BY HIGHLY LIQUID ASSETS

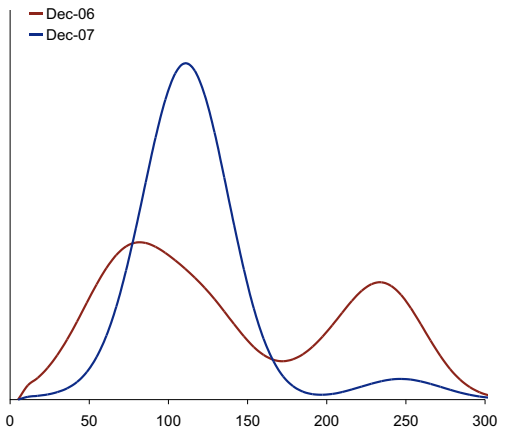


Source: Banco de Portugal.
Note: Coverage ratio is defined as the ratio of highly liquid assets (interbank assets and debt securities eligible for monetary policy operations) to interbank liabilities. The break in the series in 2004 corresponds to the implementation of the International Accounting Standards which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis.

Chart 4.5.11

COVERAGE RATIO OF INTERBANK LIABILITIES BY HIGHLY LIQUID ASSETS OF DOMESTIC INSTITUTIONS

Empirical distribution



Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets.

Liquidity management of non-domestic institutions is different from that of domestic institutions. The possibility of obtaining funds from their head offices (or transferring funds thereto) enables non-domestic institutions to pursue their credit activity without depending on deposits of domestic customers. Therefore, these institutions generally have higher credit-to-deposit ratios and far lower coverage ratios of interbank liabilities by highly liquid assets. In this context, in the year as a whole, the change in the balance of financing (net of investments) obtained by non-domestic institutions from other credit institutions was similar to that of domestic institutions. However, in the case of non-domestic institutions, these developments reflected a simultaneous increase in interbank assets and, mainly, liabilities. In particular, in the second half of the year, financing obtained from other credit institutions and central banks increased. Financing obtained from central banks was concentrated in one non-domestic banking group that used as collateral with the European Central Bank securitised bonds held after securitisation operations conducted in 2007 on claims held in its portfolio.[35]

Over the past few years institutions have also turned to credit securitisation as a source of financing. Although higher than in 2006, the total amount of operations conducted in 2007 was short of the levels seen in previous years, namely 2003 and 2005. Similarly to the issuance of debt securities, main credit securitisation operations were conducted prior to the onset of financial market turbulence, resorting to loans to households for house purchase as main underlying assets and taking the form of operations without derecognition of assets. At the end of 2007 the outstanding amount of loans granted in securitisation operations amounted to 11.6 per cent of total loans originally granted by banks to the resident

(35) In accounting terms, this securitisation operation contributed to an increase in the securities portfolio of this institution. However, given that these securities were used as collateral in financing operations with the European Central Bank, they are not reflected, for the purpose of liquidity assessment, in developments in the portfolio of eligible securities in monetary policy operations.

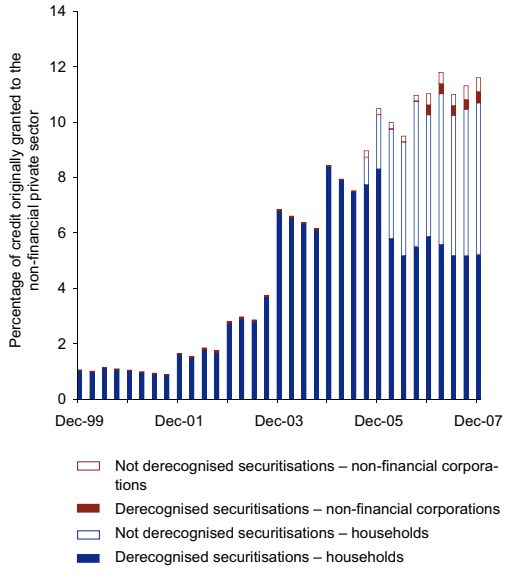
non-financial private sector (increasing by 0.6 p.p. from the end of 2006), of which around 87 per cent corresponded to loans granted to households for house purchase (Chart 4.5.12).[36]

Despite mixed developments in the first and second halves of the year, the relative importance of the various bank financing sources (assessed as a percentage of the stock of credit, including securitised credit), as well as the main development trends in this domain since the beginning of the decade, remained relatively unchanged at the end of 2007 (Chart 4.5.13). Therefore, the importance of resources from customers and, to a lesser extent, subordinate liabilities have decreased, counterbalanced by greater weight of debt securities. In contrast to developments over the past few years, and as previously mentioned, there was increased recourse to financing (net of investments) with central banks and other credit institutions in 2007.

The greater weight of medium and long-term market debt has benefited from the participation in the euro area, given that it has created room for the financing of domestic agents, particularly banks, in a wider exchange-rate risk-free securities market, as well as very favourable financing conditions prevailing in international wholesale financing markets up to mid-2007. This has firstly enabled a general improvement in liquidity indicators, particularly due to the increase in the average maturity of financing with wholesale markets, which is more appropriate to the average maturity of assets. However, the need to refinance a growing volume of liabilities, in the context of a significant and sustained expansion of activity, has raised the sensitivity of Portuguese banks to changes in financing conditions in international wholesale markets. With regard to domestic institutions, the weight of debt represented by secu-

Chart 4.5.12

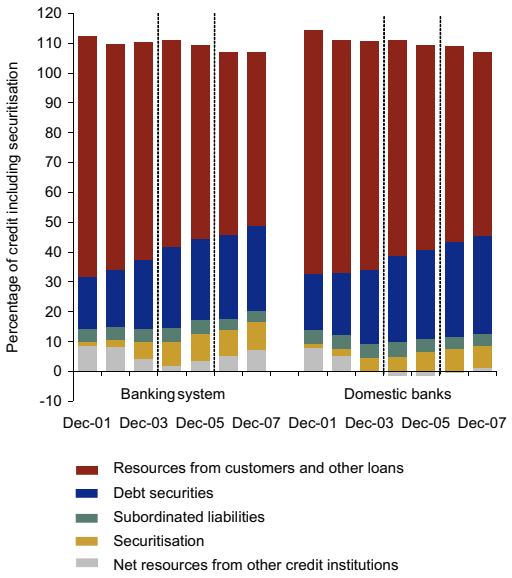
DEVELOPMENTS IN THE OUTSTANDING AMOUNT OF LOANS GRANTED IN SECURITISATION OPERATIONS



Source: Banco de Portugal (Monetary and Financial Statistics).

Chart 4.5.13

LIQUIDITY SOURCES OF THE BANKING SYSTEM



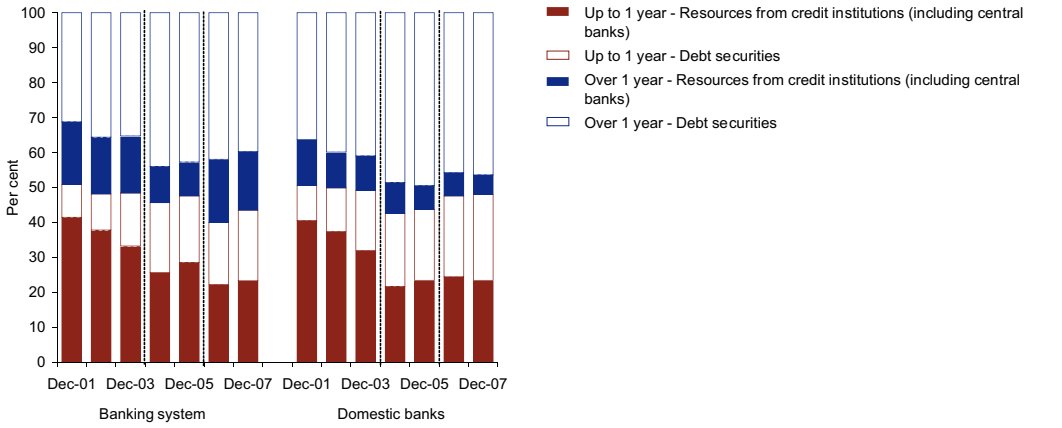
Source: Banco de Portugal.
Note: Net resources from other credit institutions include net resources on central banks. Securitisations include derecognised and non-derecognised transactions. The break in the series in 2004 corresponds to the implementation of the International Accounting Standards which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis.

(36) At the end of 2007, approximately 22 per cent of loans originally granted by banks to resident households for house purchase had been securitised.

rities and interbank liabilities with a maturity of up to 1 year has been increasing consistently since 2004, mainly reflecting the maturity of debt securities (Chart 4.5.14).

Chart 4.5.14

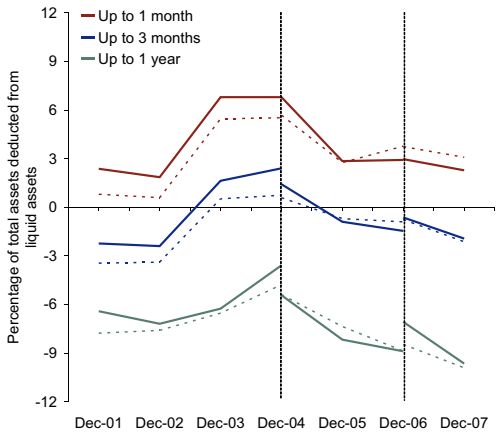
STRUCTURE BY RESIDUAL MATURITY OF DEBT SECURITIES AND INTERBANK LIABILITIES



Source: Banco de Portugal.
Note: Debt securities include subordinated debt and interbank liabilities include resources from central banks. The break in the series in 2004 corresponds to the implementation of the International Accounting Standards which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis.

Chart 4.5.15

LIQUIDITY GAPS BY MATURITY LADDER

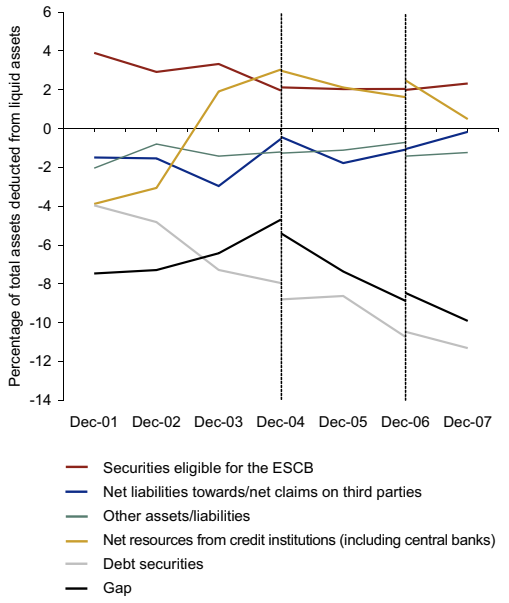


Source: Banco de Portugal.
Note: The liquidity gap is defined as (liquid assets-volatile liabilities)/(assets-liquid assets)x100 in each residual maturity ladder; the dashed line shows domestic institutions. The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis.

Chart 4.5.16

LIQUIDITY GAP OF DOMESTIC INSTITUTIONS FOR AN HORIZON OF UP TO 1 YEAR

Main contributions



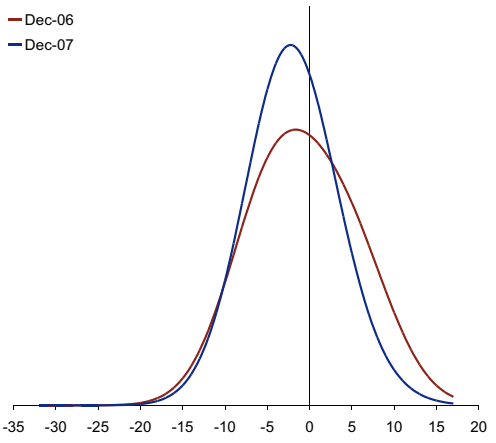
Source: Banco de Portugal.
Note: The break in the series in 2004 corresponds to the implementation of the International Accounting Standards, which also implied a redefinition of the group of banking institutions under analysis. In turn, the break in the series in 2006 corresponds to a widening of the group of institutions under analysis.

In effect, the significant increase in the redemption of debt securities has been the main factor behind the deterioration of domestic institutions liquidity gaps for a residual maturity of up to 1 year since 2004 (Charts 4.5.15 and 4.5.16).[37] Between 2001 and 2004, liquidity indicators benefited from a significant increase in interbank investments (net of resources), more than offsetting the concentration of maturity dates for securities. Subsequently, these investments stabilised somewhat, whereas debt securities with a maturity of up to 1 year continued to increase significantly. In 2007 developments in liquidity gaps for different horizons also reflected, albeit to a lesser extent, the above-mentioned decrease in interbank investments (net of resources) by one major domestic banking institution. This has contributed to higher concentration of empirical distributions of liquidity gaps up to three months and up to 1 year, at more negative level than at the end of 2006 (Charts 4.5.17 and 4.5.18).

Chart 4.5.17

LIQUIDITY GAP OF DOMESTIC INSTITUTIONS CONSIDERING MATURITIES OF UP TO 3 MONTHS

Empirical distribution

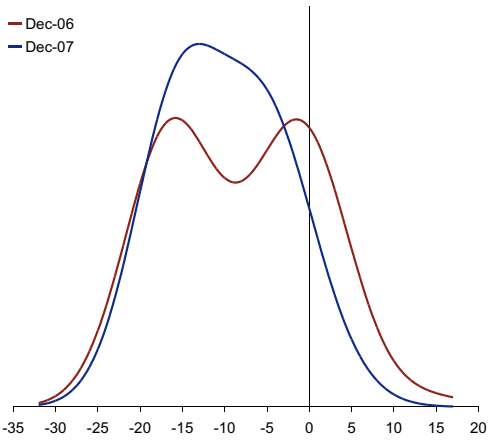


Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets.

Chart 4.5.18

LIQUIDITY GAP OF DOMESTIC INSTITUTIONS CONSIDERING MATURITIES OF UP TO 1 YEAR

Empirical distribution



Source: Banco de Portugal.
Note: Empirical distribution obtained through recourse to non-parametric methods, namely to a Gaussian kernel that weights institutions by their assets.

4.6. Credit risk

General developments in exposure to the non-financial private sector

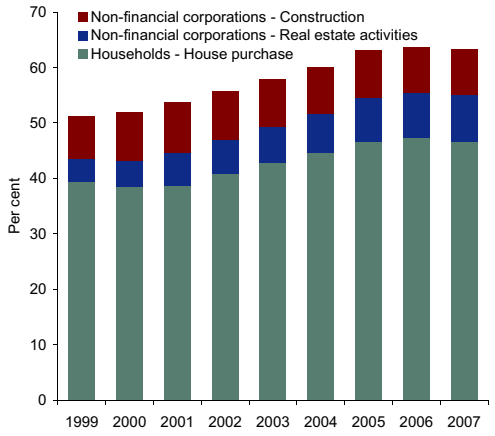
At the end of 2007 the exposure of the Portuguese banking system to credit risk (assessed by the amount of gross credit to customers) reached two thirds of total assets on a consolidated basis, while the share corresponding to resident households and non-financial corporations accounted for around 80 per cent of the total.

The concentration of this exposure, in its different segments, is a risk element warranting particular attention. On the one hand, with regard to total credit granted by resident banks to the non-financial private sector, it is highly concentrated on real-estate related credits, with bank loans to households for

(37) The liquidity gap may be defined as the ratio of the difference between net assets and volatile liabilities to the difference between total assets and net assets. This indicator allows for a more complete and appropriate characterisation of institutions' liquidity, given that it includes information on the residual maturity of a wide range of assets and liabilities. For further details on liquidity indicators, see "Box 4.1 *Monitoring the banking system's liquidity risk*", Banco de Portugal, *Financial Stability Report 2004*.

Chart 4.6.1

EXPOSURE OF THE BANKING SYSTEM TO THE REAL ESTATE SECTOR



Source: Banco de Portugal.
Note: Loans to non-financial corporations of the construction and real estate sectors and to households for housing as a percentage of loans granted to the non-financial private sector (adjusted for securitisation operations).

house purchase accounting for around 47 per cent of the total, while loans to non-financial corporations in the construction and real estate services sectors accounted for around 17 per cent (Chart 4.6.1). Nonetheless, the weight of the real estate sector in total credit has stabilised since 2005, after successive increases since the late 1990s. In 2007 this stabilisation mainly reflected a deceleration in credit to households for house purchase, and a considerable acceleration in loans to companies of the construction and real estate services sectors. On the other hand, with regard to credit to non-financial corporations, concentration is significant, given that loans granted by resident credit institutions to this sector relate to a relatively low number of large enterprises. At the end of 2007 nearly 80 per cent of the outstanding amount of loans corresponded to liabilities of corporations with loans over €1 million. These corporations accounted for a little over 6 per cent of resident companies that borrowed from resident credit institutions. Around 0.5 per cent of these companies had borrowed over €10 million, totalling almost half the credit granted by banks to this sector (Table 4.6.1). This concentration profile is generally shared by the five major Portuguese banking groups and has not changed considerably over time.

Despite the highly concentrated credit portfolio of the banking system in the real estate sector and in large enterprises, some factors help to mitigate risks in the Portuguese economy. On the one hand, the greatest share of exposure to the real estate sector corresponds to loans to households for house purchase, which have low probability of default and a high recovery rate. In fact, these are largely owner-occupied housing loans, whose purpose is to meet a basic need of households, and therefore the probability of default is very low. Moreover, as a rule, these loans are collateralised by real assets, ensuring a high recovery rate in case of default.[38] On the other hand, evidence suggests that, in the case of Portugal, real estate market prices are not overvalued, and therefore no significant corrections are expected that may compromise the recovery of outstanding defaults, in the event of mortgage foreclosure. Also in the case of credit to large enterprises, probabilities of default are generally low, although relatively significant unexpected losses may occur in the event of default of a sufficiently high

(38) For further details, see "*Financial sector assessment programme Portugal: banking system stress-testing exercise*" (April 2007), Banco de Portugal, Occasional Paper No 1.

Table 4.6.1

CREDIT TO NON-FINANCIAL CORPORATIONS, BROKEN DOWN BY SIZE OF EXPOSURE [a]
Annual percentage changes [b]

			Memo (in December 2007):		
	Dec-06	Dec-07	Lower limit [e]	Average outstanding amounts (10^3€)	Weight of the outstanding amounts in the total (%)
Total	8.8	11.2			
Large exposures (percentile 90) [c]	9.3	11.2	468	3 625	88
of which: ***very large exposures*** *(percentile 99)* [c]	11.4	12.4	5 961	22 857	55
of which: the ***largest exposures*** *(percentile 99.5)* [c]	12.4	12.7	11 199	37 669	46
Retail exposures [d]	5.7	10.9	-	57	12

Source: Banco de Portugal.
Notes: (a) Indicators based on *Central de Responsabilidades de Crédito* (*CRC*) (Central Credit Register) data. They correspond to credit granted by banks, savings banks, mutual agricultural credit banks, credit financial institutions, factoring companies, leasing companies, credit card card issuing or managing companies, credit-purchase financing companies and other resident financial intermediaries. It includes credit granted in securitisation operations. (b) For the calculation of annual changes, the lower limits of each group of exposures were defined by successively applying in each period the rate of change of the total exposure to December 2007 figures. (c) Percentiles defined on the basis of the number of companies ranked according to the total exposure amount. (d) Exposures whose amounts are below the lower limit of large exposures. They correspond to 90 per cent of companies that borrowed from institutions participating in the *CRC*. (e) Amount of the lower exposure within exposures as a whole taken into account in the percentile. In EUR million.

number of large loans. However, large Portuguese enterprises have generally recorded very positive profitability levels over the past few years, while taking advantage of the particularly favourable financial environment seen up to mid-2007 to consolidate their balance sheets.

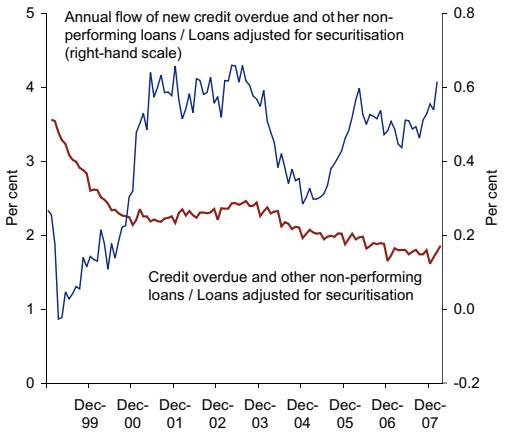
Default ratios in the portfolio of bank loans to the resident non-financial private sector has remained at very low levels, compared with those at similar stages of previous business cycles. At the end of 2007 the weight of credit overdue and other non-performing loans in total credit granted to the sector (adjusted for securitisations) reached a trough, remaining virtually unchanged from December 2006 (Chart 4.6.2).[39] The stabilised weight of default credit in total credit was visible for the five major banking groups (with larger market shares in loans for house purchase and loans to large enterprises, which are typically credit market segments with a lower probability of default) as well as for the other banks as a whole (for which the weight of default in total credit granted is generally higher) (Chart 4.6.3). The lower credit default ratio of the five major banking groups largely reflects their larger relative share in the housing loan segment (in which the default ratio is lower than the total). However, consumer credit and other lending to non-financial corporations and households granted by the five major banking groups also show lower default ratios than other banks.

In the context of an interest rate upward trend and gradual recovery in economic activity, the maintenance of low default ratios reflects, on the one hand, some adjustment of credit supply conditions to the current ability of companies and households to service debt and, on the other hand, active strategies of banks in removing from their balance sheets credit overdue and other non-performing loans with high provisioning levels, through write-offs and sales. In 2007 write-offs or sales of non-performing loans to the non-financial private sector accounted for around 0.4 per cent of average outstanding amount of loans to the sector, *i.e.*, a slight decline from the previous year (0.5 per cent). Therefore, despite the relative stabilisation of the total default ratio, annual new credit overdue and other non-performing

(39) This aggregate corresponds to the concept as presented in Monetary and Financial Statistics. Credit overdue includes loans (regarding principal debt or interest) overdue for more than 30 days. Other non-performing loans relate to future instalments of doubtful credit, pursuant to Notice of Banco de Portugal No 3/95 and other legal acts in force.

Chart 4.6.2

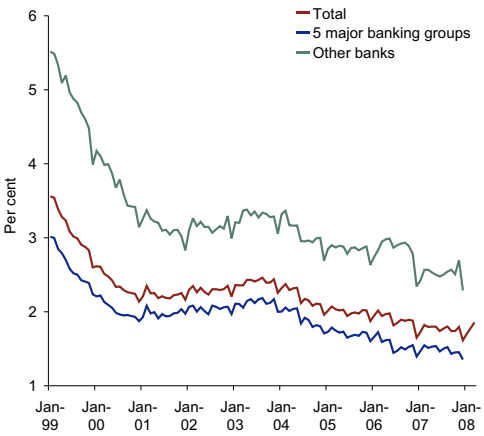
DEFAULT IN CREDIT TO THE RESIDENT NON-FINANCIAL PRIVATE SECTOR



Source: Banco de Portugal.
Note: Latest figures: March 2008.

Chart 4.6.3

DEFAULT RATIO IN LOANS TO THE NON-FINANCIAL PRIVATE SECTOR



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' portfolio. Latest figures for the total: March 2008. For the remaining items: December 2007.

loans of the non-financial private sector have continued to grow at a robust pace, amounting to 0.53 per cent of total loans granted to the sector by resident banks (adjusted for securitisations), after 0.47 per cent in 2006 (Chart 4.6.2).

The default profile of households and non-financial corporations led to a marginal change in the ratio of default credit to total credit of the whole banking system, from 1.24 per cent at the end of December 2006 to 1.27 per cent, with a slight decline in dispersion among major banking groups[40] (Chart 4.6.4). In turn, impairment and provisions for credit overdue increased significantly, while provisioning of delinquency situations by specific provisions (actually observed or highly expected) declined from 84 to 76 per cent. The ratio of default credit, net of provisions for non-performing loans and credit overdue, to total credit, also net of the same provisions, increased to 0.31 per cent (after 0.20 per cent at the end of 2006), with a parallel decline in dispersion across institutions (Chart 4.6.5).[41]

Exposure to and default of the household sector

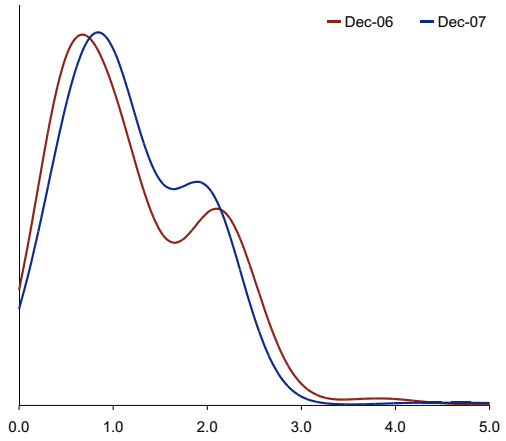
In 2007 credit granted by resident financial institutions to households continued to grow at a high rate (of around 9 per cent), although slightly below the previous year rate (10 per cent). Deceleration in loans to households reflected mixed developments in segments by purpose, with continued and marked slowdown in credit for house purchase and further acceleration in consumer credit and other lending, which had grown significantly in 2006 (see "Chapter 3 *Financial Situation of the Non-financial Private Sector*"). This trend in credit to households persisted in the first months of 2008, with a slight decline in the rate of change of total bank loans, mainly driven by the housing loan segment, while the growth rate of consumer credit and other lending remained at the high levels seen in late 2007.

(40) The prudential concept of default credit includes credit overdue for more than 90 days and non-performing loans reclassified as credit overdue for provisioning purposes, pursuant to 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 at *www.bportugal.pt/servs/sibap/sibap_e.htm*.

(41) Figures presented in this paragraph differ from those presented in previous publications due to the inclusion of banks that adopted the International Accounting Standards in 2006. For further details, see footnote 1 in this chapter.

Chart 4.6.4

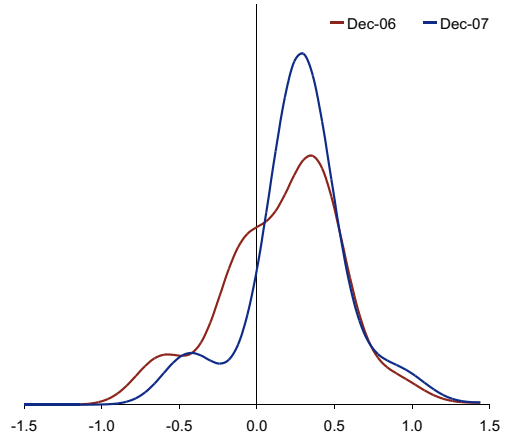
DEFAULT CREDIT / TOTAL CREDIT
Empirical distribution



Source: Banco de Portugal.
Note: Empirical distribution through recourse to a Gaussian kernel that weighs institutions by total credit.

Chart 4.6.5

NET DEFAULT CREDIT/NET TOTAL CREDIT
Empirical distribution



Source: Banco de Portugal.
Note: Empirical distribution through recourse to a Gaussian kernel that weighs institutions by total credit.

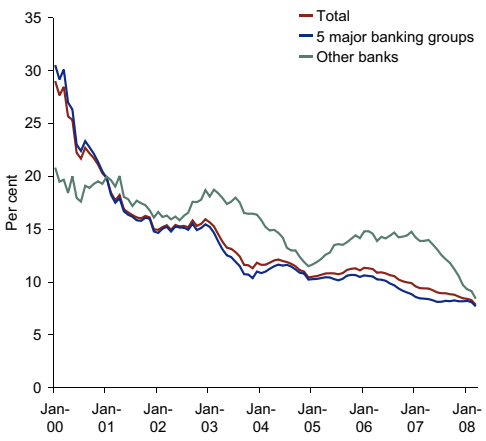
This profile was shared by the five major banking groups and other banks, with a very marked acceleration in consumer credit and other lending granted by several institutions particularly oriented towards this type of financing (Chart 4.6.6). As a result, the market share of the five major banking groups has remained unchanged in loans for house purchase (close to 80 per cent), declining markedly in the case of consumer credit and other lending (to 60 per cent) (Chart 4.6.7).

The above developments occurred in the context of sustained upward trend in interest rates on these operations (in line with the continued cycle of ECB's key interest rate rise that started at the end of 2005) and supply conditions that, up to the onset of instability in the markets funding the banking sys-

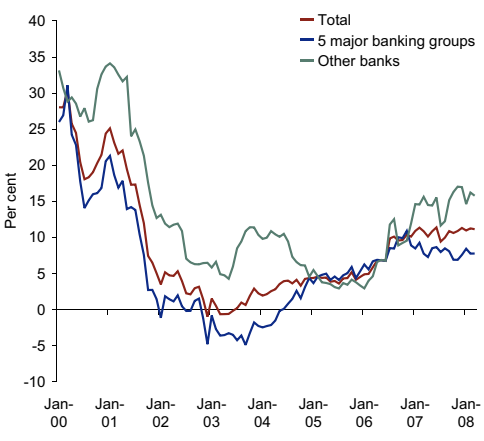
Chart 4.6.6

ANNUAL RATE OF CHANGE IN LOANS TO HOUSEHOLDS

For house purchase



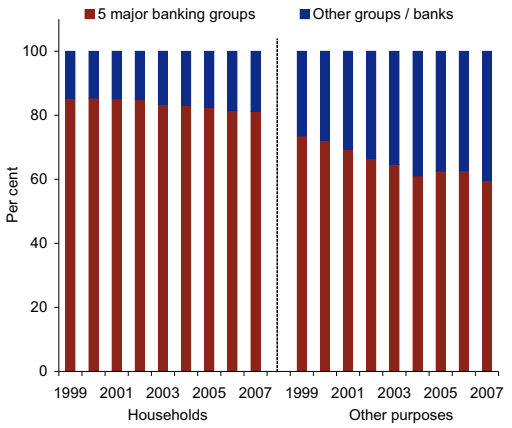
Consumer credit and other lending



Source: Banco de Portugal.
Note: Latest figures: March 2008.

Chart 4.6.7

MARKET SHARES IN LOANS TO HOUSEHOLDS SEGMENTS



Source: Banco de Portugal.

tem, remained generally stable. At the same time, consumer confidence levels declined gradually over the year, with a deceleration in consumption of current goods and an acceleration in consumption of durable goods, as well as a further decline in the household saving rate. According to the results of the Bank Lending Survey, over the past few years the supply of loans to households was characterized by the provision of a diversified range of credit products adjustable to the current ability of households to service debt. These products, which were initially available in lending for house purchase, may have also been significant for consumer loans in a more recent period, making it possible to sustain the continued increase in this sector's indebtedness and to maintain the corresponding default at relatively subdued levels.

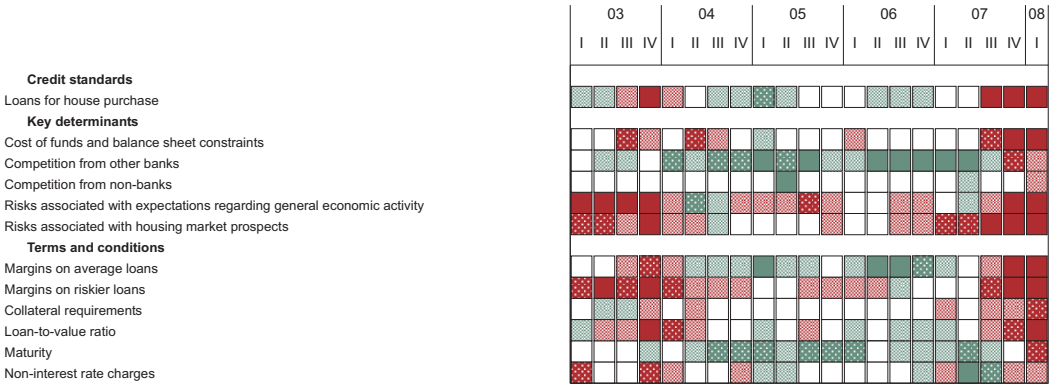
Turbulence in international financial markets since the summer of 2007, which led to difficulties in obtaining funds from wholesale markets, significantly changed supply conditions in loans to households. According to the results of the Bank Lending Surveys of October 2007 and January and April 2008, credit standards applied to the approval of loans to households tightened significantly, more markedly in loans for house purchase (where amounts and loan maturities are higher). At the same time, demand for loans for house purchase grew considerably up to the third quarter of 2007, declining moderately in the last months of the year and in the first quarter of 2008. In the case of consumer credit and other lending, demand followed a slightly upward trend up to the end of 2007 and stabilised in the first months of 2008.

Tightening of credit standards applied to the approval of loans for house purchase by banks reporting to the Bank Lending Survey was reflected in wider spreads, higher collateral demanded, lower loan-to-value ratios and higher fees and other charges not related to interest rates. With regard to consumer credit and other lending, tighter supply conditions mainly led to an increase in spreads and shorter maturities (Chart 4.6.8). However, this only applies to credit policies pursued by the five major banking groups, whose participation in credit to households declined in 2007. For resident banks as a whole, available data regarding interest rates on new consumer loans to households suggest that spreads in this segment of the credit market may have declined somewhat over the second half of the year, with a further increase in the weight of loans with a maturity of over 5 years in the total outstanding amounts of consumer credit and other lending. In addition to differentiated credit policies for banks

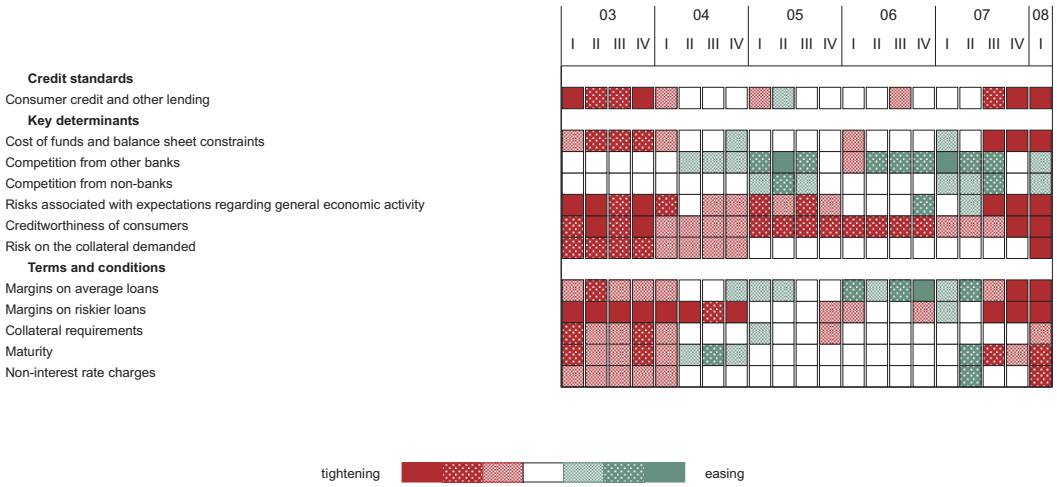
Chart 4.6.8

BANK LENDING SURVEY

Loans to households – Housing



Loans to households – Other purposes



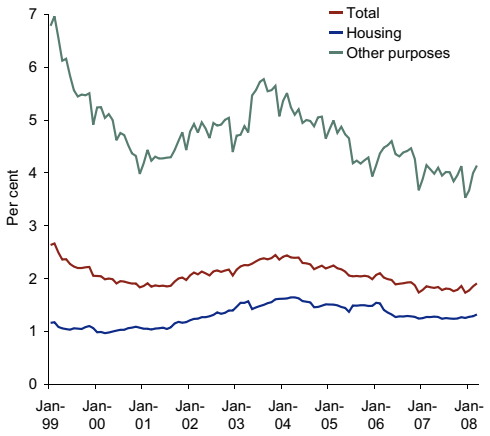
Source: Banco de Portugal.

whose share in this market segment has increased, these developments may reflect the fact that some new consumer loans granted in 2007 were associated, on account of their nature, with real collateral (such as some financing for car purchases or loans with mixed purposes that share the same collateral with other types of credit, particularly for house purchase). By facilitating a higher recovery rate in the event of default, collateral will allow for the approval of loans with lower spreads and longer maturities, for each loan-specific risk level.

At the end of 2007 the default ratio of loans to households remained unchanged from December 2006, accounting for 1.74 per cent of total credit granted at the end of the year (Chart 4.6.9). However, the write-off of loans from assets over the year was significant, albeit slightly lower than in the previous year, and the sale of credit overdue continued to be noteworthy. Therefore, in 2007, and reflecting the deterioration of the household financial capacity and increasing debt service burden, the flow of new credit overdue and other non-performing loans remained high (0.47 per cent of average outstanding

Chart 4.6.9

DEFAULT RATIOS IN BANK CREDIT TO HOUSEHOLDS

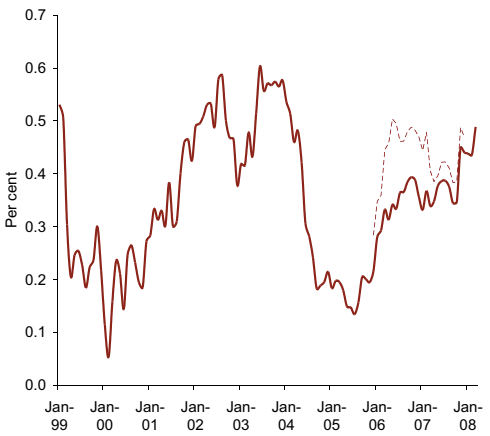


Source: Banco de Portugal.
Note: Latest figures: March 2008.

Chart 4.6.10

ANNUAL FLOW OF NEW CREDIT OVERDUE AND OTHER NON-PERFORMING LOANS

Households



Source: Banco de Portugal.
Note: Estimate of the annual flow of new credit overdue and other non-performing loans, calculated as the change in the outstanding amount of credit overdue and other non- performing loans adjusted for write-offs, as a percentage of total bank loans (adjusted for securitisation). As from December 2005, this change is also adjusted for sales to institutions outside the banking system of credit overdue and other non-performing loans not written-off from assets, as reported on a quarterly basis in accordance with Instruction of Banco de Portugal No. 2/2007 (dashed line). Latest figure: March 2008 (December 2007 for the dashed line).

amounts of bank loans to the sector, adjusted for securitisations), *i.e.*, similar to the previous year and close to 2003 levels (Chart 4.6.10).

In a context of subdued economic growth and high unemployment and indebtedness rates, the upward trend in interest rates may lead to greater difficulties faced by Portuguese households in ensuring debt service in the near future. Therefore, a limited rise is expected in this sector's default ratio. Moreover, instability persists in international financial markets, which significantly changed the financing framework for economic agents. The revaluation of risk *premia* and the deterioration in wholesale financial market conditions may tend to spill over into higher financing costs and tighter credit standards applied to the approval of new loans by credit institutions, thus reducing the flexibility that has characterised the use of bank credit by households over the past few years. Particularly in a framework where possibilities to renegotiate or restructure debt (which in the recent past made it possible to moderate the increase in this ratio) may be more limited, default in more vulnerable household groups, such as lower-income and younger households, may tend to rise more rapidly. According to the results of the latest Household Wealth and Indebtedness Survey (*Inquérito ao Património e Endividamento das Famílias – IPEF*), debt-to-income ratios are usually very high in these groups, largely reflecting the weight of loans for house purchase in these households' budget.[42] Debt service burden is also higher in these groups, although generally subdued. This could reflect practices pursued by banks with a view to limiting the effects of increasing interest rates and higher indebtedness on debt service burden. In particular, *IPEF* data suggest that, over the past decade, the weight of longer maturities in housing loan contracts may have increased, in accordance with longer maturities for new contracts and renegotiations of older credit contracts. In general, risks to financial system stability associated with household

(42) See Farinha, (2008), "*Indebtedness of Portuguese households: recent evidence based on the results of the Household Wealth and Indebtedness Survey 2006-2007*", in this Report.

debt seem to be relatively low, either because the weight of total loans to more vulnerable households (lower-income and younger) or susceptible of becoming more vulnerable (where the household head is unemployed) may be fairly small in the total debt of the sector, or because in these more vulnerable groups the debt value is most likely collateralised by the assets purchased.

Exposure to and default of the non-financial corporate sector

Loans granted by resident financial institutions to non-financial corporations accelerated significantly in 2007, with the annual rate of change in total loans amounting to almost 13 per cent. This acceleration, which was more marked in the first months of 2008, was visible across the entire spectrum of classes (by dimension) of credit granted, but was more significant in the case of less leveraged companies. However, highly leveraged companies have continued to grow more considerably than the total (Table 4.6.1). While loans have accelerated across most sectors of activity, it should be highlighted the significant growth of loans to real estate services, rental and services provided mainly to companies (that include holding companies), construction and hotel and restaurant services (despite a slight deceleration from 2006 in the latter case). In turn, loans to industry, which had grown negligibly in the previous two years, accelerated markedly in 2007 (Table 4.6.2). Developments in credit granted by the five major banking groups to non-financial corporations in 2007 were overall close to developments in the total banking system, with the corresponding market share remaining virtually unchanged, around 69 per cent (Charts 4.6.11 and 4.6.12).

According to the results of the Bank Lending Survey, in the first three quarters of 2007 demand for bank credit by non-financial corporations increased slightly, particularly by small and medium-sized enterprises. In the last quarter of the year and early 2008, demand decreased slightly due to developments in international financial markets. Debt restructuring and, to a lesser extent, inventories and working capital financing needs continued to be the main factors behind the increase in demand for loans by non-financial corporations throughout the year. Investment financing led to a slight increase in demand for credit in the second half of the year, while over the same period the mergers and acquisi-

Table 4.6.2

LOANS GRANTED BY OTHER MONETARY FINANCIAL INSTITUTIONS TO NON-FINANCIAL CORPORATIONS [a]
End-of-period annual rate of change
Per cent

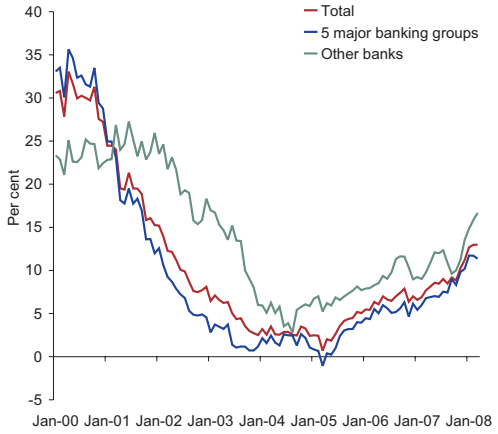
	2003	2004	2005	2006	2007		Weight in total
					Jun.	Dec.	Dec. 2007
Total loans to non-financial corporations	2.7	2.5	5.0	7.1	8.5	11.2	100.0
By branch of activity [b]:							
Agriculture, livestock, hunting, forestry and fishing	7.8	5.0	4.5	10.0	11.4	16.1	1.6
Mining	15.4	-6.7	0.6	-5.1	4.0	4.5	0.4
Manufacturing	0.5	-3.8	-3.0	0.7	4.9	7.9	12.7
Electricity, gas and water production and supply	4.8	-2.0	37.9	-11.3	-8.4	13.7	2.1
Construction	3.8	6.0	10.7	5.4	8.9	10.7	19.7
Services	2.6	3.2	4.2	9.9	9.8	11.8	63.5
of which:							
Real estate activities	11.6	13.9	11.9	12.9	14.9	14.4	20.0
Other services provided mainly to corporations	-6.1	-1.7	6.7	13.8	16.7	16.6	15.0
Trade, hotels and restaurants	4.6	2.0	3.1	7.1	4.7	6.3	17.8
Transportation, posts and telecommunications	3.7	-4.5	-10.6	0.7	-3.7	11.0	5.4

Source: Banco de Portugal.
Notes: (a) Rates of change are calculated on the basis of the ratio of end-of-period outstanding amounts of bank loans and transactions, which are derived from outstanding amounts adjusted for reclassification. They are also adjusted for securitisation operations, write-offs and exchange rate and price revaluations. (b) The allocation of loans by branch of activity is calculated on the basis of the structure of *Central de Responsabilidades de Crédito* (Central Credit Register).

Chart 4.6.11

LOANS GRANTED BY MONETARY FINANCIAL INSTITUTIONS TO NON-FINANCIAL CORPORATIONS

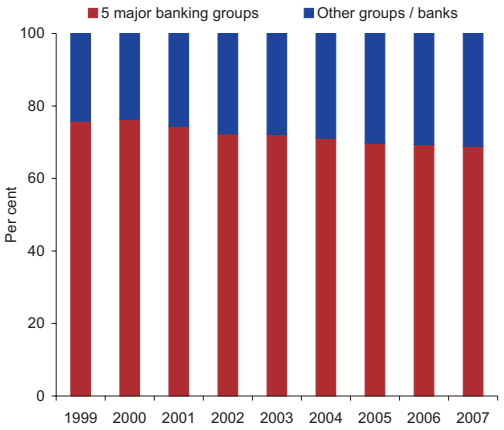
Annual rate of change



Source: Banco de Portugal.
Note: Latest figures: March 2008.

Chart 4.6.12

MARKET SHARES IN LOANS TO NON-FINANCIAL CORPORATIONS SEGMENT

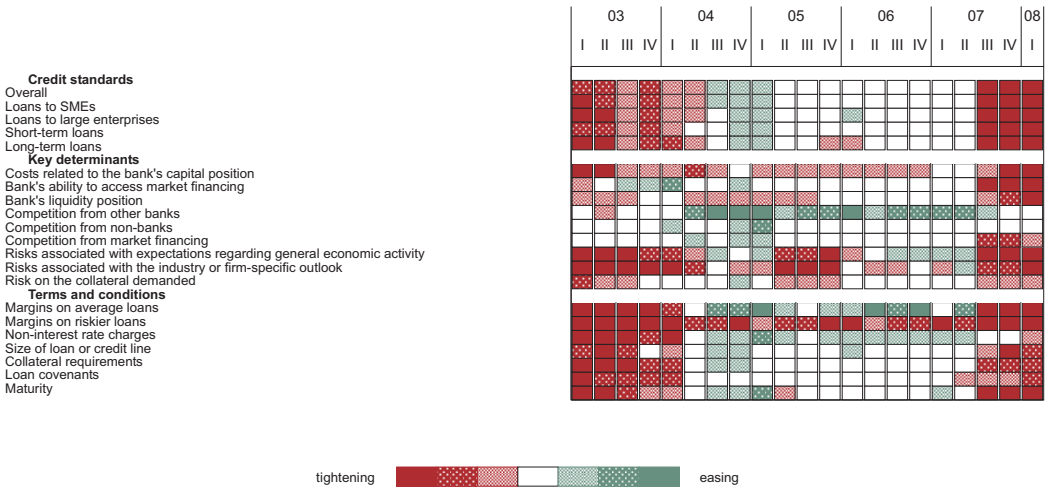


Source: Banco de Portugal.

Chart 4.6.13

BANK LENDING SURVEY

Loans to non-financial corporations



Source: Banco de Portugal.

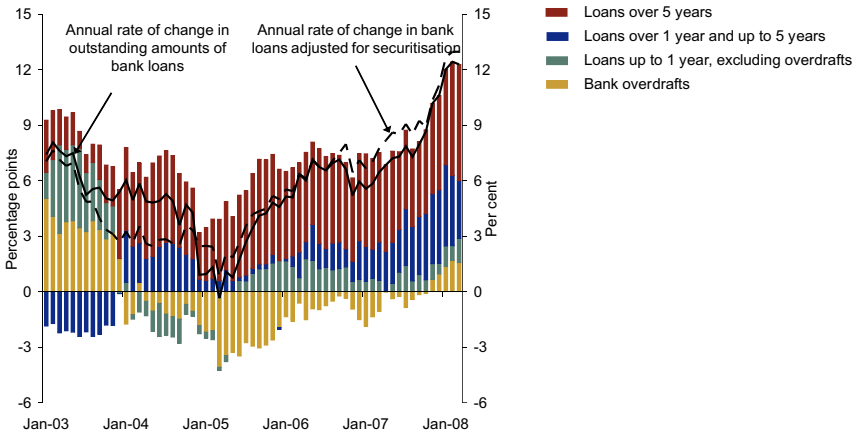
tions and corporate restructuring financing needs resulted in a relatively significant decrease in demand for loans. In this context, credit standards applied to the approval of loans to non-financial corporations remained globally unchanged up to the onset of instability in international financial markets, while credit standards applied to the approval of medium-risk loans were even slightly eased (Chart 4.6.13). In the second half of 2007, credit standards applied by banks to the approval of loans to non-financial corporations tightened, a trend that proceeded in the first quarter of 2008. Tighter supply conditions reflected the increase in capital costs and balance sheet restrictions imposed to banks (par-

ticularly as regards financing conditions with wholesale markets), the deterioration in risks regarding overall economic activity and industry or firm-specific outlook, and the lower competition from the capital market (suggesting greater difficulties faced by non-financial corporations in borrowing with this market). According to the results of the Bank Lending Survey of October 2007 and January and April 2008, difficulties in wholesale financing markets tend to lead to higher spreads and even to some ceiling on amounts granted, the latter affecting large enterprises more markedly. In fact, the differential between the interest rate on outstanding amounts of loans to non-financial corporations and the money market rate widened in the first months of 2008. According to data provided by *Central de Responsabilidades de Crédito* (the Central Credit Register administered by Banco de Portugal), loans granted by resident credit institutions to major companies seem to have decelerated (albeit slightly) in the last quarter of the year (although keeping very high growth rates). Even though, total bank loans to non-financial corporations accelerated significantly in the second half of 2007 and in the first months of 2008. The acceleration in the second half of 2007 was particularly marked in the intermediate maturity segment (over 1 and up to 5 years), whose contribution to total change in outstanding amounts of bank loans followed an upward path up to the end of the year (Chart 4.6.14). In addition, the contribution to total from bank overdrafts (which had been negative since early 2004) and loans with a maturity of over 5 years increased in the last quarter of 2007 and in first quarter of 2008.[43]

At the end of 2007 the default ratio of non-financial corporations accounted for 1.46 per cent of outstanding amounts of loans granted to this sector, standing below the level seen in the previous year (Chart 4.6.15). Debt restructuring involving companies with greater difficulties in ensuring debt service in 2005 and 2006, as well as a greater volume of credits written-off and written-down, made it possible to contain the deterioration in this ratio in 2007. Nevertheless, the amount of new credit overdue and other non-performing loans was far higher than in the previous year (0.60 per cent of the average out-

Chart 4.6.14

CONTRIBUTIONS FROM CONTRACTUAL MATURITY SEGMENTS TO THE RATE OF CHANGE IN OUTSTANDING AMOUNTS OF BANK LOANS GRANTED TO NON-FINANCIAL CORPORATIONS

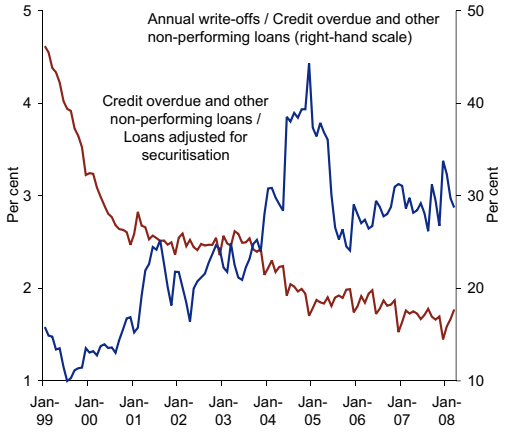


Source: Banco de Portugal.
Note: Contributions refer to the unadjusted outstanding amounts of bank loans recorded in banks' balance sheets; the year-on-year rate of change of outstanding amounts is illustrated in this chart. The annual rate of change is calculated on the basis of the ratio of outstanding amounts adjusted for securitisation operations to monthly transactions derived from outstanding amounts adjusted for reclassifications, write-offs and exchange rate and price revaluations.

(43) The structure by maturity of outstanding amounts of bank loans to non-financial corporations changed towards longer maturities mainly in the second half of 2007. Therefore, the weight of loans of up to 1 year including bank overdrafts declined (from 41 per cent in December 2006 and June 2007 to 39 per cent at the end of the year), with an increase in the relative importance of bank overdrafts (which accounted for 20 per cent of total outstanding amounts at the end of the year). The weight of loans with a maturity of over 1 and up to 5 years moved from around 25 per cent at the end of 2006 and in the first half of 2007 to 27 per cent in December 2007, while loans over 5 years increased from 34 to 35 per cent of the total, in the same months.

Chart 4.6.15

DEFAULT RATIOS OF LOANS TO NON-FINANCIAL CORPORATIONS

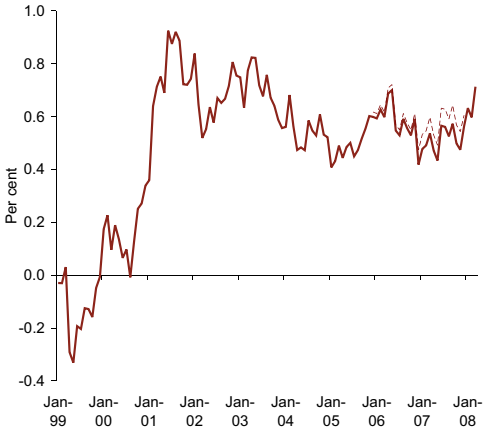


Source: Banco de Portugal.
Note: Latest figures: March 2008.

Chart 4.6.16

ANNUAL FLOW OF NEW CREDIT OVERDUE AND OTHER NON-PERFORMING LOANS

Non-financial corporations



Source: Banco de Portugal.
Note: Estimate of the annual flow of new credit overdue and other non-performing loans, calculated as the change in the outstanding amount of credit overdue and other non- performing loans adjusted for write-offs, as a percentage of total bank loans (adjusted for securitisation). As from December 2005, this change is also adjusted for sales to institutions outside the banking system of credit overdue and other non-performing loans not written-off from assets, as reported on a quarterly basis in accordance with Instruction of Banco de Portugal No. 2/2007 (dashed line). Latest figure: March 2008 (December 2007 for the dashed line).

standing amount of bank loans granted to the sector, adjusted for securitisations, after 0.47 per cent in 2006) (Chart 4.6.16).

According to data provided by *Central de Responsabilidades de Crédito*, credit and interest overdue accounted for 1.8 per cent of total credit granted by resident financial institutions to non-financial corporations at the end of 2007.[44] This figure reflected lower default in this aggregate compared to 2006, similarly to developments over the same period in the default ratio of bank loans. This path was shown by highly indebted companies as well as by the other companies. Nevertheless the number of defaulters increased across the entire spectrum (by dimension) of exposures (Table 4.6.3). Reflecting the higher number of defaulting companies, total outstanding amounts at risk (defined as total outstanding amounts of loans granted to defaulting companies), at the end of 2007, was 14 per cent higher than one year earlier, accounting for nearly 9 per cent of resident credit institutions' total exposure to non-financial corporations. As a result of the concentration of credit to non-financial corporations in companies with large exposures, around 1/3 of total outstanding amounts at risk in December 2007 accounted for only 0.5 per cent of borrowing companies. On average, the default rate of these companies stood well below the total, close to 0.3 per cent, which confirms the low probabilities of default generally associated with large enterprises.

In 2007 contributions from construction and real estate services sectors to the total default ratio of non-financial corporations increased (albeit slightly) (Chart 4.6.17). In contrast, the contribution from manufacturing industry declined significantly, reflecting the substantial reduction in the default ratio of companies in this sector over the last quarter of the year. Despite these developments, the weight of

(44) Data provided by *Central de Responsabilidades de Crédito* correspond to credit granted by banks, savings banks, mutual agricultural credit banks, credit financial institutions, factoring companies, leasing companies, credit card issuing or managing companies, credit-purchase financing companies and other resident financial intermediaries. It also includes securitisations.

Table 4.6.3

DEFAULT INDICATORS OF CREDIT TO NON-FINANCIAL CORPORATIONS, BROKEN DOWN BY SIZE OF EXPOSURE [a]

Per cent

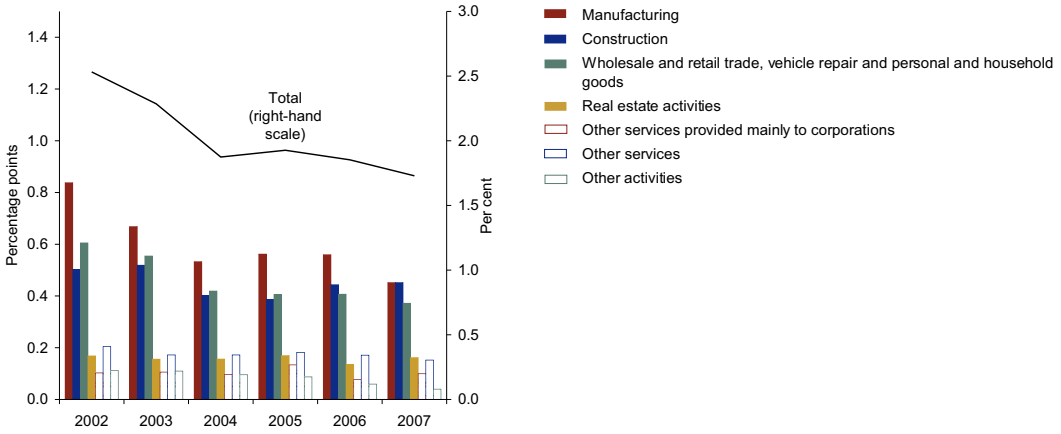
	Dec-05	Jun-06	Dec-06	Jun-07	Dec-07
Total exposure					
Number of defaulters [b]	11.8	12.1	12.0	13.2	13.6
Credit and interest overdue [c]	2.1	2.0	1.9	2.0	1.8
Total outstanding amount of credit to defaulters [c]	6.6	7.6	7.0	8.1	8.7
Large exposures (*percentile 90*) [d]					
Number of defaulters [e]	9.4	10.7	10.1	11.1	10.7
Credit and interest overdue [f]	1.5	1.5	1.4	1.5	1.3
Total outstanding amount of credit to defaulters [f]	5.9	6.9	6.3	7.3	8.1
of which: **very large exposures** (*percentile 99*) [d]					
Number of defaulters [e]	5.5	6.7	6.2	8.0	7.5
Credit and interest overdue [f]	0.5	0.4	0.4	0.5	0.4
Total outstanding amount of credit to defaulters [f]	3.6	4.5	4.0	5.1	6.6
of which: **the largest exposures** (*percentile 99.5*) [d]					
Number of defaulters [e]	4.3	5.3	5.3	6.8	6.7
Credit and interest overdue [f]	0.3	0.1	0.1	0.3	0.3
Total outstanding amount of credit to defaulters [f]	3.0	3.8	3.4	4.3	6.2
Retail exposures [g]					
Number of defaulters [e]	12.1	12.3	12.2	13.5	14.0
Credit and interest overdue [f]	5.8	5.7	5.5	5.8	5.3
Total outstanding amount of credit to defaulters [f]	11.6	12.5	12.3	13.3	12.7

Source: Banco de Portugal.
Notes: (a) Indicators based on *Central de Responsabilidades de Crédito* (*CRC*) (Central Credit Register) data. They correspond to credit granted by banks, savings banks, mutual agricultural credit banks, credit financial institutions, factoring companies, leasing companies, credit card card issuing or managing companies, credit-purchase financing companies and other resident financial intermediaries. (b) As a percentage of the number of non-financial corporations that borrowed from financial institutions participating in the *CRC*. (c) As a percentage of total credit granted by financial institutions participating in the *CRC* to resident non-financial corporations. (d) Percentiles defined on the basis of the number of companies ranked according to the total exposure amount. (e) As a percentage of the number of debtors in this portfolio. (f) As a percentage of total credit in this portfolio. (g) Exposures whose amounts are below the lower limit of large exposures. They correspond to 90 per cent of companies that borrowed from institutions participating in the *CRC*.

Chart 4.6.17

DEFAULT RATIO OF NON-FINANCIAL CORPORATIONS

By branch of activity



Source: Banco de Portugal.
Note: This corresponds to credit granted by resident credit institutions and includes securitisations of credit.

credit overdue in credit granted to manufacturing industry continued to be the highest (3.4 per cent at the end of the year), far higher than that of total credit to non-financial corporations. Moreover, the default ratio in the sector of trade, repair of motor vehicles, motorcycles and personal and household goods, which is also one of the highest, declined (to 2.5 per cent at the end of December), thus its contribution to the total ratio was slightly lower than in the previous year.

In a context where access of Portuguese banks to wholesale market financing seems to be more affected than in previous years, the possibilities to renegotiate and restructure loans of non-financial corporations are more limited, which may lead to greater default in this sector. This may be especially relevant in the case of highly indebted companies, for which higher debt service burden due to the continued increase in interest rates may lead to lower return levels and also to liquidity shortages. Tighter credit standards applied to the approval of loans to non-financial corporations, together with greater difficulties faced by large enterprises in obtaining financing in international markets, through loans or debt securities, may negatively affect developments in the sector's financial situation in the near future.

International exposure of the domestic banking system

In 2007 foreign claims of domestic banking groups decreased by around 8 per cent, mainly due to a significant reduction of international claims (Table 4.6.4). In turn, local claims and liabilities denominated in local currency increased significantly, reflecting the growing importance of local activity of subsidiaries abroad of Portuguese banking groups over the past few years. In terms of total assets, developments in the value of claims on non-residents led to a reduction of their weight in total assets of domestic banks, to 26 per cent at the end of 2007, with international claims accounting for around 70 per cent of foreign claims.[45] Special mention should be made to changes in the structure of international claims in terms of maturity and institutional counterparty: a higher weight of assets with a residual maturity of over 2 years as opposed to a lower weight of assets up to 1 year; and a decline in the weight of exposure to banks contrasting with an increase in the importance of the non-bank private sector. On average terms, international claims on counterparties from developed countries (particularly France, Italy, Spain and the United Kingdom) have declined markedly. This stood in contrast to developments in local claims denominated in local currency: the share of local claims on counterparties from developed countries and with high sovereign rating in total has increased significantly, particularly in the case of subsidiaries in Spain and the United States.

(45) According to the definitions established by the Bank for International Settlements, foreign claims comprise claims on residents outside the country in which the bank/banking group has its head office (in this case, outside Portugal). International claims are part of foreign claims and correspond to cross-border claims (of head offices or subsidiaries abroad of the bank/banking group) and local claims of subsidiaries abroad denominated in foreign currency. For further details on these concepts, see "Box 5.3 *International exposure of the banking system*", Banco de Portugal, *Financial Stability Report 2004*.

Table 4.6.4

CONSOLIDATED FOREIGN CLAIMS FROM THE PERSPECTIVE OF IMMEDIATE RISK – STRUCTURE

	2005	2006	2007
Total (10^6 €)	77 253	93 793	86 132
International claims	76.7	77.8	70.1
Maturity			
Up to 1 year	44.5	45.3	31.6
from 1 to 2 years	3.1	2.7	2.5
over 2 years	21.1	22.7	29.8
Other	8.0	7.0	6.2
Institutional borrower			
Banks	46.1	46.7	31.7
Public sector	3.5	3.3	3.0
Non-bank private sector	27.1	27.7	34.9
Other	0.0	0.0	0.5
Geographical borrower			
Developed countries	55.5	55.6	48.7
Offshore centres	10.8	10.5	6.4
Developing Europe	3.3	4.0	5.5
Other	7.2	7.6	9.4
By type of sovereign rating			
AAA and AA+	57.5	55.6	49.2
AA to A	7.4	9.3	6.2
A- to BB+	5.3	5.6	9.4
Other	6.5	7.3	5.3
Local claims in local currency	23.3	22.2	29.9
Geographical borrower			
Developed countries	15.2	15.6	20.8
Offshore centres	0.6	0.5	0.6
Developing Europe	5.0	4.0	5.5
Other	2.5	2.1	3.0
By type of sovereign rating			
AAA and AA+	12.5	12.7	17.9
AA to A	3.3	3.4	3.4
A- to BB+	5.0	3.8	6.9
Other	2.5	2.3	1.6
Memo:			
Local liabilities in local currency (10^6 €)	16 896	18 379	21 250

Source: Banco de Portugal.

Box 4.1. Oversight of *Banco Comercial Português*: some issues on the controversy surrounding public complaints in 2007

In 2007 news emerged on Banco Comercial Português (BCP) following public complaints regarding specific aspects of its activity, which could imply potential liability not only of BCP, but also of its board members. In this context, four types of situations have fallen under scrutiny:

1. *Credit granted to members of management and auditing boards or close family members (married, related by consanguinity or by affinity in the first degree) as well as to companies controlled by these persons, under Article 85 of the Legal Framework of Credit Institutions and Financial Companies, on conflicts of interest. In this regard, Banco de Portugal has instituted an administrative offence proceeding for infringement of the obligation to provide information to the central bank, as the operations that were the object of denunciation were never reported in the list of natural and legal persons related to BCP board members (infringing the provisions of Instruction of Banco de Portugal No 2/2004).*
2. *Adequacy of own shares or other shares that, in formal terms, could entail situations corresponding to the holding of own shares, falling within the scope of Article 325 of the Company Law or relevant in terms of risk assessment. This situation had already been subject to enquiry by Banco de Portugal: according to the findings, although in formal terms BCP did not infringe the Company Law rules when calculating own shares directly held or directly received as pledge or guarantee (which cannot exceed 10 per cent of the company capital), other own shares were associated with credit, and therefore did not fall within the scope of the above article of the Company Law, i.e., under management mandates and blockage of funds. Therefore, Banco de Portugal has deemed appropriate, for prudential reasons, to limit the risk that, by credit default, the receipt of shares under those conditions might jeopardise compliance with the 10 per cent capital limit. In this regard, for merely prudential reasons, and beyond the provisions of the Company Law, it was established that BCP should gradually reduce the total amount of shares received in association with credit operations in any form (pledge, guarantee, management mandate or blockage of funds) to a level below that limit. BCP complied within the deadline established by Banco de Portugal.*
3. *Credit granted to highly leveraged off-shore special purpose vehicles, whose main business was holding BCP shares. This behaviour, involving companies that were duly established and held by well identified owners (in the legal meaning of ultimate beneficial owners), had been identified by Banco de Portugal and has been especially monitored from a prudential standpoint, with a view to regularly checking whether assets and/or additional collateral adequately cover credits.*
4. *Failure to report to Banco de Portugal the existence of loans to other off-shore companies holding BCP shares, which only came to the Central Bank's knowledge at the end of 2007 as a result of denunciation. There is an ongoing inquiry on these facts, in the context of an administrative offence proceeding against BCP and its board members.*

Taking into account the potential instability resulting from the public impact of published news, Banco de Portugal, within the limits of professional and banking secrecy and safeguard of integrity of ongoing proceedings, decided to enlighten public opinion, and consequently published three press releases on 21, 28 and 31 December 2007, which were followed by the Parliament hearing of the Bank's Governor on 18 January 2008. It should be noted that, as mentioned at the time, neither prudential limits regarding BCP's solvency nor the regular operation of the institution were ever at stake. In fact, BCP has maintained a robust operational structure.

PART II – ARTICLES

INDEBTEDNESS OF PORTUGUESE HOUSEHOLDS: RECENT EVIDENCE BASED ON THE HOUSEHOLD WEALTH SURVEY 2006-2007*

*Luísa Farinha***

1. INTRODUCTION

During the 1990s, in the context of the convergence process leading to monetary union, the fast growth of household indebtedness could be anticipated as part of the catching-up process. In fact, in that period, the marked decline in nominal and real interest rates, in an environment of liberalisation and increased bank competition contributed to extend access to credit to a wider group of households than in the previous decade.[1] In the case of housing loans, the effect was amplified by the system of subsidised interest rates intended to enable households with lower income to have access to house purchase.[2] The increase in indebtedness was also the result of a range of other factors, namely demographic, as for instance the fact that the baby-boomers who were born during the relatively prosperous late 60s/early 70s were entering into adulthood. Other institutional issues are also worthy of reference, such as legislation on rentals, whose discouraging effect continued to be behind the shortage of rented accommodation.[3]

In the course of the present decade, the indebtedness of Portuguese households continued to grow at rates well above their disposable income. The total value of household debt at the end of 2006 accounted for 124 per cent of their disposable income (compared with 86 per cent in 2000).[4] In this more recent period, some factors on the credit supply side were also crucial to the continued high growth rate of housing loans. In particular, the conditions of access to credit underwent some changes in recent years, aiming at mitigating the effect of rising interest rates in the debt service, thereby improving the ability of households to service debt and sustaining the demand for credit. The widening of loan maturities was among those changes, for which some anecdotal evidence was available.

The evaluation of the financial situation of households is rather important from two perspectives: from a macroeconomic perspective, given that the increase in indebtedness may restraint consumption and investment, as a larger fraction of income has to be assigned to debt service. This is particularly noticeable in the case of loans for house purchase, due to the nature of housing as a necessary good, and to possible severe social consequences if rising default would lead to the insolvency of households and to mortgage execution.

From a financial stability perspective, fast debt accumulation by households also calls for strengthened monitoring of their ability to repay debt. If their ability to continue servicing debt in a regular and timely manner is particularly affected, and a significant number of households cease to repay debt,

* The views expressed in this article are those of the author and do not necessarily reflect those of Banco de Portugal. Any errors and omissions are the responsibility of the author.

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(1) Luz (1992) presents evidence that, in the early 1990s, approximately 60 per cent of Portuguese households were subject to liquidity constraints.

(2) See Martins and Villanueva (2006).

(3) See Ribeiro (2007).

(4) These figures refer to household indebtedness, a concept in financial accounts that includes, in addition to households, non-profit institutions serving households. It also includes the results of household activity as producers of goods and services, when it is not possible to distinguish that activity from their activity as consumers.

consequences for financial stability may be two-fold. On the one hand, it would directly affect the financial situation of households. On the other hand, lenders could experience losses if, in the case of mortgage foreclosure, the asset used as collateral could not be sold for a value at least equal to the outstanding amount of the loan. The stability of the financial intermediation process would be at stake if such losses were very high, which would depend on the frequency of these situations and the magnitude of the exposures.

The analysis of these topics is usually based on aggregate data, such as financial and non-financial national accounts, chiefly because these data are made available more frequently (at least annually) and are easier to collect. However, aggregate indicators on the household sector as a whole provide much limited information, as they do not distinguish between indebted and non-indebted households. For instance, it is not possible to obtain information on the number of indebted households based on aggregate data. Moreover, indicators built from aggregate data correspond to average values, referring to a representative household, which may even not apply to an actual household. The evaluation of indebtedness implications, from either a financial stability or macroeconomic perspective, requires detailed information on the distribution of the relevant variables, such as income, wealth or indebtedness and, in particular, the characterisation of the observations in the tails of the distribution. In the early 2000s, microeconomic data obtained from household wealth surveys were rather useful for understanding the development of private consumption, in the context of decelerating income and of an aggregate indebtedness level well above the level observed in the corresponding stage of the previous economic cycle.[5]

The analysis of the financial situation of households based on aggregate data has revealed that, as a whole, credit risk associated with the household sector is moderate, since in banks' credit portfolios default has remained at historically low levels. In spite of rising interest rates, the debt service ratio represents, on average, a relatively low share of disposable income. This conclusion based on an average situation does not prevent that, in the distribution of indebted households, some fringes of the population show a relatively heavy debt service. The financial situation of those households could be particularly affected by rising interest rates or by a significant fall in their income, for instance as a result of a move into unemployment. Information on the distribution of income, wealth and debt, as well as on the composition of wealth is essential to obtain a diagnosis of the situation and recommend any policy measures.

This article aims at analysing the financial situation of Portuguese households based on data taken from the latest Household Wealth and Indebtedness Survey (*Inquérito ao Património e Endividamente das Famílias - IPEF*) (hereinafter referred to as IPEF), carried out by Statistics Portugal and Banco de Portugal during the last quarter of 2006 and the first quarter of 2007. Particular emphasis is laid on the analysis of the factors underlying their indebtedness level and their debt service ratio.

Section 2 of this article presents the data. Section 3 examines the distribution of household indebtedness according to some socio-economic characteristics, presenting some summary statistics and the results of a regression analysis. Section 4 presents some indicators on the particular situation of indebted households. The conclusions and prospects for future research are presented in Section 5.

2. THE DATA

This article was based on data obtained from the IPEF, which was carried out for the third time in 2006/07. This survey was launched in 1994, intended to meet the need to collect data on the distribu-

(5) See Farinha (2003, 2004).

tion of income and wealth of Portuguese households. In effect, in the late 1980s concerns about the macroeconomic consequences of the decline in savings levels were common in OECD countries, and Portugal was no exception. The first IPEF was implemented as a module of the Employment Survey in the third quarter of 1994. It was thus possible to link data on household wealth and debt to data on their income and other socio-economic and demographic characteristics. After the mid-1990s the fast growth of household indebtedness raised concerns about debt sustainability. The second wave of the IPEF was carried out in 2000 and was linked to another important survey to households, the Survey to Household Budgets (*Inquérito aos Orçamentos Familiares - IOF*).[6] In its latest issue, in 2006-07, the IPEF was linked to the Survey on Household Expenditure (*Inquérito às Despesas das Famílias - IDEF*) which replaced the Survey to Household Budgets. Hence, the possibility was kept to link, at the micro-economic level, data on household wealth and debt to data on their income and other socio-economic and demographic characteristics.

IPEF data is obtained from directly surveying a probabilistic sample of randomly selected households. The questionnaire, which is long and complex, focuses mainly on details of the financial situation of households (mainly on their non-financial and financial assets and their debts). The response rates in wealth surveys stand, in general, at around 50 per cent, below the rates usually obtained in other official surveys to households, not only in Portugal but in other countries carrying out similar surveys.[7] In the latest issue of the IPEF, its target sample comprised the respondents to the 2005 IDEF. The rate of reply, measured by the ratio of the number of IPEF respondent households to the number of IDEF respondent households was approximately 78 per cent, which is rather high in terms of usual standards.[8]

In the 2006/07 wave, the sample of the IPEF was designed and scaled for the implementation of the IDEF. Thus, in general terms, its objective was to ensure the representativeness of expenditure in each of the seven NUTS II regions, under some level of precision.[9] This criterion, however, is not the most appropriate for a wealth survey, whose distribution is much more asymmetric than the distribution of expenditure. In addition, in wealth surveys non-response rates are in general higher. In order to obtain aggregate indicators for the population sample weights may be used, as it is usual[10]. However these weights were based in the sample design of the IDEF. Therefore, their use in the extrapolation of wealth variables may correct only partially the consequences of the specific problems associated with the inquiry of wealth. Thus the extrapolated variables should be analysed with due caution. It would be possible to control, even if partly, the consequences of this problem, by calibrating the available weights using data on the distribution in the population of a variable closely related to wealth. However population data for such a variable is not currently available. Therefore, as it is not possible to satisfactorily control for the effect of the sample design on wealth variables, this article avoids comparisons between the two periods merely based on descriptive statistics. This does exclude, however, the results of a regression analysis, whose purpose is to identify economic relations among certain variables at the household level. This analysis is potentially less affected by problems associated with sample representativeness.

For the purposes of the analysis presented in this article, some inconsistencies in the original data were corrected and observations were excluded from the sample whenever household monetary in-

(6) In the 2000 issue, the IPEF interview was carried out in the last visit in the context of the Survey to Household Budgets.

(7) See, for instance, in Bover (2004) the description and presentation of the methodology of the survey carried out by Banco de España.

(8) This rate of reply is not fully comparable with the usual standard, as it depends on the fact that the households selected for the IPEF sample were the same households that had previously replied to the IDEF.

(9) NUTS II: Nomenclature of Territorial Units for Statistics 2002: North, Centre, Lisbon, Alentejo, Algarve, Autonomous Region of the Azores and Autonomous Region of Madeira.

(10) In a probability sample, each unit is associated with a weight that is equal to the inverse of the probability of that unit being selected to be part of the sample. In the IDEF, the initial weights, based on the sample design, were subsequently calibrated taking into account the structure of the population vis-à-vis the following variables: number of persons in the household, type of geographical agglomeration (rural or urban), age, gender, and level of education of the household members.

come was lower than minimum wage. Moreover, some observations with nil values were eliminated in the case of certain key variables.[11] The results for the 2006/07 IPEF presented in the tables were based on data from 6,631 households. In order to obtain aggregate values for the population and respective sub-sets, the weights used were obtained by calibrating the original weights, so that their sum remained equal to the number of households in the population. No weights were used in the regression analysis.[12] Data on the 5,197 households responding to the 2000 IPEF were also used in the regressions.[13]

3. CHARACTERISATION OF HOUSEHOLD INDEBTEDNESS

3.1. Summary statistics in 2006-2007

The purpose of this section is to characterise household indebtedness according to the following socio-economic variables: household income and age, level of education and labour market situation of the household reference person.

According to data from the 2006 IPEF, slightly over 40 per cent of households participate in the debt market (Table 1). This figure is mainly accounted for by the value of the rate of participation in the housing loan market, involving more than 30 per cent of households. However, approximately 10 per cent only participate in the market for other lending.

According to IPEF data, debt is very asymmetrically distributed across households. A synthetic measure of this asymmetry may be given by the ratio between the average and the median (Table 2). In some household classes, such as those with lower income and with a less educated, older and in a less stable labour market situation reference person, more than half of the households do not participate in the debt market (*i.e.* the median value of debt in these classes is zero). In effect, according to the life cycle hypothesis, individuals, subject to an intertemporal budget constraint, smooth consumption throughout life, in spite of the very marked income pattern. Therefore, individuals tend to borrow in periods when their current income is lower, typically when they are younger and with lower current labour income but with prospects of future increases. Participation in the debt market and indebtedness tend to peak between 30 and 40 years of age. At this age they have already overcome restrictions in access to credit that generally apply to very young individuals with very low or non-existent labour income.

The increase in indebtedness does not necessarily imply that household financing conditions have deteriorated. The importance of indebtedness in household budgets and their ability to meet debt payments largely depend on the level of their income.[14] Hence, the ratios of debt to income and debt service to income are usually considered as measures of the household ability to meet debt payments from current income. However, their ability to meet financial responsibilities depends not only on income but also on accumulated wealth. Thus, Table 3 also presents the average and median values of

(11) In the cases where the interviewee indicated that the household held a certain asset (or liability) but did not wish to assign it a specific value. This is one of the situations in which literature points to non-response correction (see, for instance, Groves et al., 2004). An alternative manner to deal with this problem consists in imputing missing values via model estimation. This procedure has been adopted in surveys in the United States and Spain, whereas in Italy the other procedure has been used (see, for instance, Bover, 2004).

(12) The use of sample weights in the case of regression analysis is not consensual in the literature. It may be irrelevant when the objective is modelling economic relationships. But it may also lead to the estimation of ratios falling outside the scope of possible logical values (see, for instance, Peracchi (2007)

(13) Results for 2000 may differ from those presented in Farinha (2003 and 2004), namely because the sample used in the analysis presented in those studies excluded the households whose reference person was older then 65 years.

(14) Not necessarily their current income, but the sum of the actual values of their future income. Usually, when making borrowing decisions, households take into account their intertemporal budget restriction which depends on expectations about their future income. Problems may arise in case permanent shocks occur, moving income development away from those expectations.

Table 1

HOUSEHOLD PARTICIPATION IN THE DEBT MARKET IN 2006

		Participation in the debt market (%)				
	% of households	Debt	Housing loans	Other lending	Both types of loans	No debt
Total	100	41.6	22.3	10.1	9.3	58.4
Income bracket [(a)]						
1	10	12.6	5.9	4.9	1.8	87.4
2	15	21.4	11.5	6.9	2.9	78.6
3	25	39.6	21.0	11.0	7.7	60.4
4	25	49.1	24.7	13.1	11.4	50.9
5	15	57.5	33.7	11.5	12.4	42.5
6	10	63.9	35.0	8.6	20.3	36.1
Age						
20-30	4	57.9	32.8	12.6	12.5	42.1
30-40	19	66.2	38.8	10.0	17.5	33.8
40-50	25	56.7	29.5	13.4	13.8	43.3
50-65	28	36.7	19.0	11.5	6.3	63.3
>65	25	10.7	4.5	5.0	1.3	89.3
Level of education (maximum completed)						
First stage of basic education or less	50	24.5	10.8	9.3	4.4	75.5
Second or third stage of basic education	28	55.6	30.5	12.9	12.2	44.4
Upper secondary education	11	65.6	37.3	9.0	19.3	34.4
Tertiary education	10	61.4	39.4	7.8	14.2	38.6
Situation in the labour market						
Employed						
self-employed	13	43.9	22.1	14.4	7.5	56.1
employees	48	58.7	32.1	11.5	15.1	41.3
Unemployed	5	35.1	20.2	10.7	4.3	64.9
Retired	29	15.3	7.6	5.7	2.1	84.7
Other situations	4	29.1	14.8	10.3	4.0	70.9

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Note: (a) The extreme values of the income brackets considered are the following: 1st bracket - €375-500; 2nd bracket - €500-700; 3rd bracket - €700-1060; 4th bracket - €1060-1630; 5th bracket - €1630-2630; 6th bracket - €2630 and plus.

the ratio of debt to assets calculated for the different types of households. Notice that these indicators simultaneously consider the indebted and the non-indebted households. The average value (average of the individual ratios)[15] of the ratio of debt to income is higher than 90 per cent. It grows with income, peaking in the third bracket, declines with age and level of education and is much higher in households whose reference person is employed. The ratio of debt service to monthly income is especially high in the case of younger households. Debts represent little more than a fourth of total assets for households sector as a whole. The ratio is higher than 50 per cent in households whose reference person is unemployed.

(15) It is worth noting that the average value estimated for households as a whole is 0.93, and cannot be directly compared to the aggregated indicator for a number of reasons. First, it is an average of individual ratios and not of the average ratio (the latter is measured as the ratio of the sum of debts to the sum of income). In addition, the income in question in this indicator corresponds to the sum of net monetary income reported by the aggregates in their replies to the survey, which cannot coincide with the definition of disposable income in national accounting.

Table 2

HOUSEHOLD INDEBTEDNESS: SUMMARY STATISTICS IN 2006
EUR

		Total debt		Housing loans		Other lending	
	% of households	Average	Median	Average	Median	Average	Median
Total	100	17 771.4	0	15 706.8	0	2 064.7	0
Income brackets [(a)]							
1	10	3 032.7	0	2 717.9	0	314.8	0
2	15	6 422.1	0	5 944.7	0	477.4	0
3	25	13 949.7	0	12 101.8	0	1 847.9	0
4	25	18 765.3	0	16 350.3	0	2 415.0	0
5	15	27 814.8	4 971	24 764.7	0	3 050.1	0
6	10	41 723.5	18 000	37 322.6	12 000	4 400.9	0
Age							
20-30	4	31 536.1	3 900	30 039.1	0	1 497.0	0
30-40	19	37 051.8	23 895	34 266.2	18 000	2 785.5	0
40-50	25	24 795.1	3 000	21 834.0	0	2 961.1	0
50-65	28	10 417.7	0	8 192.9	0	2 224.9	0
>65	25	2 090.6	0	1 576.1	0	514.5	0
Level of education (maximum completed)							
First stage of basic education or less	50	6 258.1	0	5 048.9	0	1 209.2	0
Second or third stage of basic education	28	24 311.3	2 500	21 555.9	0	2 755.4	0
Upper secondary education	11	36 584.7	20 000	32 964.8	15 000	3 619.9	0
Tertiary education	10	36 002.0	11 220	33 302.6	4 100	2 699.4	0
Labour market situation							
Employed							
self-employed	13	19 217.8	0	15 508.3	0	3 709.6	0
employee	48	27 874.2	5 000	25 189.1	0	2 685.1	0
Unemployed	5	9 785.8	0	8 778.6	0	1 007.1	0
Retired	29	3 354.9	0	2 676.0	0	678.8	0
Other situation	4	7 274.9	0	6 616.0	0	658.9	0

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Note: (a) The extreme values of the income brackets considered are the following: 1st bracket - €375-500; 2nd bracket - €500-700; 3rd bracket - €700-1060; 4th bracket - €1060-1630; 5th bracket - €1630-2630; 6th bracket - €2630 and plus.

3.2. Regression analysis

3.2.1. Methodology

The regression analysis presented in this article aims at examining the factors behind household indebtedness. The effect of age, income, etc. on indebtedness can only be identified through the estimation of a model, in order to control for the effect of the other variables included in the model. This analysis pooled data from the 2000 and 2006/07 surveys. However, the data do not have a longitudinal character, *i.e.*, the same households are not observed for more than a period of time. The estimation of a model simultaneously including observations for 2000 and 2006/07 makes it possible to test whether

Table 3

INDEBTEDNESS LEVEL AND DEBT BURDEN RATIO: SUMMARY STATISTICS IN 2006

		Total debt / Income		Housing loans / Income		Total debt / Wealth		Housing loans / Wealth		Debt service / Monthly income		Housing debt service / Monthly income	
	% of households	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median
Total	100	0.930	0.000	0.821	0.000	0.263	0.000	0.130	0.000	0.114	0.000	0.070	0.000
Income brackets [(a)]													
1	10	0.490	0.000	0.438	0.000	0.211	0.000	0.037	0.000	0.059	0.000	0.037	0.000
2	15	0.760	0.000	0.705	0.000	0.330	0.000	0.070	0.000	0.081	0.000	0.054	0.000
3	25	1.129	0.000	0.979	0.000	0.353	0.000	0.168	0.000	0.121	0.000	0.082	0.000
4	25	1.036	0.000	0.903	0.000	0.220	0.000	0.141	0.000	0.158	0.000	0.079	0.000
5	15	0.989	0.161	0.883	0.000	0.218	0.038	0.163	0.000	0.118	0.038	0.077	0.000
6	10	0.777	0.323	0.692	0.181	0.169	0.078	0.145	0.034	0.082	0.039	0.061	0.023
Age													
20-30	3.5	2.207	0.284	2.110	0.000	0.352	0.205	0.287	0.000	0.275	0.047	0.145	0.000
30-40	19.3	2.055	1.119	1.900	0.936	0.386	0.233	0.310	0.145	0.194	0.146	0.145	0.084
40-50	24.5	1.206	0.179	1.052	0.000	0.477	0.046	0.151	0.000	0.154	0.034	0.094	0.000
50-65	27.9	0.465	0.000	0.356	0.000	0.153	0.000	0.066	0.000	0.083	0.000	0.040	0.000
>65	24.7	0.121	0.000	0.090	0.000	0.067	0.000	0.019	0.000	0.023	0.000	0.009	0.000
Level of education (maximum completed)													
First stage of basic education or less	50.4	0.426	0.000	0.346	0.000	0.140	0.000	0.072	0.000	0.070	0.000	0.035	0.000
Second or third stage of basic education	28.2	1.483	0.131	1.321	0.000	0.421	0.032	0.184	0.000	0.174	0.025	0.103	0.000
Upper secondary education	11.0	1.683	0.795	1.539	0.513	0.503	0.190	0.234	0.075	0.161	0.094	0.123	0.050
Tertiary education	10.4	1.082	0.235	1.015	0.113	0.183	0.062	0.156	0.026	0.112	0.043	0.089	0.025
Labour market situation													
Employed													
self-employed	13.3	1.112	0.000	0.903	0.000	0.120	0.000	0.088	0.000	0.140	0.000	0.080	0.000
employee	48.1	1.407	0.258	1.272	0.000	0.383	0.075	0.216	0.000	0.169	0.067	0.106	0.000
Unemployed	5.3	0.740	0.000	0.678	0.000	0.577	0.000	0.093	0.000	0.067	0.000	0.048	0.000
Retired	29.1	0.160	0.000	0.125	0.000	0.086	0.000	0.027	0.000	0.027	0.000	0.013	0.000
Other situation	4.1	0.455	0.000	0.400	0.000	0.176	0.000	0.047	0.000	0.056	0.000	0.036	0.000

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Note: (a) The extreme values of the income brackets considered are the following: 1st bracket - €375-500; 2nd bracket - €500-700; 3rd bracket - €700-1060; 4th bracket - €1060-1630; 5th bracket - €1630-2630; 6th bracket - €2630 and plus.

the differences in the effects of explanatory variables in the two moments in time, are statistically significant.

The objective of this analysis is to identify the effects of some socio-economic factors on household debt. First, their effects on the probability of holding debt (intensive margin) are investigated. Then, the same variables are included in the model of indebtedness (extensive margin) as measured by the ratios of debt to income and the ratio of debt service to income. In the intensive margin model, the variable to be explained is a binary variable taking the value one if the household is indebted and zero otherwise. Hence, the results of the estimation of a linear model would be biased, wherefore the most appropriate methodology is to estimate a probit model formulated as follows:[16]

$$P\left(y = 1|x\right) = P\left(y^* > 0|x\right)$$

where y is the variable to be explained, x is the vector of explanatory variables and y* is the latent variable underlying the model, so that:

$$y^* = x\beta + \varepsilon \quad \text{if} \quad y = 1\left(y^* > 0\right)$$

In extensive margin models, the variables are continuous for values above zero, but may take the value zero with a non-zero probability. In this case, the appropriate methodology is to estimate a tobit model, generally represented as:

$$y = \max\left(0, y^*\right)$$

$$y^* = x\beta + \mu \quad \textit{in which} \quad \mu|x \sim \text{Normal}\left(0, \sigma^2\right)$$

The explanatory variables considered are broadly the same household characteristics presented in the descriptive tables (income bracket of the household, age, level of education and labour market situation of the household reference person). The estimated models also include as control variables family size and region of residence. In order to facilitate the interpretation of results, the explanatory variables are measured as dummy variables, that is, they take only the values one or zero, depending on the type of household. Therefore, the estimated coefficients shall be interpreted as differences vis-à-vis the category omitted in the regression which, in this case, corresponds to households in the third income bracket (those between the 25 and 50 percentiles), residing in the North region, formed by three persons and whose reference person is between 30 and 40 years old and has completed basic education.

In models of limited dependent variable, such as probit and tobit, differently from the linear model, the expected value of the dependent variable, given the value of explanatory variables, is not a linear function of estimated coefficients, and these are not equal to the marginal effects of explanatory variables on the dependent variable. Nonetheless, in both cases, the marginal effects are a positive function of the estimated coefficients, and therefore have the same sign. The marginal effects depend not only on the value of the parameters, but also on the value taken by the explanatory variables.

(16) This model results from considering that å, the residual term in the latent variable model, has a standardised normal distribution. See, for instance, Wooldridge (2002).

3.2.2. Model estimation results for the probability of holding debt

Tables 4A, 4B and 4C present the results of the estimation of the models for the probabilities of holding any type of debt, housing loans and other lending respectively. Columns 1 and 3 refer to the marginal effects of each of the explanatory variables resulting from the estimation of the models with 2006 and 2000 data respectively. Columns 2 and 4 present the respective t-ratios. The estimation of a specification that simultaneously includes observations relative to the 2000 and 2006 surveys makes it possible to test whether the differences between the marginal effects in the two years are statistically significant. In this specification, such information is provided by the statistical significance of the coefficients associated with the interactive variables resulting from multiplying a temporal binary variable (whose observations take the value one in 2000 and zero in 2006) for each of the other explanatory variables. In addition, including the temporal binary variable as explanatory variable makes it possible to test whether the differences in the probability of holding debt in the two years, for a reference household, are statistically significant. Column 5 presents the pvalues associated with those coefficients.[17]

In the estimation of the specification that includes the observations for both years, the estimated effect associated with the dummy variable taking the value one for observations in 2000 is negative and significant in both types of debt, suggesting broadly that the probability of holding debt increased from 2000 to 2006.

Income

The probability of holding debt is strongly related to household income: households in lower income brackets have a significantly lower probability of holding debt than those in the third bracket. The opposite relationship is observed in higher brackets. The impact of income intensifies, with different signs, when approaching the tails of distribution. The relation between the probability of holding debt and income is observed in the two years under analysis, and, in general, no significant differences are detected between 2000 and 2006. Moreover, the results suggest that it is observed in both types of debt, *i.e.* housing loans and other lending. In 2006, however, the probability of a household in the highest income bracket holding debt for purposes other than housing is only significantly higher than in the third bracket with 10 per cent significance, differing from the result for 2000. The results for 2000 suggest that participation in this debt market by higher-income households was significantly higher than by medium-income households with a level of significance of 1 per cent.

Age

The probability of holding debt is also related to the age of the reference person. The results suggest that the probability is the highest in the 30-40 year old group, and significantly lower in the other age brackets. This result is even more evident in the case of housing loans. In the case of other lending, the results suggest that, in 2006, there were no significant differences in the probability of holding debt among the households in the first three age brackets. These results differ from those obtained from 2000 data, which suggests an upward trend in recourse to this type of credit by younger households.

(17) The marginal effects for 2006 and 2000 obtained in the estimation of the pooled model are very similar to those reported in the Tables, obtained by using the observations in both years separately.

Table 4A

RESULTS OF THE PROBIT MODEL ESTIMATION
Dependent variable (participation in the debt market)

	(1)	(2)	(3)	(4)	(5)
	2006		2000		Difference between marginal effects pvalue
	Marginal effect	t-ratio	Marginal effect	t-ratio	
Dummy: 1st income bracket	-0.13634	-5.12	-0.10740	-4.43	0.817
Dummy: 2nd income bracket	-0.11131	-5.28	-0.05478	-2.73	0.210
Dummy: 4th income bracket	0.05077	2.92	0.06603	4.02	0.247
Dummy: 5th income bracket	0.13290	6.25	0.13368	6.51	0.408
Dummy: 6th income bracket	0.16167	5.99	0.22404	8.07	0.027
Dummy: 20-30 years	-0.06309	-1.81	-0.04856	-1.68	0.987
Dummy: 40-50 years	-0.08494	-4.54	-0.04117	-2.46	0.252
Dummy: 50-60 years	-0.17452	-8.86	-0.10402	-5.87	0.175
Dummy: over 65 years	-0.34242	-13.15	-0.19936	-8.53	0.022
Dummy: household with 1 person	-0.06656	-2.59	0.00587	0.22	0.072
Dummy: household with 2 persons	-0.06169	-3.58	0.00098	0.06	0.022
Dummy: household with 4 persons	-0.00969	-0.56	0.01341	0.83	0.318
Dummy: household with more than 4 persons	-0.02562	-1.16	0.01298	0.67	0.201
Dummy: first stage of basic education or less	-0.10816	-6.73	-0.09193	-5.90	0.839
Dummy: second stage of basic education	0.01974	0.83	0.03749	1.49	0.500
Dummy: upper secondary or tertiary education	-0.01744	-0.65	-0.02799	-1.09	0.653
Dummy: self-employed	-0.04209	-2.39	-0.03539	-2.20	0.887
Dummy: unemployed	-0.07163	-2.51	0.04523	1.05	0.030
Dummy: retired	-0.09869	-4.46	-0.02753	-1.32	0.063
Dummy: other situation	-0.08253	-2.92	-0.00440	-0.18	0.056
Dummy: *IPEF* 2000					0.000

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Note: The figures in columns (1) and (2) are the result of the estimation of the model using only observations relative to the 2006-07 *IPEF*; the figures in columns (3) and (4) are the result of the estimation of the model using only observations relative to the 2000 *IPEF*; column (5) presents the pvalues associated with interactive variables in the estimation of the model using observations of both periods.

Table 4B

RESULTS OF THE PROBIT MODEL ESTIMATION
Dependent variable (participation in the housing loan market)

	(1)	(2)	(3)	(4)	(5)
	2006		2000		Difference between marginal effects pvalue
	Marginal effect	t-ratio	Marginal effect	t-ratio	
Dummy: 1st income bracket	-0.08808	-3.72	-0.04586	-2.37	0.700
Dummy: 2nd income bracket	-0.07575	-4.14	-0.01718	-1.08	0.095
Dummy: 4th income bracket	0.03321	2.25	0.04082	3.30	0.238
Dummy: 5th income bracket	0.10783	5.87	0.07575	4.87	0.906
Dummy: 6th income bracket	0.17221	7.14	0.12242	5.75	0.988
Dummy: 20-30 years	-0.08055	-3.21	-0.02458	-1.26	0.249
Dummy: 40-50 years	-0.07954	-5.59	-0.01917	-1.68	0.023
Dummy: 50-60 years	-0.15662	-10.33	-0.07239	-6.01	0.071
Dummy: over 65 years	-0.27631	-13.25	-0.12884	-7.43	0.019
Dummy: household with 1 person	-0.03596	-1.63	-0.02170	-1.13	0.975
Dummy: household with 2 persons	-0.02899	-2.00	0.00176	0.14	0.189
Dummy: household with 4 persons	0.00521	0.37	0.01344	1.17	0.496
Dummy: household with more than 4 persons	-0.06827	-3.97	-0.00868	-0.63	0.034
Dummy: first stage of basic education or less	-0.08563	-6.35	-0.05541	-4.90	0.902
Dummy: second stage of basic education	0.04982	2.53	-0.00673	-0.42	0.068
Dummy: upper secondary or tertiary education	0.01759	0.79	-0.01422	-0.82	0.259
Dummy: self-employed	-0.06192	-4.41	-0.04487	-4.13	0.593
Dummy: unemployed	-0.05876	-2.54	0.02004	0.65	0.070
Dummy: retired	-0.07135	-3.84	-0.02887	-1.79	0.405
Dummy: other situation	-0.05202	-2.20	-0.00954	-0.55	0.280
Dummy *IPEF*2000					0.000

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Nota: The figures in columns (1) and (2) are the result of the estimation of the model using only observations relative to the 2006-07 *IPEF*; the figures in columns (3) and (4) are the result of the estimation of the model using only observations relative to the 2000 *IPEF*; column (5) presents the pvalues associated with interactive variables in the estimation of the model using observations of both periods.

Table 4C

RESULTS OF THE PROBIT MODEL ESTIMATION
Dependent variable (participation in the other lending market)

	(1)	(2)	(3)	(4)	(5)
	2006		2000		Difference between marginal effects pvalue
	Marginal effect	t-ratio	Marginal effect	t-ratio	
Dummy: 1st income bracket	-0.06712	-3.72	-0.07233	-3.90	0.405
Dummy: 2nd income bracket	-0.05019	-3.53	-0.04239	-2.79	0.999
Dummy: 4th income bracket	0.02643	2.22	0.04704	3.64	0.160
Dummy: 5th income bracket	0.04309	2.97	0.09930	6.05	0.007
Dummy: 6th income bracket	0.03117	1.76	0.16816	7.59	0.000
Dummy: 20-30 years	0.03227	1.29	-0.03444	-1.65	0.036
Dummy: 40-50 years	-0.01895	-1.56	-0.03515	-2.96	0.205
Dummy: 50-60 years	-0.03864	-2.91	-0.05587	-4.30	0.156
Dummy: over 65 years	-0.12169	-6.42	-0.10976	-6.44	0.729
Dummy: household with 1 person	-0.05264	-3.11	0.02382	1.15	0.004
Dummy: household with 2 persons	-0.04236	-3.60	0.00747	0.57	0.007
Dummy: household with 4 persons	-0.00388	-0.34	0.00382	0.32	0.643
Dummy: household with more than 4 persons	0.03905	2.54	0.02938	1.97	0.846
Dummy: first stage of basic education or less	-0.02997	-2.71	-0.04667	-3.98	0.192
Dummy: second stage of basic education	-0.01362	-0.92	0.06119	3.17	0.002
Dummy: upper secondary or tertiary education	-0.04046	-2.46	0.01618	0.82	0.027
Dummy: self-employed	-0.00001	0.00	0.01574	1.23	0.343
Dummy: unemployed	-0.03814	-2.06	0.03445	1.00	0.059
Dummy: retired	-0.04511	-2.86	-0.00120	-0.08	0.063
Dummy: other situation	-0.05120	-2.78	0.01375	0.73	0.013
Dummy *IPEF*2000					0.010

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Nota: The figures in columns (1) and (2) are the result of the estimation of the model using only observations relative to the 2006-07 *IPEF*; the figures in columns (3) and (4) are the result of the estimation of the model using only observations relative to the 2000 *IPEF*; column (5) presents the pvalues associated with interactive variables in the estimation of the model using observations of both periods.

Family size

The results also suggest that a household with one or two members has a lower probability of holding debt than a household with three members. This effect is not observed in 2000 data. As regards larger households, the probability of holding debt is not significantly different, but this effect results from opposite (and significant) effects on the probability of holding housing loans and on the probability of holding other lending.

Education

Even though adjusted for the income and age effect, the households whose reference person has completed, at most, the first stage of basic education have a significantly lower probability of holding debt than those whose reference person has completed the second stage of basic education. This result, which is observed in both types of credit and in the two years under review, is consistent with the hypothesis that literacy is a relevant advantage in access to the credit market. In particular, it may be capturing, to a large extent, the effect of the job category of the reference person. In fact, there is evidence that in Portugal the level of education and type of job are strongly correlated. In 2006, households whose reference person has completed tertiary education have a higher probability of holding housing loans, in contrast to the results obtained from 2000 data, when this type of households had a higher probability of holding other lending.

Labour market situation

Finally, as regards the labour market situation, results suggest that the probability of holding debt is higher in the case of employees. The probability of holding housing loans by self-employed persons is

significantly lower, although the same does not apply in the case of the probability of holding other lending. Results indicate that in households whose reference person is unemployed the probability of holding debt is significantly lower in 2006 than in 2000. In the former year this situation did not significantly influence the probability of holding debt. This result may be interpreted as evidence of a stronger tightening in access to credit based on the labour situation. This conclusion should be drawn with some caution, given that an indebted household whose reference person is unemployed at the time of the interview might have incurred debt in a previous period, possibly under a different labour situation.

3.2.3. Model estimation results for indebtedness level

Tables 5A and 5B present the results of estimating the model where the dependent variable is the ratio of total debt to income and the ratio of housing loans to income respectively. Columns 1 and 3 present the marginal effects of the explanatory variables on the indebtedness ratio, conditional on indebtedness being strictly positive, based on the 2006 and 2000 observations respectively. Columns 2 and 4 present the respective t-ratios and column 5 the pvalues associated with the test of the hypothesis that the effects in the two years are equal.[18]

The statistical significance of the coefficient associated with the temporal binary variable in the models for the two years suggests that the extensive margin (total and housing loans) for a household with the characteristics of the reference household is higher in 2006 than in 2000. This conclusion stands in contrast to the conclusions drawn from the comparison between the IPEFs for 2000 and 1994. The results of the comparative analysis between these two periods, based on a similar methodology, suggested that, from the point of view of individual households, indebtedness in 2000 was not significantly higher than in 1994. This result supported the view that the high increase in aggregate indebtedness in the second half of the 1990s was chiefly due to the high increase in the number of households with access to credit.[19] There were significant differences in the extensive margin of indebtedness (total and housing loans) according to the characteristics of the households that are considered in this article.

Income

The results suggest that indebtedness is particularly sensitive to household income and to the age of its reference person. Households in the two lowest income brackets have a significantly lower level of total indebtedness and housing loans than households in the third income bracket. The opposite relation is also observed in the case of the two highest income brackets, but only for housing debt. In this type of debt, the income dependence of indebtedness is stronger near the tails of the distribution. When comparing the income effect in the two years, the results suggest that in higher income brackets it was stronger in 2000 than in 2006. Moreover, the results indicate that in 2006 there are no significant differences in indebtedness between the 3rd and 4th income brackets. In 2000, indebtedness level in the 2nd and 3rd income brackets was not significantly different.

Age

The effect of age on indebtedness level seems to have been higher in 2006, except in the case of the lowest age bracket. Results suggest that in 2000 indebtedness level in this age bracket was significantly higher than in the 30-40 age bracket. This is not apparent in data for 2006.

(18) As in the models of the previous section, this was also obtained from the estimation of the specification that includes the observations for both years.
(19) See Farinha (2003, 2004).

Table 5A

RESULTS OF THE TOBIT MODEL ESTIMATION
Dependent variable (debt/annual income)

	(1)	(2)	(3)	(4)	(5)
	2006		2000		Difference between marginal effects pvalue
	Marginal effect	t-ratio	Marginal effect	t-ratio	
Dummy: 1st income bracket	-0.24830	-3.30	-0.23497	-3.24	0.552
Dummy: 2nd income bracket	-0.17816	-3.15	-0.07637	-1.42	0.440
Dummy: 4th income bracket	0.01802	0.42	0.13240	3.34	0.019
Dummy: 5th income bracket	0.09940	2.01	0.19026	4.16	0.042
Dummy: 6th income bracket	0.02878	0.47	0.26684	4.73	0.001
Dummy: 20-30 years	-0.08735	-1.05	0.20283	2.82	0.008
Dummy: 40-50 years	-0.31978	-7.15	-0.10713	-2.55	0.010
Dummy: 50-60 years	-0.60763	-12.12	-0.29789	-6.36	0.005
Dummy: over 65 years	-1.17019	-14.75	-0.55670	-8.08	0.000
Dummy: household with 1 person	-0.09956	-1.49	0.04755	0.72	0.149
Dummy: household with 2 persons	-0.13888	-3.18	0.01294	0.30	0.031
Dummy: household with 4 persons	-0.05329	-1.29	0.01601	0.41	0.251
Dummy: household with more than 4 persons	-0.07648	-1.43	0.01271	0.27	0.246
Dummy: first stage of basic education or less	-0.36093	-9.22	-0.23650	-6.47	0.388
Dummy: second stage of basic education	0.05710	1.05	0.04282	0.77	0.986
Dummy: upper secondary or tertiary education	-0.05786	-0.92	-0.07914	-1.23	0.669
Dummy: self-employed	0.05261	1.19	-0.01566	-0.38	0.259
Dummy: unemployed	-0.15910	-2.18	0.06196	0.61	0.112
Dummy: retired	-0.22223	-3.72	-0.08842	-1.65	0.248
Dummy: other situation	-0.21497	-2.80	0.01772	0.30	0.031
Dummy *IPEF*2000					0.000

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Nota: The figures in columns (1) and (2) are the result of the estimation of the model using only observations relative to the 2006-07 *IPEF*; the figures in columns (3) and (4) are the result of the estimation of the model using only observations relative to the 2000 *IPEF*; column (5) presents the pvalues associated with interactive variables in the estimation of the model using observations of both periods.

Table 5B

RESULTS OF THE TOBIT MODEL ESTIMATION
Dependent variable (housing loans/annual income)

	(1)	(2)	(3)	(4)	(5)
	2006		2000		Difference between marginal effects pvalue
	Marginal effect	t-ratio	Marginal effect	t-ratio	
Dummy: 1st income bracket	-0.21547	-2.57	-0.12471	-1.75	0.959
Dummy: 2nd income bracket	-0.13750	-2.21	-0.06844	-1.28	0.777
Dummy: 4th income bracket	0.01678	0.36	0.09948	2.58	0.063
Dummy: 5th income bracket	0.12437	2.34	0.14651	3.30	0.191
Dummy: 6th income bracket	0.12701	1.96	0.19772	3.61	0.060
Dummy: 20-30 years	-0.14459	-1.66	0.10236	1.55	0.045
Dummy: 40-50 years	-0.33235	-7.16	-0.08641	-2.22	0.005
Dummy: 50-60 years	-0.65556	-12.31	-0.29636	-6.55	0.011
Dummy: over 65 years	-1.21398	-13.59	-0.54029	-7.73	0.004
Dummy: household with 1 person	-0.05257	-0.73	0.02849	0.44	0.528
Dummy: household with 2 persons	-0.09865	-2.09	0.01851	0.44	0.121
Dummy: household with 4 persons	-0.04288	-0.98	0.03236	0.88	0.184
Dummy: household with more than 4 persons	-0.19339	-3.26	-0.02670	-0.58	0.099
Dummy: first stage of basic education or less	-0.36200	-8.58	-0.19749	-5.64	0.305
Dummy: second stage of basic education	0.11133	1.97	-0.03287	-0.62	0.105
Dummy: upper secondary or tertiary education	0.00724	0.11	-0.06318	-1.04	0.378
Dummy: self-employed	-0.06262	-1.30	-0.11625	-2.82	0.115
Dummy: unemployed	-0.15528	-1.97	0.02740	0.28	0.233
Dummy: retired	-0.21507	-3.22	-0.10663	-1.98	0.609
Dummy: other situation	-0.18220	-2.18	0.01560	0.27	0.105
Dummy *IPEF*2000					0.000

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Nota: The figures in columns (1) and (2) are the result of the estimation of the model using only observations relative to the 2006-07 *IPEF*; the figures in columns (3) and (4) are the result of the estimation of the model using only observations relative to the 2000 *IPEF*; column (5) presents the pvalues associated with interactive variables in the estimation of the model using observations of both periods.

Education

Regarding the effect of education, the results suggest that households whose reference person has completed, at most, the first stage of basic education are significantly less indebted than those in the reference group (whose reference person has completed the second stage of basic education). The effects of education in 2006 and in 2000 are not statistically different.

Labour market situation

The results of the estimation of the models with data for 2006 suggest that indebtedness is significantly lower in households whose reference person is unemployed or inactive than when he/she is employed, both in the case of total and housing debt. This evidence stands in clear contrast to that obtained from data for 2000. In this year, in general, indebtedness is less sensitive to the labour market situation. However, the results also suggest that the differences between the effects of these variables in 2006 and 2000 are not significant, which is due to the high imprecision of their estimation (resulting from the low number of observations in some of these classes and from the high variability of the indebtedness level).

3.2.4. Model estimation results for debt burden

Tables 6A and 6B, with a similar structure as the previous tables, present the marginal effects for the models in which the dependent variable is the ratio of the debt service to monthly income and the ratio of housing loans to monthly income respectively.

In the models including observations for both years, the estimated effect associated with the dummy variable taking the value one for observations in 2000 is negative and significant, suggesting that the debt service is significantly higher in 2006 than in 2000. This evidence stands also in clear contrast to that obtained when comparing data from the 2000 and 1994 surveys, where no significant differences were observed. Is should be mentioned that this result is obtained, irrespective of the fact that the interest rate level of loans granted to households (either for house purchase or other lending) was lower in 2006 than in 2000.

Income

Results also suggest that the debt burden is sensitive to household income. Households in the two lowest income brackets have a significantly lower debt burden, for both total and housing loans, than households in the third income bracket. The opposite relation is observed in the two highest income brackets, in the case of debt burden associated with housing loans. There is no evidence of significant differences between income effects in 2000 and 2006.

Age

Debt burden is also sensitive to the age of the household reference person. In the three highest age brackets debt burden is significantly lower than in the 30-40 age bracket. There are no significant differences between the effects of age in the two years.

Table 6A

RESULTS OF THE TOBIT MODEL ESTIMATION
Dependent variable (debt burden/monthly income)

	(1)	(2)	(3)	(4)	(5)
	2006		2000		Difference between marginal effects pvalue
	Marginal effect	t-ratio	Marginal effect	t-ratio	
Dummy: 1st income bracket	-0.03114	-2.20	-0.03135	-4.07	0.046
Dummy: 2nd income bracket	-0.04350	-4.01	-0.01354	-2.41	0.425
Dummy: 4th income bracket	0.01230	1.56	0.01248	3.04	0.186
Dummy: 5th income bracket	0.02628	2.88	0.01532	3.22	0.295
Dummy: 6th income bracket	0.01700	1.51	0.02307	3.92	0.006
Dummy: 20-30 years	-0.01486	-0.95	-0.00487	-0.62	0.962
Dummy: 40-50 years	-0.02577	-3.12	-0.00793	-1.80	0.340
Dummy: 50-60 years	-0.05917	-6.39	-0.02835	-5.79	0.550
Dummy: over 65 years	-0.16312	-10.97	-0.05727	-8.00	0.019
Dummy: household with 1 person	-0.03174	-2.51	-0.00803	-1.14	0.363
Dummy: household with 2 persons	-0.02360	-2.91	-0.00407	-0.92	0.218
Dummy: household with 4 persons	-0.00705	-0.92	0.00289	0.72	0.220
Dummy: household with more than 4 persons	-0.00668	-0.67	0.00091	0.19	0.536
Dummy: first stage of basic education or less	-0.04586	-6.31	-0.02763	-7.24	0.516
Dummy: second stage of basic education	0.00084	0.08	0.00761	1.30	0.390
Dummy: upper secondary or tertiary education	-0.01145	-0.99	-0.00857	-1.26	0.754
Dummy: self-employed	0.00415	0.51	-0.00070	-0.16	0.310
Dummy: unemployed	-0.04558	-3.31	0.01271	1.21	0.006
Dummy: retired	-0.04960	-4.46	-0.01078	-1.94	0.067
Dummy: other situation	-0.05222	-3.60	-0.00151	-0.24	0.008
Dummy *IPEF*2000					0.000

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Nota: The figures in columns (1) and (2) are the result of the estimation of the model using only observations relative to the 2006-07 *IPEF*; the figures in columns (3) and (4) are the result of the estimation of the model using only observations relative to the 2000 *IPEF*; column (5) presents the pvalues associated with interactive variables in the estimation of the model using observations of both periods.

Table 6B

RESULTS OF THE TOBIT MODEL ESTIMATION
Dependent variable (housing loans/monthly income)

	(1)	(2)	(3)	(4)	(5)
	2006		2000		Difference between marginal effects pvalue
	Marginal effect	t-ratio	Marginal effect	t-ratio	
Dummy: 1st income bracket	-0.01807	-2.37	-0.02029	-2.90	0.383
Dummy: 2nd income bracket	-0.02028	-3.52	-0.00715	-1.44	0.253
Dummy: 4th income bracket	0.00307	0.75	0.00943	2.63	0.106
Dummy: 5th income bracket	0.01371	2.91	0.01398	3.38	0.371
Dummy: 6th income bracket	0.01353	2.36	0.01807	3.52	0.139
Dummy: 20-30 years	-0.01856	-2.37	-0.00043	-0.07	0.143
Dummy: 40-50 years	-0.02315	-5.63	-0.00555	-1.52	0.014
Dummy: 50-60 years	-0.04667	-9.90	-0.02855	-6.71	0.254
Dummy: over 65 years	-0.09953	-12.38	-0.05129	-7.94	0.013
Dummy: household with 1 person	-0.00813	-1.25	-0.00704	-1.12	0.853
Dummy: household with 2 persons	-0.00881	-2.09	-0.00214	-0.55	0.390
Dummy: household with 4 persons	-0.00076	-0.20	0.00165	0.48	0.595
Dummy: household with more than 4 persons	-0.01817	-3.44	-0.00737	-1.71	0.286
Dummy: first stage of basic education or less	-0.02719	-7.25	-0.02019	-6.17	0.987
Dummy: second stage of basic education	0.00950	1.91	-0.00287	-0.58	0.115
Dummy: upper secondary or tertiary education	0.00316	0.55	-0.00626	-1.09	0.237
Dummy: self-employed	-0.00520	-1.23	-0.01168	-3.05	0.093
Dummy: unemployed	-0.02196	-3.06	0.01041	1.17	0.011
Dummy: retired	-0.02321	-3.91	-0.00925	-1.86	0.235
Dummy: other situation	-0.01990	-2.65	0.00148	0.27	0.037
Dummy *IPEF*2000					0.000

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Nota: The figures in columns (1) and (2) are the result of the estimation of the model using only observations relative to the 2006-07 *IPEF*; the figures in columns (3) and (4) are the result of the estimation of the model using only observations relative to the 2000 *IPEF*; column (5) presents the pvalues associated with interactive variables in the estimation of the model using observations of both periods.

Education

Evidence regarding the effect of education on debt burden is consistent with evidence obtained for its effect on indebtedness level. Households whose reference person has completed, at most, the first stage of basic education have a significantly lower debt burden than households in the reference group (those with the third stage of basic education). The effects of education in 2006 and 2000 are statistically similar.

Labour market situation

As regards the labour market situation, the results based on data for 2006 suggest that in households whose reference person is unemployed or inactive, the debt burden is significantly lower than in those where he/she is employed. This result holds in terms of both total debt and housing loans, contrasting with the results obtained from data for 2000, in which a significant effect is only observed when the household reference person is retired. The results also suggest that the difference between the effects of the unemployment situation in 2006 and 2000 is statistically significant, which may be partly due to a tightening of credit standards, *i.e.* unemployed persons have more limited access to credit. However, this result may be contaminated by a possible inconsistency between the reference period for income and for the labour market situation.[20]

4. INDEBTED HOUSEHOLDS – MAIN VULNERABILITIES IN 2006-07

The analysis presented in the previous section suggests that household participation in the debt market, indebtedness level and the debt service burden, per household, were higher in 2006/07 than in 2000. Hence, the rise in household aggregate indebtedness from 2000 to 2006 may have been the result of an increase in the number of households holding debt, and of the rise in the average indebtedness level of indebted households.

With a view to characterising in more detail the specific financial situation of indebted households, in order to identify potential vulnerabilities, some additional indicators are presented in this section. For a more accurate notion as to the vulnerability of the household financial situation, the analysis which is usually centred on average or reference values shall be complemented with additional information on the distribution of debt by indebted households. Additional indicators presented in this section are not, in any way, exhaustive, and are an initial approach to information contained in the latest IPEF.

When considering only indebted households, the IPEF results indicate that, on average, their debt account for approximately twice their annual income and 63 per cent of their total gross wealth (Table 7). Debt service ratio shows an average value of 30 per cent. Given that indebtedness is rather asymmetrically distributed among households, the median is more appropriate than the average as an indicator of the typical value of the distribution. The median values of those ratios for indebted households as a whole are somewhat lower.

The variability of these indicators on indebtedness and debt service is high. It is especially apparent in Charts 1 to 5 that they depend on household characteristics. In order to evaluate the importance of sit-

(20) Income corresponds to the situation in the previous year and the labour market situation to the date of the survey.

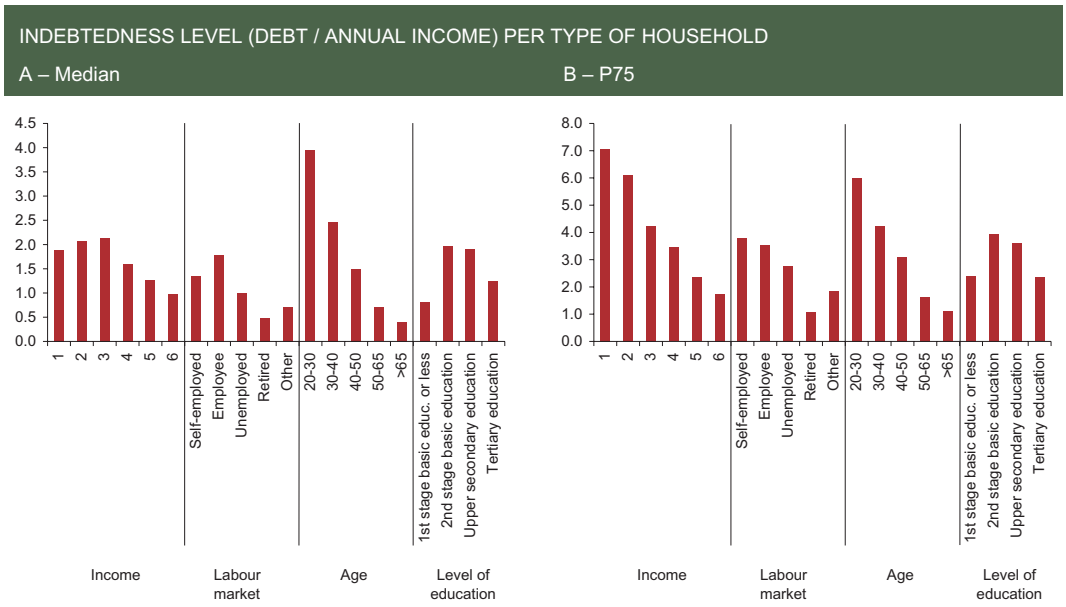
Table 7

INDEBTEDNESS LEVEL AND DEBT BURDEN RATIO OF INDEBTED HOUSEHOLDS: SUMMARY STATISTICS IN 2006

	Total debt / Income		Housing loans / Income		Total debt / Wealth		Housing loans / Wealth		Debt service / Monthly income		Housing debt service / Monthly income	
	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median
Total	2.233	1.443	2.603	1.961	0.632	0.278	0.413	0.304	0.300	0.219	0.237	0.204
Income brackets [(a)]												
1	3.890	1.887	5.677	6.213	1.678	0.389	0.476	0.330	0.554	0.413	0.549	0.552
2	3.557	2.081	4.876	4.754	1.543	0.433	0.486	0.452	0.432	0.374	0.422	0.382
3	2.850	2.143	3.416	3.034	0.892	0.357	0.586	0.410	0.336	0.283	0.308	0.278
4	2.109	1.598	2.501	2.338	0.447	0.296	0.390	0.333	0.354	0.233	0.237	0.219
5	1.719	1.275	1.917	1.532	0.379	0.257	0.355	0.257	0.219	0.159	0.177	0.148
6	1.217	0.976	1.251	1.004	0.264	0.212	0.263	0.212	0.140	0.119	0.116	0.100
Age												
20-30	3.814	3.943	4.660	4.762	0.609	0.609	0.634	0.658	0.531	0.300	0.345	0.300
30-40	3.103	2.464	3.377	2.727	0.583	0.433	0.552	0.433	0.311	0.261	0.271	0.249
40-50	2.127	1.492	2.430	1.825	0.841	0.276	0.349	0.291	0.296	0.205	0.234	0.191
50-65	1.265	0.700	1.410	0.877	0.418	0.134	0.262	0.140	0.253	0.164	0.174	0.141
>65	1.125	0.400	1.572	0.495	0.626	0.063	0.336	0.076	0.259	0.157	0.183	0.149
Level of education (maximum completed)												
First stage of basic education or less	1.735	0.815	2.263	1.491	0.570	0.188	0.475	0.215	0.322	0.216	0.255	0.207
Second or third stage of basic education	2.667	1.967	3.093	2.657	0.757	0.353	0.431	0.381	0.343	0.258	0.262	0.244
Upper secondary education	2.565	1.906	2.717	2.028	0.767	0.357	0.413	0.323	0.260	0.213	0.229	0.191
Tertiary education	1.762	1.249	1.892	1.370	0.298	0.232	0.290	0.253	0.197	0.162	0.173	0.138
Labour market situation												
Employed												
Self-employed	2.532	1.348	3.054	2.143	0.272	0.180	0.299	0.199	0.364	0.274	0.291	0.258
employee	2.396	1.786	2.696	2.147	0.652	0.351	0.458	0.357	0.307	0.224	0.238	0.208
unemployed	2.108	1.004	2.772	1.879	1.643	0.256	0.382	0.298	0.226	0.176	0.227	0.179
Retired	1.044	0.490	1.287	0.568	0.563	0.086	0.274	0.086	0.212	0.143	0.156	0.117
Other situation	1.562	0.714	2.120	1.129	0.603	0.198	0.252	0.123	0.229	0.200	0.225	0.220

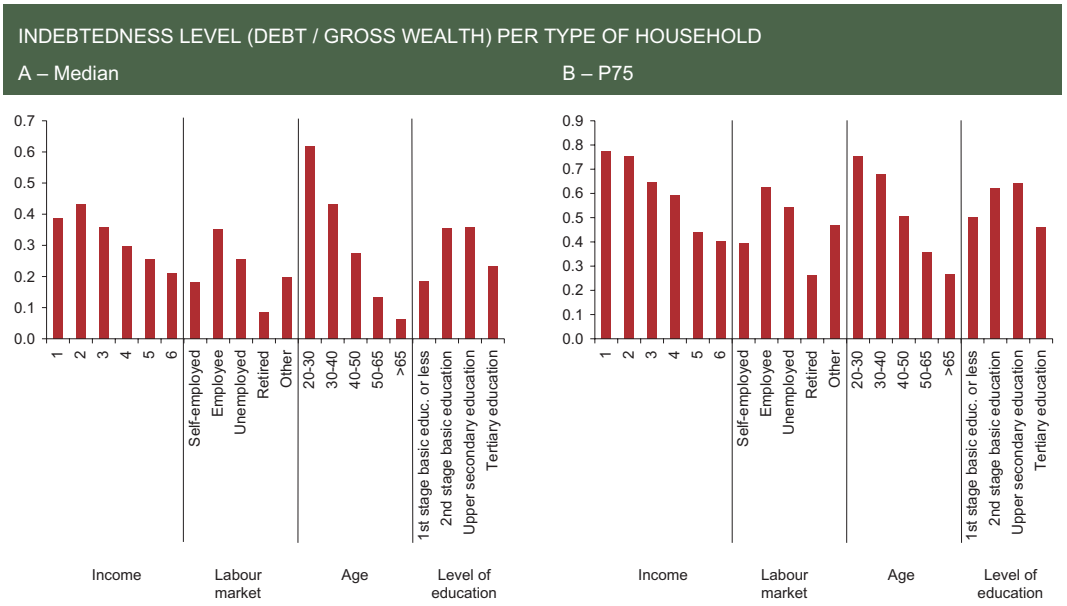
Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Nota: (a) The extreme values of the income brackets considered are the following: 1st bracket - €375-500; 2nd bracket - €500-700; 3rd bracket - €700-1060; 4th bracket - €1060-1630; 5th bracket - €1630-2630; 6th bracket - €2630 and plus.

Chart 1



Source: Household Wealth and Indebtedness Survey. Calculations made by the author.

Chart 2

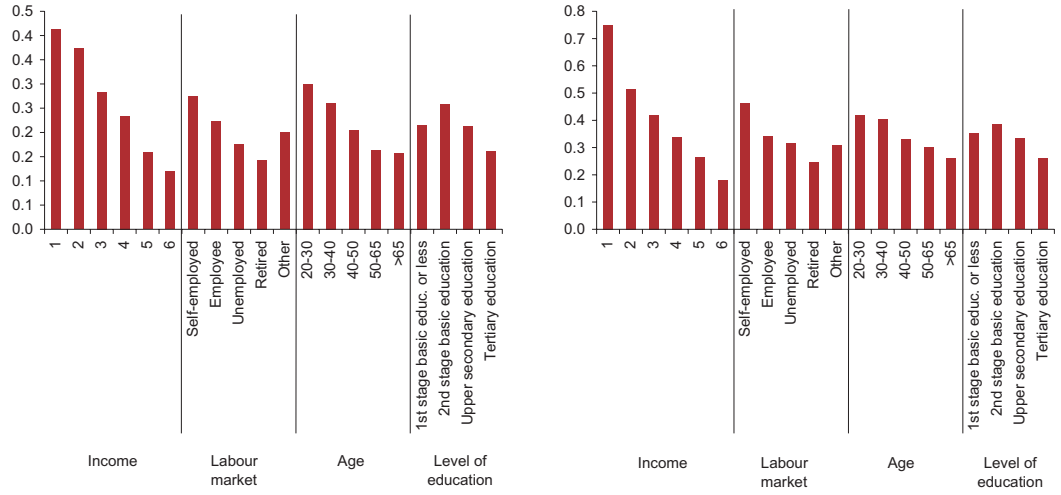


Source: Household Wealth and Indebtedness Survey. Calculations made by the author.

Chart 3

DEBT BURDEN (DEBT SERVICE / MONTHLY INCOME) PER TYPE OF HOUSEHOLD

A – Median B – P75

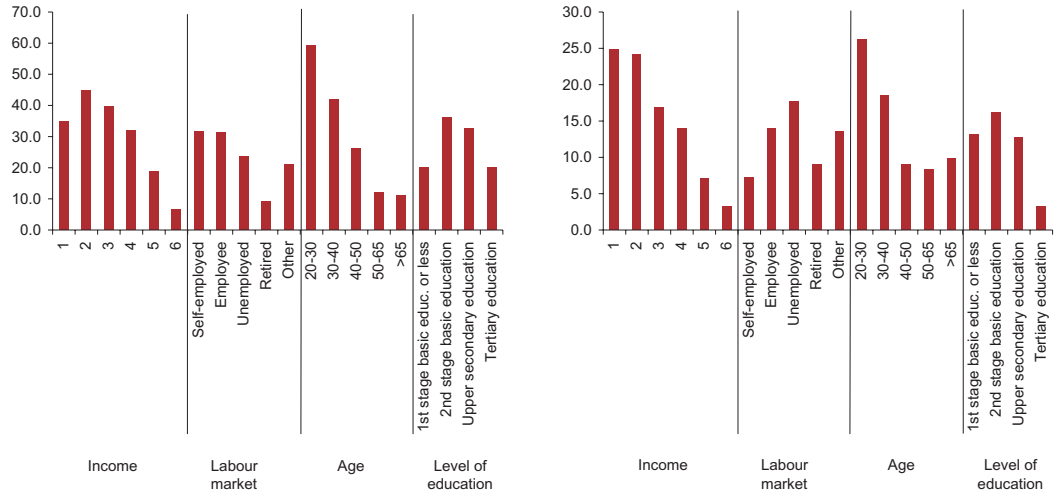


Source: Household Wealth and Indebtedness Survey. Calculations made by the author.

Chart 4

CRITICAL VALUES OF INDEBTEDNESS LEVEL, PER TYPE OF HOUSEHOLD

A – Debt / income: % households with a ratio > 3 B – Debt / wealth: % of households with ratio > 0.75

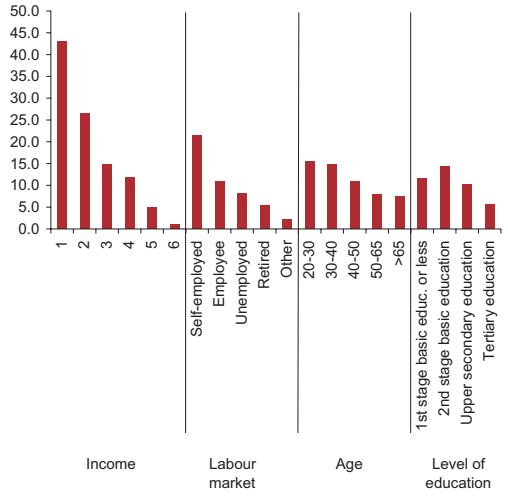


Source: Household Wealth and Indebtedness Survey. Calculations made by the author.

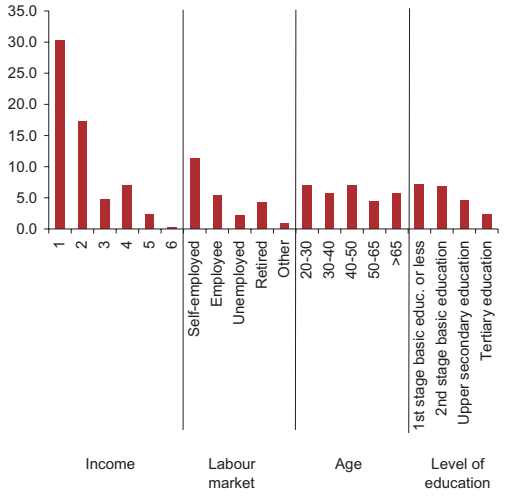
Chart 5

CRITICAL VALUES OF DEBT BURDEN, PER TYPE OF HOUSEHOLD

A – Debt service / income: % of households with a ratio > 1/2



B – Debt service / income: % of households with ratio > 2/3



Source: Household Wealth and Indebtedness Survey. Calculations made by the author.

uations that may generate higher risk, the 75 percentile of the indicators in each household category is also presented, in addition to the median.[21]

These charts suggest that younger households frequently show very high debt-to-income ratios, which are largely due to the importance of loans for house purchase for this type of household (Chart 1). This interpretation is consistent with the observation that the value of gross total wealth (*i.e.* financial and non-financial wealth) exceeds the value of debt with a rather comfortable margin for most of these households (Charts 2 and 4B). The debt service ratio is lower than 50 per cent for more than 75 per cent of the younger households (Chart 3B). The ratio is higher than 2/3 for approximately 10 per cent of younger households (Chart 5B).

The households in more vulnerable situations as measured by debt service ratio are found in the lower income bracket (accounting for approximately 10 per cent of households). According to data in Charts 3, 5A and 5B, the ratio is higher than 40 per cent for 50 per cent of these households, whereas for approximately 30 per cent the ratio is higher than 2/3.

In households whose reference person is unemployed the values for the median and the 75 percentile, either of the indebtedness ratio or debt service ratio, are lower than in households whose reference person is employed. As previously mentioned, this situation apparently shows that a potentially high risk is under control. However, this interpretation should be made with caution because indebtedness may have occurred under a labour market situation that is different from the observed at the moment of interview.

In short, the situations revealing more vulnerability refer to households with lower income and whose reference person is younger. In these categories, particularly high values in the indebtedness ratio

(21) For each type of household, the median of an indicator is the value dividing observations in half, *i.e.*, 50 per cent of households of that type have a value above the median and 50 per cent a lower value. The 75 percentile value divides observations in such a manner that 25 per cent of the observations have a higher value while 75 per cent of the observations have a lower value.

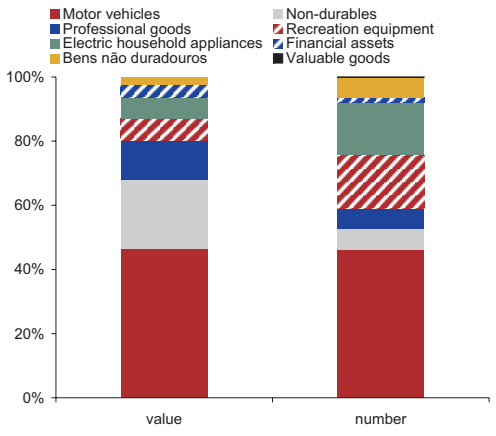
may be observed. This is partly mitigated by the fact that, even in these brackets, debt is covered by collateral, given that most loans are intended for house purchase. From the point of view of credit institutions, housing mortgage loans, in general, have a lower risk level. This situation also benefits from the fact that there is evidence that prices in the residential real-estate market are not overvalued.[22] Moreover, given the social importance of housing and the higher stigma associated with delinquency in this segment of credit, its default rates are usually low. The category "other lending" includes all other loans having purposes other than house purchase, (or house construction, reconstruction and conversion). Based on IPEF data for 2006, little less than 50 per cent of these loans were intended for the purchase of motor vehicles (the percentage is similar in both number and value of the loans) and approximately 20 per cent (in value) for the acquisition of property not intended for housing (see Chart 6). These two categories represented 70 per cent of the total value of other lending. This value, in principle, is guaranteed by the goods being purchased.

As regards the debt service burden, the fact that situations of higher vulnerability are limited to a relatively small percentage of households may in part be the result of some action taken by banks, in recent years, with a view to limiting the effect of the interest rate rise on debt burden, in particular widening loan maturities. IPEF data suggest that during the last decade the weight of longer maturities in loans for house purchase showed an upward trend, that partly reflects the large incidence of renegotiation of previous credit contracts (Chart 7).[23]

Furthermore, to evaluate the risks of the more vulnerable situations for the financial system, it is important to gauge the weight of debt held by the different types of households on total household debt. The IPEF results suggest that total debt granted to households in more vulnerable situations (with lower income and younger) or that may become potentially more vulnerable (whose reference person is unemployed) has a relatively small weight on the total (Table 8).

Chart 6

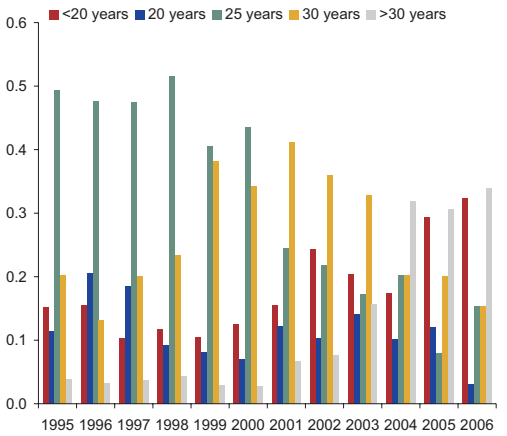
DISTRIBUTION OF OTHER LENDING, PER PURPOSE IN 2006



Source: Household Wealth and Indebtedness Survey. Calculations made by the author.

Chart 7

WEIGHT OF DIFFERENT INITIAL MATURITIES OF LOANS FOR HOUSE PURCHASE, PER YEAR OF THE LOAN



Source: Household Wealth and Indebtedness Survey. Calculations made by the author.

(22) See the "Box Housing prices in Portugal and macroeconomic fundamentals: Evidence of quantile regression", Banco de Portugal, Financial Stability Report-2005.

(23) Strictly speaking, the interviewed household should report the year of the latest renegotiation as the year of the loan.

Table 8

VULNERABILITY INDICATORS OF INDEBTED HOUSEHOLDS IN 2006

	Weight in total debt %		
	Total	**Housing**	**Other**
Total	100.0	100.0	100.0
Income brackets [(a)]			
1	1.7	1.8	1.6
2	5.4	5.6	3.4
3	19.6	19.3	22.4
4	26.4	26.0	29.2
5	23.5	23.7	22.2
6	23.4	23.7	21.2
Age			
20-30	6.3	6.8	2.6
30-40	40.3	42.1	26.0
40-50	34.2	34.1	35.1
50-65	16.4	14.6	30.1
>65	2.9	2.5	6.2
Level of education			
First stage of basic education or less	17.8	16.2	29.5
Second stage of basic education	38.6	38.7	37.6
Upper secondary education	22.6	23.0	19.2
Tertiary education	21.1	22.1	13.6
Labour market situation			
Employed			
self-employed	14.4	13.1	23.9
employee	75.5	77.2	62.6
Unemployed	2.9	3.0	2.6
Retired	5.5	5.0	9.6
Other situation	1.7	1.7	1.3

Source: Household Wealth and Indebtedness Survey. Calculations made by the author.
Nota: (a) The extreme values of the income brackets considered are the following: 1st bracket - €375-500; 2nd bracket - €500-700; 3rd bracket - €700-1060; 4th bracket - €1060-1630; 5th bracket - €1630-2630; 6th bracket - €2630 and plus.

5. CONCLUSIONS AND PROSPECTS FOR FUTURE RESEARCH

The sustained growth of household indebtedness at rather higher rates than their disposable income has raised concerns as to the ability of households to continue serving their debts. Aggregate information has revealed that, as a whole, the credit risk associated with the household sector is moderate, because past-due credit in banks' portfolios, despite an upward trend, remains at historically low levels. In effect, notwithstanding the interest rate hike, the debt service burden has maintained, on average, a relatively low ratio to disposable income. The analysis of aggregate indicators raises the problem that these do not provide information on the number of indebted households, nor do they make it possible to distinguish between the situation of indebted and non-indebted households. In order to evaluate the implications of indebtedness, either from a financial stability or macroeconomic perspective, it is crucial to have detailed information on its distribution, so that extreme observations, in particular, may be characterised.

This article examines the financial situation of households from data obtained in the 2000 and 2006/07 IPEF, based on the results of econometric analysis. The results obtained suggest that participation in

the debt market, the average indebtedness ratio and average debt service ratio, in the case of indebted households, rose from 2000 to 2006. In particular, as regards participation in the debt market for other purposes than house purchase, the results indicate that access to this market has increased, chiefly for households in intermediate income brackets and whose reference person is relatively young.

It is worth stressing that the conclusions drawn on the development of indebtedness and debt service ratio from 2000 to 2006 are in contrast to the conclusions resulting from the comparison between 1994 and 2000 results, obtained with a similar methodology. These conclusions on the most recent developments are particularly noteworthy due to the fact that the interest rates on credit to households in 2006 are lower than in 2000.

In order to identify possible situations of higher vulnerability at present, an analysis is made of the 75 percentile values of the ratio of the debt service income, the ratio of debt to income and the ratio of debt to total wealth, as well as of the percentage of households whose ratios stand above certain critical values. These data suggest that the situations of more vulnerability arise in lower income and younger brackets. The rise in credit default associated with these cases would certainly have social consequences, but the situation should not jeopardise the stability of the financial system, since the debt of more vulnerable households has a relatively small weight on the total.

An accurate estimation of the consequences of sustained growth of household indebtedness requires the formulation of a model in order to identify the factors that explain debt as, for instance, in Tudela and Young (2005) who found theoretical support in life cycle theory. Their model, which is applied to data from the British Household Panel Survey, is used to simulate the effect of some shocks. An analysis of this type would be desirable, but it is beyond the objectives of this article and will therefore be left for future research.

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THE DETERMINANTS OF PORTUGUESE BANKS' CAPITAL BUFFERS*

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1. INTRODUCTION

Until the mid-1980s, the Portuguese banking system was almost exclusively held by the State and several dimensions of its activity were strongly regulated, through credit ceilings and restrictions on the setting of interest rates, on the establishment of new banks, on the opening of branches, and on the undertaking of activities abroad. The process of accession to the European Economic Community implied the gradual lift of these regulations, reflecting the political commitment to achieve the economic and financial integration that paved the way for the creation of the Single Market.

In parallel, in the large majority of OECD countries, the set of measures implemented to achieve the liberalisation of financial markets and in particular a competitive operational environment for banks, was followed by the need to strengthen prudential supervision. In this context, in the early 1980s, regulations setting minimum levels for the ratio between banks' capital and assets began to arise in countries such as the United Kingdom and United States (Jackson *et al*. (1999)). Throughout the 1980s, the countries represented in the Basel Committee on Banking Supervision (BCBS) tried to reach an agreement on the regulatory minimum own funds to be held by banks. This process led to the issuing of a document by this Committee in 1988, known as the Basel Capital Accord. In turn, this Accord was the cornerstone of the EC Directives on the capital adequacy as well as of several regulations in this field in more than a hundred countries.

The idea underlying banks' prudential regulation is to ensure that banks hold an adequate level of capital in order to minimise insolvency risk. This concern (according to Jackson (2002)) is due to: (i) potential negative externalities stemming from banks' failure, namely those resulting from risks of contagion to other institutions in the event of a widespread redemption of deposits from the banking system, as well as from the key role played by banks in financing the economy and in the payment system; (ii) asymmetry of information between banks and several categories of creditors, that lead to the protection of the interests of depositors and other retail clients; (iii) potential for moral hazard behaviour by limited liability stockholders, amplified by the existence of deposit insurance and by the lender of last resort function of central banks.

In Portugal, the philosophy and the precepts of the Capital Accord were only fully implemented in 1993, after the entry into force of the legislation that transposed into Portuguese law the Directive on the capital adequacy of investment firms and credit institutions. Under this framework, Portuguese banks' own funds become subject to a minimum limit corresponding to 8 per cent of their assets, after applying weighting factors intended to reflect the risk of each exposure, as well as to a number of other restrictions on the composition of own funds.

* The views expressed in this article are those of the authors and do not necessarily reflect those of Banco de Portugal.

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One of the aspects that has raised the interest of policy makers is the fact that although own funds and, in particular, equity are the most expensive source of funding,[1] banks' solvency ratios are usually kept well above the regulatory minimum level.[2] This points to the fact that in general the level of banks' own funds results from the interception between regulatory requirements and the amount actually envisaged by banks' management and stockholders as a buffer to hedge for the economic risks incurred. Thus, studying the determinants of excess capital is particularly relevant in the context of the ongoing changes in supervisory practices, resulting from the overall revision of the Capital Accord and the release of a new document by the BCBS, known as Basel II.[3] There have been fears that the regulations proposed in this document might increase the pro-cyclicality inherent in the functioning of the credit market, since they are more sensitive to the risks incurred by institutions.

In the same vein, as the regulatory capital defined in accordance with the rules of Basel I is generally understood as poorly sensitive to the risk actually assumed by institutions,[4] banks that incur higher risk are expected to hold higher capital reserves. In addition, as mentioned above, the literature suggests that capital is a relatively expensive source of funding when compared to bonds or deposits. Thus, banks' capital decisions should reflect the trade-off between the benefits and the costs of holding excess capital.

One of the main benefits of holding high capital reserves is linked to the decrease in the probability of incurring failure related costs. From the perspective of each institution, these costs will be higher the higher the economic rents banks achieve in the competitive environment in which they operate.[5] Moreover, as the intervention of the supervisory authorities represents a cost for institutions, albeit not explicit, a reduction in the capital ratio to a value below the regulatory minimum level leads to intervention by these authorities, which in many jurisdictions strongly penalises both the management and the stockholders. With respect to the role played by capital reserves, stress should be laid on the incentives for the mitigation of moral hazard in the choice of assets and, as there are fixed costs in the issuance and placement of common stock, on the advantages of keeping a sufficiently large capital buffer to meet the requirements associated with unexpected investment opportunities. Furthermore, the issuance of common stock may represent an indirect cost for institutions, related to the timing of such an operation, combined with signals sent to market operators that its announcement may be related to the deterioration of the bank's financial position.[6]

The purpose of this article is to identify the factors underlying the choice of Portuguese banks' capital buffers, through the estimation of a dynamic panel data model for the period between 1994 and 2004. Among the main findings of this study is the positive relationship between excess capital and a broad risk measure, as well as the fact that provisioning and high and stable profitability levels behave as substitutes for capital reserves. Business cycles are negatively related to excess capital, while this variable seems to be positively affected by the performance of stock markets. In addition, larger banks are associated with lower capital reserves.

(1) Financial instruments eligible as own funds, offering payments to their owners that are subordinated to the other liabilities, have implicit an increased risk premium that increases with the degree of subordination. Moreover, it should be taken into account that a company has a tax advantage in holding debt, as its remuneration is recognised as a cost to this effect.

(2) Following the literature, we refer to the difference between capital de facto held by banking institutions and the regulatory minimum level of capital as a bank's capital buffer, excess capital or capital reserves.

(3) For a discussion of the adoption of the rules of Basel II in Portugal, see "Box 4.2 *The adoption of Basel II rules in Portugal*", Banco de Portugal, Financial Stability Report-2006.

(4) See BCBS (1999), Section A.

(5) Demsetz *et al*. (1996) concluded that the banks for which the expected current value of future profits is higher tend to hold more capital and present a lower degree of asset risk.

(6) Cornett and Tehranian (1994) report negative share price reactions in the United States to the announcements of equity issues in the banking industry.

After the discussion of some findings documented in the relevant empirical literature (Section 2), Section 3 presents the data used and the model estimated. The results obtained are discussed in Section 4. Finally, Section 5 concludes.

2. PREVIOUS EMPIRICAL FINDINGS

Although there is an extensive literature regarding banks' solvency, most studies are focused on US banks and on capital ratios rather than on the difference between capital requirements and the own funds actually held by banks. The literature on the determinants of European banks' capital buffers includes Stolz and Wedow (2005) for German banks, Ayuso *et al*. (2002a) and Ayuso *et al*. (2002b) for Spanish banks and Lindquist (2003) for Norwegian banks. To our knowledge, this is the first study of the determinants of excess capital of Portuguese banks. The first three papers mentioned above resort to the estimation of dynamic models, whereas Lindquist (2003) does not explicitly model for the persistence of the dependent variable, which should capture the existence of adjustment costs.

As discussed in the previous section, banks that assume higher credit portfolio risk are a priori expected to have not only higher capital requirements, but also higher excess capital. However, the empirical literature exploring this relationship generally finds a negative relationship between the credit risk measures used and excess capital. Although the findings of Ayuso *et al*. (2002a) can be justified by the ex-post nature of the risk measure used, the same does not apply to the findings of Lindquist (2003), which uses an indicator envisaged to be an estimate of the credit risk assumed ex-ante by institutions (based on the probability of default foreseen by a credit risk model applied to sectors of activity and local markets). Ayuso *et al*. (2002b) also resort to other risk indicators that the authors argue to be a proxy for ex-ante risk (growth rate of loans granted and share of public debt in total assets) and have also concluded that there is a negative relationship between these variables and excess capital. This finding is particularly relevant from the point of view of the regulatory authorities and, if confirmed by other studies that address this issue for a more comprehensive set of markets, interest is drawn in exploring the factors that may be behind this relationship.

Both Ayuso *et al*. (2002a) and Ayuso *et al*. (2002b) find a negative effect of the price of insurance, proxied by the return on equity (ROE), on the quantity of the insurance (under the form of capital reserves). Lindquist (2003) finds the same result using the β coefficient for the Norwegian banking industry as a proxy for the cost of capital reserves, since it is a measure of the risk premium. However, being an aggregate industry level variable, this proxy has the obvious shortcoming of not reflecting the specificities of the risk assumed by each bank. Stolz and Wedow (2005) find a negative relationship between banks' ROA and excess capital. This suggests that the most profitable banks, anticipating the possibility of covering for losses with current results may, in principle, have smaller capital reserve needs.

The four papers mentioned above agree in finding a negative relationship between the business cycle and capital reserves. This may reflect, on the one hand, an increase in the share of assets with lower risk weighting during recession periods, which derives from a precautionary effect, and, on the other hand, a mechanical effect resulting from the combination of credit market cycles with the existence of adjustment costs of the level of capital. This type of effect may have macroeconomic repercussions, namely through credit market cycles.

The findings of Stolz and Wedow (2005), Ayuso *et al*. (2002b) and Lindquist (2003) also support the "too big to fail" hypothesis. That is, larger banks tend to anticipate a higher probability of support by the authorities if they face financial difficulties, as the failure of a large institution may be negatively transmitted to the whole system, through several contagion channels. The main effect of this behaviour is a

lower capital level desired by the management of larger banks, as part of the role of insurance against failure attributable to capital is assumed by the safety net provided by public authorities. On the other hand, if portfolio diversification is positively correlated with bank size, the probability of experiencing major losses (with an impact on capital ratios) should be smaller for larger banks. Another factor to be taken into account is the existence of costs of screening and monitoring the behaviour of borrowers, to better assess the risk of operations involving them. If there are scale economies in screening and monitoring activities, larger banks are expected to exhibit smaller portfolio risk and, as such, they have implicit lower optimum capital levels. As Alfon *et al*. (2004) remark, larger banks may also be less liquidity constrained and have smaller costs in adjusting capital levels; therefore, it is more advantageous for these institutions to issue more frequently capital or debt on demand, rather than hold large capital reserves.

3. DATA AND MODEL

The dataset used in this study is an unbalanced panel of yearly data from banks' consolidated financial statements[7] reported by 17 Portuguese banking groups to Banco de Portugal ranging from 1994 to 2004.[8] The choice of the sample period was made with the purpose of maximising the number of observations, while avoiding changes in the structure of the most relevant accounting and prudential data. In fact, the regulatory framework resulting from Basel I had already been in force since 1993, while in 2004 no significant changes had yet been observed in the behaviour of banks in anticipation of the Basel II rules.[9] The observations referring to the first three years of activity of each new bank were excluded, so that the information used does not reflect the typical initial adjustment period. Small institutions and/or those specialised in investment banking were also excluded from the sample, as they have different features and behaviour.

The analysis conducted in this article resorts to panel data, which has the advantage of capturing both differences across banks and time-series variation, as well as of allowing for meaningful statistical inference even using a sample with a relatively small number of banks observed over an equally short time period. The explicit treatment of the model's dynamic is relevant not only to infer on the persistence of the dependent variable, but also to ensure that the estimates for other parameters of the model are consistent. The estimation technique used was that proposed by Blundell and Bond (1998) and is known in literature as System GMM. The main advantages of this methodology consist in the possibility of obtaining consistent estimates for the parameters of interest when the persistence of the dependent variable needs to be explicitly modelled and not requiring strong hypotheses about the exogeneity of the regressors. For details on the estimation method and the motivation for its use, see Boucinha (2008).

Considering the small size of the available sample, the option was to estimate a parsimonious model and then test additional hypotheses on the initial specification. The models estimated have the following structure:

$$y_{i,t} = \gamma y_{i,t-1} + \beta X_{i,t} + \delta + \eta_i + \varepsilon_{i,t} \qquad (1)$$

(7) Except for banks that do not belong to any banking group and thus do not consolidate their accounts and variables for which data are only available on an individual basis. For these variables, group level data are obtained by adding data available for each of its members.

(8) With regard to profitability, data refer to the period between 1993 and 2004.

(9) Furthermore, in 2005 the International Accounting Standards (IAS) were introduced, and therefore there were changes in the definition of some of the aggregates required for the construction of the variables used.

where δ is a constant term, η is an unobservable variable that captures idiosyncratic features of each institution that are constant over time and ε is a random shock. Matrix *X* is composed of the tested explanatory variables.

The variable under analysis (y) is defined as the ratio of excess capital to the regulatory minimum level. As argued by Ayuso *et al*. (2002a) and Ayuso *et al*. (2002b), the coefficient associated with the lagged value of that variable may be interpreted as a measure of adjustment costs and its expected sign is positive. The degree of coverage of non-performing loans by provisioning should be associated with smaller capital reserves, since provisions tend to be imperfect substitutes for capital.

The measure of non-performing loans used is a credit risk measure that intends to capture the flow rather than the stock of non-performing loans, thus decreasing (but not fully eliminating) the *ex-post* character of this variable. Thus, the sign of the coefficient associated with this variable in equation (1) is expected to be negative if the non-performing loan measure used is still an *ex-post* risk measure, as all other things being equal, banks with higher credit risk are expected to hold lower capital reserves. If on the other hand, the variable is an *ex-ante* risk measure, and since the regulatory framework of Basel I is characterised by poor risk sensitivity, a positive sign is expected, as banks with higher credit risk should, ceteris paribus, hold higher levels of economic capital in relative terms.

If banks had not anticipated the high growth of bank credit observed during the sample period, this development may have contributed through a relatively mechanical way to a decrease in excess capital. In turn, it should not be ruled out from the outset that banks have anticipated, albeit partially, high credit growth, responding to it with a precautionary increase in their capital reserves. Furthermore, since an increase in granted loans is not expected to materialise immediately in an increase in non-performing loans, it may be important to control for credit growth in order to correctly interpret of the non-performing loan coefficient.

Banks with a higher share of equity exposures in their asset portfolio are expected to hold higher capital reserves, as their assets should be more volatile. As argued above, both banks' size and the output gap[10] are expected to have a negative impact on excess capital.

The effect of mergers and acquisitions is controlled for through the inclusion in the model of a binary variable, equal to one in the years in which a specific bank has been involved in a merger. Obtaining a negative sign for the coefficient associated with this variable would suggest that the mergers that involved the banks in the sample consumed capital.

By including in the model banks' return on assets (ROA) and its variance,[11] it is possible to test the hypothesis that banks with higher and more stable earnings may more easily absorb potential losses and therefore need lower capital reserves. The hypothesis of a favourable performance of the stock market (as measured by the growth rate of the PSI Geral stock price index) being associated with a situation where investors are more receptive to accommodating capital increases, with a positive impact on capital reserves, is also considered. In addition, the value of banks' capital should be positively affected by two facts, i.e. in periods of more favourable stock market performance, the equity portfolios of banks increase in value; and, in such periods, revenue from the provision of services associated with capital markets in general tends to be higher. Therefore, the hypothesis that the effect of stock markets is stronger for banks with a higher weight of shares in their portfolio of assets is also tested, through the introduction of an additional variable that results from the interaction of the two relevant variables.

(10) The measure of the output gap was obtained through the application of a Hodrick-Prescott filter to the real output series. The value of parameter λ used was 6.25, the value mentioned by Ravn and Uhlig (2002) as appropriate for yearly data.

(11) The variance of profits was computed using data for ROA from the three previous years to the current year.

The return on equity is considered in so far as this variable intends to proxy the cost of capital, which should have a negative impact on capital reserves. Banks with a higher ratio of Tier I own funds to total own funds are expected to have lower capital reserves, as according to the eligibility rules of own funds, this ratio may not fall below 50 per cent. In fact, when a bank is close to this restriction, a negative shock in Tier I own funds will have a higher impact on the capital ratio, as the value of eligible Tier II own funds will also decrease. In addition, a bank with a low ratio of Tier I own funds to total own funds will have higher capital adjustment costs, as in this situation increasing own funds will imply increasing Tier I own funds and this type of operation is lengthier and more expensive than increasing Tier II own funds.

A higher weight of wholesale market debt[12] in total liabilities is expected to positively influence excess capital as, on the one hand, banks should hedge for the increased exposure to liquidity risk and to changes in market sentiment and, on the other hand, banks with higher wholesale market debt should target higher credit ratings.

Table 1 presents some descriptive statistics of the variables considered in the analysis. With regard to the distribution of the capital buffer in the sample, it should be noted that its value for the largest banks (4th quartile of assets) is slightly above a third of the value observed for the smallest banks (1st quartile of assets).

As seen in Chart 1, the in-sample aggregate capital buffer tends to be lower than the banking system's total. This difference is due to the fact that the banks that were eliminated from the sample – newly created banks with very specific activities – tend to have particularly high capital reserves.

From the beginning of the sample period to the end of the 1990s, aggregate excess capital declined sizably as the economy recovered progressively from the 1993 recession. Subsequently, in the second half of the 1990s, the marked rise in private sector indebtedness, largely due to the reduction in the level and volatility of interest rates associated with the catching-up process with a view to participation

Table 1

DESCRIPTIVE STATISTICS

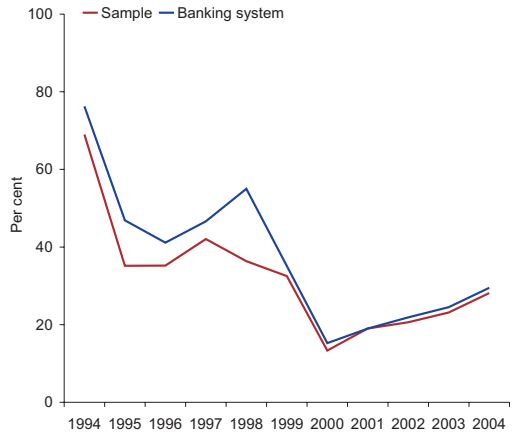
Variable	No. Obs.	Mean	Std. Dev.	Min.	Max.
Capital Buffer	152	46.297	37.591	1.180	208.430
Provisions/Non-performing loans	148	65.626	15.407	0.000	100.000
Default Ratio	152	1.046	0.942	0.000	7.076
Credit Growth	135	19.313	28.757	-51.660	148.769
Stock holdings/Total Assets	152	2.902	2.526	0.009	12.153
Market debt/Total liabilities	152	42.554	24.492	11.006	100.000
ROA	162	0.873	1.437	-0.080	10.970
Var (ROA)	111	0.212	0.721	0.000	4.421
ROE	152	9.186	6.490	-4.154	32.791
Tier I own funds/Total own funds	152	74.982	13.722	50.000	100.000
Logarithm of assets	152	15.425	1.598	11.561	18.122
Output Gap/Potential output	187	-0.222	1.094	-1.776	1.466
Stock prices growth	187	11.627	23.895	-20.700	65.200

Source: Banco de Portugal.
Notes: Data used for the ROA variable covers the period 1993-2004. For the remaining variables the first year considered is 1994. All ratios and growth rates are defined in percentage.

(12) The wholesale market debt is defined as total liabilities excluding costumer deposits.

Chart 1

EVOLUTION OF THE PORTUGUESE BANKS' CAPITAL BUFFERS



Source: Banco de Portugal.

in the euro area, seems to have led to an additional squeeze of excess capital in the banking system as a whole. Since 2000, following an approximation of capital ratios to the regulatory minimum level and the slowdown in economic activity, the aggregate capital buffer underwent a progressive recovery.

4. RESULTS

Table 2 presents the results of the estimation of the models through the application of the Blundell-Bond two-step estimator, applying to the covariance matrix the small sample correction developed in Windmeijer (2005).

The results obtained for Hansen's J-test do not allow for the rejection of the null hypothesis of the validity of the instruments used in any of the specifications presented. AR(1) and AR(2) are the application of the autocorrelation tests developed in Arellano and Bond (1991) to check for first and second order autocorrelation in the residuals of the differenced equations. The fact that there is evidence of first but not of second order autocorrelation implies that the model is well specified in levels, as expected. Finally, the F-test for the null hypothesis that all coefficients equal zero is safely rejected in both models.

Since the coefficients in credit growth and in the default ratio[13] were not found to be statistically different from zero, these variables were eliminated from the model and the analysis is focused on the reduced model (1.A).[14]

Obtained results confirm the persistence of excess capital in Portuguese banks, since the coefficient associated with the lagged dependent variable is statistically significant and positive, thus presenting evidence in favour of the adjustment cost hypothesis. The fact that the coefficient associated with the measure of provisions is negative suggests that, as expected, this variable behaves as a substitute for excess capital. Banks with a higher weight of stocks in their total assets, all other things being equal,

(13) The absence of effect of the default ratio measure on excess capital may suggest that this variable does not fully eliminate the ex-post nature of the stock of non-performing loans.

(14) Even though the coefficient on the lagged dependent variable is not significant when credit growth in controlled for, it is relevant in the models that do not include the credit growth variable. In turn, this variable was not found to be significant in models that do not include the lagged dependent variable.

Table 2

DEPENDENT VARIABLE: CAPITAL BUFFER				
Variable	**Model (1)**	**Model (1.A)**	**Model (2)**	**Model (3)**
Capital Buffer$_{i,t-1}$	0.294	0.450	0.508	0.588
	0.274	*0.250*	*0.177*	*0.309*
Provisions/Non-performing loans$_{i,t}$	-1.019	-0.847	-0.107	-1.068
	0.546	*0.382*	*0.266*	*0.391*
Default ratio$_{i,t}$	-12.636			
	8.745			
Credit Growth$_{i,t}$	0.255			
	0.323			
Stock holdings/Total Assets$_{i,t}$	12.261	18.415	11.133	16.151
	5.483	*5.613*	*1.788*	*5.678*
Logarithm of assets$_{i,t}$	-19.391	-19.573	-16.212	-15.243
	9.545	*5.531*	*5.094*	*5.015*
Output Gap/Potential output$_t$	-6.427	-7.117	-5.478	
	2.522	*2.434*	*1.662*	
Merger,t	-9.927	-1.801	-15.936	-0.726
	9.118	*13.508*	*12.871*	*11.346*
Constant	372.899	330.307	262.308	276.552
	183.809	*89.012*	*86.858*	*94.585*
ROA$_{i,t}$			-16.060	
			5.003	
Var (ROA)$_{i,t}$			17.817	
			7.595	
Stock prices growth$_{i,t}$				0.289
				0.119
Hansen	0.758	0.749	0.818	0.748
AR (1)	0.047	0.049	0.034	0.048
AR (2)	0.909	0.367	0.393	0.522
F	0.000	0.000	0.000	0.002

Source: Authors' calculations.
Note: Standard errors are reported in italic. For the Hansen, AR(1), AR(2) and F tests, p-values are reported.

hold higher capital buffers, suggesting that banks with higher exposure to market risk choose to hold larger capital reserves in order to cover for the additional risk. As expected, a negative and statistically significant effect of the size variable can be found. The coefficient concerning the dummy variable that identifies mergers and acquisitions, albeit with a negative sign, is not statistically significant in any of the econometric specifications.

Finally, as documented in the literature, a negative impact of the output gap on excess capital is found, not only suggesting that banks tend to cover the higher risks that arise in cycle downturns with higher capital reserves, but also that their lending behaviour may be pro-cyclical, in that it will tend to amplify economic cycles.

The results obtained in Model (2) are consistent with the hypothesis that banks with higher and less volatile profit tend to hold lower capital reserves.[15] This is an intuitive result, as profit is the first line of defence against unexpected losses. Moreover, the variability of profits is a broad risk measure.

Given that stock market performance is strongly correlated with the business cycles, tests for the relevance of the growth of stock prices were conducted on a specification which does not include the output gap. The results of model (3) point to the existence of a positive effect of stock market performance on excess capital, suggesting that banks tend to issue new capital in times of more positive stock market performance, or the hypothesis that, during these periods, eligible capital for regulatory purposes is positively affected by an increase in earnings obtained from share portfolios and revenue from services associated with capital markets. These conclusions should, however, be interpreted with care, as obtained results may be spurious if changes in the growth rate of the stock prices do not cause changes in excess capital but, on the other hand, changes in the output gap cause changes both in excess capital and in stock market performance.[16] If the relationship between the performance of the stock market index and the dependent variable is linked to the impact on the profit of banking institutions of the gains and losses from their share portfolio, one would expect the effect to be stronger in banks in which the share portfolio has a stronger weight in total assets. This hypothesis has been tested through the estimation of a more flexible version of model (3), generalised through the inclusion of an interaction between the variable that measures the performance of the stock market index and the one that mirrors the weight of the share portfolio of banks in their total assets. The results of this regression (not disclosed in this article, but available upon request) do not allow for the statistical rejection of the irrelevance of this hypothesis.

One of the other hypotheses for which no statistically relevant evidence was found (and whose results are not presented) is the effect of ROE, which was introduced as a measure of the cost of capital. However, it should be noted that, as this variable was built using accounting data, it may be a poor proxy for banks' true economic cost of capital. Likewise, no conclusive results have been obtained for the hypotheses that banks with a lower ratio of Tier I own funds to total own funds and with a higher weight of wholesale market debt in total debt hold higher capital reserves. In addition, it was also tested without conclusive results for the hypothesis that the effect of the wholesale market debt on excess capital changes according to the size of the institution. Finally, the possible differences in the behaviour of domestic and foreign-owned banks were also investigated, through the inclusion of a dummy variable. However, this feature has not shown to be relevant.

(15) The F-test for the null hypothesis that both the coefficient associated with the profitability measure and that corresponding to the profit volatility measure equal zero allows for the rejection of the null hypothesis for a significance level of 5 per cent in the model.

(16) In fact, through an auxiliary regression of the growth of the PSI Geral index in a constant and in the lagged output gap, it can be seen that the coefficient associated with this variable is statistically significant; the same does not hold true when the impact of the stock market index growth on the output gap in the following period is estimated. These results suggest that the cyclical fluctuations tend to anticipate developments in the stock markets and not the opposite.

Given the small sample size, it is reassuring to see that both the sign and the significance of most of the estimated coefficients remain stable across a wide range of alternative specifications.[17]

5. CONCLUSIONS

The main purpose of this study was to investigate which factors determine Portuguese banks' capital buffers, through the estimation of a dynamic panel data model.

Observed persistence in banks' excess capital suggests that there are relevant adjustment costs in this variable. On the other hand, high and stable profits, as well as the existence of more conservative provisioning policies, were found to be imperfect substitutes for stricter objectives regarding banks' capital reserves.

Most of the previous empirical literature documented a negative and somewhat counter-intuitive relationship between credit risk measures and excess capital. In the analysis conducted in this study, for the sample of Portuguese banks used and during the period under review, it is not possible to identify any effect of the credit risk measure used. Conversely, banks' exposure to stock market risk was identified as relevant in the definition of the optimum capital level of banks, a higher exposure to the stock market being associated with a correspondingly higher capital buffer. Taking into account that profitability variability is a risk measure in the broad sense, the positive relationship found between this variable and excess capital is also in line with the idea that capital has an insurance function against default. Thus, banks with higher risk tend to hold higher capital reserves.

The hypothesis that larger banks hold less excess capital was confirmed, as was a negative business cycle effect, which means that the optimal choice of capital by banks contributes to amplify the pro-cyclicality of their credit policy. Results are also consistent with the existence of a positive relationship between excess capital and the performance of stock markets.

These findings allow for a better understanding of the factors underlying changes in capital reserves of Portuguese banks and provide a better basis for the discussion about regulatory changes in this field. In particular, obtained results confirm the idea that banks adjust their capital reserves in response to changes in the risks they face, i.e. both those directly resulting from changes in the macroeconomic environment throughout the cycle, and those resulting from banks' own decisions. However, it should be noted that with the analysis undertaken, it is not possible to identify the effects of the regulator's explicit and implicit intervention to lead institutions to adopt corrective measures of a prudential nature. Finally, the interpretation of the results obtained, namely in what concerns conclusions regarding the future, should be particularly cautious, as banks are expected to change their behaviour under the new regulatory framework of Basel II.

(17) In fact, estimation by generalised least squares assuming random effects – the methodology used in Lindquist (2003) – provided the same qualitative results.

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AN ASSESSMENT OF COMPETITION IN THE PORTUGUESE BANKING SYSTEM IN THE 1991-2004 PERIOD*

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1. INTRODUCTION

In the course of the 1980s and of the 1990s the Portuguese banking system went through major changes which had an important impact on the degree of competition faced by financial institutions. The first steps towards the sector's liberalisation were taken in the mid-1980s, stress being laid on the opening of markets to private initiative, in the context of a banking sector dominated by public institutions. Still, up to the early 1990s, banks were tightly regulated as regards key aspects of their activity. In fact, the autonomy to define prices and quantities in deposit and loan markets was low, at the same time as the banks' entry (domestic or foreign) into the market and the expansion of the branch network of banks already operating were subject to the discretionary authorisation of authorities.[1] In this setting, the low degree of competition seen during the early 1980s seems to have originated in the very strong administrative restrictions to market functioning rather than in the behaviour of banking institutions. Hence, the carrying out of banking business in a full market environment was only possible as of the early 1990s, with the liberalisation of interest rates applicable to most banking transactions, in parallel with the removal of quantitative credit ceilings. Thus, this paper analyses competitive conditions in the Portuguese banking system in the post-1990 period, including the identification of time series patterns, as well as research on possible behavioural changes associated with participation in the euro area.

Throughout the period under analysis, in addition to increased concentration in the domestic banking system, one should point out the relevance of the privatisation process and of the increased weight of foreign banks, in the wake of the sector's liberalisation. In fact, from 1991 to 1996, the number of public banks operating in Portugal declined from ten to only one. As a consequence, the market share of public banks, measured in terms of total assets, declined in the same period, from close to 60 per cent to around 20 per cent. On the other hand, both the number and the market share of foreign banks increased considerably from 1991 to 2004, the latter having grown from 5 to 20 per cent. In effect, the rise in the market share of foreign banks was greater than the increase in their number, reflecting the acquisition of a major national bank by a foreign institution in 2000. In fact, similarly to most European countries, the organic growth of foreign banks in the Portuguese retail market was not particularly successful in the retail business.

Chart 1 shows the evolution of concentration in the Portuguese banking system, according to 3 and 5-bank concentration indices (C3 and C5 respectively, on the left-hand scale) and to the Herfindahl-Hirschman index (HHI, on the right-hand scale), derived from banks' total assets.[2] These

* The views expressed in this article are those of the authors and do not necessarily reflect those of the Banco de Portugal.

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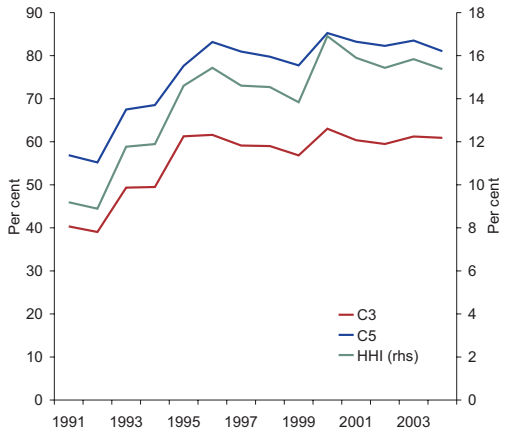
(1) See Ribeiro (2007) for a brief overview of the Portuguese financial system's liberalisation process.

(2) For the k largest banks of a market with n banks, $C_k = \sum_{i=1}^{k} s_i$ and $HHI = \sum_{i=1}^{n} s_i^2$, where S_i is the market share of bank i. The unit of observation considered is the banking group. For more details on this point, refer to Section 3.

three indicators show that concentration has increased throughout the period under analysis, as the deregulation period was followed by a consolidation trend across the market. A more careful analysis of Chart 1 shows that between 1991 and 2004 there were two distinct consolidation waves. Up to 1996, following the privatisation programme, concentration increased almost linearly. Afterwards it stabilised until 2000, when there were deep changes in the shareholding structure of some of the major banking groups.

Chart 1

CONCENTRATION IN THE PORTUGUESE BANKING SYSTEM



Source: Authors' calculations.

According to the traditional paradigm establishing a direct relationship between structure, conduct and performance developed in Bain (1951), an increase in concentration is linked to a decrease in competition. However, this result contradicts common wisdom and anecdotal evidence according to which the Portuguese banking system seems to have been characterised by increased competition in this period. This performance – increased competition in a period of increased concentration – is consistent with both Baumol's theory of contestable markets Baumol (1982) and the assumption that concentration may be driven by growth in more efficient institutions (Demestz 1974), and motivates the use of the non-structural test described below.

The approach taken to assess the banking system's degree of competition consists in specifying tests based on reduced-form revenue equations, as originally suggested in Panzar and Rosse (1987). Hence, revenue is explained by a vector of input prices and the sum of the corresponding elasticities is the so-called *H*-statistic, which makes it possible to infer the degree of competition. However, the use of this statistic is not immune to criticism, namely as regards assumptions underlying its use as a measure of competition in banking markets. Therefore, the Panzar-Rosse methodology is a non-structural approach, as opposed to estimable specifications rooted on static oligopoly models, which establish testable relationships between market structure, direct measures of strategic behaviour and competition. Further, this methodology relies on the crucial hypothesis that banks are essentially producers of a single product in the credit market, while all funding sources, including deposits, are considered inputs. Another controversial issue across most empirical studies of this type is the definition of the most appropriate variable to represent banking revenue: interest income or total income, used in levels or scaled by total assets. These issues as well as the possible ways of overcoming them in the empirical specification are discussed in detail in this paper. Special attention is paid to the definition of the inter-

est revenue variable, in order to restrict the analysis to the domestic loan market, which is the bank asset component most likely to exhibit market power. Similarly, the definition of the cost of funding variable takes due care of the differences in the profile of services provided by banks, namely as regards payment and liquidity services. The aim of this procedure was to control for systematic differences in the importance for each bank of the segments of funding markets where market power is more prone to emerge. The banks' funding cost measure is also adjusted to account for the presence of a given institution in the interbank market both as creditor and debtor.

Despite the shortcomings, the simplicity of this methodology helps to explain its frequent use in studies on competition in banking markets. One of the main advantages lies in the fact that to implement this methodology it is not necessary to gather price and quantity data on services provided by banks. This information, needed to estimate structural equations of banks' behaviour, is often not available, and therefore most services are not easy to quantify. Another appealing property of this methodology is the fact that it allows for the inference of the interaction between input price shocks and the revenue function, without requiring the estimation of output demand or cost functions. In addition, there is no need for an a priori definition of the relevant market in a geographic sense, as the input price to revenue relationship captures possible local market product differentiation on average, in the aggregate.

According to the main results obtained, the Portuguese banking sector, and particularly the credit market, experienced weak competition between 1991 and 1996, underwent a period of restructuring until 2000, and from then until 2004 behaved consistently with a high degree of competition. Results further suggest that on occasions both private and domestic banks have competed more aggressively than the banking system as a whole, and no relationship between competitive behaviour and bank size was identified.

The next section briefly summarises the results obtained in empirical applications of the Panzar and Rosse approach to the Portuguese banking market. Section 3 presents the data and the methodology employed. Section 4 discusses the results obtained and Section 5 draws the main conclusions of the analysis.

2. PREVIOUS EMPIRICAL FINDINGS

Most studies applying the Panzar and Rosse methodology reject both the hypothesis of monopoly (or perfect cartel) behaviour and that of perfect competition. In a cross-country analysis for the EU-15 for the period between 1997 and 2003, Casu and Girardone (2006) find a value for the *H*-statistic between zero and one, thus rejecting both monopoly and perfect competition at EU-15 level, as well as for most countries individually, including Portugal. The article by Koutsomanoli-Fillipaki and Staikouras (2004) also rejects both monopoly and perfect competition, for the period ranging from 1998 to 2002. However, in this study, rather than being estimated individually for Portugal, the *H*-statistic is estimated for the EU-15 as a whole. Bikker *et al.* (2006) estimate competitive conditions for 101 countries between 1986 and 2005. Since this study intends to make a methodological point, several different specifications are estimated, and the results obtained for Portugal range from monopoly, in their preferred specifications, to perfect competition in the models they consider misspecified. In general, obtained results for Portugal are similar to those estimated for other countries. For a more complete summary of results obtained in recent applications of the Panzar and Rosse methodology, refer to Table 1 in Casu and Girardone (2006) or to Table 1 in Bikker *et al*. (2006).

3. DATA AND METHODOLOGY

The dataset used in this study was obtained from banks' financial statements reported to the Banco de Portugal. The database comprises an unbalanced panel of yearly data for all active banks operating in Portugal from 1991 to 2004. Since detailed consolidated accounting data are available only for the most recent period, data on an individual basis were used instead. However, since interest lies in comparing the behaviour of different economic units rather than legal entities, data for banks belonging to the same economic group were aggregated, and thus the observation unit is the group rather than the bank. Mergers in the database obviously pose a number of difficulties, and there is no way to address this issue that is free from criticism. In this analysis, the choice fell on independently considering the two groups until their merger. Thereafter, only one of the two survives, and a dummy variable was included to control for potential behavioural changes arising from the merger. All money variables used were assessed at constant 1991 prices, and deflated using the GDP deflator.

All banks operating in Portugal are required to report financial statements to the Banco de Portugal. However, there are a large number of small banks that mostly operate in investment banking and are thus likely to behave differently from most commercial or universal banks. Hence, in order to obtain a sample of reasonably homogenous banks, observations for institutions with less than 15 branches or 15 employees were eliminated. Banks that do not take any deposits from customers were also eliminated, and it was checked that positive values for total assets and equity were reported for all observations. The first two years of activity of each bank were also eliminated, as it seems reasonable to assume that during the early years banks may behave somewhat atypically. At the end of this process, the sample included a total of 197 observations corresponding to 25 banking groups. For each year, the final sample includes no less than 92% of loans granted to customers, 94% of customer deposits held and 92% of total assets of the Portuguese banking system.

The definition of banks' outputs and inputs is by no means simple. On the one hand, the "production approach" to bank modelling regards banks as firms producing services which are related to loans and deposit accounts, thus measuring output by the number of deposit accounts serviced and the number of loans originated, and input by labour and physical capital. On the other hand, according to the "intermediation approach" (Sealey and Lindley (1977)), banks' main activity is granting loans and investing in securities and other assets using funds obtained through deposits, wholesale market debt and equity.[3] Hence, while both approaches agree in classifying labour and physical capital as inputs, they present a conflicting view as to whether deposits should be classified as an output or as an input. Since economic theory does not give clear guidance as to which alternative best describes the behaviour of banks, it is somewhat reassuring to note that estimated cost functions appear relatively insensitive to the approach followed (Humphrey 1990). In turn, there is empirical evidence suggesting that deposits overall behave primarily as inputs (see for example Gilligan and Smirlock (1984), Hughes and Mester (1993), Shaffer (1994) and Hughes, Mester and Moon (2000)). These results, joined with the fact that there are no available data on the number of deposits collected and of loans granted by each bank, sustain this paper's choice of the intermediation approach, which is crucial for the application of the Panzar and Rosse methodology. Hence, banks are modelled as firms that use labour, physical capital and funds in order to produce loans.

There has been considerable debate in the literature as to whether the dependent variable to be used in the estimation of equations to conduct the Panzar and Rosse test should consider total or interest

(3) See Freixas and Rochet (1998), p. 77-79 for details on the production and intermediation approach.

revenue. On the one hand, the fact that the methodology itself considers a priori loans as banks' main output suggests that interest revenue should be used. On the other hand, the increase in the relative importance of commissions and fees in banks' total revenue should not be neglected. Hence, use was made of the stricter definition of revenue, while including the ratio of other income to interest income as a regressor. Thus, a general model is obtained, encompassing both the specification where the dependent variable is interest income (if the coefficient on this regressor equals zero) and the specification where the dependent variable is total income (if the same coefficient equals minus one).[4]

A third matter of discussion is whether banks' size should be controlled for. Since it seems overly simplistic to assume banks' size is uncorrelated with input prices, the exclusion of a scaling variable is likely to bias the estimates for the elasticities of factor prices, thus introducing a negative bias should there be increasing returns to scale, and a positive bias in the presence of decreasing returns to scale. However, Bikker et al. (2006) point out that the use of a scaling variable through the inclusion of total assets (either as an independent variable or by defining the dependent variable as the ratio of revenue to total assets) effectively turns the revenue equation into another equality, which is quite similar to a price equation. The point is that the sum of output price elasticities with respect to input prices is positive by definition and uninformative on the degree of competition. Hence, including a scaling factor in the estimated equation could introduce a positive bias in the estimate for the *H*-statistic. The possible presence of "errors-in-variables" due to the approximation of input prices, however, may bias the estimated coefficients downwards, regardless of a scaling factor being used or not.

In the event that banks operating in Portugal in the period under analysis have behaved consistently with long-run equilibrium under perfect competition, the *H*-statistic should equal one. This is due to the fact that, in a situation where banks have zero economic profit and face an infinitely elastic demand, revenue will necessarily have to follow input price developments so as to guarantee the survival of banks, with free entry determining zero economic profit. In cases of monopoly, perfect cartel or short-run monopolistic competition equilibrium, the statistic of interest should be negative. With regard to monopoly, this result is rather intuitive, since monopolists always operate in the elastic zone of the demand curve. Therefore, an input price increase, which will lead to an output price increase, will cause a reduction in revenue. Finally, in the case of a long-run monopolistic competition model with free entry of firms into the market, the *H*-statistic is increasing in the perceived demand elasticity converging to 1 as it approaches infinity, thus replicating the result for perfect competition.[5]

The revenue equation was estimated based on the following baseline specification:[6]

[1] $$\ln (\textit{Interest Revenue})_{it} = h_1 \ln w_{L_{it}} + h_2 \ln w_{K_{it}} + h_3 \ln w_{F_{it}} + X'_{it}\beta + \delta + \eta_i + \varepsilon_{it}$$

where Panzar and Rosse's *H*-statistic is obtained by $\sum_{k=1}^{3} h_k$, X_{it} is a set of control variables, δ is a constant term, η_i is an unobservable variable that captures idiosyncratic features of each institution that are constant over time (although they may be correlated with some explanatory variables) and ε_{it} is a random shock.

The average price of labour –w_L– is proxied by the ratio of labour costs to the number of employees, whereas the ratio of (tangible and intangible) capital expenditure to (tangible and intangible) fixed as-

(4) This result holds since $\ln RT = \ln(RJ + OR) \approx \ln RJ + (OR / RJ)$, where *TR* stands for total revenue, *IF* for interest revenue and OR for revenue obtained through other activities. This approach is used in Bikker *et al.* (2006).

(5) These results are formally derived in Boucinha and Ribeiro (2008).

(6) The use of the loglinear form is widespread among studies applying the Panzar and Rosse methodology, as it typically improves the regression's goodness of fit and may reduce a possible simultaneity bias (De Bandt and Davies 2000). Furthermore, Molyneux *et al.* (1996) found that a loglinear revenue equation yielded similar results as a more flexible translog equation.

sets –w_K– proxies the cost of physical capital, and the ratio of interest paid to interest bearing debt –w_F – measures banks' average funding cost.

The dependent variable used in the baseline specification is the natural logarithm of interest revenue obtained from loans granted to domestic customers. The option to focus the analysis only on the portion of interest revenue earned on loans rather than including all interest income is explained by the fact that banks are known to have little market power on the remaining interest earning business, such as interbank and securities activities. As such, interest lies in testing how competitive banks are in customer lending. This is a novelty feature of this study worth emphasising, as to our knowledge all previous studies apply this methodology to all interest revenues.

As to what concerns the control variables included in X_{it}, the ratio of demand deposits to total deposits and that of market liabilities to total liabilities are included to account for banks' funding mix, whereas the ratio of short-term loans to total loans and of interbank assets to customer loans, on the other hand, intend to capture the asset structure. The increasing importance of banks' off-balance-sheet activity is controlled for by the inclusion of the ratio of off-balance-sheet activity to total assets. The ratio of assets to branches intends to capture different branching strategies, measuring systematic differences in banks' branch density.

The share of customer loans that have defaulted during each year is a credit risk measure that attempts to capture the flow rather than the stock of non-performing loans, thus decreasing the *ex-post* character of this variable. In turn, the ratio of equity to assets should proxy banks' risk aversion once credit risk is controlled for.

The ratio of other revenue (composed of net commission and fee income) to interest revenue, as discussed above, intends to capture the increasing role of non-interest revenue in banks' income. The inclusion of asset quartile dummies in the equation is a compromise solution that intends to address the misspecification described in Bikker *et al.* (2006), while at the same time controlling at least partially for the correlation between banks' size and input prices.[7] Finally, dummy variables identifying when a merger has occurred, or if a bank is foreign or public are also included.[8]

Descriptive statistics of the included variables are presented in Table 1 below.

Equation [1] was first estimated for the whole sample, including domestic and foreign as well as private and State-owned banks for the period ranging from 1991 to 2004. However, as discussed in Section 1, this time period is by no means homogenous, since during the early to mid-1990s the Portuguese banking system underwent a phase of privatisations, consolidation and liberalisation, while preparing for euro area participation. Hence, in order to account for this fact, a sequential test was performed for differences in the *H*-statistic through time, by first estimating equation [1] using data for the first four years in the sample and checking whether the estimate for the fourth year is statistically different from that obtained for the period comprising the first three years. If so, a new period starting on the fourth year would be created; if not, 1994 would be pooled with 1991-1993. This process was repeated until 2004, restricting each period to comprise at least three years of data.[9]

In order to test for differences in the competitive behaviour of different types of banks, equations considering only domestic banks and only private banks were estimated. Even though it would be more informative to allow the estimate of the degree of competition to vary across types of banks, this option is

(7) In the sample used, the simple correlation coefficient between the logarithm of assets and the price of labour, capital and funds is 0.36, -0.07 and -0.23 respectively.

(8) Only domestic public banks are classified as public, since public banks operating abroad are likely to exhibit a different behaviour than that of local public banks. Tables A1 and A2 in the Appendix display which banks are classified as public and as foreign, respectively, for each year.

(9) One reason to maintain this restriction is connected to the small size of the available sample. Furthermore, De Bandt e Davies (2000) advocate the importance of the time series component as they find variable results for cross-section equations even with information for a larger number of banks.

Table 1

DESCRIPTIVE STATISTICS

Variable	No. Obs.	Mean	Std. Dev.	Min.	Max.
Interest Revenue	197	307.6	340.0	2.5	1445.6
Total Revenue	197	348.7	385.0	2.5	1702.3
Interest Revenue/Assets	197	4.2	2.0	0.4	10.6
Total Revenue/Assets	197	4.7	2.0	0.8	10.9
w_L (thousands of euros)	197	21.2	3.9	7.4	31.9
w_K	197	13.3	5.6	4.0	41.9
w_F	197	6.9	4.5	1.1	27.6
Demand Deposits/Total Deposits	197	35.6	9.5	18.7	65.2
Market Liabilities/Total Liabilities	197	44.1	14.6	13.4	88.7
Short Term Loans/Total Loans	197	46.7	20.8	9.3	93.8
Interbank Assets/Customer Loans	197	45.2	36.5	0.3	169.7
Off Balance Sheet Activity/Assets	197	190.1	2365.9	3.4	33228.2
Assets/Branches	197	27.3	10.9	4.4	58.7
Default Ratio	197	1.5	1.3	0.0	7.6
Equity/Assets	197	6.9	2.7	1.5	29.8
Other Revenue/Total Revenue	197	14.6	12.8	1.0	105.6
ROA	197	4.9	5.7	-47.4	25.8
Assets	197	9295.6	11447.3	70.5	45172.8

Source: Banco de Portugal.
Note: Money variables are valued in 1991 euro million (unless otherwise stated) and ratios are defined in percentage form.

not feasible due to the small number of public and foreign banks in the sample. Hence, although the statistical significance of differences in competitive behaviour across types of banks may not be tested in the approach taken, it nevertheless provides a number of hints in that respect.

As several authors have pointed out – *inter alia* Bikker and Haaf (2002) and Hempel (2002) – small banks may have more market power in local markets, whereas larger banks are generally believed to be more active in markets where they face greater competition. However, this argument may not be relevant for the Portuguese banking industry, considering that the smaller size of the national market leaves less room for the existence of independent local markets and most regions tend to be served by at least one large bank. Nevertheless, the only truly effective way of addressing the misspecification pointed out in Bikker *et al.* (2006) while avoiding the introduction of other sources of bias in the analysis is to assess the competitive behaviour of similarly sized banks, thus avoiding the need to use a scaling variable. Hence, a similar estimation procedure to that in equation [1] is applied to small and large banks separately, where small and large is defined according to whether a bank's total assets are above or below average total assets for each year.[10]

The interpretation of the *H*-statistic depends on whether or not the banking system is in a state of long-run equilibrium. In fact, while the result that the sum of factor price elasticities of a monopolist's revenue must be non-positive holds even in the short run, the validity of the rejection of models of perfect and monopolistic competition depends on the assumption that the banking groups observed are in long-run equilibrium (Panzar and Rosse 1987). In order to investigate whether the system is in long-run equilibrium, as is common practice in several studies applying the Panzar and Rosse methodology,[11] one uses the fact that in equilibrium risk-adjusted rates of return should be equalised across banks. Thus, banks' return on assets (ROA) should be uncorrelated with input prices when the market is in equilibrium. A direct test of equilibrium consists in estimating the equation for revenue with ROA as the dependent variable and performing a test to the null hypothesis $H = 0$ (equilibrium) against $H < 0$ (disequilibrium), where *H* is the sum of factor price elasticities with respect to profitability measures.

(10) Table A3 in the appendix shows which banks are classified as large for each year. In order to test the robustness of estimates, use was also made of an alternative classification which does not allow a given banking group to shift from one class to another, unless the group has purchased/sold a sizeable bank.

(11) See for example Shaffer (1982) and Molyneux *et al.* (1994).

To test for the robustness of results, some alternative specifications were estimated, including the use of total rather than interest income as the dependent variable and using alternative scaling variables, such as the natural logarithm of total assets, scaling income by total assets and not controlling for size differences at all.

4. RESULTS

Table 2 presents estimation results for equation [1] for the Portuguese banking system in the 1991-2004 period, as well as for the auxiliary regression used to perform the long-run equilibrium test in this period. Estimates for elasticities of interest income with respect to each of the three inputs considered prove to be positive. The estimate for the *H*-statistic, lying at 0.691, changes only marginally when statistically non-significant variables are eliminated from the regression. The monopoly test performed is a one sided test for the null hypothesis $H \leq 0$ versus the alternative $H > 0$. The former is clearly rejected in favour of the latter, thus providing compelling evidence against the hypothesis that the Portuguese banking system has operated as a monopoly or a perfect cartel on average during the period under scrutiny. If, on the other hand, banks were under perfect competition, the *H*-statistic should equal one. A two-sided test to this hypothesis is thus performed and, as shown in Table 2, the p-value is close to 10%, so that it is not clear whether perfect competition should be rejected or not. Another relevant result reported in Table 2 is that the application of the long-term equilibrium test described in the previous section does not allow for the rejection of the null hypothesis, therefore providing no evidence to reject the assumption that the Portuguese banking industry was in long-run equilibrium during the relevant period. Hence, one may conclude that, on average, in the period rang-

Table 2

ESTIMATION RESULTS

Variable	**Model [1]**		**Equilibrium Test**	
	ln (IR)		**ROA**	
ln w_L	0.284	*0.155*	-0.692	*1.795*
ln w_K	0.230	*0.076*	-0.492	*0.818*
ln w_F	0.177	*0.105*	3.188	*1.911*
Demand Deposits/Total Deposits	-0.794	*0.709*	3.837	*6.506*
Market Liabilities/Total Liabilities	-0.631	*0.582*	-5.729	*6.097*
Short Term Loans/Total Loans	-1.025	*0.307*	6.617	*3.675*
Interbank Assets/Customer Loans	-0.460	*0.099*	-3.852	*1.199*
Off Balance Sheet Activity/Assets	0.004	*0.001*	-0.015	*0.014*
Assets/Branches[(a)]	0.022	*0.006*	0.147	*0.070*
Default Ratio	1.580	*2.328*	-193.520	*82.798*
Equity/Assets	-8.103	*2.616*	39.284	*14.485*
Other Revenue/Total Revenue	-1.730	*0.416*	8.455	*6.059*
Aqrt(25)	-1.352	*0.206*	-0.671	*1.797*
Aqrt(50)	-1.107	*0.186*	-0.935	*1.520*
Aqrt(75)	-0.271	*0.108*	-0.542	*0.966*
M	0.022	*0.064*	0.119	*0.683*
F	0.491	*0.172*	4.839	*2.482*
P	-0.821	*0.162*	-3.424	*1.841*
δ	14.218	*0.721*	9.812	*8.186*
H-Statistic	**0.691**	*0.184*		
p(*H* ≤ 0)	**0.00**			
p(*H* = 1)	**0.10**			
Equilibrium Test (p-value)			**0.41**	
R^2	0.63		0.00	
Obs.	197		197	
Banks	25		25	

Source: Authors' calculations.
Notes: Heteroskedasticity robust standard errors are presented in italic. (a) The coefficient on this variable and the corresponding standard error are multiplied by 1000.

ing from 1991 to 2004, the behaviour of Portuguese banks cannot be assessed as consistent with alternative forms of monopoly-like conduct (such as perfect cartel or monopolistic competition in a market without the threat of entry), and it is not clear whether it is consistent with perfectly competitive behaviour, or whether it is best described as stemming from a long-run monopolistic competition model with weak market power.

As regards control variables included in the specification, one concludes that the funding mix seems not to have been a relevant determinant of the interest income on granted loans, whereas the coefficient sign on the variable which measures the maturity structure of granted loans suggests that banks for which the weight of short-term loans is more important tend to earn less revenue, which is consistent with the fact that credit risk-adjusted spreads tend to be generally lower on short-term loans. The same reasoning accounts for the fact that banks with a higher ratio of interbank assets to customer loans tend to earn lower interest revenue from customer loans, whereas it seems natural that banks which are more active in the interbank and securities market *vis-à-vis* the customer loan market, for a given value of total assets, earn less revenue from the latter business. Banks with more off-balance-sheet activity seem to earn higher interest revenues, which may be explained by the possibility that this variable is capturing the effect that these banks tend to have a riskier profile.

Banks with relatively less – and possibly larger – branches tend to earn higher interest income, whereas the measures of credit risk and of risk aversion have the expected signs, even if the former is not statistically significant. The coefficient on the variable which controls for the ratio of other revenue to interest income on loans yields a negative sign. However, its value is different from minus one, which means that the estimated equation is not equivalent to one where the dependent variable is total, rather than interest revenue.[12] As expected, the estimated coefficients for the dummy variables identifying the quartile of the asset distribution to which each bank belongs indicate that, all else constant, smaller banks tend to earn less revenue. As to what concerns the remaining control variables, mergers do not seem to have a significant impact on interest revenue earned, whereas, ceteris paribus, foreign banks seem to earn more interest revenue, while the opposite result is found for public banks.

Table A.4 in the appendix illustrates, through a series of robustness tests, the impact on results of different choices regarding the dependent variable and the scaling variables used. The reduced sensitivity of results to different alternative specifications suggests that the conclusions of Table 2 are quite robust. Hence, although the authors are available to provide the results of other specification estimations, in order to provide a clear presentation of results, the analysis conducted in the remainder of this paper focuses only on the results of a specification similar to that in [1].

As briefly discussed in the introduction to this paper, the Portuguese banking system underwent significant changes during the sample period. Hence, in order to investigate whether the process of liberalisation and consolidation of the sector had a relevant impact on competitive conditions, the estimated *H*-statistic is allowed to vary over time without any particular functional form being imposed upon it, through the method described in the previous section. As a result, three periods were obtained: a first period of consolidation and adjustment to less restrictive regulations – 1991 to 1996; a second period of post-consolidation adjustment, which includes the beginning of euro area participation – 1997 to 2000; and a final post-liberalisation and post-consolidation period in which the Portuguese banking system is already relatively mature – 2001 to 2004.

The first line of Table 3 shows estimates of the *H*-statistic for Portuguese banks for each of the three periods, as well as for the total sample. During the first period, it is not possible to reject collusive behaviour, and perfect competition is clearly rejected. Furthermore, during this first period of intense con-

(12) See footnote 4.

Table 3

THE EVOLUTION OF THE H-STATISTIC FOR PORTUGUESE BANKS

	1991-1996			1997-2000			2001-2004			1991-2004		No. Obs.	No. Banks
All Banks	0.07	0.39	0.00	-0.50*	0.87	0.00	0.97	0.00	0.90	0.69	0.00	197	25
	0.20			0.00			0.00			0.10			
Domestic Banks	0.17	0.27	0.00	1.19	0.00	0.64	1.37	0.00	0.05	0.98	0.00	150	21
	0.01			0.64						0.92			
Private Banks	0.39	0.14	0.09	-0.13*	0.60	0.03	0.80	0.00	0.48	0.74	0.00	162	18
	0.26			0.08						0.30			

Source: Authors' calculations.
Notes: For each cell, the value in the centre is that of the H-statistic, whereas p-values for the tests H≤0 (left), H=1 (right) and Ht=Ht+1 (between periods) are presented below. ***, ** and * indicate evidence of disequilibrium at the 1%, 5% and 10% confidence level, respectively.

solidation and deregulation, there is no empirical evidence to reject the hypothesis that the Portuguese banking system was operating under long-run equilibrium. Hence, one concludes that the degree of competition was relatively low during this period. As to what concerns the behaviour of the banking system as a whole in the following period, even if conclusions for the hypothesis tests on the *H*-statistic are the same, there is evidence that the system was not operating under long-run equilibrium. Therefore, estimated coefficients constitute no evidence of collusive behaviour given that, while the rejection of monopoly remains valid in this context, the non-rejection of $H \leq 0$ no longer implies that the industry has behaved jointly as a monopoly. In the most recent period, there is strong statistical evidence to reject perfect cartel, but perfect competition is not rejected. In addition, the point estimate for the *H*-statistic in this period is close to one, and the difference between estimates obtained for the intermediate and the most recent period are, both in the magnitude and in the statistical significance, more striking than those found between the first and the second period.

Domestic banks seem to have behaved more competitively throughout the period under analysis. In fact, even if conclusions regarding the first period remain unchanged, between 1997 and 2000 the perfect competition hypothesis for domestic banks cannot be rejected. Results obtained for the most recent period are consistent with domestic banks behaving too aggressively. This might be rationalised under a more complex dynamic oligopoly model, where banks aggressively fight for increased market share in order to capitalise on it with high profits in the future.[13] Furthermore, there is no empirical evidence that domestic banks did not operate under long-run equilibrium between 1997 and 2000. Restricting the estimate for the *H*-statistic to be constant from 1991 to 2004, for domestic banks the obtained value is clearly higher than that estimated for the whole banking system, and there is no evidence to reject perfect competition in domestic banks throughout the whole period under analysis. However, the average value of the *H*-statistic estimated for the whole period under analysis masks important behavioural changes over time.

As regards the behaviour of private banks, for the 1991-2004 period the value obtained for the *H*-statistic is higher than that for the banking sector as a whole, and the perfect competition hypothesis is not rejected. Still, it is important that developments in this statistic are analysed over time. In fact, although the point estimate obtained for the 1991-1996 period is higher for private banks than for the total banking system, which suggests a more competitive behaviour by the former, the monopolistic behaviour hypothesis still cannot be excluded. As of 1997 the behaviour of private banks follows closely in line with that of the system as a whole. This is by no means a surprise, given that in this period the

(13) This sort of behaviour may stem from the presence of switching or search costs.

privatisation stage was already completed, with only one public banking group remaining in the whole system.

As to what concerns a comparison between the behaviour of differently sized banks, no robust difference was found. In fact, in addition to results not being robust to slight changes in the banks' classification, a formal test to the equality of estimates obtained for small and large banks does not identify statistically relevant differences. Hence, during the analysed period there is no evidence for a hypothesis that is widely stated and tested in empirical literature for other countries, which is that small banks may be able to exert higher market power due to a stronger presence in local markets where competition is less aggressive. This fact should be linked to the smaller size of the national market as compared to those for which the relevant result has been obtained, since in larger countries it is common to find banks which have a strong position in the region where they operate, despite having little weight in the national market as a whole. This result reduces the plausibility of the existence of fully segmented local markets in the Portuguese case.

5. CONCLUSIONS

The main conclusion to retain from this study is that on average, over the period from 1991 to 2004, Portuguese banks do not seem to have operated either under perfect competition or as a perfect cartel. During this period, both private and domestic banks seem to have competed more aggressively on average than the banking system as a whole, and perfect competition may not be rejected for these two types of banks.

An investigation of changes in competition throughout the period suggests that competition was relatively weak between 1991 and 1996, even though results indicate domestic and especially private banks exhibited a slightly sharper competitive behaviour. A period of adjustment to liberalisation, consolidation and openness of the sector followed between 1997 and 2000, although for domestic banking groups the hypothesis of behaviour consistent with perfectly competitive long-run equilibrium cannot be rejected. In the more recent period, ranging from 2001 to 2004, after the liberalisation and openness of the Portuguese banking sector, strong competition was observed, and it is even possible that domestic banks have competed more aggressively than expected in a framework described by a static model with no distortions. Thus, the outlook for participation in the euro area seems to have been one of the factors catalysing an increase in competition in the national banking system.

One should, nonetheless, bear in mind the limitations of the non-structural approach employed, particularly regarding the hypotheses implicitly imposed on the underlying bank behaviour model. Obtained results should therefore be compared with those to be derived in future research from alternative methods, in order to draw more general conclusions on the degree of competition in banking services markets in Portugal.

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APPENDIX

Table A 1

PUBLIC BANKING GROUPS

1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BCA BFB BFE BPA CGD CPP UBP	BCA BCM BFE BPA BPSM CGD CPP UBP	BCA BFE BPSM CGD	BCA BFE BPSM CGD	BCA BFE CGD	CGD	CGD	CGD	CGD	CGD	CGD	CGD	CGD	CGD
7/17	8/19	4/15	4/14	3/15	1/15	1/14	1/14	1/14	1/12	1/12	1/12	1/12	1/12

Source: Banco de Portugal
Notes: BPSM was not considered in 1991 due to the unavailability of profit and loss account data. All foreign banks are classified as private.

Table A 2

FOREIGN BANKING GROUPS

1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BARCLAYS BBVA CLP	BARCLAYS BBVA CLP	BARCLAYS BBVA CLP	BARCLAYS BBVA CLP	BARCLAYS BBVA CLP SANTANDER	BARCLAYS BBVA CLP SANTANDER	BARCLAYS BBVA CLP SANTANDER	BARCLAYS BBVA SANTANDER	BARCLAYS BBVA SANTANDER	BARCLAYS BBVA SANTANDER	BARCLAYS BBVA SANTANDER	BARCLAYS BBVA SANTANDER	BARCLAYS BBVA BNC SANTANDER	BARCLAYS BBVA BNC SANTANDER
3/17	3/19	3/15	3/14	4/15	4/15	4/14	3/14	3/14	3/12	3/12	3/12	4/12	4/12

Source: Banco de Portugal.

Table A 3

LARGE BANKING GROUPS

1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BCP BFE BPA BTA CGD GES	BCP BFE BPA BPI BPSM BTA CGD GES	BCP BFE BPA BTA CGD GES	BCP BPA BTA CGD GES	BCP BPSM CGD GES	BCP BPI BPSM CGD GES	BCP BPI BPSM CGD GES	BCP BPI BPSM CGD GES	BCP BPI BPSM CGD GES	BCP BPI CGD GES SANTANDER	BCP BPI CGD GES SANTANDER	BCP BPI CGD GES SANTANDER	BCP BPI CGD GES SANTANDER	BCP BPI CGD GES SANTANDER
6/17	8/19	6/15	5/14	4/15	5/15	5/14	5/14	5/14	5/12	5/12	5/12	5/12	5/12

Source: Banco de Portugal.
Notes: BPSM was not considered in 1991 due to the unavailability of profit and loss account data. Large banks are defined as those with total assets exceeding average total assets for each year. The remaining banks are classified as small.

Table A 4

ALTERNATIVE DEPENDENT AND SCALING VARIABLES

	Scaling variable					
Dependent variable	**ln (Assets)**		**Asset quartiles**		**None**	
Ln (*Interest Revenue*)	0.70		0.69		0.61	
	0.00	0.04	0.00	0.10	0.00	0.06
Ln (*Total Revenue*)	0.71		0.71		0.60	
	0.00	0.06	0.00	0.12	0.00	0.07
Ln (*Interest Revenue/Assets*)	_____		_____		0.71	
					0.00	0.06
Ln (*Total Revenue/Assets*)	_____		_____		0.71	
					0.00	0.07
Obs.	197					
Banks	25					

Source: Authors' calculations.
Notes: For each cell, the value in the centre is that of the H-statistic, whereas p-values for the test H≤0 (left) and H=1 (right) are presented below. ***, ** and * indicate evidence of disequilibrium at the 1%, 5% and 10% confidence level, respectively.

PART III – ANNEX

Table A.1

MAIN INDICATORS (to be continued)
Per cent; end-of-period figures

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Macroeconomic and financial indicators													
Real GDP (rate of change)													
US	2.5	3.7	4.5	4.2	4.4	3.7	0.8	1.6	2.5	3.6	3.1	2.9	2.2
Euro area	2.6	1.5	2.6	2.8	3.0	3.9	1.9	0.9	0.8	2.1	1.6	2.8	2.6
Portugal	2.3	3.6	4.2	4.7	3.9	3.9	2.0	0.8	-0.8	1.5	0.9	1.3	1.9
Fiscal balance (as a percentage of GDP)													
US	-3.1	-2.2	-0.8	0.4	0.9	1.6	-0.4	-3.8	-4.8	-4.4	-3.6	-2.6	-2.5
Euro area	-5.1	-4.3	-2.6	-2.3	-1.4	-1.0	-1.9	-2.6	-3.1	-2.9	-2.6	-1.4	-0.6
Portugal	-4.2	-3.8	-2.8	-2.4	-2.7	-2.9	-4.3	-2.9	-2.9	-3.4	-6.1	-3.9	-2.6
Current account balance (as a percentage of GDP)													
US	-1.5	-1.6	-1.7	-2.4	-3.2	-4.2	-3.8	-4.4	-4.8	-5.5	-6.1	-6.2	-5.3
Euro area	n.a.	n.a.	1.4	0.7	0.3	-0.7	0.1	0.7	0.5	1.1	0.2	-0.1	-0.2
Portugal	-2.8	-4.2	-5.9	-7.0	-8.5	-10.2	-9.9	-8.1	-6.1	-7.6	-9.5	-10.1	-9.9
Oil price (USD brent; y-o-y rate of change)	11.7	28.9	-29.4	-37.2	142.7	-6.7	-13.6	46.6	-1.2	34.0	44.4	5.5	56.1
Key interest rates - Monetary policy													
US	5.50	5.25	5.50	4.75	5.50	6.50	1.75	1.25	1.00	2.25	4.25	5.25	4.25
Euro area	n.a.	n.a.	n.a.	n.a.	4.00	5.75	4.25	3.75	3.00	3.00	3.25	4.50	4.00
3-month Euribor	n.a.	n.a.	n.a.	n.a.	3.3	4.9	3.3	2.9	2.1	2.2	2.5	3.7	4.7
Yields on (10-year) Government bonds													
US	5.6	6.4	5.7	4.7	6.4	5.1	5.0	3.8	4.3	4.2	4.4	4.7	4.0
Euro area	7.7	6.3	5.4	3.9	5.4	4.8	5.0	4.2	4.3	3.7	3.3	4.0	4.3
Stock markets (annual rate of change)													
S&P 500	34.1	20.3	31.0	26.7	19.5	-10.1	-13.0	-23.4	26.4	9.0	3.0	13.6	3.5
Dow Jones Euro Stoxx	8.7	21.2	37.0	29.8	39.5	-5.9	-19.7	-34.5	18.1	10.0	23.0	20.3	4.9
PSI Geral	-4.6	32.6	65.2	26.2	12.6	-8.2	-19.0	-20.7	17.4	18.0	17.2	33.3	18.3
PSI Financial Services	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-14.6	-24.8	4.0	12.0	24.4	34.8	4.9

Notes: y-o-y year-on-year; n.a. not available.

Table A.1

MAIN INDICATORS (continued)
Per cent; end-of-period figures

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Financial situation of the non-financial private sector													
Households													
Indebtedness													
As a percentage of GDP	27	32	37	45	54	60	64	68	73	78	83	88	91
As a percentage of disposable income	36	43	52	63	76	85	90	97	103	110	116	123	129
Total loans													
Annual rate of change	n.a.	25.3	25.4	29.4	27.0	19.4	12.6	11.2	10.6	9.8	10.3	9.8	9.0
Loans granted by resident financial institutions [a]													
Annual rate of change	n.a.	25.4	25.6	30.9	29.6	19.9	12.7	11.3	11.0	9.8	10.1	9.8	9.2
of which:													
Housing purposes	n.a.	25.9	27.3	34.6	30.0	20.2	14.9	16.0	11.8	10.5	11.1	9.9	8.5
Consumption and other purposes	n.a.	24.2	22.3	23.2	28.8	19.1	7.5	-0.1	8.7	7.4	6.8	9.4	11.7
Net lending (+) / borrowing (-) [b]													
As a percentage of GDP	5.3	3.4	1.9	1.4	0.9	1.2	2.7	3.0	3.1	2.8	3.2	1.8	1.3
As a percentage of disposable income	7.0	4.6	2.6	2.0	1.3	1.7	3.8	4.3	4.4	4.0	4.5	2.5	1.8
Current savings [b]													
As a percentage of GDP	9.9	8.8	7.8	7.4	6.9	7.3	7.8	7.5	7.5	6.9	6.6	6.0	5.5
As a percentage of disposable income	13.1	11.9	10.8	10.5	9.8	10.2	10.9	10.6	10.5	9.7	9.2	8.4	7.9
Investment in real assets [b]													
As a percentage of GDP	6.2	6.1	6.5	6.8	6.9	6.7	6.5	6.1	5.1	5.1	5.1	4.9	4.7
Change in financial assets													
As a percentage of GDP	n.a.	n.a.	n.a.	14.2	15.2	12.9	11.5	9.2	11.2	10.1	10.4	9.5	9.4
Idem, excluding extraordinary contributions to pension funds	n.a.	n.a.	n.a.	14.0	14.9	12.7	10.6	8.0	10.7	9.7	9.0	9.3	9.4
Change in financial liabilities													
As a percentage of GDP	n.a.	n.a.	n.a.	12.8	14.3	11.6	8.9	6.2	8.1	7.2	7.2	7.7	8.2

Notes: (a) Loans granted by monetary financial institutions and other financial intermediaries adjusted for securitisations conducted through non-resident special purpose vehicles. (b) Net lending / borrowing, savings and investment ratios to GDP up to 2005 use National Accounts base 2000; 2006 and 2007 ratios correspond to Banco de Portugal estimates. Investment comprises gross fixed capital formation and the net acquisition of land and intangibles.

Table A.1

MAIN INDICATORS (continued)
Per cent; end-of-period figures

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Non-financial corporations													
Total debt [c]													
As a percentage of GDP	n.a.	n.a.	63	73	80	89	95	95	100	99	104	107	114
Annual rate of change	n.a.	n.a.	n.a.	22.1	17.6	20.1	12.6	5.2	7.1	5.6	7.8	7.0	12.4
Financial debt [d]													
As a percentage of GDP	n.a.	n.a.	56	65	72	80	90	91	94	91	96	99	107
Loans granted by resident financial institutions [a]													
Annual rate of change	n.a.	n.a.	n.a.	n.a.	25.6	26.4	15.5	7.3	5.4	3.2	4.1	6.2	12.5
Net lending (+) / borrowing (-) [b]													
As a percentage of GDP	-1.1	-1.1	-2.9	-3.8	-5.3	-8.3	-7.2	-6.4	-4.7	-4.5	-5.9	-7.8	-8.8
Current savings [b]													
As a percentage of GDP	9.7	9.4	8.4	9.2	8.7	7.2	7.6	7.6	8.2	8.1	6.6	5.0	4.3
Investment in real assets													
As a percentage of GDP	12.0	11.9	13.4	15.2	16.0	16.6	15.9	14.9	13.8	13.6	13.7	13.0	14.2
Change in financial assets													
As a percentage of GDP	n.a.	n.a.	n.a.	13.5	11.7	16.0	13.3	-0.2	14.1	8.9	4.3	7.1	8.0
Change in financial liabilities													
As a percentage of GDP	n.a.	n.a.	n.a.	17.3	17.0	24.5	20.5	5.9	18.9	13.6	10.0	15.0	16.7

Notes: **(c)** It includes loans granted by resident and non-resident credit institutions, loans/additional capital by non-resident intra-group corporations (excluding those granted to non-financial corporations having their head-office in Madeira's off-shore), commercial paper and bonds issued by non-financial corporations held by other sectors and trade credits received from other sectors. **(d)** Total debt excluding trade credits and including loans granted to non-financial corporations having their head-office in Madeira 's off-shore. It corresponds to the financial accounts instruments "Securities other than shares" and "Loans".

Table A.1

MAIN INDICATORS (continued)
Per cent; end-of-period figures

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2004*	2005*	2006*	2006**	2007**
Profitability [e]															
ROE - Return on equity [f]	13.2	13.5	20.1	19.3	18.0	18.3	17.8	14.1	16.2	14.5	13.1	19.4	20.6	20.6	18.0
ROA - Return on assets [f]	0.82	0.81	1.18	1.16	1.12	1.11	1.01	0.78	0.91	0.87	0.65	1.03	1.30	1.25	1.13
Financial margin (as a percentage of average assets)	2.76	2.45	2.72	2.69	2.45	2.21	2.24	2.12	2.00	1.94	1.91	1.86	1.89	1.87	1.86
Income from services and commissions (net, as a percentage of average assets)	0.44	0.43	0.59	0.79	0.76	0.70	0.63	0.63	0.69	0.76	0.72	0.77	0.78	0.75	0.74
Cost to income ratio	64.5	66.1	60.9	54.1	63.1	58.2	57.6	59.1	57.4	57.2	71.7	58.3	53.4	53.5	53.2
Capital adequacy [e]															
Overall capital adequacy ratio	11.8	11.3	11.7	11.1	10.8	9.2	9.5	9.8	10.0	10.4	10.2	11.3	10.9	11.0	10.2
Market risk															
Net open position in equities to regulatory capital	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1.8	1.3	2.6	2.6	2.3
Coverage ratio of the pension funds of bank employees (as a percentage of regulatory capital)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-1.8	-0.8	0.1	-0.4	-0.4	1.2	5.3	5.1	4.9
Liquidity Risk [e]															
Credit-to-deposit ratio	62.5	65.4	72.5	90.9	104.7	116.0	122.7	129.5	129.1	128.3	130.9	137.5	145.6	146.7	154.9
Coverage ratio of interbank liabilities by highly liquid assets	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	85.6	80.0	100.7	99.5	110.0	98.5	99.2	87.6	77.1
Liquidity gap [g]															
Up to 3 months	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-2.2	-2.4	1.6	2.4	1.4	-0.9	-1.5	-0.6	-1.9
Up to 1 year	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-6.4	-7.2	-6.3	-3.6	-5.4	-8.2	-8.9	-7.1	-9.7
For domestic banks															
Credit-to-deposit ratio	n.a.	n.a.	n.a.	87.2	99.9	114.6	121.1	125.6	124.8	127.2	129.2	134.2	140.6	139.3	149.0
Coverage ratio of interbank liabilities by highly liquid assets	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	88.1	91.6	120.1	120.8	127.3	126.5	115.7	118.1	107.2
Liquidity gap [g]															
Up to 3 months	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-3.5	-3.4	0.5	0.7	0.6	-0.7	-0.9	-0.8	-2.1
Up to 1 year	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-7.8	-7.6	-6.5	-4.8	-5.4	-7.4	-8.9	-8.5	-9.9

Notes: * The break in the series resulting from the implementation of the International Accounting Standards (IAS), which also implied a redefinition of the group of banking institutions under analysis. ** Break in the series related to the widening of the group of institutions under analysis, due to the inclusion of institutions that only started preparing their financial statements according to the IAS in 2006. Breaks in the series do not apply to indicators based on Monetary and Financial Statistics, which consider resident banking institutions. (e) Indicators for the period comprised between 1995 and 1997 are estimates of Banco de Portugal for a smaller set of institutions than that considered between 1998 and 2004. (f) ROE and ROA indicators are based on Income before taxes and minority interests, considering average values for the period for the stocks variables. (g) 2005, 2006 and 2007 figures were reported according to the valuation criteria used in IAS.

Table A.1

MAIN INDICATORS (continued)
Per cent; end-of-period figures

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2004*	2005*	2006*	2006**	2007**
Credit risk															
Loans granted by resident financial institutions to the non-financial private sector [a]															
Annual rate of change	n.a.	16.0	23.1	26.6	27.7	23.0	14.1	9.3	8.3	6.6	6.6	7.4	8.2	8.2	10.7
Credit and interest overdue (on a consolidated basis)															
As a percentage of credit to customers	n.a.	n.a.	n.a.	n.a.	n.a.	2.2	2.2	2.3	2.4	2.0	1.8	1.7	1.5	1.5	1.5
As a percentage of assets	n.a.	n.a.	n.a.	n.a.	n.a.	1.4	1.4	1.6	1.6	1.3	1.3	1.1	1.0	1.0	1.0
Non-performing loans of households															
As a percentage of loans to households	n.a.	n.a.	3.2	2.5	2.1	1.8	2.0	2.1	2.4	2.2	2.2	2.0	1.7	1.7	1.7
Non-performing loans of non-financial corporations															
As a percentage of loans to non-financial corporations	n.a.	n.a.	6.4	4.7	3.2	2.5	2.4	2.4	2.1	1.7	1.7	1.7	1.5	1.5	1.5
Annual flow of new credit overdue and other credit considered to be doubtful [h]															
As a percentage of bank loans adjusted for securitisation transactions															
Households	n.a.	n.a.	n.a.	n.a.	0.22	0.27	0.43	0.38	0.58	0.21	0.21	0.22	0.36	0.36	0.44
Adjusted for sales outside the banking system												0.28	0.47	0.47	0.47
Non-financial corporations	n.a.	n.a.	n.a.	n.a.	-0.01	0.34	0.74	0.76	0.56	0.52	0.52	0.60	0.42	0.42	0.56
Adjusted for sales outside the banking system												0.62	0.47	0.47	0.61
International exposure (for domestic banks):															
Share of external assets in total assets [i]	n.a.	n.a.	n.a.	n.a.	23.1	21.7	19.8	18.1	21.6	20.5	30.3	27.6	29.0	31.7	26.0
of which:															
Local assets denominated in local currency	n.a.	n.a.	n.a.	n.a.	1.8	2.8	1.8	1.2	1.7	1.6	7.1	6.4	6.4	7.0	7.8
International assets by counterparty sector:															
Banking sector	n.a.	n.a.	n.a.	n.a.	14.1	12.3	10.6	8.3	14.1	14.8	13.6	12.7	13.6	14.8	8.2
Non-banking sector	n.a.	n.a.	n.a.	n.a.	7.1	6.6	7.4	8.5	5.8	4.0	9.6	8.5	9.0	9.8	10.0

Sources: Bloomberg, IMF, *INE*, Reuters, Thomson Financial Datastream and Banco de Portugal.
Notes: (h) Change in amounts outstanding of credit overdue and other non-performing loans recorded in the balance sheet of resident monetary financial institutions plus write-offs/write-downs as a percentage of bank loans adjusted for securitisations. Sales outside the banking system included in the adjusted flow correspond to credit overdue and other non-performing loans not written-off, in accordance with the quarterly report defined in Instruction of Banco de Portugal No 2/2007. (i) From 2004 onwards, figures on external assets are based on a new information report. Comparable figures for 2004, 2005 and 2006 are based on estimates on total assets for the whole set of domestic banks. Comparable figures for 2006 and 2007 are based on assets for domestic institutions.

Table A.2

DEVELOPMENTS IN THE PORTUGUESE GENERAL INDEX AND IN SECTORAL INDICES
Annual rate of change, per cent

	2001	2002	2003	2004	2005	2006	2007
PSI Geral	-19.0	-20.7	17.4	18.0	17.2	33.3	18.3
PSI 20	-24.7	-25.6	15.8	12.6	13.4	29.9	16.3
PSI Basic Materials	-9.7	-14.2	15.1	15.6	16.7	36.5	-4.1
PSI Industrials	-29.1	13.4	26.4	31.1	68.3	40.9	4.8
PSI Consumer Goods	-10.8	-13.1	-0.5	-6.7	21.2	31.6	0.2
PSI Consumer Services	-27.8	17.0	23.7	29.3	11.6	18.0	23.1
PSI Telecommunications	-17.7	-24.6	27.1	20.6	12.0	22.3	6.4
PSI Utilities	-27.2	-31.4	38.0	15.5	21.7	52.4	19.3
PSI Financials	-14.6	-24.8	4.0	12.0	24.4	34.8	4.9
PSI Technology	-58.9	-37.9	4.5	24.0	-9.5	-15.1	-22.8

Sources: Bloomberg and Euronext.

Table A.3

BALANCE SHEET OF THE BANKING SYSTEM
On a consolidated basis
EUR millions

	1998	1999	2000	2001	2002	2003	2004
Cash and claims on central banks	8 867	10 829	9 642	10 063	8 762	15 430	8 637
of which: cash and claims on Banco de Portugal	8 608	10 026	8 592	8 987	7 857	14 327	7 657
Investment in other credit institutions	30 984	27 254	28 596	33 887	30 293	32 837	36 119
In the country	n.a.	n.a.	10 952	12 768	9 570	7 968	9 232
Abroad	n.a.	n.a.	17 644	21 119	20 723	24 868	26 887
Claims on customers (net of provisions)	103 523	131 213	160 235	181 468	194 219	199 477	206 631
Credit overdue	n.a.	n.a.	3 553	3 903	4 462	4 881	4 164
Provisions	2 577	2 377	2 406	2 609	2 802	3 561	3 471
Provisions and financial fixed assets (net of provisions)	33 594	31 843	36 984	35 951	32 149	37 485	44 349
of which: securities of public issuers (gross)	n.a.	n.a.	10 793	10 742	9 697	9 853	10 636
Non-financial fixed assets	4 468	4 631	4 600	4 735	4 578	4 551	4 315
Other assets	9 092	13 249	10 661	12 361	12 995	14 288	15 499
Total assets	190 527	219 019	250 719	278 464	282 996	304 067	315 550
Central bank resources	1 690	3 158	3 462	2 766	1 284	3 147	3 899
of which: Banco de Portugal	1 383	2 658	3 300	2 258	1 031	2 766	3 195
Other credit institutions resources	41 748	44 920	51 834	57 017	54 503	54 546	49 184
In the country	n.a.	n.a.	10 024	11 099	7 767	5 569	7 129
Abroad	n.a.	n.a.	41 810	45 918	46 736	48 977	42 055
Customer resources	116 729	127 606	140 205	150 033	152 136	157 236	163 761
By residence of customer:							
Deposits of resident customers	n.a.	n.a.	109 976	113 870	116 485	117 673	122 667
Deposits of non-resident customers	n.a.	n.a.	30 181	36 101	35 538	39 440	41 006
By type of deposit:							
Demand deposits	37 659	44 363	47 188	53 033	54 649	55 709	57 350
Time and savings deposits	78 975	83 195	92 969	96 938	97 374	101 404	106 323
Liabilities represented by securities	6 606	13 225	23 106	32 973	38 686	49 814	56 206
of which: bonds	5 239	10 072	18 214	27 309	30 921	37 444	42 307
Subordinated liabilities	3 892	4 521	5 392	8 076	8 721	8 883	9 207
Provisions	1 847	2 263	3 119	3 354	3 510	3 365	3 484
Other liabilities	6 217	9 487	9 015	8 810	8 326	9 490	10 409
Equity capital	11 798	13 840	14 587	15 436	15 830	17 586	19 398
Net profit/loss for the year	1 241	1 431	1 672	1 829	1 488	1 914	1 910
Total liabilities and own funds	190 527	219 019	250 719	278 464	282 996	304 067	315 550

Source: Banco de Portugal.
Notes: Prepared in accordance with the accounting standards in force until December 2004. n.a. - not available.

Table A.4

PROFIT AND LOSS ACCOUNT OF THE BANKING SYSTEM
On a consolidated basis
EUR millions

	1998	1999	2000	2001	2002	2003	2004
1. Interest income	12 974	12 629	14 633	17 181	15 026	14 508	14 477
2. Interest expenses	8 164	7 622	9 401	11 246	9 077	8 606	8538
3. Financial margin (1-2)	4 809	5 007	5 231	5 935	5 949	5 902	5 939
4. Income from securities	140	113	166	213	191	160	176
5. Net commissions	1 414	1 548	1 662	1 670	1 758	2 037	2 320
6. Income from financial operations	610	549	625	417	437	529	481
7. Income from affiliated companies and branches excluded from consolidation (net) [(a)]	102	62	228	147	112	370	361
8. Other operating profits (net)	425	442	408	641	707	842	945
9. Other current income (4+5+6+7+8)	2 691	2 714	3 090	3 089	3 206	3 937	4 283
10. Gross income (3+9)	7 500	7 721	8 321	9 024	9 154	9 839	10 222
11. Staff costs	2 525	2 608	2 626	2 722	2 812	2 949	3 025
12. Other administrative costs	1 531	1 626	1 625	1 849	1 929	2 021	2 135
13. Administrative costs (11+12)	4 056	4 234	4 251	4 571	4 740	4 970	5 160
14. Overall gross income (10-13)	3 444	3 487	4 070	4 453	4 414	4 869	5 062
15. Extraordinary gains	327	813	643	30	163	184	-20
16. Depreciation for the year	613	640	590	625	667	677	685
17. Net provisions	1 081	1 356	1 501	1 191	1 713	1 683	1 699
18. Income before taxes and minority interests (14+15-16-17)	2 078	2 303	2 623	2 666	2 197	2 693	2 657
19. Taxes on profit for the year	473	418	457	427	369	389	321
20. Income before minority interest [(b)] (18-19)	1 605	1 885	2 166	2 240	1 828	2 304	2 336
21. Minority interests (net)	364	454	494	410	340	390	426
22. Profit/loss for the year (20-21)	1 241	1 431	1 672	1 829	1 488	1 914	1 910
Memo:							
Average assets	190 527	204 773	237 223	264 753	280 795	294 640	306 275

Source: Banco de Portugal.
Notes: Prepared in accordance with the accounting standards in force until December 2004. **(a)** The item "Income from affiliated companies and subsidiaries excluded from consolidation" registers income generated by affiliated companies excluded from the consolidation of the banking groups considered, which is attributable to the group according to the percentage of shares held in these companies. Affiliated companies are companies whose management is under a significant influence, assuming that this situation occurs when the shares held correspond to at least 20 per cent of the voting rights. In turn, subsidiaries excluded from the consolidation are those whose management is under a relevant influence, carries on activities which are incompatible with the objective of consolidated accounts, namely commercial, industrial, agricultural and insurance corporations. **(b)** Income before minority interests enables a more accurate measure of income generated by all consolidated assets and, therefore, it should be used in order to compare income with profitability on an individual basis.

Table A.5

BALANCE SHEET OF THE DOMESTIC INSTITUTIONS
On a consolidated basis
EUR millions

	1998	1999	2000	2001	2002	2003	2004
Cash and claims on central banks	8 090	10 127	7 996	8 911	7 795	14 651	7 803
of which: cash and claims on Banco de Portugal	7 903	9 378	7 270	7 899	6 957	13 613	6 853
Investment in other credit institutions	24 436	21 464	20 470	21 495	22 020	23 029	25 401
In the country	n.a.	n.a.	8 539	10 013	7 583	6 246	7 528
Abroad	n.a.	n.a.	11 931	11 482	14 437	16 783	17 873
Claims on customers (net of provisions)	95 878	120 529	134 819	150 840	160 391	164 170	172 314
Credit overdue	n.a.	n.a.	2 933	3 268	3 835	4 247	3 564
Provisions	2 451	2 241	2 038	2 252	2 451	2 994	2 815
Provisions and financial fixed assets (net of provisions)	31 320	29 870	33 778	32 895	28 573	29 992	32 408
of which: securities of public issuers (gross)	n.a.	n.a.	9 185	9 471	8 393	8 340	9 124
Non-financial fixed assets	4 252	4 401	3 976	4 105	3 961	3 839	3 571
Other assets	8 403	9 317	9 475	10 772	11 140	12 417	12 763
Total assets	172 379	195 708	210 514	229 019	233 880	248 099	254 258
Central bank resources	1 596	2 979	3 133	2 611	1 272	2 923	1 326
of which: Banco de Portugal	1 383	2 658	3 300	2 258	1 031	2 766	3 195
Other credit institutions resources	32 756	35 502	40 223	40 107	37 360	34 233	29 725
In the country	n.a.	n.a.	7 812	9 857	6 564	4 660	6 248
Abroad	n.a.	n.a.	32 411	30 250	30 796	29 574	23 477
Customer resources	110 268	120 976	119 381	126 449	129 669	133 938	137 732
By residence of customer:							
Deposits of resident customers	n.a.	n.a.	95 144	98 779	101 630	102 175	106 339
Deposits of non-resident customers	n.a.	n.a.	24 237	27 670	28 038	31 762	31 392
By type of deposit:							
Demand deposits	35 655	42 062	41 040	44 603	47 708	47 931	49 753
Time and savings deposits	74 561	78 911	78 341	81 845	81 960	86 006	87 978
Liabilities represented by securities	5 970	11 589	20 632	29 635	34 608	43 629	49 764
of which: bonds	4 808	9 370	16 746	25 611	28 952	35 676	40 198
Subordinated liabilities	3 625	4 233	4 808	7 126	7 835	8 042	8 422
Provisions	1 740	2 153	2 412	2 601	2 751	2 685	2 940
Other liabilities	5 429	5 302	7 417	7 048	6 730	7 731	7 942
Equity capital	10 996	12 975	12 508	13 442	13 654	14 917	16 409
Net profit/loss for the year	1 241	1 431	1 672	1 829	1 488	1 914	1 910
Total liabilities and own funds	172 379	195 708	210 514	229 019	233 880	248 099	254 258

Source: Banco de Portugal.
Notes: Prepared in accordance with the accounting standards in force until December 2004. n.a. - not available.

Table A.6

PROFIT AND LOSS ACCOUNT OF THE DOMESTIC INSTITUTIONS
On a consolidated basis
EUR millions

	1998	1999	2000	2001	2002	2003	2004
1. Interest income	11 761	11 414	12 336	14 101	12 275	11 322	11 225
2. Interest expenses	7 196	6 691	7 815	9 035	7 172	6 383	6 283
3. Financial margin (1-2)	4 565	4 722	4 521	5 066	5 103	4 939	4 942
4. Income from securities	132	98	161	180	159	127	141
5. Net commissions	1 312	1 443	1 479	1 427	1 494	1 691	1 918
6. Income from financial operations	595	534	573	338	363	488	434
7. Income from affiliated companies and branches excluded from consolidation (net) [(a)]	88	48	205	123	97	336	318
8. Other operating profits (net)	408	422	359	558	618	742	847
9. Other current income (4+5+6+7+8)	2 536	2 545	2 777	2 626	2 731	3 384	3 657
10. Gross income (3+9)	7 101	7 268	7 298	7 692	7 834	8 323	8 600
11. Staff costs	2 385	2 456	2 264	2 292	2 430	2 527	2 596
12. Other administrative costs	1 419	1 501	1 392	1 584	1 659	1 717	1 812
13. Administrative costs (11+12)	3 804	3 957	3 656	3 877	4 089	4 244	4 408
14. Overall gross income (10-13)	3 297	3 311	3 642	3 816	3 745	4 079	4 192
15. Extraordinary gains	335	744	384	65	188	202	17
16. Depreciation for the year	582	611	518	538	584	589	592
17. Net provisions	1 059	1 318	1 094	1 030	1 521	1 457	1 513
18. Income before taxes and minority interests (14+15-16-17)	1 990	2 125	2 414	2 312	1 827	2 234	2 104
19. Taxes on profit for the year	454	397	421	372	311	311	227
20. Income before minority interest [(b)] (18-19)	1 537	1 728	1 993	1 940	1 516	1 923	1 877
21. Minority interests (net)	364	454	452	365	302	352	384
22. Profit/loss for the year (20-21)	1 173	1 275	1 541	1 575	1 215	1 571	1 493
Memo:							
Average assets	172 379	184 044	200 744	218 879	230 577	242 094	246 779

Source: Banco de Portugal.
Notes: Prepared in accordance with the accounting standards in force until December 2004. **(a)** The item "Income from affiliated companies and subsidiaries excluded from consolidation" registers income generated by affiliated companies excluded from the consolidation of the banking groups considered, which is attributable to the group according to the percentage of shares held in these companies. Affiliated companies are companies whose management is under a significant influence, assuming that this situation occurs when the shares held correspond to at least 20 per cent of the voting rights. In turn, subsidiaries excluded from the consolidation are those whose management is under a relevant influence, carries on activities which are incompatible with the objective of consolidated accounts, namely commercial, industrial, agricultural and insurance corporations. **(b)** Income before minority interests enables a more accurate measure of income generated by all consolidated assets and, therefore, it should be used in order to compare income with profitability on an individual basis.

Table A.7

BALANCE SHEET OF THE BANKING SYSTEM (INTERNATIONAL ACCOUNTING STANDARDS)
On a consolidated basis
EUR millions

	2004	2005	2006	2006*	2007*
Cash and claims on central banks	7 555	6 205	6907	7 156	8 105
Claims and investment in other credit institutions	25 041	30 876	31442	41 841	41 003
In the country	n.a.	5 748	5763	7 848	10 720
Abroad	n.a.	25 127	25679	33 993	30 283
Financial assets at fair value through profit or loss	12 900	18 150	20 137	22 635	22 742
Equity	n.a.	853	1 301	1 684	1 691
Debt instruments	n.a.	12 221	12 734	14 500	13 173
Other	n.a.	5 076	6 102	6 451	7 877
Available-for-sale financial assets	14 806	14 037	17 965	20 323	26 566
Equity	n.a.	4 169	6 077	6 153	7 766
Debt instruments	n.a.	8 909	11 468	13 724	18 100
Other	n.a.	959	420	446	700
Investment held to maturity	520	718	663	1 060	1 116
Hedging derivatives	692	816	1 096	1 501	1 376
Investment in subsidiaries	2 613	3 475	4 070	4 089	3 465
Net credit to customers	182 717	199 873	222 898	239 028	275 676
Securitised non-derecognised assets	12 157	14 186	15 391	16 199	19 317
of which: credit to customers	12 157	14 186	15 372	16 181	19 320
Tangible and intangible assets	3 611	3 886	4 232	4 401	4 880
Other assets	9 799	13 768	13 269	14 441	14 415
Total do activo	272 411	305 989	338 070	372 674	418 660
Resources from central banks	3 542	6 215	1 739	1 901	5 550
Resources from other credit institutions	33 315	38 840	42 921	60 862	66 671
In the country	n.a.	5 384	4077	4 863	5 962
Abroad	n.a.	33 457	38843	55 999	60 709
Resources from customers and other loans	142 784	149 139	156 633	166 678	181 815
Liabilities represented by securities	55 694	62 807	81 254	82 774	96 875
Subordinated liabilities	9 887	9 973	9 890	10 112	11 142
Financial liabilities held for trading	2 589	4 306	5 397	7 277	9 985
Hedging derivatives	562	956	1 744	1 881	2 002
Liabilities for non-derecognised assets in securitisation operations	0	2 363	4 130	4 226	4 592
Other liabilities	10 013	13 608	12 641	13 831	14 053
Total liabilities	258 386	288 208	316 349	349 543	392 685
Capital	14 025	17 782	21 721	23 131	25 974
Total liabilities and net wealth	272 411	305 989	338 070	372 674	418 660

Source: Banco de Portugal.
Notes: *Change in the set of banking institutions under analysis, due to the inclusion of institutions that only started preparing their financial statements according to the IAS in 2006. n.a. - not available.

Table A.8

PROFIT AND LOSS ACCOUNT OF THE BANKING SYSTEM (INTERNATIONAL ACCOUNTING STANDARDS)
On a consolidated basis
EUR millions

	2004	2005	2006	2006*	2007*
1. Interest income	12 622	13 977	17 258	18 790	24 488
2. Interest expenses	7 504	8 601	11 273	12 322	17 149
3. Financial margin (1-2)	5 119	5 375	5 985	6 468	7 339
4. Income from capital instruments	161	217	164	168	203
5. Income from services and commissions (net)	1 923	2 212	2 473	2 602	2 933
6. Income from financial assets and liabilities measured at fair value	346	505	-40	-54	-170
7. Income from available-for-sale financial assets	104	663	455	445	1 083
8. Income from foreign exchange revaluation	208	53	498	563	403
9. Income from the sale of other financial assets	72	366	758	777	306
10. Other operating profit and loss	602	417	596	643	619
11. Gross income (3+4+5+6+7+8+9+10)	8 535	9 809	10 890	11 612	12 716
12. Staff costs	3 667	3 300	3 348	3 530	3 719
13. General administrative costs	1 891	1 956	2 020	2 226	2 528
14. Depreciation and amortisation	562	465	445	462	515
15. Provisions net of restitutions and annulments	279	187	129	149	192
16. Impairment losses and other net value adjustments	1 012	1 138	1 069	1 135	1 606
17. Negative consolidation differences	0	0	0	0	-12
18. Appropriation of income from associates and joint ventures (equity method)	624	217	231	231	298
19. Income before taxes and minority interests (11-12-13-14-15-16-17+18)	1 749	2 981	4 109	4 341	4 467
20. Taxes on profit	228	401	722	776	710
21. Income before minority interests (19-20)	1 521	2 580	3387	3 565	3 757
22. Minority interests (net)	236	383	579	607	683
23. Net profit and loss (21-22)	1 284	2 197	2807	2 958	3 074

Source: Banco de Portugal.
Note: *Change in the set of banking institutions under analysis, due to the inclusion of institutions that only started preparing their financial statements according to the IAS in 2006.

Table A.9

BALANCE SHEET OF THE DOMESTIC INSTITUTIONS (INTERNATIONAL ACCOUNTING STANDARDS)
On a consolidated basis
EUR million

	2004	2005	2006	2006*	2007*
Cash and claims on central banks	6 955	5 548	6 200	6 254	7 084
Claims and investment in other credit institutions	21 629	25 780	27 037	30 240	27 491
In the country	n.a.	4 795	4 700	5 650	8 448
Abroad	n.a.	20 985	22 337	24 590	19 044
Financial assets at fair value through profit or loss	12 038	16 302	17 822	19 561	19 683
Equity	n.a.	622	1 127	1 211	1 360
Debt instruments	n.a.	11 720	12 213	13 819	12 480
Other	n.a.	3 960	4 482	4 530	5 844
Available-for-sale financial assets	13 206	13 117	17 139	17 797	22 164
Equity	n.a.	3 775	5 818	5 890	7 692
Debt instruments	n.a.	8 383	10 901	11 486	13 786
Other	n.a.	959	420	421	686
Investment held to maturity	495	693	663	681	525
Hedging derivatives	669	680	885	891	901
Investment in subsidiaries	2 396	3 204	3 705	3 710	3 038
Net credit to customers	157 128	171 226	190 921	192 546	224 509
Securitised non-derecognised assets	5 214	5 316	7 332	8 141	8 832
of which: credit to customers	5 214	5 316	7 314	8 122	8 835
Tangible and intangible assets	2 962	3 220	3 527	3 605	3 824
Other assets	9 006	12 983	12 145	12 897	13 161
Total assets	231 697	258 068	287 376	296 323	331 213
Resources from central banks	1 010	851	1 736	1 803	3 320
Resources from other credit institutions	24 751	27 441	31 238	33 285	34 407
In the country	n.a.	4 610	3 569	4 028	5 084
Abroad	n.a.	22 833	27 669	29 257	29 322
Resources from customers and other loans	124 770	130 933	139 056	141 546	154 070
Liabilities represented by securities	49 509	56 715	67 989	68 848	82 225
Subordinated liabilities	8 959	8 702	8 851	9 008	9 953
Financial liabilities held for trading	1 921	3 150	3 572	5 092	7 207
Hedging derivatives	539	822	1 350	1 350	1 625
Liabilities for non-derecognised assets in securitisation operations	0	2 363	4 130	4 226	4 592
Other liabilities	8 693	12 439	11 525	12 321	12 718
Total liabilities	220 151	243 415	269 445	277 479	310 117
Capital	11 546	14 654	17 931	18 843	21 095
Total liabilities and net wealth	231 697	258 068	287 376	296 322	331 212

Source: Banco de Portugal.
Notes: *Change in the set of banking institutions under analysis, due to the inclusion of institutions that only started preparing their financial statements according to the IAS in 2006. n.a.- not available.

Table A.10

PROFIT AND LOSS ACCOUNT OF THE DOMESTIC INSTITUTIONS (INTERNATIONAL ACCOUNTING STANDARDS)
On a consolidated basis
Em milhões de euros

	2004	2005	2006	2006*	2007*
1. Interest income	10 255	11 192	13 642	14 039	18 484
2. Interest expenses	5 959	6 669	8 552	8 782	12 574
3. Financial margin (1-2)	4 297	4 523	5 090	5 257	5 911
4. Income from capital instruments	141	198	156	157	193
5. Income from services and commissions (net)	1 610	1 835	2 028	2 078	2 337
6. Income from financial assets and liabilities measured at fair value	280	470	-45	-6	-262
7. Income from available-for-sale financial assets	120	643	412	410	1 017
8. Income from foreign exchange revaluation	213	29	488	490	386
9. Income from the sale of other financial assets	66	364	710	713	266
10. Other operating profit and loss	540	356	542	547	495
11. Gross income (3+4+5+6+7+8+9+10)	7 267	8 419	9 382	9 646	10 343
12. Staff costs	3 178	2 917	2 914	2 976	3 110
13. General administrative costs	1 667	1 717	1 780	1 825	2 017
14. Depreciation and amortisation	482	386	361	368	404
15. Provisions net of restitutions and annulments	197	180	139	139	171
16. Impairment losses and other net value adjustments	835	993	919	944	1 339
17. Negative consolidation differences	0	0	0	0	-12
18. Appropriation of income from associates and joint ventures (equity method)	587	164	160	160	178
19. Income before taxes and minority interests (11-12-13-14-15-16-17+18)	1 498	2 390	3 430	3 555	3 491
20. Taxes on profit	196	296	584	609	531
21. Income before minority interests (19-20)	1 302	2 094	2 846	2 946	2 960
22. Minority interests (net)	197	362	551	579	647
23. Net profit and loss (21-22)	1 105	1 732	2 295	2 367	2 313

Source: Banco de Portugal.
Note: *Change in the set of banking institutions under analysis, due to the inclusion of institutions that only started preparing their financial statements according to the IAS in 2006.

Table A.11

CAPITAL ADEQUACY OF THE BANKING SYSTEM
On a consolidated basis

EUR millions	1998	1999	2000	2001	2002	2003	2004	2004*	2005*	2006*
1. Own funds										
1.1. Original own funds	9 715	11 026	12 991	13 238	13 351	13 966	14 950	13 729	14 891	17 851
1.2. Additional own funds	3 834	4 269	5 026	7 030	7 809	8 313	8 567	8 337	10 776	9 914
1.3. Deductions	821	513	2 273	2 999	2 829	2 617	2 319	2 092	1 948	2 405
1.4. Supplementary own fund	13	27	0	1	0	2	2	1	0	0
Total own funds	12 740	14 809	15 745	17 270	18 331	19 664	21 200	19 975	23 719	25 360
2. Own funds requirements										
2.1. Solvency ratio	8 748	10 652	13 184	14 094	14 687	15 304	15 747	15 096	16 213	17 968
2.2. Position risks	234	181	284	289	220	365	531	488	493	468
2.3. Settlement and counterparty risks	38	48	31	41	41	45	53	53	67	70
2.4. Foreign exchange rate risks	135	79	135	87	87	87	44	41	57	92
2.5. Other requirements	0	0	21	1	0	0	1	1	1	2
Total own funds requirements	9 154	10 959	13 655	14 513	15 035	15 802	16 377	15 679	16 830	18 599
Per cent										
3. Ratios										
3.1. Own funds / Total requirements	139.2	135.1	115.3	119	121.9	124.4	129.5	127.4	140.9	136.4
3.2. Own funds / (Total requirements x 12.5)	11.1	10.8	9.2	9.5	9.8	10	10.4	10.2	11.3	10.9
3.3. Original own funds / (Total requirements x 12.5)	8.5	8.0	7.6	7.3	7.1	7.1	7.3	7.0	7.1	7.7

Source: Banco de Portugal.
Note: *The break in the series corresponds to the implementation of the IAS, which also implied a redefinition of the group of banking institutions under analysis.

Table A.12

CAPITAL ADEQUACY OF THE BANKING SYSTEM - BASEL II
On a consolidated basis

EUR millions

Instruction of Banco de Portugal No 25/97 - Basel I	2006	2007	Instruction of Banco de Portugal No 23/2007 - Basel II
1. Own funds			1. Own funds
		18 806	1.1. Total original own funds for solvency purposes
1.1. Original own funds	18 917	19 665	1.1.1. Original own funds (gross)
		860	1.1.2. Deductions from original own funds
		10 603	1.2. Total additional own funds for solvency purposes
1.2. Additional own funds	10 076	11 453	1.2.1. Additional own funds (gross)
		850	1.2.2. Deductions from additional own funds
1.3. Deductions	2 415	745	1.3. Deductions from total own funds
1.4. Supplementary own funds	4	17	1.4. Total supplementary own funds eligible to cover market risk
Total own funds	**26 582**	**28 680**	**Total own funds**
2. Capital requirements			2. Capital requirements
		21 657	2.1. Capital requirements for credit risk, counterparty credit risk and free deliveries
		198	2.1.1. Standard approach
2.1. Required by Notice of Banco de Portugal No 1/93 (solvency ratio)	18 546	21 340	2.1.2. Credit risk (Notice of Banco de Portugal No 1/93) - transitional derogation from the standard approach
2.2. Settlement and counterparty risks	72	118	2.1.3. Free deliveries and counterparty credit risk (trading book) - transitional derogation
		0	2.2. Settlement risk
		761	2.3. Capital requirements for position risks, foreign exchange risks and commodity risks
2.3. Position risks - debt instruments	476	527	2.3.1. Debt instruments
2.4. Position risks - Equity	103	111	2.3.2. Equity
2.5. Foreign exchange risks	94	94	2.3.3. Foreign exchange risks
2.6. Commodity risks	1	30	2.3.4. Commodity risks
		13	2.4. Capital requirements for operational risk
2.7. Capital requirements - Fixed overheads	0	0	2.5. Capital requirements - Fixed overheads
2.8. Large exposures - Trading book	0	0	2.6. Large exposures - Trading book
2.9. Other requirements	1	0	2.7. Other and transitional capital requirements
Total capital requirements	**19 292**	**22 431**	**Total capital requirements**
Per cent			
3. Ratios			3. Ratios
3.1. Own funds/Total requirements	137.8	127.9	3.1. Own funds/Total requirements
3.2. Own funds/(Total requirements x 12.5)	11.0	10.2	3.2. Own funds/(Total requirements x 12.5)
3.3. Original own funds/(Total requirements x 12.5)	7.8	6.7	3.3. Original own funds/(Total requirements x 12.5)

Source: Banco de Portugal.
Note: Break in the series resulting from changes in prudential reporting models.