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THE DETERMINANTS OF GREEK HOUSEHOLD INDEBTEDNESS AND FINANCIAL STRESS*

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I INTRODUCTION

After the entry of Greece into the euro area in 2001 and the complete deregulation of consumer credit in 2003, household borrowing grew at a strong rate, averaging about 28% annually in the period from 2002 to 2007. The fast rise in household credit was mainly driven by increased bank liquidity, especially in the early part of this period.¹ However, it also reflected the fall in interest rates to historically low levels, the intensifying competition among banks in the area of retail banking and low household indebtedness - largely due to barriers until recently preventing households' access to bank lending. Over the past three years, the growth rate of household credit has fallen considerably (2005: 31.4%, 2008: 12.8%), mainly as a result of the slower growth of housing loans (see Chart 1). The total household debt-to-GDP ratio rose from 34.7% at the end of 2005 to 47.5% at the end of 2008, significantly below the euro area average $(2008: 59.5\%)^2$ and the corresponding average for several OECD countries (2005: approximately 80%).3,4

While borrowing can boost economic growth and promote the well-being of households, continuous accumulation of debt may undermine a household's ability to regularly service its loan obligations. To examine household borrowing, at the end of 2007 the Bank of Greece repeated the sample survey⁵ conducted in 2005 (Wave 2) and before that in 2002 (Wave 1). Although this latest wave (Wave 3) took place in a period when the financial crisis had not yet reached its present proportions, its results are of interest, especially at the current juncture, where the stability of the international and, consequently, the domestic banking system is affected by heightened uncertainty and the overall adverse

Chart | MFI credit to domestic households by type of loan



conditions prevailing in the international money and capital markets, which have visible effects on the real economy.

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- 1 It should be recalled that in 2001 the funds held by banks in the form of time deposits with the Bank of Greece had gradually been released after the harmonisation of the Bank's reserve requirements with those of the Eurosystem in 2000. The amount released had totalled €8.1 billion or 5.5% of GDP. See Bank of Greece (2002), Annual Report 2001, Chapter VI.
- 2 Securitised loans included. For the euro area average, see ECB (2007a, 2008).
- 3 Girouard et al. (2007), using available data for a sample of 15 OECD countries, found that the household debt-to-GDP ratio was, on average, about 80% in 2005, ranging from under 40% in Italy to over 100% in the United Kingdom, the Netherlands and Denmark.
- 4 Greece's total household and corporate debt-to-GDP ratio (2006: 86%) remains one of the lowest in the EU (EU-25: 132%, EU-12: 129%). See ECB (2007b) and Hellenic Bank Association (2008).
- 5 The survey was commissioned to TNS-ICAP SA, the market research company that had also undertaken the previous two surveys on behalf of the Bank of Greece.



This paper draws on the results of this wave⁶ to investigate the socio-economic determinants of household borrowing and financial stress. Specifically, the following section contains a description of the survey, while Section 3 presents the key characteristics of household borrowing. Section 4 explores the relationship between borrowing and the various demographic and socio-economic characteristics of households using a logistic regression model. Similar econometric techniques are employed in Section 5 to investigate the socio-economic characteristics of households that are most likely to be under intense financial stress or report difficulties in regularly servicing their loan obligations. Finally, the sixth section summarises the main conclusions.

2 STATISTICS FROM THE BANK OF GREECE HOUSEHOLD INDEBTEDNESS SURVEY

Wave 3 was conducted in the last guarter of 2007 and, like the previous two, covered a sample of 6,000 households in urban and semiurban areas of Greece.7 A random sampling technique stratified by geographical district was used to ensure that the sample was representative of the surveyed population. Primary data were collected by personal interviews using a specifically designed questionnaire. Compared with the previous ones, the Wave 3 questionnaire enabled a more detailed analysis of the sources of household income and assets. In total, complete responses (i.e. from all adult members of the household) were received from 3,135 households, i.e. the average response rate was 52.3%, roughly the same as in Wave 2 (52%).

As in the previous waves,⁸ this rate exhibited significant geographical variation but overall decreased with the degree of urbanisation,⁹ with the highest rates recorded in Epirus (61.3%), Eastern Macedonia and Thrace (61.2%) and Peloponnese (57.4%) and much lower rates recorded in Sterea Ellada and Evia (43.9%) and Crete (44.6%).

In order to balance out the impact of geographical variation on the representativeness of the sample, the survey data were weighted to reflect the structure of Greece's population by area and degree of urbanisation of residence location. Moreover, the distribution of household size in the sample was adjusted to reflect the distribution of household size in the population according to the 2001 census. This weighting restores the representativeness of the sample to the extent that the borrowing attitudes of the originally selected households that did not participate in the survey are the same as those of participating households. However, this is not something directly (statistically) controllable and therefore the results of the survey should be judged with due caution.

3 INDEBTED HOUSEHOLDS BY LOAN CATEGORY

According to the survey results (Wave 3), nearly half (48.6%) of households reported no debt at all¹⁰ (see Table 1). However, the proportion of households that reported an outstanding loan debt rose to 51.4%, having increased significantly from the level observed in Wave 2 (46.9%). This development is in principal consistent with the fast expansion of bank credit to households in the period between the two

- 6 The results of Wave 3 are analysed and compared with the results from the previous waves on http://www.bankofgreece.gr/announcements/files/19.5.200820%Daneismos%20noikokyrio%202008%20-%20Ereuna.doc.
- 7 Insular areas (e.g. the Northern and Southern Aegean and the Ionian Islands) were excluded from the sample.
- 8 For a detailed presentation of the results of these waves, see Bank of Greece (2003), Annex to Chapter VI and Bank of Greece (2006), Annex to Chapter VI. See also Mitrakos, Simigiannis and Tzamourani (2005) and Simigiannis and Tzamourani (2007).
- 9 The household response rate was slightly below average in Athens (52.0%) and especially in the other urban areas (49.2%) and above average in Thessaloniki (53.9%) and especially in the semi-urban areas (56.8%). Evidence that the non-response of households may not be accidental but related to specific characteristics of the surveyed population, including age, educational level, degree of urbanisation and social status, can be found in most published papers based on sample surveys. See, for instance, D'Alessio and Faiella (2002).
- 10 As in Wave 2, individuals eligible to participate in Wave 3 were all household members aged 18 and over (18+). By contrast, the 2002 survey had only covered household members aged 25 and over (25+). As indicated by the analysis above, there are no significant differences in the results of the two most recent waves, whether they refer to all household members aged 18+ or are limited to those aged 25+.

		2002, 25+		15,532	29,557	33,187	16,877	7,43(4,246	4,048	1,701	5,815	2,979	1,29	12,447
	uro)	2005, 25+		19,637	41,701	48,156	18,403	27,401	6,275	6,447	3,039	7,159	6,570	1,254	5,496
	e debt (in e	2005, 18+		19,665	42,366	48,789	18,539	28,224	6,389	6,552	3,047	7,495	6,552	1,256	5,612
	Average	2007, 25+		30,006	51,014	54,677	25,755	29,525	9,125	9,343	3,296	8,706	10,358	1,386	4,577
		2007, 18+		29,979	51,354	55,069	26,154	27,508	9,193	9,442	3,284	8,643	10,462	1,350	4,241
		2002, 25+		100	37.2	27.5	10.7	1.0	85.3	75.5	53.1	20.9	29.4	16.3	2.8
			51.6	48.4											
		2005, 25+		100	38	28.7	10.3	1.0	81.2	77.2	54.1	20.1	28.9	8.9	1.3
			52.3	47.7											
	centages	2005, 18+		100	37.3	28.4	9.9	0.9	81.7	77.8	54.4	20.8	28.9	9.0	1.2
	isehold per		53.1	46.9											
	Hot	2007, 25+		100	40.5	32.8	10.1	0.4	84.9	82.2	60.1	18.5	31.5	8.8	0.8
			47.6	52.4											
۲		2007, 18+		100	40.1	32.3	10.0	0.6	85.4	82.5	60.8	19.1	31.7	9.0	0.9
categoi			48.6	51.4											
by loan															
Table I Indebted households		oan category	ithout debt obligations	ith debt obligations	ouse-related loans – "housing loans"	- For house purchase	- For house repair	- For land purchase	ther loans	ther non-housing bank loans	- Credit cards	- Car purchase	- Other bank loans (personal, consumer, etc.)	om retail stores	om other households

waves. Moreover, comparison of the data from these two waves with that submitted by banks to the Bank of Greece reveals that both the average outstanding amount of housing loans per household and the average outstanding amount of credit card loans as per the survey rose at average annual growth rates almost identical to those computed on the basis of data submitted by banks to the Bank of Greece.¹¹ This provides a strong indication that responding and nonresponding households may have broadly similar borrowing attitudes, thereby strengthening the credibility of the survey results.

As can be seen in Table 1, there are some significant differences between the second and the third wave in terms of the composition of household debt by type of loan. Credit card loans continued to be the most common type of borrowing in 2007, with 60.8% of all indebted households reporting a debt in this form (2005: 54.4%). Specifically, for Athens this percentage stood at 68%, while the corresponding percentages for Thessaloniki, the "other urban areas" and the semi-urban areas were 60%, 55% and 50% respectively. The increased use of credit cards as a means of payment¹² and the ready access to this type of loans within the limits of each card explain why they are so widespread, despite the fact that the interest rates on these loans are the highest among all categories of bank loans.13

The second most common category of loans in 2007 was housing-related loans, with 40.1% of all indebted households reporting a debt in this form (2005: 37.3%). This was consistent with the rapid expansion of housing loans, since new housing loans are contracted, as a rule, by new borrowers. Unsecured bank loans (mainly personal loans and loans against supporting documents) were the next most common category, with 31.7% (2005: 28.9%), followed by loans for car purchase, which, unlike the other main loan categories, decreased slightly in 2007 (2007: 19.1%, 2005: 20.8%), but, as in 2005, remained more frequent among household members aged 18-25 (33%) than among those aged 25 + (18.5%).

The proportion of households with outstanding loans from retailers exhibited some geographical variation but overall remained at a relatively low level (below 10%). Lastly, households with loans from friends accounted for a minimal and falling share (of generally below 1%) of indebted households in all geographical regions, except semi-urban areas.

4 BORROWING AND SOCIO-ECONOMIC CHARACTERISTICS OF HOUSEHOLDS: A LOGISTIC REGRESSION ANALYSIS

To provide a better understanding of how borrowing is related to the demographic and socio-economic characteristics of households, the following logistic regression model was estimated:

$$\ln(P_{i}/(1-P_{i})=\alpha_{0}+\alpha_{1}X_{1i}+\alpha_{2}X_{2i}+...+\alpha_{N}X_{Ni}+ui \quad (1)$$

where P_i is the probability that household i has taken out a loan or, in the case of given types of loans, the probability that household i owes a debt relating to a specified loan category, and

- 11 According to bank data, the outstanding amount per housing loan account stood at €40.3 thousand at the end of 2007, compared with €33.1 thousand at the end of 2005, i.e. rising at an average annual rate of 10.3%. The corresponding outstanding amount of housing loans per household (as per the survey, Waves 2 and 3) was €51.4 thousand in 2007, up from €42.4 thousand in 2005, having risen at an average annual rate of 10.1%. Therefore, the outstanding amount per account was lower than the outstanding amount per household, indicating that, as also suggested by the survey, a number of households may have more than one housing loan. Notwithstanding that, the ratio of the two amounts remained virtually unchanged, at around 78%, implying that the number of accounts per household was not significantly altered during this period. Moreover, the outstanding amount of credit card loans (and securitised loans), as recorded by banks, was €9.2 billion at the end of 2007, compared with €8.5 billion at the end of 2005, i.e. rising at an average annual rate of 4.3%. The corresponding outstanding amount of credit card loans per household (as per the survey) stood at €3,284 in 2007, up from €3,047 in 2005, which represents an average annual increase of 3.8%. If account is taken of the outstanding amount per household, then data are adjusted for the fact that the number of households is slightly different in the two survey waves, thus making the evolution of credit card loans as recorded by banks comparable with the evolution of credit card loans as recorded by the survey.
- 12 At end-2007, there were two credit cards for every three persons aged 20 and over. Moreover, data submitted by banks to the Bank of Greece show that in the five-year period from 2003 to 2007, the number of credit card transactions rose at an average annual rate of 10% and the value of these transactions at a rate of 23%, reaching €8.6 billion in 2007, from €3.1 billion in 2002. For the complete statistical series, see http://sdw.ecb.europa.eu/
- **13** At end-2007, the average interest rate on credit card loans was 15.31% (consumer loans: 8.4%, housing loans: 4.45%).



 X_j (j = 1, N) the N characteristics of each household, i.e. of independent explanatory variables that determine the probability that household i has taken out a loan or owes a debt relating to a specified loan category.

In the analysis that follows, models were estimated for four independent variables, each of which indicates whether or not a household has had (a) a loan of any type, (b) a housing loan, (c) other, non-housing loans, and (d) a loan or credit card debt. The following were examined as explanatory (or independent) variables, i.e. variables likely to affect the probability of a household having any (or a specific type of) loan: degree of urbanisation of residence location, family status, income and net wealth group of the household, age and educational level of the household head, number of household members in employment, employment status of the household head, housing tenure (owned or rented), nationality of the household head and whether he or she is employed in the public or the private sector. For each dependent variable, two models, presented in Table 2, were estimated such that the one includes income (Model 1) and the other net wealth¹⁴ (Model 2) as an explanatory variable, given that both significantly influence the probability of having a loan and are strongly correlated. The results of this analysis are compared with those of Mitrakos, Simigiannis and Tzamourani (2005) and Simigiannis and Tzamourani (2007), who had made use of the data from Wave 1 and Wave 2 respectively, to see if there are any differences in households' borrowing attitudes across the three waves.15

Table 2 presents the coefficients for the independent variables. These express the ratio of the odds of a household having a specific type of loan to the odds of a household in the reference group having such a loan, provided that all other variables in the model are held constant. Thus, in Model 1, the coefficient 1.26 for all loans of "Athens and Thessaloniki" indicates that the ratio of the odds of a household resident in Athens or Thessaloniki having a loan is 1.26 times greater than the corresponding odds for households resident in other urban areas ("other urban areas" is the reference category for the "residence location" variable).

As noted above, households resident in other urban areas have a much lower probability of having a loan than households resident in Athens or Thessaloniki, and essentially the same probability as households living in semiurban areas. The increased probability associated with Athens and Thessaloniki chiefly masks a higher probability of having a nonhousing loan, especially a loan through credit card. In fact, the odds of a household resident in Athens or Thessaloniki having a credit card loan are 1.52 times greater than the corresponding odds for households resident in other urban areas. By contrast, the probability of a household having a housing loan does not seem to be influenced by the degree of urbanisation of the household's location of residence, since the relevant coefficients remain statistically insignificant, irrespective of whether household income or net wealth is controlled for in the model. These results agree with those from the previous two waves, except that the relatively high probability of a household in Athens or Thessaloniki having a non-housing loan was slightly limited compared with 2005, whereas the corresponding probability for households in semi-urban areas appeared to be increased, although this was statistically insignificant. This in turn seems to suggest that, in the period between the two most recent waves, the penetration rate of retail banking in the semi-urban and other urban areas gradually approached that of big cities like Athens or Thessaloniki.

Irrespective of whether household income or wealth is controlled for, the composition (size) of the household does not appear to have any significant effect on the probability of having

¹⁵ Cross-wave comparability of the survey results has also determined, in part, the choice of the estimated models and the dependent and independent variables used in this analysis.



¹⁴ Net wealth is defined as total household assets minus liabilities for housing loans.

Table 2 Logistic regression results (The ratio of the odds of a specific household group having an outstanding loan debt or credit card debt to the odds of the reference group)

	All loans		Housing	g loans	Other	loans	Credit cards		
Explanatory variables	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	
Athens-Thessaloniki	1.26**	1.27**	1.14	1.22	1.38***	1.37***	1.52***	1.5***	
Semi-urban areas	1.09	1.02	1.18	1.14	1.2	1.12	0.97	0.92	
Single	0.88	0.72**	0.81	0.64**	0.88	0.78*	0.89	0.77*	
Couple	0.89	0.87	1.18	1.13	0.83	0.81	0.68**	0.67***	
Couple with one child	1.18	1.15	1.05	1.03	1	0.97	0.78*	0.77*	
Couple with three children	1.35	1.37	1.13	1.12	1	1.01	0.61**	0.62*	
Other households	1.19	1.14	1.01	0.92	1.05	1.05	0.88	0.86	
Under 25 years old	0.49***	0.53***	0.61	0.58	0.56**	0.61**	0.44***	0.45***	
25-29 years old	0.79	0.79	0.67	0.63*	0.84	0.86	0.73*	0.73*	
40-49 years old	0.77*	0.78^{*}	0.83	0.89	0.87	0.86	0.86	0.86	
50-59 years old	0.71**	0.78*	0.78	0.89	0.72**	0.76*	0.67**	0.73**	
60-69 years old	0.48***	0.5***	0.36***	0.38***	0.57**	0.6**	0.62**	0.67*	
70-79 years old	0.25***	0.26***	0.18***	0.19***	0.32***	0.34***	0.45***	0.5**	
80 years old and over	0.21***	0.21***	0.13***	0.12***	0.24***	0.25***	0.15***	0.15***	
Primary education (incomplete or no education)	0.65*	0.54**	0.34**	0.27**	0.73	0.68	0.82	0.75	
Primary education (complete)	0.89	0.85	0.92	0.85	0.84	0.84	0.78	0.76*	
Upper secondary education (complete)	1.23*	1.36**	1.24	1.4*	1.09	1.18	1.12	1.22	
Tertiary (higher) education (complete)	1.15	1.37*	1.19	1.53**	1.17	1.29*	1.44**	1.67***	
Income up to €6,000	0.32***		0.55*		0.33***		0.38***		
Income from €6,001 to €12,000	0.7***		0.83		0.71**		0.8*		
Income from €18,001 to €24,000	1.1		0.98		1.2		1.2		
Income from €24,001 to €30,000	1.44**		1.29		1.28*		1.4*		
Income over €30,000	1.84***		1.49**		1.77***		2.35***		
Without assets		0.36***		0.7		0.36***		0.74	
Assets from €1 to €10,000		0.66**		0.52*		0.8		1.01	
Assets from €50,001 to €100,000		0.96		0.8		0.9		1.35*	
Assets from €100,001 to €300,000		0.92		0.51***		1.25		1.73***	
Assets over €300,000		1.34*		0.46***		1.94***		2.36***	
One household member in employment	1.69***	2.24***	1.86***	2.4***	2***	2.48***	2.01***	2.55***	
Two household members in employment	2.23***	3.79***	2.49***	3.94***	2.55***	3.93***	1.94**	3.3***	
Three or more household members in employment	2.83***	5.68***	2.68***	4.81***	3.97***	7.02***	2.4**	5.05***	
Self-employed	1.59***	1.38**	1	1.13	1.57***	1.3*	1.62***	1.42**	
Employer	0.76	0.72	0.87	1.15	0.7*	0.58**	0.87	0.84	
Pensioner	1.13	1.4*	1.56*	2.04***	1.21	1.37*	1.14	1.36	
Other economically inactive	1.23	1.21	0.95	0.98	1.38	1.28	1.7*	1.59*	
Homeowner	1.44***	1.04	9.36***	10.83***	0.92	0.61***	1.03	0.74**	
Immigrant	0.43***	0.4***	1.2	1.03	0.37***	0.36***	0.18***	0.17***	
Civil servant	1.21	1.26*	1.58***	1.68***	0.91	0.92	0.84	0.88	

Note: Reference categories: Residence location: other urban areas; household type: couple with two children; age: 30-39; educational level: lower secondary (complete); income: from €12,001 to €18,000; wealth: from €10,001 to €50,000; number of household members in employ-ment: zero; employment status: employee; housing tenure: owned; nationality: other than Greek; working in the public sector: no. *, **, ***: Statistically significant at the 10% level, the 5% level and the 1% level, respectively.



a loan. Although this probability increases with family obligations, the estimated coefficients were not statistically significant except in the case of single-member households in type-2 models, which, in comparison to the reference group of couples with two children, had a significantly lower probability of having a loan. This had been even more apparent in Wave 2 data, where single-member households, couples without children and couples with one child had a far lower likelihood of having a loan than the reference group. In part, these differences can be attributed to the influence of demand and supply factors. On the demand side, the growth of real household income (at an average annual rate of 3.3% in the two-year period from 2006 to 2007), combined with the fall in bank interest rates to relatively low levels in the period between the second and the third wave, notwithstanding an upward trend, contributed to a favourable financial environment, supportive of strong loan demand. At the same time, keen competition among banks, which in particular forced them to offer a wide range of products to meet differing customer needs, helped banks to penetrate these diverse social groups and, thereby, increase their clientele – and all the more so that this, as noted above, is controlled for household income and net wealth.

The age of the household head also appears to have a significant effect on the probability of a household having a loan. Specifically, this probability is much lower if the household head is aged over 60 or under 25 than in the intermediate age groups. For instance, the odds of a household with a head aged 30-39 (reference age category) having a loan are four times higher than the corresponding odds for households headed by individuals aged 70 and over, and almost twice the odds of households headed by individuals under 25. The resulting bell-shaped odds curve¹⁶ (see Chart 2) is perhaps to be expected, as it seems to reflect both supply and demand factors.¹⁷ Specifically, on the supply side, it is most probable that banks are more reluctant to grant loans to households with a head under 30,

Chart 2 Estimated probability of borrowing by age group and type of loan



compared with households headed by individuals of intermediate age groups, due to the increased uncertainty that generally surrounds their future income flows. Younger households are also less likely to have accumulated enough assets to serve as collateral for the loans they take. On the other hand, households with a head over 60 are normally expected not to have any outstanding housing debt. Moreover, the majority of household heads of that age are pensioners and therefore their consumer expenditure must depend, according to the life cycle theory, apart from their savings (i.e. their wealth), chiefly on their current income, which they do not expect to change to a degree which would require them to change their standard of living correspondingly and to fund any possible shortfalls via borrowing. This is broadly consistent with the conclusions reached using data from the earlier two waves.

¹⁷ Similar results were obtained in a number of foreign studies. See, for example, Cox and Jappelli (1993), Del-Río and Young (2005), Girouard et al. (2007) and La Cava and Simon (2003).



¹⁶ Shifting to Model 2, which includes net wealth as an explanatory variable, does not significantly alter the shape of the estimated odds curve. The odds shown in Charts 2 to 4 were estimated using the mean values of the other variables.

Household income and wealth influence the probability of a household having a loan. Specifically, the results of the logistic regression point to the existence of a strong positive correlation between income and the probability of a household having some type of loan, given that the higher the income group, the higher this probability becomes (see Chart 3). For instance, the estimated odds of a household with an annual income of over €30 thousand having a loan are about 5.8 times greater than the corresponding odds for households earning less than €6 thousand per annum. This relationship persists irrespective of whether household borrowing is examined as a whole or housing loans are examined separately from other categories of loans, but seems to be somewhat more pronounced for credit card loans. Similar results were also obtained using data from Waves 1 and 2.

A positive correlation is also found between the probability of borrowing and household net wealth. Households with net assets in excess of €300 thousand are 3.7 times as likely to have a loan as households without assets. However, this applies only to non-housing loans; in the case of housing loans, there does not seem to be a similar relationship between the probability of having a loan and net wealth. This is perhaps to be expected, as (a) housing loans are mostly secured by mortgage over the real property for which the loan is made, and (b) it is a household's income, rather than its net wealth (i.e. assets minus housing liabilities), that guarantees the proper servicing of its loans.

The educational level of the household head seems to be positively correlated with the probability of a household having a loan, especially when net wealth, instead of income, is included as an independent variable (see Chart 4). This is broadly in line with the results from the previous two waves and may be due to the fact that the educational level partly determines not only a household's income but also its ability as a prospective borrower to analyse available loan information, thereby reducing its market entry cost. Indeed, when income is not



Chart 3 Estimated probability of borrowing by income group and type of loan

Chart 4 Estimated probability of borrowing by educational level and type of loan



Source: Calculations based on survey data.

included in the model, the educational level is statistically significant in almost all cases and emerges as an essential determinant of the



probability of a household having a loan. For instance, households headed by a tertiary education graduate have an almost three times higher probability of having a loan compared with households in which the head has not completed primary education. The corresponding odds ratio is even greater (4.6) for housing loans.¹⁸

As in the previous waves, the likelihood of a household having a loan increases significantly with the number of household members in employment, and therefore, as can be seen in Table 2, households with more than one member in employment are more likely to have a loan, particularly a non-housing loan, irrespective of whether household income or net wealth is controlled for. This may reflect the fact that more members of the household usually have other loans, particularly consumer loans, than housing loans, for which just one member of the household is often liable.

Whether the household head works in the public or the private sector has an effect on the probability of the household having taken out a housing loan. Being a civil servant increases this probability but does not have an effect on the probability of having taken out other loans. This mainly seems to reflect supply-side effects, as the permanency of employment in the public sector provides sufficient guarantees as to the future income flow of civil servants, making it easier for them to access long-term bank lending, including housing loans. A similar result was also obtained in the previous two waves. Whether the household head is an economic migrant or not can also significantly influence the probability of the household having a loan. Specifically, economic migrants have a 2.5 times lower probability of having a loan, although this seems to apply only to nonhousing loans (2.8 times lower), and particularly loans through credit cards (5.9 times lower), and it is unclear whether it reflects demand- or supply-side factors.

Finally, the profession (type of employment) of the household head does not seem, in gen-

eral, to influence the probability of the household having a loan, particularly a housing loan, irrespective of whether household income or net wealth is controlled for. Nonetheless, households whose head is self-employed are relatively more likely to have a non-housing loan, although this may at least partly reflect their business needs.¹⁹

5 ASSESSING FINANCIAL STRESS AMONG HOUSEHOLDS

As mentioned earlier, the Wave 2 and 3 questionnaires contained a number of questions asking respondents about their attitudes towards the regular servicing of their loans and their perceived difficulties. As can be seen from the relevant responses in the last wave, 12.6% of households do not pay their loan instalments regularly. This figure is a little higher than in 2005 (11.2%) and conceals significant variation across loan categories. The highest percentage is observed in consumer loans, where 16.8% (2005: 14.9%) of indebted households reported that they did not pay instalments for servicing these loans regularly, while the corresponding percentage for housing loans is 11.2% (2005: 8.6%). These percentages, though not entirely comparable with the percentages of corresponding bank loans, which according to data submitted by banks to the Bank of Greece are in arrears of at least three months,²⁰ lead to exactly the same conclusion, i.e. that consumer loans have an overall higher credit risk for banks than housing loans.

Table 3 presents the shares of households reporting "difficulty in regularly servicing their

²⁰ The survey asked whether or not households paid their loan instalments regularly. Therefore, notwithstanding the general caveats applying to the evaluation of the results of such surveys, the households' responses covered arrears in the servicing of their loans of up to three months.



¹⁸ Similar conclusions are reached by Margi (2002) using data from an Italian household survey.

¹⁹ The results presented here with respect to age, income, wealth, number of household members, degree of urbanisation and educational level broadly concur with those of European Commission (2008) for the EU-25 and the individual countries examined.

Table 3 Households' perceptions about the degree of difficulty* in servicing their obligations by income group, 25+ (household percentages)

			Income group (in euro)									
	Total		<7,500		7,501-15,000		15,001-25,000		25,001-35,000		>35,	,000
Difficulty in:	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005	2007	2005
- paying housing loan instalments	57.3	53.8	71.4	83.3	85.2	61.3	70.2	58.7	51.7	48.9	32.4	32.8
- paying credit card instalments	49.3	54.2	55.6	75.8	67.7	64.6	61.4	51.7	45.6	51.6	25.7	36.0
- paying other bank loan instalments	68.4	67.0	94.7	87.5	84.5	78.7	65.4	63.6	70.3	66.7	50.5	50.0
- paying instalments to retailers	51.4	53.5	66.7	85.7	54.5	47.6	60.5	50.0	35.7	-	46.7	-
– paying their rent	66.7	61.6	87.0	84.1	76.4	66.9	67.0	54.3	51.3	33.8	19.4	25.0
- paying their public utility bills	57.9	50.0	80.0	71.0	71.4	56.1	61.0	45.2	44.1	35.5	30.0	22.7

* Comprising the households which reported that is "difficult" or "rather difficult" for them to meet their obligations.

- : The number of households in these groups is too small to be statistically assessed.

obligations".²¹ These are relatively high and in 2007 were even higher overall compared with 2005. One notable exception is the decrease, from 54.2% in 2005 to 49.3% in 2007, in the proportion of households reporting difficulties in paying their card loan instalments. On balance, there is a very large proportion of households, particularly in the low-income groups, which have difficulties in servicing their obligations. The main reason for this is their low income and the resulting relatively high marginal utility they attach to each of its units. This is also the reason why the financial position of these households is more vulnerable to any rise in interest rates or change in economic conditions. Overall, the percentages derived from both waves of the Bank of Greece survey seem to confirm the result of the NSSG Household Budget Survey 2004/2005, where 77.3%²² of households reported difficulties in meeting their needs, but are generally lower than that.

The "ability-to-pay" theory maintains that households will not have difficulties in regularly servicing their loan obligations provided that their income flow remains sufficient to meet these obligations without undue financial burden.²³ In this context, household indebtedness, defined as the ratio of household debt to household income, usually serves as a measure of financial stress. The greater this ratio, the more difficult it becomes for a household to service its loans, ceteris paribus. The debt servicing ratio, which is the ratio of debt payments due by the household in a given (e.g. three-month) period to its income over the same period, represents another, more specialised, measure, which shows the proportion of the household's income devoted to the servicing of its loans. Obviously, ceteris paribus, the greater this ratio, the higher the financial stress on households, since they are left with lesser income to pay for other (possibly more vital) needs.²⁴

According to the 2007 survey, for 78% of households the debt servicing ratio does not exceed 33%, while for 84% of households it does not exceed 40%. Although these data point to an increase in financial stress between

- 23 See Whitley et al. (2004).
- 24 May and Tudela (2005) found that when the mortgage debt servicing ratio is up to a level of around 20%, it has no effect upon payment problems; beyond this level, however, payment problems increase with it. Similarly, Whitley et al. (2004) found that the debt servicing ratio is the most important determinant of the totality of arrears on mortgage and credit card debt.



²¹ Comprising households which reported that it is "difficult" or "rather difficult" to meet their obligations.

²² This figure is the sum of the percentages of households that, to the question of the NSSG Household Budget Survey 2004/2005 "How do you meet your needs?", responded: "with great difficulty" (18.2%), "with difficulty" (23.8%) or "with some difficulty" (35.3%).

2005²⁵ and 2007.²⁶ for the vast majority of indebted households the direct financial stress lies within limits, which are generally not thought to create difficulties in the regular servicing of their loans.27 It is, however, of interest to explore in greater detail the particular characteristics of households with a debt servicing ratio in excess of 40%, i.e. households which are - or are expected to be - under the greatest financial stress. This is all the more interesting in light of the observation that debt is heavily concentrated among these households given that, although they account for only 16% of indebted households, they contribute 36.6% to the total debt owed by the sample.

FINANCIAL STRESS AND SOCIO-ECONOMIC CHARACTERISTICS OF HOUSEHOLDS

In view of the above, and also on the basis of available evidence from the Bank of Greece 2007 survey wave, the financial stress on Greek households can be proxied by six indicators. Of the six indicators, four - constructed on the

basis of participants' responses to the question "Over the past six months how difficult has it been for you or a member of your household to pay instalments on this loan?" — measure the degree of difficulty experienced by a household in paying instalments on (a) any loan (b) a housing loan (c) other (i.e. non-housing) bank loans and (d) credit card loans. These indicators take the value 1 if the household responds "it has been difficult" or "it has been rather difficult" and 0 otherwise. The two remaining indicators are: a debt servicing ratio in excess of 40% and the irregular payment of

- 25 According to Wave 2 data, for 81% of households the debt servicing ratio did not exceed 33%, while for 88% it did not exceed 40%. See Bank of Greece, *Annual Report 2005*, Annex to Chapter VI, Athens 2006.
- **26** The increase in financial stress is directly linked to the evolution of the interest rates applied by banks to the outstanding amounts of the main categories of consumer and housing loans, which, on average, grew by 107 and 39 basis points respectively in the twoyear period from 2005 to 2007, broadly mirroring a 175 basis point rise in key ECB interest rates between December 2005 and December 2007.
- 27 According to the international literature, a debt servicing ratio of up to 30% or 40% is not considered to impose significant difficulties in the regular servicing of household loans. See, for instance, DeVaney (1994) and Lytton et al. (1991).





Chart 6 Distribution of financial stress among households by net wealth quintile



loan instalments,²⁸ irrespective of the type of the loan.

Charts 5 to 8 present the distributions of the above indicators according to some key socioeconomic characteristics of households. As seen in Chart 5 depicting the relationship between each of these indicators and income, the level of household indebtedness, as measured by the "debt-to-income" ratio, tends to decrease as household income increases. On average, this ratio is about three times higher for households in the first income quintile than for households in the fifth quintile. Moreover, as might have been expected, the proportion of households reporting difficulties in servicing their loan obligations tends to decrease in higher income quintiles. This tendency is, in general, more pronounced for households having difficulties in servicing any type of loan and those with a debt servicing ratio in excess of 40%. Notwithstanding that, households experiencing difficulties account for a considerably lower percentage in the top income group than in the other income groups, irrespective of loan category. A strong negative relationship is

observed, as expected, between income and the proportion of households in each income group which have a debt servicing ratio in excess of 40%. This proportion is 3.5 times higher in the first quintile than in the fifth quintile. By contrast, the proportion of households in each income group reporting not servicing their loans regularly does not appear to be influenced by income, even though it is much lower in the fifth quintile than in the other quintiles.

Controlling for net household wealth does not materially alter these distributions and thus, as the fairly close link between income and wealth might have led one to expect, the debt-toincome ratio tends to decrease with higher net wealth (Chart 6). As for the percentage of households that reported difficulties in servicing their loans, it, too, tends to decrease with higher net wealth, as also does the percentage



²⁸ Irregular loan servicing refers only to cases where borrowers fall into arrears or have defaulted on their loan payments and not to cases in which borrowers pay their loan instalments regularly but have difficulty in making up and paying the amounts due, i.e. cases where respondents report difficulties in paying their loan instalments.

Chart 7 Distribution of financial stress among households by age group of the household head



Chart 8 Distribution of financial stress among households by household size



of households with a debt servicing ratio in excess of 40%. Lastly, net wealth, just like income, does not appear to have an effect on irregular loan servicing. Chart 7, exploring the relationship between the age of the household head and the financial stress indicators, reveals that the debt-toincome ratio tends to increase in the two



voungest age groups (up to 34 and 35-44) and then gradually declines in every age group up to 65 and over. Payment difficulties do not seem to vary substantially across age groups when all loans are taken into account. However, in the analysis by type of loan a negative relationship is found for housing loans, as the proportion of households experiencing related payment difficulties tends to decline with age. This seems to be associated with the fact that housing loans are generally taken out at a younger age and therefore households headed by older individuals tend to have no or little outstanding debt in this form. The same fact seems to be responsible for the negative relationship between age and the proportion of households with a debt servicing ratio in excess of 40%. Moreover, the age of the household head, just like income and net wealth, does not seem to be associated with irregular loan servicing.

Lastly, a positive relationship is found between household size and loan payment difficulties (Chart 8). It is important to note, however, that this result masks a positive relationship for credit cards and a stronger negative relationship for housing loans. A negative relationship also emerges in the case of a debt servicing ratio in excess of 40%. The percentage of households with a debt servicing ratio of that order is relatively high among single-member households and couples without children and tends to decrease with larger household sizes. By contrast, household size is positively associated with irregular loan servicing, as the latter is more frequent among larger households.

LOGISTIC REGRESSION ANALYSIS OF FINANCIAL STRESS

Alternative logistic regression models, similar to the ones used in the preceding section (on borrowing and the socio-economic characteristics of households), were also estimated to gain insights into the socio-economic factors that explain the borrowing attitudes of households reporting difficulties in servicing their loan obligations. Results are presented in Table 4 and the independent variable coefficients have the same explanation as in the analysis of household borrowing.

The figures in Table 4 confirm expectations that income and wealth are key determinants of the difficulties the servicing of loan obligations imposes on households. Households in the top income group (over €30,000) are 5 times less likely than households in the reference income group ($\notin 12,000$ to $\notin 18,000$) to have difficulties in servicing their loan obligations. It is essential to note, however, that this strongly negative relationship between loan servicing difficulties and income results largely from household attitudes towards the servicing of credit card loans. In the case of housing loans, there is no statistically significant relationship between difficulties and household income for incomes lower than €24,000. This finding seems to be more closely related to supply-side factors than demand-side factors, possibly suggesting that banks' information requirements about the income earning capacity of their prospective borrowers are more demanding for the granting of housing loans than for the granting of credit card loans, for which a negative relationship between difficulties and income is observed in the lower earning groups. In other words, in the case of housing loans, it is a fuller assessment of the income earning capacity of prospective borrowers that eventually ensures the regular servicing of loans extended by banks. A similar result is obtained for households in the two wealthiest groups (over $\in 100,000$), as they too are much less likely to have difficulties in servicing a loan of any type.

Due to its overall positive association with income and wealth, the educational level of the household head appears to have the potential to ease loan payment difficulties faced by households. Indeed, households headed by a tertiary education graduate have a much lower likelihood of experiencing difficulties than those headed by a lower secondary education



Table 4 Logistic regression results (The ratio of the odds of a specific household group having loan payment difficulties to the odds of the reference group)

	All lo	ans	Housing	g loans	Other	loans	Credit cards		
Explanatory variables	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	
Athens-Thessaloniki	0.61***	0.63***	0.56**	0.64*	0.62***	0.62***	0.57**	0.61*	
Semi-urban areas	0.85	0.05	0.50	1	1 37	1 39*	0.67	0.01	
Single	0.52***	0.65*	0.49	0.72	0.65*	0.73	0.35***	0.45**	
Couple	0.9	0.98	0.75	0.72	1 42*	1 49*	0.75	0.82	
Couple with one child	0.74*	0.79	0.5**	0.55*	1.2	1.23	0.45**	0.54**	
Couple with three children	0.56**	0.56**	0.28**	0.3**	1.09	1.23	0.43**	0.37**	
Other households	0.50	0.92	0.20	0.85	0.98	1.01	0.44***	0.48**	
Under 25 years old	0.64	0.64	0.52	0.35	1 16	1 24	0.63	0.88	
25-29 years old	1.26	1 38	1.03	1 13	1 44	1.61*	1 23	1 71	
40-49 years old	1.16	1.15	0.94	0.99	1.2	1.22	1.6*	1 74**	
50-59 years old	0.76	0.66*	0.49*	0.45**	0.78	0.75	1 88*	1.76*	
60-69 years old	0.66	0.59*	0.89	0.86	0 44**	0.43**	13	14	
70-79 years old	0.59	0.49*	0.03	0.00	0.45*	0.43*	0.77	0.68	
80 years old and over	0.45	0.19	0.25	0.21	0.15	0.15	0.77	0.00	
Primary education (incomplete or no education)	0.69	0.71			1.32	1.24	0.39	0.25*	
Primary education (complete)	1.7**	1.72**	2.44*	2.35*	1.88**	1.92**	1.35	1.32	
Upper secondary education (complete)	0.78	0.66**	1.14	0.79	0.76	0.7*	0.64	0.55*	
Tertiary (higher) education (complete)	0.64**	0.48***	1.38	0.76	0.56**	0.46***	0.63	0.5*	
Income up to €6,000	0.86		1.47		0.97		1.07		
Income from €6,001 to €12,000	0.84		1.8		0.76		0.65		
Income from €18,001 to €24,000	0.62**		0.85		0.76		0.43**		
Income from €24,001 to €30,000	0.43***		0.3***		0.66*		0.32***		
Income over €30,000	0.2***		0.16***		0.31***		0.15***		
Without assets		0.74		1.85		0.33***		0.39*	
Assets from €1 to €10,000		1.34		2.07		1		0.93	
Assets from €50,001 to €100,000		0.83		0.66		0.99		0.52*	
Assets from €100,001 to €300,000		0.51***		0.49*		0.59**		0.32***	
Assets over €300,000		0.36***		0.42*		0.43***		0.32***	
One household member in employment	1.88**	1.37	1.74	0.88	2.44***	1.94**	2.91**	2.08*	
Two household members in employment	2.26**	1.02	1.94	0.49	3.48***	1.99**	2.45*	0.87	
Three or more household members in employment	3.04***	0.91	3.01	0.47	5.82***	2.24**	2.53	0.65	
Self-employed	1.18	1.35*	1.7*	1.66*	1.17	1.26	1.03	1.1	
Employer	0.73	0.7	1.47	1.36	0.56	0.53	0.72	0.61	
Pensioner	1.74*	1.38	1.79	1.07	2.64***	2.26***	1.14	0.82	
Other economically inactive	2.55**	2.35**	0***	0***	1.46	1.54	2.08	2.01	
Homeowner	0.99	1.34*	0.85	1.15	0.97	1.07	0.52***	0.73	
Immigrant	1.36	1.63*	1.44	2.62*	1.63	1.93*	0.87	1.19	
Civil servant	0.72*	0.7*	0.77	0.73	1.11	1.07	0.56*	0.47**	

Note: Reference categories: Residence location: other urban areas; household type: couple with two children; age: 30-39; educational level: lower secondary (complete); income: from €12,001 to €18,000; wealth: from €10,001 to €50,000; number of household members in employ-ment: zero; employment status: employee; housing tenure: owned; nationality: other than Greek; working in the public sector: no. *, **, ***: Statistically significant at the 10% level, the 5% level and the 1% level, respectively.



graduate (reference group), and particularly a primary education graduate. This may be partly due to more educated individuals being able to better comprehend and analyse the exact terms of the loans they contract with credit institutions.

Household size emerges as another significant determinant of the probability of a household having difficulties in servicing its loans, especially when income is controlled for. Singlemember households and couples with three children are less likely overall to have difficulties in servicing their loans compared with other households. Specifically, this probability is about twice lower for couples with three children than for couples with two children (reference category), which seems to primarily reflect differences in their respective attitudes towards the servicing of housing loans. Since income and other household characteristics are controlled for, this latter result must be associated with the economies of scale that larger households achieve in their spending (on both durable and non-durable goods), which, ceteris paribus, improve their ability to regularly service their loans.

Pensioners also have an increased likelihood of having difficulty servicing loans, particularly non-housing loans, and the same is true, but to a smaller extent, for households headed by self-employed individuals, mostly in relation to housing loans. Looking at the degree of urbanisation of residence location, households located in Athens or Thessaloniki are likely to experience much less difficulty than households residing in other urban or semi-urban areas.

In addition, this paper attempted an analysis of the socio-economic characteristics of households reporting not servicing their loans regularly. As shown by Table 5 presenting the results of the relevant logistic regressions, the probability of a household not servicing its loans regularly does not seem to be influenced by the income or size of the household or the urbanisation of its location of residence. By contrast, irrespective of whether household income or wealth is controlled for, households headed by relatively young²⁹ individuals (under 30) and households with three or more members in employment have a higher probability of not servicing their loans regularly. This could suggest that working household members act independently from one another in the context of their financial independence.

Finally, the last two columns of Table 5 present the results of the logistic regression on the socio-economic characteristics of households which have a debt servicing ratio in excess of 40%. As might have been expected, the probability of a household having a debt servicing ratio in excess of 40% declines sharply with higher income and maybe wealth. Specifically, households in the top income group have a more than six times lower probability of having a debt servicing ratio in excess of 40% compared with the reference group (€12,001 to 18,000), whereas the corresponding probability for the bottom income group is almost 5.5 times as much as that for the reference group. The age of the household head also appears to have an effect on this probability. Older individuals (50 and over) are much less likely to have a debt servicing ratio in excess of 40%. By contrast, homeownership increases this probability. More than 78% of the total debt owed by households with a debt servicing ratio in excess of 40% comes from secured housing loans, which means that the relevant borrowers must own their homes. Lastly, this probability is greater if the household head is self-employed or employer, while the size of the household, the urbanisation of its location of residence and the educational level of the household head do not seem to influence it.



²⁹ Besley et al. (2008), using data from the UK Family Expenditure Surveys for the years 1975-2005, found that households with younger heads were more exposed to the terms on which they accessed the credit market than households with older heads. Similar results were reported by Brown and Taylor (2008), Hull (2003) and La Cava and Simon (2003) using data from household panel surveys for (i) Germany, Great Britain and the United States, (ii) New Zealand and (iii) Australia, respectively.

Table 5 Logistic regression results - Irregular payment of loan instalments and debt servicing ratio in excess of 40%

	Irregular payment		Debt servicing ratio in excess of 40%			
Explanatory variables	(9)	(b)	(9)			
Athens-Thessaloniki	(a)	0.75	(a)	1.16		
Semi-urban areas	1.13	1.18	1.13	1.10		
Single	0.64	0.59*	0.91	1.15		
Couple	0.94	0.96	1 49*	1 74**		
Couple with one child	0.86	0.88	0.9	1.01		
Couple with three children	0.94	0.91	0.98	0.94		
Other households	0.7	0.67	0.82	0.96		
Under 25 years old	1 18**	1 18**	0.97	1 19		
25-29 years old	2.1**	2 21**	1 34	1.19		
40-49 years old	1 37	1.45	0.93	0.91		
50-59 years old	1.63*	1.69*	0.52**	0.42***		
60-69 years old	1.03	1.09	0.2***	0.12		
70-79 years old	2.33	2.21	0.5	0.36*		
80 years old and over	0.92	0.78	0.16*	0.15*		
Primary education (incomplete or no education)	2.02	1.94	0.99	1.64		
Primary education (complete)	1.81*	1.76*	1.5	1.7*		
Upper secondary education (complete)	1.57*	1.52*	1.01	0.87		
Tertiary (higher) education (complete)	0.93	0.89	1.02	0.72		
Income up to €6,000	1.08		5.48***			
Income from €6,001 to €12,000	1.35		1.18			
Income from €18,001 to €24,000	1.31		0.48***			
Income from €24,001 to €30,000	1.38		0.59*			
Income over €30,000	0.64		0.16***			
Without assets		0.7		1.15		
Assets from €1 to €10,000		1.71*		0.98		
Assets from €50,001 to €100,000		0.84		0.86		
Assets from €100,001 to €300,000		0.4***		0.55*		
Assets over €300,000		0.3***		0.59*		
One household member in employment	1.67	1.67	1.58	0.95		
Two household members in employment	1.58	1.46	1.37	0.46*		
Three or more household members in employment	3.67**	2.48*	2.12	0.44*		
Self-employed	1.24	1.55*	1.88***	2.12***		
Employer	1.27	1.6	2.55**	1.9*		
Pensioner	1.33	1.43	1.28	0.81		
Other economically inactive	1.67	1.79	1.18	1.28		
Homeowner	1.1	1.88**	2.92***	3.64***		
Immigrant	1.04	0.92	1.05	1.26		
Civil servant	1.57*	1.65*	0.95	0.84		

Note: Reference categories: Residence location: other urban areas; household type: couple with two children; age: 30-39; educational level: lower secondary (complete); income: from €12,001 to €18,000; wealth: from €10,001 to €50,000; number of household members in employ-ment: zero; employment status: employee; housing tenure: owned; nationality: other than Greek; working in the public sector: no. *, **, ***: Statistically significant at the 10% level, the 5% level and the 1% level, respectively.



6 CONCLUSIONS

From the above analysis, the following main conclusions can be drawn about Greek house-hold borrowing.

According to Wave 3 data, nearly half households (48.6%) do not have loan obligations, although the proportion of respondents reporting an outstanding loan debt was significantly increased compared with 2005 (2007: 51.4%, 2005: 46.9%). This was in principal consistent with the rapid expansion of bank credit to households in the period between the two waves. Credit card loans were the most common category of loans, followed by housing loans. The proportion of indebted households reporting a loan of either type was increased in Wave 3. This increase was more pronounced, however, for credit cards, since about two-thirds of all indebted households reported a debt in this form.

The 2007 wave, just like the previous waves, shows that average household debt increases with income and wealth. This relationship is particularly strong for housing loans and much weaker for other loans as a whole. In greater detail, according to the results of all three waves, access of low-income households to the banking system remains relatively limited and falling, while an increase is observed in both the percentage of indebted higher income households and their contribution to total household debt. This may be due to banks being more aware of their customers' characteristics. At the same time, however, it seems to reflect a significant shift in banks' lending policy, which, in the context of more effective credit risk management, appears to concentrate more now than in the past on attracting customers from upper income groups who are believed to better manage their debt. Meanwhile, robust credit expansion has pushed up the debt-to-income ratio (or household indebtedness) in all income groups. Indebtedness, mainly in the form of unsecured loans, is very increased for households in the bottom income group, although

they make only a minimal contribution to total household debt.

The analysis (using all three waves) suggests that, for the majority of indebted households, the direct financial stress, as measured by the debt servicing ratio (i.e. the instalment-toincome ratio), lies within limits which are generally thought to be acceptable and should not result in difficulties in the regular servicing of household loans. Nevertheless, financial stress deteriorated slightly in the period between the last two survey waves. The shares of households for which the debt servicing ratio does not exceed 33% and 40% fell from 81% and 88% in 2005 to 78% and 84% respectively in 2007, reflecting the rise in bank interest rates over the same period. Notwithstanding that and the strong growth of bank credit to households, the curve of the debt servicing ratio remained relatively low overall, probably reflecting more effective credit risk management by banks, in compliance with the guidelines of the Bank of Greece calling for the implementation of a more far-reaching and forward-looking risk management policy in this area than what competition would lead banks to implement to preserve or increase their share in retail banking.

The econometric estimation of logistic regression models showed that degree of urbanisation, household composition, number of household members in employment and household income and wealth are all significant in determining the probability of a household having a loan. Specifically, this probability is greater for households resident in the two largest cities of Greece, couples with two or more children and households where the head is in an intermediate age group or is more educated or works in the public sector and increases with household income and wealth and the number of household members in employment.

Financial stress, as measured by a range of indicators, is strongly associated with the various socio-economic characteristics of households



and generally tends to decline with higher household income and net wealth. However, this negative relationship originates solely from the component of non-housing loans (it is not statistically supported for housing loans) and may reflect the fact that banks' information requirements about the special characteristics of their prospective customers are more demanding for the granting of housing loans than for the granting of non-housing loans, a view also supported by the previously mentioned observation that the very high indebtedness of low-income households is mainly in the form of non-housing loans. Therefore, reinforcing information available to banks in the area of non-housing loans would enable them to assess the credit quality of their customers and the resulting risk exposure in a more comprehensive and accurate manner. The recent expansion of Tiresias S.A. database has been an important step in this direction, as it reduces the costs incurred by banks for collecting and managing this information. Obviously, improving information available to banks is necessary but not enough to ensure better credit risk management. Banks must also pursue a prudent and forward-looking lending policy based on adequate eligibility criteria and risk pricing. Households, on their part, must carefully balance their personal needs and financial capacity against any other financial obligations they may have and ask banks to provide them with a detailed explanation of the special characteristics of each loan and the risks it incorporates, as appropriate.

Since the last survey wave of the Bank of Greece, bank credit to households has risen further, albeit at a markedly slower pace, reflecting the recent financial turmoil, which has had a pervasive impact on all aspects of household borrowing. Despite the impact of the turmoil, the general conclusions on the borrowing attitudes of households remain valid, although financial stress is probably greater, as interest rates have increased - and continue to remain - above their end-2007 levels notwithstanding a recent fall, while GDP growth decelerated sharply in 2008 and is projected to fall to zero in 2009, thereby inevitably affecting disposable household income and household expectations.



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