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Long-term unemployment in Greece: developments, incidence and composition*

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1. Introduction

The reduction of the persistently high unemployment rate ranks high on the political agenda in Greece.[1] Unemployment is a serious economic and social predicament, both for those who experience it and for the economy as a whole.[2]

The unemployment rate itself is not, however, a sufficient indicator of the extent of flux in the labour market. A high unemployment rate may reflect either a labour market in which a large number of participants experience brief unemployment spells or a labour market in which a smaller number of individuals remain unemployed over longer periods.[3] The nature of unemployment is, however, different in the two instances. Evidence on the duration of unemployment spells is therefore needed, both to identify the causes of unemployment and to design the appropriate policy measures especially given that the adverse effects of unemployment worsen as spells become longer.[4]

The data show that in Greece there is limited mobility between employment and unemploy-

* This paper reflects the views of the authors and not necessarily those of the Bank of Greece. The valuable comments of Professor George Dimopoulos, Heather Gibson, Isaac Sabethai, George Hondroyiannis, Costas Kanellopoulos, Ilias Kikilias and Ioannis Theodossiou are gratefully acknowledged. Any errors and omissions remain the authors' responsibility.

1 The average unemployment rate during the decade 1996-2005 stood at 10.6% (see Chart 1).

2 There is by now an extensive literature, both in economics and in social psychology, regarding the effects of unemployment and its duration on the physical and mental health of the unemployed (for the economics literature see, *inter alia,* Clark, 2002; Layard, 2005 and Panagiotopoulos, 2005).

3 Time-series and cross-sectional analysis, however, suggest that in most countries there is a positive correlation between the unemployment rate and its duration (for the magnitude of this correlation in the OECD see Machin and Manning, 1999, while for the strength of this correlation in Greece see next section).

4 See, *inter alia*, Pissarides (1992).

ment. Specifically, a high percentage of labour force participants experience unemployment spells of rather long duration. In fact, the duration of unemployment is amongst the longest in the European Union of 15 member states (EU-15) as evidenced by, *inter alia,* the high percentage of long-term unemployed (unemployed who have been looking for a job for a year or over). In the second quarter of 2005 the percentage of long-term unemployed stood at 53.6% in Greece versus 41.8% in the EU-15.[5]

The present study is an initial investigation of trends in the long-term unemployment rate and the incidence and composition of long-term unemployment. In particular, this is an attempt to provide evidence on unemployment duration in the Greek labour market, to identify the features of those most likely to be long-term unemployed and to associate the differences in unemployment duration with the characteristics of the unemployed.

The evidence indicates that in the last two decades the upward trend in the unemployment rate has been accompanied by a prolongation of unemployment spells. The analysis suggests that women, elderly individuals and individuals in regions with a high overall unemployment rate are more vulnerable to longer unemployment spells. Factors that are potentially subject to the influence of economic policy such as the use of active labour market policies, so that the unemployed have an opportunity to gain work experience or to be educated and retrained in the skills in demand, might succeed in shortening unemployment spells.

In addition, cross-country comparisons suggest that certain institutional features of the product and labour markets (e.g. administrative burdens faced by businesses), which prevent prompt reaction to ongoing developments (e.g. technological progress, globalisation) and hinder the creation of new enterprises and jobs, may impact on unemployment duration.

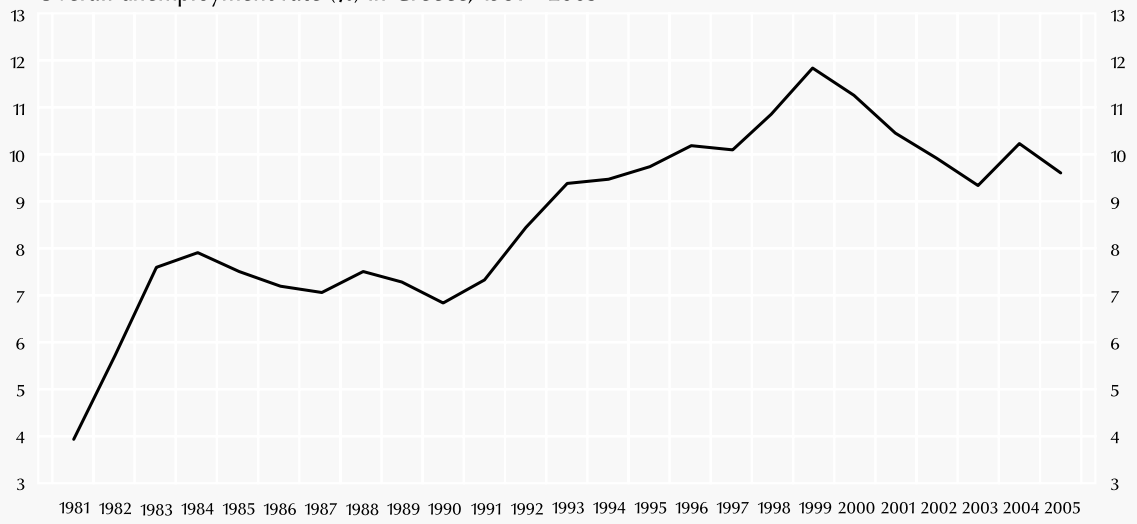
It should be stressed at the outset that this is not an investigation into the increase of the overall unemployment rate and its divergence from the corresponding EU-15 rate. Such a study would require extensive macroeconomic analysis.

This study makes use mostly of the Greek Labour Force Survey (LFS). The Greek LFS follows the definitions of the European Union Labour Force Survey which closely adhere to those adopted by the 13th International Conference of Labour Statisticians. According to these definitions individuals between 15 and 74 years old are classified as unemployed if they:(a) did no work (in paid employment or self-employment) for even an hour during the week of the survey (reference week) and (b) were actively seeking work by having taken specific steps in this direction during the 4 weeks ending with the survey reference week. Long-term unemployment refers to unemployment of twelve months and over following the practices adopted by the International Labour Office (ILO) and the Organisation for Economic Cooperation and Development (OECD).[6]

5 Data from Eurostat (New Cronos). The Eurostat data for Greece differ slightly from those published by the National Statistical Service of Greece (NSSG). According to the latter the percentage of long-term unemployed stood at 56.0% in the second quarter of 2005.

6 At the beginning of the 1980s, and before unemployment started increasing significantly in OECD countries, long-term unemployment was defined on the basis of individuals who were unemployed for 6 months or longer. The reasons for which a twelve-month limit is now used are best explained in OECD (1983).

Chart 1
Overall unemployment rate (%) in Greece, 1981 - 2005[1]



1 Refers to the second quarter of each year.

Source: NSSG, Labour Force Surveys.

An alternative potential source of data on unemployment duration is the European Community Household Panel (ECHP).[7] The LFS was preferred here over the ECHP owing to the more detailed information available in the former on location of residence and the education level of individuals. The ECHP data, however, will be used in a follow-up study to investigate further the issue of unemployment duration dependence since, compared with the LFS, the ECHP has the advantage of tracking individuals for a longer time period (8 years versus 18 months for the LFS).

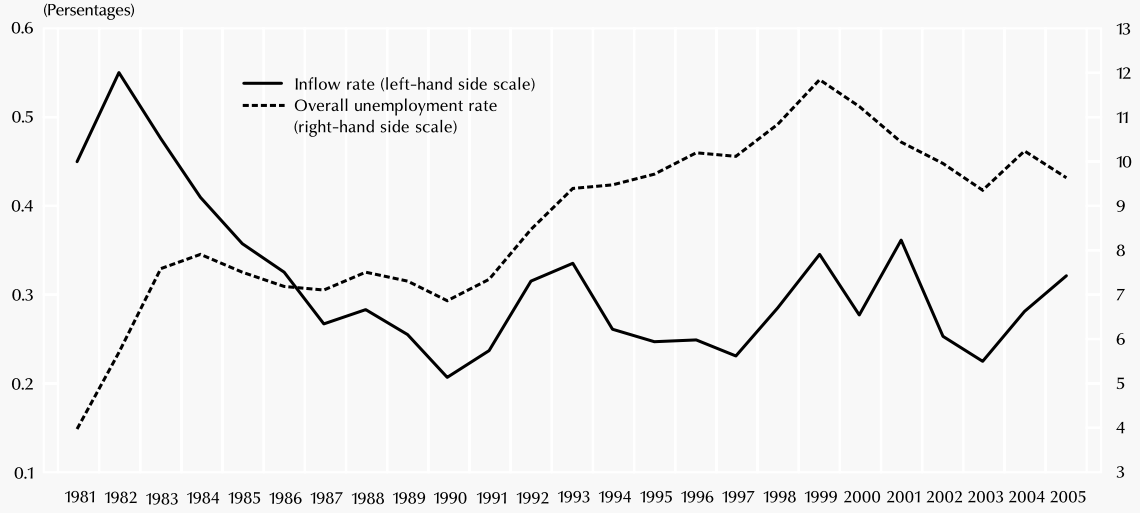
The rest of the paper is organised as follows: the next section presents some facts regarding changes over time in unemployment duration and compares the duration of unemployment in Greece with that in the EU-15, while the third section offers a more complete picture of unemployment duration in Greece today. The fourth section attempts to identify the features of the long-term unemployed and to associate the differences in unemployment duration with the characteristics of the unemployed. Finally, the fifth section summarises the findings.

2. Unemployment duration: developments and comparisons with the European Union

The unemployment rate in Greece nearly doubled between 1981 and 1985 (from around 4% in 1981 to around 8% in 1985, see Chart 1). This development is partly attributed to a significant rise in the real unit

7 The European Community Household Panel (ECHP) is a cross-national longitudinal household survey conducted, under the supervision of Eurostat, in most EU-15 countries in every year of the period 1994-2001 using a more or less harmonized questionnaire. The survey contains information on household and individual income, employment and living conditions, education and training, health conditions and other social welfare indicators. Due to panel attrition Eurostat decided in 2003 to replace the ECHP with the European Union Statistics on Income and Living Conditions (EU-SILC) and to provide for the replacement of the households that drop out of the sample. For Greece, the ECHP and the EU-SILC surveys are administered by the NSSG.

Chart 2
Inflow rate into unemployment and unemployment rate, 1981 - 2005[1]
(Persentages)



1 Refers to the second quarter of each year.

Source: NSSG, Labour Force Surveys.

labour cost (see Alogoskoufis, 1995). Between 1986 and the beginning of the 1990s the unemployment rate fluctuated around 7%, while from the start of the 1990s the number of unemployed increased again substantially and the unemployment rate reached 12% in 1999. Since then there has been a mild slowdown and in 2005 the unemployment rate stood at 10%, while in the first quarter of 2006 it decreased further to 9.7%. Comparisons of developments in Greece with those in other EU-15 countries suggest that the increase in the unemployment rate started later in Greece and remained at a high level for longer, despite the robust growth rates of the last decade. The persistently high unemployment rate in Greece is attributed to *inter alia* the continuing contraction of the agricultural sector, the rapid and continuing expansion of the labour force due to the increased participation of women and immigrants, the lack of competition in product markets, and to labour market rigidities (see Demekas and Kontolemis, 1998 and Lyberaki, 2005).

There is evidence that since the beginning of the 1980s the rise in the unemployment rate was accompanied by longer unemployment spells. This section first presents evidence on unemployment duration in Greece and then draws comparisons with the European Union.

2.1 Changes in unemployment duration over time

In a steady state, when the inflow and outflow from unemployment are equal, the unemployment rate in any one month can be decomposed into the product of the inflow rate into unemployment in that month and the average duration of unemployment (in months).[8] In

8 This decomposition can be illustrated as follows: in an economy with a labour force equal to 100, an unemployment rate of 10% in one year might be consistent either with 10 people remaining unemployed over the whole year or with the entire labour force remaining unemployed for 1.2 months or with some other combination of inflow and duration that would result in 120 total person unemployment months.

Table 1
Transition into long-term unemployment[1], 1984-2005
(Percentages)

	Total	Men	Women
1984-1989	41.3	–	–
1990-1994	48.2	–	–
1995-1999[2]	55.3	41.0	68.7
2000-2005	55.2	44.1	64.1

1 Probability of going from short-term unemployment (under one year) to long-term unemployment (over one year) calculated as the ratio of the number of persons unemployed for 12 to 23 months in year t over the number of persons unemployed for less than 12 months in year t-1. The figures are annual averages of the respective 5-year periods.
2 The average for this period excludes 1998 due to the break in the LFS series in that year.
Sources: OECD (2002), Chart 4.3 p. 193 for the period 1984-94 and NSSG, Labour Force Surveys for the period 1995-2005.

Greece, the monthly inflow rate[9] declined in the 1980s and has since fluctuated around the level reached at the end of that decade (see Chart 2). The combination of a relatively constant inflow rate with a rising overall unemployment rate suggests that unemployment spells have become longer.

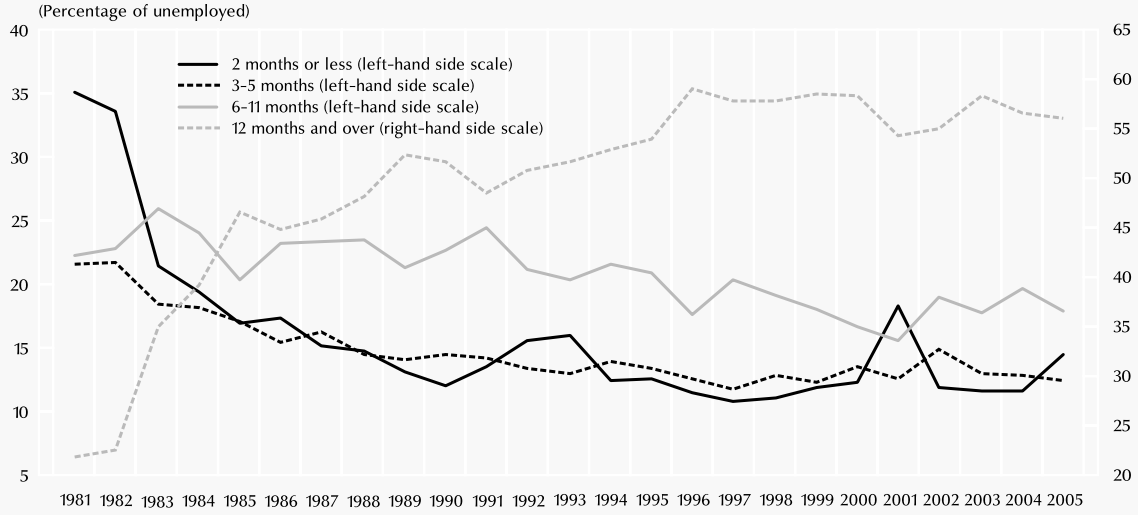
Additional indications of the prolongation of unemployment spells is the increased transition from short-term to long-term unemployment and the resulting increase in the percentage of long-term unemployed. Data on the former are presented in Table 1. The data presented there indicate that while in the period 1984-89 around 41% of short-term unemployed in year t continued to be unemployed in year (t+1), this percentage increased to 55% during the period 2000-2005. In other words, in the period 2000-2005 around 55 out of the 100 short-term unemployed became long-term unemployed. The difficulty in finding a job appears to be more pronounced for women for whom this percentage stood at 64.1% compared with 44.1% for men.

As a result of the increased difficulty in finding a job, the percentage of long-term unemployed amongst the unemployed increased significantly over time. Specifically this figure increased during the 1980s from 39.0% in 1984 to 52.2% in 1989.[10] This upward trend continued, albeit at a slower pace, until the mid-1990s when the percentage of long-term unemployed was over 59% (1996). Since then this percentage has been exhibiting narrow fluctuations around this level (see Chart 3). In 2005 on average, approximately

9 The inflow rate into unemployment in one month is here defined as the ratio of the number of unemployed who will either now start seeking work or who have been unemployed for less than a month, over the size of the population 15-64 years old (see OECD,1995).

10 Data on unemployment duration are also available from administrative sources namely from the Greek Manpower Employment Organisation (OAED). These data are, however, only available from 2004 onwards and paint a different picture to that provided from the LFS. More specifically, according to OAED data the percentage of long-term unemployed amongst those registered unemployed was around 29% in 2005 (compared with around 56.0% according to the LFS). The difference may be due to the absence of incentives to register with OAED for those who have been unemployed for longer than 12 months since the maximum length of time for which the unemployment benefit is paid is in general a year. The conditions, the level and the length of payment of the unemployment benefit are presented in Section 4 of the Appendix. Indicative of either the lack of incentives to register with OAED or of the difference in defining the unemployed is the fact that of the LFS unemployed in the second quarter of 2005 only 58% are registered with OAED, and from those only about a quarter are unemployment benefit recipients. These percentages were even lower at the beginning of the 1990s but the legislative changes that took place may have also contributed to these developments.

Chart 3
Distribution of unemployed by duration, 1981 - 2005[1]
(Percentage of unemployed)



1 Refers to the second quarter of each year.

Source: NSSG, Labour Force Surveys.

55% of the unemployed were long-term unemployed.[11] The increase in the percentage of long-term unemployed during the period 1981-2005 reflects increases in this rate for both genders and for all age groups (see Table 2).

From the above it appears that in Greece, as in most OECD countries, there is a positive correlation between the overall unemployment rate and the percentage of long-term unemployed.[12] The main reason for this correlation is that as the unemployment rate increases there are continuously fewer vacancies and the first to leave the unemployment queue are those with the skills in demand (see, *inter alia,* Blanchard and Diamond, 1994). As the number of long-term unemployed continues to rise those lacking these skills have increasingly fewer chances to find a job. In addition, even when demand picks up employers are often reluctant to hire people who have been unemployed for a long time, since they fear that these individuals have already been rejected by other employers. Furthermore, they might also suspect that these persons are not as productive as others with the same formal qualifications, who have not, however, been unemployed for as long (see, for example, Pissarides, 1992). In other words, a prolonged stay in unemployment is due not only to insufficient demand but also to negative unemployment duration dependence.

The increase in the percentage of long-term unemployed in Greece has led to the introduction of income support measures. More specifically, Law 1545/1985 exceptionally provides for the payment of regular benefits for a period of 5

11 The percentage of long-term unemployed in the first quarter of 2006 (53.6%) is unchanged compared with that in the corresponding quarter of 2005.

12 For the period 1981-2005 the correlation coefficient between the overall unemployment rate in Greece and the percentage of long-term unemployed is 0.85.

Table 2

Percentage of long-term unemployed[1] by gender and age group, 1981-2005

(Second quarter of each year)

			Men			Women		
	Men	Women	15-29 years old	30-44 years old	45-64 years old	15-29 years old	30-44 years old	45-64 years old
1981-84	20.8	38.4	21.1	20.1	20.8	38.5	37.5	39.7
1985-89	37.0	55.1	37.0	36.4	37.9	54.7	57.5	51.2
1990-94	41.2	57.4	40.8	42.0	40.8	56.3	60.8	54.7
1995-99	48.8	63.0	47.4	49.3	52.3	61.8	64.9	63.3
2000	51.7	62.7	50.0	53.8	54.4	61.1	64.4	65.6
2001	48.3	58.2	46.5	48.1	54.8	54.8	62.8	58.9
2002	49.9	58.2	49.6	47.6	53.7	53.5	63.8	60.8
2003	51.9	62.4	51.5	52.0	52.8	58.0	68.1	62.1
2004	48.7	61.0	48.8	48.5	48.5	55.3	65.6	66.1
2005	46.4	61.4	45.2	44.8	51.5	55.3	64.3	70.0

1 The figures represent the percentage of the unemployed who have been in this state for 12 months or longer; for example in 2005 45.2% of unemployed men between 15 and 29 years old had been unemployed for 12 months or longer.

Source: NSSG, Labour Force Surveys.

months to young persons (between 20 and 29 years old) with no previous work experience, who have registered as unemployed for over a year. Law 3016/2002 provides for the payment of a special benefit (for a period up to a year) to long-term unemployed between 45 and 64 years old after regular benefit payments have been exhausted. Special provisions have also been introduced to cover those fired from the textiles industry (Law 3460/2006, article 13), while the intention to create a social cohesion fund to provide income support to unemployed older than 50 was recently announced.[13] The conditions for the receipt of benefit payments, the level of the benefit and the duration of benefit payments are presented in Section 4 of the Appendix. In addition, measures to assist the long-term unemployed in finding a part-time job in the public sector have been introduced in the form of, for example, quotas for hiring long-term unemployed in such positions (Law 3250/2004).

2.2 Cross-country comparisons

Since 1990 the percentage of long-term unemployed in Greece has been higher than in the EU-15 (see Graph 4). This gap reflects mainly the much longer unemployment spells of women in Greece. In fact, until 1998 the percentage of long-term unemployed men in Greece was lower than that in the EU-15.[14] Since then, however, the percentage of long-term unemployed for both genders is higher in Greece than in the EU-15. During the period 1998-2005 the percentage of long-term unemployed men in Greece was on average 47% compared with 43.9% in the EU-15, while the

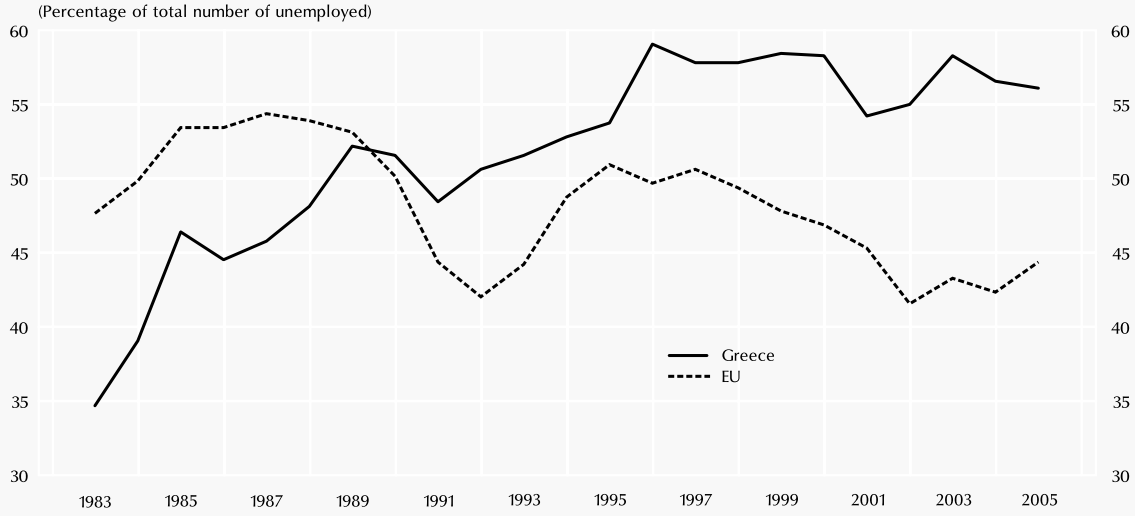
13 See the speech (in Greek) of the Minister of Employment and Social Protection on the 27th June 2006 at the deliberations of the National Employment Committee (http://www.ypakp.gr/downloads/texts/2190.pdf).

14 See the Statistical Annex to various issues of the OECD *Employment Outlook*.

Chart 4

Long-term unemployment in Greece and the EU[1], 1983 - 2005

(Percentage of total number of unemployed)



1 EU includes the EU-15 except for Austria, Finland, Greece and Luxembourg.

Sources: OECD (2005, 2006), and NSSG, Labour Force Surveys.

corresponding figures for women were 59.3% and 46.3%, respectively.[15]

This positive correlation between the unemployment rate and unemployment duration could go some way towards explaining the difference between Greece and the EU-15 regarding the higher percentage of long-term unemployed.

Institutional factors could also potentially explain the divergence in the long-term unemployment rate between Greece and the EU-15. Certain institutional factors as, for example, product-market regulation could be preventing the prompt reaction of markets to ongoing developments (e.g. technological progress, globalisation).[16] For example, product market regulations that prevent the functioning of competition might be restricting the establishment of new firms and, hence, job creation. In addition, the reluctance of employers to create new jobs, owing to the size of non-wage costs and the difficulties in creating and destroying these jobs, might also be prolonging unemployment duration.

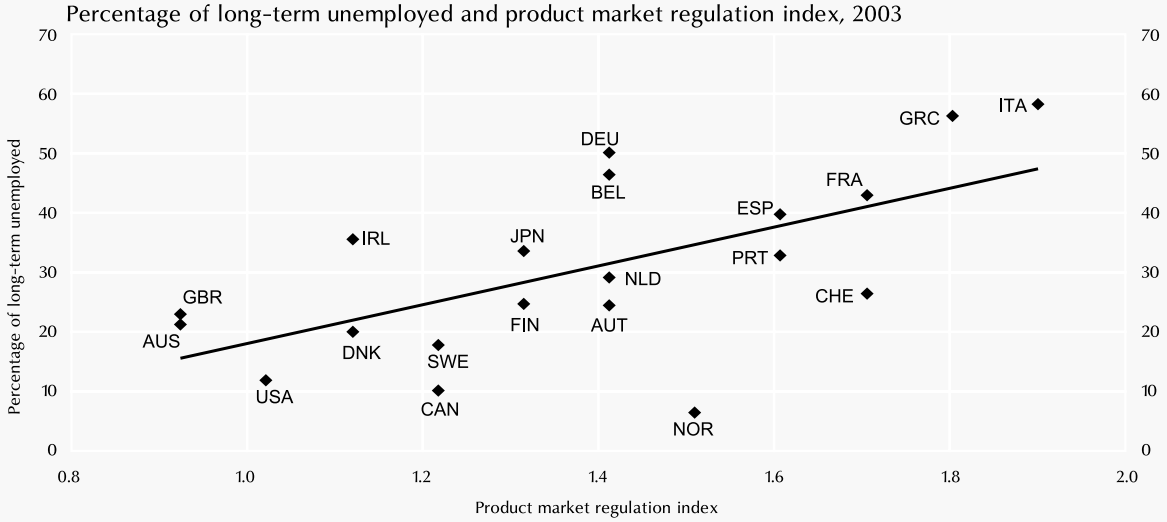
The OECD has constructed a number of indices to capture certain institutional aspects of product and labour markets. As Chart 5 suggests there is a positive correlation between the extent of product market regulation and the percentage of long-term unemployed. Greece and Italy which have the least business-friendly regulation also have the highest percentage of long-term unemployed. Denmark, on the other hand, with a more busi-

15 It should be mentioned, however, that in 2005 in Greece the percentage of long-term unemployed men is marginally lower than the respective figure for the EU-15 (43.1% compared with 43.9%) while the percentage of long-term unemployed women continues to be much higher (59.6% compared with 44.8% in the EU-15).

16 See Blanchard and Portugal (1998) for similar arguments for Portugal, and Blanchard (2005) for the role of institutional factors in explaining the unemployment rate in Europe.

Chart 5

Percentage of long-term unemployed and product market regulation index, 2003



Note: The regression line is LTU=-13.2+31.9*PMR, with an R^2=0.39, LTU is the percentage of long-term unemployed and PMR is the index of product market regulation

Source: OECD, *Employment Outlook (2006)* and Conway *et al.* (2005).

ness-friendly climate has a considerably lower percentage of long-term unemployed.[17]

A positive correlation has also been found between the Employment Protection Legislation Index (EPL)[18] and the percentage of long-term unemployed (Chart 6). It should, however, be mentioned at this point that the EPL index ignores cross-country differences in the extent of self-employment or undeclared work which, in turn, however, could arise as a result of product and labour market restrictions.

A further potential explanation for the longer unemployment duration in Greece is the limited implementation of active labour market programmes (ALMPs). According to Eurostat data the percentage of GDP spent on ALMPs in Greece is much lower than in the EU-15.[19] More importantly, in a recent evaluation of ALMPs the OECD notes that, rather than increasing spending, there is need to improve the effectiveness of ALMPs through, *inter alia,* the early intervention of employment services and active job search support (see OECD, 2006).

The foregoing paragraphs presented some evidence on developments regarding the length of

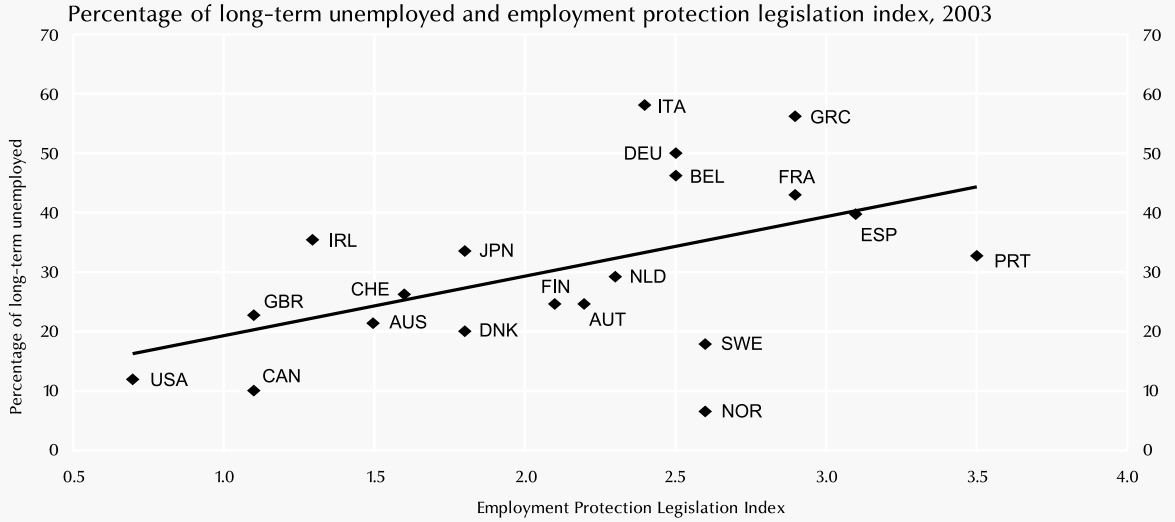
17 The product-market regulation index reflects aspects of the quality of the business environment in each country (e.g. state control; barriers to entrepreneurship such as administrative burdens, regulatory and administrative opacity and barriers to competition; barriers to trade and investment). The index takes values between 0 and 6 from least to most restrictive. The index is available from the OECD for 1998 and 2003 and its construction is described in detail in Conway *et al.* (2005). For Greece, despite a significant improvement in the index from 2.8 in 1998 to 1.8 in 2003, regulation is still more restrictive than in all other OECD countries presented, with the exception of Italy (see Chart 5).

18 The index summarises a set of rules governing hiring and firing policies (mostly those provided through legislative measures) regarding both regular employment and temporary work. The index takes values between 0 and 6 from least to most restrictive. Details of the precise definition and construction of the index can be found in OECD (2004).

19 In 2004 expenditure on ALMPs in the EU-15 amounted to 0.64% of EU-15 GDP compared with only 0.17% in Greece.

Chart 6

Percentage of long-term unemployed and employment protection legislation index, 2003



Note: The regression line is LTU=9.1+10.1 EPL, with an R^2=0.17, LTU is the percentage of long-term unemployed and EPL the employment protection legislation index.

Source: OECD, *Employment Outlook* (2004 and 2006).

unemployment spells and changes in the percentage of long-term unemployed over time, while the next section presents a more complete picture of unemployment duration in Greece today.

3. Unemployment duration: characteristics of its distribution

The above focused on the percentage of long-term unemployed without presenting a complete picture of the distribution of unemployment duration. The data, however, suggest that there is substantial variation in the length of unemployment spells. Table 3 presents information on the length of time individuals have been unemployed in the period 1993-2005. Despite the fact that duration is grouped in relatively wide intervals,[20] the data suggest that there is a considerable dispersion of values and the percentage of those who have remained unemployed for 4 years or over is quite high.

Using these data one could proxy average unemployment duration. Complications arise, however, because durations are grouped in relatively wide intervals and furthermore the first and last intervals are unbounded. As is usual in these cases (see *inter alia* Meghir *et al.*, 1989; Kanellopoulos, 2005), the average length is proxied by the mid-point of the interval, while two assumptions are made regarding the unbounded intervals: (a) individuals that are about to start looking for a job are grouped together with those who have spent less than one month looking for a job and the assumption is made that they have all

20 The LFS records the replies to the question "How long have you been looking for a job?" in the following 9 intervals: (i) will start looking for a job now, (ii) less than a month, (iii) 1-2 months, (iv) 3-5 months, (v) 6-11 months, (vi) 12-17 months, (vii) 18-23 months, (viii) 24-47 months and (ix) 4 years or over.

Table 3

Percentage distribution of unemployed by duration of unemployment spell[1], 1993-2005

(Second quarter of each year)

Year	Less or equal to one month[2]	Over 1 month and up to 2 months	Over 2 months and up to 5 months	Over 5 months and up to 11 months	Over 11 months and up to 17 months	Over 17 months and up to 23 months	Over 23 months and up to 47 months[3]	Over 47 months	Total
1993	6.9	9.8	12.6	19.6	14.5	8.0	28.6	–	100.0
1994	5.0	7.8	13.7	21.2	13.5	8.2	30.6	–	100.0
1995	4.5	8.6	13.2	20.8	14.7	8.5	29.7	–	100.0
1996	4.1	7.5	12.5	17.4	14.2	8.9	35.4	–	100.0
1997	3.9	7.0	11.4	20.2	14.4	7.7	35.4	–	100.0
1998	4.3	6.5	12.5	19.0	11.8	7.8	38.1	–	100.0
1999	4.8	6.8	12.1	17.8	13.9	9.9	19.3	15.4	100.0
2000	3.9	8.2	13.3	16.4	14.7	9.9	16.5	17.1	100.0
2001	5.8	12.4	12.3	15.3	13.7	9.1	15.3	16.1	100.0
2002	3.9	7.7	14.6	18.8	12.6	9.5	16.1	16.8	100.0
2003	3.6	7.8	12.7	17.6	15.7	11.4	15.4	15.8	100.0
2004	4.2	7.2	12.6	19.5	13.4	10.4	15.2	17.5	100.0
2005	5.3	8.9	12.1	17.7	14.0	9.3	15.4	17.3	100.0

1 In completed months.
2 The figures in this column include those who have not started looking for a job.
3 Up to 1998 the figures in this column represent all those who have been unemployed for 2 years or over.
Source: NSSG, Labour Force Surveys.

spent a month unemployed (b) individuals unemployed for 4 years or more are assumed to have been unemployed for 5 years (60 months).[21]

Under these assumptions the average length of an incomplete unemployment spell in the second quarter of 2005, is around 22 months (around 18 months for men and approximately 24 months for women) while the median length of unemployment is one year; 9 months for men and 14 months for women.[22] This estimate, however, is only a proxy since most intervals are 5 months long and thus there is a sizeable range from which this estimate can deviate.

Besides the "technical" issues mentioned above, it is possible that the estimator arising from data such as that used here, which depict the time those *currently* unemployed have spent seeking work, might not accurately measure the average length of time these people spend unemployed for three reasons. First, because those who are currently unemployed will continue searching for a job until they find one (assuming they do not withdraw from the labour market).[23] Secondly,

21 The Greek Manpower Employment Organisation (OAED) data cannot suggest a maximum value for unemployment duration. The value used here appears reasonable, however, given that those unemployed for over 5 years are likely to withdraw from the labour force. Furthermore, only 12.5% of the unemployed with previous work experience who declared (in the 2005 survey) the year in which they worked last, indicated that this was before 2000.

22 Even though these grouped data permit only an approximate calculation of the median this is more representative than the mean, as a measure of the length of the average unemployment spell, given the wide dispersion of the unemployment duration distribution.

23 The distinction between the average length of unemployment and the average length of time to find a job is analogous to the difference between the average age of the population and the expected life time (see Akerlof and Main, 1980).

because the probability of an unemployed person being in the sample is higher the longer the unemployment spell the individual is experiencing.[24] Finally, because most individuals have only limited ability to accurately recall past events (see *inter alia* Torelli and Trivellato, 1993). The first two of the above shortcomings affect unemployment duration in opposite directions. In particular, ignoring the fact that the length of the unemployment spell is incomplete will lead to a reduced estimate of average unemployment duration, while not taking into account the short-term unemployed leads to an overestimate of unemployment duration.

In order to estimate the average length of a completed unemployment spell, i.e. the time needed to *find* a job, we exploit the longitudinal nature of the LFS. More specifically, the LFS tracks a number of individuals over 6 consecutive quarters. From this information one can calculate the length of time it takes to find a job for those who were successful in doing so. In our sample 198 individuals, *unemployed* in the first quarter of 2004, found a job at some point in time during the subsequent five quarters (until the second quarter of 2005). From these data one can calculate the overall median unemployment duration at about 9 months (the median duration in this sample is higher for men than women). The data thus show that in 2005 the incomplete length of the *unemployment spell* is longer than the complete length of unemployment; an indication of negative duration dependence (see Salant, 1977).

The estimated average length of an unemployment spell on the basis of data on the most recent such spell ignores the fact that some individuals experience repeated unemployment spells. The LFS is not, however, designed to study repeat incidences of unemployment, since the length of time over which it tracks the same individuals is short (only 6 quarters). The European Community Household Panel (ECHP) data, on the other hand, which tracks the same individuals over a much longer time period (8 years) shows that in Greece over 33% of individuals with at least one unemployment spell (none of which was longer than a year) in the period 1994-1997, had 4 discrete unemployment spells (OECD, 2002). The percentage of unemployed with repeat unemployment spells appears in fact to be higher in Greece than in the other EU-15 countries, possibly because of the seasonal nature of a significant part of economic activity (e.g. agriculture, tourism).

From the above it appears that the persistence of unemployment in Greece reflects both the lengthening of unemployment spells for some individuals —the length of which for some unemployed (around 17%) exceeds 4 years— as well as the recurrence of shorter unemployment spells interspersed with intermittent periods of employment for other individuals.

4. Differences of unemployment duration

The differences by gender in the incidence of long-term unemployment and in unemployment

24 For example the seasonally unemployed, the inclusion of whom in the calculation of unemployment duration would reduce the average length of unemployment, have a lower probability of being included in the sample since the chance of someone registering as unemployed in the survey is directly related to the time he/she has been unemployed. Unemployment is seasonal in Greece as indicated by, *inter alia,* the fact that the proportion of the unemployed who have been unemployed for 2 months or less is higher in the last quarter of each year.

duration have already been mentioned. The incidence of long-term unemployment and the length of unemployment spells also differ by age, region, previous work experience etc. Job search theory provides a useful framework in which to consider these differences.

4.1. Job search theory: a brief exposition

According to job search theory the probability of exiting from an unemployment spell depends on the joint probability of receiving a job offer and accepting this (see, *inter alia,* McKenna, 1990, and Mortensen, 1986, for a presentation of the theoretical framework and Nickell, 1979, Arulampalam and Stewart, 1995, and Layard *et al.*, 2005, for empirical applications).

In general, the probability of receiving a job offer depends on both the prevailing macroeconomic conditions and the skills of the unemployed. Macroeconomic conditions are proxied either by the local unemployment rate or the number of vacancies. Skills, and more generally the productive features of the unemployed, are proxied through their demographic features (age, marital status), their education, their previous working experience etc. The probability of finding a job also depends on the intensity of job search (e.g. search through work agencies, direct applications to employers etc.).

The probability of accepting a job offer depends on: (a) the wage offered relative to the reservation wage (the reservation wage is the minimum wage for which the unemployed would agree to work), (b) the cost of searching for a job, (c) income from alternative sources, and (d) the size of the unemployment benefit. The job search cost includes both direct costs (e.g. application costs, costs for participating in competitions etc.), as well as the present value of forgone income.

The reservation wage, which in certain instances is observable by the researcher,[25] depends on the person's skills and the opportunity cost of the time spent searching or working (e.g. child care). The reservation wage is not necessarily time invariant and in fact is probably a negative function of time as the cost of being jobless increases over time (since over time both the psychological cost of being jobless increases and the probability that the savings/liquidity constraints become binding rises). At the same time, the expectations of the unemployed (or in general of the person seeking work) regarding the probability of finding a job become more realistic. The reduction in the reservation wage increases the probability of finding a job. This change does not, however, necessarily imply that the probability of leaving unemployment increases over time since this probability is also influenced by other factors already mentioned in earlier sections (e.g. negative stance of employers to long-term unemployed, obsolescence of skills etc.).

Economic theory has proposed a number of job search models depending on (a) whether individuals can search while on the job and (b) the method of job search followed. Regarding the method of job search, some models assume that the unemployed have a predetermined number of firms that they visit and choose the best

25 The ECHP asks individuals looking for a job to report their reservation wage. The Greek LFS, on the other hand, asks only those who have rejected a job offer to report the reason for doing so. In the second quarter of 2005 13% of all unemployed rejected a job offer and amongst them 16.3% did so because the remuneration offered was not considered adequate.

amongst the offers received (*fixed search models*). Other models, however, assume that individuals search sequentially and stop when the wage offered is higher than the reservation wage (*sequential search models*). These two categories of models have different implications regarding the level of the reservation wage and the rate at which this varies, which are, however, difficult to distinguish empirically.

The main ideas outlined above are applied in what follows in trying to identify the characteristics that influence the probability of long-term unemployment (Section 4.2) and the length of unemployment spells (Section 4.3).

4.2. Features of the long-term unemployed: estimates from a probability model

In trying to understand long-term unemployment and to make the appropriate policy decisions it is useful to know the features of the long-term unemployed, both features that are thought to influence the probability of receiving a job offer (e.g. education level of the individual, local labour market conditions, family status, work experience) as well as features that influence the probability of accepting this offer (e.g. education level, unemployment benefit, alternative uses of time).

The features of the long-term unemployed in Greece have already been investigated by Dedousopoulos, Labrinides, Serafetinides (1991) and Kostaki and Ioakimoglou (1998). The first of these studies presents the features of the long-term unemployed in 1988, compares these with those of the long-term unemployed in 1983 and tries to identify what distinguishes the long-term unemployed from those who are employed. The second study looks at the characteristics of the long-term unemployed in a more recent time period (1994) and looks at the features associated with the probability of being long-term versus short-term unemployed. Kostaki and Ioakimoglou (1998) define as long-term unemployed those who have been looking for a job for a period of 2 years or more and estimate a logit regression. Their estimates show that the probability of long-term unemployment is associated with gender (women are more likely to be long-term unemployed), with age (the probability of long-term unemployment increases with age), with marital status (married men are less likely to be long-term unemployed), but find no association between the level of education and the probability of long-term unemployment.

The association of long-term unemployment with gender appears to hold for the entire period 1981-2005 and for all age groups (see Tables 2 and 4). As an indication, note that in the period 2000-2005 the percentage of long-term unemployed women exceeds the corresponding figure for men by 10 percentage points on average. The probability of becoming long-term unemployed also differs by age, a variation which is more prominent amongst women. The percentage of long-term unemployed women is higher for women aged between 30 and 44 years old (see Table 2).

The percentage of long-term unemployed also varies significantly by region (see Table A1). The ranking of regions according to this rate appears relatively stable with only minor variations from year to year; the Ionian islands, the South Aegean and Crete have the lowest long-term unemployment rates for both genders, while West Macedonia and Western Greece show the highest rates.

Table 4

Distribution of unemployed by duration of unemployment spell[1], by gender and age group

(Second quarter of 2005)

	Less or equal to one month[2]	Over 1 month and up to 2 months	Over 2 months and up to 5 months	Over 5 months and up to 11 months	Over 11 months and up to 17 months	Over 17 months and up to 23 months	Over 23 months and up to 47 months	Over 47 months	Total
					Total				
15-19	7.3	16.4	18.7	27.9	10.5	9.3	8.8	1.1	100.0
20-24	5.9	10.1	12.1	19.9	18.7	12.0	14.6	6.7	100.0
25-29	4.2	9.8	12.3	18.5	14.0	9.4	18.6	13.2	100.0
30-44	5.1	8.1	11.7	16.9	12.0	8.7	15.7	21.8	100.0
45-64	5.9	6.9	11.3	13.7	14.4	7.1	13.5	27.2	100.0
Total	5.3	8.9	12.1	17.7	14.0	9.3	15.4	17.3	100.0
					Men				
15-19	14.1	6.4	24.1	25.7	8.0	9.7	9.3	2.7	100.0
20-24	4.9	13.6	12.7	19.9	20.9	9.4	10.7	7.9	100.0
25-29	5.1	10.3	19.3	20.0	10.5	7.8	18.0	9.0	100.0
30-44	7.3	11.3	16.5	20.0	10.1	9.2	13.1	12.5	100.0
45-64	6.1	10.0	13.8	18.6	14.1	6.4	12.0	19.0	100.0
Total	6.5	10.9	16.2	20.0	12.9	8.4	13.3	11.8	100.0
					Women				
15-19	2.3	23.7	14.8	29.5	12.2	9.1	8.4	0.0	100.0
20-24	6.4	8.0	11.8	19.9	17.5	13.5	16.9	6.0	100.0
25-29	3.7	9.5	8.3	17.7	16.0	10.4	18.9	15.5	100.0
30-44	4.1	6.6	9.6	15.5	12.8	8.4	16.9	26.1	100.0
45-64	5.9	4.7	9.4	10.0	14.6	7.6	14.5	33.3	100.0
Total	4.6	7.8	9.9	16.4	14.6	9.7	16.6	20.4	100.0

1 In completed months.
2 Includes those who have not started looking for a job.
Source: NSSG, Labour Force Surveys.

The probability of becoming long-term unemployed also varies depending on previous work experience and on the job search tactic followed. More specifically, the incidence of long-term unemployed is higher amongst those with no previous work experience. Especially amongst women the majority (around 51% in the second quarter of 2005) of the long-term unemployed have no previous work experience. Amongst those with previous work experience the reason for which they lost their job does not appear to be related to the length of time for which they are unemployed. From those long-term unemployed who became unemployed because they were made redundant most men were previously working in the construction sector, while a high percentage of the women were working in the retail trade sector and in hotels and restaurants.[26] Finally, the long-term unemployed appear, paradoxically, to use more alternative search methods.

26 The concentration of long-term unemployed women in these sectors is higher than for employed women.

The partial correlations presented above between certain variables and the percentage of long-term unemployed cannot provide for a *ceteris paribus* estimate of the influence of each feature on the probability of long-term unemployment. To this effect a model of long-term unemployment should be estimated to investigate the contemporaneous impact of all these factors and to find out whether the conditions in the local labour market are correlated with the probability of long-term unemployment conditional on age, gender and level of education.

The estimated model is of the following form:

$$P(ltu=1)=\Phi(z_i, g_i, q_i)$$

where $P(ltu)$, the dependent variable, is the probability that the unemployed has remained without employment for a period of 12 months or longer and takes the value 1 when this is the case and the value 0 otherwise. Amongst the independent variables z_i includes demographic features (age, marital status, location of residence, number of children), g_i includes variables measuring the level of education, while q_i represents variables which proxy other productive features of the unemployed (e.g. previous work experience). Subscript i denotes the individual. The model has been estimated by maximum likelihood using the cumulative normal density function as the Φ function (Probit model) and the estimates are presented in Table 5.

The model is estimated with data from the second quarter of the 2005 LFS sample which includes 1,100 unemployed men between 15 and 64 years old and 2,079 women between 15 and 59 years old.[27] The percentage of long-term unemployed men in this sample is 46.7% and the percentage of long-term unemployed women is 61.2%. Descriptives of the variables used are presented in Table A2 in the Appendix.

The estimates suggest that the probability of long-term unemployment increases with *age* for both men and women. Married men are less likely to be long-term unemployed but *marriage* does not affect the probability of long-term unemployment for women. The *number of children* does not appear to have an impact on the probability of long-term unemployment and this result holds true even if we restrict the sample to include only married women. Regarding the influence or otherwise of *education* it appears that men who are higher-education graduates and are younger than 45 years old have little chance of becoming long-term unemployed. For younger women the level of education does not appear to be related to the probability of becoming long-term unemployed, while for women over 45 years old it appears that the probability of long-term unemployment is lower amongst those with a lower education level. This result could reflect the low long-term unemployment rate of women in rural areas. Local labour market conditions, as proxied here by the *unemployment rate in the region of residence*, influence the probability of long-term unemployment in the expected direction but the correlation is much higher for men than for women. Finally, there is a negative correlation between the probability of becoming long-term unemployed and *previous work experience*.

Following the identification of certain factors associated with the probability of one becoming

27 Individuals with long-term illness have been excluded from the sample.

Table 5

Marginal effects from the estimation of the probability of long-term unemployment (probit model)
Dependent variable: probability of long-term unemployment, second quarter 2005 [1,2]

Variables	Unemployed men		Unemployed women	
Demographic features				
Age	0.020	(0.0032)**	0.014	(0.0019)**
Marital status	–0.22	(0.048)**	0.0083	(0.032)
Presence of children aged between 0 – 6		–	0.028	(0.037)
Presence of children aged between 7–10		–	–0.0074	(0.038)
Presence of children aged between 11–15		–	–0.016	(0.033)
Semi-urban	–0.025	(0.050)	–0.014	(0.034)
Rural areas	–0.031	(0.041)	0.0045	(0.030)
Highest education level				
Compulsory education * Age ≤ 45 years old	0.021	(0.044)	–0.025	(0.034)
Compulsory education * Age > 45 years old	–0.23	(0.066)**	–0.13	(0.060)*
Tertiary education graduates * Age ≤ 45 years old	–0.11	(0.046)*	–0.024	(0.029)
Tertiary education graduates * Age > 45 years old	–0.10	(0.11)	–0.036	(0.10)
Local labor market conditions				
Local unemployment rate	0.023	(0.0092)**	0.0064	(0.0031)*
Other				
Previous employment experience	–0.36	(0.041)**	–0.27	(0.025) **
Long-term unemployment rate in the sample (%)	46.7		61.2	
Predicted long-term unemployment rate (%)	46.5		62.1	
Log likelihood	–697.5		–1.295.2	
Likelihood Ratio	$\chi^2(10)=95.6$		$\chi^2(13)=140.9$	
Pseudo-R^2	8.2		6.7	
Sample size	1,100		2,079	

1 The dependent variable is binary and takes the value 1 when the individual has been unemployed for a year or longer and the value 0 when the individual has been unemployed for a shorter time period. All independent variables with the exception of age and the local unemployment rate are dummy variables which take the value 1 when the individual possesses the feature in question otherwise take the value 0.

2 The table presents marginal effects which measure the impact of the change of an independent variable on the deviation of the probability of becoming long-term unemployed from the same probability for the reference group. Standard errors are presented in parentheses below the marginal effects. The statistical significance at 1% and 5% is denoted by ** or * respectively. Unemployed high-school graduates who are not married, live in urban areas and have no previous work experience constitute the reference group.

long-term unemployed, the next section estimates models of the probability of exiting from unemployment at various points in time given that it is clear from the previous sections (see, for example, Table 3) that there is considerable variation, from a few weeks to over 4 years, in the length of unemployment spells. From the previous results it is clear that the probability of exiting from unemployment differs by gender. In what follows this probability is only modelled for men. The probability for women will be modelled in a follow-up study since it requires more elaborate analysis to deal with the probability of transition both from unemployment to employment as well as with the transition from unemployment to inactivity, which is most common among women.[28]

28 The use of a dummy to discriminate between genders would not assist in identifying the differences in unemployment duration of the two genders since it would not allow for differences in the slope of the estimated function. Furthermore, for women there is need to study more variables that reflect their alternative or additional activities (e.g. number of children, childcare availability etc.).

4.3 Characteristics of unemployment duration

The estimation methods used for modelling variables that measure the time elapsed until a certain event occurs have their origins in the area of medical research and industrial engineering. A brief presentation of these is contained in the Appendix. This section first discusses the data used in the analysis and then presents the estimates found. In the economics literature there are only two well-known studies that deal with the estimation of unemployment duration models for Greece using individual-level data. The first, that of Meghir *et al.* (1989), makes use of the 1981 LFS to identify factors that have an impact on the unemployment duration of men. From the results it appears that *ceteris paribus* there is a positive correlation between unemployment duration and education level. This result is taken as an indication that an improvement in the education level increases the reservation wage and thus prolongs unemployment duration. From the analysis there are no indications of duration dependence. The second relevant study, that of Kanellopoulos (2005), estimates the probability of exiting from unemployment in the period 1998-99 for both men and women and reaches the conclusion that tertiary education graduates have, *ceteris paribus,* a higher probability of exiting from unemployment. Furthermore, the estimates suggest that vocational training also shortens the length of unemployment spells.

The analysis that follows uses two samples. The first sample is the same as that used in estimating the probability of long-term unemployment in the previous section and includes 1,100 unemployed men between 15 and 64 years old. The second sample includes information on 343 men who were unemployed in the second quarter of 2004 and were still present in the LFS sample until the second quarter of 2005. By the second quarter of 2005, 63.8% of these men continued being unemployed, while the remainder had found a job in this interval.[29]

In terms of the statistical methodology followed, all observations of the first sample are censored in that the total length of time these individuals will remain unemployed is not known.[30] The second sample, on the other hand, includes both uncensored and censored observations. The uncensored observations include those individuals who exited from unemployment at some point in time between the second quarter of 2004 and the first quarter of 2005 and are employed in the second quarter of 2005. The censored observations include those individuals who are still unemployed in the second quarter of 2005.

In the analysis that follows unemployment duration is determined by the replies given to the LFS question on the length of time the interviewee has spent looking for a job.[31] Since, as already mentioned, the replies are recorded in intervals[32] rather than in exact number of months or weeks,

29 The sample does not include 10 individuals who were unemployed in the second quarter of 2004 but had withdrawn from the labour force by the second quarter of 2005.

30 The available LFS observations are both right (since all individuals have not yet found a job) and left censored (since all individuals were unemployed when the survey started). The fact that observations are left censored does not influence the estimates under the assumption that the probability of becoming unemployed has not changed significantly in the last few years.

31 The relevant question is addressed to all individuals, independently of whether they are unemployed or employed (in which case they might be looking for an alternative or an additional job). Here, however, only the replies of those who according to the LFS are unemployed are used.

32 The LFS includes an additional question on the year in which those who are not currently working worked for the last time. The replies to this question cannot be used, however, to determine with greater precision the length of the unemployment spell, since it is not clear that these individuals were looking for a job during the entire intervening period.

Table 6
Distribution of the length of unemployment spells[1] in the two samples
(Percentages)

	First sample (1,100 individuals)	Second sample (343 individuals)
Up to 2 months	17.7	3.4
Over 2 months and up to 11 months	35.8	29.7
Over 11 months and up to 23 months	21.4	30.2
Over 23 months and up to 47 months	13.3	18.5
Over 47 months	11.8	18.2
Total	100.0	100.0

1 In completed months.

unemployment duration is proxied by the mid-point of the interval and with values of one month and 60 months for the open intervals.

As in the model of the probability of long-term unemployment the explanatory variables used are demographic features (age, marital status, number of children, area of residence), the level of education, past activity of the individual, the receipt of unemployment benefit and local labour market conditions. The means of these variables for both samples as well as for the entire male labour force are presented in Table A3 of the Appendix, while the distribution of unemployment duration in both samples is tabulated in Table 6. The results from the estimation of the models are presented in Tables 7 and 8.

As far as the explanatory variables used, as Table A3 suggests, the two samples differ only regarding the degree of urbanization. In the first sample a larger share of the unemployed lives in urban areas compared with the second sample.

As for the distribution of unemployment duration as it appears from Table 6 there is quite a large variation in the length of unemployment spells in both samples. In the second sample, however, the average unemployment spell is longer since there are fewer people with short unemployment spells given that, by construction, this sample does not include people who have been unemployed for a month or less. More specifically, in the second sample around 67% of the unemployed are long-term unemployed compared with approximately 47% in the first sample. Furthermore 18.2% of the unemployed in the second sample have been unemployed for over 4 years compared with 11.8% in the first sample.

Results from the estimation of unemployment duration models

Table 7 presents the estimates on the basis of the first sample in which, as already mentioned, all observations are censored. The estimation method followed assumes that all observations are uncensored and as a result might overestimate the probability of exiting from unemployment (see, *inter alia*, Kiefer, 1988). Nevertheless, the results are useful as indications of the factors

Table 7
Estimates of duration models (first sample)[1,2]

	Ordinary least squares estimates[3]			Maximum likelihood estimates (Weibull baseline hazard) [3]		
	(1) Basic specification	(2) Add technological variable	(3) Add rejection of offer variable	(4) Basic specification	(5) Add technological variable	(6) Add rejection of offer variable
Constant term	–1.14 (0.22)**	–1.13 (0.22)**	–1.099 (0.21)**	– –	– –	– –
Demographic features						
Age (in years)	–0.049 (0.0066)**	–0.050 (0.0066)**	–0.048 (0.0065)**	0.95 (0.0055)**	0.95 (0.0055)**	0.96 (0.0056)**
Marital status[4]	0.58 (0.11)**	0.57 (0.11)**	0.56 (0.11)**	1.67 (0.17)**	1.65 (0.17)**	1.66 (0.17)**
Semi-urban areas[4]	0.19 (0.12)	0.19 (0.12)	0.17 (0.12)	1.071 (0.13)	1.072 (0.13)	1.050 (0.13)
Rural areas[4]	0.020 (0.094)	0.017 (0.094)	–0.012 (0.095)	1.025 (0.079)	1.025 (0.079)	1.0026 (0.078)
Highest education level						
Compulsory education * Age ≤ 45 years old[4]	–0.22 (0.097)*	–0.22 (0.097)*	–0.24 (0.098)*	0.86 (0.074)	0.86 (0.074)	0.84 (0.073)*
Compulsory education * Age > 45 years old[4]	0.44 (0.18)*	0.46 (0.18)**	0.39 (0.17)*	1.59 (0.23)**	1.64 (0.24)**	1.52 (0.22)**
Tertiary education graduates * Age ≤ 45 years old[4]	0.25 (0.11)**	0.083 (0.12)	0.22 (0.10)*	1.37 (0.12)**	1.20 (0.11)*	1.33 (0.11)**
Tertiary education graduates * Age > 45 years old[4]	0.43 (0.26)	0.31 (0.25)	0.43 (0.25)	1.56 (0.29)**	1.42 (0.27)	1.55 (0.29)*
"Technological" education[4]	– –	0.46 (0.16)**	– –	– –	1.53 (0.19)**	– –
Local labour market conditions						
Local unemployment rate	–0.051 (0.019)**	–0.049 (0.019)**	–0.051 (0.019)**	0.97 (0.016)	0.97 (0.016)	0.97 (0.016)
Other						
Previous work experience[4]	0.82 (0.097)**	0.83 (0.097)**	0.81 (0.096)**	1.93 (0.16)**	1.98 (0.16)**	1.92 (0.16)**
Rejection of job offer[4]	– –	– –	–0.42 (0.11)**	– –	– –	0.78 (0.067)**
Sample size	1,100	1,100	1,100	1,100	1,100	1,100
R^2	11.3	12.1	12.5	–	–	–
Log–likelihood	–	–	–	–1,729.6	–1,723.3	–1,727
Likelihood Ratio	–	–	–	$\chi^2(10)=119.9$	$\chi^2(11)=133.6$	$\chi^2(11)=124.5$
α[5]	–	–	–	1.00 (0.021)	1.00 (0.021)	1.00 (0.021)

1 This sample includes 1.100 men aged between 15 and 64 who were all unemployed in the second quarter of 2005. All observations are censored.

2 Robust for heteroscedasticity standard errors are presented in brackets below the coefficient estimates. The statistical significance of the variables at 1% and 5% is denoted by ** and * respectively.

3 In the OLS estimates the dependent variable is the negative of unemployment duration, therefore a positive (negative) sign on the coefficients therefore indicates a reduction (increase) of duration. For maximum likelihood estimates the hazard ratios instead of the actual coefficients are presented. The standard errors presented in brackets, however, refer to the coefficient estimates and not to the hazard ratios. For example, the coefficient on the unemployment variable in column 4 is -0.0287(=ln(0.97)) with a standard error of 0.016 and therefore is only marginally significant at 7% level of statistical significance.

4 These are dummy variables which take the value 1 when the individual possesses the feature in question and the value 0 otherwise. Unemployed high-school graduates who are not married with no previous work experience, who have not rejected a job offer are the reference group.

5 The hypothesis that α is equal to one and thus that there is no duration dependence cannot be rejected.

that have an impact on the length of time searching for a job. The first 3 columns of the table present the results from the estimation of the model by Ordinary Least Squares (OLS), where the dependent variable is the logarithm of unemployment duration (in months). The columns differ only with respect to the addition of one independent variable every time. OLS is not usually followed for the estimation of duration models for two reasons (see, *inter alia*, Jenkins, 2005): first, because OLS cannot handle censored observations and secondly, because it does not permit the use of time-varying explanatory variables. Given, however, that on the one hand we are here assuming that all observations are uncensored and on the other hand that time-varying explanatory variables are not being used, the results from the OLS estimation are an alternative way of investigating the factors that influence the length of the job search. A negative coefficient on any variable in the first 3 columns suggests that this variable leads to a prolongation of unemployment duration (or, in other words, to a decrease in the probability of exiting from unemployment), while a positive coefficient leads to a decrease in unemployment duration (or, in other words, to an increase in the probability of exiting from unemployment).

The last 3 columns of this table present the results from estimating the model by maximum likelihood on the assumption that the baseline hazard follows a Weibull distribution. These columns present the exponent of the coefficients and measure the impact of the independent variables on the probability of exit.[33] Coefficients (or more precisely the exponents of the coefficients) with values lower than one suggest that the probability of exiting from unemployment decreases as the value of the independent variable increases. The conclusions reached by the two methods of estimation do not differ although the statistical significance of the variables is lower with maximum likelihood estimation.

In particular, the estimates presented in Table 7 show that older men have *ceteris paribus* a lower probability of exiting from unemployment. The probability of finding a job is higher for married men. The presence of children, their total number or the number of children in three distinct age brackets (0-6 years old, 7-10 years old, 11-15 years old) have not been found to be related with the probability of exiting from unemployment. In addition, the data do not show that unemployment duration differs depending on the presence or otherwise of an employed spouse. The negative correlation between unemployment duration and age, which is also found by Meghir *et al.* (1989), conditional on all other variables included in their analysis, could be due either to a higher reservation wage or to the fact that employers are reluctant to hire older people.

As expected, the location of residence, used to capture differences in the local labour market conditions, has an impact on the probability of exiting from unemployment. In the maximum likelihood estimates (columns 4-6), the local unemployment rate has a negative impact on the probability of exiting from unemployment, even though this variable is only marginally significant (statistical significance at 7%). In the

33 See footnotes to Table 7 regarding the standard errors.

estimates presented in Table 7 the probability of exiting from unemployment does not appear to differ significantly between semi-urban areas on the one hand and urban areas (reference group) on the other.[34] In specifications which do not include the overall unemployment rate, however, there is some indication of a higher probability of exiting from unemployment in semi-urban areas compared with urban areas. The probability of exiting from unemployment does not appear to differ, however, between rural and urban areas. Estimates, which are however not presented here, using the dummy variables for the 13 standard regions show that the probability of exiting from unemployment is higher in touristic areas of the country. It appears therefore that the conditions in the local labour market are associated to some extent with the length of the unemployment spell and could constitute an explanation of the variation of unemployment duration by region confirming the positive correlation between the total unemployment rate and unemployment duration observed over time (see Section 2).

A higher education level is expected to lead to an increase in the reservation wage, thus having a negative impact on the probability of accepting a job offer. On the other hand, however, more educated individuals receive more job offers. The final outcome will thus depend on the relative "strength" of these influences. The estimates presented here show that for individuals younger than 45 years old a high education level (tertiary education graduate) improves the chances of exiting from unemployment while a low education level (compulsory education graduate) lessens this chance. For older individuals, tertiary education again has a negative impact on duration but a low level of education does not appear to be a disadvantage in terms of unemployment duration. Another distinction which appears to be important is between those with "technological education" and the rest. More specifically, the results suggest that those who have graduated from Technological Education Institutes (TEI/KATEE) and certain higher education schools (science, engineering, architecture and medical) have a better chance of exiting from unemployment compared with the remainder. Other variables that were investigated were the length of studies and the different definitions of technological education (e.g. defined as to include only TEI graduates) but these variables were not significant. As already mentioned, the above results are consistent with those of Kanellopoulos (2005) but not with those of Meghir *et al*. (1989). This difference may be due to the fact that Meghir *et al*. do not allow for an age-education interaction, while their results refer to a completely different period (1981) during which significant changes, that could impact on the demand for certain skills/professions and on the unemployment rate, were taking place.

Previous work experience appears to have an impact on the probability of exiting from unemployment. More specifically, unemployed with previous work experience have a significantly higher chance of exiting from unemployment compared with the remainder.

Another variable which is being investigated is the rejection of a job offer. The question asked in the context of the LFS is whether the unem-

34 The Meghir *et al*. (1989) estimates suggest that unemployment duration is longer in rural areas.

ployed during the time he has been looking for a job has rejected any job offers and why. In the sample under investigation around 12% of the unemployed rejected some job offer. Amongst those who rejected a job offer approximately 23% did so because the remuneration offered was not adequate, 20% rejected the offer because the workplace was not located in an accessible location, 23% because the job offered no career prospects and 9% because the job did not match their formal qualifications. This variable is, however, potentially endogenous since the rejection of a job offer leads by definition to a reduction of the probability of exiting from unemployment.[35] The coefficient on this variable has the expected sign but its addition does not alter either the coefficients or the significance of the rest of the independent variables.

A further variable that we looked at, although estimates are not presented in Tables 7 or 8, is the receipt of unemployment benefit. We find that the receipt of unemployment benefit is associated with a shorter unemployment spell, a result also found by Meghir *et al.* (1989) and Kanellopoulos (2005). It is possible, however, that this result is due to the fact that the maximum duration of regular benefit entitlement is one year and the possibilities for extending this are rather limited. At the same time, among those who receive unemployment benefit (17% of all unemployed in the sample) there is a large number of seasonally unemployed (see Appendix for the conditions of receipt of the unemployment benefit and the duration of benefit entitlement).[36] In no way, however, should this result be considered to imply that a potential increase in the unemployment benefit will lead to a reduction in the duration of unemployment. The unemployment benefit and the disincentives that this might create when this (or better the replacement rate) is high or when it is granted without pre-conditions and for an unlimited period of time has been the subject of the investigation of researchers in other countries (see, for example, OECD, 2006).

As for the existence of duration dependence, the results indicate that there is no duration dependence; the parameter of the Weibull distribution does not differ significantly from one.

Since the estimates presented in Table 7 are from a sample where all observations are censored and might overestimate the probability of exiting from unemployment (see, *inter alia,* Kiefer, 1988) the robustness of the results has been checked using a smaller sample of 343 individuals, the characteristics of which have already been mentioned. The estimates from this sample are presented in Table 8 which shows the results from maximum likelihood estimation assuming that the baseline hazard follows a Weibull distribution (Column 1) or allowing for a more flexible form of the baseline hazard and estimating either a Cox proportional hazard model (Column 2) or following the Prentice-Gloeckler-Meyer methodology (Column 3).[37]

35 Since 2002 when this information first became available the percentage of unemployed men who have rejected a job offer shows some decline from 19% in 2002 to 12% in the second quarter of 2005.

36 LFS data, however, show a significant increase in the percentage of unemployed men who are registered with OAED and receive unemployment benefit. This percentage was only 7% at the beginning of the 1990s but has doubled by 2005.

37 The Cox and Prentice-Gloeckler-Meyer (PGM) methods do not enforce some specific assumption as to how the probability of exiting from unemployment changes as the spell lengthens but leave the data decide. Furthermore, the PGM method tests for the possible heterogeneity that remains even after conditioning on the explanatory variables.

Table 8

Estimated models of unemployment duration with uncensored and censored observations[1] (second sample)

	Maximum likelihood estimates					
	Weibull		Cox		PGM[2]	
Demographic features						
Age	0.94	(0.015)**	0.94	(0.014)**	0.93	(0.019)**
Married	2.056	(0.57)**	1.76	(0.47)*	3.33	(1.24)**
Semi-urban area	2.20	(0.55)**	1.76	(0.41)*	2.32	(0.72)**
Rural area	1.27	(0.28)	1.045	(0.22)	1.31	(0.37)
Highest education level						
Compulsory education graduates * Age ≤ 45 years old	1.43	(0.32)	1.28	(0.25)	1.30	(0.35)
Compulsory education graduates * Age > 45 years old	1.15	(0.59)	1.11	(0.52)	0.56	(0.31)
Tertiary education graduates * Age ≤ 45 years old	1.57	(0.41)	1.30	(0.32)	1.35	(0.45)
Tertiary education graduates * Age > 45 years old	1.096	(0.88)	1.34	(1.01)	1.67	(1.44)
Local labour market conditions						
Local unemployment rate	0.97	(0.062)	0.95	(0.061)	0.93	(0.066)
Other						
Previous work experience	2.12	(0.47)**	2.45	(0.52)**	2.68	(0.84)**
Likelihood Ratio	$\chi^2(10)=42.43$		$\chi^2(10)=43.33$		–	
Log–likelihood	–291.22		–575.62		–471.11	
α	1.26	(0.089)	–	–	–	–
Sample size (in the case of the PGM model individuals * length of unemployment in months)	343		343		8,564 (343 individuals* 25 months average duration per individual)	

1 Also see footnotes 2-4 to Table 7.
2 The PGM estimation also includes dummy variables to capture time duration dependence.

The results do not differ, in general, from those presented in Table 7 but it is worth making the following points: use of Cox's proportional hazard model makes clear that the baseline hazard is not monotonic as the Weibull model assumes. On the contrary, the probability of escaping unemployment increases for approximately the first year and a half and then decreases until around the third year when it starts increasing again. This pattern might reflect the increased probability of exiting from unemployment of those who are seasonally employed and thus have limited unemployment duration and high (and known *ex ante*) probability of exiting from unemployment. It also reveals that remaining unemployed after a certain point in time has a negative impact on the probability of finding a job. The estimates of the time variation of the probability of exiting from unemployment as the length of the spell is prolonged is, however, also influenced by the specific time intervals used by the LFS to record unemployment duration, which are very wide for spells longer than 2 years. It should also be mentioned that, owing to the limited size of the sample and especially to the short time period that the sample covers, it is difficult to reach statistically significant results.

The significance of age and family status in predicting the probability of exiting from unemploy-

ment continue to hold. A difference is also observed between urban and semi-urban areas. These results together with the impact from previous work experience are in fact those results that continue to hold independently of the specification estimated. The coefficients on the remaining variables, however, are dependent on the specification estimated. More specifically, the education level no longer appears to be statistically significant in the second sample.

5. Conclusions

This study is an initial attempt to investigate developments and features of unemployment duration. In addition to presenting evidence on the duration of unemployment spells in the Greek labour market this study has attempted to identify, on the basis of the LFS sample, explanatory factors of the probability of long-term unemployment and of variations in the length of unemployment spells. The study does not try to explain the increase in the overall unemployment rate, a task which would necessitate extensive macroeconomic analysis.

The analysis suggests that in the last 2 decades unemployment duration has lengthened. In 2005, around 55% of the unemployed are long-term unemployed. At the same time there are other individuals who experience repeated unemployment spells and who within a period of a few years have in total remained unemployed for over a year. The lengthening of the unemployment spells reflects the increase in the overall unemployment rate and the increased probability of transition from short-term to long-term unemployment. The limited number of new jobs due to the stringent regulatory environment in product and labour markets could perhaps explain the differences in the percentage of long-term unemployment between Greece and the EU.

The estimates presented suggest certain factors that differentiate the probability of long-term unemployment and the length of unemployment spells. In particular, older individuals with no previous work experience in regions with high unemployment rates are more likely to remain unemployed for longer periods. For younger individuals a high level of education is associated with a lower probability of becoming long-term unemployed and in general with shorter unemployment spells. As for duration dependence there is some evidence of positive duration dependence in the first few months of the unemployment spell, which, however, turns negative as the unemployment spell continues. This result should, however, be investigated further since the estimates presented herein are influenced greatly by the specific width of the intervals in which unemployment duration is recorded in the LFS, by the significant number of individuals who are seasonally unemployed and by the fact that during the specific period under investigation unemployment was decreasing. Use of ECHP data might help to clarify some of these issues.

The results presented above suggest therefore that policy measures which increase the effectiveness of active labour market policies so that the unemployed gain labour market experience and are trained in skills that are in demand will lead to a shortening of unemployment spells. Furthermore, measures that enhance demand through improvement of the business climate could lead to job creation and a decrease in the percentage of long-term unemployed.

Appendix

1. Geographical distribution of the long-term unemployed

Table A1

Percentage of long-term unemployed[1] by region, 1993-2005

	1993-99	2000	2001	2002	2003	2004	2005
				Men			
Eastern Macedonia & Thrace	39.2	44.1	37.8	51.3	45.7	50.5	42.8
Central Macedonia	43.8	51.3	43.2	47.3	56.9	52.2	46.4
West Macedonia	49.1	57.1	54.5	64.0	51.7	63.3	65.2
Epirus	53.3	62.8	65.3	54.6	56.7	61.4	46.9
Thessaly	55.1	59.8	48.2	54.2	50.3	58.0	38.7
Ionian islands	42.2	36.4	45.1	33.4	41.7	16.4	21.0
Western Greece	61.3	57.2	66.4	66.6	71.7	58.7	54.0
Sterea Ellada (except for Attica) and Evia	53.4	58.6	44.5	63.2	56.0	53.5	41.1
Attica	44.6	51.4	50.0	51.2	51.8	44.0	45.7
Peloponnese	49.6	51.8	55.5	51.8	48.8	61.6	62.7
North Aegean islands	40.6	58.0	45.4	48.9	56.6	40.1	43.6
South Aegean islands	26.6	18.0	14.9	15.2	11.6	17.0	28.8
Crete	41.2	45.8	39.0	32.0	44.0	31.6	34.6
				Women			
Eastern Macedonia & Thrace	55.6	50.8	47.4	66.7	56.7	64.4	68.8
Central Macedonia	54.2	60.1	53.5	53.9	63.2	59.3	57.0
West Macedonia	63.5	70.8	71.1	73.5	70.3	75.9	73.8
Epirus	67.2	78.1	75.1	54.0	69.0	68.4	73.0
Thessaly	70.2	72.5	63.8	65.5	70.2	76.6	70.1
Ionian islands	54.4	38.8	34.8	35.1	37.7	25.6	26.4
Western Greece	71.9	71.6	66.3	71.8	64.7	66.9	63.9
Sterea Ellada (except for Attica) and Evia	67.4	78.8	70.3	77.1	75.9	66.6	68.1
Attica	59.5	61.6	60.3	57.5	62.9	58.5	60.7
Peloponnese	66.5	62.6	60.1	47.6	60.9	66.0	61.6
North Aegean islands	66.1	59.0	52.8	50.9	72.6	53.1	69.7
South Aegean islands	38.2	23.0	9.7	25.3	24.6	33.5	35.6
Crete	55.2	49.3	37.3	49.0	52.5	39.1	50.2

1 The data refer to the percentage of individuals who have remained unemployed for 12 months or longer amongst all unemployed in each region.
Source: NSSG, Labour Force Surveys.

2. Descriptive statistics of the samples used in the estimation of the probit and duration models

Table A2

Means of the variables used in the probit long-term unemployment model[1]

(Percentages)

	Unemployed men	Unemployed women
Demographic features		
Age (in years)	33.7	33.1
Marital status	29.9	48.2
Presence of children aged between 0 – 6	–	15.2
Presence of children aged between 7 – 10	–	13.5
Presence of children aged between 11 – 15	–	18.2
Urban areas	70.2	70.9
Semi-urban areas	11.6	12.1
Rural areas	18.2	17.0
Education level		
Compulsory education graduates	37.1	27.2
High education graduates	36.0	37.5
Tertiary education graduates	26.9	35.3
Local labour market conditions		
Local unemployment rate	6.1	16.0
Other		
Previous work experience	71.3	55.9
Percentage of long-term unemployed in the sample	46.7	61.2

1 The means presented refer to the population means. For all variables except for age and the unemployment rate the figures presented refer to the percentage in the population which possesses the feature in question. Small discrepancies between the percentages presented in the above table and those in the text are due to inconsequential changes in sample composition (e.g. different age groups etc.).

Table A3

Descriptives of the two samples used in the estimation of the duration models and of the male labour force (second quarter 2005)[1]

(Percentages)

	First sample		Second sample		Male labour force (15-64 years old, second quarter 2005)
	Complete sample	Long-term unemployed	Complete sample	Long-term unemployed	
Demographic features					
Age					
Average age (in years)	33.7	34.3	33.9	34.2	40.0
Under 25	24.3	23.5	22.7	21.9	8.1
25-29	21.4	20.9	23.6	23.4	13.2
30-44	33.9	33.0	33.2	33.4	42.6
45-54	13.7	14.4	12.8	12.1	23.6
55-64	6.7	8.2	7.7	9.2	12.5
Marital status					
Married	29.9	25.6	27.6	29.3	63.2
Degree of urbanisation					
Urban	70.2	70.6	65.5	63.5	66.7
Semi-urban	11.6	10.4	14.4	14.9	13.1
Rural	18.2	19.0	20.1	21.6	20.2
Education level					
Compulsory education	37.1	36.8	37.3	36.5	37.1
High-school education	36.0	37.6	38.4	41.0	33.9
Tertiary education	26.9	25.6	24.3	22.5	29.0
Technological education[2]	9.4	6.9	9.0	9.5	11.2
Labour market related features					
Labour force status					
Unemployed	100.0	100.0	63.8	69.5	5.8
Employed	–	–	36.2	30.5	94.2
Previous employment	71.3	61.9	67.6	62.6	71.3
Rejection of job offer					
Rejection of job offer	12.0	16.3	–	–	12.0
Local labour market conditions					
Average unemployment rate in the region of residence	6.1	6.3	6.2	6.3	5.8
Sample size	1.100	515	343	230	19.343 individuals

1 The averages presented refer to the values for the population using the LFS imputation coefficients.
2 Technological education graduates refers to TEI/KATEE graduates and graduates of the following schools: engineering, science, architecture and medical.

3. Estimation methods of unemployment duration models

The estimation methods used for modelling variables that measure the time elapsed until a certain event occurs have their origins in the area of medical research and industrial engineering. In these sciences such models (also known as survival models)[38] are used to test, for example, the impact of drugs on the probability of survival or differences in the time of uninterrupted operation of machines.[39] An idiosyncratic feature of these models which complicates their estimation is that observed durations are often censored in that they do not reflect the full record of the patient, the unemployed or the machine given that at the time of recording the phenomenon under investigation is still in progress. Observations are thus classified as uncensored or censored. In the case of unemployment duration, observations for which the *complete* length of the unemployment spell is known are *uncensored*. On the other hand, observations, for those that are still unemployed at time t, and for which the total length of time they will remain unemployed is unknown are *censored*.

Survival models are characterised by three related functions: (a) the *distribution function* $F(t) = Pr(T < t)$, which depicts the probability that the random variable (e.g. unemployment duration) takes a value less than t (i.e. shows the percentage of unemployed who have found a job by point t) (b) the *survivor function* $S(t) = 1 - F(t) = Pr(T \geq t)$, which shows the probability that the random variable T takes a value equal to or greater than t (e.g. shows the probability that the length of the unemployment spell exceeds t) and (c) *the hazard function* $h(t)$ defined as the ratio of the density function $f(t)$[40] over the survivor function $S(t)$ i.e. $h(t) = f(t)/S(t)$. This function shows the probability of transition from one state to another (e.g. finding a job, death, machine breakdown) given the time that the person (or the machine) has already spent in the initial state. For the issue under investigation, the hazard function $h(t)$ shows the probability of exiting from unemployment (or alternatively of finding a job if we assume that there are only two states). This function usually depends on the length of time the individual has spent unemployed (t) as well as on other factors, some of which might also be time varying (e.g. macro-economic conditions, family status etc.). On the basis of the assumptions made about the time-varying nature of $h(t)$, we distinguish between the *proportional hazard models* and the *accelerated failure time models*. In the former class of models the probability of exiting from unemployment is represented as the product of the so-called *baseline hazard* $\lambda(t)$ which is itself a function of time, and the explanatory factors x which in these models change the position but not the slope of the hazard function. To estimate this model we need to add an error term i.e. a random variable v, which captures unobservable influences, and is taken to be orthogonal to the independent variables x. The hazard function to be estimated could be succinctly presented as follows:

$$h(t;x) = v^{*}\lambda(t)^{*}exp\{G(x;\beta)\} \quad (1)$$

Usually it is further assumed that the impact of the explanatory variables is multiplicative so that equation (1) becomes:

$$h(t;x) = v^{*}\lambda(t)^{*}exp(\beta' x) \quad (2)$$

38 These models are also referred to as hazard models, transition models or failure models. A detailed presentation of these models and the techniques used for their estimation can be found in, *inter alia,* Kiefer (1988) and McCullagh and Nelder (1995).

39 Other applications in economics include the investigation of the determining factors of the length of time some firms survive until they are taken over (see Dickerson *et al*., 2001) or the length of time until exchange rate realignment occurs (see Gibson, 2003).

40 Where $f(t) = dF(t)/dt$.

Two important distinctions can be made in estimating these models depending on: (a) the adoption or otherwise of a specific statistical distribution for the baseline hazard and (b) the distribution assumed for the random variable v. Depending on the distribution function adopted for the baseline hazard, the models can be distinguished into *parametric, non-parametric* and *semi-parametric*. In parametric models, the baseline hazard is assumed to follow a specific statistical distribution and the most commonly used distribution for modelling the exit from unemployment is the Weibull which includes the exponential as a special case.

The adoption of the Weibull implies that the probability of exiting from unemployment changes monotonically; in other words, as the unemployment spell lengthens the probability of exiting from unemployment continuously moves in the same direction. Specifically if $\alpha>1$ ($\alpha<1$) the probability of exiting from unemployment increases (decreases) as the spell lengthens. If $\alpha=1$ we have a special case where the probability of exiting from unemployment does not change over time. In this last case, the Weibull distribution coincides with the exponential.

Survival models are estimated by maximum likelihood and the likelihood function which is being maximised is the following:

$$L = \sum_{i=1}^{n+m} \{w_i \ln f(t_i) + (1 - w_i) \ln S(t_i)\} \qquad (3)$$

Where n is the number of uncensored observations which contribute by $f(t)$ to the likelihood function and m is the number of censored observations which contribute by $S(t)$ to the likelihood function. The weight w takes the value 1 for uncensored observations and the value 0 for the remainder.

When a specific distribution function for the baseline hazard has not been selected then semi-parametric or non-parametric models are being estimated. The most popular estimation method in the economics literature is the semi-parametric method known as *Cox's proportional hazards* method,[41] where no specific function is adopted for $\lambda(t)$. Section 4.3 presents the results from estimating unemployment duration models by Weibull, Cox and the Prentice-Gloeckler-Meyer methods (see Prentice-Gloeckler, 1978 and Meyer, 1990). The latter constitutes a more flexible variant of the Cox model when durations are grouped.[42]

4. Unemployment benefits: conditions, level and length of payment

The conditions for the receipt of unemployment benefit together with the level and the length of time over which this is paid are related to previous work experience of the unemployed.[43] In general, unemployment benefit is paid to individuals insured against unemployment either whose contract has expired or who were made redundant.

Employment conditions

First-time claimants need to have worked for: (a) at least 80 days in each of the last two years before application and (b) for at least 125 days in the year ending 2 months prior to application. For second-time claimants, it suffices to have worked 125 days in

41 See Cox (1972).

42 See Meyer (1990) for a detailed presentation of all the above models.

43 Law 2961/1954 (article 11), Law 1545/1985, Law 1836/1989 (article 15) and Law 1892/1990 (article 37) provide for the payment of regular unemployment benefit and a benefit to young long-term unemployed. Furthermore, Law 3016/2002 (article 27) specifies the terms and conditions for the payment of unemployment benefit to the long-term unemployed, while Law 3460/2006 (article 13) provides for special provisions for those made redundant from the textiles industry.

the year ending 2 months prior to application. For certain occupations (e.g. employees in the tourism sector) these conditions are more flexible and the unemployment benefit can be granted even if the individual only worked for 100 days during the last year. Law 1545/1985 provided, exceptionally, for the payment of unemployment benefit to young individuals (aged between 20 and 29) *without* previous work experience who after their studies, or after serving their military service, have been registered unemployed for a year.

Benefit duration

The period over which unemployment benefit is paid varies according to the individual's employment record in the year ending 2 months prior to the application for benefit. The maximum length of time for which regular unemployment benefit is paid is 12 months. Since 2002, however, after the termination of the payment of the regular benefit, a special benefit is paid (for a maximum of an additional year) to long-term unemployed between 45 and 65 years old.

Size of the benefit

According to article 12 of Law 2224/1994 ('Regulation of employment issues, trade union rights, worker health and safety and organisation of the Ministry of Labour and the legal persons supervised thereby'), the regular unemployment benefit is equal to 40% of the daily wage of blue-collar workers or 50% of the monthly salary of white-collar workers under the restriction that this benefit will not be less than 2/3 of the daily wage of an unskilled worker or higher than a ceiling specified by ministerial decision. Article 12 of law 2224/1994, however, stipulates that if "the contributions-benefits balance in (OAED's) Unemployment Budget does not allow the above ratios to be implemented, the Minister of Employment may, after a considered opinion by OAED's Board of Directors, may adjust these limits accordingly". For 2006, the minimum daily unemployment benefit is set at €12.45 (€311.25 per month) and the maximum daily unemployment benefit is set at €13.17 (€329.25 per month). The benefit is increased by 10% for each family member. The above suggest that for 2006, the minimum unemployment benefit corresponds to 45.3% of the minimum daily wage and the maximum to 48% and thus is significantly lower than the *average* daily wage or salary. The special benefit for the long-term unemployed amounts to €200 per month. The monthly unemployment benefit for young people between 20 and 29 years old without work experience amounts to €73.37 per month for single individuals and €79.24 for married individuals and is increased by €5.87 for each child.

Recently the Ministry of Employment and Social Protection announced its intention to create a *social cohesion fund* to provide income support to unemployed older than 50 who were made redundant from declining sectors of economic activity and for whom all other active and passive labour market measures have been exhausted.[44] The support can reach up to 80% of the previous wage or some limit set by the Ministry of Employment and will be paid under the condition that the recipient will continue to look for a job or to participate in education programmes.

Compared with other OECD countries the minimum contribution period is longer in Greece while the benefit replacement rate is lower (see Table A4). In

44 See the speech (in Greek) of the Minister of Employment and Social Protection on the 27th June 2006 at the deliberations of the National Employment Committee (http://www.ypakp.gr/downloads/texts/2190.pdf).

Table A4

Unemployment benefit: minimum unemployment insurance contribution periods, duration of entitlement to unemployment benefit and benefit replacement ratios in OECD countries, 2004

	Minimum contribution period[1]	Minimum benefit entitlement period [2]	Duration of benefit entitlement over contribution period	Net replacement rates at initial phase of unemployment[3]	Net replacement rate for long-term unemployed
	(1)	(2)	(3)	(4)	(5)
Austria	28 weeks	20 weeks	0.7	82	71
Belgium	468 days (78 weeks)	indefinite	-	74	68
France	4 months	4 months	1.0	84	48
Germany	12 months	6 months	0.5	91	58
Denmark	6 months or 1 year	4 years	4 or 8	77	58
Switzerland	12 months	2 years	2.0	87	48
Greece	125 days (25 weeks)	5 months	1.0	60	41
UK	c. 10 weeks	182 days (6 months)	2.6	65	62
USA	2 quarters	6 months	1.0	80	54
Japan	6 months	90 days (3 months)	0.5	79	51
Ireland	13 weeks	390 days (65 weeks)	5.0	65	65
Spain	360 days (12 months)	120 days (4 months)	0.3	87	44
Italy	78 days (3 months)	78 days (3 months)	1.0	79	56
Canada	420 hours (11 weeks)	45 weeks	4.1	83	57
Norway	c. 10 weeks	3 years	15.6	83	47
Netherlands	26 weeks	6 months	1.0	83	47
Portugal	540 days (18 months)	18 months	1.0	88	59
Sweden	6 months	300 days (60 weeks)	2.3	88	49
Finland	10 months	500 days (100 weeks)	2.3	79	63

1 The figures in this column refer to the duration of entitlement for a 40-year old unemployed individuals who receives unemployment benefit for the second time. The data refer to 2002 for all countries except for Greece for which they refer to 2006. More details on certain countries can be found in OECD (2002).
2 This is the time period that corresponds to the minimum contribution period presented in the first column.
3 For Greece the initial phase covers the period when regular benefits are paid (i.e. up to one year). The replacement rates in columns 4 and 5 have been calculated as net (of taxes) and include all allowances (e.g. family, housing etc). The data refer to an unemployed individual with a four-member family who while in employment earned the average production worker wage while the spouse earns 2/3 of that wage.

Sources: OECD (2002), Table 4.10, p. 219 and OECD, Tax-Benefit Models (www.oecd.org/els/social/workincentives).

particular, while for those who have only a few years of work experience there is reciprocity in the system (since the length of time over which the unemployment benefit is paid is equal to the minimum period over which contributions must be paid - see column 3 of Table A4), the replacement rate is in general lower than in most OECD countries. Table A4 presents the replacement rate for an unemployed individual with a four-member family with previous income equal to that of the average production worker while the spouse earns 2/3 of that. As it appears from the Table the replacement rate is the lowest among all OECD members both regarding regular unemployment benefit (column 4) and regarding the benefits to long-term unemployed (column 5).

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Stress testing of the Greek banking system*

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1. Introduction

In 2005 the IMF conducted, for the first time in Greece, a Financial Sector Assessment Program (FSAP – see IMF, 2006), which had two main components, an assessment of compliance with core principles for banking supervision and a stress testing exercise. The purpose of the exercise was to gauge the resilience of Greek financial institutions to adverse shocks as well as to analyse potential risks in the financial system. It was confined to the banking sector, which accounts, in term of assets, for approximately 85% of the entire financial sector, and it was conducted by the participating banks with guidance from the Bank of Greece and the cooperation of the IMF. The exercise mainly focused on credit risk and market risk, but liquidity and contagion risks were also considered.

This paper presents an overview of the FSAP stress testing exercise. First, it focuses on methodological issues, including a discussion of the limitations, and, second, it presents the results of the exercise undertaken. The overall conclusion seems to indicate that Greek banks are sufficiently resistant to shocks and, consequently, the domestic banking system can withstand any of the adverse scenarios considered.

2. Stress testing

A stress test is a 'what if' exercise which considers what might happen to individual banks and/or

* Several colleagues from the Department for the Supervision of Credit and Financial Institutions participated in the exercise. This paper can be viewed as the outcome of this team effort. Needless to say that the opinions expressed here are personal and not binding either for the colleagues involved or for the Bank of Greece.

the financial system when, and if, certain risks materialise. The effects can be measured by using two alternative techniques, the sensitivity approach or the scenario approach. The sensitivity approach assumes a change in a particular risk factor, without specifying the reason and independently of other risk factors, and the impact is quantified. The scenario approach considers several underlying risk factors that are associated with a specific portfolio or a specific event. Under both approaches the shocks can be hypothetical or based on historical experience.

When the stress tests apply to individual banks, the results can be used to examine their resilience to adverse conditions. The results should be part of the decision-making process within the bank in order to determine the appropriate appetite for different types of risks and the amount of required capital that should be set aside to cover them. When the stress tests apply to the financial system, the purpose is to assess its resilience, to identify vulnerabilities and address them at an early stage. They can help policymakers to appraise the potential implications of different risks, address them with prudential measures and augment resistance to shocks. Thus, the stress-testing exercise can prove to be a useful policy tool for financial stability.

Stress testing is a fairly new risk management tool. Until recently stress testing exercises were confined to the market risks in the trading book, given the availability of well established and fairly homogeneous methodologies and models. Banks are able to assess which risks might pose the greatest threat and thus warrant the closest attention. However, the new Basel Capital Accord (Basel II)[1] requires that stress tests should be expanded to credit risk. Pillar I stress testing exercises should be developed in order to assess the functionality of the models under stressed conditions. Pillar II stress testing exercises should be applied for risks not appropriately considered in Pillar I and/or for risks not considered at all in Pillar I. The results of the exercises will play an important role in determining the appropriate capital buffer. This gives banks an incentive to develop their own stress test models for loan portfolios, a process which is now well under way. The new framework poses challenging tasks for banks and stress testing is progressively becoming part of new legislation on the supervision of financial institutions. Several supervisory authorities have institutionalised stress testing exercises and are working to promote good practices in stress testing. A similar initiative is taken by CEBS (Committee of European Banking Supervisors) in order to promote common understanding within the supervisory community.

3. The design of the stress testing exercise

The stress testing exercise conducted in Greece for the FSAP used the sensitivity approach. A sudden shock S in one particular risk factor was assumed and the impact I_t^s was measured as the effect on regulatory capital, on the capital adequacy ratio and on 2004 after-tax profits. The analytical calculations are described by the following formulas:

1 Basel II is the common name of the new capital adequacy framework for banks. In EU, it has been adopted by European Parliament (Directives 2006/48/EC and 2006/49/EC) and is expected to replace the existing accord (Basel I) by the end of 2006. It has three pillars. Pillar I analyses the minimum capital requirements for credit, market and operational risk. Pillar II refers to the supervisory review process for bank capital. Pillar III refers to the requirements for information disclosure.

$$\frac{RC_t - RC_t^s}{RC_t} = \frac{RC_t - (RC_t - I_t^s)}{RC_t} = \frac{I_t^s}{RC_t}$$

$$CAR_t - CAR_t^s = \frac{RC_t}{RWA_t} - \frac{(RC_t - I_t^s)}{RWA - I_t^s}$$

$$\frac{P_t - P_t^s}{P_t} = \frac{P_t - (P_t - I_t^s)}{P_t} = \frac{I_t^s}{P_t}$$

where RC = regulatory capital, CAR = capital adequacy ratio, RWA = risk-weighted assets, P = profits.

The design of the exercise aimed at calculating the impact I_t^s for each risk.[2] This task was undertaken by the participating banks, under the guidance of the Bank of Greece. Banks were required to use their internal risk management and measurement systems in order to calculate the impact. This "bottom-up" approach was preferred to the alternative "top-down" approach[3] because credit risk modelling at the Bank of Greece still represents work in progress and the model is in a preliminary stage. The "bottom-up" approach is more suitable for market risk, since banks apply similar methodologies and develop comparable models. By contrast, a divergence of approaches can be observed for credit risk and hence a "top-down" approach is more appropriate. Nevertheless, the "bottom-up" approach was also applied to credit risk, but it was complemented by credit model estimations in order to link the scenario with the associated macroeconomic environment. These estimations are presented in Appendix 1.

The Bank of Greece and the IMF constructed several scenarios for each risk, which were supplied to seven Greek banks. The sample included the 5 largest banks and 2 medium-sized banks, which together represented 74% of total assets in 2004. In addition, one specialised public sector banking institution, which represented around 10% of total 2004 banking assets, was subjected to market risk tests. The banks were asked to assess the impact of the scenarios on their portfolios on a consolidated basis, using their latest available balance sheet data for December 2004. The Bank of Greece compiled the individual banks' responses and aggregated them. This type of aggregation may generate inaccuracies due to methodological inconsistencies across banks. In order to minimise this risk, the Bank of Greece prepared a questionnaire with some qualitative issues and compared the individual results against average norms, logical consequences as well as past experience from on- and off-site bank examinations. Appropriate adjustments were made where necessary.

4. Credit risk: methodological issues and results

4.1 Methodological issues

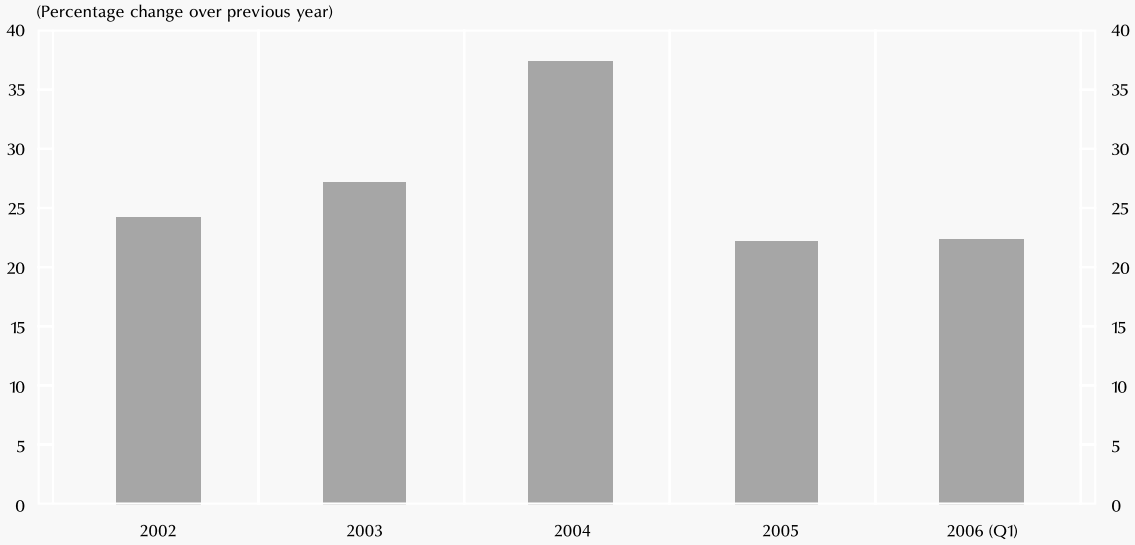
The first stress test investigated the credit risk exposures of the Greek banking system. Credit risk exposures were analysed in four different segments:

- credit risk exposures to domestic clients
- credit risk exposures from the bond market
- credit risk exposures to Balkan countries
- credit risk exposures from sectoral concentrations

2 It should be noted that no interrelations among the risks were taken into account, thus summing up the impact per risk is meaningless.

3 The bottom-up approach calculates the impact by bank and then by summing up derives the impact for the system as a whole. On the other hand, in top-down approach the effects on the system are estimated (e.g. with an econometric model) and then the contribution of each bank is calculated.

Chart 1
Consumer credit
(Percentage change over previous year)



Source: Bank of Greece, *Bulletin of Conjunctural Indicators*, No. 95, May 2006, Table IV.15.

a. Credit risk exposures to domestic clients

The first exercise for credit risk focused on the loan portfolio. Among the three main credit risk parameters (Exposure at Default, EAD, Probability of Default, PD, and Loss Given Default LGD), the PD was the risk factor chosen to be stressed. This was justified by the fact that the status of EAD and LGD estimation was less advanced than the PD estimation.[4] Banks were asked to use their internal systems to estimate the PDs for each type of loan portfolio (corporate, retail, mortgage), without making any adjustments either to their methodology or to definitions.

The experience of Greek banks with PD estimation is relatively short. Until recently, for the corporate portfolio, the basic rating criterion was the expected loss. In order to comply with the Basel II requirements for credit risk, banks have started to change their rating philosophy and develop separate rating systems for obligor and facility risks.[5] For the retail portfolio, scoring systems exist but historical experience may not provide forward-looking PD estimations since retail business has changed over recent years in Greece and the ageing problem may not be addressed appropriately. Chart 1 shows the annual changes in retail exposures.

Similar concerns can be raised for the mortgage portfolio. The decline in interest rates following the introduction of the euro resulted in a spike in mortgage lending. However, the estimations are

4 For EAD the nominal value of the on-balance sheet exposure was used as of 31.12.2004. The LGD parameter for corporate portfolio was set to 45% (the value suggested by Basel II). For retail portfolio, LGD was set to 80% and for the mortgage portfolio it was set to 35%. It should be mentioned that according to the Bank of Greece experience in some cases LGDs were lower than the pre-determined, especially for certain types of retail credits, thus, in practice, both PD and LGD were stressed.

5 Obligor risk focuses solely on the creditworthiness of the obligor, whereas facility risk takes into account possible collaterals.

considered more reliable due to the nature of the housing market in Greece. The data used for the exercise covered a period of 1-4 years.

Furthermore, the definition of default varied among banks. Some banks used the "90 days past due" definition, while some others used the "180 days past due" definition. No calibration for a single definition was asked. In general, the Bank of Greece checked PD estimations against past experience. It is difficult to claim that PD estimations could have been validated according to Basel II requirements at the time of the exercise. However, the Bank of Greece considered that they were appropriate for the exercise.[6]

Thus, the Expected Loss *(EL)* for a loan portfolio was estimated as:

$$EL = (Claims_{notdefaulted} \times PD \times LGD) + (Claims_{defaulted} \times LGD)$$

The stressed Expected Loss *(StressedEL)* was estimated with a 60% increase in PD as:

$$StressedEL = (Claims_{notdefaulted} \times 1.6 \times PD \times LGD) + (Claims_{defaulted} \times LGD)$$

The impact I_t^s of the scenario was calculated as:

$$I_t^s = StressedEL - \min(Supervisory\ provisions, EL)$$

The above approach assumes that the provisioning requirements instituted by the Bank of Greece, that is the supervisory provisions according to Bank of Greece Governor's Act 2442/99, as amended, are treated as the unstressed expected loss. The Bank of Greece subtracts any shortfall of accounting provisions from the supervisory ones for capital adequacy calculation purposes and thus the model applied for the stress testing exercise was compatible with this practice.

b. Credit risk exposures from the bond market

The second exercise on credit risk focused on bond portfolios, either in the trading book or in the banking book.[7] The purpose was to capture the credit risk component of market risk and, consequently, credit spreads were chosen as the risk factor to be stressed. This was rather straightforward, since the changes in credit spreads were used to produce new stressed mark-to-market values for the bond portfolio items. Thus, the impact was calculated as:

$$I_t^s = PV_{bonds}(r) - PV_{bonds}(r')$$

where PV= present value, $r' - r$ = predetermined spread.

For Greek government bonds, a widening of 50 basis points (b.p.) over the Bunds was considered. For Greek corporate bonds a 150 b.p. widening over Greek T-bills was considered, whereas the corresponding spread widening for foreign corporate bonds was confined to 100 b.p.

c. Credit risk exposure to Balkan countries

Due to the increasingly important activity of Greek banks in the Balkan countries,[8] a distinct

6 Some of the banks that participated in the exercise also participated in the 5th Quantitative Impact Study (QIS 5) conducted in early 2006. The reported PDs are comparable to the ones used in the stress testing exercise.

7 The trading book consists of financial instruments held for trading and hedging intent, whereas the banking book consists of financial instruments held until maturity.

8 For more information, see Stubos and Tsikripis, 2005.

stress scenario involving those countries was considered as an important element in assessing the resilience of the Greek banking sector to exogenous shocks. Despite the different level and/or type of risk entailed in each of the Balkan countries, the Bank of Greece had assumed a common credit risk shock, namely:

- for loan portfolios, an increase of 100% in past due loans[9]
- for bond portfolios, an increase of 100 b.p. with regard to the underlying asset.

Thus,

$I_t^s = StressedNPLs - Provisions$[10]

$I_t^s = PV_{bonds}(r) - PV_{bonds}(r + 100bp)$

d. Credit risk exposures from sectoral concentrations

The fourth stress test exercise focused on sectoral concentrations. Three sectors were chosen for the exercise, namely the textile sector, the construction sector and the shipping sector. The methodology used was similar to the one outlined above (Section a), but some adjustments were deemed necessary since the problem related to the reliability of PD estimation was aggravated. For the textile sector, the current PD of the corporate portfolio of each bank was tripled as this is a sector in decline. For the construction sector the current PD of the corporate portfolio of each bank was doubled in order to capture possible post-Olympics shock effects. For the shipping sector, the sector with the largest aggregate concentration, the PDs calculated by the banks were considered reliable and were retained. On the above calculated PDs, a 90% increase shock was applied. Thus, the aggregate impact was calculated by simply adding the individual impacts as:

$$I_t^s = I_t^{s-textile} + I_t^{s-construction} + I_t^{s-shipping}$$

4.2 Assessment of the results for credit risk

The effects of the sensitivity analyses are presented in Tables A2.1-A2.5 in Appendix 2. For the loan portfolio the scenario resulted in a loss equivalent to 9.93% of the regulatory capital. The Capital Adequacy Ratio (CAR) fell from 12.81 to 11.69 and the impact on 31.12.2004 profits was 88.7%. The modest results of the exercise can be attributed to two factors, the capitalisation of the banks and the supervisory provisioning system.

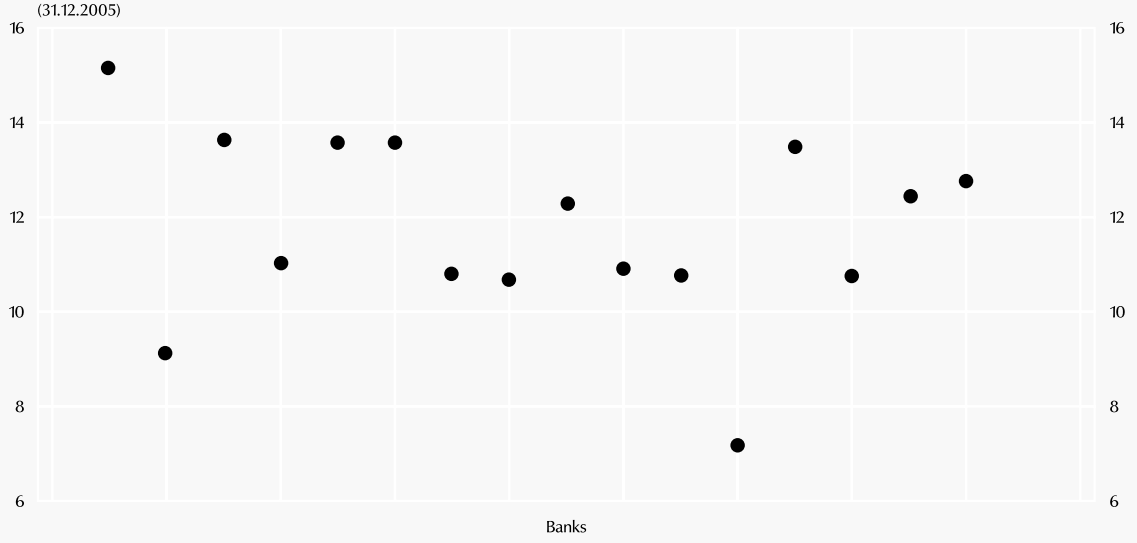
The capital adequacy ratio of the banks was well above the regulatory minimum. The average for the seven participating banks was 12.81 as of 31.12.2004, whereas the average for the whole banking system was 12.33.[11] The corresponding figures for medium-sized domestic banks in the euro area and for all banks in the EU-25 were 12.10 and 11.80 respectively. The Greek banking system was above these averages and therefore it can be considered well-capitalised. The capital base was strong enough and there was room to accommodate possible losses. Around 80% of the regulatory capital was Tier I capital and the Tier I capital adequacy ratio was 10.00 as of 31.12.2004. In conclusion, the losses stemming from the exercise corresponded to a manageable level of capital.

9 The methodology outlined in Section a could not be used due to data limitations.

10 The breakdown of provisions by country was based on the breakdown of loan exposures.

11 The corresponding figure for 31.12.2005 is 12.99.

Chart 2
Capital adequacy ratio
(31.12.2005)



Source: Bank of Greece calculations.

However, there were differences among banks. The after-shock CAR ranged from a maximum of 13.40 to a minimum of 6.07.[12] Chart 2 presents the CAR of Greek banks at 31.12.2005. Note that three positive outliers are not shown on the chart. For the one bank that falls below the 8% limit, remedial action has already been taken.

As for provisioning, the practice of the Greek banking system, at the time of the exercise and before the introduction of the IFRS, was that banks made mostly general provisions, which were tax exempt up to 1% of the loans outstanding. The Bank of Greece has established a regulatory provisioning system which has resulted in additional provisions of about €152 million, at 31.12.2004, for the 7 banks which participated in the exercise. This amount is subtracted from regulatory capital for the purpose of calculating the CAR. Thus, these provisions serve as a first buffer against any potential loss, and proved to be an effective buffer for the losses which stemmed from the stress testing exercise.

As far as stress testing on government, corporate and bank bond portfolios is concerned, the impact on regulatory capital, the capital adequacy ratio and profits was small. This mild sensitivity reflected the shift in bank portfolios from government bonds to private sector lending and the short-term nature of bond holdings.

Regarding the exposures to the Balkans, a 100% increase of loans past due over 90 days would decrease the regulatory capital by a maximum of 2.44%. This is considered rather modest although past due loans of Greek banks' subsidiaries

12 One bank's CAR fell below the regulatory minimum. This particular bank started the exercise with a fairly low CAR. During the first months of 2005, following a capital injection, the CAR was restored to levels well above the minimum required.

Table 1
Market risk scenarios

	O/N – 3 months	3 months – 5 years	Over 5 years
Interest rate risk			
1st scenario	+200 bp	+200 bp	+200 bp
2nd scenario	–200 bp	–200 bp	–200 bp
3rd scenario	+0 bp	+100 bp	+200 bp
4th scenario	+200 bp	+100 bp	+0 bp
FX risk	30% depreciation of the euro		
Equity risk	Developed : –30% Emerging : –50%		

exceed the levels recorded in Greece. The weak effect was attributed to the small size of Greek banks' investment in the region relative to their total size. However, this conclusion corresponds to the situation at the time of the exercise. Since then, the trends have been rather dynamic and the picture has changed considerably. There is a rapid and important penetration of Greek banks in the area and the Bank of Greece is planning a new stress testing exercise that will incorporate all the latest developments.

The results of the sectoral stress test were minimal, due to relatively low concentrations. The overall impact of shipping, textile and construction sectors on regulatory capital was 0.89%. The CAR was reduced from 12.81 to 12.71, with the strongest impact stemming from the construction sector.

5. Market risk: methodological issues and results

5.1 Methodological issues

The second stress test investigated the market risk exposures of the Greek banking system. Market risk exposures were analysed in three different segments:

- interest rate risk
- foreign exchange risk
- equity risk

For the purpose of this exercise, banks were asked to calculate the changes in the market value of their positions both in the banking and trading books. For each risk factor selected there was a revaluation of the positions in order to assess the losses. It was assumed that these losses were reflected directly in the balance sheet value of the assets. Possible adjustment measures or differing accounting rules for the banking and trading books were not taken into account.

The Bank of Greece asked eight (8) credit institutions to conduct the sensitivity analyses shown in Table 1.

a. Interest rate risk

There are no regulations surrounding interest rate risk. Banks are not obliged to report their interest rate positions, and interest rate risk is usually analysed during on-site examinations. In order to

obtain comparable results, the Bank of Greece required that banks participating in the exercise report all their interest rate sensitive positions divided into three time buckets. These time buckets, namely "overnight – 3 months", "3 months – 5 years" and "over 5 years", represent the time to the next interest rate adjustment of a position (time to repricing). The banks reported euro-denominated or euro-translated total market positions and the impact for each of the four scenarios was calibrated as:

$$I_t^s = PV_{bonds}(r) - PV_{bonds}(r')$$

where $r' - r$ = predetermined shock in the term structure of interest rates (EURO, USD and JPY).

The applied scenarios resulted in losses in the case of an upward shift in the yield curve, and generated profits in the case of a downward shift in interest rates.

b. FX risk

Under the current regulatory framework all banks report, on a quarterly basis, their euro-translated positions in assets, liabilities and off-balance sheet items in all major currencies. These positions were used in order to assess the impact of FX risk. The aggregate position was calculated as the net balance of long and short positions in each currency. Therefore, for each major currency the bank calculated its Net Position (NP) as:

$$NP = (L - S)$$

Thus, the impact of the simulation was:

$$I_t^s = a\% \times \sum_{currencies} NP = 30\% \times \sum_{currencies} NP$$

When the *NP* was positive (long), the scenario resulted in a profit, whereas when the *NP* was negative (short), it resulted in a loss.

c. Equity risk

In order to assess the effects of a shock in domestic and international equity prices, an equity crash scenario was selected. For developed markets, including Greece, a 30% decline was assumed, whereas for emerging markets the corresponding figure was 50%. Equity holdings both in the trading and in the banking book were subject to the shock. The impact was calculated as:

$$I_t^s = a\% \times \sum E = 30\% \times \sum_{Developed} E + 50\% \times \sum_{Emerging} E$$

where E = equity positions.

5.2. Assessment of the results for market risk

The effects of the sensitivity analyses are presented in Tables A3.1-A3.3 in Appendix 3. For the interest rate risk, the +200 b.p. parallel shift in interest rates resulted in the highest impact on average. This is a standard supervisory scenario but, based on past experience, it is rather extreme, since it has not been experienced for many years in developed markets. The resulting loss was equivalent to 4.33% of the regulatory capital. The CAR fell from 12.52[13] to 12.05 and the impact on 31.12.2004 profits was 39.7%. It is not surprising that interest rate shocks have a weaker impact than credit risk, although long-term interest rate positions in banking books are

13 It should be recalled that eight (8) banks participated in market risk stress testing and the average CAR differed from the average CAR for credit risk stress testing.

Table 2
Disaggregating interest rate shock effects
(Percentages)

	Scenario 1 +200 bp		Scenario 2 –200 bp		Scenario 3 +0, +100, +200 bp		Scenario 4 +200, +100, +0 bp	
Portfolios in:	Trading	Banking	Trading	Banking	Trading	Banking	Trading	Banking
EUR	10.17	89.83	6.24	93.76	11.74	88.26	69.20	30.80
JPY	67.54	32.46	78.31	21.69	79.26	20.74	41.19	58.81
USD	21.68	78.32	11.25	88.75	43.70	56.30	17.65	82.35
Other	90.20	9.80	91.73	8.27	98.52	1.48	67.51	32.49
Total	14.50	85.50	12.99	87.01	4.39	95.61	64.41	35.59

generally substantial. This indicates that credit risk remains the most important risk in the Greek banking sector.

Comparing the results of the scenarios assuming a twisting of the yield curve, the impact of the scenario involving a steepening of the curve was much stronger than that of a flattening of the curve. This indicated that the Greek banks hedged their short-term exposures, whereas their long-term exposures were relatively unhedged. Disaggregating the results by currency, it can be shown that most of the impact resulted from the euro-denominated positions. Further disaggregating the results from the trading book and the banking book, it can be observed that most of the impact originated from the banking book. Table 2 presents the detailed calculations.

With the exception of the scenario where the yield curve flattened (scenario 4), in all other cases the impact of interest rate shocks originated from the banking book. The contribution of the banking book was at its maximum in the 3rd shock, where a steepening of the curve was simulated. This reflected a maturity mismatch of lending and deposit activities. Greek banks kept a significant interest rate exposure unhedged. This is not a source of immediate concern since, if any of these scenarios were to materialise, banks would not face immediate losses as these positions are not marked to market. However, profitability would be affected in the long term.

As for FX risk, the influence was small since positions were largely hedged. The impact turned out to be positive, which means that the net position was long. The impact from the shock corresponded to 0.53% of regulatory capital, increased the CAR by 0.06% and corresponded to 4.86% of the 2004 after tax profits. Disaggregating by currency, it can be shown that long positions were held in USD and short positions in JPY, with offsetting effects. However, it should be noted that the impact was largely affected by the short position of one particular bank without which the positive effects would have been bigger.

Equity risk proved to be the second most important market risk, after the third interest rate risk scenario, resulting in a 6.45% decrease in regulatory capital, a 0.71% decrease in CAR and a 58.60% decline in after tax profits. Most of the effect stemmed from the banking portfolio

Table 3
Interbank placements
(Million euro as at 31.12.2004)

	Greece	Euro area	Non-euro area	Balkans	Other	Total
Exposures	917.5	3,136.3	1,135.2	125.2	219.1	5,533.5
	(Percentages)					
Exposures/own funds	6.39	21.83	7.90	0.87	1.53	38.52
Exposures/RWA	0.85	2.91	1.06	0.12	0.20	5.41
Exposures/assets	0.20	0.67	0.24	0.03	0.05	1.19

(76.5%), in which all strategic equity participations were included. Given that these positions are not usually marked to market, the scenario can be considered fairly conservative.

6. Liquidity risk

For liquidity risk, the stress test methodology was modified. No particular scenario was applied and the assessment was based on the analysis of liquidity data available at the Bank of Greece. Under previous regulations (Bank of Greece Governor's Act 2156/92), banks reported their maturity mismatch data and a non-binding overall liquidity ratio was calculated. The definition and a time series of this ratio are presented in Appendix 4. A minor decline in the ratio is observed overall in the four years to December 2004, although there are fluctuations in the intermediate quarters. The decline in liquidity is a result of the strong credit expansion underway since 1997.

Since July 2005 a new liquidity regime (Bank of Greece Governor's Act 2560/05) has been established with two binding ratios, a liquid asset ratio of 20% and a mismatch ratio of –20% (see Appendix 4). At the time of the exercise banks were not fully prepared for the new regime and, instead, they were asked to apply a simplified version. The average liquid assets ratio turned out to 22.3% while the mismatch ratio to –13.9%. On average, banks reported adequate liquidity. This conclusion remained valid when full application of the new regime was possible. The average liquid assets ratio for 31.12.2005 was 22.33%, while the mismatch ratio at –1.46% is within the boundaries established. On an individual basis (see Chart A4.2 in Appendix 4) all banks are above the limit of the mismatch ratio and four banks (out of 21) are below the limit of the liquid assets ratio. For those banks failing to meet the limits, appropriate and binding measures to improve the ratios have been taken.

7. Contagion risk

The final stress test analysed a simple scenario for contagion effects of insolvency. Two sources of systemic risk can be identified, namely portfolio correlations and interbank linkages. Only the second source was explored by examining a full matrix of cross-banks interbank placements and the possible impact of a default on regulatory capital. The aggregate results are shown on Table 3.

Interbank exposures within Greece were fairly small, with gross total lending amounting to 0.20% of total banking assets. External lending was somehow larger and was concentrated in the euro area. Total exposures were equivalent to 38.5% of own funds but more interesting results for contagion risk were obtained by disaggregating the results by bank. No bank had a solvency-threatening position in other banks within the country. Furthermore, external interbank lending was mostly undertaken by larger Greek banks that pool the internal liquidity and contract with high quality counterparties abroad. Therefore, the results indicated that the contagion risk stemming from interbank placements was not significant.

8. Conclusion

The FSAP stress tests provided useful experience for both the participating banks and the Bank of Greece. Apart from the quantitative results, the Bank of Greece took the opportunity to assess the readiness of banks to conduct such exercises. In this respect, differences among banks can be observed, but it is rather obvious that the banks increasingly use stress testing as complimentary to traditional risk management tools.

Turning to quantitative results, the overall picture indicated that the banks were able to pass the test satisfactorily, since they were well-provisioned and well-capitalised. This provided them with the ability to withstand losses resulting from credit and market risks. Credit risk turned out to have the greatest impact and the Bank of Greece has taken some general measures to alleviate possible negative effects (e.g. instalment/income ratio not to exceed 30-40%). However, it should be emphasised that it is the responsibility of each individual bank to establish stress testing simulations in line with its particular risk profile and incorporate the results into its decision-making process.

Despite the satisfactory stress test results, the dynamic nature of the Greek banking system leaves no room for complacency. Greek banks, having achieved adequate liquidity and capital levels, are pursuing cross-border expansion. This increases their vulnerability to external shocks (e.g. country risk), which, in turn, requires better and more intensive risk management practices. Developments in this area have been remarkable in the last couple of years, but further improvements should be pursued consistently.

The stress testing exercise conducted in the context of the FSAP indicated that the Greek banking system is resilient and can absorb internal or external shocks. However, the results correspond to the time period when the exercise was conducted. In order to ensure that the conclusions remain valid, the stress testing exercise should be repeated regularly. The Bank of Greece is working towards achieving this goal by preparing a baseline scenario. At the same time it has established a requirement on banks (Bank of Greece Governor's Act 2577/2006) to conduct such exercises on a regular basis with scenarios reflecting their particular and perspective risk profile.

Appendix 1

Table A1
Regression results

	β_{GDP}	β_{NLR}	β_{CPI}
Coefficient	–0.589	0.261	0.498
Standard error	0.299	0.103	0.246
z-test	–1.97	2.54	2.02

Macroeconomic stress testing

In order to match the scenario chosen for the loan portfolio (increase of Probability of Default —PD— by 60%) with the underlying relevant macroeconomic environment, the Bank of Greece macroeconometric model[14] was used. On the assumption that there is no policy response by the central bank, the results of two crisis scenarios were investigated. The first scenario assumed a domestic crisis which involved a GDP growth slowdown in 2003 and a zero growth in 2004 (in-sample projection) stemming from shocks to domestic consumption and investment. The second scenario assumed an external crisis where nominal interest rates would reach 5% during a two-year period, as part of a global shock in interest rates.

Independently, a second model for non-performing loans *(NPL)* was initiated. This model, still at an early stage of development, is in the spirit of the IMF proposal (see Blaschke *et al.*, 2001). The analytical form of the model is:

$$\Delta(NPL)t = \beta_{GDP}\,\Delta(GDP)_{t-1} + \beta_{NLR}\,\Delta(NLR)_{t-1} + \beta_{CPI}\,\Delta(CPI)_{t-1} + e_{it}$$

where

NPL = past due loans by more than 3 months relative to all loans

GDP = gross domestic product

NLR = long-term nominal bank lending rates to enterprises

CPI = Consumer Price Index

The above specification measures the bank exposures sensitivity to macroeconomic factors. An acceleration in GDP growth is expected to have positive effects and thus to reduce NPL $(\beta_{GDP}<0)$. On the other hand, an increase in nominal interest rates is expected to have a negative impact and increase NPL $(\beta_{NLR}>0)$. The effect of the CPI is indirect and is expected to affect NPL through interest rate changes and thus $\beta_{CPI}>0$.

The model was run with a panel data set consisting of 18 banks, i =1...18, and for six years, t =1999...2004. The first differences (Δ) of each variable were taken in order to avoid spurious results. The estimated coefficients (elasticities) are presented in Table A1.

As a next step, the simulated results of the Bank of Greece macroeconometric model for the two crisis scenarios were fed into the model for NPL. This forecasting exercise provided for an increase in NPL of

14 See Zonzilos, 2004.

36% under the worst case scenario 1. The estimated elasticity was compared with the results of an IMF study that calculated the same coefficient for a panel of 47 countries over a 10-year period. The study concluded that the elasticity of NPLs to GDP is –0.26, about half the elasticity measured by the Bank of Greece model.

Finally, to ensure comparability among banks, the results were translated into changes in PDs, assuming that the percentage change in NPLs was equal to the percentage change in PDs. This implied that all banks reacted in the same way to changes in these macroeconomic variables and therefore the 60% increase in PDs roughly corresponded to the scenarios simulated.

Appendix 2

Stress testing results for credit risk[15]

Table A2.1
Credit risk
(Loan portfolio)

Type of portfolio	Impact on regulatory capital *(Percentages)*	After-shock CAR *(CAR before shock: 12.81)*	Impact on profits *(Percentages of 2004 after-tax profits)*
Corporate	3.64	12.41	32.52
Retail	5.53	12.19	49.43
Mortgage	0.76	12.73	6.83
Total	9.93	11.69	88.78

Table A2.2
Credit risk
(Bond portfolio)

Type of bonds	Impact on regulatory capital *(Percentages)*	After-shock CAR *(CAR before shock: 12.81)*	Impact on profits *(Percentages of 2004 after-tax profits)*
Government bonds	2.07	12.58	18.53
Greek corporate and bank bonds	0.91	12.71	8.14
Foreign corporate and bank bonds	0.53	12.75	4.78
Total	3.52	12.42	31.45

Table A2.3
Credit risk
(Balkan exposures)

	Impact on regulatory capital *(Percentages)*	After-shock CAR *(CAR before shock: 12.81)*	Impact on profits *(Percentages of 2004 after-tax profits)*
Loan portfolio in the Balkans	1.03	12.70	9.21

15 All credit risk stress testing shocks have negative effects. In Tables A2.1-A2.5 the negative sign is dropped and all figures are shown with positive values.

Table A2.4
Credit risk
(Balkan exposures)

Type of bonds	Impact on regulatory capital *(Percentages)*	After-shock CAR *(CAR before shock: 12.81)*	Impact on profits *(Percentages of 2004 after-tax profits)*
Government bonds	0.25	12.79	2.17
Bank bonds	0.003	12.81	0.03
Corporate bonds	0.0003	12.81	0.003
Total	0.26	12.79	2.20

Table A2.5
Credit risk
(Sectoral concentration)

Sector	Impact on regulatory capital *(Percentages)*	After-shock CAR *(CAR before shock: 12.81)*	Impact on profits *(Percentages of 2004 after-tax profits)*
Shipping	0.24	12.79	2.18
Textiles	0.20	12.79	1.79
Construction	0.44	12.76	3.95
Total	0.89	12.71	7.92

Appendix 3

Stress testing results for market risk[16]

Table A3.1
Market risk: interest rate risk

	Impact on regulatory capital (Percentages)	After-shock CAR (CAR before shock: 12.52%)	Impact on profits (Percentages of 2004 after-tax profits)
+200 bp.	4.33	12.05	39.37
–200 bp	(4.91)	13.06	(44.62)
+0, +100, +200 bp	3.40	12.15	30.92
+200, +100, +0 bp	1.31	12.38	11.91

Table A3.2
Market risk: FX risk

	Impact on regulatory capital (Percentages)	After shock CAR (CAR before shock: 12.52)	Impact on profits (Percentages of 2004 after-tax profits)
30% depreciation of the euro	(0.53)	12.58	(4.86)

Table A3.3
Market risk: equity risk

	Impact on regulatory capital (Percentages)	After-shock CAR (CAR before shock: 12.52)	Impact on profits (Percentages of 2004 after-tax profits)
30%, 50% decline in share prices	6.45	11.82	58.60

16 In market risk stress testing shocks, some shocks have negative consequences and some positive consequences. In order for the presentation of the results to be consistent with Appendix 2, for all negative consequences in Tables A3.1-A3.3 the negative sign is dropped and the figures are shown with positive values. For all positive consequences, the figures are shown in parentheses.

Appendix 4

Liquidity ratios

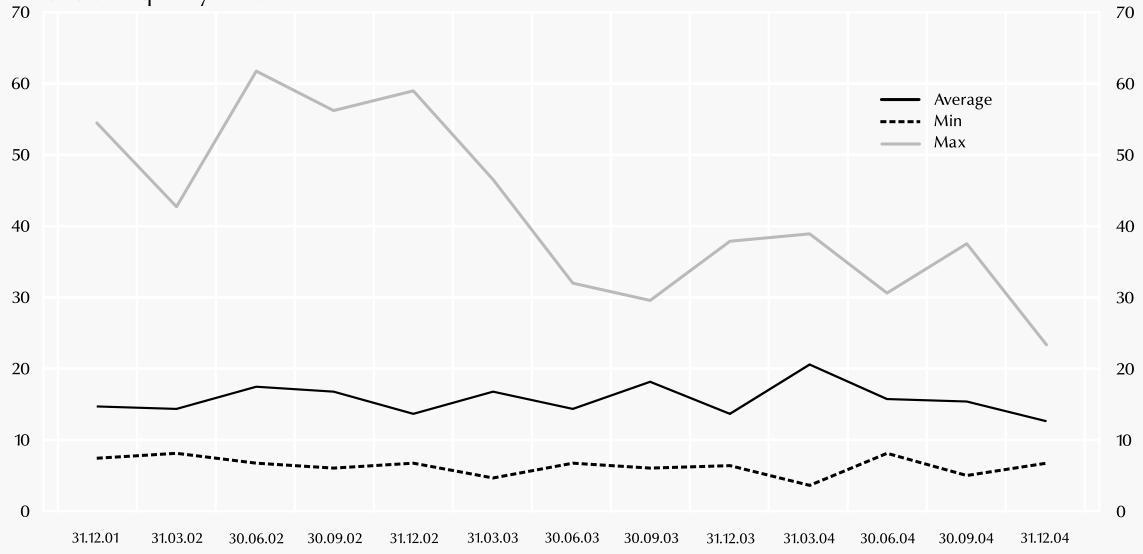
$$\text{1. Overall liquidity ratio} = \frac{\text{Assets maturing in the overnight time band}}{\text{Liabilities maturing in the overnight time band + negative mismatches in the next time bands which are not compensated by positive mismatches in previous time bands}}$$

$$\text{2. Mismatch ratio} = \frac{\text{Assets less liabilities (maturing in up to 1 month)}}{\text{Borrowed funds}}$$

$$\text{3. Liquid assets ratio} = \frac{\text{Liquid assets maturing in up to 1 month}[17]}{\text{Borrowed funds}[18]}$$

Chart A4.1

Overall liquidity ratio



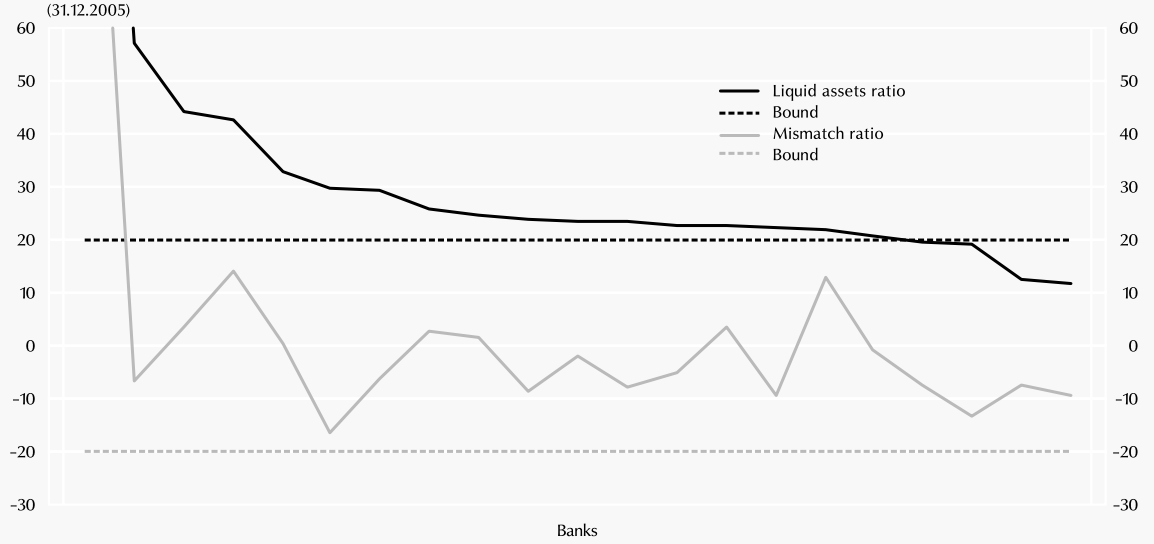
Source: Bank of Greece calculations.

17 Liquid assets = Cash + deposits with banks + government bonds and Treasury bills + equity shares + mutual fund units.
18 Borrowed funds = Total sight and savings deposits + all other liabilities maturing in up to 12 months.

Chart A4.2

Liquidity ratios

(31.12.2005)



Source: Bank of Greece calculations.

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Frontier survey on travel expenditure: methodology, presentation and output assessment (2003-2005)*

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1. Introduction

In the post-war era, travel related credits were key determinants of the current account balance. Between the early 1950s and 1998, the foreign exchange control framework, in force since 1932, was the basis for the production of balance of payments statistics (foreign exchange statistics). Specifically, foreign exchange receipts from travel recorded the foreign currency, converted into drachmas through the banking system, which originated from the provision of tourist services to foreign travellers in Greece. The payments segment included the foreign currency granted to Greek nationals, residents of Greece, who travelled abroad for studies, hospitalisation, business or pleasure. External transactions through the country's banking system represented the main source of information for compiling the monthly balance of payments statement, a task entrusted to the Bank of Greece both then and now.

With the complete abolition of foreign exchange restrictions (in May 1994), the methodological framework for recording external transactions had to be adapted to the new situation. The Bank of Greece went ahead with a radical restructuring of the balance of payments compilation methodology, in conformity with the conceptual framework set by the International Monetary Fund (IMF) in the 5th edition of its Balance of Payments Manual (BPM5, 1993). The crux of this new methodology is the recording of transactions between a country's resi-

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dents and non-residents, i.e. between the residents of that country and residents of the rest of the world. According to the IMF definition, a resident of Greece is any person, irrespective of nationality, who resides or intends to reside for at least one year in Greece, while a non-resident is any person who is not a resident of Greece.[1] The amounts recorded as "travel" receipts and payments represent residents' receipts for services supplied and goods sold in Greece to non-resident travellers, and residents' payments for travel expenditure abroad. The travel receipts and payments were to be recorded by intermediating banks broken down by the means of payment used for the settlement, e.g. foreign banknotes, bank orders and cheques, credit cards, etc. The main sources of statistical information were the intermediating banks operating in Greece. The new system was implemented partially in April 1998, and then fully on 1 January 1999.

Greece joined the European Monetary Union, and since 1 January 2002 the euro has been used as a means of transactions in all EMU participating countries. The traditional sources of information used hitherto for compiling the travel balance of payments thus lapsed. In order to estimate this major component of the current account balance, the Bank of Greece adopted for the first time the use of a sampling survey. Out of the various alternative approaches available, it opted for a Frontier Travel Survey (FTS), which was assigned to TNS ICAP SA, with the processing of the raw data entrusted to the statistical analysis company QUANTOS LTD. The analysis and quality control of the findings, as well as the supervision of field operations (questionnaire collection at border points, etc.) fall within the responsibility of the Bank of Greece. The survey on a monthly basis began in May 2002 and until December 2002 remained in a pilot phase. The methodology, following certain adjustments, was finalised in January 2003.

This article has three main aims:

- To analytically present the methodology of the FTS and its objectives as regards the production of main and supplementary data related to the travel expenditure of Greek residents abroad and of non-residents in Greece.

- To present and analyse the survey's major findings for the three-year period 2003-2005.

- To qualitatively assess the findings.

2. The FTS in Europe, overall

Various different systems are used in the EU-25 for travel expenditure data collection, and several countries have adopted the FTS method. The developments in the data collection methodology, the quality of the findings, as well as the bilateral discrepancies per EU member country are monitored and assessed by the Technical Group Travel (TGT) —a special working group set up by the European Statistical Service (Eurostat)— that brings together all EU-25 member countries plus the USA and Japan as invited countries.

In brief, the EU-25 member countries use the following travel expenditure data collection systems:

- Nine countries (Greece, Estonia, United Kingdom, Ireland, Italy, Latvia, Lithuania, Hungary

1 For the definition of a - natural or legal - resident person see Annex 1.

and Poland) use an FTS for both inbound and outbound travel (i.e. for non-residents coming into the country and for residents going abroad).

- Eight countries (Austria, Belgium, France, Germany, Denmark, Luxembourg, the Netherlands and Finland) use hybrid systems that combine different sources of information (credit card data, travel agency surveys, bank settlements, other countries' data, an FTS for inbound travel flows, hotel surveys and other administrative sources) but have as a common characteristic the use of a household survey for outbound travel traffic.

- Three countries (Spain, Cyprus and Malta) use an FTS along with bank settlements (Spain also uses tour operator survey data).

- Three countries (Slovakia, Slovenia and the Czech Republic) currently use bank settlements, but they envisage switching over to an FTS soon.

- Switzerland uses a mixed system that combines data from a travel agency and tour operator survey with credit card data and estimates derived on the basis of statistical models.

- Finally, Portugal completed the pilot phase of an FTS in 2005 and is soon expected to start using it officially, abandoning the former system that combined bank settlements, credit card data and estimates derived on the basis of statistical models.

Each country's choice of collection system is a function of many different factors, related as much to statistical efficiency as to economic considerations. The FTS is the most suitable solution for countries such as Greece, which have only a limited number of entry/exit points into/out of their territory and the main gates are organised border points, e.g. airports – which in the case of Greece serve more than 65% of total inbound and outbound travel traffic (see Chart 1). On the other hand, an FTS would not be advisable for central European countries such as Austria or Luxemburg, where frontiers have practically been abolished and the complex roadway network renders the selection of representative entry/exit points for each country extremely difficult.

Alternative solutions, such as a survey of enterprises active in specific tourist industry branches (e.g. travel agencies, tour operators, accommodation providers, restaurants, giftware and handicraft shops, etc.), or the use of a household survey, do not provide a satisfactory coverage of the tourism phenomenon. A survey of travel agencies and tour operators only covers the outbound and part of the inbound tourism, while a survey of accommodation only covers the inbound flows. In addition, surveys of travel agencies and tour operators cannot possibly yield full information on travel expenditures, while accommodation surveys do not record travellers staying with friends and relatives or at privately owned houses. A household survey only covers outbound tourism, and it may be completed months after the conclusion of a journey and thus does not provide for immediate data collection. It also requires large-size samples for a relatively small part of the population. As a combination of these surveying methods would not cover the whole spectrum of tourist services and would lead to delays in the production of the required statistical information —making it rather difficult

for the Bank of Greece to comply with the tight timeliness requirements for reporting data to the European Central Bank (ECB) and Eurostat— it was decided to adopt the solution of an FTS.

The data produced by the FTS conducted by the Bank of Greece fully meet the requirements and methodological specifications of the IMF, Eurostat, the European Central Bank (ECB) and the Organisation for Economic Cooperation and Development (OECD), as well as of entities and research groups dealing with tourism in Greece. The Bank of Greece FTS questionnaire was based on that of the Italian and British frontier surveys. Translated into 13 languages,[2] it is handed out to respondents in the form of a four-page printed document that takes 7 to 10 minutes to fill in. Non-residents complete it on their own whereas residents are interviewed. The main questions refer to the country of permanent residence, the purpose of travel, the arrival date in the destination country, the travel expenditure in the country of residence and in the destination country, etc., while there are secondary questions regarding gender, age, accommodation type, etc. Especially for residents, all countries visited are recorded and a proportionate distribution of the journey's total expenditure is carried out according to the duration of stay in each country.

3. Planning of the FTS

As mentioned earlier, the FTS is a sampling survey of inbound (non-resident) and outbound (resident) travellers, whose main objective is the estimation, with a monthly periodicity, of the expenditure by non-residents in Greece and by Greek residents abroad. Data collection takes place at the end of the journey, i.e. when non-residents are leaving Greece and when residents are returning from abroad. The survey covers both inbound and outbound travel, and all types of border points (airports, seaports, roadway crossing points and railway stations).

A key methodological characteristic of the FTS is that data regarding variables such as the size or composition of the target population are not known in advance, but constitute part of the estimation procedure, along with the statistical data regarding travel expenditure. In other words, unlike a typical person or household survey (e.g. a Labour Force Survey) where the sampling frame is known and determined in advance, the sampling frame in an FTS is unknown and forms part of the estimation procedure along with the information asked from the traveller.[3]

The planning of the sampling is therefore extremely important with respect to this type of survey and for this reason the Bank of Greece FTS went through an eight-month pilot phase (May 2002 to December 2002) prior to its official implementation. The purpose of the pilot phase was to check and redefine through appropriate corrective interventions the overall frame of the procedures constituting the survey (the data collection and parameter estimation methodologies, the sample size, etc.), so as to make possible the implementation of a definitive monthly survey by January 2003.

The following section describes the key methodological aspects of the FTS, namely: (i) the selection

2 Albanian, Bulgarian, Czech, English, French, German, Hungarian, Italian, Romanian, Russian, Serbian, Spanish and Turkish.

3 The sampling frame is a detailed listing of all possible respondents in the target population. If known prior to the survey, it is used as a foundation for the planning of the sampling procedure since it yields the total number of persons/households, the age distribution, etc. Obviously, no sampling frame exists in an FTS.

Table 1
Survey border points

Border point type	Survey border points	Total foreign passenger flow in 1999 (million)	Coverage (%)
Airports	Athens*, Zakinthos, Herakleio, Thessaloniki*, Corfu, Kos, Rhodes, Santorini, Chania	9.9	91
Seaports	Igoumenitsa*, Corfu, Patras* (to Italy)	0.7	64
Roadway crossing points	Euzones*, Kakavia*, Kipoi*, Promachonas* (to Albania, Bulgaria, the FYROM and Turkey)	1.3	80
Railway stations	Promachonas* (to Bulgaria)	0.03	83

* There the survey covers both inbound (non-residents) and outbound (residents) travel flows, while at the other border points inbound travel flow only.
Source: NSSG.

of the border points, (ii) the determination of the sample size, (iii) the sampling and weighting procedures, (iv) the issue of package tours, and (v) the method applied for allocating expenditure over time. The FTS methodology, aside from the questionnaire, was based on that of similar surveys being conducted in Italy (since 1996) —with which it shares many common features— and in the United Kingdom (since 1961).

Selection of the sample's border points

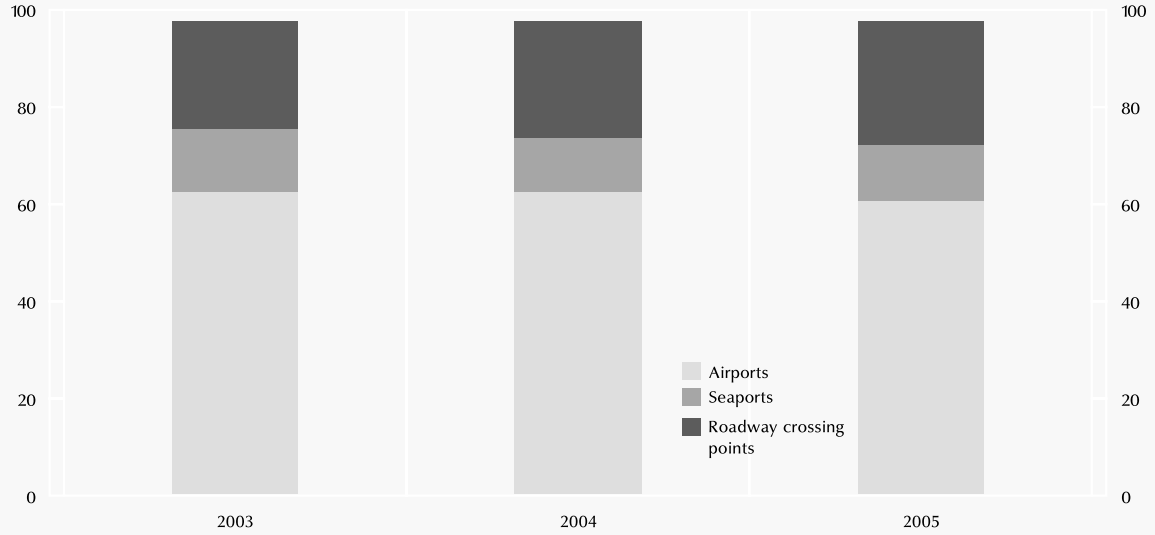
The selection of border points to be included in the survey was based on the foreign travel flows passing through each point, according to the 1999 NSSG data on annual arrivals of foreign travellers.[4] The number of border points selected covered a satisfactory proportion of total travel flows. Specific thresholds, different for inbound and outbound travel traffic, were set for each border point type (airports, seaports, roadway crossing points and railway stations) in order to reach this proportion. These thresholds were derived as a function of: (i) the volume of total travel flow served by the specific border point type, (ii) the number of existing border points for each type, and (iii) the distribution of total travel traffic across the individual border points of the specific type.

The border points where the data collection operations were to be conducted were selected on the basis of the above criteria (see Table 1). On the basis of the available data on total foreign (passenger) traffic for 1999, the coverage[5] ensured by the border points finally selected was: 91% for airports, 64% for seaports, 80% for roadway crossing points and 83% for railway stations.

It was impossible to calculate coverage per border point type for resident travellers, as there were no

4 See the Press Release by the NSSG General Secretariat (Tourism Statistics Section), April 2002, available at the Greek National Tourism Organisation website (www.gnto.org).
5 Coverage per border point type is calculated as the ratio of total passenger traffic at the sample's border points over passenger flows from all border points.

Chart 1
Distribution (%) of passenger traffic per border point type in Greece



Source: Border administrative authorities.

official travel traffic data of the required analysis level, but only an annual estimate by the World Tourism Organisation regarding the total outward traffic flow (2.2 million journeys). However, given that the country's main entry and exit gates are the airports of Athens and Thessaloniki, it was decided that the survey should be conducted there all year round, whereas for the other border points the sample size is limited outside the peak periods of outbound travel, such as the summer months, the Christmas and Easter holidays, etc.

The respective coverage percentages reflect the characteristics of each type of border point. Airports attract the larger part of travel traffic, and therefore necessitated a satisfactory coverage. This was relatively easy to achieve, given that the bulk of travellers use the airports of Athens, Thessaloniki and Heraklion, while the rest of the country's airports practically have very limited outbound traffic during the non-tourist season, mainly unscheduled outbound flights during the tourist season. Seaports have the lowest coverage since it was decided, on a cost-efficiency basis, not to include in the survey the country's eastern seaports. However, as the share of seaports in total travel traffic is small, the end effect on the final results is insignificant.

Finally, roadway crossing points and railway stations show a high degree of traffic intensity, and thus high coverage is achieved even when data collection operations are only carried out at a few border points.

Sample size determination

The sampling rates used for specifying the sample size were 1:580 for non-residents and 1:360 for residents.[6] The rate selected for non-residents is

6 The sampling rate is the ratio of sample size to total travel population (i.e. total non-resident or resident traffic). Thus, approximately, 1 in every 580 non-resident travellers fills in the questionnaire and 1 in every 380 resident travellers is interviewed.

Table 2
Stratification variables and levels

Stratification factors	Levels
1. Direction	2 (inbound and outbound travel)
2. Border point type	4 (airports, seaports, roadway crossing points and railway stations)
3. Border point	17 (4 roadway crossing points, 1 railway station, 9 airports and 3 seaports)*
4. Sampling day	2 or 3 depending on the border point type (days of large, medium and small travel numbers)
5. Sampling shifts	2 or 3 periods depending on the border point type (periods of large, medium and small travel numbers)

* This figure varies within the year depending on tourist traffic. It may also vary due to changes in the economic and political conditions affecting travel in more general terms.
Source: Bank of Greece.

close to that of other countries,[7] while for residents it was decided to adopt a higher rate, in anticipation of a lower degree of respondent cooperation due to the fact that the interviews take place at the end of the journey, i.e. when travellers may be tired or lacking the time required for the interview. The initial sample size was then adjusted so as to take into account the special characteristics of each border point,[8] according to the following criteria: (i) the quality of information about the expected number of travellers, (ii) the distribution of traffic within the reference month, (iii) the cost of conducting the survey, and (iv) special features (such as large numbers of immigrants passing through a specific border point). The final sample size for 2002 (over the period from May to December) was 19,000 questionnaires self-completed by non-residents and 4,400 interviews of residents. For 2003 (over a 12-month period this time) the sample size included 24,500 and 7,500 respondents, respectively.

In the course of the three years that the survey is conducted there have been various revisions of the sample's planning and distribution, either to compensate for extraordinary events (e.g. the 2004 Olympic Games) or due to a change in the conditions prevailing at individual border points (e.g. increased travel flows from and to Bulgaria 9,600 compared with previous years). Thus, the target set for 2006 was to interview 27,500 non-resident travellers and residents.

Sampling procedure

The sampling scheme used was a stratified multi-stage systematic sampling per clusters. In a first phase the sample was stratified according to the following five factors: travellers' direction (inward/outward), border point type, border point, sampling day, and sampling shift (see Table 2). This stratification aimed at achieving the highest possible representative coverage of total travel traffic.

7 The sampling rates for the Italian and the British surveys are 1 in 600 and 1 in 500, respectively.
8 First, the total sample was proportionately distributed to individual border points, based on annual travel flows. Then, the sample was distributed over the months, which naturally featured a higher seasonality for non-residents than for residents. Finally, *ad hoc* corrective interventions were carried out at the individual border points for which the monthly distribution resulted in a sample size lower than the minimum number of travellers required for an efficient statistical estimation.

In a second phase a multistage systematic cluster sampling was applied, aimed at achieving an absolutely random selection of the travellers asked to participate. The procedure followed for the selection of the sample and the weighting of the findings are described in detail in Annex 2, while a brief rationale of the methodology is presented in Annex 3.

Package tours

In estimating each visitor's travel expenditure in his/her country of origin, the cost of his/her transport from and back to the country of origin must be deducted from the journey's total cost, since such amounts are not travel receipts and payments in a balance of payments sense, as they are not transactions between residents and non-residents. For independent travellers this transport cost component is deducted directly, as the questionnaire includes a question regarding the ticket fare. Travellers coming into the country (or going abroad) on journeys organised through tour operators are, however, unaware of the components forming the total cost of their package tour. These cost components include expenditures incurred in the country of origin (cost of transport from and back to the country of origin, organisational costs in the country of origin and profits from the retail or wholesale sale of the package tour) and expenditures incurred in the destination country that have to be recorded in the balance of payments (mainly: accommodation, sustenance, local transport costs, etc.). The amounts incurred in the country of origin must be deducted using a special procedure[9] in order to calculate the imputed expenditure that has to be recorded in the destination country but was made in the country of origin.

Travel expenditure and time revision

According to the IMF methodology, travel payments and receipts have to be recorded in the balance of payments in the period in which the relevant goods or services were sold or provided to the traveller. As a proxy, because there is no detailed recording of travellers' expenditure on a daily basis, total travel expenditure is proportionately distributed across all days that the non-resident (or resident) travellers stayed in Greece (or abroad). Thus, if the number of days of stay extends to more than one month, total expenditure is proportionately distributed across the respective months.

This procedure,[10] known as "time revision", is applied every quarter for the immediately previ-

9 This procedure involves deducting from the package tour's total cost (declared by the respondent) 10% (the percentage agreed upon within the TGT) for the payment of the various services supplied, and a sum for the ticket fare. The ticket fare used is based on a special survey of airplane ticket prices conducted for each major country of origin/destination at least 3 months earlier than the reference month, whereby the cheapest price is selected as the "typical" ticket fare for the package tour.

10 The procedure is applied as follows:

- Data collection takes place at the end of the journey, i.e. upon the non-residents' departure and the residents' arrival, while the journey's starting day is calculated from information declared by the traveller.
- Thereafter, expenditure is proportionately distributed across the travellers' entire duration of stay (all the days spent) in the country.
- Based on the distribution of the days of stay across successive months, the travellers' expenditure during the months preceding the reference month is calculated (as a percentage).

For example, during the FTS, an interview is held on 3 April and the traveller (the procedure is the same for residents and non-residents) declares a total duration of stay of 10 days and a total expenditure of €1,000. Considering that 7 days of his/her total duration of stay were in March and 3 days were in April, the €1,000 amount will be distributed between the two months in proportion to the days corresponding to each month. Explicitly, an amount of €300 (30% of his/her total expenditure) will be recorded in the travel balance of payments in April, while the remaining amount of €700 (70% of his/her total expenditure) will be recorded, during the time revision of the relevant data, in the travel balance of payments in March.

Table 3
Travel credits and debits, 1995-2005
(Million euro)

Year		Credits		Debits	
		Amount	Index: 1995=100	Amount	Index: 1995=100
Old system	1995	2,799	–	899	–
	1996	2,622	94	855	95
	1997	2,985	107	1,048	117
New system	1998[1]	5,514	197	1,558	173
	1999	8,296	296	3,761	418
	2000	10,061	359	4,949	551
	2001	10,580	378	4,651	517
Frontier Travel Survey (FTS)	2002[2]	10,285	367	2,549	284
	2003	9,495	339	2,136	238
	2004	10,348	370	2,310	257
	2005	11,037	394	2,785[3]	310

1 Partial implementation of the system from April 1998. In 1999 the new system was fully implemented by all intermediating banks.
2 Pilot phase of the FTS from May to December.
3 This amount is €339.1 million less than the residents' travel expenditure figure published by the Bank of Greece for 2005, since this difference has been recorded in "private customers' unilateral transfers (immigrants' remittances)". In this study however, this amount is retained in 2005 travel payments to ensure comparability over time of the estimates and indices derived on the basis of the FTS.
Source: Bank of Greece.

ous quarter (e.g. time revision for the fourth quarter of 2005 was carried out in March 2006). Besides expenditure, the number of overnight stays is also revised. However, travel flows, i.e. the number of travellers, is not revised but ascribed to the month in which the data collection operation took place.

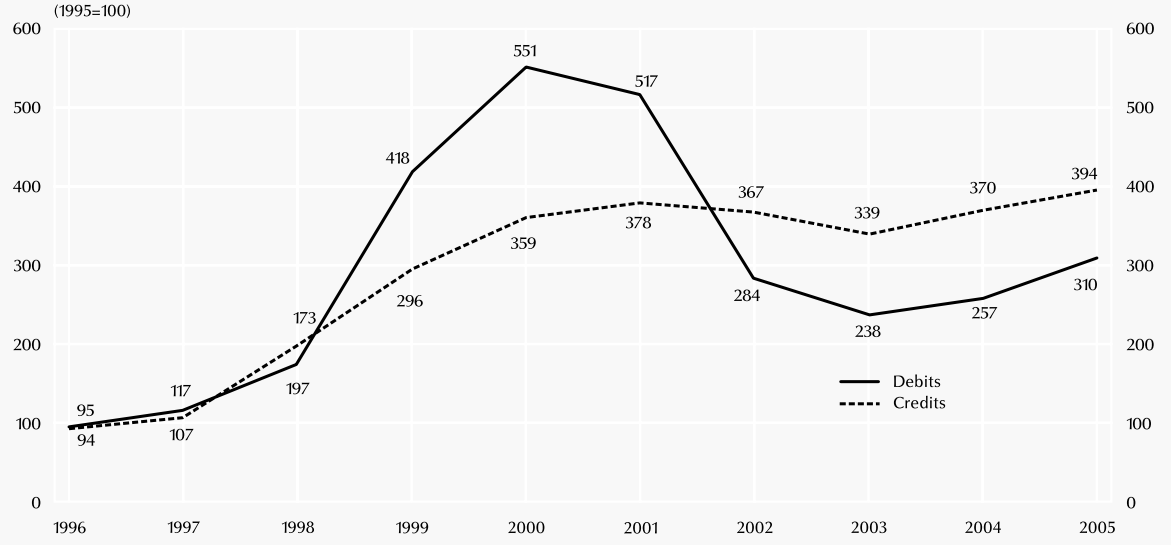
4. Annual aggregates and the seasonal distribution of travel expenditure in the 1995-2005 period

Travel expenditure

As already mentioned, the 1995-2005 period was marked by two major revisions of the balance of payments collection system, the results of which are reflected in the aggregate travel credits and debits data. The first revision was implemented partially in 1998 and wholly in 1999 when the new data collection system replaced the old one, and the second revision took place in 2002 with the adoption of the euro and the introduction of the FTS. These two revisions of the data collection system are the primary causes affecting the travel expenditure data recorded in the balance of payments (see Table 3 and Chart 2).

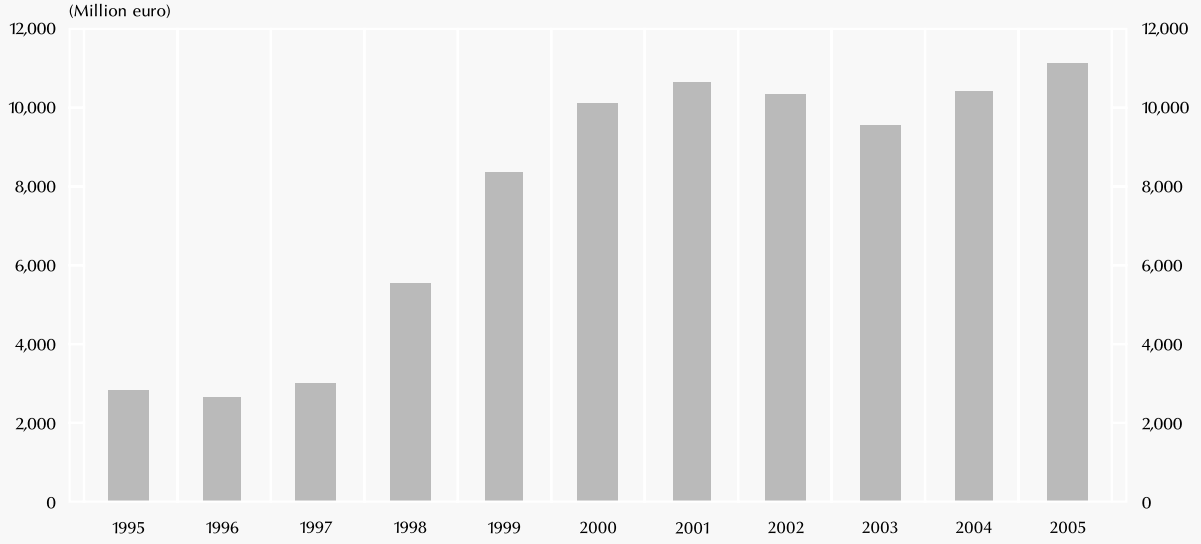
As regards travel credits, the 1998-1999 revision of the balance of payments compilation methodology contributed to a significant rise in the figures recorded in the balance of payments (see Chart 3). Thus, travel credits increased from €8.4 billion in the three-year period 1995-1997 to approximately €29.0 billion in the three-year period 1999-2001. The main reason behind this steep rise was that the transactions formerly recorded as bank deposits held by non-residents in (or convertible into) drachmas —as the old sys-

Chart 2
Developments in travel credits and debits
(1995=100)



Source: Bank of Greece.

Chart 3
Travel credits, 1995-2005
(Million euro)

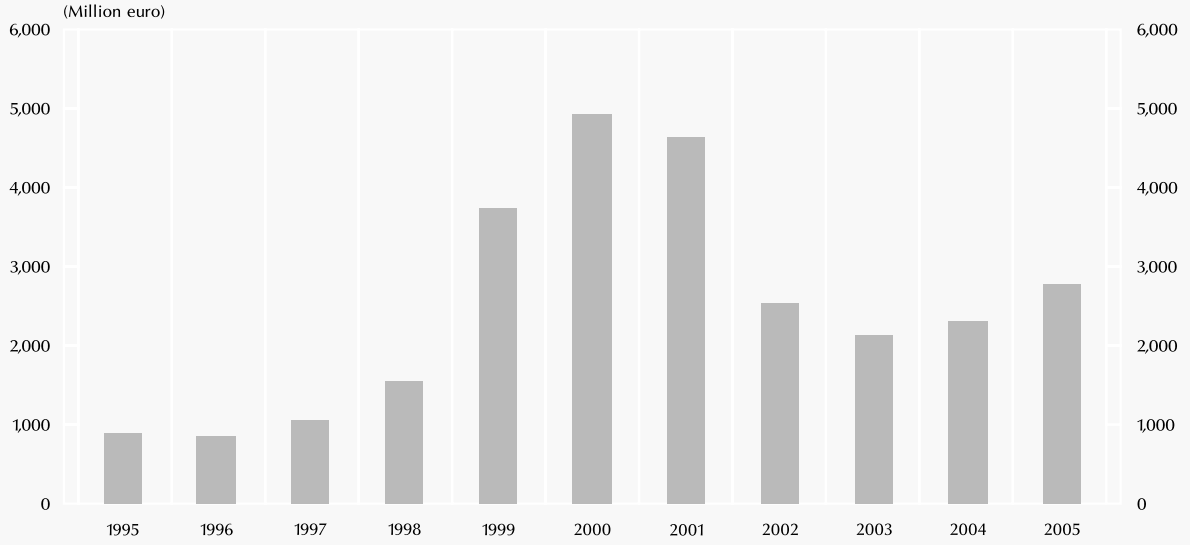


Source: Bank of Greece.

tem did not allow for a breakdown by transaction category (e.g. exports of goods, tourist or shipping transactions, etc.) — were now recorded in travel receipts.

The use of the FTS estimates for calculating travel expenditure by non-residents in Greece contributed as well to a marginal increase of the relevant figures in the three-year period 2003-

Chart 4
Travel debits, 1995-2005
(Million euro)



Source: Bank of Greece.

2005 (1999-2001: €29.0 billion, 2003-2005: €31.0 billion).

As regards developments in travel expenditure by Greek residents abroad, with the 1998-1999 restructuring of the collection system the relevant figures steeply rose as well (1995-1997: €2.8 billion, 1999-2001: €13.4 billion). However, in contrast to travel receipts, the estimates derived by the FTS for payments abroad are perceptibly lower (2003-2005: €7.2 billion, see Chart 4). This divergence is currently being studied by the Bank of Greece, given that it may be attributable to an overvaluation of the relevant figures by intermediating banks in the 1999-2001 period (recording of transactions not related to travel abroad), or an underestimation of the expenditure by the FTS from 2003 onwards since the residents' replies to the questionnaire may not include remittances for tuition fees, student accommodation costs and/or hospitalisation expenses.

Seasonality of travel expenditure

As regards the seasonality of travel credits, the implementation of the FTS since May 2002 affects the distribution of credits within each year, while the introduction of the new balance of payments compilation system in 1998 had no effect on the seasonality profile (see Table 4). With the implementation of the FTS, seasonality becomes more pronounced, as third quarter credits steadily represent a higher share of annual expenditure, with a corresponding decrease of the first and fourth quarter shares while the second quarter remains unaffected, without any change of trend (see Chart 5).

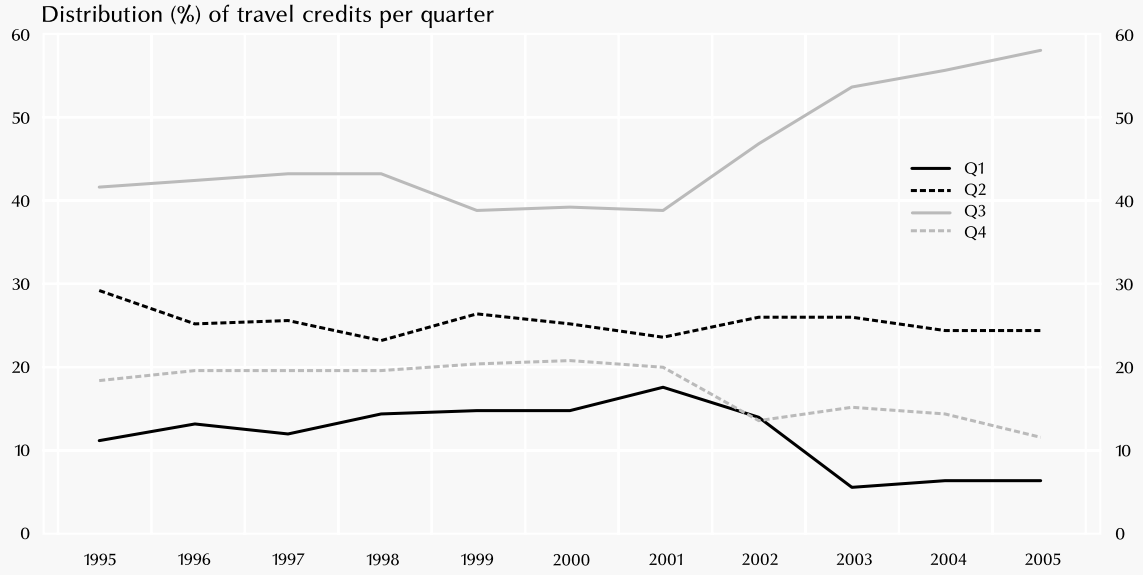
This change in the seasonality profile reflects the fact that the implementation of the FTS enabled travel credits and debits to be recorded in the balance of payments in the same period when the relevant services or goods are rendered or

Table 4
Distribution (%) of travel credits per quarter

Quarter	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Q1	11.1	13.0	11.8	14.1	14.4	14.7	17.4	13.6	5.3	6.0	6.0
Q2	29.1	25.3	25.5	23.1	26.2	25.3	23.7	25.8	26.0	24.2	24.3
Q3	41.7	42.4	43.4	43.3	39.1	39.2	39.0	47.0	53.9	55.9	58.2
Q4	18.1	19.4	19.4	19.4	20.3	20.8	19.9	13.5	14.8	14.0	11.4

Source: Bank of Greece.

Chart 5
Distribution (%) of travel credits per quarter



Source: Bank of Greece.

bought, which is in compliance with IMF methodology. Travel credits related data produced by the bank settlements system mainly reflected procedures used to settle tour operators' obligations, where down payments and final settlements were made respectively before and after the period when the actual visit was made.

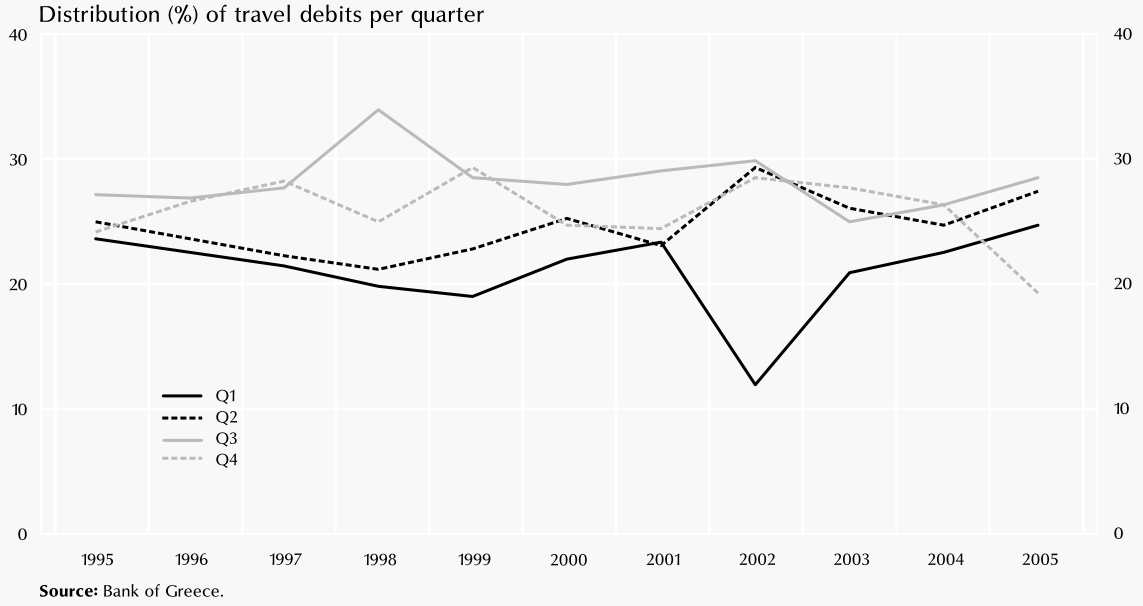
As regards debits, the implementation of the FTS did not have any effect on the seasonality profile, as was also the case with the 1998/1999 change in the balance of payments data collection system. The main reasons for this are that (i) residents do not —at least not to the degree non-residents do— travel abroad mostly for leisure purposes (roughly, just 20-25% of total expenditure is for leisure) as analysed further below, and therefore do not exhibit a seasonal peak during the summer, and (ii) the share of package tours in total travel payments is not as high for residents as for non-residents, and thus the seasonal effect of down payments and final settlements is insignificant.

Table 5
Distribution (%) of travel debits per quarter

Quarter	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Q1	23.6	22.7	21.5	19.8	19.1	22.0	23.4	11.9	20.9	22.6	24.8
Q2	25.0	23.6	22.3	21.2	22.8	25.2	23.0	29.5	26.1	24.7	27.5
Q3	27.3	27.0	27.7	33.9	28.7	28.0	29.1	30.0	25.1	26.5	28.6
Q4	24.1	26.8	28.4	25.0	29.4	24.7	24.5	28.6	27.8	26.3	19.2

Source: Bank of Greece.

Chart 6
Distribution (%) of travel debits per quarter



Source: Bank of Greece.

On account of these two factors, the share of third quarter payments in the annual total stands at levels similar to those of the other quarters (see Table 5). The years of transition from the old to the new collection system and then from the new system to the FTS, i.e. 1998 and 2002 respectively, are linked to the appearance of extreme values: the third quarter share in 1998 peaks at 33.9%, and the first quarter share in 2002 shrinks to 11.9% (see Chart 6). The extreme values recorded in these two years are due to the slower adjustment of the compilation procedures regarding travel debits in the balance of payments compared to credits.

5. Analysis of the FTS results for the 2003-2005 period

According to the results of the FTS, travel expenditure by non-residents in Greece and by Greek residents abroad exhibited the trends described below (see Table 6).

Table 6
Trends of travel expenditure by non-residents in Greece and by Greek residents abroad

Year	Expenditure (million euro)	Expenditure per journey (euro)	Overnight stays per journey	Expenditure per overnight stay (euro)
		Non-residents		
2003	9,495	714.0	10.9	65.7
2004	10,348	738.1	10.7	68.9
2005	11,037	744.2	10.7	69.8
		Residents		
2003	2,136	587.1	12.0	48.9
2004	2,310	*598.1*	11.2	53.6
2005	2,785*	656.7	10.1	64.8

Note: Due to rounding, the data differ from the result of a multiplication of the individual indices.
*See note 3 in Table 3.
Source: Bank of Greece.

As regards travel expenditure by non-residents in Greece, the main conclusions drawn from the FTS findings are the following:

In 2004, there was a rise in total expenditure, exclusively caused by the increase in average expenditure per overnight stay, given that the inbound travel flow edged down slightly and average stay remained practically unchanged. However, in 2005, the rise in total spending accelerated moderately, mainly as a result of increased travel volume and to a lesser extent of a slight increase in average expenditure per overnight stay. Average duration of stay remained unchanged.

Expenditure per journey showed an upward trend, a fact related to the slight increase in average expenditure per overnight stay, given that average duration of stay stood at roughly the same levels throughout the period under review.

As regards travel expenditure by residents abroad, according to the FTS findings the following observations can be made:

Total expenditure on an annual basis rose by 8% in 2004, and then accelerated by 20.5% in 2005.

Outbound travel flows of Greek residents showed an upward trend, increasing by 6.2% in 2004 and by 9.8% in 2005. In contrast, overnight stays of residents abroad recorded a marginal decline (2003: 43.7 million, 2004: 43.1 million, 2005: 43.0 million). Owing to these two trends, Greek residents' average duration of stay abroad fell, from 12 overnight stays in 2003 to 10 in 2005.

Expenditure per journey and expenditure per overnight stay recorded an upward trend in the 2003-2005 period.

The next section attempts to analyse the major factors contributing to the aforementioned developments in aggregate data, such as the special characteristics of travel expenditure from the most important countries of origin of non-resident visitors, and of destination countries of Greek residents travelling abroad, the purpose of travel and the share of package tours.

Table 7
Travel credits of Greece by major country of origin

Countries	2003		2004		2005	
	Expenditure (million euro)	Share (%) in total	Expenditure (million euro)	Share (%) in total	Expenditure (million euro)	Share (%) in total
Euro area total	*4,494*	*47.3*	*4,764*	*46.0*	*5,280*	*47.8*
of which:						
Austria	276	2.9	376	3.6	344	3.1
Belgium	263	2.8	245	2.4	287	2.6
France	613	6.5	40	4.7	63	5.8
Germany	2,008	21.2	2,146	20.7	2,304	20.9
Spain	97	1.0	98	1.0	126	1.1
Italy	670	7.1	797	7.7	875	7.9
Netherlands	383	4.0	383	3.7	477	4.3
EU-15 total	*6,767*	*71.3*	*7,234*	*69.9*	*7,637*	*69.2*
of which:						
Denmark	126	1.3	146	1.4	180	1.6
United Kingdom	1,968	20.7	2,143	20.7	1,992	18.1
Sweden	178	1.9	181	1.8	184	1.7
New EU-25 member states (plus Bulgaria and Romania) total	*712*	*7.5*	*1,045*	*10.1*	*1,082*	*9.8*
of which:						
Cyprus	236	2.5	436	4.2	411	3.7
Albania	128	1.4	97	0.9	62	0.6
Russia	95	1.0	150	1.5	132	1.2
Turkey	68	0.7	86	0.8	65	0.6
USA	428	4.5	501	4.8	689	6.2
Switzerland	300	3.2	242	2.3	219	2.0
World total	*9,495*	*100.0*	*10,348*	*100.0*	*11,037*	*100.0*

Source: Bank of Greece.

Breakdown of non-residents' travel expenditure in Greece by country of origin

As Table 7 shows, the major part of travel receipts comes from the EU-15 member countries, with a share of around 70% in each of the three years (2003-2005). The two principal markets were Germany and the United Kingdom, which also maintained a relatively constant share of around 20% (each). The share of the EMU participating countries, as a subset of the EU-15, also remained unchanged, with marginal changes between 46% and 48%.

As regards the other markets, the share corresponding to the new EU member countries (as of 1 January 2004) and the two accession countries (Bulgaria and Romania) fluctuated between 7.5% and 10.1%. The share of the US remained at low levels but nevertheless showed an

Table 8
Additional indices for inbound travellers

Countries	Expenditure per journey (euro)						Average duration of stay (days)			Expenditure per overnight stay (euro)		
	At current prices			At 2003 prices								
	2003	2004	2005	2003	2004	2005	2003	2004	2005	2003	2004	2005
Euro area total	*734*	*765*	*781*	*734*	*743*	*733*	*11.9*	*11.8*	*11.9*	*61.7*	*65.0*	*65.8*
of which:												
Austria	62	693	711	662	673	667	11.5	10.2	10.3	57.4	67.9	69.5
Belgium	682	714	770	682	694	723	11.0	10.2	10.2	61.8	70.0	75.6
France	722	720	819	722	700	769	10.9	10.3	10.3	66.4	69.9	79.8
Germany	795	823	801	795	800	752	13.6	14.2	14.0	58.5	58.0	57.1
Spain	837	728	895	837	707	840	8.8	7.3	9.0	95.1	99.6	99.4
Italy	687	740	775	687	719	727	10.5	9.7	10.4	65.3	76.2	74.5
Netherlands	626	694	704	626	674	661	10.8	10.8	10.6	57.9	64.1	66.6
EU-15 total	*749*	*781*	*785*	*749*	*759*	*737*	*11.5*	*11.3*	*11.4*	*65.2*	*69.1*	*69.0*
of which:												
Denmark	597	735	647	597	714	607	9.2	9.1	9.0	64.9	80.7	71.6
United Kingdom	825	834	842	825	811	790	10.6	10.4	10.5	77.7	80.0	80.4
Sweden	575	684	587	575	665	551	11.3	10.5	10.0	50.8	65.1	58.7
New EU-25 member states total (plus Bulgaria and Romania)	*719*	*730*	*693*	*719*	*709*	*650*	*11.2*	*11.2*	*11.2*	*64.0*	*65.1*	*61.9*
of which:												
Cyprus	842	879	897	842	854	842	14.7	15.0	16.2	57.3	58.5	55.3
Albania	480	310	321	480	301	301	5.5	4.8	4.2	87.2	64.3	77.5
Russia	1,278	1,142	1,209	1,278	1,110	1,135	11.8	13.1	12.3	108.8	87.4	98.0
Turkey	497	663	522	497	644	490	8.0	6.6	4.6	61.9	100.9	112.5
USA	1,133	1,226	1,209	1,133	1,191	1,135	15.7	13.4	11.9	72.2	91.3	101.6
Switzerland	908	905	890	908	880	835	12.1	11.5	12.0	75.3	78.8	74.5

Source: Bank of Greece.

upward trend (from 4.5% in 2003 to 6.2% in 2005), while, in contrast, the share of Switzerland edged down slightly (from 3.2% in 2003 to 2.0% in 2005).

Finally, a wide distribution is observed in the other countries' contribution to travel expenditure, with only four (Norway, Russia, Australia and Canada) showing a share of 1% in each of the three years (2003-2005).

As already mentioned, the planning of the FTS was based on the conceptual framework set by the IMF, i.e. on the distinction between residents and non-residents, and not on the travellers' nationality. The adoption of this principle contributed to an enhanced reliability of the estimates of travel volume and overnight stays that were used for calculating travel expenditure. The main reason is that numerous Albanian citizens who work and permanently reside in Greece were

recorded as Greek residents. Thus, travellers who declared themselves Albanian residents represented very small shares in non-residents' total travel traffic (2003: 2.2%, 2004: 2.3%, 2005: 1.3%). Contrariwise, the shares of Greek residents (mainly Albanians residing in Greece) who declared that they travelled to Albania in residents' total outbound travel flow stood at high levels, between 13% and 16%.

The main factors contributing to the developments in travel expenditure by country of residence are travel flow from the specific country, average duration of stay in Greece (i.e. the number of overnight stays) and expenditure per overnight stay. These factors are also affected by the purpose of visit and perhaps by the share of the travellers in package tours. Table 8 presents an overview of developments in expenditure per journey, average duration of stay and expenditure per overnight stay for the main countries of origin of non-resident travellers.

From the data included in the aforementioned Table, the following conclusions are drawn:

Non-residents' expenditure per journey

Total expenditure per journey showed an upward trend in the 2003-2005 period, as a result of increased expenditure by travellers mainly from EU-15 member countries (2003: €749, 2005: €785) and to a lesser extent from other countries (2003: €693, 2005: €723). Out of the EU-15 member countries, a sizable boost resulted from the considerably higher than average travel expenditure by travellers from the two larger markets, i.e. the United Kingdom and Germany, and to a much lesser scale from Luxemburg and Ireland. Travel expenditure by visitors from the rest of the EU-15 member countries presented no notable differentiation, recording an upward trend for all countries except Sweden and Denmark. Out of the "other countries" group, the new EU member countries along with the two accession countries (Bulgaria and Romania) had clearly lower than average levels of expenditure per journey. An exception in this group was the expenditure per journey by residents of Cyprus, which stood at high levels and also showed an upward trend. Finally, a considerable positive effect on the developments in total figures was exerted by three relatively small markets (the US, Switzerland and Russia), which had a particularly high expenditure per journey.

As regards developments in expenditure per journey at constant prices[11] (2003), a drop was recorded in 2005, which was more pronounced in countries outside the EU-15. However, as the consumer price index does not record the room prices agreed between foreign tour operators and hotels but the prices charged by hotels to independent travellers ("at-the-door prices"), developments in expenditure at constant prices have to be carefully assessed once this characteristic is also taken into account.

Non-residents' average duration of stay per journey

As previously noted, total average duration of stay remained practically unchanged in the three-year period 2003-2005, reflecting the noteworthy stability —with only marginal fluctuations— observed in the average duration of stay of non-resident visitors

11 NSSG calculations based on the Consumer Price Index.

Table 9
Comparative data on expenditure per overnight stay by non-resident visitors
(Euro)

Destination countries	2003	2004	2005
EE-25	84.4	88.7	86.3
France	49.3	49.8	55.4
Spain	69.2	68.0	69.7
Italy	73.4	84.9	81.1
Cyprus	144.1	130.6	131.7
Greece	61.7	69.4	69.7

Source: Calculations based on TGT data.

from most countries of origin. Indicatively, the average duration of stay of visitors from the EU-15 member countries marginally fluctuated from 11.5 overnight stays in 2003 to 11.3 in 2004 and 11.4 in 2005. As regards individual countries, with the exception of the principal market of Germany, neither a significant differentiation nor any trend is observed in average duration of stay. The same holds also for overnight stays per journey of travellers from the new EU member countries and the other (non-EU) countries.

A particularly high average duration of stay was recorded for travellers from Germany, Cyprus and the US, a fact possibly related to the purposes of travel to Greece, e.g. visiting relatives. A breakdown of figures by purpose of travel can be found in a subsection further below.

Non-residents' expenditure per overnight stay

Expenditure per overnight stay shows a slight increase, mainly in 2004, and then remains unchanged in 2005. This trend reflects developments in most main markets, such as the EU members and the EMU participating countries, the new EU member countries and the US. As regards developments in individual EU countries, a marginal downward trend is observed in expenditure per overnight stay by travellers from Germany (from €58.5 in 2003 to €57.1 in 2005). The rest of the member countries broadly showed an upward trend, with marginal differentiations. As for the other markets, expenditure per overnight stay by travellers coming from the US recorded a noticeable rise (from €72.2 in 2003 to €101.6 in 2005), while expenditure by travellers from Switzerland, Russia and Cyprus fluctuated.

Calculations based on data collected by the TGT (the travel balance of payments working group of Eurostat) produced estimates (see Table 9) of expenditure per overnight stay by visitors to the EU-25 member countries, as well as to the Mediterranean countries that can be considered the major competitors of Greece. These data show a lower expenditure per overnight stay by visitors to Greece compared with the average level of expenditure by visitors to EU-25 and some competitor countries.

Greek residents' travel expenditure abroad

The breakdown of Greek residents' travel expenditure abroad by destination country is

Table 10
Travel debits to major destination countries

Countries	2003		2004		2005	
	Expenditure (million euro)	Share (%) in total	Expenditure (million euro)	Share (%) in total	Expenditure (million euro)	Share (%) in total
Euro area total	*733*	*34.3*	*780*	*33.8*	*938*	*33.7*
of which:						
Austria	34	1.6	38	1.7	48	1.7
Belgium	37	1.7	43	1.9	51	1.8
France	97	4.6	114	4.9	144	5.2
Germany	211	9.9	244	10.5	274	9.9
Spain	51	2.4	40	1.7	71	2.6
Italy	242	11.3	221	9.6	227	8.2
Netherlands	39	1.8	54	2.3	64	2.3
EU-15 total	*1,026*	*48.1*	*1,085*	*47.0*	*1,229*	*44.1*
of which:						
Denmark	16	0.8	12	0.5	14	0.5
United Kingdom	262	12.3	279	12.1	263	9.4
Sweden	15	0.7	14	0.6	14	0.5
New EU-25 member states total (plus Bulgaria and Romania)	*197*	*9.2*	*305*	*13.2*	*318*	*11.4*
of which:						
Cyprus	60	2.8	89	3.9	103	3.7
Albania	347	16.3	283	12.3	350	12.6
Russia	31	1.4	38	1.6	45	1.6
Turkey	45	2.1	53	2.3	101	3.6
USA	72	3.4	82	3.6	101	3.6
Switzerland	31	1.4	24	1.1	31	1.1
World total	*2,136*	*100.0*	*2,310*	*100.0*	*2,785**	*100.0*

* See note 3 in Table 3.
Source: Bank of Greece.

more even than that of non-residents' travel expenditure in Greece by country of origin. Specifically, the share of expenditure by travellers to the EU-15 member countries reached 48% in 2003 and then declined slightly (2004: 47%, 2005: 44%), whereas the share of expenditure by travellers to the EMU participating countries remained broadly unchanged, between 33% and 34%.

Out of the three principal EU-15 member countries of destination, the share of Germany remained at roughly the same level (10%) in each of the three years, while those of Italy and the United Kingdom recorded a drop. In comparison, the shares of most other EU-15 member countries showed only small fluctuations and had only a marginal effect on developments in foreign travel expenditure by Greek residents.

The most important destination country appears to be Albania, with an increased share (between 12% and 16%) attributable to the fact that immigrants of Albanian citizenship that in the last few years live and work in Greece are recorded—according to standard international practices— as residents of Greece. Part of this expenditure corresponds to amounts of money destined to boost the travellers' family income in Albania and are transferred "hand to hand" in banknotes, on account of the less developed bank network in that country. In effect, these amounts constitute unilateral transfers (and not travel related transactions) and must thus be deducted from travel expenditure and recorded as current transfers on the basis of certain objective criteria. This exercise has been carried out for 2005,[12] as €339.1 million out of the FTS estimates have been deducted from payments to Albania for travel purposes and have been added to unilateral transfers to Albania by Greek residents (see Table 3 and Table 10). However, in the context of this study, which presents the FTS estimates and indices, this amount for 2005 is retained in travel payments so as to ensure the analysed figures' comparability over time.

As regards the other destination countries of Greek residents travelling abroad, the share of the group comprising the new EU member countries and the two accession countries increased from 9% in 2003 to 11% in 2004 and 13% in 2005. Within this group, Cyprus and Bulgaria had the largest shares, followed by the Czech Republic and Romania. Among the countries neighbouring Greece, it is worth noting the increase in the share of Turkey, from 2.1% to 3.6%.

The rest of the markets generally show a wide distribution and very low shares, with the exception of the US (3.4% to 3.6%), Egypt (1.1% to 1.8%), Russia (1.4% to 1.6%) and Switzerland (1.1% to 1.4%).

Finally, the destination country of some travellers at roadway crossing points is unallocated, for which the corresponding share in total expenditure by residents ranges between 6.6% (in 2005) and 5.5% (in 2004). This expenditure is probably linked to travel traffic towards certain neighbouring countries, e.g. Albania and Bulgaria.

Greek residents' expenditure per journey abroad

The fluctuations recorded in residents' total expenditure per journey abroad (2003: €718, 2004: €665, 2005: €695) are due to the corresponding developments in expenditure per journey by travellers to both EU-15 and "third" countries (see Table 11).

Travel expenditure per journey by travellers to EU-15 member countries showed an upward trend, rising from €705 in 2003 to €776 in 2005. A similar trend was observed in travel expenditure per journey by travellers to EMU participating countries. As for individual EU-15 member countries, upward trends in travel expenditure per journey were recorded for Germany, France, the Netherlands, Austria and Belgium, while fluctuations were recorded for Italy, the United Kingdom and the smaller markets.

As regards countries outside the EU-15, travel expenditure per journey to Albania fluctuated con-

12 The approximation employed involved deducting the total of expenditure related to the following purposes of travel: (i) visit to family, (ii) business and (iii) other purposes.

Table 11
Additional indices for outbound travellers

Countries	Expenditure per journey (euro)			Average duration of stay (days)			Expenditure per overnight stay (euro)		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
Euro area total	*615*	*649*	*711*	*7.4*	*7.3*	*7.1*	*83.6*	*89.1*	*100.2*
of which:									
Austria	441	456	541	4.5	3.5	4.8	97.0	132.1	113.2
Belgium	536	579	657	6.5	7.5	7.1	82.0	77.3	92.1
France	736	774	833	6.0	6.4	6.9	123.5	121.4	120.1
Germany	617	695	791	9.8	9.1	9.4	63.2	76.1	84.6
Spain	824	749	800	8.1	7.8	7.6	101.9	95.9	105.9
Italy	598	592	618	6.8	6.9	6.0	88.3	86.2	102.5
Netherlands	513	673	698	5.0	6.7	5.4	103.2	100.8	128.9
EU-15 total	*705*	*719*	*776*	*9.5*	*9.6*	*8.9*	*74.2*	*75.3*	*87.3*
of which:									
Denmark	701	665	909	5.6	6.6	8.6	125.9	101.1	105.7
United Kingdom	1,171	1,036	1,132	21.0	19.5	18.7	55.7	53.1	60.6
Sweden	857	727	855	13.1	14.3	14.7	65.3	50.7	58.3
New EU-25 member states total (plus Bulgaria and Romania)	*629*	*580*	*577*	*8.9*	*8.2*	*7.8*	*70.8*	*70.8*	*74.1*
of which:									
Cyprus	584	601	607	15.6	15.4	12.0	37.5	39.1	50.7
Albania	621	535	600	15.3	16.0	14.7	40.7	33.3	40.8
Russia	815	1,106	1,297	15.6	22.1	15.6	52.2	49.9	83.4
Turkey	390	335	406	4.2	4.6	4.9	92.7	72.0	83.5
USA	1,535	1,339	1,609	19.7	25.0	24.4	77.8	53.6	65.9
Switzerland	657	715	819	5.3	6.9	7.6	123.5	103.3	107.9
World total	*718*	*665*	*695*	*12.0*	*11.2*	*10.1*	*59.9*	*59.6*	*68.5*

Source: Bank of Greece.

siderably (from €621 in 2003 to €535 in 2004 and then to €600 in 2005). Similar trends were observed in travel expenditure per journey to the new and accession countries of the EU, as well as to other markets, such as Turkey, the US and Egypt. An upward trend was recorded in travel expenditure per journey to Russia and to Switzerland, while the effect of the downward trend in travel expenditure per journey to the group of "unallocated" destination countries was minor.

Greek residents' average duration of stay per journey abroad

The declining trend in residents' average duration of stay abroad stemmed mainly from journeys to countries outside the EU-15 and to "unallocated" destination countries. Out of this group's individual countries, the average duration of stay in Albania edged down slightly but remained at high levels (15 to 16 overnight stays). A high average

duration of stay is also observed in journeys to Cyprus, the US, Russia, Ukraine and Canada. In contrast, the average number of overnight stays per journey to Bulgaria and Turkey remained at low levels, despite the upward trend observed.

Compared with the aforementioned trends, average duration of stay in journeys to EU-15 member countries remained roughly unchanged (overnight stays: 9.5 in 2003, 9.6 in 2004, 8.9 in 2005). The same trend was observed more or less in journeys to EMU participating countries. Out of the individual EU-15 member countries, a very high average duration of stay, with a marginal declining trend, is observed in journeys to the United Kingdom (from 21 to 18.7 overnight stays), while average duration of stay in journeys to most other countries stood —with marginal changes— at levels close to the overall average (with the exception of Sweden, for which average duration is high).

Greek residents' expenditure per overnight stay abroad

Greek residents' expenditure per overnight stay abroad remained unchanged in the two-year period 2003-2004, and then increased significantly in 2005. Two developments contributed to this trend: the fluctuations observed in expenditure per overnight stay in countries outside the EU-15 (€54.5 in 2003, €50.7 in 2004, €60.3 in 2005) and the upward trend in such expenditure for journeys to EU-15 member countries (from €74.2 to €87.3). An upward trend was also recorded in expenditure per overnight stay in EMU participating countries. A marginal positive effect was also exerted by the expenditure per overnight stay in countries of the "unallocated" destination group.

Expenditure per overnight stay in Albania stood at comparatively low levels, showing marginal fluctuations (2003: €40.7, 2004: €33.3, 2005: €40.8). Similar developments were recorded in this figure with respect to most destination countries of the residents, e.g. Turkey, Bulgaria, Russia, Egypt, the US and Switzerland. Expenditure per overnight stay in Cyprus showed an upward trend.

As regards developments in expenditure per overnight stay in EU-15 member countries, an upward trend was observed for Germany and Italy, while limited fluctuations were recorded for most other countries.

Expenditure by travel purpose

One of the key sets of data produced by the FTS is that of estimates of expenditure by travel purpose (see Table 12). These estimates are quite important for monitoring the quality of the data, as well as for compiling the national accounts, while they are also extensively used in bilateral exchanges of data with other countries within the context of comparing the overall estimates. Expenditure is basically categorised into business and personal purposes, while personal purposes are further broken down into "Leisure", "Visit to family/relatives", etc.

As regards expenditure by non-residents in Greece, the main purpose of travel is "Leisure", followed by "Visit to family/relatives" and "Studies/courses". Together with expenditure for journeys for "Health" purposes and that attributed by travellers to "Other" purposes, the share of expenditure for personal purposes changes marginally (from 89.7% in 2003 to 88.8% in 2004 and 91.2% in 2005).

Table 12
Expenditure by purpose of travel
(Million euro)

Purpose of travel	2003		2004		2005	
	Expenditure	Share (%) in total	Expenditure	Share (%) in total	Expenditure	Share (%) in total
Non-residents						
Personal purposes						
Leisure	7,150	75.3	7,699	74.4	8,586	77.8
Studies/courses	256	2.7	238	2.3	298	2.7
Health	57	0.6	62	0.6	44	0.4
Visit to family/relatives	769	8.1	807	7.8	750	6.8
Other purposes	285	3.0	383	3.7	386	3.5
Total	8,517	89.7	9,189	88.8	10,065	91.2
Business purposes	978	10.3	1,159	11.2	971	8.8
Grand total	9,495	100.0	10,348	100.0	11,037	100.0
Residents						
Personal purposes						
Leisure	404	18.9	548	23.7	746	26.8
Studies/courses	214	10.0	185	8.0	203	7.3
Health	23	1.1	16	0.7	17	0.6
Visit to family/relatives	491	23.0	531	23.0	613	22.0
Other purposes	152	7.1	99	4.3	139	5.0
Total	1,282	60.0	1,379	59.7	1,713	61.5
Business purposes	854	40.0	931	40.3	1,072	38.5
Grand total	2,136	100.0	2,310	100.0	2,785	100.0

Source: Bank of Greece.

As regards expenditure by Greek residents abroad, the share of expenditure for personal purposes in total expenditure changes marginally, remaining fairly unchanged at around 60.0% in the three-year period 2003-2005. A trend of increasing shares is observed in the "Leisure" category, which is, however, offset by a decrease in the shares of all other personal purpose categories – mainly in "Studies/courses" and secondly in "Other" and "Health" purposes. Finally, the share of expenditure for "Visit to family/relatives" in total travel expenditure by Greek residents abroad edged down slightly in 2005 compared with the two-year period 2003-2004.

Developments in the individual categories of residents' expenditure abroad should form the focal point of a separate study, as, especially in the case of expenditure for studies, the data appear somewhat inconsistent with those of developments in the number of residents studying

Table 13
Additional indices for non-residents by purpose of travel

Purpose of travel	Expenditure per journey (euro)			Expenditure per overnight stay (euro)			Average duration of stay (days)		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
Personal purposes									
Leisure	729	767	769	67.1	71.8	72.0	10.8	10.6	10.6
Studies/courses	1,392	1,215	1,269	48.0	38.2	40.8	28.9	31.8	31.1
Health	598	662	702	62.1	71.2	77.5	9.6	9.2	9.0
Visit to family/relatives	767	774	797	46.8	51.1	54.4	16.4	15.1	14.6
Other purposes	805	643	652	58.7	61.2	62.3	13.7	10.5	10.4
Total	744	768	774	63.5	67.4	68.4	11.7	11.4	11.3
Business purposes	524	561	528	93.9	83.7	86.8	5.5	6.7	6.0
Grand total	714	738	744	65.7	68.9	69.7	10.8	10.7	10.6

Source: Bank of Greece.

abroad. Possibly, the estimates of expenditure abroad do not cover remittances through bank orders or deposits for students' tuition fees, accommodation costs and/or hospitalisation expenses. Thus, they should be complemented by data from various entities in Greece, e.g. the Social Insurance Institute (IKA) and other social security organisations as regards hospitalisation expenses, while a special study on studies abroad should also be conducted.

Non-residents' expenditure by travel purpose

As mentioned earlier, the distribution of travel expenditure by non-residents in Greece per travel purpose exhibits a relative stability. The share of journeys for personal purposes stood at around 90% and that of expenditure for business journeys at around 10%. Out of the journeys for personal purposes, the largest share corresponded to leisure journeys (74% to 78%) and then to visits to family/relatives (around 8%).

As already noted, expenditure per journey by non-residents in Greece showed an upward trend in the 2003-2005 period. This development reflects the upward trend in expenditure per journey for personal purposes (2003: €744, 2004: €768, 2005: €774), while, in contrast, expenditure for business journeys fluctuated. The above trends are almost exclusively attributable to the increase in expenditure per overnight stay for personal purposes, while the average duration of stay in Greece for such purposes remained practically unchanged (between 11.3 and 11.7 overnight stays). In this respect it should be noted that, on account of the short average duration of stay, average expenditure per journey for business purposes stands at levels approximately 25% lower than for personal purposes, while the expenditure per overnight stay is considerably higher.

As regards the inbound travellers' individual countries of residence, expenditure for journeys for personal purposes had shares between 90%

Table 14

Additional indices for non-resident visitors coming from the EU-15 countries, Germany, Cyprus and Albania, by purpose of travel

Purpose of travel	Expenditure per journey (euro)			Expenditure per overnight stay (euro)			Average duration of stay (days)		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
EU-15 total									
Personal purposes									
Leisure	742	785	787	66.4	70.8	70.0	11.2	11.1	11.2
Studies/courses	1,403	724	834	82.9	55.0	47.5	16.9	13.2	17.6
Health	936	1,112	1,057	64.6	82.9	82.2	14.5	13.4	12.9
Visit to family/relatives	858	830	836	47.4	50.3	53.0	18.1	16.5	15.8
Other purposes	789	744	832	51.6	56.5	58.5	15.3	13.2	14.2
Total	757	787	793	64.3	68.2	68.0	11.8	11.5	11.7
Business purposes	625	707	673	90.1	83.8	92.3	6.9	8.4	7.3
Grand total	749	781	785	65.2	69.1	69.0	11.5	11.3	11.4
Germany									
Personal purposes									
Leisure	743	794	780	58.0	57.7	57.0	12.8	13.8	13.7
Studies/courses	2,768	700	811	153.8	46.6	45.9	18.0	15.0	17.7
Health	981	884	880	68.0	63.1	58.7	14.4	14.0	15.0
Visit to family/relatives	1,037	1,052	1,013	48.7	51.5	52.0	21.3	20.4	19.5
Other purposes	1,007	816	933	60.5	55.0	50.6	16.6	14.8	18.4
Total	805	821	806	57.8	56.6	56.0	13.9	14.5	14.4
Business purposes	616	862	718	82.6	89.6	102.5	7.5	9.6	7.0
Grand total	795	823	801	58.5	58.0	57.1	13.6	14.2	14.0
Cyprus									
Personal purposes									
Leisure	668	744	692	90.8	96.2	93.0	7.4	7.7	7.5
Studies/courses	1,456	1,769	1,613	35.0	34.6	35.4	41.6	51.1	45.6
Health	633	602	809	78.6	66.4	68.0	8.1	9.1	11.9
Visit to family/relatives	583	661	707	55.8	58.8	73.1	10.4	11.2	9.7
Other purposes	973	722	635	98.7	87.0	86.9	9.9	8.3	7.3
Total	859	916	932	50.6	53.1	51.8	17.0	17.3	18.0
Business purposes	766	726	731	165.3	129.6	91.3	4.6	5.6	8.0
Grand total	841	880	897	57.3	58.5	55.3	14.7	15.0	16.2
Albania									
Personal purposes									
Leisure	444	341	716	68.4	73.8	99.8	6.5	4.6	7.2
Studies/courses	456	355	–	11.2	19.3	–	40.8	18.4	–
Health	269	218	152	52.8	54.9	31.1	5.1	4.0	4.9
Visit to family/relatives	245	233	192	38.8	36.9	37.5	6.3	6.3	5.1
Other purposes	463	372	324	75.6	89.9	78.1	6.1	4.1	4.2
Total	318	290	303	48.8	54.3	62.7	6.5	5.3	4.8
Business purposes	607	331	348	128.1	77.2	107.1	4.7	4.3	3.3
Grand total	481	310	322	87.2	64.3	77.5	5.5	4.8	4.2

–: Estimate not available due to small sample.
Source: Bank of Greece.

and 97% for most countries. As a subcategory of personal purposes, "Visit to family/relatives" is declared with respect to all countries of origin, with increased shares (10% to 14%) for Germany and Sweden, i.e. countries of residence of Greek immigrants. The shares of journeys for personal purposes are lower for countries outside the EU-15. Increased shares of journeys for visits to family/relatives in Greece are recorded in expenditure by travellers from the US, Canada and Cyprus, as well as from Albania and Romania.

The average duration of stay for personal purposes of travellers from the EU-15 member countries remained unchanged at 11 to 12 overnight stays (see Table 14). A particularly high average duration of stay was observed in journeys for personal purposes of travellers from Germany (which increased from 13.6 overnight stays in 2003 to 14.2 in 2004 and 14.0 in 2005), a development attributable mainly to the subcategory of "Visit to family/relatives" in Greece (19.5 to 21.3 overnight stays). Out of the rest of the countries, a high average duration of stay in Greece was recorded for travellers from countries with a sizeable population of Greek origin, such as the US, Canada and Australia, or from countries of origin of foreigners who live and work in our country, such as Romania, Poland and Russia. The very high average duration of stay of Cypriot travellers seems to emanate from students in Greece, who have an average duration of stay of 40 to 50 overnight stays. The data on travellers from Albania are particularly interesting: 71%, 53% and 46% of total expenditure in the years 2003, 2004 and 2005, respectively, correspond to journeys for business purposes, while the shares of visits to family/relatives stand between 10% and 16%. The average duration of stay in Greece is between 3.3 and 4.7 overnight stays in the case of visitors for business purposes, and slightly higher (4.8 to 6.5 overnight stays) in the case of visitors for personal purposes.

Greek residents' expenditure abroad per purpose of travel

The breakdown of travel expenditure by Greek residents abroad per purpose of travel is more evenly spread, given that the share of "personal purposes" stands at around 60% and that of "business purposes" at 40% in the three years that the FTS is being conducted (see Table 12). Out of the subcategories of personal purposes, an upward trend is observed in journeys for leisure purposes (2003: 19%, 2004: 24%, 2005: 27%). In contrast, the share of expenditure for visits to family/relatives remained unchanged (22% to 23%), while that for studies edged down slightly (from 10% to 7%). It is worth noting the very small share of journeys for health purposes (0.6% to 1%).

As regards the destination countries of Greek residents travelling abroad, journeys for personal purposes to EU-15 member countries had shares of 20%, 23% and 28% in 2003, 2004 and 2005, respectively (see Table 15). Considerable variation is observed in the relevant shares of individual EU-15 member countries. This was not the case, however, in journeys to the United Kingdom, a fact reflecting the very high (albeit declining) share of expenditure for study purposes (2003: 49%, 2004: 39%, 2005: 36%), while a relatively high share is also observed in the case of journeys for studies to Italy (11% to 16%).

Out of the rest of the subcategories of journeys for personal purposes to the EU-15 member countries,

Table 15

Expenditure of residents by purpose of travel to selected destinations

(Million euro)

Purpose of travel	2003		2004		2005	
	Expenditure	Share (%) in total	Expenditure	Share (%) in total	Expenditure	Share (%) in total
EE-15 total						
Personal purposes						
Leisure	211	20.6	251	23.1	353	28.7
Studies/courses	189	18.4	163	15.0	159	12.9
Health	7	0.7	4	0.4	4	0.3
Visit to family/relatives	109	10.6	122	11.2	116	9.4
Other purposes	21	2.0	24	2.2	21	1.7
Total	537	52.3	563	51.9	651	53.0
Business purposes	490	47.8	522	48.1	578	47.0
Grand total	1,026	100.0	1,085	100.0	1,229	100.0
Belgium						
Personal purposes						
Leisure	7	17.9	5	12.6	8	16.4
Studies/courses	–	–	2	4.5	–	–
Health	–	–	1	2.9	–	–
Visit to family/relatives	4	11.1	5	12.3	5	10.1
Other purposes	2	4.2	1	1.9	1	2.6
Total	14	38.2	14	32.9	18	35.4
Business purposes	23	61.6	29	67.1	33	64.6
Grand total	37	100.0	43	100.0	51	100.0
Germany						
Personal purposes						
Leisure	24	11.5	37	15.4	52	18.9
Studies/courses	6	2.8	9	3.5	8	3.1
Health	2	0.8	1	0.5	2	0.8
Visit to family/relatives	46	21.8	39	16.2	43	15.6
Other purposes	4	1.7	4	1.5	5	1.9
Total	81	38.6	90	37.2	110	40.2
Business purposes	130	61.4	153	62.8	164	59.7
Grand total	211	100.0	243	100.0	274	100.0
United Kingdom						
Personal purposes						
Leisure	30	11.3	50	18.0	54	20.7
Studies/courses	130	49.5	110	39.4	94	35.9
Health	4	1.5	0	0.0	0	0.0
Visit to family/relatives	32	12.3	38	13.6	29	11.0
Other purposes	4	1.6	4	1.6	4	1.5
Total	199	76.1	203	72.8	182	69.5
Business purposes	63	23.9	76	27.1	80	30.5
Grand total	262	100.0	279	100.0	262	100.0

–: Estimate not available due to small sample.
Source: Bank of Greece.

Table 15 *(continued)*

Expenditure of residents by purpose of travel to selected destinations

(Million euro)

Purpose of travel	2003		2004		2005	
	Expenditure	Share (%) in total	Expenditure	Share (%) in total	Expenditure	Share (%) in total
	Italy					
Personal purposes						
Leisure	60	24.6	57	25.9	97	37.7
Studies/courses	38	15.6	32	14.3	29	11.3
Health	0	0.0	0	0.0	0	0.0
Visit to family/relatives	14	5.6	15	7.0	16	6.2
Other purposes	2	1.0	5	2.4	2	0.6
Total	114	47.0	110	49.8	145	56.1
Business purposes	128	53.0	111	50.2	113	43.9
Grand total	242	100.0	221	100.0	258	100.0

Source: Bank of Greece.

Table 16

Additional indices for residents by purpose of travel

Purpose of travel	Expenditure per journey (euro)			Expenditure per overnight stay (euro)			Average duration of stay (days)		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
Personal purposes									
Leisure	627	506	540	101.7	90.8	107.8	6.2	5.6	5.0
Studies/courses	2,034	1,515	1,807	35.5	30.2	37.9	57.3	50.1	47.7
Health	843	671	644	61.2	38.9	52.7	13.8	17.2	12.2
Visit to family/relatives	583	582	585	36.7	37.5	43.0	15.9	15.5	13.6
Other purposes	602	667	652	45.5	46.3	49.9	13.2	14.4	13.1
Total	686	602	617	47.4	47.7	58.0	14.5	12.6	10.6
Business purposes	773	785	869	98.9	94.3	96.4	7.8	8.3	9.0
Grand total	718	665	695	59.9	59.6	68.5	12.0	11.2	10.1

Source: Bank of Greece.

it is worth noting the increased share of visits to family/relatives in Germany (16% to 22%), the United Kingdom (11% to 14%) and Belgium (10% to 12%). Out of the countries outside the EU-15, increased shares are observed in journeys for personal purposes to Albania and Cyprus, on account of the large share of visits to family/friends (60% to 70% for Albania and 30% to 38% for Cyprus). The shares of the other countries outside the EU-15 appear more even. It is worth noting the upward trend in the share of journeys for personal reasons to Turkey, which is exclusively attributable to leisure journeys. Expenditure for visits to family/relatives appears increased in the cases of the US and Russia, while for

journeys to Romania, study purposes have a share ranging between 15% in 2003 and 8.5% in 2005.

The fluctuations of Greek residents' average expenditure per journey abroad are attributable to the respective trends in expenditure per journey for personal purposes, while expenditure for business purposes shows an upward trend (see Table 16).

Developments in expenditure per journey (unchanged in the two-year period 2003-2004, and then considerably increased in 2005) are a result of the drop in Greek residents' average duration of stay abroad and of developments in their expenditure per overnight stay. Expenditure per overnight stay for personal purposes remained unchanged in the two-year period 2003-2004 and increased in 2005. Such expenditure for business purposes showed marginal fluctuations but stood at levels almost two times higher than for personal purposes.

As regards developments in the relevant figures with respect to individual countries, no noteworthy differences are observed in the level or the trend of average duration of stay abroad. The relatively high average duration of stay in some destination countries (see Table 17) is linked to individual purposes, such as journeys for studies (to the United Kingdom, Italy and Romania) or visits to family/relatives (to Germany, Albania and the US).

Expenditure by border point type

Another source of information which can be used to assess the quality of the FTS estimates is the breakdown of expenditure by border point type (airports, seaports, etc.), i.e. of the expenditure by travellers using the respective means of transport (see Table 18) for departure from (non-residents) or arrival in Greece (residents returning from abroad).

In the three-year period 2003-2005, the distribution of receipts from non-residents per border point type displays a noteworthy stability. As regards airports, their share in total receipts (i.e. in total expenditure) of all border point types was 81.3% in 2003, 83.8% in 2004 —this increase of 2.5 percentage points compared with 2003 may be attributable to the effect of the 2004 Olympic Games— and 82.4% in 2005. The share of roadway crossing points was 8.6% in 2003, 8.3% in 2004 and 8.9% in 2005. That of seaports was 9.8% in 2003, 7.6% in 2004 and 8.4% in 2005 (and is correlated to that of airports), while, finally, the share of railway stations was very limited and unchanged (0.3% in each of the three years).

Marginal changes in trend are recorded in the distribution of Greek residents' payments. The share of airports in total expenditure of all border point types appears slightly increased (from 56.9% in 2003 to 60.5% in 2004 and 61.0% in 2005). This increase is linked to a steady decline in the share of seaports (16.0% in 2003, 14.3% in 2004 and 13.2% in 2005), and to a lesser decrease in the share of roadway crossing points, which fell from 26.6% in 2003 to 24.8% in 2004 and 25.3% in 2005 (these high expenditure shares are closely associated with the roadway crossing point of Kakavia, at the country's border with Albania). Finally, the share of railway stations showed no considerable change and stood between 0.4% and 0.5%.

Organised journeys (package tours)

The production of reliable data on the contribution of organised package tours to developments

Table 17

Additional indices for residents by purpose of travel to selected destinations

Purpose of travel	Expenditure per journey (euro)			Expenditure per overnight stay (euro)			Average duration of stay (days)		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
EU-15 total									
Personal purposes									
Leisure	654	720	739	114.9	110.2	121.0	5.7	6.5	6.1
Studies/courses	2,125	1,563	1,866	36.1	30.9	36.9	58.9	50.6	50.6
Health	1,204	887	979	89.2	53.6	95.2	13.5	16.6	10.3
Visit to family/relatives	620	677	730	45.4	51.4	54.7	13.7	13.2	13.3
Other purposes	576	554	452	71.5	87.1	99.3	8.1	6.4	4.6
Total	853	829	845	54.6	54.9	68.1	15.6	15.1	12.4
Business purposes	593	630	710	122.5	125.9	128.3	4.8	5.0	5.5
Grand total	705	719	776	74.2	75.3	87.4	9.5	9.6	8.9
United Kingdom									
Personal purposes									
Leisure	682	837	816	114.5	102.4	114.7	6.0	8.2	7.1
Studies/courses	2,399	1,655	2,036	39.4	32.1	36.2	60.9	51.5	56.2
Health	1,538	–	–	95.9	–	–	16.1	–	–
Visit to family/relatives	667	753	778	69.6	75.9	79.5	9.6	9.9	9.8
Other purposes	689	578	706	53.3	54.6	192.6	12.9	10.6	3.7
Total	1,293	1,098	1,162	48.3	45.1	52.6	26.8	24.3	22.1
Business purposes	901	899	1,070	109.6	101.5	92.8	8.2	8.9	11.5
Grand total	1,171	1,036	1,132	55.7	53.1	60.6	21.0	19.5	18.7
Italy									
Personal purposes									
Leisure	656	756	768	127.4	144.5	157.3	5.2	5.2	4.9
Studies/courses	1,817	1,409	1,594	31.4	28.9	36.5	57.8	48.8	43.6
Health	–	–	–	–	–	–	–	–	–
Visit to family/relatives	533	660	646	62.5	64.6	65.6	8.5	10.2	9.8
Other purposes	340	567	154	144.7	86.4	101.3	2.4	6.6	1.5
Total	787	837	802	59.8	61.4	86.1	13.2	13.6	9.3
Business purposes	493	458	479	153.1	144.3	135.7	3.2	3.2	3.5
Grand total	598	592	618	88.3	86.3	102.5	6.8	6.9	6.0
Albania									
Personal purposes									
Leisure	594	323	729	33.7	19.0	52.7	17.6	17.0	13.9
Studies/courses	–	–	–	–	–	–	–	–	–
Health	792	490	947	50.2	26.9	49.4	15.8	18.2	19.2
Visit to family/relatives	584	512	535	36.7	32.8	40.6	15.9	15.6	13.2
Other purposes	646	534	584	46.1	44.4	44.9	14.0	12.0	13.0
Total	604	503	549	39.0	32.8	41.6	15.5	15.3	13.2
Business purposes	763	784	1,221	56.2	36.5	37.3	13.6	21.5	32.7
Grand total	621	535	600	40.7	33.3	40.8	15.3	16.0	14.7

–: Estimate not available due to small sample.
Source: Bank of Greece.

Table 18
Expenditure by border point type
(Million euro)

Border point type	2003		2004		2005	
	Expenditure	Share (%) in total	Expenditure	Share (%) in total	Expenditure	Share (%) in total
Non-residents						
Roadway crossing points	817	8.6	859	8.3	982	8.9
Airports	7,719	81.3	8,672	83.8	9,095	82.4
Seaports	931	9.8	786	7.6	927	8.4
Railway stations	28	0.3	31	0.3	33	0.3
Country total	*9,495*	*100.0*	*10,348*	*100.0*	*11,037*	*100.0*
Residents						
Roadway crossing points	568	26.6	573	24.8	705	25.3
Airports	1,215	56.9	1,398	60.5	1,699	61.0
Seaports	342	16	330	14.3	368	13.2
Railway stations	11	0.5	9	0.4	14	0.5
Country total	*2,136*	*100.0*	*2,310*	*100.0*	*2,785**	*100.0*

* See note 3 in Table 3.
Source: Bank of Greece.

in travel aggregates in Greece was among the primary targets of the FTS. For the first time, in the calculation of the travel account in the balance of payments estimates, an attempt was made to estimate imputed expenditure as well (see Table 19). This accounts for the cost of services supplied in Greece (e.g. accommodation, half-board, transport from and back to the airport, tour leader services, etc.) but prepaid by the non-resident traveller abroad and included as part of the total cost of the package tour declared by respondents in the FTS. Obversely, for Greek residents travelling abroad with package tours, imputed expenditure corresponds to the cost of services supplied abroad but prepaid in Greece.

As regards non-residents' travel expenditure, the following observations can be made:

Package tours represented about 1/3 of non-residents' total travel expenditure in Greece in the 2003-2005 period. Unsurprisingly, a considerably higher share is observed in travel expenditure by travellers from the EU-15 member countries than from non-EU countries (see Table 20).

The shares of package tours in the travel expenditure of most individual EU-15 member countries show marginal divergences from the average EU-15 total, with the exception of expenditure by travellers from the United Kingdom, which stands at higher levels (46% to 55%).

Expenditure per journey by non-residents who travelled on package tours is considerably higher (2003: 38%, 2004: 46%, 2005: 32%) than that by independent non-resident travellers. This result

Table 19
Package tour travellers

Indices	Non-residents			Residents		
	2003	2004	2005	2003	2004	2005
Travel traffic and expenditure						
Share (%) in total travel traffic	29.0	28.6	25.5	8.3	8.3	12.7
Share (%) in travel for leisure purposes	39.3	40.0	33.9	38.3	26.6	31.5
Share (%) in total expenditure	36.1	36.9	31.1	12.1	11.0	14.7
Share (%) in expenditure for leisure purposes	47.9	49.6	40.0	63.8	46.2	48.0
Duration of stay (days)						
Package tour travellers	10.1	9.7	9.9	5.8	5.6	5.0
Independent travellers	11.2	11.1	10.9	12.6	11.7	10.0
Expenditure per overnight stay (euro)						
Package tour travellers	87.8	98.0	91.5	180.1	156.7	164.1
– Imputed expenditure	48.5	56.1	55.5	84.1	73.8	78.6
– Other expenditure	39.3	41.9	36.0	96.0	82.9	85.5
Independent travellers	57.5	58.7	63.0	54.6	55.2	69.4

Source: Bank of Greece.

stems from expenditure per overnight stay, since the average duration of stay was approximately 11 overnight stays for independent travellers, against 10 for those who used package tours. Package tour travellers' average expenditure per overnight stay increased considerably in the 2003-2004 period —obviously on account of the 2004 Olympic Games— and then fell slightly in 2005. The recorded levels are quite higher than those for independent travellers' expenditure per overnight stay (2003: 53%, 2004: 67%, 2005: 45%).

It should be noted that the share of imputed expenditure in package tour travel expenditure per overnight stay shows an upward trend and is in fact the prominent component (55% to 61%).

For a qualitative assessment of the FTS findings as regards package tours, Annex 4 presents detailed data by principal airport (Athens, Heraklion, Rhodes and Corfu) and country of residence of travellers (Germany, the United Kingdom and Italy). With respect both to the individual airports included in the sample and the countries of origin, a noteworthy stability and a relatively low distribution are observed in the data on expenditure per journey, expenditure per overnight stay and average duration of stay.

As regards Greek residents' travel expenditure, the following observations can be made:

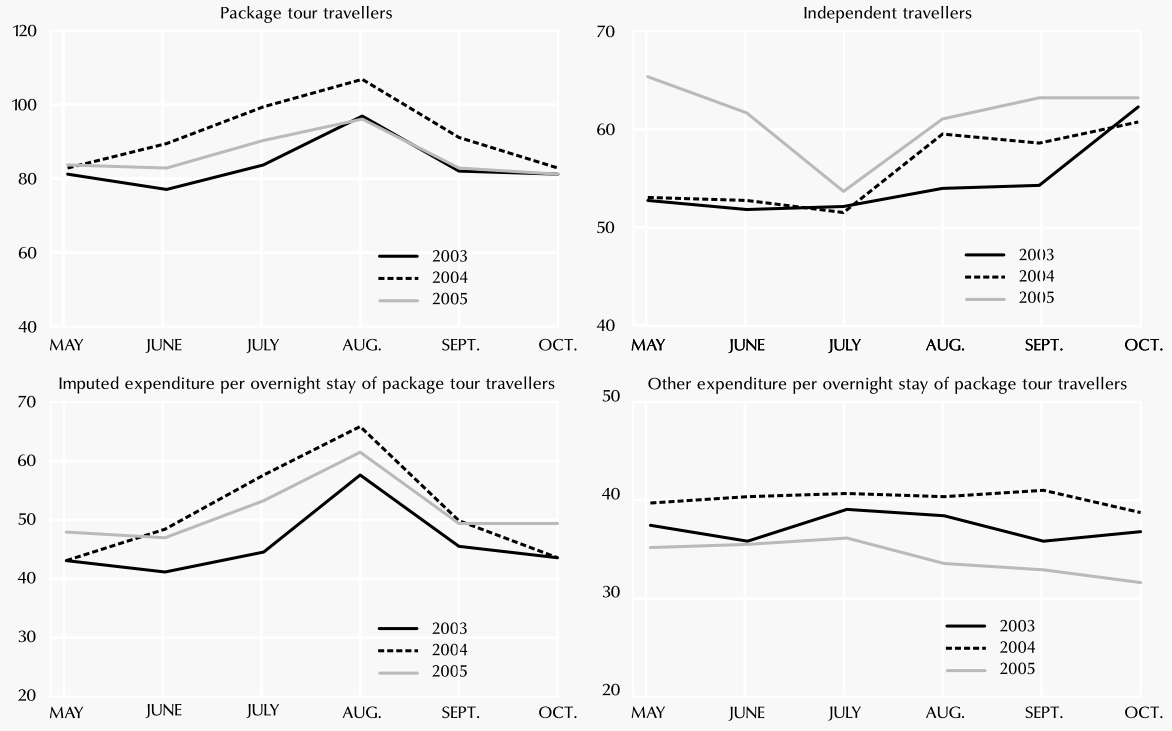
The share of expenditure for organised journeys in total expenditure by Greek residents travelling abroad stood at much lower levels (12% to 15%). It is worth noting this share's increase in the 2004-2005 period, but it remains to be seen whether a more permanent trend is in the offing.

Table 20
Share (%) of package tours in total expenditure of non-residents in Greece

	2003	2004	2005
EU-15 countries	42	45	37
Countries outside the EU-15	24	23	19

Source: Bank of Greece.

Chart 7
Comparison of seasonality of expenditure per overnight stay of independent and package tour travellers coming from the other 14 countries of the EU-15
(Euro)



Source: Bank of Greece.

Despite the package tour participants' much lower average duration of stay abroad (5 to 6 overnight stays) compared to independent travellers (10 to 13 overnight stays), expenditure per journey by package tour users is significantly higher in comparison, a fact not readily explainable on the basis of the available evidence.

Seasonality of expenditure by non-residents using package tours

For the 14 countries of the EU, which represent the main market of visitors to Greece, average expenditure per overnight stay by travellers using package tours shows strong seasonal fluctuations

(see Chart 7, upper left side). The overall average for the three years (2003, 2004 and 2005) gradually increases from around €82 in May to €100 in August and then decreases again to €82 in October. This fluctuation is due to the change in the package tours' cost per day, and not to other expenditures, since the monthly change in these other expenditures, as an overall average for the three years, remains within a narrow band of values, ranging between €39 and €37 (see Chart 7, lower right side). In contrast, the "imputed expenditure" component of package tours increases, as an overall average for the three years, from €45 in May to around €62 in August and then drops back to €46 in October. These fluctuations reflect tour operator pricing policy, according to which the daily price of stay depends on the season of the year.

Independent travellers' expenditure is not characterised by similar seasonality (see Chart 7, upper right side). For the two-year period 2003-2004, two groups of months can be discerned: the May, June and July group with a low average of €52 to €53, and the August, September and October group with a higher average of €57 to €62 (see Table 2). Throughout 2005, this expenditure — without any observable trends— stood higher than €60, with the exception of July when it was around €53.

6. Comparison of the Greek FTS estimates with estimates by EU-15 and EU-25 member countries

One of the principal criteria for assessing the findings of any statistical data production system is their degree of external consistency – i.e. agreement with the data produced by other sources[13] (mirror statistics). For the travel balance of payments, comparison is mainly carried out against the data produced by other countries, for both receipts from and payments to Greece.[14]

Comparison at EU-15 level shows a significant decrease in discrepancies (or data asymmetry) in the 2002-2004 period compared to 1995-2001[15] (see Table 21). For credits from EU-15 member countries asymmetry in 2004 stood at €293 million (or 4%),[16] while asymmetry at EU-25 level was €584 million (or 8%). Back in 1995, data asymmetry at EU-15 level was €1,285 million (or 48%), while in 2001 it was over €2 billion (or 38%). With the implementation of the FTS in 2002, asymmetry was reduced to €841 million (or 12%), and in 2003 it dropped even further to €566 million (or 8%).

As regards payments to EU-15 countries, in 2004 asymmetry stood at €155 million (or 13%), while at EU-25 level it was €99 million (or 8%). In 1995, data asymmetry at EU-15 level was €162 million (or 33%), while in 2001 it was €192 million (or 13%). The higher asymmetry as an absolute figure was observed in 2000, when it rose to €559 million (or 33%). In 2002, asymmetry fell to €136 million (or 10%), while in 2003 it increased again, to stand at €514 million (or 40%).

13 The different data collection systems used by the various countries must always be taken into consideration when interpreting mirror statistics data, since in many cases they lead to considerable differences in the data assessed.
14 Eurostat, via the TGT, coordinates this activity.
15 At EU-25 level, the available data start from 2002.
16 The calculation of this percentage is explained in a footnote of Table 21.

Table 21

Comparison of Greek and Eurostat travel credit and debit data (mirror statistics)

(Million euro)

Year	Bank of Greece (1)	Eurostat (2)	Asymmetry (3)	Asymmetry % (4)
Credits of Greece from the other EU-15 countries				
1995	2,020	3,305	–1,285	–48
1996	1,792	3,023	–1,231	–51
1997	1,958	3,327	–1,369	–52
1998	1,818	3,841	–2,023	–71
1999	3,740	4,799	–1,059	–25
2000	4,002	5,574	–1,573	–33
2001	4,585	6,742	–2,157	–38
2002	7,600	6,759	841	12
2003	6,767	7,333	–566	–8
2004	7,234	6,941	293	4
Credits of Greece from the other EU-25 countries				
2002	8,010	7,201	809	11
2003	7,296	7,815	–519	–7
2004	7,987	7403	584	8
Debits of Greece to the other EU-15 countries				
1995	572	410	162	33
1996	573	785	–212	–31
1997	656	1,183	–527	–57
1998	1,305	1,114	191	16
1999	1,564	1,266	298	21
2000	1,970	1,411	559	33
2001	1,574	1,382	192	13
2002	1,240	1,376	–136	–10
2003	1,026	1,540	–514	–40
2004	1,085	1,240	–155	–13
Debits of Greece to the other EU-25 countries				
2002	1,391	1,526	–135	–9
2003	1,157	1,669	–512	–36
2004	1,264	1,363	–99	–8

Note: (1): Expenditure reported by Greece for journeys from/to the other EU-15 countries.
(2): Total expenditure reported by the other EU-15 countries for journeys from/to Greece.
(3): (1)–(2).
(4): [(1)–(2)]/{[(1)+(2)]/2}.
1995-1998: Data on the basis of amounts by foreign currency.
1999-2001: Data by the intermediating banks facilitating these transactions ("new" system).
2002: January-April: Data estimates.
2002: May-December: Frontier travel survey pilot phase data.
2003-2004: Frontier travel survey data.
Sources: Bank of Greece and Eurostat.

7. Conclusions – The way ahead

Using a sampling survey such as the FTS for estimating travel expenditure and its key parameters is an innovation that is part of the continuous efforts made by the Bank of Greece to upgrade the balance of payments collection methodology. The results of the FTS point the way to the broad possibilities for the production of data on external transactions from sources other than the narrow potential of the bank settlements system.

The results of the FTS cover:

- The key aggregates of travel expenditure by non-residents in Greece and by Greek residents abroad, as well as a geographical breakdown of this expenditure by country of origin and destination country, respectively.

- Trends in travel flows, i.e. the number of travellers and of overnight stays at each type of accommodation.

- Certain parameters that determine travel expenditure, such as average duration of stay and expenditure per journey and per overnight stay.

These data allow for an assessment of developments in travel figures on a continuous and systematic basis. Until now, the relevant available information came from ad hoc surveys or was based on criteria not aligned with the modern conceptual framework for balance of payments compilation, e.g. calculation of expenditure per journey based on the travellers' citizenship and not their country of residence.

Another innovation introduced by the FTS is the production of statistical data on the main characteristics of Greek residents' travel expenditure abroad. With the exception of the estimates by the Bank of Greece regarding aggregate travel payments abroad, in the past there were no other data available, especially as regards supplementary information such as average duration of stay abroad.

The most important conclusions that can be drawn from calculations based on the findings of the FTS are the following:

- The strong seasonality of non-residents' travel expenditure (as third quarter receipts are close to 60% of the annual total) constitutes an indication of the future growth prospects of inbound tourism. Possibilities for further strengthening travel in the peak season are limited, while there is considerable scope in the months outside the peak season.

- The stability observed in non-residents' average duration of stay in Greece and its relatively high levels (around 11 overnight stays) may be an indication that there is limited room for a further increase in this parameter. Growth prospects for travel receipts should thus be based mainly on efforts to increase expenditure per journey. Another finding that points in the same direction is that expenditure per overnight stay by visitors to Greece falls short compared with the EU-25 average, as well as with the corresponding figure for most competitor countries. The future course of travel expenditure is associated with the provision of more and higher quality services, as well as services related to special interests, such as golf, yachting, etc.

- The breakdown of receipts by country of origin shows that there is considerable room for a deeper penetration into new markets, such as those of Russia, the new EU member countries and many emerging economies.

- The analysis of non-residents' expenditure by travel purpose reveals a very low share (of around 10%) for business journeys. In other words, it becomes evident that there are considerable growth possibilities for the industry of business journeys (e.g. conferences, motivation journeys, etc.) to Greek destinations, especially in periods outside the peak season.

- Data estimates of the share of package tours in non-residents' expenditure, show that package tour users' expenditure per overnight stay is considerably (on average 55%) higher than that by independent travellers. The package tour market presents considerable prospects for increasing the domestic value added in the total cost of package tours, although this is a long-run prospect, as it presupposes the creation of tour operator companies in Greece, with their own aircraft and a vertical business organisation.

- As regards Greek residents' travel expenditure abroad, a noteworthy development is the increase in the share of leisure journeys. This trend is expected to continue in the next few years, taking into consideration estimates of GDP growth in Greece.

It is expected that after a number of years in which the FTS is operational, it will be possible to create in the Bank of Greece a database that will facilitate the preparation of econometric and other studies regarding developments in the travel aggregates for Greece.

As regards non-residents' travel expenditure, the stability of the findings constitutes an encouraging quality indicator. However, there is need to further improve the survey's comprehensiveness (e.g. by its expansion in the future to include expenditure by passengers of cruise ships approaching Greek seaports), as well as to address the problem of limited sampling coverage of the traffic at some airports not included in the survey.

The segment of Greek residents' travel expenditure abroad still has potential for improvement, particularly as regards journeys for educational purposes and hospitalisation, while the case of foreigners permanently living and working in Greece is also in need of further study.

Annex 1

Definition of resident

The notions of resident and non-resident are only of a statistical significance. For reasons of comparability at the international level, the definitions adopted are those set forth by the United Nations Organisation (System of National Accounts – SNA, 1993, Annex XIV, par. 14 B) and the International Monetary Fund (IMF – Balance of Payments Manual, 5th edition, 1993).

A resident of Greece is defined as:

1. Any *natural person,* irrespective of citizenship, who resides or intends to reside for at least one year in Greece.

2. Any *legal person* that has its registered offices in Greece, as well as any foreign legal person that is legally established and operates in Greece.

In contrast, a non-resident is defined as any natural or legal person that is not a resident of Greece.

Annex 2

Sample selection and data weighting procedure

After stratification, sample selection includes the following steps:

1. For each of the sampling points, the sampling days are selected at random.

2. Within each sampling day, two or three (depending on the border point) four-hour shifts are selected at random.

3. Within each shift, two independent operations, counting and interviewing, are carried out simultaneously. The counting operation aims at estimating the travellers' total traffic broken down by country of residence, while the interviewing stage aims at gathering data on the travellers' expenditure. These two operations collect information from the travellers who cross the borders in each shift, by selection of the respondents through systematic sampling and using a different sampling rate, which depends on the expected intensity of traveller traffic flow (on average 1 in 5 for counting and 1 in 10 for interviewing). The expected number of interviews and counts for each shift is prescribed in advance every month, but the final number that will actually be carried out is unknown, as the counting and interviewing operations do not stop until each four-hour shift is over. The counting is used for estimating the sampling frame —which (as mentioned earlier) is unknown before the survey is conducted— and is carried out by a separate group of surveyors, other than the one conducting the interviews.

Weighting of the data is carried out by combining the counting operation findings with the questionnaire findings, and employs three inductive weights: the "design weight" ($d = 1/\pi$, where π = probability of selection in the sample), a "calibration weight" (g), and a weight of induction to the national level (e), which compensates for the fact that the survey is not conducted at all the country's border points. The final sampling weight is the multiplication product of these three weights.

The design weight, which is the inverse of the probability of a traveller's selection in the sample, is generally derived as the multiplication product of three individual weights:

$d = 1/\pi$, where $\pi = \pi_\varepsilon * \pi_\beta * \pi_\eta$

and where:

- π_ε = probability of the traveller's selection
- π_β = probability of the shift's selection
- π_η = probability of the day's selection

However, it is individualised depending on the border point in order to achieve maximum representativeness of the sample.

The calibration weight "g" is derived as a combination of the following information:

- total travel flow, as recorded by the administrative authorities at each border point; and
- Counting results regarding (i) total flows of non-residents from the EU-15 member countries, (ii) total flows of non-residents from countries outside the EU-15, and (iii) total flows of Greek residents.

The way and the degree to which the inductive coefficient depends on the particularities of each border point can best be illustrated through an example taken from the "E. Venizelos" airport of Athens, in which the inductive coefficient of inbound flows is calculated as follows:

$w = d_{\eta} * d_{\beta} * d_{\delta} * k * g * e$

where:

- d_{η} = number of the month's days / number of sampling days
- d_{β} = number of scheduled flights in the day / number of scheduled flights in the shift
- d_{δ} = number of actual flights in the shift / number of flights in the shift in which the counting took place
- k = the systematic sampling rate (5 on average)
- $g = p_i * N/\Sigma w_q$, where:
  - p_i = share (%) of passenger flow from the EU-15 (i = EU-15, non EU-15) taken from the counting
  - N = total travel flow as recorded by the administrative authorities at each border point
  - $\Sigma wq = d_{\eta} * d_{\beta} * d_{\delta}$
- e = NT/ ST, where:
  - NT = estimate of total travel flow for all of the country's airports, assuming that 100% of charter flight passengers were non-residents
  - ST = estimate of non-residents' flow in the survey's airports

Annex 3

Brief rationale of the survey methodology

As mentioned in a previous section, the FTS design is multistage and data collection is carried out at each border point independently of the rest. The basic principle governing the sampling is common for all border points: in order to compensate for the absence of a sampling frame, the sampling design has to mimic the way in which passenger flow is shaped at each border point, and furthermore, to be correspondingly individualised. For example, in airports passengers are organised in flights and boarding gates, in seaports they are separated per destination according to the ship they embark, while in roadway crossing points their flow is continuous and their differentiation is based on the number of open broad lanes each time.[17]

A key criterion for the distribution of the sample's size across the border points is the volume of passenger flows, as this entails a greater degree of traveller heterogeneity as regards the expenditure declared. To compensate for the lack of information from border points not included in the survey, their share in total passenger traffic is taken into consideration per border point type, i.e. separately for airports, seaports, etc., on the basis of the total traffic recorded by the border authorities. Finally, based on the official data available in each case, an adjustment of the distribution of traffic between Greek residents and non-residents is also carried out, separately for departures and arrivals.

The sample of the FTS is stratified so as to be representative on a monthly basis with respect to the border point type (airports, seaports, roadway crossing points and railway stations), while with the weighting method applied the findings are representative on a monthly basis with respect to the distribution of expenditures between EMU participating and non-participating countries. On an annual basis, the FTS estimates are representative with respect to the purpose of travel and to the geographical distribution across countries with a share of more than 1% in the sample composition for non-residents and of more than 2% for residents (subgroups of such countries appear in Table 7 and Table 10). The above specifications[18] ensure that the Bank of Greece can fully meet the relevant requirements set by Eurostat and the ECB.

17 To clearly illustrate the need to adjust the procedure to the particularities of each border point, two examples are presented here, taken from the survey on non-residents: one from the E. Venizelos airport of Athens and the other from the seaport of Patras. For the E. Venizelos airport, first, the sampling days are selected so as to represent days of large, medium and small numbers of scheduled flights (the stratification of days into layers with large, medium and small numbers of scheduled flights is carried out every month on the basis of data supplied by the Hellenic Civil Aviation Authority regarding the distribution of the number of scheduled flights per day). On the basis of the data regarding the daily distribution of flights, four-hour shifts in the day are selected, again so as to represent time periods of large, medium and small numbers of scheduled flights. In each shift, two surveyors (one responsible for handing out and collecting the questionnaires and one for conducting the counting operation) approach a boarding gate selected at random among all the gates serving flights not scheduled for departure earlier than 30 minutes after the start of the shift. At each gate, questionnaires are handed out to every 1 in "k" passengers, by systematic sampling, while counting takes place in the same manner. For the seaport of Patras, selection of the sampling days is carried out irrespective of destination seaport (e.g. Ancona, Brindisi, etc.) and voyages are used instead of shifts. In the case of departures (survey on non-residents), interviews are conducted independently at each foot-passenger boarding ladder and at each access ramp before the entry of the vehicles into the ship. In the case of arrivals (survey on residents), the surveyor travels onboard the ship from Italy to Greece. Selection of the travellers, with respect to both departures and arrivals, is always carried out at a prescribed rate after the initial selection of the first passenger at random.

18 During the data processing phase, all questionnaires are subjected to edit checks by a special automated procedure, and the ones not fulfilling the comprehensiveness specifications as regards expenditure are removed from the sample. Adjustment of data in cases of partial non-response is only carried out for variables concerning the number of overnight stays and the number of persons accompanying the respondent, on the basis of the responses given by other respondents of similar characteristics, while no adjustment of the inductive coefficients is made in cases of total non-response. The extreme values observed in the data are identified following the Hidiroglou-Berthelot technique and the estimation on "real" values is carried out exactly as the adjustment of data in cases of partial non-response.

Annex 4

Table A4.1
Duration of stay and expenditure per overnight stay of package tour travellers coming from the main countries/markets for Greece

	2003	2004	2005
Euro area			
Duration of stay (days)			
Package tour travellers	10.2	9.8	10.1
Independent travellers	12.8	12.8	12.7
Expenditure per overnight stay (euro)			
Package tour travellers	81.7	90.8	84.3
– Imputed expenditure	48.7	54.7	54.0
– Other expenditure	33.0	36.1	30.3
Independent travellers	53.7	55.1	59.0
Germany			
Duration of stay (days)			
Package tour travellers	11.2	10.7	11.0
Independent travellers	15.1	16.2	15.6
Expenditure per overnight stay (euro)			
Package tour travellers	72.9	81.8	77.4
– Imputed expenditure	44.6	50.3	51.3
– Other expenditure	28.3	31.5	26.1
Independent travellers	52.0	48.9	49.9
United Kingdom			
Duration of stay (days)			
Package tour travellers	10.2	10.0	10.1
Independent travellers	10.9	10.8	10.7
Expenditure per overnight stay (euro)			
Package tour travellers	93.8	102.6	94.3
– Imputed expenditure	48.2	55.1	51.7
– Other expenditure	45.6	47.5	42.6
Independent travellers	65.3	63.0	71.3
Italy			
Duration of stay (days)			
Package tour travellers	8.9	8.5	8.9
Independent travellers	11.2	10.3	11.0
Expenditure per overnight stay (euro)			
Package tour travellers	94.6	109.1	91.7
– Imputed expenditure	62.0	73.3	61.6
– Other expenditure	32.6	35.8	30.1
Independent travellers	55.8	62.9	68.7

Source: Bank of Greece.

Table A4.2
Duration of stay and expenditure per overnight stay of package tour travellers departing from the country's major (for package tours) airports

	2003	2004	2005
Athens			
Duration of stay (days)			
Package tour travellers	9.7	8.6	8.9
Independent travellers	12.5	12.4	11.7
Expenditure per overnight stay (euro)			
Package tour travellers	121.8	149.4	144.6
– Imputed expenditure	70.7	87.5	95.3
– Other expenditure	51.1	61.9	49.3
Independent travellers	59.9	64.1	72.3
Herakleio			
Duration of stay (days)			
Package tour travellers	9.8	9.8	9.9
Independent travellers	10.3	10.4	10.5
Expenditure per overnight stay (euro)			
Package tour travellers	88.4	93.6	90.0
– Imputed expenditure	50.1	54.5	55.2
– Other expenditure	38.2	39.1	34.7
Independent travellers	60.9	63.7	71.7
Rhodes			
Duration of stay (days)			
Package tour travellers	9.9	9.8	9.9
Independent travellers	10.0	9.8	10.0
Expenditure per overnight stay (euro)			
Package tour travellers	86.6	95.9	84.7
– Imputed expenditure	50.5	59.3	53.6
– Other expenditure	36.1	36.6	31.1
Independent travellers	65.6	64.8	71.7
Corfu			
Duration of stay (days)			
Package tour travellers	10.0	10.4	10.2
Independent travellers	10.4	10.5	10.9
Expenditure per overnight stay (euro)			
Package tour travellers	81.2	89.0	83.3
– Imputed expenditure	43.7	49.5	48.0
– Other expenditure	37.5	39.5	35.3
Independent travellers	55.6	62.7	64.8

Source: Bank of Greece.

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Working Papers

(January – June 2006)

This section contains the abstracts of Working Papers authored by Bank of Greece staff and/or collaborators and published by the Bank of Greece. The unabridged version of these publications is available in print or electronic format on the Bank's website (www.bankofgreece.gr).

Contents

Exact elliptical distributions for models of conditionally random financial volatility

Working Paper No. 32
George A. Christodoulakis and Stephen E. Satchell

The design of conditionally random financial volatility processes is traditionally based on the assumption of Gaussian innovations in asset returns. ARCH and GARCH models are familiar examples of a large number of econometric specifications that assume independent error processes and a pattern of conditionally random volatility (see Engle, 1982, for the origin and Bollerslev, 1992, for a summary). Ignoring trivial cases, there are no finite sample results known to the authors that give anything other than numerical/Monte Carlo measures for the unconditional distributions of the volatility or the variable whose volatility is under investigation.

The purpose of this paper is to provide some results in this direction. We assume that our variables are generated by distributions within the elliptical class and extend a result by Chu (1973) which enables us to characterise exactly the distribution of the variables given the pattern of conditional volatility. We then investigate the implications of our results for arbitrarily general GARCH processes. In particular, we intend to answer questions of the following form: if asset returns are generated within the elliptical class of distributions and asset volatility follows a particular process, e.g. GARCH, then what should be the exact form of the asset return distribution? Elliptical distributions are of interest to economists for several reasons: they are a tractable generalisation of multivariate normality (see Genton 2004; 2005); they are used in portfolio selection and asset pricing theories (Ingersoll, 1987; Zhou, 1993; Hodgson et al, 2002; and Vorkink, 2003); and they give interesting extensions to standard micro-structure models (see Owen and Rabinovitch, 1983, and Foster and Viswanathan, 1993, for details).

Our general results which are extensions of results in Satchell (1994) are then specialized to patterns of conditional volatility which are linear functions of a quadratic form of the conditioning variables, resulting in an elliptical distribution that will be multivariate t. Finally, we further specialise to the class of GARCH (p,q) processes and derive the appropriate distribution.

Capital flows, capital account liberalisation and Mediterranean countries

Working Paper No. 33

Heather D. Gibson, Nicholas T. Tsaveas and Thomas Vlassopoulos

The purpose of the paper is to examine the issues and challenges surrounding the question of capital account liberalisation in the so-called Mediterranean countries (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, the Palestinian Authority, Syria and Tunisia).

Capital account liberalisation can bring significant benefits to a country, including increased access to international capital markets, greater FDI inflows and greater discipline in the exercise of economic policy. However, well-documented experience has shown that capital account liberalisation is not without its problems and challenges. We explore these questions by examining the specific experience with capital flows in these countries as well as by drawing on the vast literature that has now been built up around the topic of external financial liberalisation.

There are three main conclusions. First, a short review of the benefits of liberalisation with reference to the Mediterranean countries suggests that those countries that have not yet liberalised have a lot to gain from a policy of liberalising, mainly in terms or reducing risk and uncertainty and helping to de-link domestic investment decisions from the availability of domestic finance. Second, the experience of southern European countries which are now euro area members as well as the new EU Member States with non-FDI private net capital flows suggests that net flows (both net inflows and outflows) increase significantly following liberalisation. This can have consequences for macroeconomic management. Experience in the Mediterranean countries with such capital flows over the 1990s and into the current decade highlights the importance of sound macroeconomic policies. Furthermore, our econometric results indicate that up until now contagion has not featured greatly in these countries; however, liberalisation in other regions suggests that this is unlikely to continue. Countries should therefore be prepared to deal with the challenges that liberalisation will bring. Finally, whilst FDI inflows in general already operate within a liberalised environment, there is evidence that some Mediterranean countries are not performing to potential – that is, they should be attracting more FDI. This indicates that there is scope for national and regional policies that could help boost FDI flows in these countries. Moreover, policies can increase the effectiveness of the FDI attracted in terms of the benefits for the host economies.

The New Keynesian Phillips curve and inflation expectations: re-specification and interpretation

Working Paper No. 34
George S. Tavlas and P.A.V.B. Swamy

The New Keynesian Phillips curve (NKPC) is a key component of much recent theoretical work on inflation. Unlike traditional formulations of the Phillips curve, the NKPC is derivable explicitly from a model of optimising behaviour on the part of price setters, conditional on the assumed economic environment (e.g., monopolistic competition, constant elasticity demand curves, and randomly-arriving opportunities to adjust prices). In contrast to the traditional specification, in the NKPC framework current expectations of future inflation, rather than past expectations of the current inflation rate, shift the curve. A major advantage of the NKPC over the traditional Phillips curve is said to be that the latter is a reduced-form relationship whereas the NKPC has a clear structural interpretation so that it can be useful for interpreting the impact of structural changes on inflation.

Although the NKPC is appealing from a theoretical standpoint, empirical estimates of the NKPC have, by and large, not been successful in explaining the stylised facts about the dynamic effects of monetary policy, whereby shocks are thought to first affect output, followed by a delayed and gradual effect on inflation. To deal with the persistence of inflation observed in the data, a response typically found in the literature is to augment the NKPC with the addition of lagged inflation —on the supposition that lagged inflation receives weight in these equations because it contains information on the driving variables— yielding a "hybrid" variant of the NKPC.

This paper provides a theoretical analysis of the reasons why empirical estimates of the NKPC that can replicate the stylised facts have proved elusive. We show that the "pure" NKPC can be formulated in terms of a relationship that is not spurious or misspecified. In contrast, "hybrid" versions that augment the "pure" NKPC with the addition of (i) lagged inflation involved in traditional backward-looking models of inflation-unemployment dynamics and (ii) a supply-shock variable, in an attempt to explain the standard stylised facts about the dynamic effects of monetary policy, are shown to be spurious and misspecified. Testing of the assumed NKPC employing a broad range of data is also discussed.

Monetary policy rules under heterogeneous inflation expectations

Working Paper No. 35
Sophocles N. Brissimis and Nicholas S. Magginas

The aim of this study is to evaluate the role of inflation-forecast heterogeneity in the conduct of monetary policy in the United States. The deviation between private and central bank inflation forecasts is identified as a factor increasing inflation persistence and thus calling for a policy reaction. Specifically, an historical account of the Fed's monetary policy making during the past thirty years is provided and the importance in the Fed's reaction function of the deviation between the Fed's and private inflation forecasts is evaluated. This deviation leads to a slowdown in the pace at which supply shocks (represented by the error term of a standard New Keynesian Phillips curve) die out, therefore it increases inflation persistence.

An optimal policy rule is derived by the minimisation under discretion of a standard central bank loss function subject to a Phillips curve, modified to include the forecast deviation, and a forward-looking aggregate demand equation. This rule, which itself includes the forecast deviation as an additional argument, is estimated for the period 1974-1998, covering the Chairmanships of Arthur Burns, Paul Volcker and Alan Greenspan, by using real-time forecasts of inflation and the output gap obtained from the FOMC's Greenbook and the Survey of Professional Forecasters. The estimated rule remains remarkably stable over the whole sample period, challenging the conventional view of a structural break following Volcker's appointment as Chairman of the Fed.

Overall, the study questions the widely held view that monetary policy in the US has gone through a structural change since late 1979, when Paul Volcker took over as Chairman of the Fed, by identifying the role of inflation-forecast deviations in the conduct of monetary policy. The novel explanation put forward for the pre-1980 high-inflation period is that it cannot be attributed to activist policies aiming at output gap stabilisation, as is usually argued, but to the insufficient monetary policy tightening in a period when private inflation forecasts were lower than the respective central bank forecasts. Similarly, the success of Volcker's disinflation is attributed inter alia to the forceful Fed reaction to this deviation in a period when private expectations exceeded central bank forecasts. Finally, the small coefficient on the lagged interest rate variable in the estimated rule appears to lend support to the growing view that interest rate inertia may, to a large extent, be an artifact of serially correlated forecast errors which are not taken into account by conventional rule specifications but feed into monetary policy decisions in real time.

Modeling the components of market discipline

Working Paper No. 36
Faidon Kalfaoglou and Alexandros Sarris

Market discipline has emerged as the major complementary tool for banking supervision since it is considered as a mechanism that can limit excess risk-taking. Market discipline refers to the measures taken by the market participants for banks that do not exhibit the appropriate risk-taking behaviour. It depends on bank disclosure policy as well as market participants incentives to undertake the necessary actions. This paper develops a game theoretic model where the bank sends a signal to market participants about its riskiness and they, in turn, evaluate the credibility of the signal and make inferences about bank soundness. This signalling game is developed in three stages. In the first stage the bank undertakes N investments with initial probability of success q. In the second stage, with the arrival of new information, the bank revises q and decides its disclosure policy. It observes K successful investments and L investment with ambiguity in determining the final outcome, and it decides for the parameters of the vector (aK,bL). In the third stage the investments mature and all uncertainty is resolved. The analysis is focused on the second stage and the optimum disclosure policy is drawn endogenously from the maximisation of the bank value. The solution of the maximisation problem allows the conduct of comparative static analysis and the determination of the hypotheses for testing. These were empirically tested against data from the Greek banking sector.

The motivation for this paper stems from the third pillar of the New Capital Adequacy Framework which is entirely devoted to market discipline. It assumes that more available information is automatically translated into greater transparency and no potential frictions in the process of transmitting information are taken into account. However, market discipline depends on the ability of the market to assess the condition of the bank and on the ability to impose managerial reactions that reflect those assessments. Thus, the model incorporates bank disclosure policy as well as the ability of market participants to monitor bank riskiness and influence bank actions.

The paper is divided into three sections. The first section analyses the concept of market discipline and its components. The second section develops the game theoretic model, which shows that market participants have the ability to monitor the risk but lack the ability to impose bigger transparency to riskier banks and specifies the hypotheses for testing these results. In the third section empirical investigation of the hypotheses is undertaken with reference to the Greek banking sector. The results are contradictory and are not consistent with all the predictions of the theoretical model.

Corporate ownership structure and firm performance: evidence from Greek firms

Working Paper No. 37
Panayotis Kapopoulos and Sophia Lazaretou

In their path-breaking study, Berle and Means (1932) warned that the growing dispersion of ownership of stocks was giving rise to a potentially value-reducing separation of ownership and control. As a consequence, they expected an inverse correlation between the diffuseness of shareholdings and corporate performance. This analytical framework is based upon the view that shareholder diffusion makes it difficult for them to act collectively and hence to influence management to any great extent.

Demsetz (1983) and Demsetz and Lehn (1985), among others, have documented that, when examining the effect that ownership structure has on firm profitability, the endogeneity of ownership structure should be accounted for. The work by Demsetz and Villalonga (2001) is motivated by the need to re-examine the relationship between ownership structure and firm performance taking into account not only the endogeneity problem but also different dimensions of ownership structures.

Following Demsetz and Villalonga (2001), we apply similar models to Greek listed firms. This paper seeks to add to the extremely limited empirical evidence regarding this relationship in the context of a small European capital market; much of the existing literature applies to economies with Anglo-Saxon types of financial systems (US, UK). The Greek context provides a financial system, recently liberalised, that is more bank-based, involving a relatively small stock market in which corporate governance issues do not have a long history. We first model ownership structure as an endogenous variable; second, we use two measures of ownership structure: (a) the proportion of shares owned by insiders (top management, CEO, board members) and (b) the proportion of shares owned by important outside investors. Empirical findings suggest that a more concentrated ownership structure is positively associated with higher profitability. We also find that higher firm profitability requires a less diffused ownership.

Inflation forecasts and the New Keynesian Phillips curve

Working Paper No. 38
Sophocles N. Brissimis and Nicholas S. Magginas

Despite the increasing attention that the New Keynesian Phillips curve has attracted in recent years, there have been conflicting results regarding its empirical validity. The aim of this study is to examine the ability of the New Keynesian Phillips curve to explain US inflation dynamics when official central bank forecasts (Greenbook forecasts) are used as a proxy for inflation expectations. The New Keynesian Phillips curve is estimated on quarterly data spanning the period 1970Q1-1998Q2 against the alternative of the Hybrid Phillips curve, which allows for a backward-looking component in the price-setting behaviour in the economy. The results are compared to those obtained using actual data on future inflation as conventionally employed in empirical work under the assumption of rational expectations. Doing so allows us to directly estimate the degree of departure from a pure forward-looking model needed for the Phillips curve relationship to track the observed persistence of inflation.

The empirical evidence provides considerable support for the standard forward-looking New Keynesian Phillips curve insofar as deviations from rationality as reflected in official inflation forecasts are taken into account in estimation. Using the Greenbook inflation forecasts as a proxy for private sector inflation expectations, we find that expected inflation becomes the main determinant of current inflation, and its coefficient is higher than previous estimates in the literature.

Overall, the empirical relevance of the hybrid specifications appears to depend largely on the assumption of rational expectations (i.e. the use of actual data on future inflation). Indeed, the lagged inflation terms in the hybrid specification become insignificant when we approximate inflation expectations with official inflation forecasts, which may deviate from full rationality. Inflation lags are also insignificant even when we correct for the backward-looking information contained in the inflation forecasts. Thus, inflation forecasts appear to contain valuable information for inflation modelling that goes beyond accounting for the proportion of backward-looking price setters in the economy. Moreover, the success of the empirical specification including the less-than-perfectly rational proxy of inflation expectations appears to justify theoretical approaches to inflation modelling based on information processing constraints and learning mechanisms.

Europe's hard fix: the euro area

Working Paper No. 39
Otmar Issing
with comments by Mario I. Blejer and Leslie Lipschitz

Exchange rate regimes are a fundamental policy issue in macroeconomics. They range from a hard peg to freely floating rates, with a variety of intermediate arrangements, where EMU is in the hard peg corner. There are three reasons for pegging the exchange rate, namely to: (a) reduce volatility, (b) provide a commitment to low inflation if the peg is to a low inflation country, and (c) help control the prices of traded goods and provide an anchor for inflation expectations.

More recently, countries have moved to the corners of the exchange rate regime spectrum. This is probably due to the realisation of Mundell's "impossible trinity" that states that between three desirable policy objects (1) stabilising the exchange rate, (2) free international capital mobility, and (3) an effective monetary policy oriented towards domestic goals, only two can be mutually consistent. The trinity's disruptive power was evident in the 1992 crises and made necessary a reassessment of the problem. EMU was at the time the best option in terms of economic efficiency as well as a politically viable one.

In order for EMU to be beneficial for member countries, economic co-movements are required and optimum currency area criteria have to be met. In terms of these criteria the euro area members are doing well in production and consumption diversification, in inflation rate similarity as well as in financial and trade integration. However, the euro area faces problems due to low price and wage flexibility, which makes issues of labour market institutions important. There is a need for economic adjustment by national governments to increase product and labour market flexibility as well as financial integration. This requires a coordinated and enforceable fiscal framework, which constrains a divergence of national policies.

The paper is discussed by Mario I. Blejer, director of CCBS at the Bank of England and Leslie Lipschitz of the International Monetary Fund.

Regional currency arrangements in North America

Working Paper No. 40
Sven W. Arndt
with comments by Steve Kamin and Pierre L. Siklos

A decade after the introduction of NAFTA a new debate is underway over its achievements, shortcomings and its future prospects. North America is less than fully, but probably reasonably, ready for closer monetary cooperation. The US, Canada and Mexico are each other's major trading partner and their economies are strongly linked across goods, services and assets markets. Moreover, wages and prices are flexible in these countries and there is considerable, although not perfect, factor mobility.

Another feature of the North American economic integration process is the growing importance of cross-border production sharing across a range of industries. The trade flows generated by production sharing represent a new form of intra-industry trade, which has implications for the choice of monetary policy arrangements. It tends to reduce asymmetries between trade partners at the level of the industries and sectors and possibly at the economy-wide level and leads to convergence and synchronisation of business cycles. If, however, production sharing is limited to particular sectors, reduction in asymmetries across borders in that sector may be accompanied by greater asymmetry between that sector and the rest of the economy. The evolution of the real GDP growth rate and manufacturing production indices suggests that production networks are contributing to the convergence of business cycles in the US, Canada and Mexico. This type of intra-industry trade also makes trade flows less sensitive to exchange rates. Therefore, giving up exchange rate flexibility becomes less costly.

The two discussants of the paper, Steve Kamin and Pierre Siklos argue that the author provides a comprehensive analysis of the forces that are at work in the North American integration process. They think, however, that independent monetary policies may still have a role.

Exchange-rate arrangements and financial integration in East Asia: on a collision course?

Working Paper No. 41
Hans Genberg
with comments by James A. Dorn and Eiji Ogawa

The 1997-98 Asian crisis bequeathed concerns about the stop-go nature of international capital flows and motivated the imposition of controls on capital movements. Policy makers in East Asia are currently pursuing economic integration in the region as one way to consolidate growth and to prevent a recurrence of instability. Since integration is already occurring in trade, fears of competitive depreciations and excessive exchange rate volatility have led to calls for a coordination of exchange rate policies. Financial integration is currently encouraged due to its perceived benefits (reducing the intermediation spread, increasing investment and growth).

The article reviews some initiatives that are being pursued towards greater financial integration and argues that these initiatives will only achieve their full goal if substantial liberalisation of capital flows between countries is undertaken. Subsequently, existing exchange rate practices are reviewed. Econometric characterisation of exchange rate behaviour reveals considerable differences across countries. The author considers the proposals for exchange rate coordination, which focus on some form of common exchange rate peg, emphasising the difference between pegs that link the currencies to an external anchor versus those that use an intra-regional anchor, and sets out the implications of each peg for the conduct of monetary policy. He argues that moves towards financial integration in the region and monetary unification may lead to undesirable outcomes, in particular increased scope for currency speculation and crises or the potential for doubts to be raised about the exchange rate's role as a nominal anchor, unless the two processes are sequenced and designed carefully.

The European experience dictates that Asian countries should follow a path where independent central banks coordinate their monetary policies, explicitly through some institutional framework or implicitly through the adoption of common objectives, e.g. inflation targeting. When this has led to coordination of interest rate developments and if the required institutional infrastructure has been built, the next step towards monetary unification can be taken by the central banks that so desire. The author argues that this transition path is likely to be robust and will limit the risk of currency crises.

James Dorn shares Genberg's analysis. Further, he critically assesses China's financial architecture and its prospective role in the process of monetary unification. Eiji Ogawa's comments on the common currency basket arrangement versus the monetary policy coordination approach. He also offers suggestions with respect to the future "currency map" of East Asia.

Monetary policy and financial system supervision measures

(January – July 2006)

Monetary policy measures of the Eurosystem

12 January, 2 February 2006

The Governing Council of the ECB decides that the minimum bid rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 2.25%, 3.25% and 1.25% respectively.

2 March 2006

The Governing Council of the ECB decides, with effect from 8 March 2006, to increase:

1. the minimum bid rate on the main refinancing operations of the Eurosystem by 0.25 percentage point to 2.50%;

2. the interest rate on the marginal lending facility by 0.25 percentage point to 3.50%; and

3. the interest rate on the deposit facility by 0.25 percentage point to 1.50%.

6 April, 4 May 2006

The Governing Council of the ECB decides that the minimum bid rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 2.50%, 3.50% and 1.50% respectively.

8 June 2006

The Governing Council of the ECB decides, with effect from 15 June 2006, to increase:

1. the minimum bid rate on the main refinancing operations of the Eurosystem by 0.25 percentage point to 2.75%;

2. the interest rate on the marginal lending facility by 0.25 percentage point to 3.75%; and

3. the interest rate on the deposit facility by 0.25 percentage point to 1.75%.

6 July 2006
The Governing Council of the ECB decides that the minimum bid rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 2.75%, 3.75% and 1.75% respectively.

Bank of Greece decisions on the establishment and operation of credit institutions and the supervision of the financial system

1 January 2006
The Paris-based bank "Société Générale" discontinues the operation of its branch in Greece.

2 January 2006
A branch of the Belgium-based "Fortis Bank SA/NV" commences its operation in Greece.

4 January 2006
The National Bank of Greece is authorised to merge with the National Real Estate Development and Warehouse Operation S.A.

24 January 2006
— Alpha Bank is authorised to establish 30 new branches in Bulgaria and 4 in Albania.

— The National Bank of Greece is authorised to establish 7 new branches in Albania.

— The authorisation of Change Star Bureaux De Change S.A. to establish and operate bureaux de change is revoked.

24 February 2006
— The ceiling on investment by the Agricultural Bank of Greece in equities and mutual fund shares/units is increased from 15% to 25% of its own funds.

— EFG Eurobank Ergasias is authorised to merge with Intertrust Mutual Fund Management S.A.

9 March 2006
With a view to adapting the principles and criteria that govern credit and financial institutions' internal control systems to supervisory developments, as well as to further specifying individual issues, notably in relation to risk management and compliance with the institutional and regulatory framework in force, the Bank of Greece establishes the basic general principles and criteria all credit and financial institutions supervised thereby should comply with in order to ensure that they have, on both an individual and a group basis, an effective organisational structure and a sufficient Internal Control System, including Internal Audit, Risk Management and Compliance Functions.

10 March 2006
"Marquis International S.A." is authorised to operate as a money transfer intermediary.

4 April 2006
Piraeus Bank is authorised to absorb its subsidiary "EVision Advanced Information Systems and Services S.A.".

13 April 2006
"Proton Investment Bank S.A." is authorised to acquire a qualifying holding of 20% in the capital of "Aioliki Portfolio Investment S.A.".

19 April 2006

— The banking société anonyme with the name "Greek Postal Savings Bank S.A." is authorised to operate.

— EFG Eurobank Ergasias is authorised to increase its qualifying holding in the company "Dias Portfolio Investment S.A.".

— EFG Eurobank Ergasias is authorised to acquire the entire capital of the Bucharest-based life insurance company "SC EFG Eurolife Asigurari de Viata S.A.", which is in the process of establishment.

8 May 2006

"Hellenic Post S.A." is authorised to acquire 10% of the capital of the "Greek Postal Savings Bank S.A.".

11 May 2006

— The National Bank of Greece is authorised to acquire the majority of the capital of Turkey-based "Finansbank AS".

— "Manig Money Cash Services S.A." is authorised to operate as a money transfer intermediary.

30 May 2006

"Laiki Bank (Hellas) S.A." is authorised to increase up to 100% its qualifying holding in the capital of "Laiki Financial Leasing S.A.".

15 June 2006

Banks are allowed to extend credit to the 10 biggest holders of shares or other equities in a company for purchasing shares or other equities, provided that such purchase is aimed at maintaining or increasing the stake of these borrowers in the company's share capital.

21 June 2006

The National Bank of Greece is authorised to establish 5 new branches in Serbia-Montenegro.

10 July 2006

"IRF European Finance Investments Ltd" is authorised to obtain the control of "Proton Investment Bank S.A." by acquiring a qualifying holding of up to 30% in the latter's capital.

Decisions of the Bank of Greece

Re: Framework of operational principles and criteria for the evaluation of credit and financial institutions' organisation and Internal Control Systems, and relevant powers of their management bodies (Bank of Greece Governor's Act 2577/9 March 2006)

The Governor of the Bank of Greece, having regard to:

a) Emergency Law 1665/1951 "Banks' audit and operation", as currently in force;

b) Article 1 of Law 1266/1982 "Authorities responsible for the conduct of monetary, credit and exchange rate policies, and other provisions";

c) Articles 18, 21 and 22 of Law 2076/1992 "Taking up and pursuit of the business of credit institutions, and other relevant provisions", as currently in force;

d) Article 55A of the Bank of Greece's Statute, concerning its supervisory powers and the imposition of sanctions;

e) the provisions of Law 3016/2002 on corporate governance;

f) the provisions of Bank of Greece Governor's Act 2438/6 August 1998 "Framework of operational principles and criteria for the evaluation of credit institutions' Internal Control Systems and specification of the tasks and responsibilities of credit institutions' internal control bodies", as amended by decisions 154/9/18 July 2003 and 193/1/11 March 2005 of the Banking and Credit Committee;

g) the provisions of Bank of Greece Governor's Act 2563/19 July 2005 "Reporting requirements on credit institutions for the purpose of solvency, liquidity and profitability controls by the Bank of Greece";

h) the provisions of Law 2331/1995, as amended by Law 3424/2005, on the prevention of the use of the financial system for money laundering, and the relevant Bank of Greece Circular (No. 16/2 August 2004);

i) the advisability of avoiding overlaps of provisions on internal control systems (Law 3016/2002 and the relevant letter of the Capital Market Commission, No. 2453/30 June 2003); and

j) the advisability of adapting the principles and criteria that govern credit and financial institutions' internal control systems to supervisory developments, as well as the need to further specify individual issues, notably relating to risk management and compliance with the institutional and regulatory framework in force,

has decided:

1. to establish the basic general principles and criteria all credit and financial institutions supervised by the Bank of Greece should comply with in order to ensure that they have, on both an individual and a group basis, an effective organisational structure and a sufficient Internal Control System (ICS), including Internal Audit, Risk Management and Compliance Functions;

2. to point out that the best principles of corporate governance are an integral part of credit and financial institutions' ICSs; and

3. that the adequacy of credit institutions' organisational structure and ICS shall be assessed by the Bank of Greece pursuant to Article 18 of Law 2076/1992, as currently in force, according to the principles set out in this Act.

I. INTRODUCTION

A. Scope

1. The provisions of this Act shall apply to:

1.1 all credit institutions established in Greece, including their branches abroad; and

1.2 all financial institutions authorised and supervised by the Bank of Greece on an individual basis; all references in this Act to requirements on credit institutions on an individual basis shall be understood also as references to financial institutions.

2. The provisions of this Act shall also apply to groups, according to the specific provisions of Chapter III "Basic principles and criteria applicable at group level".

3.1 The branches of credit institutions established in a European Economic Area (EEA) Member State shall not fall within the scope of this Act, as well as the branches of credit institutions established in non-EEA countries, provided that the Bank of Greece has recognised that they are subject to an equivalent supervisory regime, in accordance with the provisions of Bank of Greece Governor's Act 2461/2000, as currently in force.

3.2 The above exception shall not extend to provisions on:

3.2.1. the procedures for the prevention and suppression of money laundering and terrorist financing (AML/CFT procedures);

3.2.2. the procedures for ensuring transaction transparency and customers' information; and

3.2.3. any other requirement reserved for the authorities of the host country under the legislation in force.

3.3 The branches of foreign credit institutions shall report to the Bank of Greece the internal control procedures they apply, as well as the findings of audits conducted by the supervisory authority of the country of establishment and the external auditors with respect to the branch's activities referred to in para. 3.2 above.

B. Definition and objectives of an Internal Control System

1. An Internal Control System (ICS) is a set of control mechanisms and procedures that covers all the activities of a credit institution on an ongoing basis and is designed to contribute to its efficient and sound operation.

2. Specifically, it is aimed at achieving notably the following objectives:

2.1 consistent implementation of the institution's operational strategy through efficient use of available resources;

2.2 systematic monitoring and management of the risks assumed, including operational risk;

2.3 comprehensive and reliable financial reporting to ensure the accurate and timely disclosure of the credit institution's financial position and the production of reliable financial statements;

2.4 compliance with the institutional framework that governs the operation of the credit institution, including internal regulations and ethics rules; and

2.5 prevention and avoidance of errors and irregularities that may put at risk the reputation and interests of the credit institution, its shareholders and customers.

II. BASIC PRINCIPLES AND CRITERIA FOR THE EVALUATION OF THE ICS ORGANISATIONAL STRUCTURE

General provisions

1. Every credit institution shall establish a documented operational strategy, approved by its board of directors, with a time horizon of at least one year and with clear objectives for both the credit institution and the group led thereby, featuring in particular:

1.1 a priority list of existing and future operational goals;

1.2 transparent structure and adequate documentation of its domestic and foreign business activities, including proper references that allow (i) the comprehension of the structure of the credit institution and the group, (ii) supervisory audit and (iii) the implementation of the adopted risk management policy at group level;

1.3 a budget of activities in terms of volume and kind, as well as the expected financial results; and

1.4 the acceptable limits and kinds of risks to be assumed, the assumptions on which their assessment is based and the relevant provisioning.

2. An effective ICS should:

2.1 be adequately documented and laid down in detail with respect to the control areas and procedures;

2.2 be properly adjusted to the size, scope, risks and complexity of activities of the credit institution, the group as a whole and the subsidiaries, as well as to country-specific particularities;

2.3 cover all the activities and operations of the credit institution;

2.4 enable the control of outsourced activities according to Annex 1 hereto;

2.5 be supported by an integrated management information system (MIS) and a communication system with clearly defined hierarchical reporting lines that ensure the timely flow of reliable information needed by every officer or management body in their work;

2.6 provide for regular and/or extraordinary audits by the competent bodies or units for monitoring all units' compliance with rules and procedures;

2.7 provide coherent control mechanisms for the credit institution and its group; and

2.8 include procedures for evaluating its adequacy, according to the following criteria:

2.8.1 consistent application of procedures;

2.8.2 quantitative and qualitative impact from the violation of security rules or errors or omissions in the application of such rules; and

2.8.3 existence of mechanisms for promptly revising procedures to address any shortcomings verified during regular or extraordinary assessments.

3. The Bank of Greece recommends the development of self-assessment methods by units, subject to the adoption of documented objective criteria and their final evaluation by the Internal Audit Unit (IAU).

Organisational structure – procedures

4. An essential component of an effectively organised ICS with adequate internal procedures is a detailed and clear determination of the powers and responsibilities of all units and committees involved in every activity, as well as the relevant authorisation procedures, including:

4.1 detailed procedures for each type of operation, to be communicated to the staff in charge of the execution and control of the particular operation;

4.2 appropriate control mechanisms incorporated into all the operational regulations of

the credit institution, ensuring that all operations are valid and legitimate, have been carried out according to all the operational rules of each unit, evaluated for the inherent risks, handled by duly authorised and readily identifiable personnel, filed in records as appropriate in each case and entered in the management information system;

4.3 direct or indirect involvement of at least two staff members in each activity or control function (four eyes principle) until its completion; by way of exception to the preceding sentence, the credit institution may, after evaluating the level of risks, lay down simplified documented procedures for certain types of operations by setting limits or other qualitative characteristics;

4.4 (at least) advisory participation of the Internal Audit, Risk Management and Compliance Units in the design of new products and procedures, in issues relating to business decision-making, as well as the assessment of the operational risk that may arise in cases of important changes (mergers, acquisitions etc.), with a view to adopting the proper control and risk management mechanisms and ensuring compatibility with applicable rules.

Personnel, segregation of duties and conflicts of interests

5. Human resources management and continuing education procedures, as well as appropriate employment and promotion criteria shall be established, to ensure that employees are qualified to perform their tasks efficiently.

6. The wages of officers, in particular those involved in products and services provision or in the management of the credit institution's funds, shall be determined in such a way as to provide disincentives for assuming excessive risks or pursuing short-term interests.

7. Effective segregation of duties shall be ensured by adopting procedures to prevent conflicts of roles and interests between directors, senior management and officers, as well as between them, the credit institution and customers, and the illegitimate use of confidential information or assets. To this end, the best international corporate governance practices, the relevant provisions of the stock exchange legislation, the Code of Conduct on Investment Services, as well as any relevant decisions of the supervisory authorities shall be taken into account.

8. The proper changes in the administrative structure and hierarchical reporting lines shall ensure the independence, on the one hand, of auditors from the operations being audited and the staff handling them and, on the other hand, of risk management from risk assumption operations and the personnel handling them, so that:

8.1 front-line functions (receipt and handling of customer applications, promotion and marketing of banking (i.e. credit, deposit, investment) products, negotiation and carrying out of transactions) are administratively and operationally segregated from back-office functions (evaluation of applications, transaction confirmation, accounting and settlement functions, as well as custody services for securities or other assets belonging to the institution or its customers); and

8.2 risk management and control functions are segregated both from one another and from the functions referred to in 8.1 above.

9. Systematic control of access to confidential information and assets belonging to the credit institution or its customers shall be ensured by granting such access only to duly authorised persons.

10. Appropriate procedures established by the credit institution shall allow the submission of anonymous reports and protect the employees that report to the board of directors or the Audit Committee (or, where it does not exist, the authorised officer of the IAU) serious irregularities, omissions or offences that have come to their attention.

Transactions with persons specially related to the credit institution

11. With respect to transactions with legal or natural persons specially related to the credit institution, within the meaning of Bank of Greece Governor's Act 2563/19 July 2005, as in force from time to time, the credit institution shall ensure that:

11.1 the terms and procedures of the institution's credit and participation policy with respect to persons specially related thereto are laid down in detail, so that:

11.1.1 the relevant credit terms do not differ from generally applicable financing terms; and

11.1.2 every credit to, or participation in, the above persons is approved by the board of directors or the general assembly of shareholders of the credit institution, where required by law.

12.1 To facilitate the smooth financing of firms specially related to the credit institution, the board of directors may set a reasonable credit limit up to which no board approval, but only subsequent reporting is required.

12.2 Persons specially related to the credit institution and referred to in the preceding paragraph shall divulge to the board of directors of the credit institution the amount outstanding of credit obtained thereby from firms associated with the credit institution, within the meaning of Article 42e of Law 2190/1920, as currently in force, within 20 days from the end of every calendar year. (This requirement shall be in addition to the credit institution's data reporting to the Bank of Greece.)

Services provided to customers

13. To ensure the provision of appropriate services to customers, as an integral part of operational risk management, credit institutions shall:

13.1 adopt best practices in order to offer products and services that suit the customer's profile;

13.2 monitor and evaluate customer service, in particular how the terms and conditions of transactions are communicated to the public and agreed upon, according to the provisions in force, especially the consumer protection legislation;

13.3 establish appropriate procedures for reviewing customer complaints, according to the provisions of Bank of Greece Governor's Act

2501/31 October 2002, as currently in force, and the other relevant provisions of law;

13.4 safeguard the interests of customers and protect their personal data against unauthorised use; any use of such data authorised by the competent authorities shall be reported to the Bank of Greece, and customers' assets shall be held in custody separately from similar assets of the credit institution; and

13.5 control on a regular basis the application of customer identification procedures.

Prevention of money laundering and suppression of terrorist financing

14.1 Pursuant to the AML/CFT framework, credit institutions shall establish appropriate policies and procedures (as specified from time to time by Bank of Greece circulars and other instruments) consistent with their target customers, countries of activity and transaction networks, using IT systems to evaluate their customers in terms of the risks they represent and their management.

14.2 Procedures shall be established to identify transactions inconsistent with credit institutions customers' profiles, investigate and report them, where required, with proper documentation.

14.3 Preventive measures in this area shall be governed by the principles applying to other risks and be adapted to the size and form of the credit institution. Specifically, they shall ensure that:

14.3.1 officers and the competent units understand the risks inherent in individual or combined categories of customers and transactions, as well as the applicable relevant policies and procedures; and

14.3.2 credit rating criteria apply to the conclusion of loan agreements with customers and their credit risk is subsequently monitored; and

14.3.3 to enhance the effectiveness of the relevant policy, methodologies shall be evaluated on an annual basis and the training of the authorised employees shall be adapted to new conditions and practices.

Risk management

15. Every credit institution shall have a documented strategy, policy and procedures in relation to:

15.1 the assumption, monitoring and management of risks (market, credit, interest rate, liquidity, operational risk etc.) and the classification of operations and customers into risk grades (by country, occupation, activity);

15.2 the determination of the acceptable exposure limits for each type of risk for the credit institution as a whole, setting more specific limits, as appropriate, by customer, sector, currency, unit etc.; and

15.3 the setting of trigger points for stop-loss controls,

which shall be communicated in writing in a timely manner, in the form of specialised tar-

gets or guidelines, where necessary, to all risk owners and to the officers involved in risk monitoring, hedging and mitigation.

16. Risks shall be reviewed on an annual basis and high-risk areas, complex transactions identified by every credit institution and non-performing loans shall be reviewed more frequently.

17. Risk monitoring and management shall constitute a specialised and independent function, covering the credit institution's entire range of operations and all types of banking risk, including operational risk.

18. Documented procedures shall be established with regard to:

18.1 regularly identifying material or unexpected changes in risk factors (economic aggregates, market developments, legal environment etc.), evaluating and reporting them to the competent bodies for corrective action, in particular when they lead to excess of acceptable limits;

18.2 loss offsetting (coverage, transfer, insurance) and accounting; and

18.3 determining pricing policies for financial products and services and regularly evaluating them, to ensure that all cost factors, prices charged by competition and cost/benefit analyses are taken into consideration.

19. Any expansion to new financial products or services shall be preceded by:

19.1 a duly justified decision on the incorporation of the product or service into the credit institution's growth strategy;

19.2 a clear identification of the risks that such expansion may entail, including operational risk; and

19.3 a full incorporation of any new controls and procedures into the existing risk control system and, more generally, into the ICS, or adjustment of the existing controls and procedures.

20.1 In making business decisions to assume major risks (lending, restructuring/settlement of outstanding loans, participations, investments etc.), where risks are not subject to predefined factors, and in setting acceptable risk exposure limits, the participation of at least the competent unit and the Risk Management Unit shall be ensured.

20.2 The documented internal procedures approved by the board of directors shall fully determine the extent to which final decisions (para. 20.1 above) are influenced by the recommendations of the Risk Management Unit. The Bank of Greece shall appreciate it if the importance attached to such recommendations increases according to the magnitude and complexity of the risks assumed (veto power, increased importance, participation in majority voting etc.).

20.3 Recommendations recorded in the minutes shall be provided upon request to Bank of Greece auditors/officers pursuant to the provisions of law (Article 4 of L.D. 588/1948 and Article 4 of Emergency Law 1665/1951).

Accounting systems

21.1 The accounting system of a credit institution shall provide a real picture of its financial condition and information necessary in decision making, as well as ensure the reliability of annual or interim financial statements, according to the accounting standards provided for by law.

21.2 Specifically, to ensure the above principles and enhance the comparability of financial information and the effectiveness of supervision, all credit institutions shall apply the International Accounting Standards (IAS).

21.3 Before making an accounting entry, every transaction or group of similar transactions or accounting event shall be audited and reconciled, according to the credit institution's internal rules. By way of exception, the credit institution may, after evaluating the level of risks, set specific limits up to which a transaction (e.g. a low-value cash transaction) could be exempted from this requirement.

21.4 Any approved and legitimate transaction shall be recorded accurately and in a timely manner, with all the details required under the accounting standards and principles in force.

21.5 Both the initial recognition and the subsequent valuations of every asset or liability, as well as their bearing on the credit institution's results or net worth, shall conform to the accounting standards in force.

21.6 Open positions resulting from transactions that involve market risk shall be reconciled at least every month.

21.7 Appropriate procedures shall be established to ensure systematic and safe record-keeping for a period at least equal to the minimum provided for by the institutional framework, and traceability. This implies that audit trails have been specified, enabling transactions to be tracked back and reproduced in chronological order, entries to be supported by original documents and changes in account balances to be documented through detailed data on movements in the relevant accounts.

21.8 Regular and extraordinary audits of accounting entries shall be performed, to monitor compliance with the approved asset and liability valuation and recognition methods.

21.9 Financial reports to the supervisory authorities shall be:

21.9.1 complete, valid and based on accounting data and, as regards off-balance-sheet calculations or estimates, correct and properly documented; and

21.9.2 submitted to the competent bodies within the time limits set.

21.10 Documented procedures shall be in place for the selection and procurement of hardware and software, as well as for the appointment of adequate staff to the IT unit, taking into consideration the current operational needs, the outlook for the size and

nature of business of the credit institution and what the credit institution can afford in order to ensure efficient accounting and IT support on a lasting basis.

21.11 Back-up files shall be provided, to ensure the credit institution's business continuity (Chapter IV, Section A, para. 2.8.2).

21.12 The Bank of Greece expects credit institutions to apply a customer-centred system for monitoring each customer's outstanding loans and deposit transactions and balances, so as to ensure both effective risk management and proper financial reporting to the supervisory authorities, the Hellenic Deposit Guarantee Fund and other bodies.

IT systems

22.1 The operation of IT systems is aimed, on the one hand, at effectively supporting the operational strategy of the credit institution and, on the other hand, at ensuring the safe traffic, processing and storage of crucial operational information. At the same time, credit institutions' increased reliance on IT systems, in conjunction with the outsourcing of crucial IT projects, increases specific risks, notably operational risk. Such risks must be determined, identified in a timely manner and addressed effectively.

22.2 In the context of effective IT risk management, credit institutions shall implement the principles of the IT safe and effective operation framework referred to in Annex 2 hereto.

Compliance

23.1 The credit institution's board of directors shall establish a compliance policy and ensure its effective implementation by carrying out annual assessments. The compliance policy shall aim at:

23.1.1 addressing the consequences from any failure of the credit institution, the companies of its group and the firms to which activities have been outsourced (Annex 1 hereto) to comply with the applicable legal and regulatory framework, as well as the codes of conduct to which credit institutions have acceded; and

23.1.2 managing conflicts of interests. Such assessment shall not include an evaluation of the adequacy and effectiveness of the competent units.

23.2 To implement this policy, a compliance function or unit shall be established, as specified in Chapter V, Section C.

III. BASIC PRINCIPLES AND CRITERIA APPLICABLE AT GROUP LEVEL

1. Credit institutions shall take all necessary measures to effectively incorporate into their group's strategy, in organisational and ICS-related issues, the financial corporations (including insurance companies) that are controlled thereby, within the meaning of Law 2076/1992, as currently in force, or are subject to consolidated supervision according to Presidential Decree (P.D.) 267/1995, as currently in force, and are consolidated using the total or propor-

tional consolidation method. Specifically, they shall ensure that:

1.1 the systems and procedures applied by the above firms, as well as by newly-acquired firms (following mergers and acquisitions), are mutually compatible and adapted to both the needs of the group's organisational structure and the particularities of each company of the group, or a realistic adaptation schedule has been established;

1.2 major risks are monitored and controlled at group level; and

1.3 the above firms have adequate data compilation and reporting procedures for consolidated supervision and for the exercise of the powers provided for hereunder, notably the implementation of the new capital adequacy framework (Basel II).

2. To enhance the effective application of the above general principles, the committees and units provided for by this Act or established by credit institutions themselves shall express their opinion on the selection and appropriateness of the heads of the corresponding units of subsidiaries and evaluate the efficiency of such units.

3. The board of directors of the parent credit institution shall ensure, through proper coordination and agreements, that the supervisory and common strategy powers do not prejudice the responsibilities of the subsidiaries' management bodies and do not lead to unnecessary overlaps. Moreover, it shall allocate responsibilities, take coordination measures and delegate, where necessary, specific powers to the group's companies in relation to the management of major risks, internal control and the compliance function, as well as the implementation of the AML/CFT provisions.

4. It is hereby specified that:

4.1 With respect to non-financial corporations included in credit institutions' consolidated financial statements, the credit institution shall take appropriate measures to ensure the achievement of the objectives of this Act at group level.

4.2 Where the corporations controlled by the credit institution and referred to in para. 4.1 above are located outside Greece, any important incompatibility at group level arising from the application of the domestic provisions of the host country shall not be considered *per se* as a violation of the provisions hereof. However, the Bank of Greece shall be advised of the measures taken by the supervised parent credit institution to address such situations and shall evaluate their appropriateness, notably with respect to AML/CFT issues.

IV. ICS MANAGEMENT BODIES

A. Powers of the board of directors and senior management

1. Irrespective of the credit institution's organisational structure:

1.1 The directors shall have adequate knowledge and experience in at least the most important activities of the credit institution,

so that they can supervise all operations, either directly or through committees established compulsorily or at the discretion of the credit institution under this Act. The credit institution shall ensure that the board of directors includes at least one or, where the condition of para. 2.2 of Section B of this chapter is met, two non-executive and independent directors.

To prevent conflicts of interests, the Bank of Greece considers that credit institutions should adopt the best international practices and principles on corporate governance, notably by segregating the board of directors' executive and supervisory powers, as well as the powers of the board's chairman from the executive powers of the managing director.

2. The board of directors shall be responsible for the consistent application of the provisions of this Act, including the responsibility for:

2.1 the strategic orientation of the credit institution, its review and the adoption of appropriate policies to ensure the adequacy and effectiveness of the ICS;

2.2 ensuring that there are appropriate risk management and compliance policies;

2.3 establishing an environment within the credit institution ensuring that all officers at all hierarchical levels understand both the nature of every risk relating to the activities in which they are engaged or supervise, and the need to address them effectively, recognise the importance of audit procedures and facilitate their implementation;

2.4 approving a Code of Conduct for the credit institution's senior management and staff based on the generally accepted principles (diligence, efficiency, accountability, decency in relationships with the general public, non-acceptance of valuable benefits, observance of banking secrecy etc.);

2.5 providing the senior management and units with all the means required for the performance of their tasks;

2.6 the accuracy of the annual and interim financial statements of the credit institution and the group, on an individual and a consolidated basis respectively, as well as of the data reported to the Bank of Greece and the other supervisory authorities;

2.7 ensuring that the operation of the credit institution is compatible with the regulatory framework, internal rules and the principles of corporate governance by taking proper measures in the selection or replacement of officers in key positions;

2.8 ensuring the existence of documented procedures (assignment and coordination of roles, persons authorised to communicate with the Bank of Greece and/or other authorities, alternative sources for meeting liquidity requirements etc.) that ensure:

2.8.1 coping with contingencies that jeopardise the smooth operation of the credit institution; and

2.8.2 disaster recovery and business continuity.

3. The senior management, understood for the purposes of this Act as the supreme executive body of the credit institution, shall be responsible, *inter alia*, for:

3.1 consistently implementing the operational strategy approved by the board of directors and specifying it by formulating function-specific policies and setting goals for each area of activity, management body and unit, including by:

3.1.1 implementing the risk management policy approved by the board of directors;

3.1.2 delimiting each unit's scope of authority and powers in risk management and evaluating its performance; and

3.1.3 continuously controlling and managing the risks facing the credit institution within the exposure limits approved by the board of directors;

3.2 developing and integrating into day-to-day operations appropriate internal control mechanisms and measures, according to the credit institution's size and nature of activities, as well as regularly evaluating the impact from important malfunctions and the ICS effectiveness in general.

B. Directors' or senior management committees

1. General conditions

1. According to the size of the credit institution and the complexity of its activities, the board of directors shall be assisted in its work by committees to which it may assign ICS-related powers, specifying their duties, composition and rules of procedure and ensuring the coherence, complementarity and coordination of the ICS. The board of directors shall have the ultimate responsibility for these powers, unless the legal provisions expressly provide for an increased degree of independence vis-à-vis the board of directors for specific powers delegated to committees (e.g. the Audit Committee), of which the Bank of Greece shall be informed. The board of directors shall appoint the chairmen of the committees from among its members and shall determine the committees' membership rotation frequency. The relevant decisions shall be recorded in the board's minutes.

2. To ensure a level playing field for credit institutions and effectiveness, without prejudice to the applicable provisions of the legislation on the establishment of committees by the board of directors:

2.1 credit institutions shall establish an Audit Committee (Section 2a of this chapter), provided that:

2.1.1 they have been listed on an organised market; or

2.1.2 they have subsidiaries or branches abroad; or

2.1.3 their assets exceed €100 million.

2.2 A Risk Management Committee (Section 2b of this chapter) shall be established, provided that one of the conditions of paras. 2.1.1 and 2.1.2 above of this chap-

ter are met and that the on- and off-balance-sheet assets of the credit institution exceed €10 billion.

By way of derogation from the above provisions, the credit institution may delegate, after justifying to the Bank of Greece this choice, the powers of the said committee to at least one executive and one non-executive director with adequate knowledge and experience in risk management.

2.3 The credit institution shall not be required to establish a Risk Management Committee where the relevant duties are performed at group level by such a committee that also covers the credit institution.

2.4 Other committees

2.4.1 Credit institutions that do not meet the conditions of paras. 2.1 and 2.2 above shall decide to establish similar bodies after a cost/benefit analysis and according to the principle of effectiveness. The Bank of Greece shall be informed about the bodies established.

2.4.2 Credit institutions may also establish further committees, Executive Committee(s) at the senior management level, delegate further powers to the Risk Management Committee or special powers to the Asset and Liability Committee (ALCO), the Remuneration Committee etc.

2.4.3 The establishment of an IT Steering Committee, which is recommended to be chaired by a senior management member, shall be governed by the provisions of Annex 2 (Chapter A1, para. 2). The board of directors may, at its discretion, delegate the power to evaluate the IT-related risk analysis and management to the said committee or the Risk Management Committee, if any.

2. Powers

a) Audit Committee

1.1 The Audit Committee (AC) shall be appointed by the board of directors and consist of at least three non-executive directors. Of the said three directors, at least one shall be independent, within the meaning of Law 3016/2002, and have adequate knowledge and experience in accounting and auditing.

1.2 In the case of credit institutions that are subsidiaries of credit institutions (established in Greece or abroad), the participation in the AC of executive directors of the parent company, without prejudice to the legislation in force, shall not contravene the above provision.

2.1 The members of the committee shall not hold other posts or carry out transactions that may be considered incompatible with the AC's mandate. Membership of the AC shall not disqualify a director from participating in other directors' committees.

2.2 The chairman of the AC shall have the knowledge and experience required to oversee the auditing procedures and accounting issues handled by the committee. At the same time, the members of the AC shall

have the knowledge and experience required to perform their tasks, including knowledge of the wider environment of the credit institution (in Greece and abroad) and IT systems.

2.3 The operation of the AC shall be governed by a Regulation, which shall set forth the term, membership, rotation frequency, decision-making procedure and main duties, including to:

2.3.1 monitor and evaluate on an annual basis the adequacy and efficiency of the ICS, at the individual and group level, where the credit institution is a parent company, on the basis of the relevant data and information of the IAU, the findings and observations of regular external auditors (certified public accountants) and the supervisory authorities;

2.3.2 oversee and evaluate the procedures (see also powers of the board of directors) for preparing the annual and, if required, interim financial statements of the credit institution and the group according to the applicable accounting standards;

2.3.3 oversee the audit of the credit institution's annual financial statements by the regular external auditors and cooperate with them on a regular basis; in the context of this cooperation, the Committee shall request the auditors to report any problems or weaknesses in the ICS identified by them during the audit of the annual financial statements according to the Greek auditing standards in force;

2.3.4 nominate regular external auditors (i.e. certified public accountants) to the board of directors; the AC shall also recommend, where appropriate, their replacement or rotation;

2.3.5 ensure the independence, according to the legislation in force (currently Article 12 of Law 3148/2003), of the certified public accountants;

2.3.6 recommend measures for addressing the weaknesses identified and follow up the implementation of the measures adopted by the board of directors;

2.3.7 make recommendations on specific areas where additional audits should be carried out by internal or external auditors;

2.3.8 evaluate the work of the IAU, focusing on issues relating to its independence, quality and scope of audits performed, priorities according to changes in the economic environment, systems and risk levels, and its overall operational effectiveness.

3.1 The AC shall meet in regular session at least once per quarter, or in extraordinary session. It may invite to its meetings members of the senior management and any other officer or expert the presence whereof is required in its opinion. The AC shall keep minutes and inform the board of directors in writing on its auditing work.

3.2 The chairman of the AC shall also inform the board of directors on the work of the AC during board meetings.

4.1 Every credit institution shall appoint regularly (at least every three months), on a recommendation from the AC, external auditors (i.e. other than the regular ones) having the experience required to evaluate the adequacy of the ICS on an individual and a consolidated basis, according to the provisions of Annex 3 hereto. The relevant evaluation report shall be communicated to the Bank of Greece (Department for the Supervision of Credit and Financial Institutions) within the first six months after the end of every three-year period. The external auditors that are assigned this task shall change at least after two consecutive evaluations.

4.2 Regular external auditors and external auditors that carry out the triennial evaluation shall be authorised to inform the Bank of Greece under Articles 18 and 21 of Law 2076/1992, as currently in force.

5. The information and findings of the external auditors of the credit institution's financial statements shall be discussed at a trilateral level, between the credit institution, the external auditors and the Bank of Greece, and, in special circumstances, at a bilateral level, between the external auditors and the Bank of Greece (with the credit institutions concerned being informed to this effect), according to the provisions of the applicable Greek Auditing Standard on communication with regulatory and supervisory authorities.

b) Risk Management Committee

1.1 The board of directors shall delegate, according to the provisions of para. 2.2, Section B.1 of Chapter IV, the risk management-related powers to a Risk Management Committee (RMC) (or, alternatively, to two directors, according to the provisions of the second sentence of para. 2.2, Section B1 of Chapter IV), so as to adequately cover all risks, including operational risk, and ensure uniform risk control, specialised risk management and the required coordination at credit institution and group level.

1.2 The RMC shall be appointed by the board of directors and consist of directors with adequate knowledge and experience in risk management, at least one of whom shall be executive and one non-executive.

2.1 The operation of the RMC shall be governed by a Regulation, which shall set forth its term, membership, rotation frequency, decision-making procedure and main duties, including to:

2.1.1 formulate a risk assumption and fund management policy according to the business objectives of the credit institution, at individual and group level, and to technical and human resource requirements;

2.1.2 ensure the development of an internal environment conducive to risk management and incorporate it into business decision-making (e.g. launching and risk-based pricing of products and services, calculation of return on capital, allocation of funds on a risk-sensitive basis) across the activities/units of the credit institution and its subsidiaries;

2.1.3 lay down the principles governing risk management with respect to risk identifica-

tion, forecasting, measurement, monitoring, control and management, in line with the applicable operational strategy and resource requirements; and

2.1.4 receive and evaluate the quarterly reports of the Risk Management Unit (RMU), inform the board of directors on the most important risks assumed by the credit institution and assure it of their effective management; credit institutions not subject to material changes in their activity structure may carry out such evaluation less frequently.

2.2 At all events, however, the RMC shall evaluate on an annual basis:

2.2.1 the adequacy and effectiveness of the credit institution's and the group's risk management policy, notably compliance with the acceptable exposure limits; and

2.2.2 the appropriateness of limits, the adequacy of provisioning and capital adequacy in general, in relation to the size and form of risks assumed, at least on the basis of the annual report of the head of the RMU and the relevant section of the IAU's report (Chapter V, Section (a), para. 2.13.2(b)-(d)).

2.3 The RMC shall carry out, at least on an annual basis, stress tests of market, credit and liquidity risks and (using similar techniques) operational risk.

2.4 The RMC shall make proposals and recommend corrective action to the board of directors if it considers impossible the implementation of the credit institution's risk management strategy or has identified slippages in its implementation.

3. The RMC shall meet in regular session at least once per quarter, or in extraordinary session, and shall invite any members of the senior management or any officer it considers advisable. The RMC shall keep minutes and inform the board of directors in writing about the results of its work.

4. The chairman of the RMC shall also inform the board of directors on the Committee's work during board meetings.

V. UNITS

a. Internal Audit Unit

1. All credit institutions shall establish an Internal Audit Unit (IAU), which shall:

1.1 be administratively independent from executive units, front-line and back-office accounting services; and

1.2 report on its tasks to the board of directors through the AC and, following the establishment of proper conditions ensuring its independence, to the senior management.

2. The main powers of the IAU shall be to:

2.1 conduct audits in order to form an objective, independent and documented opinion on the adequacy and effectiveness of the ICS, at credit institution and group level;

2.2 carry out special audits, where there are indications of damage to the interests of the

credit institution or the group's companies, in order to investigate the matter in depth and verify the extent of the damage, if any;

2.3 conduct audits in order to evaluate the application and effectiveness of the risk management and capital adequacy calculation procedures for the credit institution and, where required, the group's companies, and to carry out use tests;

2.4 confirm to the Bank of Greece the completeness and validity of the above procedures, notably the procedures for assessing the parameters on the basis of which potential loss is estimated;

2.5 evaluate the organisational structure, allocation of powers and duties and human resources management, as well as the extent to which appropriate corporate governance policies and procedures have been established;

2.6 evaluate the work of the internal control sections, if any, within the units of the credit institution and the group's companies;

2.7 evaluate the organisation and operation of the systems and mechanisms for credible, complete and timely financial and managerial reporting, if applicable;

2.8 evaluate the organisation and operation of the IT systems, according to the provisions of Annex 2 (Chapter IV), and accounting systems;

2.9 evaluate the compliance procedures in place;

2.10 evaluate the extent to which the bodies and units of the credit institution and the group's companies:

2.10.1 use effectively the instruments and resources available to them to consistently implement the operational strategy;

2.10.2 observe the duly established guidelines and procedures to systematically monitor and manage all kinds of risks assumed (e.g. establishment and observance of limits);

2.10.3 ensure the completeness and accuracy of the data and information required to prepare reliable financial statements, according to the accounting principles in force; and

2.10.4 ensure the incorporation of the appropriate prudential and *ex-post* controls into all the procedures and operations;

2.11 submit proposals to remedy any weaknesses identified in the ICS and/or improve the existing procedures and practices, so as to fully achieve the ICS objectives;

2.12 follow up the implementation and effectiveness of corrective measures taken by the audited units of the credit institution and the group's companies with a view to adequately addressing the above weaknesses and complying with observations in the reports of any nature (by internal auditors, external auditors, supervisory authorities, tax authorities etc.), and inform the senior management and the AC in this connection;

2.13 reasonably and objectively assure the board of directors and the senior management of the credit institution about the achievement of the ICS objects with respect to the credit institution and the companies of the group led by it; to this end, the IAU shall:

2.13.1 inform in writing the board of directors through the AC and the senior management, at least on a quarterly basis, as well as the competent units of the credit institution on the main findings of the audits and any recommendations;

2.13.2 submit, within the first quarter every year, to the senior management and, through the AC, to the board of directors of the credit institution a report on:

a) the adequacy and effectiveness of the ICS of the credit institution and the group's companies;

b) the effectiveness and observance of risk management procedures and the relevant credit procedures, including the provisioning policy (identifying any uncovered risks);

c) the adequacy of the procedures in relation to the internal evaluation of the credit institution's capital adequacy;

d) the evaluation of the completeness of the procedure or methodology for evaluation of the impairment of loans and other assets and any changes during the year,

as well as the action plan for the next year;

The section of the report that concerns items (b) to (d) above shall also be submitted to the RMC, see Chapter IV, Section B2b, para. 2.2. The said report shall contain at least the corresponding areas/activities referred to in Annex 3 (triennial auditors' report). The sections of the report that concern the audited units shall be communicated thereto immediately so that they may take corrective action.

2.14 provide to the Bank of Greece in writing any data or information requested under the *specific legislation* on credit institutions' supervision (understood as legislation other than the provisions of Law 3016/2002, L.D. 1965/1951, Emergency Law 1965/1951, Law 2076/1992 and Article 55A of the Statute of the Bank of Greece) that concern issues within its scope and shall facilitate in any possible way the Bank of Greece's work. (The provisions of Article 8 of Law 3016/2002 shall apply to the other supervisory authorities.)

3. To exercise its powers effectively, the IAU shall:

3.1 have access to all the activities and units, as well as to all the data and information of the credit institution and the group's companies; and

3.2 have experienced and sufficient full-time staff that shall be employed on an exclusive basis and shall not be subordinate to any other unit of the credit institution; the Bank of Greece may waive the exclusivity requirement in certain categories of credit institu-

tions according to the principle of proportionality.

4. The head of the credit institution's IAU shall:

4.1 be appointed by the board of directors, on a recommendation from the AC, if any; such appointment, as well as any replacement thereof shall be notified to the Bank of Greece (Department for the Supervision of Credit and Financial Insti-tutions); the Bank of Greece may request replacement if it considers that the eligibility or qualification criteria for this position are not met;

4.2 have a sound scientific background and adequate experience in auditing methods and best international practices;

4.3 be employed on an exclusive and full-time basis; the Bank of Greece may waive this requirement in certain categories of credit institutions, taking into account the principle of proportionality;

4.4 ensure that the IAU has the appropriate organisational structure and implements effective policies, procedures and practices that are consistent with the best auditing practices and internal control standards;

4.5 inform *ex post* the competent Bank of Greece bodies on any important changes in the organisation and operation of the IAU;

4.6 supervise and coordinate the activities of the internal control divisions (if any) in the other units of the credit institution and the group's companies; and

4.7 attend the general meetings of the credit institution's shareholders.

5. The IAU shall be responsible for controlling the implementation of outsourcing agreements and for the observance of the relevant procedures (Annex 1 hereto).

b. Risk Management Unit

1. All credit institutions shall have a Risk Management Unit (RMU), the operation of which shall be governed by the following principles:

1.1 it shall be administratively independent from executive units and from front-line and back-office accounting services that use its risk analysis; and

1.2 it shall report on matters within its field of competence to the senior management and the RMC or, through it, to the board of directors.

2. The RMU shall be subject to control by the IAU with respect to the adequacy and effectiveness of risk management procedures.

3. The RMU shall be responsible for the planning, specification and implementation of the risk management and capital adequacy policy, according to the board of directors' guidelines. Specifically, it shall:

3.1 use appropriate methods to manage the risks that the credit institution has assumed or may be exposed to, including by using risk forecasting, identification, measurement, monitoring, hedging, mitigation and reporting models;

3.2 specify (with the cooperation of the competent executive units) the credit institution's exposure limits by identifying/determining specific parameters by kind of risk and category of counterparty, industry, country, currency, credit, financial instrument, share, derivative, business area, function, activity, product, system etc. and monitor their observance, establishing appropriate procedures;

3.3 establish an early warning system for individual and overall portfolios and recommend appropriate procedures and enhanced vigilance measures, permanently and/or regularly, according to the nature of risks;

3.4 recommend to the RMC appropriate risk adjustment measures;

3.5 regularly evaluate the risk identification, measurement and monitoring methods and systems and recommend corrective measures, if appropriate;

3.6 carry out, on an annual basis (using end-of-year or end-of-half-year data), stress tests — on the basis of scenarios specific to the nature of activities of the credit institution and/or according to the instructions of the Bank of Greece — of all kinds of risks, notably credit, market, interest rate and liquidity risk; analyse their results; recommend appropriate policies; and report the findings to the Bank of Greece (Department for the Supervision of Credit and Financial Institutions) within three (3) months from the end of the year or half year;

3.7 prepare the reports required in order to inform the senior management and the board of directors on matters within its field of competence, at least on a quarterly basis; credit institutions not subject to considerable changes in the structure of their activities may do so less frequently; and

3.8 determine the capital requirements and develop methods to estimate them, so as to cover all the risks to which the credit institution is exposed, and recommend risk management policies.

4. To exercise its powers effectively, the RMU shall:

4.1 have access to all activities and units, as well as to all the data and information of the credit institution and the group's companies that are necessary for carrying out its tasks; and

4.2 have qualified, specialised and sufficient full-time staff employed on an exclusive basis.

5. The head of the RMU shall:

5.1 be appointed by the Board of Directors (on a recommendation from the RMC, if any); such appointment and any replacement thereof shall be notified to the Bank of Greece, Department for the Supervision of Credit and Financial Institutions; the Bank of Greece may request a replacement if it considers that the eligibility or qualification criteria for this position are not met;

5.2 have a sound scientific background and adequate experience in risk management

issues and methods and in best international practices;

5.3 participate in decision-making on financing terms not subject to predefined or general parameters;

5.4 submit on an annual basis to the board of directors, through the RMC, a report on matters within the scope of the RMU;

5.5 participate in the preparation and submission of recommendations and proposals directly to the senior management and, through the RMC, to the board of directors on changes in the structure of the bank's portfolios through loan restructuring/settlement and the differentiation of provisioning;

5.6 participate in the supervisory authorities' evaluation of capital adequacy; and

5.7 supervise and coordinate the activities of the risk management sections, if any, in the other units of the credit institution and the group's companies.

c. Compliance Unit

1.1 If the credit institution meets one of the conditions of paras. 2.1.1 and 2.1.2 above of Chapter IV, Section B1, or the sum of on- and off-balance-sheet assets of the credit institution exceed €10 billion, it shall establish a Compliance Unit (CU). Alternatively, the credit institution may assign the relevant duties to authorised officers, subject to approval by the Bank of Greece, which shall consider this possibility on the basis of the complexity of the operations carried out by the credit institution and the risks assumed thereby.

1.2 In all other credit institutions, the aforementioned duties shall be performed by authorised officers.

2. The said unit (or the aforementioned authorised officers) shall report to the senior management; it shall also submit reports on matters within its field of competence, at least on an annual basis, to the board of directors.

3. The said unit (or the aforementioned authorised officers) shall be administratively independent and shall have unhindered access to all the data and information required to carry out its/their mandate. Prevention of any conflict of interests in the performance of its/their duties shall be ensured.

4. The CU (or the aforementioned authorised officers) shall be subject to control by the IAU with respect to the adequacy and effectiveness of the compliance procedures.

5. The Compliance Unit (or Function) shall:

5.1 be headed by a person experienced in banking and investment, whose appointment and replacement shall be communicated to the Bank of Greece, which may, at its discretion, request his/her replacement if it considers that the eligibility or qualification criteria for this position are not met;

5.2 establish and implement appropriate procedures and prepare the relevant annual plan to ensure that the credit institution complies

fully in a timely manner and on a continuing basis with the regulatory framework in force and the credit institution's bylaws and that there is always a complete picture of the progress in the achievement of this objective;

5.3 inform the senior management and the board of directors of the credit institution on any material breach of the regulatory framework or any important deficiencies;

5.4 if the regulatory framework in force is amended, give instructions on the adjustment of the internal procedures and the internal regulatory framework applied by the credit institution's unit and its domestic and foreign branches and subsidiaries; and ensure continuous information of employees on developments in the regulatory framework by establishing appropriate procedures and training programmes;

5.5 coordinate the work of the compliance officers of the credit institution's foreign branches and domestic and foreign subsidiaries, so that all units fully comply with the provisions in force, within the meaning of the provisions of this chapter;

5.6 ensure, through proper procedures, that the deadlines provided for by the regulatory framework are observed and assure the board of directors to this effect; and

5.7 ensure that the credit institution complies with the AML/CFT framework.

The head of the CU may, at the discretion of the credit institution, in the light of effectiveness or cost/benefit considerations, also undertake the specific institutional powers provided for by Law 2331/1995, as amended by Law 3424/2005, and Bank of Greece Circular 16/2 August 2004, as applicable; recommend measures to enhance implementation; and liaise, in matters within his scope, with the competent authorities and the competent bodies of the Bank of Greece by providing the necessary information.

5.8 In this connection, the credit institution shall establish appropriate procedures and standards for reporting suspicious transactions to the competent authorities, as well as procedures for the exchange of information between branches, subsidiaries and the parent company. Instructions shall also be given to cease any operation that may expose the credit institution to operational risk.

VI. DATA REPORTING REQUIREMENTS

1. In addition to the specific reports provided for by this Act (Chapter V, Section (b), para. 3.6), credit institutions shall submit to the Bank of Greece (Department for the Supervision of Credit and Financial Institutions), not later than the end of the first calendar year-half every year (or three-year period, in case 1.4), the following reports, as well as their assessments by the competent committees:

1.1 evaluation of the ICS by the IAU (para. 2.13.2 of Chapter V, Section a), including an evaluation of IT systems;

1.2 evaluation of risk management by the head of the RMU (according to para. 5.4 of Chapter V, Section b);

1.3 evaluation of matters within the scope of the CU (para. 2 of Chapter V, Section c); and

1.4 evaluation of the ICS by external auditors (para. 4.1 of Chapter IV, Section B2a and Annex 3).

2. The above reports shall not relieve credit institutions of their obligation to provide the Bank of Greece auditors, according to the specific provisions on credit institutions (para. 2.14, Section (a), Chapter V), with the necessary data, including committees' or board of directors' minutes, on internal control and portfolio quality issues, so that they may verify compliance with the requirements hereof and the appropriateness of the persons in charge according to the supervisory legislation in force.

VII. AUTHORISATIONS

The Bank of Greece Department for the Supervision of Credit and Financial Institutions is hereby authorised to:

1. provide instructions and clarifications on the implementation of this Act and the Annexes hereto;

2. adjust the limits envisaged for the implementation of specific provisions hereof according to the size, complexity of activities and risks assumed by credit and financial institutions;

3. specify, by annexes and circulars that will be integral parts of this Act, the principles and criteria hereof, adjusting them to the best international practices and the harmonising recommendations of the Committee of European Banking Supervisors (CEBS); and

4. determine, on the basis of the criteria of para. 2 above, the scope of application of individual provisions hereof to cooperative banks and financial institutions, establishing proper conditions.

VIII. SANCTIONS

Any violation of this Act may be punished with sanctions by the Bank of Greece, according to Article 55A of its Statute (in the form of a non-remunerated deposit with the Bank of Greece, a fine in favour of the Greek State, administrative sanctions, as specified by a Bank of Greece Governor's Act or by bodies authorised by the Governor) and Article 22 of Law 2076/1992.

IX. OTHER PROVISIONS

1. The provisions of this Act shall take effect as from 31 May 2006.

2. Specifically, the provisions hereof that concern:

2.1 the requirement to establish a Risk Management Committee and a Compliance Unit (or Function); and

2.2 the basic principles and criteria at group level (Chapter III) may be implemented as from 30 September 2006.

2.3 The IAS shall be implemented by all credit institutions from the year ending on 31 December 2007 (date of transition to the IAS: 1 January 2006).

3. As from the entry into force of the corresponding provisions hereof:

3.1 the provisions of Bank of Greece Governor's Act 2438/6 August 1998, as amended by decisions 154/9/18 July 2003 and 193/1/11 March 2005 of the Banking and Credit Committee, shall be repealed and all references thereto shall be understood as references to this Act; and

3.2 the Annex to decision 193/1/11 March 2005 of the Banking and Credit Committee "Principles of safe and effective operation of IT systems in the context of credit institutions' operational risk management" shall be annexed to this Act as Annex 2 and be an integral part hereof.

ANNEXES*

1. OUTSOURCING

2. PRINCIPLES OF SAFE AND EFFECTIVE OPERATION OF IT SYSTEMS IN THE CONTEXT OF CREDIT INSTITUTIONS' OPERATIONAL RISK MANAGEMENT

3. CONTENT OF AN ICS EVALUATION REPORT BY INDEPENDENT EXTERNAL AUDITORS

* The annexes to this Act are available on the website of the Bank of Greece only in Greek (www.bankofgreece.gr).

* * *

RE: Supplementation of Bank of Greece Governor's Act 1955/2 July 1991, as currently in force, on credit extended by credit institutions to natural or legal persons for purchasing securities (Bank of Greece Governor's Act 2580/15 June 2006)

The Governor of the Bank of Greece, having regard to:

(a) the Statute of the Bank of Greece;

(b) Article 1 of Law 1266/82 "Authorities responsible for the conduct of monetary, credit and exchange rate policies, and other provisions";

(c) Article 2, paras. 9 and 10, of Law 2076/1992, as currently in force;

(d) Articles 7 and 8 of P.D. 51/1992, as currently in force;

(e) Bank of Greece Governor's Act 1955/2 July 1991, Chapter A, para. 1(a)(ii) (as amended by Bank of Greece Governor's Act 2459/17 March 2000), which allows banks to extend credit to natural or legal persons for purchasing shares or other equities, provided that such purchase is aimed at the borrowers' acquiring or maintaining a stake of at least 5% in a company's share capital, or increasing that stake; and

(f) the importance attached by the legislation in force to major corporate shareholders and, with particular regard to credit institutions, to the ten biggest shareholders of each credit institution, pursuant to Article 6 of Law 2076/1992, as currently in force;

has decided as follows:

The provisions of Bank of Greece Governor's Act 1995/2 July 1991, Chapter A, para. 1(a)(ii), as currently in force, shall be supplemented to allow banks to extend credit also to the 10 biggest holders (natural or legal persons) of shares or other equities in a company for purchasing shares or other equities, provided that such purchase is aimed at maintaining or increasing the stake they own in the company's share capital.

The term "biggest shareholders" referred to above shall be defined in accordance with paras. 9 and 10 of Article 2 of Law 2076/1992, as currently in force, and Articles 7 and 8 of P.D. 51/1992, as currently in force.

Statistical section

Tables

Table I.1

Consumer price index

(Percentage changes with respect to the corresponding period of the previous year)

Period	General index	General index excluding food and fuel	General index excluding fresh fruit/vegetables and fuel	Goods	Services	Sub-indices		
						Food and non-alcoholic beverages	Fresh fruit and vegetables	Fuel
2002	3.6	3.6	3.6	3.2	4.3	5.3	13.8	–1.7
2003	3.5	3.1	3.2	3.1	4.2	5.0	10.7	3.9
2004	2.9	3.2	3.3	2.3	3.8	0.5	–11.9	7.5
2005	3.5	3.2	3.1	3.4	3.7	0.6	–8.1	18.0
2004 I	2.7	3.2	3.3	1.8	4.0	3.3	2.6	–5.7
II	2.9	3.2	3.3	2.3	3.9	–0.7	–16.3	11.6
III	2.8	3.4	3.4	2.1	3.9	–1.3	–22.8	9.6
IV	3.2	2.9	3.0	2.9	3.5	0.8	–11.3	15.5
2005 I	3.3	3.5	3.3	3.1	3.6	–0.6	–11.5	15.1
II	3.3	3.1	3.0	3.0	3.8	–0.3	–12.4	18.1
III	3.9	3.1	3.0	4.0	3.6	1.4	–4.1	21.6
IV	3.7	3.0	3.0	3.6	3.7	2.1	–2.2	17.1
2006 I	3.3	2.3	2.5	3.3	3.2	1.9	–5.8	19.6
II	3.2	2.3	2.5	3.6	2.7	3.4	1.3	14.8
2004 Jan.	2.9	3.2	3.2	2.3	3.9	3.5	4.9	–3.0
Feb.	2.5	3.1	3.1	1.5	4.0	3.7	4.7	–8.7
March . .	2.7	3.3	3.4	1.8	4.2	2.8	–1.3	–5.4
Apr.	2.9	3.2	3.2	2.3	3.9	0.4	–10.2	8.3
May	2.9	3.2	3.3	2.4	3.8	–1.0	–17.4	14.9
June . . .	2.8	3.3	3.5	2.1	3.9	–1.5	–20.9	11.7
July	2.9	3.8	3.8	2.2	4.0	–2.5	–28.2	10.0
Aug. . . .	2.7	3.1	3.2	1.9	4.0	–0.7	–20.3	9.2
Sept. . . .	2.8	3.2	3.3	2.2	3.7	–0.7	–19.5	9.5
Oct.	3.2	3.0	3.0	3.1	3.5	0.3	–13.6	17.5
Nov.	3.1	2.9	3.1	2.8	3.6	0.2	–16.2	16.7
Dec. . . .	3.1	2.8	2.9	2.8	3.5	1.9	–4.1	12.1
2005 Jan.	4.0	4.5	4.2	4.3	3.7	0.6	–8.9	10.3
Feb.	3.1	3.2	3.0	2.8	3.6	–0.9	–12.1	16.4
March . .	2.9	2.9	2.7	2.4	3.6	–1.3	–13.1	18.4
Apr.	3.4	3.1	3.0	3.1	3.8	–0.1	–11.0	19.7
May	3.2	3.3	3.2	2.7	4.0	–0.4	–12.3	14.9
June . . .	3.3	3.0	3.0	3.1	3.7	–0.5	–14.1	19.9
July	3.9	3.5	3.3	4.1	3.7	0.7	–7.9	20.0
Aug. . . .	3.7	3.0	2.9	3.8	3.6	1.4	–3.7	20.8
Sept. . . .	3.9	2.9	2.8	4.2	3.6	2.0	–0.7	24.0
Oct.	3.8	3.1	3.0	3.8	3.9	2.7	2.1	17.1
Nov.	3.5	3.0	3.0	3.4	3.7	2.6	1.2	12.5
Dec. . . .	3.6	2.9	2.9	3.7	3.5	1.0	–8.9	22.1
2006 Jan.	3.2	2.0	2.3	3.3	3.2	1.6	–6.3	24.9
Feb.	3.2	2.3	2.5	3.3	3.2	2.0	–4.5	19.2
March . .	3.3	2.6	2.9	3.3	3.3	2.1	–6.7	15.1
Apr.	3.3	2.3	2.6	3.6	2.9	3.8	3.5	14.0
May	3.1	2.1	2.4	3.6	2.6	2.9	–0.7	16.6
June . . .	3.2	2.3	2.6	3.6	2.7	3.5	0.9	13.8

Source: Calculations based on National Statistical Service of Greece (NSSG) data (CPI 1999=100).

Table I.2

Industrial producer price index (PPI) for the domestic and the external market

(Percentage changes with respect to the corresponding period of the previous year)

Period	PPI in industry for the domestic market									PPI in industry for the external market	
				Consumer goods			Energy				
	General index	Inter-mediate goods	Capital goods	Total	Durables	Non-durables	Total	Fuel (oil refinery products)	General index excl. energy	General index	General index excl. energy
2002	2.3	1.3	1.5	3.2	1.8	3.3	2.1	–0.4	2.3	1.1	1.6
2003	2.3	2.3	1.6	2.7	1.0	2.8	1.8	–1.8	2.5	–0.3	–0.6
2004	3.5	3.2	4.5	6.0	2.0	6.2	4.0	4.3	4.7	5.0	1.8
2005	5.9	3.8	2.6	2.5	4.2	2.4	13.2	25.1	3.0	3.7	0.3
2004 I	1.3	1.6	2.3	6.5	1.6	6.7	–3.6	–15.9	4.3	2.3	2.5
II	4.4	3.3	4.8	6.9	1.3	7.2	6.0	11.0	5.3	7.4	3.4
III	4.4	3.6	5.3	6.1	1.3	6.4	6.5	10.8	5.0	6.0	1.8
IV	4.1	4.1	5.4	4.5	3.9	4.6	7.4	14.7	4.3	4.4	–0.4
2005 I	4.6	4.9	4.8	0.8	3.5	0.7	9.9	19.0	2.6	2.7	0.0
II	4.9	3.6	2.2	1.4	4.5	1.2	11.6	21.9	2.3	2.3	–0.6
III	6.3	3.3	1.1	2.2	4.9	2.1	15.8	29.8	2.6	4.5	0.4
IV	7.7	3.5	2.4	5.7	3.9	5.8	15.3	28.7	4.7	5.4	1.3
2006 I	9.2	4.7	1.5	8.8	3.8	9.0	15.4	30.6	6.8	7.0	2.7
2004 Jan.	1.2	1.1	1.4	6.4	1.8	6.7	–3.0	–14.4	4.0	2.4	2.3
Feb. . . .	0.7	1.7	2.1	6.4	1.5	6.7	–5.6	–20.6	4.3	1.3	2.5
March . .	1.8	2.0	3.4	6.5	1.4	6.8	–2.1	–12.4	4.5	3.0	2.6
Apr. . . .	3.9	3.1	4.8	7.0	1.5	7.3	4.3	6.4	5.2	6.8	3.4
May . . .	5.1	3.4	5.2	6.8	1.3	7.1	8.7	18.5	5.3	8.9	3.7
June . . .	4.2	3.3	4.5	7.0	1.3	7.3	5.1	8.3	5.4	6.7	3.2
July	4.3	3.4	5.4	6.6	1.3	6.9	5.3	6.5	5.3	6.0	2.3
Aug. . . .	4.5	3.7	4.8	6.1	1.2	6.3	6.9	10.0	5.1	5.7	2.0
Sept. . . .	4.4	3.6	5.6	5.6	1.4	5.8	7.3	16.3	4.8	6.4	1.2
Oct. . . .	5.2	3.9	5.4	5.3	2.9	5.4	10.3	22.3	4.7	5.8	0.0
Nov. . . .	4.1	4.4	5.4	4.5	4.4	4.6	7.1	12.5	4.4	4.1	–0.5
Dec. . . .	3.0	4.1	5.4	3.8	4.4	3.8	4.6	9.0	3.9	3.1	–0.8
2005 Jan.	3.9	5.3	5.8	0.7	3.3	0.6	7.1	12.5	2.7	2.0	0.1
Feb. . . .	4.6	4.7	5.0	0.8	3.6	0.7	10.0	19.8	2.5	2.9	0.2
March . .	5.3	4.7	3.8	0.9	3.6	0.8	12.6	24.6	2.5	3.1	–0.3
Apr. . . .	5.1	3.8	2.7	1.0	4.3	0.9	12.8	24.9	2.2	2.4	–0.9
May . . .	3.7	3.4	2.3	1.3	4.6	1.1	7.8	13.2	2.1	1.2	–0.6
June . . .	5.7	3.5	1.7	1.8	4.7	1.7	14.3	28.0	2.4	3.3	–0.2
July	5.6	3.5	0.5	1.8	4.7	1.7	13.9	26.9	2.4	3.9	0.2
Aug. . . .	6.0	3.2	1.4	2.1	4.7	2.0	14.9	28.3	2.5	4.4	0.5
Sept. . . .	7.3	3.2	1.3	2.8	5.1	2.7	18.6	34.0	2.8	5.2	0.6
Oct. . . .	7.0	2.9	2.1	4.9	4.4	4.9	14.5	24.3	4.0	4.4	0.8
Nov. . . .	7.0	3.5	2.5	5.1	3.6	5.2	13.6	26.1	4.3	5.3	1.3
Dec. . . .	9.1	4.1	2.5	7.1	3.6	7.2	17.9	36.9	5.7	6.5	1.9
2006 Jan.	9.9	4.3	2.2	9.1	3.4	9.4	17.8	36.2	6.9	7.5	2.5
Feb. . . .	9.5	5.0	1.4	8.7	3.8	8.9	16.2	32.0	6.8	7.2	2.7
March . .	8.3	4.9	0.8	8.5	4.1	8.7	12.3	22.7	6.6	6.4	3.0
Apr. . . .	8.6	6.1	0.7	8.3	3.6	8.5	12.4	22.5	7.0	6.3	3.1
May . . .	9.3	7.9	1.9	7.4	3.2	7.6	14.0	25.9	7.3	6.2	2.8

Source: Calculations based on NSSG data.

Table I.3

Import price index in industry

(Percentage changes with respect to the corresponding period of the previous year)

Period	Import price index in industry								
				Consumer goods			Energy*		
	General index	Intermediate goods	Capital goods	Total	Durables	Non-durables	Total	Crude oil and gas pumping	General index excl. energy
2002	0.3	–0.7	0.1	0.8	–0.4	1.1	–11.4	. . .	0.4
2003	0.7	–1.1	0.8	0.9	–1.4	1.4	11.0	. . .	0.6
2004	3.1	4.4	–0.1	0.6	–1.1	1.0	40.7	. . .	0.8
2005	8.8	2.7	–0.3	1.4	–0.8	1.9	51.2	57.1	1.2
2004 I	–0.1	2.1	–0.1	0.1	–1.2	0.5	7.5	. . .	0.1
II	2.3	4.1	–0.1	1.0	–0.7	1.4	38.9	. . .	1.0
III	4.3	4.9	0.0	0.7	–1.0	1.1	56.4	. . .	1.0
IV	5.8	6.2	–0.3	0.5	–1.4	1.0	64.5	. . .	1.2
2005 I	8.2	4.2	–0.8	1.0	–1.1	1.5	52.6	59.1	1.4
II	8.4	2.5	–0.5	1.2	–1.2	1.8	52.1	58.6	1.1
III	9.8	2.0	–0.2	1.6	–0.7	2.1	55.4	61.7	1.1
IV	8.9	2.0	0.2	1.9	–0.1	2.3	45.6	50.1	1.4
2006 I	7.7	2.5	0.7	2.3	0.5	2.7	33.1	35.0	1.8
2004 Jan.	0.0	1.6	0.3	–0.1	–1.3	0.2	17.4	. . .	–0.1
Feb. . . .	–0.7	2.1	–0.1	0.0	–1.3	0.4	1.4	. . .	0.0
March . .	0.4	2.8	–0.4	0.5	–1.0	0.9	4.8	. . .	0.3
Apr. . . .	1.5	3.7	–0.2	1.0	–0.7	1.5	31.2	. . .	0.8
May . . .	2.9	4.3	0.1	1.1	–0.7	1.5	45.0	. . .	1.1
June . . .	2.5	4.4	0.0	0.9	–0.6	1.2	40.5	. . .	1.0
July	3.6	4.4	0.2	0.9	–0.8	1.3	50.0	. . .	1.0
Aug. . . .	4.2	4.9	0.0	0.6	–1.1	1.0	53.8	. . .	1.0
Sept. . . .	5.3	5.4	–0.2	0.6	–1.2	1.0	65.4	. . .	1.0
Oct. . . .	6.6	5.9	–0.1	0.7	–1.0	1.2	70.6	. . .	1.3
Nov. . . .	5.8	6.2	–0.4	0.5	–1.3	1.0	63.0	. . .	1.2
Dec. . . .	5.1	6.6	–0.5	0.3	–1.9	0.8	59.7	. . .	1.1
2005 Jan.	6.6	4.7	–0.6	0.4	–1.3	0.8	40.0	44.5	1.4
Feb. . . .	9.0	4.3	–1.0	1.4	–1.1	1.9	59.9	67.9	1.5
March . .	9.1	3.7	–0.6	1.2	–1.0	1.7	58.0	65.2	1.4
Apr. . . .	8.4	2.8	–0.6	1.0	–1.2	1.5	53.8	60.2	1.1
May . . .	6.5	2.3	–0.6	1.1	–1.2	1.6	39.1	43.7	0.9
June . . .	10.3	2.5	–0.3	1.5	–1.1	2.1	63.9	72.5	1.2
July	10.3	2.2	–0.4	1.6	–1.0	2.2	60.8	68.4	1.1
Aug. . . .	10.7	1.9	–0.3	1.7	–0.7	2.2	61.6	68.7	1.1
Sept. . . .	8.5	2.1	–0.1	1.6	–0.5	2.0	44.8	49.0	1.2
Oct. . . .	7.9	1.9	–0.1	1.6	–0.7	2.0	39.4	43.0	1.1
Nov. . . .	9.1	2.1	0.3	1.8	–0.2	2.3	46.6	51.9	1.4
Dec. . . .	9.8	2.0	0.5	2.2	0.6	2.6	51.4	56.0	1.6
2006 Jan.	8.8	2.0	0.3	2.8	0.5	3.3	42.2	45.1	1.7
Feb. . . .	7.4	2.6	0.8	2.0	0.5	2.3	31.6	33.1	1.8
March . .	6.8	3.0	0.9	2.0	0.4	2.3	26.6	28.1	2.0
Apr. . . .	7.4	3.9	1.1	2.1	0.5	2.5	28.2	29.7	2.4
May . . .	8.0	5.3	1.0	2.1	0.8	2.4	30.3	31.7	2.7

* Data on the "energy"; item for 2004 are not comparable with those for 2003 because of changes: in the relevant index coverage: before 2004 it did not include the branches "carbon and lignite mining", "crude oil and gas pumping" and "electricity".

Source: Calculations based on NSSG data.

Table I.4

Industrial production index (2000=100)

(Percentage changes with respect to the corresponding period of the previous year)

Period	Industry								
					Main categories of goods				
	General index	Manufacturing	Mining-quarrying	Electricity-gas-water supply	Energy	Intermediate goods	Capital goods	Consumer durables	Consumer non-durables
2002	0.8	–0.1	9.7	1.8	2.3	1.6	–7.2	–15.4	2.3
2003	0.3	–0.4	–5.2	5.8	2.9	–0.4	0.8	–3.6	–1.4
2004	1.2	1.2	0.3	1.4	0.3	1.0	–0.5	1.8	2.7
2005	–0.9	–0.8	–6.2	0.6	0.6	–1.7	–5.1	11.4	–0.9
2004 II.	2.3	3.1	9.3	–3.5	–0.5	4.6	–0.3	19.7	2.4
III	0.9	1.5	–5.7	1.1	–0.5	–0.5	–1.3	2.6	4.4
IV	–0.8	–1.3	–7.5	3.9	0.0	–0.4	–6.7	–12.5	1.0
2005 I	–1.4	–1.0	–12.0	0.6	–2.3	–0.8	–0.4	11.8	–2.1
II.	–2.6	–3.3	–10.2	3.9	–0.9	–3.5	–9.4	6.8	–1.7
III	–0.6	–0.8	–1.1	0.1	1.4	–1.9	–10.0	6.3	0.7
IV	1.3	2.3	–1.0	–1.8	4.2	–0.3	–0.3	21.5	–0.7
2006 I	1.1	1.3	–2.0	1.5	3.6	0.8	–0.8	0.7	–0.7
2003 July	1.9	2.4	–6.0	2.8	3.0	1.6	7.2	1.8	–0.3
Aug.	–2.4	–5.3	–4.1	8.8	6.1	–5.3	1.1	–0.8	–9.7
Sept.	4.9	4.3	–1.4	10.8	10.6	0.8	14.4	–1.8	2.3
Oct.	0.6	–0.5	0.3	6.3	–2.0	1.7	–3.5	2.4	3.2
Nov.	–2.6	–2.8	–11.5	2.0	–4.5	2.4	–6.8	–0.6	–5.0
Dec.	2.5	2.0	14.5	1.0	0.9	5.3	1.5	–2.3	2.3
2004 Jan.	–2.0	–5.0	–1.4	9.9	6.1	–9.8	10.8	–23.5	–4.2
Feb.	2.9	3.2	6.7	0.7	0.7	2.1	5.1	0.0	6.2
March	5.1	5.2	12.0	2.5	0.1	7.7	9.1	16.1	5.9
Apr.	3.8	3.9	13.1	–0.2	–2.2	6.3	2.6	17.2	6.8
May	2.7	4.4	4.7	–6.1	–2.7	6.8	5.6	20.2	1.5
June	0.6	0.9	10.3	–4.0	3.5	0.9	–7.2	21.2	–0.9
July	2.3	2.8	3.9	0.0	0.0	1.3	7.9	12.2	3.5
Aug.	0.5	2.2	–13.8	–0.4	–3.1	–3.6	–4.7	6.5	9.4
Sept.	–0.2	–0.4	–7.3	3.8	1.7	–0.1	–8.4	–8.1	1.1
Oct.	–3.7	–5.1	–2.2	1.9	–3.5	–3.4	–8.3	–13.8	–2.2
Nov.	2.1	2.3	–9.1	5.6	1.8	1.4	1.7	–14.7	4.8
Dec.	–0.5	–0.8	–11.7	4.3	1.4	1.2	–12.1	–8.9	0.8
2005 Jan.	0.4	0.3	–5.1	2.2	1.4	3.7	–8.9	26.0	–3.2
Feb.	1.3	3.2	–9.8	–2.6	–4.7	0.6	21.6	19.0	2.3
March	–5.5	–6.0	–19.6	2.2	–3.5	–5.6	–12.1	–1.7	–5.4
Apr.	–3.2	–3.7	–14.1	3.9	–7.7	–1.8	–5.8	23.1	–1.5
May	–2.1	–3.0	–8.1	5.0	3.4	–5.0	–2.7	2.1	–4.1
June	–2.4	–3.1	–8.5	2.8	1.6	–3.8	–18.7	–2.3	0.6
July	–5.1	–6.4	–9.3	2.0	1.2	–7.7	–15.0	–7.0	–5.4
Aug.	3.5	4.1	4.1	1.5	1.9	5.7	–11.2	18.7	5.8
Sept.	0.5	1.2	3.2	–3.2	1.0	–1.2	–3.6	14.7	2.2
Oct.	3.7	5.5	1.5	–3.1	10.8	0.0	–1.3	18.8	1.7
Nov.	1.4	2.0	–2.0	0.1	3.7	0.8	1.4	30.3	–2.0
Dec.	–1.1	–0.6	–3.0	–2.6	–0.9	–1.8	–0.9	16.0	–2.0
2006 Jan.	1.2	1.5	–8.2	2.7	0.9	1.2	–6.5	2.4	3.5
Feb.	–1.4	–2.7	–1.7	4.4	6.0	–1.9	6.0	–7.4	–6.7
March	3.6	5.1	3.6	–2.8	4.0	3.1	8.8	7.8	1.9
Apr.	–3.0	–1.2	–12.8	–7.7	4.6	–6.6	15.6	–14.7	–9.9
May*	0.6	–0.4	3.1	4.6	2.3	2.4	–10.1	–3.6	0.4

* Provisional data.
Source: NSSG.

Table I.5

Retail sales volume (retail trade turnover at constant prices)

(Percentage changes with respect to the corresponding period of the previous year)

Period	General index	Sub-indices			
		Food-beverages-tobacco	Clothing and footwear	Furniture and fixtures	Books-stationery-other items
2002	4.8	4.5	3.6	4.6	5.3
2003	4.3	5.3	0.9	3.8	7.5
2004	4.5	7.1	1.4	3.9	4.7
2005	3.0	5.6	1.3	0.6	–1.1
2004 I	4.9	6.2	0.6	5.7	6.5
II	5.0	7.8	–1.4	6.1	4.6
III	4.7	8.1	3.2	3.4	5.4
IV	3.5	6.5	3.1	0.9	2.8
2005 I	2.8	8.2	0.3	–4.8	–4.9
II	4.1	4.2	1.4	6.2	0.2
III	3.3	7.3	–0.6	0.4	–1.1
IV	1.8	3.1	3.6	0.9	0.7
2006 I	4.1	8.7	–5.6	2.2	9.0
2003 Oct.	3.2	6.8	–5.7	5.6	1.3
Nov.	6.4	9.3	1.3	2.8	9.5
Dec.	1.4	7.2	–8.7	–2.4	0.4
2004 Jan.	3.0	7.2	–3.8	–3.4	2.2
Feb.	6.5	4.8	5.6	12.9	10.0
March	5.5	6.4	0.2	9.0	8.0
Apr.	5.8	8.6	–3.5	9.7	4.9
May	4.3	6.7	–5.3	7.9	4.5
June	5.0	8.2	5.7	1.3	4.5
July	6.4	13.6	2.5	2.2	3.6
Aug.	3.3	3.4	4.9	4.7	7.9
Sept.	4.3	7.6	2.5	3.4	5.2
Oct.	6.3	9.9	7.9	3.4	4.7
Nov.	2.7	6.1	0.4	–0.4	4.6
Dec.	2.0	4.2	1.8	–0.1	0.1
2005 Jan.	–2.8	6.7	–17.6	–14.8	–8.2
Feb.	4.7	7.4	14.8	–3.0	–4.3
March	6.7	10.7	3.8	4.2	–2.0
Apr.	3.6	2.9	0.5	5.0	–4.6
May	4.9	5.1	3.5	9.1	5.5
June	4.0	4.7	0.4	4.6	0.2
July	4.1	9.3	–2.8	0.5	–1.3
Aug.	3.8	9.3	–0.1	–1.9	–2.6
Sept.	2.1	3.6	1.3	2.4	0.3
Oct.	2.4	2.9	6.1	1.3	–1.5
Nov.	1.6	3.5	0.9	1.6	–2.0
Dec.	1.5	2.8	3.7	–0.1	4.4
2006 Jan.	0.3	4.0	0.3	–8.1	4.0
Feb.	5.9	14.3	–9.6	0.0	8.6
March	6.0	8.0	–5.7	14.0	14.3
Apr.	9.7	12.9	11.0	11.9	7.2

Source: NSSG. Revised index of retail sales volume (on the basis of a new NSSG sample for the year 2000).

Table I.6

Gross value added at basic prices and gross domestic product at market prices

(At previous year's constant prices)

	Annual percentage changes			
	2002	2003	2004	2005
Primary sector (agriculture)	–1.8	–3.5	0.7	–2.1
Secondary sector	2.2	6.3	0.0	1.2
Mining–quarrying, manufacturing, energy	3.1	3.6	–1.4	4.7
Construction	0.7	10.9	2.1	–4.2
Tertiary sector	4.9	4.5	5.1	3.8
Trade, hotels–restaurants, transport–communications	4.2	5.8	6.2	0.7
Financial intermediaries, real estate management and other activities	2.2	3.5	2.3	5.4
Miscellaneous services	8.6	3.6	6.2	6.8
Gross value added at basic prices	3.8	4.3	3.7	2.9
Private consumption	3.6	4.5	4.7	3.7
Public consumption	7.5	–2.1	2.8	3.1
Gross fixed capital formation:	5.7	13.7	5.7	–1.4
Housing	8.8	7.3	–0.6	–1.4
Other construction	0.7	13.2	6.0	–6.1
Equipment	6.9	18.3	8.0	0.5
Other	21.0	3.4	7.0	14.5
Change in stocks and statistical discrepancy (as a percentage of GDP)	0.5	0.4	0.4	0.3
Domestic final demand	5.0	5.5	4.7	2.3
Exports of goods and services	–7.7	1.0	11.5	3.0
Exports of goods	–7.1	4.2	–2.5	8.2
Exports of services	–8.1	–1.3	21.8	–0.1
Final demand	2.7	4.8	5.8	2.4
Imports of goods and services	–0.8	4.8	9.3	–1.2
Imports of goods	3.7	7.7	9.0	–0.1
Imports of services	–18.7	–10.0	11.0	–7.6
GDP at market prices	3.8	4.8	4.7	3.7

Source: NSSG/National Accounts, March 2006. Revised data for 2002-2005.

Table II.1
Balance of payments
(Million euro)

	January – May			May		
	2004	2005	2006*	2004	2005	2006*
I CURRENT ACCOUNT BALANCE (I.A+I.B+I.C+I.D)	**–5,533.1**	**–7,155.9**	**–12,195.7**	**–798.1**	**–703.1**	**–1,930.8**
I.A TRADE BALANCE *(I.A.1– I.A.2)*	***–10,080.4***	***–11,127.4***	***–14,652.2***	***–2,022.8***	***–2,053.7***	***–2,731.2***
Oil	–1,790.8	–2,371.8	–3,630.5	–401.2	–436.1	–408.1
Non-oil	–8,289.6	–8,755.6	–11,021.7	–1,621.6	–1,617.6	–2,323.1
Ships	244.4	–201.0	–1,324.4	75.7	107.2	–324.7
Trade balance excluding oil and ships	–8,534.0	–8,554.6	–9,697.3	–1,697.3	–1,724.8	–1,998.4
I.A.1 *Exports of goods*	*4,898.5*	*5,480.5*	*6,575.1*	*962.9*	*1,229.2*	*1,558.1*
Oil	528.3	660.0	1,239.7	99.3	153.3	329.3
Ships (receipts)	523.3	941.1	764.0	96.5	229.1	202.8
Other	3,846.9	3,879.4	4,571.4	767.1	846.8	1,026.0
I.A.2 *Imports of goods*	*14,978.9*	*16,607.9*	*21,227.3*	*2,985.8*	*3,282.9*	*4,289.3*
Oil	2,319.1	3,031.8	4,870.2	500.5	589.4	737.4
Ships (payments)	118.1	1,169.3	2,088.4	20.8	121.9	527.5
Other	12,541.7	12,406.8	14,268.7	2,464.5	2,571.6	3,024.4
I.B SERVICES BALANCE *(I.B.1–I.B.2)*	***4,008.5***	***4,179.4***	***3,500.4***	***1,381.9***	***1,451.8***	***1,254.1***
I.B.1 *Receipts*	*8,403.8*	*8,888.2*	*8,722.4*	*2,230.3*	*2,444.7*	*2,353.7*
Travel	1,852.0	1,972.0	1,894.4	954.0	985.0	950.0
Transport	5,361.3	5,872.6	5,817.2	1,079.2	1,233.2	1,198.9
Other	1,190.5	1,043.6	1,010.8	197.1	226.6	204.8
I.B.2 *Payments*	*4,395.3*	*4,708.9*	*5,222.1*	*848.4*	*992.9*	*1,099.6*
Travel	809.5	931.0	911.5	194.0	215.0	190.0
Transport	2,269.7	2,469.1	2,844.2	418.5	510.6	595.3
Other	1,316.1	1,308.8	1,466.4	235.9	267.3	314.4
I.C INCOME BALANCE *(I.C.1– I.C.2)*	***–1,539.3***	***–1,775.6***	***–2,607.6***	***–323.4***	***–405.2***	***–691.5***
I.C.1 *Receipts*	*1,128.3*	*1,332.6*	*1,297.6*	*202.5*	*260.1*	*264.6*
Wages, salaries	114.8	111.4	126.4	20.0	20.6	29.3
Interest, dividends, profits	1,013.5	1,221.2	1,171.2	182.5	239.5	235.3
I.C.2 *Payments*	*2,667.6*	*3,108.2*	*3,905.2*	*525.9*	*665.3*	*956.1*
Wages, salaries	72.5	85.2	114.0	17.5	20.2	25.2
Interest, dividends, profits	2,595.1	3,023.1	3,791.1	508.5	645.1	931.0
I.D. CURRENT TRANSFERS BALANCE *(1.D.1-1.D.2)*	***2,078.2***	***1,567.8***	***1,563.7***	***166.2***	***304.0***	***237.9***
I.D.1 *Receipts*	*3,104.8*	*3,240.2*	*3,078.2*	*370.2*	*548.7*	*475.9*
General government (mainly EU transfers)	2,155.0	2,413.0	2,128.6	180.1	355.8	259.0
Other (emigrants' remittances, etc.)	949.8	827.2	949.6	190.1	192.9	216.9
I.D.2 *Payments*	*1,026.6*	*1,672.4*	*1,514.5*	*204.0*	*244.7*	*238.0*
General government (mainly to the EU)	818.6	1,328.2	1,173.9	168.2	161.7	162.3
Other	208.0	344.1	340.6	35.8	83.0	75.7
II CAPITAL TRANSFERS BALANCE (II.1–II.2)	**1,062.8**	**1,025.0**	**1,450.9**	**63.5**	**103.2**	**279.0**
II.1 *Receipts*	*1,128.6*	*1,116.1*	*1,562.0*	*77.6*	*123.1*	*302.9*
General government (EU transfers)	1,068.4	1,040.3	1,486.0	64.9	109.0	288.3
Other	60.3	75.8	76.1	12.8	14.2	14.7
II.2 *Payments*	*65.8*	*91.1*	*111.2*	*14.1*	*19.9*	*23.9*
General government (mainly to the EU)	*9.1*	*7.3*	*10.6*	*2.1*	*1.8*	*1.6*
Other	56.7	83.7	100.6	12.0	18.1	22.4
III CURRENT ACCOUNT AND CAPITAL TRANSFERS BALANCE (I+II)	**–4,470.3**	**–6,130.8**	**–10,744.8**	**–734.6**	**–599.9**	**–1,651.8**
IV FINANCIAL ACCOUNT BALANCE (IV.A+IV.B+IV.C+IV.D)	**4,807.7**	**6,081.4**	**11,052.7**	**1,061.5**	**671.9**	**1,883.6**
IV.A DIRECT INVESTMENT[1]	**549.0**	**58.6**	**892.8**	**–24.9**	**–96.6**	**518.8**
By residents abroad	–351.4	–496.7	–280.7	–80.4	–139.5	–53.3
By non-residents in Greece	900.5	555.3	1,173.5	55.4	42.9	572.1
IV.B PORTFOLIO INVESTMENT[1]	***5,675.3***	***6,926.2***	***6,085.0***	***–3,041.8***	***1,166.9***	***5,330.2***
Assets	–5,172.2	–7,607.5	–5,728.1	–3,237.8	–1,343.6	–496.7
Liabilities	10,847.4	14,533.8	11,813.1	195.9	2,510.4	5,827.0
IV.C OTHER INVESTMENT[1]	***–2,609.6***	***–1,187.4***	***4,216.8***	***4,021.2***	***–438.3***	***–4,011.4***
Assets	–3,701.4	–14,093.3	–6,786.3	1,931.6	–2,709.9	–4,457.8
Liabilities	1,091.8	12,905.9	11,003.1	2,089.6	2,271.6	446.4
(General government loans)	–207.0	440.2	–668.3	–52.6	–69.8	–511.6
IV.D CHANGE IN RESERVE ASSETS[2]	***1,193.0***	***284.0***	***–142.0***	***107.0***	***40.0***	***46.0***
V ERRORS AND OMISSIONS	***–337.4***	***49.5***	***–307.8***	***–326.9***	***–72.1***	***–231.8***
RESERVE ASSETS[3]				***3,412.0***	***1,710.0***	***2,087.0***

1 (+) net inflow, (–) net outflow.
2 (+) decrease, (–) increase.
3 Reserve assets, as defined by the European Central Bank, comprise monetary gold, the reserve position in the IMF, special drawing rights and Bank of Greece claims in foreign currency on non-euro area residents. Excluded are euro-denominated claims on non-euro area residents, claims in foreign currency and in euro on euro area residents and the Bank of Greece share in the capital and reserves of the ECB.
* Provisional data.
Source: Bank of Greece.

Table II.2

Revised nominal exchange rate of the euro, weighted on the basis of Greece's external trade*

(Period averages)

Period	Index (1999 Q1=100)	Percentage changes over:[1]	
		Previous period	Previous year
2001	92.6		
2002	94.3	1.9	1.9
2003	98.8	4.7	4.7
2004	100.3	1.5	1.5
2005	99.6	–0.7	–0.7
2004 I	100.5	0.8	3.0
II	99.6	–0.8	0.5
III	100.0	0.4	1.3
IV	101.0	1.0	1.3
2005 I	100.6	–0.4	0.2
II	99.7	–0.9	0.1
III	99.2	–0.5	–0.8
IV	98.9	–0.3	–2.0
2006 I	98.9	–0.1	–1.7
II	99.8	1.0	0.1
2004 Jan.	100.8	0.4	3.8
Feb.	100.7	–0.2	3.1
March	99.9	–0.7	1.9
Apr.	99.3	–0.6	1.1
May	99.8	0.6	0.2
June	99.8	–0.1	0.1
July	100.0	0.2	0.9
Aug.	99.9	0.0	1.4
Sept.	100.1	0.2	1.7
Oct.	100.6	0.5	1.4
Nov.	101.0	0.4	1.7
Dec.	101.3	0.4	0.9
2005 Jan.	100.8	–0.6	–0.1
Feb.	100.4	–0.4	–0.3
March	100.7	0.3	0.7
Apr.	100.4	–0.3	1.1
May	99.9	–0.5	0.0
June	98.9	–1.0	–0.9
July	99.1	0.2	–0.9
Aug.	99.3	0.2	–0.6
Sept.	99.2	–0.1	–0.9
Oct.	99.1	–0.1	–1.5
Nov.	98.8	–0.3	–2.1
Dec.	98.8	0.0	–2.5
2006 Jan.	99.0	0.2	–1.8
Feb.	98.7	–0.3	–1.7
March	98.9	0.3	–1.7
Apr.	99.3	0.4	–1.0
May	99.9	0.6	0.0
June	100.1	0.2	1.3

* The nominal effective exchange rate (NEER) is the value of a representative basket of foreign currencies, each of which is weighted on the basis of its importance in the country's external trade. Up to end-2000, the NEER of the drachma was calculated weighting the individual bilateral exchange rates of the drachma against the other currencies, as these rates were formulated in the foreign exchange market. On 1 January 2001 Greece adopted the euro. The revised NEER index comprises Greece's 27 major trading partners (including the other 11 euro area countries) and the weights are calculated on the basis of imports and exports of manufacturing goods (categories 5-8 of the Standard International Trade Classification – SITC 5-8) in the period 1999-2001, also taking account of the competition in third countries. This index should not be confused with the effective exchange rate of the euro, which is calculated on the basis of the external trade of the euro area as a whole.

1 Positive values indicate an appreciation of the euro, negative ones a depreciation.

Source: Bank of Greece.

Table II.3

Bilateral exchange rates of the euro*

(Units of national currency per euro, period averages)

Period	US dollar	Percentage change over:		Japanese yen	Percentage change over:		Danish krone	Percentage change over:		Pound sterling	Percentage change over:	
		Previous period	Previous year		Previous period	Previous year		Previous period	Previous year		Previous period	Previous year
2001	0.8956			108.68			7.4521			0.62187		
2002	0.9456	5.6	5.6	118.06	8.6	8.6	7.4305	–0.3	–0.3	0.62883	1.1	1.1
2003	1.1312	19.6	19.6	130.97	10.9	10.9	7.4307	0.002	0.002	0.69199	10.0	10.0
2004	1.2439	10.0	10.0	134.44	2.7	2.7	7.4399	0.1	0.1	0.67866	–1.9	–1.9
2005	1.2441	0.02	0.02	136.85	1.8	1.8	7.4518	0.2	0.2	0.68380	0.8	0.8
2003 I	1.0731	7.4	22.4	127.59	4.2	9.9	7.4305	0.03	–0.02	0.66961	5.3	8.9
II	1.1372	6.0	23.8	134.74	5.6	15.7	7.4250	–0.1	–0.1	0.70169	4.8	11.6
III	1.1248	–1.1	14.3	132.14	–1.9	12.7	7.4309	0.1	0.04	0.69888	–0.4	10.0
IV	1.1890	5.7	19.0	129.45	–2.0	5.7	7.4361	0.1	0.1	0.69753	–0.2	9.7
2004 I	1.2497	5.1	16.5	133.97	3.5	5.0	7.4495	0.2	0.3	0.67987	–2.5	1.5
II	1.2046	–3.6	5.9	132.20	–1.3	–1.9	7.4393	–0.1	0.2	0.66704	–1.9	–4.9
III	1.2220	1.4	8.6	134.38	1.6	1.7	7.4367	–0.03	0.1	0.67216	0.8	–3.8
IV	1.2977	6.2	9.1	137.11	2.0	5.9	7.4343	–0.03	–0.03	0.69507	3.4	–0.4
2005 I	1.3113	1.0	4.9	137.01	–0.1	2.3	7.4433	0.1	–0.1	0.69362	–0.2	2.0
II	1.2594	–4.0	4.5	135.42	–1.2	2.4	7.4463	0.04	0.1	0.67856	–2.2	1.7
III	1.2199	–3.1	–0.2	135.62	0.1	0.9	7.4588	0.2	0.3	0.68344	0.7	1.7
IV	1.1884	–2.6	–8.4	139.41	2.8	1.7	7.4586	–0.004	0.3	0.67996	–0.5	–2.2
2006 I	1.2023	1.2	–8.3	140.51	0.8	2.6	7.4621	0.05	0.3	0.68625	0.9	–1.1
II	1.2582	4.7	–0.1	143.81	2.3	6.2	7.4581	–0.1	0.2	0.68778	0.2	1.4
2004 Jan. . . .	1.2613	2.7	18.7	134.13	1.3	6.4	7.4481	0.1	0.2	0.69215	–1.4	5.3
Feb. . . .	1.2646	0.3	17.4	134.78	0.5	4.8	7.4511	0.04	0.3	0.67690	–2.2	1.1
March .	1.2262	–3.0	13.5	133.13	–1.2	3.9	7.4493	–0.02	0.3	0.67124	–0.8	–1.7
Apr. . . .	1.1985	–2.3	10.5	129.08	–3.0	–0.8	7.4436	–0.1	0.2	0.66533	–0.9	–3.4
May . . .	1.2007	0.2	3.7	134.48	4.2	–1.0	7.4405	–0.04	0.2	0.67157	0.9	–5.8
June . .	1.2138	1.1	4.1	132.86	–1.2	–3.8	7.4342	–0.1	0.1	0.66428	–1.1	–5.4
July . . .	1.2266	1.1	7.9	134.08	0.9	–0.7	7.4355	0.02	0.03	0.66576	0.2	–5.0
Aug. . .	1.2176	–0.7	9.3	134.54	0.3	1.6	7.4365	0.01	0.1	0.66942	0.5	–4.3
Sept. . .	1.2218	0.3	8.9	134.51	–0.02	4.3	7.4381	0.02	0.1	0.68130	1.8	–2.2
Oct. . .	1.2490	2.2	6.8	135.97	1.1	6.1	7.4379	–0.003	0.1	0.69144	1.5	–0.9
Nov. . .	1.2991	4.0	11.0	136.09	0.1	6.5	7.4313	–0.1	–0.1	0.69862	1.0	0.8
Dec. . .	1.3408	3.2	9.1	139.14	2.2	5.1	7.4338	0.03	–0.1	0.69500	–0.5	–1.0
2005 Jan. . . .	1.3119	–2.2	4.0	135.63	–2.5	1.1	7.4405	0.1	–0.1	0.69867	0.5	0.9
Feb. . . .	1.3014	–0.8	2.9	136.55	0.7	1.3	7.4427	0.03	–0.1	0.68968	–1.3	1.9
March .	1.3201	1.4	7.7	138.83	1.7	4.3	7.4466	0.1	–0.04	0.69233	0.4	3.1
Apr. . . .	1.2938	–2.0	7.9	138.84	0.002	7.6	7.4499	0.04	0.1	0.68293	–1.4	2.6
May . . .	1.2694	–1.9	5.7	135.37	–2.5	0.7	7.4443	–0.1	0.1	0.68399	0.2	1.8
June . .	1.2165	–4.2	0.2	132.22	–2.3	–0.5	7.4448	0.01	0.1	0.66895	–2.2	0.7
July . . .	1.2037	–1.0	–1.9	134.75	1.9	0.5	7.4584	0.2	0.3	0.68756	2.8	3.3
Aug. . .	1.2292	2.1	1.0	135.98	0.9	1.1	7.4596	0.02	0.3	0.68527	–0.3	2.4
Sept. . .	1.2256	–0.3	0.3	136.06	0.1	1.2	7.4584	–0.02	0.3	0.67760	–1.1	–0.5
Oct. . .	1.2015	–2.0	–3.8	138.05	1.5	1.5	7.4620	0.05	0.3	0.68137	0.6	–1.5
Nov. . .	1.1786	–1.9	–9.3	139.59	1.1	2.6	7.4596	–0.03	0.4	0.67933	–0.3	–2.8
Dec. . .	1.1856	0.6	–11.6	140.58	0.7	1.0	7.4541	–0.1	0.3	0.67922	–0.02	–2.3
2006 Jan. . . .	1.2103	2.1	–7.7	139.82	–0.5	3.1	7.4613	0.1	0.3	0.68598	1.0	–1.8
Feb. . . .	1.1938	–1.4	–8.3	140.77	0.7	3.1	7.4641	0.04	0.3	0.68297	–0.4	–1.0
March .	1.2020	0.7	–8.9	140.96	0.1	1.5	7.4612	0.01	0.2	0.68935	0.8	1.7
Apr. . . .	1.2271	2.1	–5.2	143.59	1.9	3.4	7.4618	0.01	0.2	0.69463	0.8	1.7
May . . .	1.2770	4.1	0.6	142.70	–0.6	5.4	7.4565	–0.07	0.2	0.68330	–1.6	–0.1
June . .	1.2650	–0.9	4.0	145.11	1.7	9.8	7.4566	0.01	0.2	0.68666	0.5	2.6

* Positive values indicate an appreciation of the euro, negative ones a depreciation.
Sources: Bank of Greece and European Central Bank (ECB).

T a b l e II.3 *(continued)*

Bilateral exchange rates of the euro*

(Units of national currency per euro, period averages)

Period	Swedish krona			Swiss franc			Norwegian krone			Australian dollar			Canadian dollar		
		Percentage change over:			Percentage change over:			Percentage change over:			Percentage change over:			Percentage change over:	
		Previous period	Previous year		Previous period	Previous year		Previous period	Previous year		Previous period	Previous year		Previous period	Previous year
2001	9.26			1.511			8.05			1.732			1.386		
2002	9.16	–1.0	–1.0	1.467	–2.9	–2.9	7.51	–6.7	–6.7	1.738	0.3	0.3	1.484	7.0	7.0
2003	9.12	–0.4	–0.4	1.521	3.7	3.7	8.00	6.6	6.6	1.738	0.02	0.02	1.582	6.6	6.6
2004	9.12	0.001	0.001	1.544	1.5	1.5	8.37	4.6	4.6	1.690	–2.7	–2.7	1.617	2.2	2.2
2005	9.28	1.7	1.7	1.548	0.3	0.3	8.01	–4.3	–4.3	1.632	–3.5	–3.5	1.509	–6.7	–6.7
2003 I	9.18	1.0	0.3	1.466	–0.03	–0.5	7.57	3.4	–3.1	1.809	1.0	6.9	1.620	3.3	15.9
II	9.14	–0.4	–0.2	1.518	3.5	3.6	7.96	5.1	5.8	1.774	–1.9	6.5	1.589	–1.9	11.3
III	9.16	0.2	–0.7	1.545	1.8	5.6	8.25	3.6	11.5	1.709	–3.7	–4.9	1.553	–2.2	1.1
IV	9.01	–1.7	–0.9	1.554	0.6	5.9	8.22	–0.3	12.3	1.662	–2.7	–7.2	1.566	0.8	–0.2
2004 I	9.18	1.9	0.02	1.569	1.0	7.0	8.63	5.0	14.0	1.634	–1.7	–9.7	1.648	5.3	1.7
II	9.14	–0.4	0.03	1.537	–2.0	1.3	8.26	–4.3	3.9	1.691	3.5	–4.7	1.637	–0.7	3.1
III	9.16	0.1	–0.1	1.536	–0.1	–0.6	8.39	1.5	1.7	1.723	1.9	0.8	1.600	–2.3	3.0
IV	9.01	–1.6	0.04	1.533	–0.2	–1.3	8.20	–2.3	–0.3	1.713	–0.5	3.1	1.584	–1.0	1.1
2005 I	9.07	0.7	–1.2	1.549	1.0	–1.3	8.24	0.5	–4.5	1.688	–1.5	3.3	1.608	1.6	–2.4
II	9.21	1.5	0.7	1.544	–0.3	0.4	8.05	–2.3	–2.6	1.639	–2.9	–3.1	1.568	–2.5	–4.3
III	9.37	1.7	2.3	1.553	0.6	1.1	7.88	–2.1	–6.0	1.605	–2.0	–6.8	1.467	–6.4	–8.3
IV	9.47	1.1	5.1	1.547	–0.4	0.9	7.88	–0.04	–3.9	1.598	–0.4	–6.7	1.396	–4.9	–11.9
2006 I	9.35	–1.3	3.1	1.559	0.8	0.7	8.02	1.8	–2.6	1.627	1.8	–3.6	1.389	–0.4	–13.6
II	9.30	–0.6	1.0	1.563	0.3	1.3	7.83	–2.4	–2.7	1.684	3.5	2.7	1.411	1.5	–10.0
2004 Jan. . . .	9.14	1.3	–0.4	1.566	0.7	7.1	8.59	4.3	17.2	1.637	–1.5	–10.1	1.635	1.3	–0.1
Feb. . . .	9.18	0.4	0.3	1.573	0.5	7.2	8.78	2.1	16.3	1.626	–0.7	–10.2	1.682	2.9	3.2
March .	9.23	0.6	0.1	1.567	–0.4	6.6	8.54	–2.7	8.9	1.637	0.7	–8.8	1.631	–3.0	2.3
Apr. . . .	9.17	–0.8	0.1	1.555	–0.8	3.9	8.30	–2.8	5.9	1.614	–1.4	–9.4	1.607	–1.5	1.4
May . . .	9.13	–0.4	–0.3	1.540	–0.9	1.6	8.21	–1.1	4.3	1.703	5.5	–4.7	1.654	2.9	3.3
June . .	9.14	0.2	0.3	1.519	–1.4	–1.4	8.29	1.0	1.5	1.748	2.6	–0.4	1.649	–0.3	4.4
July . . .	9.20	0.6	0.1	1.527	0.5	–1.3	8.48	2.3	2.2	1.714	–2.0	–0.3	1.622	–1.6	3.4
Aug. . .	9.19	–0.1	–0.6	1.539	0.8	–0.1	8.33	–1.7	0.9	1.715	0.1	0.2	1.601	–1.3	2.8
Sept. . .	9.09	–1.0	0.3	1.543	0.3	–0.3	8.36	0.3	2.0	1.740	1.5	2.5	1.577	–1.5	2.9
Oct. . .	9.06	–0.3	0.6	1.543	–0.03	–0.4	8.23	–1.5	0.1	1.705	–2.0	1.1	1.560	–1.1	0.7
Nov. . .	9.00	–0.7	0.05	1.522	–1.4	–2.4	8.14	–1.1	–0.7	1.687	–1.1	3.2	1.554	–0.4	1.2
Dec. . .	8.98	–0.2	–0.5	1.536	1.0	–1.2	8.22	1.0	–0.3	1.746	3.5	5.0	1.633	5.1	1.3
2005 Jan. . . .	9.05	0.7	–1.0	1.547	0.7	–1.2	8.21	–0.1	–4.4	1.715	–1.8	4.7	1.606	–1.7	–1.8
Feb. . . .	9.09	0.4	–1.0	1.550	0.2	–1.5	8.32	1.3	–5.2	1.667	–2.8	2.5	1.613	0.4	–4.1
March .	9.09	0.04	–1.6	1.549	–0.05	–1.1	8.19	–1.6	–4.1	1.681	0.8	2.7	1.606	–0.4	–1.5
Apr. . . .	9.17	0.9	0.02	1.547	–0.1	–0.5	8.18	–0.1	–1.5	1.674	–0.4	3.7	1.599	–0.5	–0.5
May . . .	9.19	0.3	0.7	1.545	–0.2	0.3	8.08	–1.2	–1.5	1.657	–1.0	–2.7	1.594	–0.3	–3.6
June . .	9.26	0.8	1.3	1.539	–0.4	1.3	7.89	–2.3	–4.7	1.587	–4.2	–9.2	1.511	–5.2	–8.4
July . . .	9.43	1.8	2.5	1.558	1.2	2.0	7.92	0.3	–6.5	1.600	0.8	–6.6	1.473	–2.5	–9.2
Aug. . .	9.34	–0.9	1.7	1.553	–0.3	0.9	7.92	–0.05	–5.0	1.614	0.9	–5.8	1.482	0.6	–7.4
Sept. . .	9.33	–0.1	2.7	1.550	–0.2	0.4	7.81	–1.4	–6.6	1.601	–0.8	–8.0	1.445	–2.5	–8.3
Oct. . .	9.42	0.9	4.0	1.549	–0.04	0.4	7.83	0.3	–4.9	1.594	–0.4	–6.5	1.415	–2.1	–9.3
Nov. . .	9.56	1.5	6.3	1.545	–0.3	1.5	7.83	–0.1	–3.8	1.603	0.6	–5.0	1.394	–1.4	–10.3
Dec. . .	9.43	–1.4	5.0	1.548	0.2	0.7	7.97	1.8	–3.0	1.598	–0.3	–8.5	1.378	–1.2	–15.6
2006 Jan. . . .	9.31	–1.3	2.9	1.549	0.1	0.2	8.04	0.8	–2.1	1.615	1.1	–5.8	1.402	1.8	–12.7
Feb. . . .	9.34	0.3	2.8	1.558	0.6	0.5	8.06	0.3	–3.1	1.610	–0.3	–3.4	1.372	–2.2	–14.9
March .	9.40	0.6	3.4	1.569	0.7	1.3	7.98	–1.0	–2.6	1.654	2.7	–1.6	1.392	1.4	–13.4
Apr. . . .	9.33	–0.7	1.8	1.575	0.4	1.8	7.84	–1.7	–4.1	1.666	0.7	–0.5	1.405	1.0	–12.1
May . . .	9.33	–0.04	1.5	1.556	–1.2	0.7	7.80	–0.5	–3.5	1.671	0.3	0.9	1.417	0.9	–11.1
June . .	9.23	–1.0	–0.3	1.560	0.2	1.4	7.86	0.7	–0.5	1.710	2.3	7.7	1.409	–0.6	–6.8

* Positive values indicate an appreciation of the euro, negative ones a depreciation.
Sources: Bank of Greece and European Central Bank (ECB).

Table III.1

Monetary aggregates of the euro area[1,2]

(Outstanding balances in billion euro, not seasonally adjusted)

End of period	Currency in circulation (1)	Overnight deposits (2)	**M1** (3)=(1)+(2)	Deposits with an agreed maturity of up to 2 years (4)	Deposits redeemable at notice of up to 3 months (5)	**M2** (6)=(3)+(4)+ +(5)	Repurchase agreements (repos) (7)	Money market fund units (8)	Money market paper and debt securities with an initial maturity of up to 2 years (9)	**M3**[3] (10)=(6)+(7)+ +(8)+(9)
2001	239.7	2,039.2	2,279.0	1,088.8	1,316.6	4,684.4	218.5	398.0	145.9	5,446.8
2002	341.2	2,158.3	2,499.4	1,075.7	1,406.3	4,981.4	226.9	470.5	127.6	5,806.4
2003	397.9	2,329.2	2,727.1	1,039.2	1,529.6	5,295.8	208.7	581.5	92.7	6,178.7
2004	468.4	2,480.5	2,948.9	1,040.5	1,642.9	5,632.3	228.8	604.9	102.3	6,568.2
2005	532.8	2,936.8	3,479.6	1,124.3	1,550.0	6,153.9	221.9	615.8	129.8	7,121.5
2004 Jan.	389.1	2,313.8	2,702.9	1,021.7	1,547.2	5,271.7	214.6	591.7	95.6	6,173.6
Feb.	393.5	2,309.8	2,703.3	1,016.4	1,553.8	5,273.5	228.6	599.2	97.0	6,198.4
March . .	399.6	2,345.9	2,745.5	1,005.6	1,559.1	5,310.2	219.4	602.6	94.5	6,226.7
Apr.	409.4	2,361.3	2,770.7	1,006.3	1,567.5	5,344.5	225.5	611.0	99.5	6,280.5
May	416.6	2,372.0	2,788.7	1,015.4	1,573.4	5,377.4	221.9	609.0	96.2	6,304.5
June	423.0	2,410.4	2,833.4	989.0	1,585.6	5,408.0	217.7	609.2	100.1	6,335.0
July	436.2	2,398.6	2,834.8	1,000.4	1,593.3	5,428.5	223.0	613.0	97.8	6,362.3
Aug.	433.4	2,362.3	2,795.7	1,003.5	1,598.9	5,398.0	226.0	624.1	99.2	6,347.3
Sept.	438.0	2,419.1	2,857.1	993.1	1,600.9	5,451.1	217.6	609.5	100.4	6,378.4
Oct.	444.4	2,421.6	2,866.0	1,019.4	1,605.0	5,490.4	230.7	617.1	99.0	6,437.1
Nov.	448.7	2,465.0	2,913.7	1,003.7	1,611.5	5,528.9	225.1	613.5	103.1	6,470.5
Dec.	468.4	2,480.5	2,948.9	1,040.5	1,642.9	5,632.3	228.8	604.9	102.3	6,568.2
2005 Jan.	459.9	2,506.1	2,966.0	1,015.4	1,655.9	5,637.3	228.7	616.4	99.2	6,581.7
Feb.	463.6	2,506.6	2,970.1	1,013.0	1,660.3	5,643.4	227.0	615.4	114.1	6,599.9
March . .	471.8	2,525.8	2,997.6	1,017.7	1,665.2	5,680.4	227.0	614.5	106.1	6,628.0
Apr.	481.1	2,550.0	3,031.1	1,034.8	1,672.5	5,738.4	226.3	627.8	121.0	6,713.4
May	485.8	2,578.3	3,064.1	1,035.7	1,678.7	5,778.4	239.2	634.8	113.5	6,766.0
June	496.6	2,808.0	3,304.5	1,027.4	1,520.2	5,852.1	238.9	621.3	118.5	6,830.8
July	506.4	2,814.7	3,321.1	1,042.5	1,525.7	5,889.4	238.6	635.1	119.2	6,882.3
Aug.	500.9	2,767.7	3,268.7	1,054.3	1,530.0	5,853.0	249.2	639.7	120.7	6,862.6
Sept.	507.1	2,815.4	3,322.5	1,078.4	1,532.0	5,933.0	234.4	631.5	120.0	6,918.8
Oct.	510.5	2,838.8	3,349.3	1,088.7	1,532.2	5,970.3	241.4	629.0	121.5	6,962.0
Nov.	514.5	2,864.0	3,378.5	1,086.5	1,531.3	5,996.3	239.3	629.7	130.0	6,995.3
Dec.	532.8	2,946.8	3,479.6	1,124.3	1,550.0	6,153.9	221.9	615.8	129.8	7,121.5
2006 Jan.	520.9	2,930.2	3,451.0	1,114.4	1,567.0	6,131.8	237.0	608.4	144.0	7,121.2
Feb.	524.9	2,921.0	3,445.9	1,135.5	1,570.3	6,151.0	235.0	610.2	153.4	7,149.6
March . .	532.3	2,937.8	3,470.0	1,161.7	1,571.1	6,202.8	236.1	603.3	162.7	7,202.4
Apr.	540.3	2,983.2	3,523.5	1,201.9	1,569.4	6,294.8	249.8	613.3	164.5	7,322.4
May* . . .	543.4	3,002.4	3,545.8	1,189.5	1,568.5	6,303.9	259.4	620.9	175.3	7,359.5

1 Monetary aggregates comprise monetary liabilities of MFIs and central government (Postal Savings Bank, Ministry of Finance) vis-à-vis non-MFI euro area residents excluding central government.
2 Euro area-11 up to end-2000. Euro area-12 from 1 January 2001 onwards.
3 M3 and its components exclude non-euro area residents' holdings of money market fund units, money market paper and debt securities with an initial maturity of up to 2 years.
* Provisional data.
Source: ECB.

Table III.2

Greek contribution to the main monetary aggregates of the euro area

(Outstanding balances in billion euro, not seasonally adjusted)

End of period	Overnight deposits (1)	Sight deposits and current accounts (1.1)	Savings deposits (1.2)	Deposits with an agreed maturity of up to 2 years (2)	Deposits redeemable at notice of up to 3 months[1] (3)	Repurchase agreements (repos) (4)	Money market fund units (5)	Debt securities of up to 2 years (6)	Total[2] (M3 excluding currency in circulation) (7)=(1)+(2)++(3)+(4)++(5)+(6)
2001	70.8	16.1	54.7	29.4	2.4	24.2	9.7	0.1	136.7
2002	71.7	15.2	56.5	28.9	2.3	20.0	10.7	0.2	133.8
2003	79.5	17.6	61.9	32.3	2.0	10.8	15.7	0.5	140.8
2004	91.7	20.7	71.0	33.4	1.9	9.5	15.2	0.5	152.3
2005	99.2	24.8	74.4	51.8	4.4	2.7	4.9	0.4	163.4
2004 Jan.	79.5	17.2	61.6	32.5	2.1	10.6	15.2	0.5	139.7
Feb.	79.6	17.3	62.3	32.1	2.1	10.5	15.2	0.5	139.9
March . .	82.1	17.8	64.3	31.8	2.1	9.5	15.8	0.4	141.6
Apr.	81.4	17.8	63.6	33.5	2.2	9.1	15.9	0.4	142.5
May	82.5	17.0	65.5	32.2	2.1	8.9	15.6	0.4	141.8
June	84.9	18.3	66.6	32.4	2.1	9.4	15.8	0.4	145.0
July	85.5	18.3	67.2	33.0	2.1	9.3	15.9	0.4	146.2
Aug.	84.9	17.7	67.2	33.2	2.1	9.6	15.8	0.4	146.1
Sept.	86.0	18.7	67.3	33.4	2.1	10.5	15.3	0.5	147.8
Oct.	86.4	18.9	67.5	33.6	2.0	10.4	15.4	0.5	148.2
Nov.	87.5	19.6	67.9	33.8	2.0	10.1	15.3	0.5	149.1
Dec.	91.7	20.7	71.0	33.4	1.9	9.5	15.2	0.5	152.3
2005 Jan.	90.4	19.8	70.6	37.8	2.0	5.6	14.9	0.5	151.2
Feb.	91.9	20.8	71.1	39.4	2.0	4.4	14.6	0.5	152.8
March . .	90.9	20.4	70.6	41.0	2.0	4.2	14.2	0.4	152.6
Apr.	91.1	20.2	70.9	42.3	2.6	3.8	13.0	0.5	153.4
May	91.5	20.2	71.2	42.6	2.8	4.1	12.5	0.5	153.9
June	96.8	23.9	72.9	42.2	3.1	3.7	10.9	0.4	157.2
July	93.8	21.8	72.0	44.4	3.3	3.3	10.7	0.4	155.9
Aug.	93.5	21.2	72.3	45.6	3.6	3.3	10.1	0.3	156.4
Sept.	94.8	22.5	72.3	46.2	3.9	3.3	7.3	0.4	155.9
Oct.	95.5	23.2	72.3	49.2	4.1	2.6	6.2	0.4	158.0
Nov.	94.9	23.1	71.8	50.6	4.5	2.7	5.5	0.4	158.6
Dec.	99.2	24.8	74.4	51.8	4.4	2.7	4.9	0.4	163.4
2006 Jan.	95.8	22.7	73.1	53.8	4.4	2.6	4.7	0.4	161.7
Feb.	95.3	22.6	72.7	55.1	4.5	2.5	4.7	0.4	162.5
March . .	95.3	22.7	72.6	56.8	4.1	2.5	4.6	0.5	163.9
Apr.	95.6	22.3	73.3	57.9	4.0	2.4	4.6	0.6	165.1
May	95.8	22.6	73.2	59.0	3.7	2.4	4.9	0.6	166.5

1 Including savings deposits in currencies other than the euro.

2 The Greek M3 (as any other euro area national M3) can no longer be accurately calculated, since part of the quantity of euro banknotes and coins that have been put into circulation in a euro area country is held by residents of other euro area countries and/or by non-residents. Due to these technical problems, the compilation of the Greek M0, M1, M2 and M3 was interrupted in January 2003.

Source: Bank of Greece.

Table III.3

Greece: deposits of domestic firms and households with OMFIs,[1] by currency and type

(Outstanding balances in million euro, not seasonally adjusted)

End of period	Total deposits	By currency		By type		
		Deposits in euro[2]	Deposits in other currencies	Sight deposits	Savings deposits	Time deposits[3]
2001	101,809.5	79,566.0	22,243.5	13,385.2	58,323.1	30,101.1
2002	104,761.1	87,732.3	17,028.8	13,367.3	60,406.1	30,987.7
2003	115,750.1	98,119.3	17,630.8	15,395.8	65,141.1	35,213.2
2004	128,424.6	110,206.7	18,217.9	18,274.2	73,954.2	36,196.1
2005	156,857.7	135,797.3	21,060.4	22,180.2	79,800.8	54,876.1
2004 Jan.	114,996.0	96,977.6	18,018.4	14,874.7	64,645.4	35,476.0
Feb.	115,491.9	97,036.0	18,455.9	15,089.7	66,332.2	34,070.0
March	117,571.4	98,647.3	18,924.1	15,479.0	67,322.0	34,770.4
Apr.	118,835.4	99,526.4	19,309.0	15,687.6	66,697.8	36,450.0
May	118,645.4	99,905.7	18,739.7	14,995.6	68,548.9	35,100.9
June	120,997.2	102,774.4	18,222.8	16,078.1	69,641.4	35,277.7
July	122,396.3	103,778.5	18,617.8	16,368.9	70,186.6	35,840.9
Aug.	122,065.6	103,347.9	18,717.7	15,579.5	70,397.0	36,089.1
Sept.	123,471.3	104,687.8	18,783.6	16,727.8	70,396.8	36,346.7
Oct.	123,971.8	105,394.3	18,577.5	16,840.4	70,593.6	36,537.8
Nov.	124,875.8	106,408.6	18,467.2	17,304.0	70,903.5	36,668.3
Dec.	128,424.6	110,206.7	18,217.9	18,274.2	73,954.2	36,196.1
2005 Jan.	131,749.7	114,232.0	17,517.7	17,586.6	73,515.5	40,647.6
Feb.	134,088.9	116,771.1	17,317.8	17,866.2	74,096.0	42,126.7
March	134,801.8	116,303.2	18,498.7	17,521.9	73,527.1	43,752.9
Apr.	136,854.8	118,087.9	18,766.9	17,333.7	74,453.1	45,068.0
May	137,472.3	118,223.8	19,248.5	17,189.9	75,046.6	45,235.8
June	142,951.8	123,548.2	19,403.6	20,868.4	77,036.6	45,046.9
July	142,705.3	122,700.2	20,005.1	19,144.9	76,318.4	47,241.9
Aug.	143,733.0	123,239.3	20,493.7	18,436.6	76,764.9	48,531.5
Sept.	146,180.7	125,211.8	20,968.9	19,789.0	77,143.1	49,248.6
Oct.	150,136.2	129,055.6	21,080.6	20,542.2	77,351.8	52,242.2
Nov.	151,140.9	129,736.1	21,404.8	20,228.8	77,297.6	53,614.4
Dec.	156,857.7	135,797.3	21,060.4	22,180.2	79,800.8	54,876.7
2006 Jan.	155,334.6	134,509.7	20,824.9	20,097.8	78,361.8	56,875.1
Feb.	156,125.0	134,733.6	21,391.4	19,797.5	78,114.4	58,213.2
March	157,740.9	136,352.9	21,388.0	20,229.3	77,611.2	59,900.5
Apr.	158,730.2	137,689.9	21,040.3	19,707.4	78,160.7	60,862.1
May	159,942.6	138,812.0	21,130.6	20,063.9	77,829.2	62,049.5

1 Other Monetary Financial Institutions (OMFIs) comprise credit institutions (other than the Bank of Greece) and money market funds.

2 Including (until 31 December 2001) deposits in drachmas and the other euro legacy currencies.

3 Including blocked deposits.

Source: Bank of Greece.

Table III.4

Domestic MFI loans to domestic enterprises and households, by branch of economic activity

(Balances in million euro)

End of period	Grand total	Businesses						Households			
		Total	Agri-culture	Industry[1]	Trade	Tourism	Other	Total	Housing	Consumer	Other
2001	74,027.4	50,198.7	3,724.2	12,614.9	15,524.3	2,171.3	16,164.0	23,828.7	15,652.2	7,852.0	324.5
2002	86,510.5	55,012.2	3,224.7	14,364.0	15,670.8	2,903.2	18,849.5	31,498.3	21,224.7	9,755.4	518.2
2003	101,178.1	60,979.3	3,082.7	15,865.1	16,514.4	3,488.2	22,028.9	40,198.8	26,534.2	12,409.6	1,255.0
2004	117,201.7	65,566.3	3,248.0	15,675.6	18,821.6	4,040.0	23,781.1	51,635.4	33,126.8	17,053.8	1,454.8
2005	136,981.1	71,282.9	2,954.0	15,753.8	19,958.4	4,189.8	28,426.9	65,698.2	43,199.4	20,850.0	1,648.8
2004 Jan	102,748.9	61,939.3	3,055.4	16,005.1	16,822.7	3,536.8	22,519.3	40,809.6	26,902.8	12,690.8	1,216.0
Feb	103,899.7	62,373.0	3,042.0	15,948.2	17,060.8	3,587.7	22,734.3	41,526.7	27,334.5	13,041.9	1,150.3
March . . .	105,263.2	62,632.0	3,095.5	15,831.8	17,012.4	3,661.6	23,030.7	42,631.2	27,894.2	13,442.3	1,294.7
Apr	106,447.1	62,865.3	3,150.5	15,734.1	17,134.7	3,703.2	23,142.8	43,581.8	28,465.8	13,798.6	1,317.4
May	108,835.0	64,279.3	3,242.6	15,950.4	17,773.5	3,766.9	23,545.9	44,555.7	29,080.6	14,169.3	1,305.8
June	109,806.8	64,817.5	3,324.8	15,831.1	17,952.6	3,801.5	23,907.5	44,989.3	29,035.7	14,585.6	1,368.0
July	111,624.2	65,449.6	3,348.0	15,997.2	18,214.6	3,862.7	24,027.1	46,174.6	29,822.1	14,985.2	1,367.3
Aug.	111,905.0	64,948.0	3,376.4	15,740.2	18,062.7	3,841.8	23,926.9	46,957.0	30,244.2	15,327.8	1,385.0
Sept.	113,392.1	65,419.2	3,402.8	15,743.6	18,335.8	3,865.3	24,071.7	47,972.9	30,832.5	15,722.9	1,417.5
Oct	114,868.1	65,943.5	3,397.8	15,988.2	18,687.8	3,987.5	23,882.2	48,924.6	31,404.7	16,114.1	1,405.8
Nov.	115,636.5	65,492.4	3,303.2	15,755.2	18,612.8	3,930.4	23,890.8	50,144.1	32,138.9	16,580.3	1,424.9
Dec.	117,201.7	65,566.3	3,248.0	15,675.6	18,821.6	4,040.0	23,781.1	51,635.4	33,126.8	17,053.8	1,454.8
2005 Jan.	118,387.3	65,985.6	3,237.8	15,645.2	18,921.1	4,079.3	24,102.2	52,401.7	33,672.4	17,275.8	1,453.5
Feb	118,906.4	65,521.9	3,161.6	15,623.8	19,104.7	4,129.9	23,501.9	53,384.5	34,281.6	17,610.7	1,492.2
March . . .	120,704.9	66,096.9	3,079.3	15,565.9	19,309.8	4,180.8	23,961.1	54,608.0	35,091.5	17,995.6	1,520.9
Apr	123,037.2	67,097.9	3,059.3	15,926.1	19,565.9	4,211.2	24,335.4	55,939.3	35,878.7	18,550.0	1,510.6
May	124,228.8	67,257.5	3,038.1	15,872.9	19,520.5	4,225.7	24,600.3	56,971.3	36,610.2	18,896.4	1,464.7
June	125,452.3	68,474.1	3,096.1	15,918.8	20,142.8	4,293.7	25,022.7	56,978.2	36,102.8	19,386.6	1,488.8
July	127,215.3	69,613.6	3,119.2	16,123.2	20,352.3	4,135.7	25,883.2	57,601.7	37,238.6	18,897.0	1,466.1
Aug.	127,788.5	69,212.3	3,123.3	15,838.2	20,027.5	4,110.4	26,112.9	58,576.2	37,850.0	19,245.1	1,481.1
Sept.	129,507.9	69,305.5	2,939.4	15,674.2	19,985.6	4,073.7	26,632.6	60,202.4	39,022.1	19,628.5	1,551.8
Oct	131,111.7	69,462.4	2,884.1	15,757.2	19,905.6	4,089.4	26,826.1	61,649.3	40,000.4	20,080.7	1,568.2
Nov.	133,136.0	69,791.5	2,919.6	15,712.5	19,717.1	4,184.2	27,258.1	63,344.5	41,244.2	20,511.7	1,588.6
Dec.	136,981.1	71,282.9	2,954.0	15,753.8	19,958.4	4,189.8	28,426.9	65,698.2	43,199.4	20,850.0	1,648.8
2006 Jan	137,731.3	70,999.2	2,948.7	15,690.0	19,672.8	4,205.7	28,482.0	66,732.1	44,010.6	21,047.7	1,673.8
Feb	139,714.7	71,491.8	2,957.3	15,747.6	19,389.1	4,248.8	29,149.0	68,222.9	44,873.8	21,637.5	1,711.6
March . . .	142,633.3	72,960.5	3,086.1	15,955.2	19,843.2	4,356.4	29,719.6	69,672.8	45,919.6	22,045.2	1,708.0
Apr	144,593.1	73,944.8	3,098.7	16,399.3	20,160.3	4,352.3	29,934.2	70,648.3	46,612.7	22,344.3	1,691.3
May	145,477.5	74,372.3	3,105.7	16,661.9	19,876.8	4,377.7	30,350.2	71,105.2	46,539.9	22,815.5	1,749.8

1 Comprising manufacturing and mining.

Source: Bank of Greece.

Table III.5
ECB and Bank of Greece interest rates

(Percentages per annum)

1. ECB interest rates				2. Bank of Greece interest rates				
With effect from[1]	Deposit facility	Main refinancing operations[3]	Marginal lending facility	With effect from	Overnight deposit facility, first tier[4]	Overnight deposit facility, second tier[4]	14-day intervention rate	Lombard rate
1999 1 Jan.	2.00	3.00	4.50	**1999** 14 Jan.	11.50	9.75	12.00	13.50
4 Jan.[2]	2.75	3.00	3.25	21 Oct.	11.00	9.75	11.50	13.00
22 Jan.	2.00	3.00	4.50	16 Dec.	10.25	9.25	10.75	12.25
9 Apr.	1.50	2.50	3.50	27 Dec.	10.25	9.00	10.75	11.50
5 Nov.	2.00	3.00	4.00					
2000 4 Feb.	2.25	3.25	4.25	**2000** 27 Jan.	9.50	8.50	9.75	11.00
17 March	2.50	3.50	4.50	9 March	8.75	8.00	9.25	10.25
28 Apr.	2.75	3.75	4.75	20 Apr.	8.00	7.50	8.75	9.50
9 June	3.25	4.25	5.25	29 June	7.25	–	8.25	9.00
28 June[3]	3.25	4.25	5.25	6 Sept.	6.50	–	7.50	8.25
1 Sept.	3.50	4.50	5.50	15 Nov.	6.00	–	7.00	7.75
6 Oct.	3.75	4.75	5.75	29 Nov.	5.50	–	6.50	7.25
				13 Dec.	4.75	–	5.75	6.50
				27 Dec.	3.75	–	4.75	5.75
2001 11 May	3.50	4.50	5.50					
31 Aug.	3.25	4.25	5.25					
18 Sept.	2.75	3.75	4.75					
9 Nov.	2.25	3.25	4.25					
2002 6 Dec.	1.75	2.75	3.75					
2003 7 March	1.50	2.50	3.50					
6 June	1.00	2.00	3.00					
2005 6 Dec.	1.25	2.25	3.25					
2006 8 March	1.50	2.50	3.50					
15 June	1.75	2.75	3.75					

1 From 1 January 1999 to 9 March 2004, the date refers to the deposit and marginal lending facilities. For main refinancing operations, changes in the rate are effective from the first operation following the date indicated. The change on 18 September 2001 was effective on that same day. From 10 March 2004 onwards, the date refers to the deposit and marginal lending facilities and to the main refinancing operations (changes effective from the first main refinancing operation following the Governing Council discussion), unless otherwise indicated.

2 On 22 December 1998 the ECB announced that, as an exceptional measure between 4 and 21 January 1999, a narrow corridor of 50 basic points would be applied between the interest rate for the marginal lending facility and that for the deposit facility, aimed at facilitating the transition of market participants to the new monetary regime.

3 Until 21 June 2000: fixed-rate tenders, from 28 June 2000: minimum bid rate in variable rate tenders.

4 On 29 June 2000 the second tier of the deposit facility was abolished; the interest rate thereafter applies to the unified deposit acceptance account.

Sources: ECB and Bank of Greece.

Table III.6
Greek government paper yields

(Percentages per annum, period averages)

Period	Yield on one-year Treasury bills	Yield on government bonds						
		3-year	5-year	7-year	10-year	15-year	20-year	32-year
2001	4.08	4.28	4.58	4.82	5.30	5.51	5.76	. . .
2002	3.50	4.06	4.45	4.78	5.12	5.24	5.52	. . .
2003	2.34	2.82	3.37	3.83	4.27	4.32	4.91	. . .
2004	2.27	2.87	3.37	3.81	4.26	4.53	4.77	. . .
2005	2.33	2.65	2.92	3.22	3.59	3.80	3.92	4.14
2004 Jan.	2.21	2.71	3.34	3.81	4.37	4.33	4.94	. . .
Feb.	2.17	2.91	3.28	3.90	4.35	4.28	4.91	. . .
March	2.06	2.71	3.26	3.71	4.17	4.43	4.75	. . .
Apr.	2.16	2.90	3.45	3.90	4.35	4.72	4.88	. . .
May	2.30	3.08	3.63	4.07	4.49	4.86	5.01	. . .
June	2.41	3.19	3.73	4.15	4.55	4.89	5.03	. . .
July	2.36	3.07	3.61	4.03	4.44	4.79	4.93	. . .
Aug.	2.30	2.91	3.43	3.85	4.28	4.63	4.78	. . .
Sept.	2.37	2.91	3.40	3.79	4.22	4.56	4.70	. . .
Oct.	2.32	2.76	3.25	3.65	4.11	4.47	4.61	. . .
Nov.	2.33	2.66	3.12	3.53	3.97	4.33	4.47	. . .
Dec.	2.30	2.59	2.98	3.36	3.77	4.10	4.24	. . .
2005 Jan.	2.31	2.72	2.96	3.29	3.69	3.99	4.12	. . .
Feb.	2.31	2.80	2.97	3.34	3.69	3.94	4.04	. . .
March	2.34	2.88	3.06	3.56	3.92	4.12	4.24	4.49
Apr.	2.27	2.70	3.06	3.37	3.76	3.98	4.11	4.38
May	2.19	2.55	2.89	3.21	3.60	3.82	3.95	4.21
June	2.10	2.35	2.70	3.02	3.44	3.66	3.79	4.05
July	2.17	2.42	2.75	3.06	3.46	3.71	3.84	4.10
Aug.	2.22	2.49	2.79	3.07	3.47	3.69	3.82	4.08
Sept.	2.22	2.42	2.66	2.92	3.30	3.52	3.64	3.91
Oct.	2.41	2.66	2.88	3.11	3.45	3.64	3.75	4.00
Nov.	2.69	2.91	3.15	3.36	3.67	3.84	3.94	4.14
Dec.	2.78	2.95	3.14	3.31	3.57	3.73	3.82	4.02
2006 Jan.	2.84	2.99	3.17	3.32	3.60	3.71	3.79	3.98
Feb.	2.91	3.09	3.30	3.50	3.77	3.86	3.94	4.14
March	3.11	3.38	3.50	3.74	3.95	4.02	4.11	4.29
Apr.	3.22	3.61	3.72	4.01	4.23	4.32	4.41	4.60
May	3.31	3.63	3.80	4.05	4.30	4.38	4.48	4.69
June	3.41	3.70	3.93	4.07	4.31	4.41	4.50	4.72

Source: Bank of Greece.

Table III.7

Greece: bank rates on new euro-denominated deposits of euro area residents

(Percentages per annum, period averages, unless otherwise indicated)

Period	Deposits by households			Deposits by non-financial corporations		
	Overnight[1,2]	Savings[2]	With an agreed maturity of up to 1 year	Overnight[2]	With an agreed maturity of up to 1 year	Repurchase agreements (repos)
2003	0.93	0.92	2.48	0.63	2.49	2.24
2004	0.91	0.90	2.29	0.55	2.17	1.98
2005	0.91	0.88	2.23	0.60	2.09	2.00
2004 Jan.	0.88	0.86	2.26	0.55	2.18	1.99
Feb.	0.88	0.87	2.18	0.57	2.17	1.98
March	0.89	0.87	2.29	0.54	2.13	1.95
Apr.	0.89	0.88	2.26	0.56	2.13	1.97
May	0.90	0.89	2.24	0.56	2.23	1.95
June	0.91	0.90	2.29	0.54	2.16	1.97
July	0.91	0.91	2.32	0.56	2.18	1.97
Aug.	0.92	0.91	2.31	0.60	2.19	1.96
Sept.	0.93	0.92	2.33	0.53	2.12	1.97
Oct.	0.94	0.93	2.35	0.53	2.17	1.98
Nov.	0.95	0.94	2.36	0.51	2.18	2.00
Dec.	0.96	0.94	2.30	0.55	2.20	2.01
2005 Jan.	0.96	0.95	2.25	0.56	2.08	1.97
Feb.	0.95	0.94	2.19	0.55	2.07	1.97
March	0.93	0.91	2.22	0.55	2.02	1.97
Apr.	0.89	0.86	2.22	0.55	2.07	1.98
May	0.89	0.87	2.20	0.56	2.04	1.99
June	0.89	0.86	2.21	0.58	2.07	1.99
July	0.88	0.86	2.20	0.60	2.07	1.98
Aug.	0.89	0.86	2.19	0.59	2.08	1.98
Sept.	0.89	0.87	2.19	0.70	2.09	1.98
Oct.	0.89	0.87	2.22	0.65	2.10	1.97
Nov.	0.90	0.87	2.27	0.65	2.11	1.99
Dec.	0.91	0.88	2.39	0.71	2.32	2.18
2006 Jan.	0.93	0.90	2.44	0.69	2.33	2.23
Feb.	0.93	0.90	2.45	0.65	2.35	2.25
March	0.99	0.95	2.58	0.73	2.57	2.42
Apr.	0.98	0.95	2.63	0.73	2.61	2.50
May	0.98	0.95	2.66	0.73	2.57	2.47

1 Weighted average of the current account rate and the savings deposit rate.
2 End-of-month rate.
Source: Bank of Greece.

Table III.8

Greece: bank rates on new euro-denominated loans to euro area residents

(Percentages per annum, period averages, unless otherwise indicated)

Period	Loans to households[1]					Loans to non-financial corporations[1]		
		Consumer loans		Housing loans			With a floating rate or an initial rate fixation of up to 1 year	
	Loans without defined maturity[2,3]	With a floating rate or an initial rate fixation of up to 1 year	Average rate on total consumer loans	With a floating rate or an initial rate fixation of up to 1 year	Average rate on total consumer loans	Loans without defined maturity[3,4]	Up to €1 million	Over €1 million
2003	14.41	10.57	10.47	4.51	4.78	6.86	5.29	3.98
2004	13.81	9.55	9.86	4.30	4.51	7.01	4.98	3.67
2005	13.36	8.47	9.06	4.06	4.15	6.90	5.08	3.62
2004 Jan.	13.92	9.82	9.94	4.36	4.68	6.74	5.12	3.92
Feb.	13.97	9.94	9.99	4.35	4.63	6.85	5.16	4.09
March	14.00	9.44	9.87	4.37	4.63	7.13	4.88	3.45
Apr.	14.06	9.56	9.85	4.36	4.55	7.11	5.15	3.49
May	13.79	9.82	10.07	4.33	4.54	7.02	4.91	3.45
June	13.89	9.71	10.05	4.30	4.54	7.06	4.89	3.58
July	13.84	9.60	9.67	4.24	4.43	7.03	4.84	3.53
Aug.	13.77	9.70	10.05	4.34	4.53	7.06	4.95	3.52
Sept.	13.62	9.37	9.91	4.23	4.43	7.05	4.87	3.80
Oct.	13.72	9.68	9.87	4.29	4.45	7.02	4.86	3.83
Nov.	13.75	9.40	9.72	4.23	4.36	7.05	5.06	3.61
Dec.	13.41	8.58	9.36	4.21	4.37	6.97	5.04	3.77
2005 Jan.	13.42	8.85	9.39	4.23	4.39	6.95	4.89	3.54
Feb.	13.72	8.99	9.62	4.20	4.34	6.95	5.08	3.53
March	13.51	8.53	9.43	4.15	4.27	6.94	5.00	3.70
Apr.	13.74	8.58	9.37	4.13	4.23	6.94	5.09	3.58
May	13.63	8.88	9.13	4.12	4.21	6.89	4.96	3.47
June	13.48	8.16	8.78	4.07	4.18	6.87	4.82	3.46
July	13.14	8.45	9.35	4.06	4.14	6.82	5.01	3.50
Aug.	13.16	8.48	9.39	4.11	4.18	6.84	5.12	3.50
Sept.	13.23	8.36	8.79	3.99	4.05	6.82	5.06	3.57
Oct.	13.07	8.32	8.68	3.94	4.01	6.85	5.06	3.79
Nov.	13.09	8.28	8.56	3.88	3.93	6.93	5.41	3.84
Dec.	13.07	7.78	8.26	3.86	3.91	7.00	5.41	3.93
2006 Jan.	13.18	7.77	8.30	3.92	4.00	6.94	5.26	3.70
Feb.	13.18	8.06	8.51	3.89	3.97	6.99	5.44	3.74
March	13.22	8.09	8.44	3.92	4.02	7.13	5.50	4.15
Apr.	13.24	7.82	8.48	3.93	4.08	7.09	5.57	3.92
May	13.22	7.84	8.66	4.00	4.15	7.10	5.61	4.17

1 Charges are not included.
2 Weighted average of interest rates on loans to households through credit cards, open loans and current account overdrafts.
3 End-of-month rate.
4 Weighted average of interest rates on corporate loans through credit lines and sight deposit overdrafts.
Source: Bank of Greece.

Table IV.1

Net borrowing requirement of central government on a cash basis[1,2,3]

(Million euro)

	Year		January - June		
	2004	2005	2004	2005	2006*
Central government	**15,605**	**14,424**	**10,142**	**11,613**	**7,642**
– State budget	15,377	14,793	11,195	13,064	8,901
(Ordinary budget)[4]	8,841	10,033[6]	8,474	12,306	8,252[7]
(Public investment budget)	6,536	4,760	2,721	758	648
– OPEKEPE[5]	228	–369	–1,053	–1,451	–1,259
Percentage of GDP	**9.3**	**8.0**	**6.0**	**6.4**	**3.9**

1 This table shows the borrowing requirement of central government on a cash basis. The borrowing requirement of public organisations is calculated by the NSSG on the basis of detailed data collected directly from these entities, in the framework of a special quarterly survey concerning their financial results (revenue-expenditure) and their financial situation (loans, investment in securities, deposits etc.).

2 As shown by the movement of relevant accounts with the Bank of Greece and credit institutions.

3 Excluding the repayment of debts of the Greek government to the Social Insurance Institute (IKA) through bond issuance (Law 2972/2001, Article 51). These debts amounted to €3,927.9 million and were repaid in three instalments (2002: €1,467.4 million, 2003: €1,549.5 million and 2004: €911 million).

4 Including the movement of public debt management accounts.

5 Payment and Control Agency for Guidance and Guarantee Community Aid. It replaced DIDAGEP (Agricultural Markets Management Service) as of 3 September 2001.

6 Including a grant of about €2,586 million to hospitals, expenditure of €1,055.2 million for the capital increase of the Agricultural Bank of Greece, as well as receipts of €1,090 million from the sale of 16.4% of OPAP shares and €826 million from the sale of 10% of OTE shares.

7 Including €110.5 million from National Telecommunications and Post Commission (EETT) revenue settlement, €299.3 million from the decrease in the capital of the Greek Postal Savings Bank, €323 million from the sale of Agricultural Bank of Greece (ATE) shares and €535 million from the sale of Greek Postal Savings Bank shares.

* Provisional data and estimates.

Source: Bank of Greece.

Table IV.2
Financing of borrowing requirement of central government
(Million euro)

	Year				January - June					
	2004		2005		2004		2005		2006*	
	Amount	Percentage of total	Amount	Percentage of total	Amount	Percentage of total	Amount	Percentage of total	Amount	Percentage of total
Treasury bills and government bonds[1,2]	16,829	107.8	15,325	106.2	15,358	151.4	13,329	114.8	10,529	137.8
Change in balances of central government accounts with the credit system[3]	–901	–5.8	–1,224	–8.5	–5,705	–56.3	–1,931	–16.6	–1,519	–19.9
External borrowing[4]	–323	–2.1	323	2.2	489	4.8	215	1.9	–1,368	–17.9
Total	**15,605**	**100.0**	**14,424**	**100.0**	**10,142**	**100.0**	**11,613**	**100.0**	**7,642**	**100.0**

1 Comprising domestically issued Treasury bills and government bonds as well as bonds convertible into equity.
2 Excluding government bond issuance for the repayment of debts to IKA (Law 2972/2001, Article 51). Also see footnote 3 in Table IV.1.
3 Comprising changes in central government accounts with the Bank of Greece and other credit institutions, as well as the change in the OPEKEPE account.
4 Comprising government borrowing abroad and securities issuance abroad, as well as the change in government deposits with foreign banks. Excluding non-residents' holdings of domestically issued government bonds.
* Provisional data.
Source: Bank of Greece.

Table IV.3
State Budget results
(Million euro)

	Year			Percentage change		January - May			Percentage change	
	2004	2005	Budget for 2006	2005/04	Budget for 2006/05	2004	2005	2006*	2005/04	2006/05
I. REVENUE[1]	44,949	47,523	52,240[4]	5.7	9.9	17,678	18,417	20,494	4.2	11.3
1. Ordinary budget	42,055	47,758	48,750[4]	6.4	8.9	16,584	17,251	18,815	4.0	9.1
2. Public investment budget	2,894	2,765	3,490	–4.5	26.2	1,094	1,166	1,679	6.6	44.0
(Own revenue)	83	121	90	45.8	–25.6	...	...	...	–	–
(Revenue from the EU)	2,811	2,644	3,400	–5.9	28.6	...	...	...	–	–
II. EXPENDITURE[1]	57,810	58,124	60,790	0.5	4.6	24,295	24,581	24,119	1.2	–1.9
1.1 Ordinary budget	48,288	50,606	52,390	4.8	3.5	21,372	22,801	22,206	6.7	–2.6
(Interest payments and other expenditure)[2]	9,464	9,774	9,600	3.3	–1.8	5,846	6,651	5,575	13.8	–16.2
1.2 Ordinary budget primary expenditure	38,824	40,832	42,790	5.2	4.8	15,526	16,150	16,631	4.0	3.0
2. Public investment budget	9,522	7,518	8,400	–21.0	11.7	2,923	1,780	1,913	–39.1	7.5
III. STATE BUDGET RESULTS	–12,861[3]	–10,600	–8,550[4]			–6,617	–6,164	3,625		
Percentage of GDP	–7.7	–5.9	–4.4			–3.9	–3.4	–1.9		
1. Ordinary budget	–6,233	–5,848	–3,640			–4,788	–5,560	–3,391		
2. Public investment budget	–6,628	–4,753	–4,910			–1,829	–614	–234		
IV. PRIMARY SURPLUS	–3,397	–826	1,050			–771	487	1,950		
Percentage of GDP	–2.0	–0.5	0.5			–0.5	–0.3	1.0		
AMORTISATION PAYMENTS[2]	20,356	20,738	18,136	1.9	–12.5	11,771	10,615	8,099	–9.8	–23.7
MINISTRY OF NATIONAL DEFENCE PROGRAMMES FOR THE PROCUREMENT OF MILITARY EQUIPMENT[2]	1,792	1,400	1,500	–21.9	7.1	334	272	457	–18.6	68.0

1 For comparability purposes, tax refunds are included in expenditure and have not been deducted from revenue.
2 From 2003 onwards, interest and amortisation payments are recorded in the off-budget item "Ministry of National Defence Programmes for the procurement of military equipment".
3 Including a grant of €220 million to OTE's personnel insurance fund (TAP-OTE).
4 Including extraordinary receipts of €1,100 million from dividend yields, the sale of concession rights and the settlement of National Telecommunications and Post Commission revenue from fines and licences.
* Provisional data.
Source: General Accounting Office.

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