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Determinants of bank interest rates and comparisons between Greece and the euro area*

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1. Introduction

Since the mid-1990s, bank interest rates in Greece have recorded a significant decline. The rate on loans without a defined maturity to enterprises, for instance, stood at 7.35% at the end of 2006, compared with 26.40% at the end of 1994. Similarly, the rate on savings deposits fell to 1.09% at the end of 2006, from 15.10% at the end of 1994. This development in bank interest rates was largely related to the Greek economy's nominal convergence process in view of the country's participation in Stage III of EMU, while for the period after the country's entry into the monetary union it reflects the monetary stability that Greece benefits from as a member of the euro area. At the same time, interest rate developments have been affected by the process of deregulation of the banking system, which was completed in this period – a step that was to some extent necessary for the country to qualify for EMU entry. Specifically, the elimination of the public sector's privileged access to the banking system and the alignment of the framework regarding banks' minimum reserves deposited with the Bank of Greece with that of the Eurosystem have removed these cost elements that previously weighed on the bank intermediation process.

However, despite the significant decline in interest rates and the single monetary policy pursued throughout the euro area, bank interest rates in Greece in general continue to stand above euro area averages, and in fact the differential in the

* The authors would like to express their gratitude to Heather Gibson, Isaac Sabethai and George Simigiannis for their helpful comments. The article reflects the views of the authors and not necessarily those of the Bank of Greece.



case of some banking products is considerable. For instance, in consumer loans without a defined maturity the differential of the Greek rate over the euro area average was 3.77 percentage points at the end of 2006, while in consumer loans with a fixed rate for a period of more than one and up to five years it was 2.85 percentage points.¹ It must be noted of course that rates higher than the euro area average are also observed in other members of the monetary union^{2,3} and that the differentials of the Greek rates over the euro area rates are generally on a downward path. Whereas rates on deposits in Greece are also higher than in the euro area, the interest rate spread⁴ in the Greek banking system is wider (by 1.53 percentage points at the end of 2006), although this margin has shrunk in recent years.⁵

The persistence of the Greek rates and interest rate spread above euro area levels has fuelled a public debate, as it implies a higher bank intermediation cost compared with the average in the monetary union, with possible implications for the consumption and investment decisions of households and enterprises, and by extension for growth, perhaps even for income distribution within the economy. The present study aims at contributing to this discussion, by presenting a review of the literature on the determinants that shape bank interest rates and rate spreads internationally, and by attempting to identify factors that may explain the differentials between the Greek and the corresponding euro area rates.

The following section reviews the major theoretical approaches proposed in the literature for the determination of interest rate spread levels. The third section goes through the key determinants of rates and rate spreads cited in the theoretical

and empirical literature and attempts to relate them to the Greek experience. The fourth section makes specific reference to the rate differentials among the euro area countries, while the fifth section presents some concluding remarks.

2. Theoretical approaches for the determination of the interest rate spread

The theoretical approaches that have been proposed in the international literature on the determination of bank interest rates generally fall within the domain of the theory of industrial organisation. From this perspective, banks are seen not as one industry – as is the case e.g. in monetary theory (Freixas and Rochet, 1997) – but as independent firms that respond to the external financial environment. Moreover, banks are thought to operate – simultaneously – as buyers

1 These differentials are mentioned here indicatively, since to some extent they reflect the different compositions of the specific loan categories in Greece and the euro area average as regards the individual products they comprise (e.g. loans through credit cards and credit lines).

2 See European Central Bank (2006a).

3 Interest rate differentials have also been recorded within individual countries – see e.g. Jappelli (1987) on interest rate differentials between North and South Italy, as well as the historical study by Eichengreen (1984) on the States of the US at the end of the 19th century. However, more recently a much lower interest rate dispersion is detected among the States of the US than among the countries of the euro area – see European Central Bank (2005a), pp. 127-28).

4 The interest rate spread is defined as the difference between the weighted average interest rate on the total of bank loans and the respective interest rate on the total of bank deposits. In general however, the interest rate spread is measured as the difference between interest income and interest expenses, as a percentage of the average interest-bearing assets (interest rate margin). Although the two terms are not necessarily identical, following the practice usually observed in the literature (see e.g. Ho and Saunders, 1981; Wong, 1997; and Saunders and Schumacher, 2000) they are used here interchangeably.

5 In the five-year period between 2001 and 2005 the interest rate spread narrowed by 1.21 percentage points – see Bank of Greece (2006b).

of deposits and sellers of loans, and therefore their decisions about the levels of deposit and lending rates are directly interconnected.⁶ Thus, the focus of attention is the study of the factors that shape the difference between these two rates, i.e. the interest rate spread. At the same time, owing mainly to the considerable entry barriers that characterise the banking industry, approaches based on markets that operate under conditions of imperfect competition (see e.g. Klein, 1971; and Monti, 1972) are considered to be more appropriate for the study of banking firms compared with models that assume perfectly competitive markets.

Two basic theoretical paradigms have been proposed in the literature for the determination of interest rate spreads, the dealership model and the microeconomic model of the banking firm. The dealership model was originally used for studying the differential between ask and bid prices set by stock market dealers (see e.g. Stoll, 1978). Ho and Saunders (1981) used this model to study the determination of the interest rate spread, viewing the bank as an intermediary between the financial entities supplying funds and those demanding them. During this intermediation the bank faces uncertainty as it cannot know the exact level of deposits it will receive or of loans it will be called on to extend, nor the precise timing of this supply and demand of funds. Given that the bank determines its rates at the start of each period, this uncertainty entails a cost for it: if in the end the demand for loans exceeds the supply of deposits, the bank will have to obtain liquidity from the money market at a higher cost; conversely, if the supply of deposits finally exceeds the demand for loans, it will be forced to channel this excess liquidity to the money market earning a lower rate.

Therefore, according to the dealership model, the existence of the interest rate spread is essentially a result of the uncertainty banks face when they accept deposits or extend loans at each particular point in time, and of the cost this uncertainty implies. The same model argues that the optimum interest rate spread depends on: (i) the structure of the banking market (i.e. the degree of competition that characterises the particular market); (ii) the volume of banking transactions (i.e. the average level of deposits and loans); (iii) the volatility of the interest rates; and (iv) the degree to which the bank's management is risk averse.⁷

The Ho and Saunders (1981) model provides a simple, yet well-grounded theoretical framework that accounts for the interest rate spread and is empirically readily applicable, but nevertheless has important limitations. In particular, this model takes no account of the credit risk inherent in loans or the "production" cost entailed by the intermediation process,⁸ and also assumes that the bank accepts only one type of deposit and offers only one type of loan. Later studies tackle the shortcomings of this original model through more comprehensive variations of the dealership model. More specifically, Allen (1988) presents an extension of the above model in which the bank offers numerous types of deposits and loans. Her model shows that the dispersion of the uncertainty-associated risk across more banking prod-

⁶ Alternatively, it may be considered that banks make decisions regarding the level of the deposits they will receive and the loans they will extend, given the demand they are faced with.

⁷ The dealership model assumes that the bank's management exhibits some degree of risk aversion. This assumption has been extensively established in the literature (see e.g. McShane and Sharpe, 1985; and Angbazo, 1997).

⁸ Criticism of the absence of the production cost from the model propounded by Ho and Saunders (1981) was expressed by Lerner (1981).



ucts reduces the interest rate spread that such uncertainty can justify. McShane and Sharpe (1985) propose a dealership model where the interest-rate risk stems from the volatility of the rate in the money market and not of the deposit or lending rates as in the Ho and Saunders (1981) model. Angbazo (1997) introduces credit risk as well in this approach; while Maudos and Fernández de Guevara (2004) also take into account the bank's operating cost in the intermediation process.

The other basic approach⁹ proposed for the determination of interest rate spreads involves, as mentioned above, the microeconomic model of the banking firm. Zarruk (1989) used this approach seeing the bank as a firm that seeks to maximise the expected utility of its profits. The advantage of this approach is that it easily allows the model to include the cost of banking operations. In Zarruk's model the bank faces uncertainty as to the level of deposits it will be offered, while the demand for loans function is known. Aside from the risk associated with this uncertainty, this model does not take into account any other banking risks, a fact held by Wong (1997) to be the reason why Zarruk's conclusions contrast with the theoretical and empirical results of Ho and Saunders (1981). Correspondingly, in the model by Zarruk and Madura (1992), which also adopts this approach, the sole source of uncertainty is the – unknown – probability of the borrower's default on payment obligations, which implies some credit risk. By contrast, Wong (1997) presents a more comprehensive model that takes into account both credit and interest-rate risks, as well as cost elements and characteristics of the institutional framework (e.g. the bank's obligations regarding capital adequacy). The conclusions drawn from this theoretic-

cal analysis confirm the findings of Ho and Saunders (1981) with respect to the direction of the various factors' effect on the size of the interest rate spread.

3. Determinants of bank interest rates and interest rate spreads

The theoretical models briefly presented in the previous section suggest certain factors that affect the size of the interest rate spread.¹⁰ However, there are also other determinants that are not taken into account in these models, either because it is hard to include the respective variables in these theoretical approaches, or because these determinants refer to specific banking products and thus only affect the corresponding rates. Hence, empirical studies on the issue also integrate some ad hoc variables that do not stem directly from specific theoretical models. This section presents the interest rate spread and bank rate determinants proposed in the theoretical and empirical literature.¹¹ At the same time, it presents quantitative evidence on Greece and the euro area with respect to the most important of these determinants, attempting to identify those that can explain the observed interest rate differentials between Greece and the monetary union as a whole.

⁹ This approach was not taken up in the literature as extensively as the one adopting the dealership model, perhaps due to the difficulty of using it in empirical applications, but maybe also due to the partly contrasting conclusions reached by the studies that employ it.

¹⁰ By affecting the lending rates, the deposit rates, or both.

¹¹ Given that the present study approaches this issue in the light of the interest rate differentials observed among the euro area countries, it narrows its scope to the factors for which there is heterogeneity among these countries and which can therefore contribute to the explanation of these differentials.

Banking market structure

The dealership model provides a direct link between the structure of a banking market, regarding its level of competition, and the size of the interest rate spread. Specifically, according to this model, banks' market power allows them to apply higher interest rate spreads and thus to obtain higher rents (Ho and Saunders, 1981; Saunders and Schumacher, 2000). This theoretical prediction is confirmed by the empirical results of Ho and Saunders (1981) for the US, McShane and Sharpe (1985) for Australia, Saunders and Schumacher (2000) for six European countries and the US, as well as Maudos and Fernández de Guevara (2004) for five EU countries.

Although a banking market's competitive conditions depend on numerous parameters,¹² a large part of the relevant literature examines in particular the banking system's concentration level, i.e. the degree to which a small number of credit institutions has a large share in the market. From a theoretical perspective, the concentration level may have either a positive or a negative effect on the interest rate spread, depending on the cause that leads to high concentration (Berger and Hannan, 1989). According to the *structure performance hypothesis*, high concentration leads banks to adopt non-competitive behaviour with a view to extracting monopolistic rents, which results, among other things, in a high level of interest rate spreads. By contrast, the *efficient structure hypothesis* suggests that banks differ as to their efficiency,¹³ and consequently the more efficient banks grow faster or absorb the less efficient ones, a development that leads to higher concentration. In this case,

concentration results from the more efficient banks' preponderance, and their higher efficiency will be reflected, to some extent, in lower interest rate spreads.

The relevant empirical literature includes a substantial number of studies that examine, among other things, the effect of the banking system's concentration level on the interest rate spread. Demirgüç-Kunt and Huizinga (1999), using a sample of banks from 80 countries over the 1988-1995 period, find no statistically significant effect of the concentration level of each country's banking system on the respective interest rate spread.¹⁴ Demirgüç-Kunt *et al.* (2004), in a sample of more than 1,400 banks from 72 countries over the 1995-1999 period, initially detect a positive and statistically significant effect, which is nevertheless minor from an economic standpoint, as it only explains a relatively small part of the interest rate spread differentials observed among the countries in the sample. Moreover, when national differences in the institutional and macroeconomic environment are also taken into account, the concentration level loses much of its explanatory power. Similar conclusions are reached by Claeys and Vander Venet (2003), using a sample of 18 Central and Eastern European countries. By contrast, Martinez Peria and Mody (2004) find a significant positive relationship between the concentration level and the interest

¹² E.g. the existence of administrative or economic barriers to entering the market, the existence of limitations in the activities of credit institutions, the existence of competition by non-bank financial institutions, etc. – see Claessens and Laeven (2004).

¹³ Possibly due to the existence of economies of scale in the bank intermediation process – see e.g. Diamond (1984).

¹⁴ Nevertheless, they detect a positive and statistically significant relation between concentration level and bank profitability.



rate spread in a sample of banks from five South American countries.

Another strand in the empirical literature investigates the relationship between the banking system's concentration level and certain categories of bank interest rates. Berger and Hannan (1989), examining a sample of US banks, find a negative relationship between the interest rates on various categories of deposits and the concentration level of the local banking markets.¹⁵ Neumark and Sharpe (1992), also using a sample of US banks, arrive at the same conclusion. In addition, they find that the banks' response to changes in money market rates is asymmetrical, i.e. in case of a decline in money market rates they reduce their deposit rates faster than they raise them in case of an increase in money market rates.¹⁶ This asymmetry is more pronounced for banks operating in markets characterised by higher concentration. As regards banking markets in the euro area, Corvoisier and Gropp (2002) calculate concentration indices for 4 categories of lending products and 3 categories of deposit products in each of the 10 countries included in their sample,¹⁷ and examine the effect of these indices, along with other variables, on the differential of the respective interest rates over the money market rate. This approach allows the researchers to estimate the extent to which the effect of the concentration level on the interest rates differs among banking products. Corvoisier and Gropp (2002) find that an increased concentration level is associated with 100 to 200 basis points higher interest rates in the case of loans, and roughly as much lower ones in the case of demand deposits. By contrast, as regards savings deposits and time deposits, increased concentration is associated with interest rates that are about 100 to 200 basis points higher.¹⁸

Regarding the structure of the Greek banking system, its concentration level, as measured by the Herfindahl index, although higher than the euro area average, is significantly lower than in the countries with the highest concentration (Belgium, the Netherlands and Finland, see Chart 1).^{19,20} A rise in concentration is observed between 1997 and 2005 – as is the case for all euro area countries – which is mainly due to the bank mergers and acquisitions that took place at the later half of the previous decade and early in the current one, partly within the context of reducing the public sector's involvement in the domestic banking system.

However, the use of the concentration level as a proxy for measuring the competitive conditions prevailing in a market has been criticised in the relevant literature (see e.g. Claessens and Laeven, 2004). More specifically, the view cur-

15 In more detail, they estimate that the deposit rates offered by banks operating within markets with the highest concentration are 25 to 100 basis points lower than those offered by banks operating within markets with the lowest concentration.

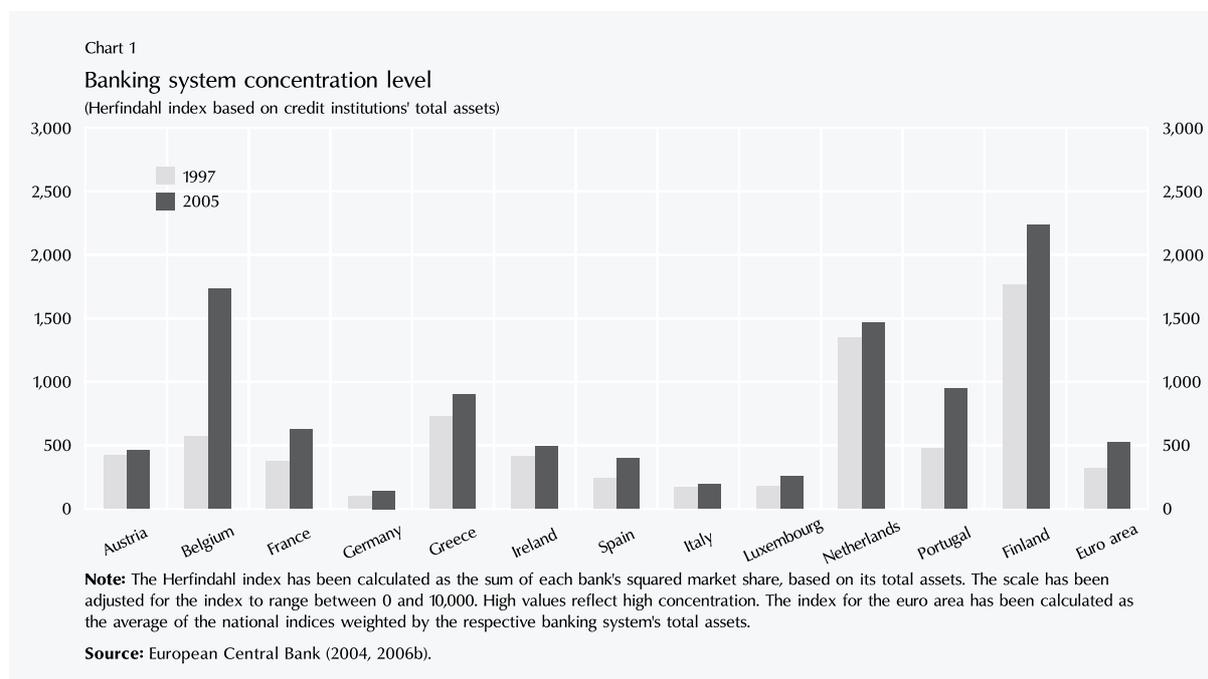
16 Gropp *et al.* (2007) detect a similar asymmetry in the euro area countries.

17 Their study was carried out before Greece entered the monetary union, and it also does not include Luxembourg. Concentration indices for the basic categories of loan banking products available to households in Greece are presented in a study by Chalamandaris (2006), which also includes a comparative presentation of the respective interest rates in Greece and the euro area.

18 Corvoisier and Gropp (2002) attribute this to the fact that, as regards savings and time deposits, savers appear more willing to incur the cost entailed in finding the most favourable terms of deposit, and therefore systematically search for higher interest rates. High concentration in this case facilitates their search and enhances competition between banks.

19 The literature examining the effect of concentration level on the profitability of banks in Greece does not allow any clear conclusions to be drawn as to whether it is the efficient structure hypothesis or the structure performance hypothesis that holds (see Eichengreen and Gibson, 2001; Gibson, 2005; and Athanassoglou *et al.*, 2006).

20 It should be noted however that the euro area average is affected by the low concentration level observed in some countries (e.g. Germany, Italy and Luxembourg) for historical or other reasons.

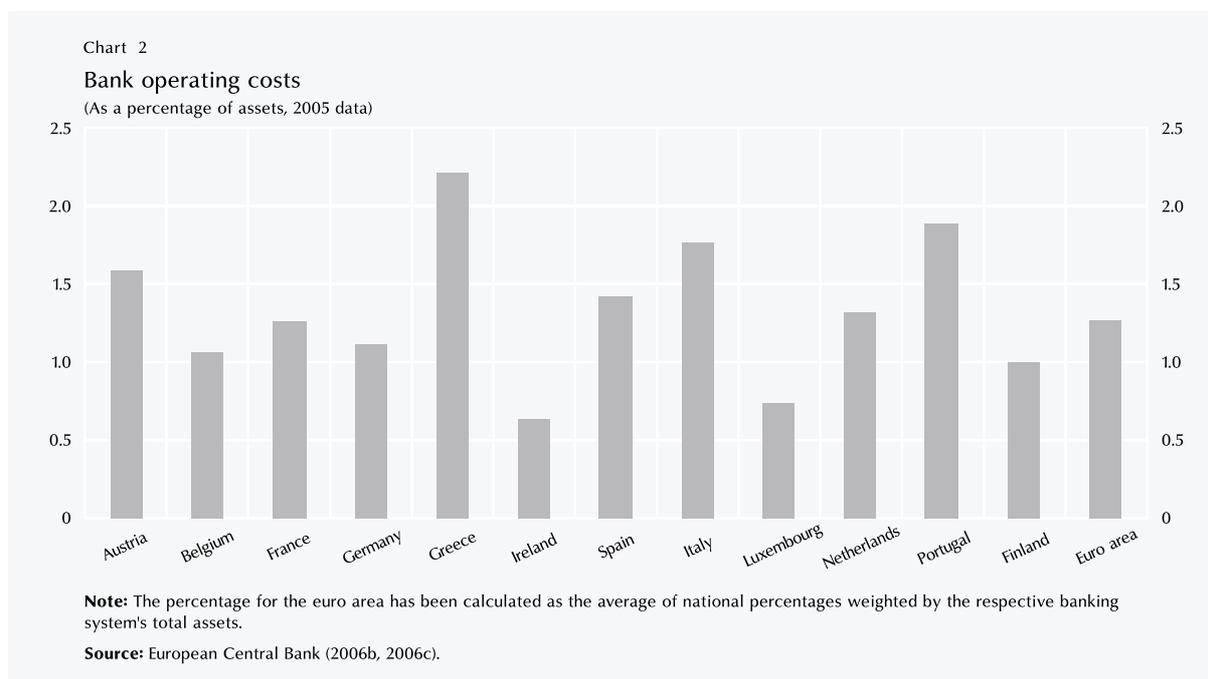


rently upheld in industrial organisation theory is that the factor decisively determining the behaviour of market participants is the threat of new entrants (i.e. the market's "contestability", see Besanko and Thakor, 1992), an aspect that cannot be captured by the concentration level. In this respect, the segments of the banking market in which physical proximity to the customer is important (e.g. retail banking markets) are less "contestable". Indeed, such markets show relatively large interest rate differentials among euro area countries (European Central Bank, 2006a). By contrast, in markets where physical proximity is not important (e.g. the repos market) the respective yields tend to be the same or to differ only slightly. To overcome these weaknesses of the concentration indices, Van Leuvensteijn *et al.* (2007) use a new measure of the competitive conditions prevailing in the banking markets of 8 euro area countries, the Boone index.²¹ Their findings con-

firm the existence of a negative relationship between the level of competition and lending rates. However, Van Leuvensteijn *et al.* (2007) find that increased competition is associated with lower interest rates on deposits as well.

Linked to the competitive pressure banks face is the availability of non-bank sources of financing and savings options. Thus, for instance, the existence of developed capital markets is expected to reduce bank lending rates, as it offers alternative sources of financing (issuance of shares and bonds), at least to enterprises that have access to them. Correspondingly, it offers savers alternative investment opportunities, making the supply of

²¹ The Boone index is a new way of measuring the competitive conditions prevailing in a market, which has been proposed in the industrial organisation theory literature (see e.g. Boone, 2004). In brief, it can be said that the Boone index measures the extent of the correlation between the market share a business holds and its efficiency.



deposit facilities more elastic and pushing the respective interest rates upwards. Indeed, Affinito and Farabullini (2006) find that in the euro area countries the availability of alternative investment opportunities is associated with increased deposit rates.²² Nevertheless, in contrast to the theoretical prediction, their estimates suggest that increased issuance of shares by enterprises is associated with increased lending rates.

Banks' operating costs

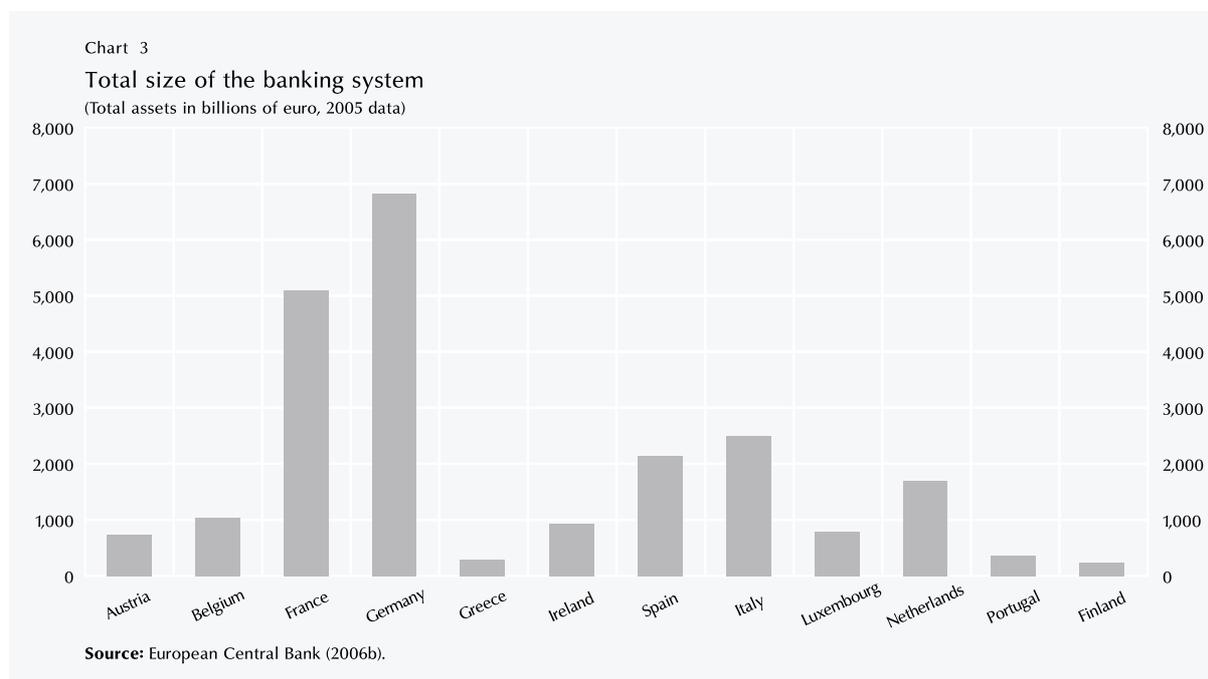
Both the microeconomic model of the banking firm (Wong, 1997) and the dealership model (Maudos and Fernández de Guevara, 2004) suggest a positive relationship between banks' operating costs and the interest rate spread. For Wong (1997) this relationship stems from the fact that as a bank's operating costs increase its revenue decreases, and consequently its risk aversion becomes stronger.²³ Thus, in order to limit its

exposure to risks, the bank reduces the amount of loans it grants, raising its lending rate and by extension its interest rate spread. A positive relationship between the interest rate spread and operating costs also emerges from the monopolistic banking firm model proposed by Monti and by Klein (Klein, 1971; Monti, 1972), according to which banks pass their operating costs through to their customers in the form of higher lending rates and lower deposit rates.

Overall, the empirical literature confirms these theoretical predictions. In more detail, Demirgüç-Kunt and Huizinga (1999) using a large interna-

²² Moreover, Gropp *et al.* (2007) find that, in the euro area countries, the intensity of the competition that banks face from non-bank financial institutions is positively associated with the speed with which they adjust their interest rates when money market rates change.

²³ Wong (1997) assumes a negative relationship between the income of a bank and the degree of its risk aversion.



tional sample, Maudos and Fernández de Guevara (2004) using a sample of five EU countries, and Martínez Peria and Mody (2004) with data from banks from five South American countries find a statistically significant, positive relationship between banks' operating costs and the interest rate spread.

The Greek banking system, despite the improvement recorded in recent years, is characterised by the highest operating costs as a percentage of total assets among the euro area countries (see Chart 2). To some extent, this fact is associated with the small size of the country's banking system, measured on the basis of total assets of either all the banks (see Chart 3) or the five larger ones (see Chart 4).²⁴ Specifically, the small size of banks in Greece does not allow them to take full advantage of the economies of scale that characterise the bank intermediation process, a feature observed globally with respect

to relatively small banks (Demirgüç-Kunt *et al.*, 2004).²⁵ Moreover, in Greece the average level of deposits and loans is relatively low, a fact that leads to higher operating costs for banks as it entails a larger number of bank transactions for a given level of deposits or loans.

Credit risk

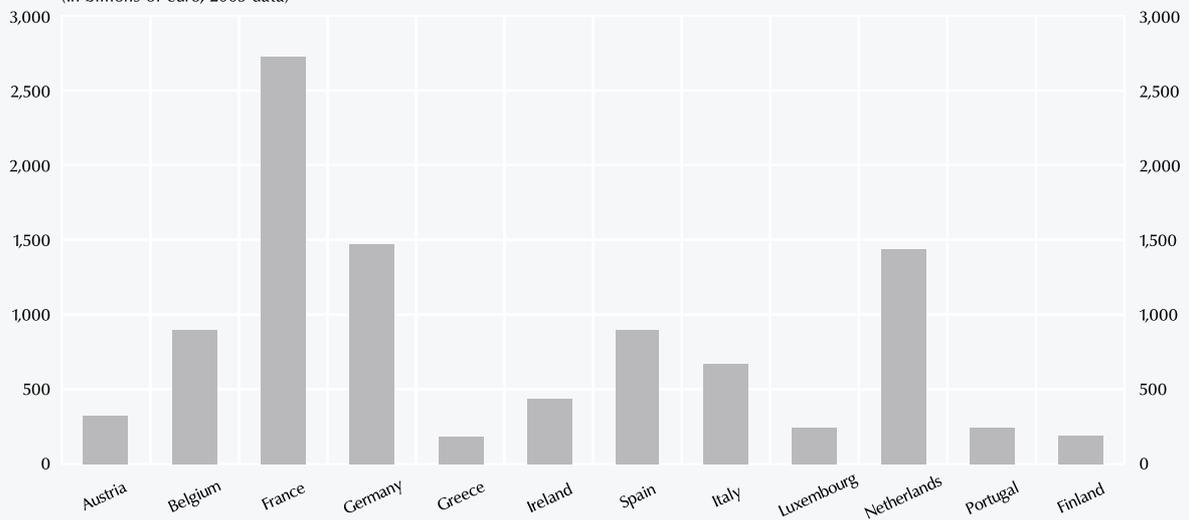
Both the extended dealership model proposed by Angbazo (1997) and the microeconomic models of the banking firm suggested by Zarruk and Madura (1992) and Wong (1997) stress the

²⁴ A simple examination of the statistical relationship between operating costs and size in the banking systems of the euro area countries, based on Kendall's rank correlation coefficient, provides evidence of a weak negative relationship. This notwithstanding, drawing any definite conclusions would require a thorough econometric investigation of the issue.

²⁵ Regardless of operating costs, smaller banks may also face higher financing costs since often, due to their small size, they receive a lower credit rating, which increases their cost of financing from the market.

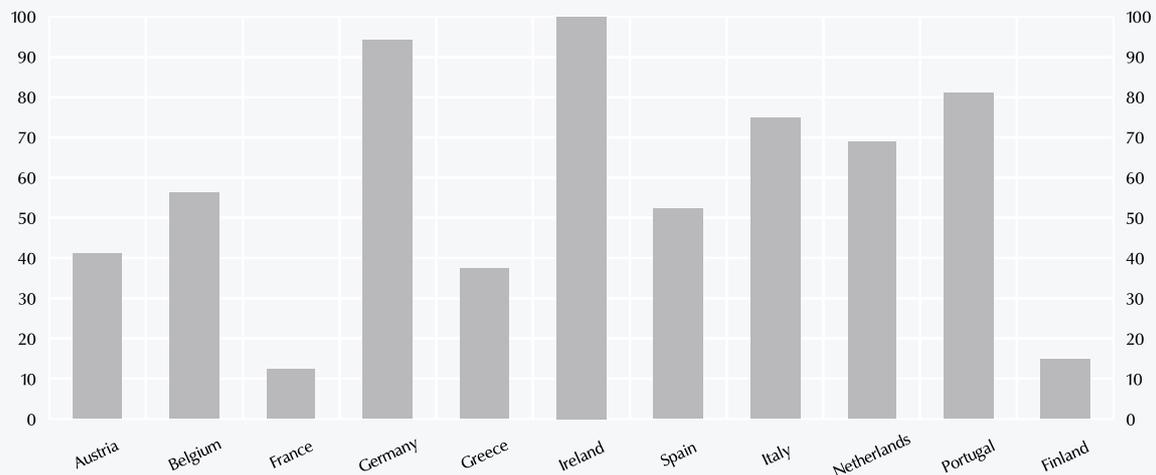


Chart 4
Total assets of the five largest banks per country
(In billions of euro, 2005 data)



Source: European Central Bank (2006b).

Chart 5
Availability of information on the financial behaviour of individuals and legal entities
(Number of entries in public and private financial behaviour monitoring systems as a percentage of the adult population, end-2005 data)

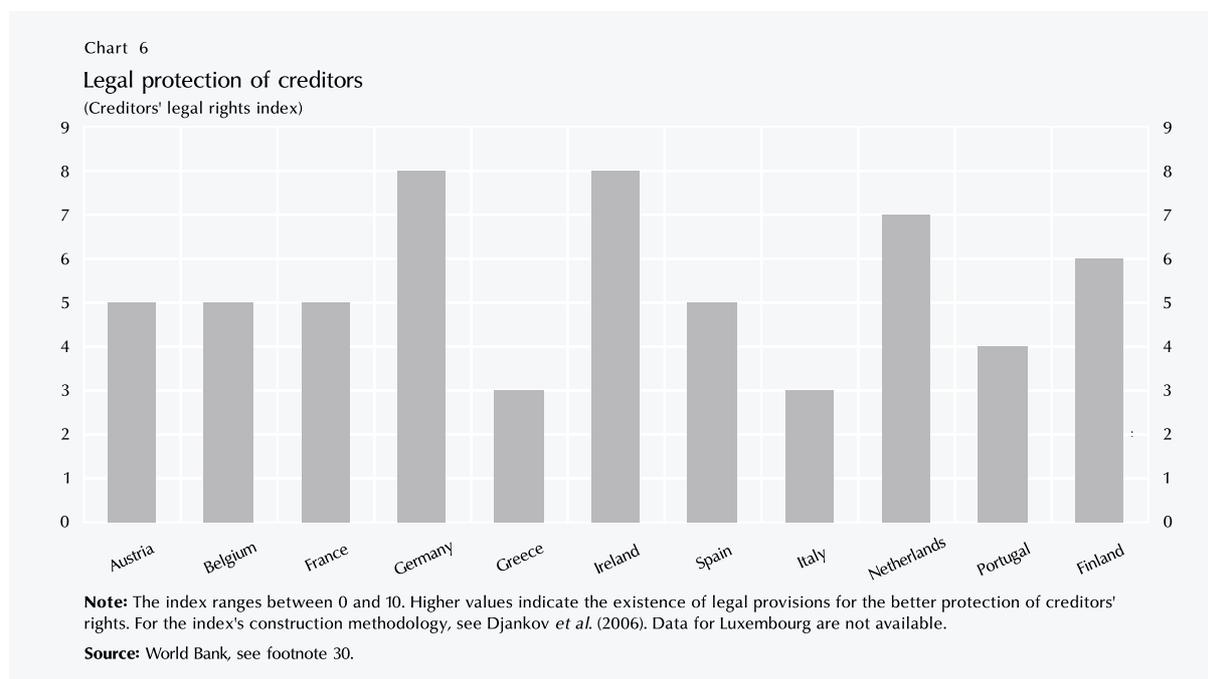


Note: Data for Luxembourg are not available.

Source: World Bank, see footnote 30.

importance of credit risk as a determinant of the interest rate spread. Credit risk arises to the extent that some – unknown with any certainty – portion of the loans extended will finally not be

repaid. To compensate for undertaking such risk, banks demand a risk premium on the lending rate, the size of which increases proportionately to the credit risk involved. This gives rise to a pos-



itive relationship between the interest rate spread and credit risk, which is confirmed by the empirical results of Angbazo (1997) for the US and of Maudos and Fernández de Guevara (2004) for five EU countries.²⁶

An –imperfect– measure extensively used in the literature for the quantitative approximation of the size of the credit risk banks are exposed to is the percentage of non-performing loans.²⁷ According to this measure, credit risk in the Greek banking system is considerably higher than in the euro area. In more detail, at the end of 2004 non-performing loans in Greece corresponded to 7.0% of total loans, while the respective percentage in the euro area was 3.1%.²⁸

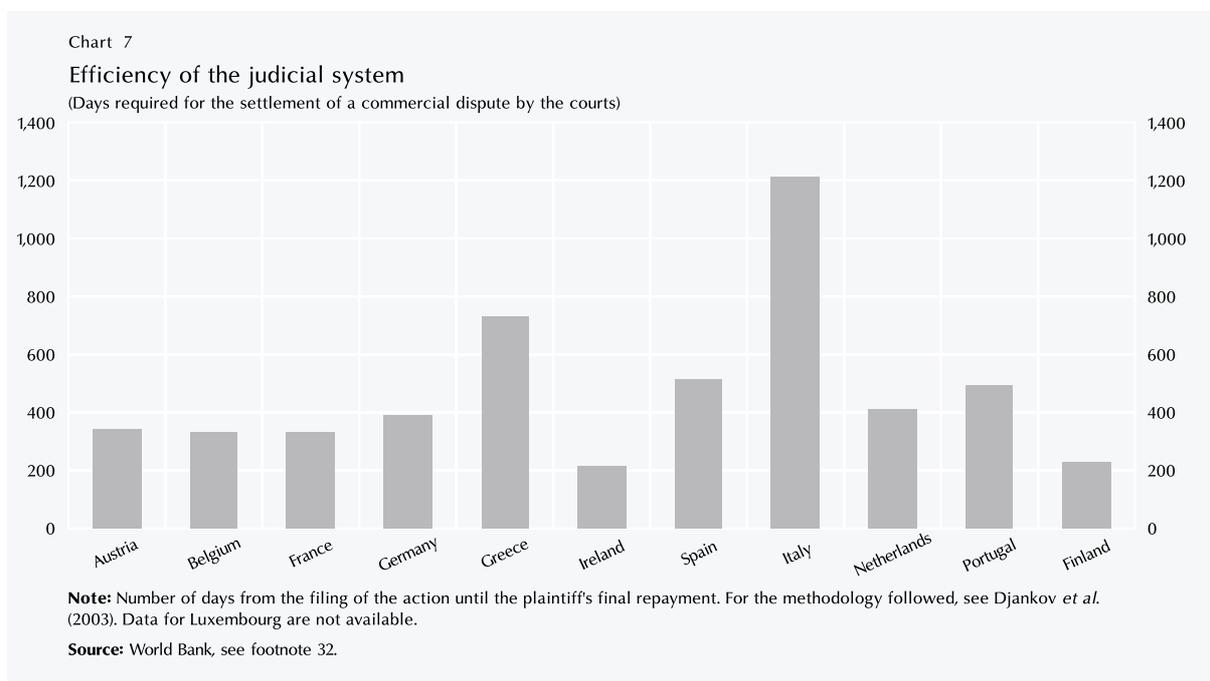
An issue associated with credit risk and its effect on bank lending rates is the availability of information required for the assessment by credit institutions of the creditworthiness of prospec-

ive borrowers. Access to more complete information allows banks to assess more accurately the credit risk they undertake and to price it more appropriately in each case. In Greece, despite the progress recorded in recent years with the initiatives taken by Tiresias SA, there are still considerable limitations to the availability of information regarding the financial behaviour of individ-

²⁶ However, Martinez Peria and Mody (2004) in their empirical study of a sample of five South American countries find a statistically insignificant albeit positive relation between the interest rate spread and credit risk.

²⁷ The percentage of non-performing loans refers to borrowers who have defaulted on some payment obligation. However, this percentage does not necessarily reflect the entire potential risk that is inherent in banks' portfolios and has not yet manifested itself, which in an environment of strong credit expansion may be quite high. Furthermore, it offers no information regarding the part of total receivables that can be recovered, e.g. through the sale of assets serving as collateral for the loan. Finally, as there is no internationally established definition of non-performing loans, comparisons of non-performing loan ratios between countries are not always instructive.

²⁸ At the end of 2005, for the medium-sized banks of the entire EU, the respective ratio was 2.9%, while in Greece it was 6.3% – see Bank of Greece (2006a) and European Central Bank (2005b, 2006c).



uals and legal entities. Thus, the relevant coverage in Greece is narrower than in the other euro area countries, except for France and Finland (see Chart 5).²⁹ Another parameter associated with the effect of credit risk on bank rates is the percentage of the amount receivable that the bank will finally be able to collect in case a borrower does not repay his/her loan. This percentage is to a great extent related with the institutional framework governing the protection of creditors' rights in each country, as well as with the effectiveness of the judicial system in safeguarding creditors' rights. As Chart 6 shows, according to the relevant index published by the World Bank,³⁰ among the euro area countries Greece and Italy are the ones with the weakest legal protection of creditors.³¹ Moreover, the Greek judicial system does not appear to be particularly effective in protecting creditors, as, according to World Bank data,³² Greece ranks second to Italy among the euro area countries with respect to the number of days

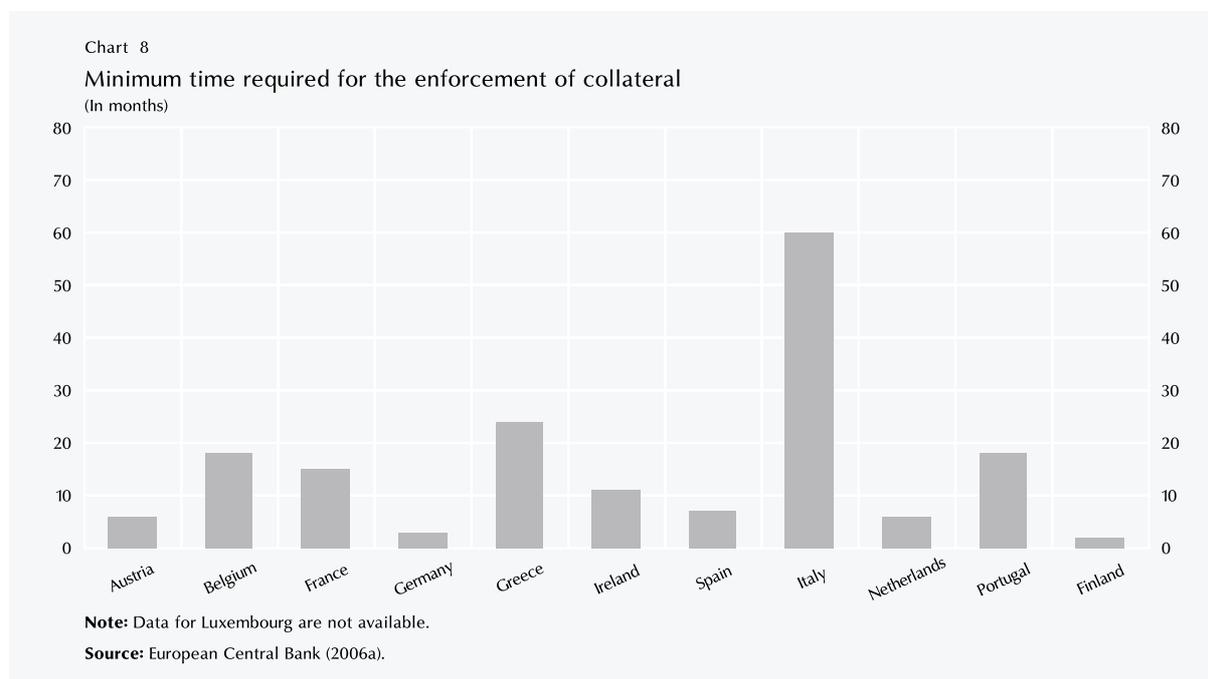
required for a commercial dispute to be settled through judicial channels (see Chart 7). Even when the receivable at issue is covered by real collateral (e.g. prenotation or mortgage on real estate in the case of housing or other loans), the process for collecting the amount due through sale of the underlying asset is particularly protracted in Greece (at least 24 months, see Chart 8). This weaker legal protection of creditors' rights along with the lower effectiveness of the judicial system in safeguarding these rights entail a higher cost for credit institutions, which may affect bank rates.

²⁹ In addition, given that the collection of financial behaviour data (risk concentration system) in Greece has started only recently (2003), there is no clear evidence of how such behaviour is affected by cyclical downturns.

³⁰ See <http://www.doingbusiness.org/ExploreTopics/GettingCredit/>.

³¹ For the index's construction methodology, see Djankov *et al.* (2006).

³² See <http://www.doingbusiness.org/ExploreTopics/EnforcingContracts/>.



Macroeconomic environment

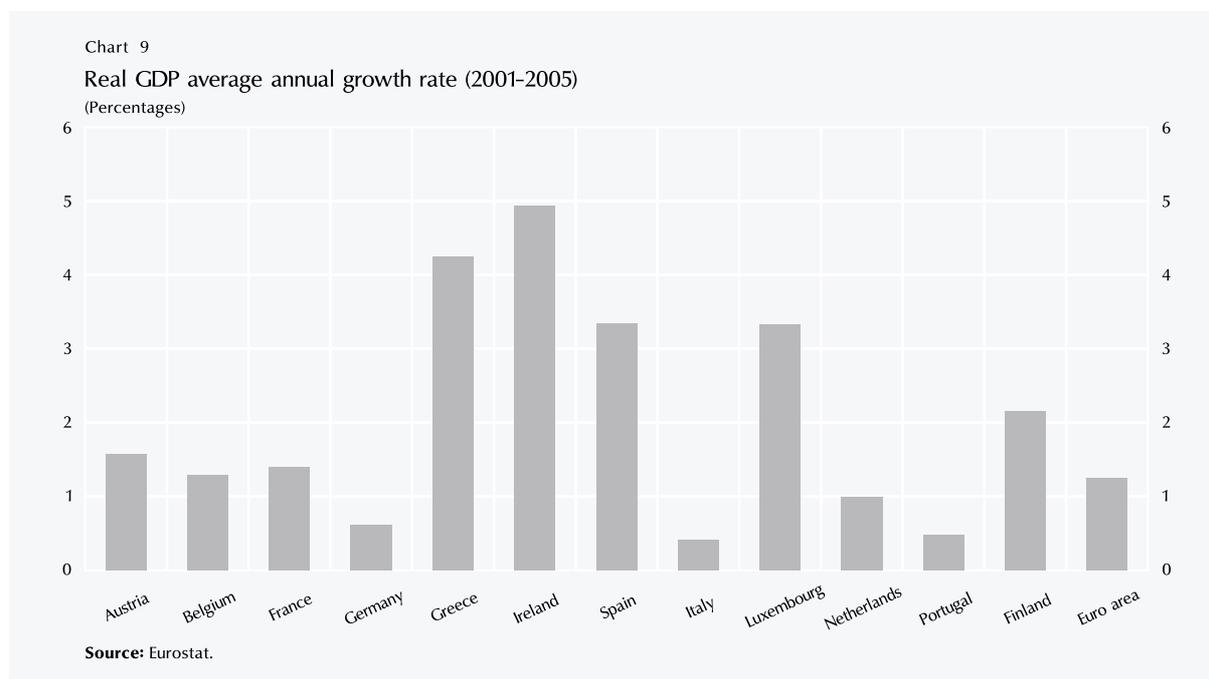
The two fundamental theoretical models presented in the previous section do not consider the prevailing macroeconomic conditions as playing any special role in shaping bank rates and the interest rate spread.³³ Nevertheless, there are significant theoretical reasons on account of which some macroeconomic environment parameters are expected to affect bank rates.

According to Kashyap, Stein and Wilcox (1993), real GDP growth has a positive effect on lending rates, as the improved economic environment increases the number of investment projects that will finally prove to be profitable (in terms of positive net present value), and so demand for credit increases. Friedman and Kuttner (1993) emphasise that only permanent increases in GDP bear such a result, while transitory ones lead enterprises to increase their internal financing, thereby

decreasing the demand for bank credit. At the same time, however, according to Bernanke and Gertler (1989) and Kiyotaki and Moore (1997), by exerting a positive effect on corporate net worth, GDP growth increases banks' willingness to extend loans since they face lower risks. As a result, it will tend to push lending rates downwards. Consequently, the overall effect of GDP growth on lending rates is *a priori* ambiguous.

As regards deposit rates, income growth is associated with a higher supply of savings, which may put downward pressures on interest rates.

³³ Of course, the dealership model takes into account that interest rate volatility, which is associated with the stability of the macroeconomic environment, has an effect on the interest rate spread. However, as this study aims at identifying the determinants that can explain the differential of the Greek interest rates over the respective euro area ones, and given that a single money market operates within the monetary union and so interest rate volatility is the same for all euro area countries, this factor is not investigated any further.



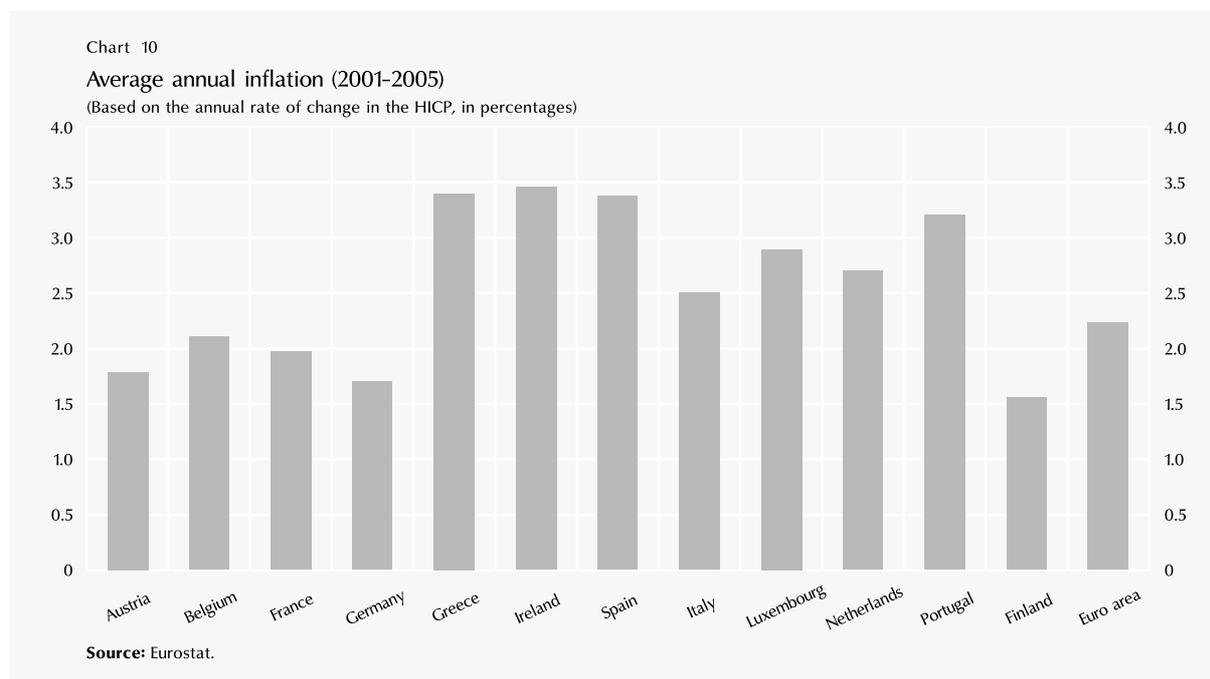
These pressures will be stronger if income growth is transitory.

Bank rates are also affected by the level of inflation, first of all through the Fisher effect, according to which the same level of the real interest rate can correspond to several different nominal interest rates, depending on the inflation expected each time. Moreover, Huybens and Smith (1998, 1999) note that inflation exacerbates the information asymmetries existing between lenders and borrowers, increasing the interest rate spread.³⁴

The theoretical ambiguity regarding the relationship between GDP growth and the interest rate spread is also reflected in the empirical literature, which does not allow drawing definite conclusions. More specifically, Demirgüç-Kunt and Huizinga (1999) do not identify any statistically significant effect of the real GDP growth rate on

the interest rate spread in their sample of banks from 80 countries, a conclusion reached also by Demirgüç-Kunt *et al.* (2004) with respect to a sample of banks from 72 countries. Brock and Rojas Suarez (2000) and Martinez Peria and Mody (2004) also arrive at similar results for the South American countries they study. Finally, while detecting a positive effect of the real GDP growth rate on the interest rate spread for the Western European countries included in their sample, Claeys and Vander Venet (2003) find no such relationship for the Eastern European ones. By contrast, the upward effect of inflation on the interest rate spread has repeatedly been recorded in the empirical literature. Such an effect is detected by Hanson and Rocha (1986) at an aggregate level for 29 economies, as well as by Demirgüç-Kunt and Huizinga (1999) and

³⁴ This argument is also put forward by Boyd *et al.* (2001).



Demirgüç-Kunt *et al.* (2004)³⁵ in samples that include data at bank level from large numbers of countries. A positive relationship between inflation and the interest rate spread is also found by Brock and Rojas Suarez (2000) in the four of the five South American countries they examine,³⁶ as well as by Claeys and Vander Venet (2003) in the countries of both Western and Eastern Europe.

With respect to the Greek economy, the real GDP growth rate in the 2001-2005 period was considerably higher than the euro area average, second only to the one in Ireland within the monetary union (see Chart 9). However, the inflation rate in Greece was also high in the same period, maintaining a differential over the euro area (1.2 percentage points on average, see Chart 10). Still, this differential is not wide enough to be exacerbating information asymmetries to such an extent as to justify the higher interest rate spread in Greece compared with the euro area.³⁷

Special and technical factors

In addition to the aforementioned economic factors, bank rates and their differentials among euro area countries are also affected by some technical factors associated e.g. with the statistical classification of the various banking products, as well as with differences in established banking practices or other national idiosyncrasies.

The weighted average lending rate and the weighted average deposit rate –and by extension the interest rate spread– reflect, in addition to the

³⁵ Demirgüç-Kunt *et al.* (2004) note, however, that the effect of inflation on the interest rate spread, although statistically significant, is not very strong from an economic point of view. Specifically, they estimate that a rise of 9 percentage points in inflation leads to a widening of the interest rate spread by only 36 basis points.

³⁶ In the case of Argentina, Brock and Rojas Suarez (2000) detect a negative effect of inflation on the interest rate spread.

³⁷ See also footnote 33.



level of interest rates on individual loan and deposit products, the composition of those two groups of products.³⁸ Thus, if a large part of household indebtedness relates to loans through credit cards,³⁹ which carry a high interest rate, this will contribute to a high weighted average lending rate. Correspondingly, if a large part of deposits are savings deposits,⁴⁰ which have low yields, the weighted average deposit rate will be low. This factor is relevant not only for the weighted average interest rate on total loans or deposits, but for that on individual categories as well. For instance, the composition of housing loans with respect to the period during which the interest rate is fixed has an effect on their average interest rate. By the same token, the structure of time deposits as regards their maturity affects their average interest rate.

Of course, the composition of loans and of deposits is to a great extent endogenous, since it reflects the choices made by banks and their customers on the basis of the factors described above as well as the institutional and regulatory framework governing the operation of the banking system (including tax regulations). In addition, factors such as the level of awareness of the bank clientèle and its consumer culture also affect these choices. In any case, the effect of the different composition of loans and deposits in Greece compared with the euro area on the interest rate spread is quite significant, as it has been calculated⁴¹ that, if the composition per product that holds for the euro area were to be applied in Greece, the interest rate spread differential would be reduced to approximately half.

Another determinant that must be taken into account when assessing bank interest rate differentials is that lending rates do not necessarily

incorporate the total cost arising for borrowers from their borrowing relationship, since they are often also charged with non-interest-rate fees and expenses, such as loan agreement file expenses. In the same vein, deposit rates do not reflect the total benefits depositors enjoy, since they are also offered a series of follow-on services, such as safekeeping, accounting, payment facilitation, etc. Thus, banks may in certain cases charge lower lending rates while imposing in parallel non-interest-rate charges, and also offer lower deposit rates while compensating depositors with the additional services they offer.

The empirical literature confirms the importance of this factor. Ho and Saunders (1981), Saunders and Schumacher (2000) and Maudos and Fernández de Guevara (2004) find a positive, statistically significant effect of banks' net non-interest "payments"⁴² on the interest rate spread.⁴³ As Chart 11 shows, banks' non-interest "payments" in Greece are the highest among euro area countries.⁴⁴

Another factor associated with the aforementioned one are the cross sales at which banks aim by offering more favourable interest-rate terms in

38 The importance of this factor is emphasised in European Central Bank (2006a).

39 In Greece at the end of 2006 the outstanding balance of loans through credit cards corresponded to 33% of total consumer loans.

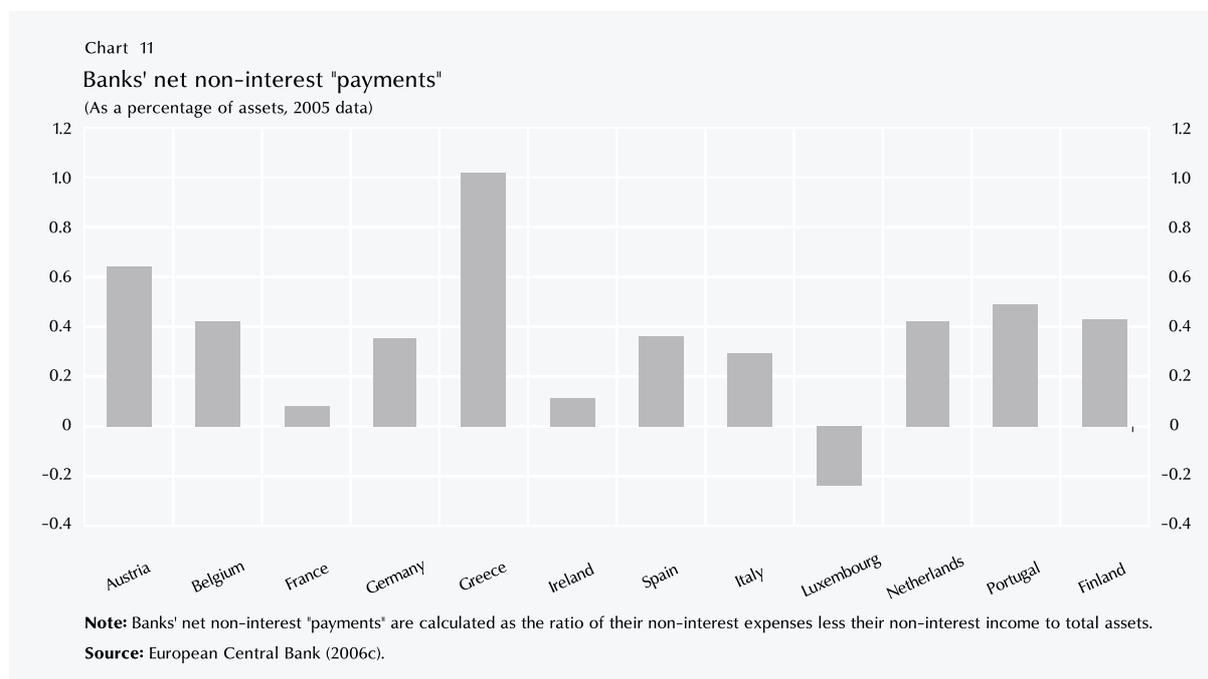
40 Savings deposits in Greece at the end of 2006 corresponded to 43% of total deposits.

41 See Bank of Greece (2007).

42 Net non-interest "payments" (defined as the ratio of non-interest expenses less non-interest income to total assets) are used as a proxy for measuring the services banks offer to their customers without charging any explicit fee.

43 However, Angbazo (1997) finds no significant effect of net non-interest-rate "payments" on the interest rate spread.

44 Although this proxy is extensively used in the literature as already mentioned, it must be interpreted with caution as it may also reflect the efficiency of the banking system.



specific cases. For instance, a usual practice in some countries is to offer housing loans with a lower interest rate provided that the borrower also brings his/her savings or insurance business to the specific banking group. Moreover, in some countries there are specialised housing banks⁴⁵ in operation, which grant loans for house purchase at favourable interest rates to prospective borrowers who have made regular deposits to an account over a specific time period.

Finally, government policies aimed at facilitating e.g. the access of small and medium-size enterprises to bank financing or the purchase of a house by households affect the respective bank rates. Thus, in some euro area countries a government guarantee is provided on bank loans to small and medium enterprises⁴⁶ as well as to households for house purchase.⁴⁷ This guarantee limits the credit risk undertaken by credit institutions, enabling them to apply more favourable interest rates on the specific loans.

4. Interest rate differentials among euro area countries

Although a single monetary policy is pursued across the euro area and the money market has essentially been integrated, differences in bank rates persist among member countries. Although such differences tend to gradually subside, interest rate dispersion remains considerable, especially as regards deposit rates.⁴⁸ Among these interest rates, the highest dispersion is observed in enterprises' and households' overnight deposits. As regards lending rates, the

⁴⁵ E.g. the "Bausparkassen" that operate in Germany and Austria.
⁴⁶ E.g. in Greece this guarantee is provided through the Fund for the Provision of Guarantees to Small and Very Small Enterprises (TEMPME).

⁴⁷ E.g. in the Netherlands the government-run "National Hypotheek Garantie" (NHG) fund provides guarantees on loans for house purchase or restoration.

⁴⁸ These observations regarding interest rate dispersion in the euro area draw on European Central Bank (2006a).



highest dispersion is observed in loans without a defined maturity to enterprises and in consumer loans. By contrast, in loans for house purchase interest rate dispersion is very limited. The euro area monetary authorities, at both the European Central Bank and the National Central Banks level, in view of the observed differences in interest rates among the euro area countries, have proceeded to publishing a series of documents that attempt to identify the factors that can explain such differences (see e.g. European Central Bank, 2006a; McNeill, 2003; Baugnet and Hradisky, 2004; De Nederlandsche Bank, 2004; Deutsche Bundesbank 2004; Maza and Sanchís, 2004; Banca d' Italia, 2005). Recently however, national differences in bank rates among the euro area countries have also been the subject of systematic empirical analysis.

In more detail, Affinito and Farabullini (2006) focus their attention on 5 categories of loans to households, 5 categories of deposits by households and 4 categories of loans to enterprises, using the new, harmonised series of Monetary Financial Institutions' interest rates compiled by the European System of Central Banks since 2003. Initially, they econometrically establish the existence of considerable heterogeneity among interest rates in the euro area countries. Then, they examine the extent to which this heterogeneity can still be detected when the factors considered as its probable causes are taken into account. These factors are broken down into three general categories: (i) factors related to demand (real GDP growth rate, disposable income, existence of alternative forms of savings, existence of alternative sources of financing, exposure to credit risk and average enterprise size); (ii) factors related to bank characteristics (operating costs, non-interest

income, liquidity and capital adequacy, asset and liability structure); and (iii) factors related to the structure of the credit system (presence of international banks, banking market concentration level, average bank size, and bank mergers and acquisitions).

The estimates by Affinito and Farabullini (2006) lead to the conclusion that if national differences with respect to the above factors are taken into account, interest rate heterogeneity among euro area countries is reduced considerably. More specifically, for 10 of the 12 member countries of the monetary union, approximately 50% (or more) of the interest rate differences become statistically insignificant when these factors are taken into account (with the exceptions of Spain and Portugal, where the respective percentages are lower). In addition, when such factors are taken into account, interest rate spread heterogeneity is also considerably lower.

With respect to Greece, out of the 104 possible differences between interest rate pairs that Affinito and Farabullini (2006) examine, when disregarding the above factors only 7 differences are statistically insignificant (i.e. from a statistical perspective the interest rates are not different). On the other hand, when these factors are taken into account, this number rises to 53 (51% of all cases). Therefore, the differences between Greece and the euro area in the variables that Affinito and Farabullini (2006) include in their estimates explain a large part of the Greek bank rate differential over the respective interest rates in other euro area countries.

In a recent study, Kok Sørensen and Lichtenberger (2007) apply the methodology followed by Affinito

and Farabullini (2006) on the interest rates on housing loans in the euro area countries. In interpreting the observed interest rate differentials, aside from the general determinants that have an effect on all banking products, they also use some special factors related specifically to this market.⁴⁹ Their estimates show that, when these special factors are taken into account, the percentage of interest rates that, from a statistical perspective, have no differences increases considerably in the categories of housing loans with a fixed rate for a period of more than one and up to five years and with a fixed rate for a period of more than ten years. According to these authors, the largest part of the heterogeneity observed among housing loan interest rates is due to supply factors.

As regards Greece in particular, in the category of housing loans with a floating rate or a fixed rate for a period of up to one year – which is currently the main housing loan category – if the above factors are taken into account, 36% of the interest rate differences between Greece and other euro area countries become statistically insignificant. This percentage rises to 82% for housing loans with a fixed rate for a period of one to five years, which is the second most important housing loan category.

5. Concluding remarks

The international theoretical and empirical literature has brought to light a multitude of determinants thought to have an effect on both the level of lending and deposit rates and the difference between them, i.e. the interest rate spread. In the case of Greece, the examination of these determinants in comparison with the

other euro area countries presented in this study suggests that these factors can explain a considerable part of the observed differences in bank rates. This assessment is in line with the conclusions drawn in recent empirical studies (Affinito and Farabullini, 2006; Kok Sørensen and Lichtenberger, 2007) that examine interest rate heterogeneity in euro area countries.

Some of the factors that play a role in shaping bank rates in Greece at levels higher than the euro area averages are related to inherent characteristics of the domestic banking system and associated e.g. with its relatively more recent deregulation, or with the conditions that marked its development over time. Nevertheless, some of these determinants can be affected by appropriate policy measures that will support further convergence of the Greek interest rates with the respective ones in the euro area. For instance, strengthening creditors' rights and improving the effectiveness of the judicial system in safeguarding these rights would help limit the credit risk banks in Greece face. Securing fuller information on the financial behaviour of prospective borrowers – e.g. in the framework of the activities of Tiresias SA – would constitute another step in the same direction. Furthermore, raising the awareness of bank customers so that they can make informed choices among the banking products with the most favourable terms for them would lead to a more rational product composition of total

⁴⁹ Indicatively, the determinants Kok Sørensen and Lichtenberger (2007) consider include, among other things, the rate of increase in real estate prices, the degree to which banks engage in the securitisation of loans, the degree to which they raise funds in the money and capital markets, as well as the difference between the total annual percentage rate of charge (SEPE) and the interest rate, as an approximation of the non-interest cost of borrowing.



deposits and loans, with positive implications for the Greek interest rate differentials over the euro area averages. At the same time, Greek banks' continued efforts to improve their efficiency and curtail their operating costs are also expected to contribute to a reduction of the interest rate

spread, to the extent that at least part of the resulting benefit will be passed through to interest rates. Finally, it is obvious that in any event the most competitive conditions possible must be ensured in the banking market, so as not to facilitate the exercise of monopoly power by banks.

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Borrowing and socio-economic characteristics of households: results of sample surveys carried out by the Bank of Greece*

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1. Introduction

In recent years, bank loans to households have grown at a high rate (almost 30%) and bank penetration into this sector of the economy has increased significantly.¹ These developments raise concerns as to whether households are borrowing excessively and that the credit risk taken by banks is high, although the outstanding balance of bank loans to households as a percentage of GDP remains lower in Greece than the euro area average.²

Aggregate data, however, are not sufficient to assess how borrowing is distributed among household groups. Therefore, in order to assess the financial condition of households and to examine their degree of indebtedness and the distribution of financial pressure on them, the Bank of Greece repeated in 2005 the sample survey conducted in 2002.³ The results of this survey were published on the Bank of Greece website in March 2006 and in the Annual Report 2005⁴ and were also presented at the third conference of the Irving Fisher Committee.⁵ The aim of this study is to provide a detailed analysis of the results of the survey

* The views expressed in the article are those of the writers and do not necessarily reflect the views of the Bank of Greece. We would like to thank Heather Gibson and also our colleagues who attended a seminar concerning the above issue for their useful comments. Any errors contained herein are exclusively the responsibility of the authors.

1 It is indicative that, in the three years 2003-2005, the number of bank housing loan accounts rose at an annual average rate of 16%, the number of credit cards by 8% and the number of accounts of other bank loans to households by 27%.

2 At the end of 2005, the outstanding balance of bank loans to households excluding securitised amounts corresponded to 36.3% of GDP in Greece (or to 38% including securitised loans), compared with 52.6% on average in the euro area.

3 See: Mitrakos, Simigiannis and Tzamourani (2005).

4 See Bank of Greece, *Annual Report 2005*, Appendix to Chapter VI, Athens 2006.

5 See Simigiannis and Tzamourani (2006).



in terms of the significance of households' socio-economic characteristics in determining their loan obligations.

In the next section, a summarised description of the sample survey is given, while in the third section, the distribution of households within the main categories of loans is provided. In the fourth section, the importance of households' socio-economic characteristics in determining the likelihood of a household having taken a loan is examined with the aid of a logistic regression model. Sections 5 and 6 examine the correlation of the level of indebtedness both with the income and wealth of households and with the age of the household head, while Section 7 shows the distribution of financial pressure on households in relation to their income and to whether or not they are home owners. Section 8 contains an analysis of the socio-economic characteristics of households which declared that they do not service their loan obligations properly. The final section concludes.

2. Description of the survey

The survey was carried out in the last quarter of 2005 and covered 6,000 households in urban and semi-urban areas of Greece. A random sampling technique, stratified by geographical areas, was used to ensure that the sample was representative of the surveyed population.

Through the survey, full responses⁶ – i.e. from all adult members of the household – were received from 3,120 households, thus bringing the average response rate to 52%, much higher than in 2002 (38%).

The survey conducted by the Bank of Greece in 2002 covered only household members aged 25 and over (25+). The new survey covered all household members aged 18 and over (18+). For reasons of comparability, however, the results of this study concern household members aged 25+.⁷

As the response rate varied across geographical areas, the data were weighted in order to reflect the population structure by area. Moreover, the distribution of the sample households' size was adjusted in order to correspond to the distribution of the population according to the 2001 census.

These weights restore the representativeness of the sample to the extent that the borrowing behaviour of the originally selected households that did not respond is the same as that of the responding households. However, this cannot be verified on the basis of the available data and, therefore, the survey results must be treated with some caution.

Table 1 shows that 47.7% of households reported some outstanding loan.⁸ This percentage is a lit-

⁶ The questionnaire covered all categories of household borrowing. For each type of loan, the duration, initial amount and outstanding balance were recorded, together with the size of the last instalment paid. Thereafter, information was requested concerning the income and the wealth of the household. In 2005, the questionnaire was enriched with questions about the difficulties encountered, in the correspondents' opinion, in servicing properly their loan obligations, in conjunction with the payment of other regular fixed expenses, as well as with questions about whether the respondents had ease of access to bank borrowing.

⁷ In the *Annual Report 2005* and in Simigiannis and Tzamourani (2006) certain data are given concerning the distribution of indebted households per category of loan and the average balance of loans in the sample which includes all the members of households aged 18+. In neither of the two samples (18+ or 25+) do the percentages or the average balance per loan category differ substantially.

⁸ For households where all members aged 18+ were included, this percentage stands at 46.9%.

tle lower than in 2002 (48.4%). This small difference is not statistically significant, but the fact that this percentage remained stable cannot be considered compatible with the high rate at which, as previously noted, bank lending to households increased in the three years 2003-2005. It appears, therefore, that a proportion of the households surveyed declined to declare that they have taken loans.

More specifically, the amount of housing loans, as recorded in the 2005 survey, leads to the estimate that the total outstanding balance of this category of loans came to €26.2 billion, corresponding to about 70% of the outstanding balance of housing loans, as reported by banks.⁹ On the other hand, the total outstanding balance of other bank loans to households, estimated on the basis of the survey data, amounts to €9 billion and corresponds to 40% of the outstanding balance of these loans, as recorded by banks. The available information does not help to examine to what extent the significant deviation between the survey-estimated and bank-recorded outstanding balance of loans is due to the fact that the percentage of households reporting a loan is relatively small or to the likelihood that these specific households underestimated the balance outstanding on their loans, or even to the possibility that borrowing is more concentrated among households that refused to take part in the survey.¹⁰ However, when the survey data are compared with data submitted by banks to the Bank of Greece, the following points come to light: the average outstanding balance of housing loans per household, as recorded by the 2002 and 2005 surveys, increased at an average annual rate of 12.1%, while the corresponding balance per account, as calculated from the relevant bank data, increased at an average annual

rate of 11.3% in the same period.¹¹ In addition, households' average outstanding balance on credit card loans, as shown by the sample surveys, rose at an average annual rate of 21.3% during 2003-2005, while the corresponding balance, as recorded by banks, increased at an average annual rate of 19.4%¹² over the same period. Consequently, the average annual growth rates of these two categories of loans, as calculated from bank and survey data, do not differ substantially. This corroborates the view that the borrowing behaviour of non-responding households is gen-

⁹ Usually, housing loans are repaid in biannual instalments. In the period March-August 2005, i.e. during the crucial six months before the survey, the average outstanding balance of housing loans, as recorded by banks (including securitised loans), amounted to €38.1 billion.

¹⁰ The deviation between the survey-estimated amount of loans and the amount recorded in the macroeconomic figures is a common phenomenon. A similar deviation can be observed between housing loans and other forms of bank borrowing. For instance, in a relevant survey conducted in 2004 in the UK by the Bank of England, the estimated outstanding balance on the basis of survey data corresponded to 80% of the effectively recorded balance for housing loans and 32% for unsecured bank loans (mainly consumer loans). See May, Tudela and Young (2004).

¹¹ The outstanding balance of housing loans per account (according to bank data) stood at €34.9 thousand at end-2005 (including securitised loans), from €25.3 thousand at end-2002. Correspondingly, the outstanding balance of housing loans per household (according to the 2002 and 2005 surveys) rose to €41.7 thousand in 2005, from €29.6 thousand in 2002 (see Table 1). Therefore, the outstanding balance of housing loans per account is lower than the average outstanding balance per household, indicating, as also shown by the surveys, that a number of households have more than one housing loan. However, the relation between the two aggregates remained virtually unchanged, since the outstanding balance per account corresponds approximately to 85% of the outstanding balance per household, indicating that the number of accounts per household did not change substantially over this period.

¹² Specifically, the outstanding balance of credit card loans, as recorded by banks, stood at €8,445.4 million at end-2005 — including securitised loans — compared with €4,957.2 million at end-2002. Correspondingly, the outstanding balance of credit card loans per household, as recorded by the sample surveys, stood at €3,039 in 2005, compared with €1,701 in 2002. It should be noted that, if account is taken of the outstanding balance per household, the data are adjusted for the fact that the number of households is different in the two surveys, thus making the evolution of credit card loans comparable between banks and the surveys, given that the number of Greek households remained almost unchanged during 2003-2005.



erally similar to that of responding households and, therefore, enhances the reliability of the survey results.

3. Loan categories

In order to present the results of the survey, loans have been divided into two basic categories: loans associated with the purchase of a dwelling – also referred to in this survey as “housing loans” – which include loans to purchase or refurbish a home or to purchase land, and “other” or “miscellaneous” loans, which include all other categories, i.e. non-housing bank loans, credit card borrowing and loans from private individuals.

Table 1 shows the percentages of households with loans falling into a specific category as part of the total of indebted households, as well as the average balance outstanding per loan category.

It appears that the distribution of indebted households throughout the different loan categories did not change significantly in the period between the two surveys. The most common category is credit card loans, as 54.1% of households with outstanding loans in 2005 had such debts. The increased use of credit cards for payments¹³ and the easy access to this type of loan, within the limits of each card, explain why they are widespread, despite the fact that bank interest rates for these loans are the highest among all loan categories.

The second most common category is housing loans (38%), followed by unsecured bank loans (28.9%, being mainly personal loans and loans against supporting documents).¹⁴ Moreover, the percentage share of households with outstanding

housing loans in the total number of indebted households is higher than in 2002. This is in line with the rapid increase in housing loans, since new housing loans are contracted, as a rule, by new borrowers. By contrast, the percentage share of households which declared that they (also) owe money on a different (non-housing) loan in the total of indebted households declined in 2005 in comparison with 2002 (2005: 81.2%, 2002: 85.3%). This decline relates to all categories of loan and is particularly marked in the case of retail store credit.

The average outstanding balance of household loans increased for all loan categories with the exception of retail store credit, which remained stable.¹⁵

4. The relationship between borrowing and the socio-economic characteristics of households: logistic regression analysis

In order to examine the relationship between borrowing and the demographic characteristics of households, logistic regression was used. A logistic regression model correlates a binary variable (i.e. a variable with two values: 0 and 1) with other continuous or discrete/categorical variables. More precisely, in this model, the dependent vari-

¹³ Note that, at end-2005, two credit cards corresponded to every three persons aged 20 and over. Moreover, the data submitted by banks to the Bank of Greece show that in 2003-2004 the number of credit card transactions increased at an average annual rate of 15% and the value of transactions by 37%, reaching €5.4 billion in 2004, from €2.9 billion in 2002.

¹⁴ There is no significant difference between the percentages of households per category of loan in the 18+ sample and the 25+ sample, see Bank of Greece, *Annual Report 2006*.

¹⁵ For a more detailed analysis of these developments, see Bank of Greece, *Annual Report 2006*, and Simigiannis and Tzamourani (2006).

Table 1
Indebted households by loan category

Loan category	Percentage of households				Average debt (in euro)	
	2002		2005		2002	2005
Without debt obligations	51.6		52.3			
With debt obligations	48.4	100.0	47.7	100.0	15,532	19,637
House-related loans ("housing loans")		37.2		38.0	29,557	41,701
Other loans		85.3		81.2	4,246	6,275
– Credit cards		53.1		54.1	1,701	3,039
– Car purchase		20.9		20.1	5,815	7,159
– Other bank loans (personal, consumer etc.)		29.4		28.9	2,979	6,570
From retail stores		16.3		8.9	1,294	1,254
From other households		2.8		1.3	12,447	5,496

Note: The percentages do not add up to 100% as some households have received more than one type of loan.

able is the logarithm of the ratio of the probability that the dependent variable will take the value 1 to the probability that it will take the value 0 (i.e. the logarithm of the relevant odds). In the analysis that follows, models were assessed for three independent variables, each of which indicates whether or not a household had (a) a loan of any type, (b) a housing loan and (c) other, non-housing loans. The following were examined as independent variables, i.e. as variables which are likely to affect the probability of a household having some type of loan: the degree of urbanisation of the locality in which the household is situated, the family status, the income group and net wealth group of the household, the age and educational level of the head of the household, the number of household members in employment and whether the head of the household is employed in the public or the private sector.

From alternative combinations of the above independent variables, in order to explain each of the three dependent variables, the two "best" models

were selected and are presented in Table 2. For each dependent variable two models were chosen such that the one included income and the other included net wealth¹⁶ as one of the independent variables, as these two variables both have a major effect on the probability of a household having a loan and are closely correlated. The models presented were selected on the basis of the following criteria as regards the other independent variables: (a) all the independent variables were statistically significant at the level of at least 10% and (b) the classification ratio, i.e. the percentage of cases in which the model correctly showed whether a household had a specific loan or not was comparatively higher. In Table 2, the independent variable coefficients are presented. These coefficients, for each category of independent variable, express the ratio of the odds of a household (in the specific category) having a loan to the odds of a household in the reference category having a loan, with the

¹⁶ Net wealth is defined as the total assets of a household minus the balance outstanding on housing loans.

Table 2
Logistic regression results

	All loans				Housing loans				Other loans			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	exp(b)	p-value	exp(b)	p-value	exp(b)	p-value	exp(b)	p-value	exp(b)	p-value	exp(b)	p-value
Athens and Thessaloniki	1.41	0.00	1.62	0.00					1.42	0.00	1.56	0.00
Semi-urban areas	1.01	0.93	1.07	0.58					0.94	0.60	1.00	0.96
Single-member households	0.58	0.00	0.49	0.00	0.38	0.00	0.39	0.00	0.78	0.09	0.62	0.00
Couple	0.54	0.00	0.51	0.00	0.73	0.05	0.73	0.10	0.65	0.00	0.60	0.00
Couple with one child	0.74	0.02	0.67	0.00	0.95	0.74	0.96	0.82	0.82	0.11	0.75	0.02
Couple with other household members excluding children	0.70	0.34	0.92	0.82	0.78	0.57	0.69	0.49	0.81	0.57	0.99	0.99
Other type of household	0.73	0.02	0.70	0.01	0.74	0.05	0.70	0.05	0.83	0.13	0.79	0.06
Up to 35 years old	1.01	0.92	1.07	0.62	0.87	0.41	1.02	0.94	1.00	0.95	1.05	0.75
46-55 years old	0.94	0.59	0.96	0.72	1.02	0.90	0.99	0.94	0.85	0.16	0.92	0.58
56 - 65 years old	0.84	0.20	1.00	0.98	0.69	0.02	0.74	0.10	0.79	0.06	0.95	0.86
66-75 years old	0.52	0.00	0.71	0.05	0.33	0.00	0.44	0.00	0.54	0.00	0.67	0.04
76 years old and above	0.21	0.00	0.29	0.00	0.15	0.00	0.20	0.00	0.22	0.00	0.28	0.00
Income up to €8,000	0.62	0.00			0.56	0.01			0.63	0.00		
Income from €13,001 to €20,000	1.71	0.00			1.00	1.00			1.85	0.00		
Income from €20,001 to €30,000	2.76	0.00			1.64	0.00			2.65	0.00		
Income from €30,001 and over	5.09	0.00			2.37	0.00			4.51	0.00		
Without assets			0.52	0.00			0.24	0.01			0.54	0.00
Assets from €10,001 to €50,000			1.46	0.01			3.91	0.00			1.18	0.30
Assets from €50,001 to €100,000			1.37	0.05			3.42	0.00			1.14	0.45
Assets from €100,001 to €300,000			1.91	0.00			5.11	0.00			1.55	0.01
Assets over €300,000			2.59	0.00			6.99	0.00			2.53	0.00
One household member in employment	1.31	0.05	1.98	0.00	0.70	0.07	1.17	0.51	1.37	0.03	1.99	0.00
Two or more household members in employment	1.18	0.33	2.70	0.00	0.73	0.15	1.63	0.05	1.36	0.07	2.85	0.00
Head of household employed in the public sector			1.23	0.11	1.57	0.00	1.51	0.01				
Constant	0.77	0.00	0.73	0.00	0.17	0.00	0.09	0.00	0.56	0.00	0.58	0.00
Classification ratio	68.5		68.4		86.4		86.4		68.0		65.7	

Reference groups: Place of residence: other urban areas (excluding Athens and Thessaloniki). Type of household: couple with two or more children. Age group: 36-45 years old. Income group: from €8,001 to €13,000. Educational level: completion of six years at lower secondary or upper secondary level. Number of household members in employment: zero.

prerequisite that all the other variables included in the model remain stable. Thus, in model 1, the coefficient 1.41 of “Athens and Thessaloniki” indicates that the ratio of the odds a household which is resident in Athens or Thessaloniki having some type of loan is 1.41 times greater than the corresponding odds of households resident in other urban areas (i.e. in the reference group used for the specific regression).

The results of this analysis have been compared with those of 2002,¹⁷ in order to pinpoint any possible differences in household borrowing behaviour in the period intervening between the two surveys.

As noted above, households in Athens and Thessaloniki are significantly more likely to have a loan than households in other urban areas. This increased likelihood reflects the correspondingly high probability of households in Athens and Thessaloniki having a non-housing loan. By contrast, for housing loans, the degree of urbanisation of a household’s location of residence does not appear to influence the probability of a household having such a loan. The 2002 survey data provided similar results, though there is a difference in that the latest survey also shows differentiation between other urban and semi-urban areas. Households in semi-urban areas are significantly less likely to have some type of loan in comparison with households in other urban areas. This analysis appears to indicate that, in the period intervening between the two surveys, the degree of bank penetration into semi-urban areas increased to almost match that in other urban areas.

The probability of a household having a loan is affected by the composition of the household. If all the loans are examined, it can be observed

that couples with two or more children (reference group for the regression) are more likely to have a loan of some type in comparison with one-member households, couples, couples with one child or other households, while the probability of households which comprise a couple and other members excluding children having taken a loan does not differ to any level of statistical significance from that of the reference group. Similar results are obtained if the analysis is restricted solely to housing loans or solely to other types of loan. Thus, it appears that the composition of the household is a significant factor in whether or not the household takes out a loan, as the composition to a large degree determines its financial needs.

The age of the head of the household also appears to have a significant impact on the probability of a household having a loan, although no statistically significant differences can be observed among age groups below 66 years old. More specifically, where the head of the household is over 66, the probability of the household having some type of loan in comparison with households in which the head is in a different age group is lower. This result is perhaps to be expected, as households where the head of household is in this age group do not usually still owe money on any housing loan they may once have had. Moreover, the majority of these heads of household are pensioners. Thus, in accordance with the life cycle theory of consumption, their expenditure for consumption must depend, apart from their savings, i.e. their wealth, chiefly on their current income. These households do not generally expect this income to change to

¹⁷ See Mitrakos, Simigiannis and Tzamourani (2005).



any significant degree, which would allow them to change their standard of living correspondingly and to fund any possible shortfalls via borrowing. In 2002 a difference was noted for households where the head was aged up to 35 years old. These households too were less likely to have a loan in comparison with households where the head was aged between 35 and 65. It appears that in the intervening years between the two surveys, borrowing also expanded among households with a younger head.

Household income and wealth affect the probability of a household having a loan. More specifically, the results of the regression show that there is a positive correlation between income and the likelihood of a specific household having a loan, given that, the greater the income, the greater the likelihood of borrowing. This positive correlation can be observed both when borrowing as a whole is examined and when housing and other loans are examined separately, although the phenomenon is considerably more evident in the case of other loans.

The positive correlation between the probability of having taken a loan and wealth is even stronger. This result is to a large degree due to housing loans, as taking a housing loan entails the acquisition of wealth. There is also a positive correlation between wealth and the probability of a non-housing loan being taken, although this correlation is less strong.

The educational level of the head of the household did not appear to have any statistically significant effect on the probability of households having taken a loan, neither in the model containing all loans nor in the two individual sub-models. This is

possibly due to the fact that the educational level determines to some degree the income level of the household. Indeed, if income is not included in the logistic regression model, the educational level becomes statistically significant and thus appears to play a role in determining the probability of a household having some type of loan.

The number of household members who are in employment also affects the probability of a household having a loan, as households with more than one member in employment are more likely to have a loan, particularly a non-housing loan. In the model containing all loans, when there is control for income, the number of members in employment is not statistically significant. This shows that income is a more powerful determinant. In the case of non-housing loans, however, the existence of more than one working member in a household increases the probability of such a loan being taken, irrespective of the household income. This may reflect the fact that more members of the family usually have other loans, particularly consumer loans, than housing loans, for which just one member of the household is usually liable.

Finally, whether the head of the household works in the public sector or in the private sector has an influence on the probability of a household having taken out a housing loan. More specifically, the probability is greater among those in the public sector. This was also observed in 2002.

5. Debt-to-income and debt-to-wealth ratios

As seen in the previous section, the income and wealth of households affect the probability of their having some type of loan. In this section, the

Table 3
Distribution of indebted households by income group

Income group (in euro)	Distribution of indebted households (% of households)		Contribution to total outstanding debt of sample (%)		Average outstanding debt (in euro)		Median of outstanding debt as a percentage of income (%)	
	2002	2005	2002	2005	2002	2005	2002	2005
a. Total loans								
Up to 7,500	8.3	5.4	3.5	3.4	5,684	12,637	25.7	61.2
7,501-15,000	27.8	28.2	19.0	22.5	10,238	15,655	29.2	37.7
15,001-25,000	33.5	34.5	32.8	26.9	14,783	15,325	22.8	29.4
25,001-35,000	16.3	19.0	19.6	27.1	18,182	27,976	15.4	34.2
35,001+	14.1	12.9	25.1	20.1	25,898	30,597	11.0	28.1
Total*	1,063	1,215			15,532	19,637	22.8	33.5
b. Housing loans								
Up to 7,500	5.9	4.8	3.0	3.4	14,846	29,418	252.7	262.0
7,501-15,000	23.5	24.1	17.0	22.9	21,407	39,754	103.6	272.7
15,001-25,000	32.7	31.1	32.7	24.3	29,565	32,739	86.1	123.1
25,001-35,000	17.1	23.1	20.8	29.0	35,906	52,834	74.1	106.2
35,001+	20.8	16.9	26.6	20.4	37,666	50,671	38.3	61.2
Total*	409	422			29,557	41,701	79.6	127.8
c. Other loans (non-housing)								
Up to 7,500	8.9	5.3	5.1	3.5	2,412	4,154	25.2	41.3
7,501-15,000	28.4	28.8	25.5	21.3	3,805	4,620	20.2	21.8
15,001-25,000	33.4	35.6	33.2	34.2	4,221	6,006	10.2	15.3
25,001-35,000	15.7	17.6	16.0	21.6	4,327	7,653	8.5	12.4
35,001+	13.6	12.7	20.3	19.5	6,342	9,584	5.1	10.3
Total*	889	998			4,246	6,275	11.2	17.0

* Refers to all indebted households and concerns, respectively, the number of households, their average outstanding debt and the median of outstanding debt to income.

distribution of the level of borrowing and the loan burden in relation to income and wealth is examined.¹⁸ As shown in Table 3, there is a positive correlation between the level of household borrowing and household income group,¹⁹ and average indebtedness per income group rises as income increases. Indeed, the proportion of total borrowing in the sample accounted for by those in the lowest income groups is smaller than their contribution to the sample, while the contribution of the two highest groups, which together represent 31.9% of the households in the sample,

amounts to 47.2%. Similar results were observed in 2002.²⁰ These figures show that the access of low-income households to the banking system remains limited, while it seems that, in the framework of a more effective credit risk management, competition between banks to attract customers

¹⁸ In this section, a summary is provided of the results of the analysis presented in Bank of Greece, *Annual Report 2006*, and Simigiannis and Tzamourani (2006).

¹⁹ Households were requested to declare the net income of each household member.

²⁰ In addition, a positive correlation between income and borrowing levels was observed by Cox, Whitely and Brierly (2002).



Table 4
Distribution of indebted households by wealth group

Wealth group (in euro)	Distribution of indebted households (% of households)		Contribution to total outstanding debt of sample (%)		Average outstanding debt (in euro)		Median of outstanding debt as a percentage of wealth (%)	
	2002	2005	2002	2005	2002	2005	2002	2005
a. Total loans								
Up to 10,000	16.8	17.4	5.2	4.7	4,127	4,696	30.3	75.8
10,001-50,000	11.6	18.6	5.2	8.5	5,977	8,060	9.4	16.5
50,001-100,000	22.4	23.5	18.7	21.4	11,070	15,923	6.1	8.0
100,001-200,000	26.8	25.3	35.3	30.5	17,479	21,163	4.2	7.4
200,001+	22.0	15.3	35.6	34.8	21,078	39,899	1.4	5.0
Total*	978	1131			15,532	19,637	5.1	10.7
b. Housing loans								
Up to 10,000	-	-	-	-	-	-	-	-
10,001-50,000	6.2	12.1	2.7	4.2	12,579	13,198	29.9	23.7
50,001-100,000	26.4	27.5	18.1	21.5	19,484	29,752	22.5	33.6
100,001-200,000	35.2	33.1	40.8	33.4	32,877	38,700	19.0	19.9
200,001+	31.5	26.7	38.2	40.8	34,418	58,442	5.7	11.4
Total*	328	363			29,557	41,701	13.2	19.9
c. Other loans (non-housing)								
Up to 10,000	19.8	20.6	18.1	15.5	4,049	4,669	23.8	74.4
10,001-50,000	12.8	19.7	11.5	18.8	3,971	5,909	7.4	12.1
50,001-100,000	21.7	22.1	20.3	21.3	4,147	5,975	3.7	4.7
100,001-200,000	24.8	23.7	21.3	23.8	3,824	6,231	1.7	2.2
200,001+	20.8	13.9	28.9	20.7	6,159	9,251	0.5	1.2
Total*	823	953			4,246	6,275	2.4	4.7

* Refers to all indebted households and concerns, respectively, the number of households, their average outstanding debt and the median of outstanding debt to wealth.

** The number of households in this group is too small to be statistically assessed.

is more focused now than in the past on households in the highest income groups.

In any event, the vast acceleration of credit expansion to households in 2003-2005 resulted in a significant increase in their overall loan burden, as measured by their loan to income ratio. The median²¹ of the loan burden for all households rose to 33.5% in 2005, from 22.8% in 2002, mainly reflecting the evolution of the housing loan burden. It should be noted, however, that the loan

burden of households in the first income group increased substantially compared with 2002 (2005: 61.2%, 2002: 25.7%) and is much higher than the average burden of all households.

Similar results can be observed when housing and other (non-housing) loans are examined sepa-

²¹ The median was chosen instead of the average on the basis of the observation that the distribution of the loan burden is characterised by a significant positive asymmetry, since there are few but important outliers that affect the average disproportionately.

rately (see Tables 3b and 3c). Average outstanding loan balances in both these categories of loan have increased for all income groups. In addition, the associated loan burden of households has increased as the median of the outstanding balance on loans has risen as a percentage of income. Particularly sharp increases in this ratio can be observed in the case of the second income group as far as housing loans are concerned, and also as far as other types of loan are concerned in the case of lower income groups. It should be noted, however, that households in the lowest wealth group represent a small percentage of the sample (and, by extension, of the population) and the contribution of their borrowing to total indebtedness within the sample is small.

A positive relationship can also be observed between the level of loans and the scale of households' wealth. On average, the size of households' loans increases in line with their wealth, and households in the higher income groups have correspondingly higher loan balances outstanding. This positive correlation between the level of borrowing and wealth reflects to a large degree the distribution of housing loans, since taking a housing loan means that a property of similar value is acquired (see Table 4). This correlation was more pronounced in 2005 than in 2002, a fact which must be directly related to the very large increase in housing loans during the period between the two surveys. By contrast, the contribution of households in each wealth group in the total of non-housing loans is relatively uniform, indicating that households do not need to own property to have access to other loans. For 50% of households, the ratio of their outstanding loan balance to their wealth, i.e. the median of this ratio, despite increasing in 2005, does not exceed

the very low level of 10.7%, compared with 5.1% in 2002. The median is relatively high (75.8%) only in the case of households in the first wealth group and there is a number of households whose outstanding non-housing loan balance exceeds their wealth.

6. The debt burden and the age of the household head

Table 5 shows the distribution of indebted households in relation to the age of the household head. In comparison with the 2002 survey, this distribution shows that the percentage of households with a household head aged up to 55 years old was greater in the 2005 survey, while there was a corresponding drop in the percentage of households with a household head aged over 55 years. The contribution of those in lower age groups to the total survey loan balance was, in general, greater in 2005, with the exception of the second age group (35-45 years old), whose contribution declined. For age groups up to 65 years old, an increase was observed in the average loan balance outstanding, while for all the age groups an increase was noted in the median of the loan balance as a percentage of income. These results imply that, irrespective of the age of the household head, during the period under examination borrowing obligations increased more rapidly in general than income and the bulk of new borrowing is concentrated among those in lower age groups.

When examining the same variables for housing loans, we can observe, as with loans as a whole, that there has been an increase, in comparison with 2002, in the percentage of borrowers repre-



Table 5
Distribution of indebted households by age group

Age group (years)	Distribution of indebted households (% of households)		Contribution to total outstanding debt of sample (%)		Average outstanding debt (in euro)		Median of outstanding debt as a percentage of income (%)	
	2002	2005	2002	2005	2002	2005	2002	2005
a. Total loans								
Up to 35	15.8	16.8	14.2	21.1	13,338	24,732	22.8	36.4
36-45	26.8	29.4	34.8	32.4	19,300	21,634	27.3	36.1
46-55	22.2	25.4	22.8	26.6	15,235	20,536	24.2	43.7
56-65	17.1	16.6	14.4	14.9	12,433	17,525	19.3	35.4
66-75	11.9	9.1	8.7	3.9	10,881	8,295	15.0	15.1
76+	6.2	2.6	5.2	1.2	12,403	8,918	12.2	14.7
Total*	1063	1215			14,850	19,637	22.8	33.5
b. Housing loans								
Up to 35	11.0	14.7	13.9	23.1	37,050	65,440	170.0	329.7
36-45	26.9	31.3	37.2	33.7	41,049	44,965	128.5	166.7
46-55	24.2	29.6	22.7	27.2	27,788	38,337	82.6	100.0
56-65	19.8	16.1	13.9	12.6	20,805	32,591	30.5	87.4
66-75	11.7	6.4	6.9	2.3	17,366	14,734	34.0	25.9
76+	6.6	1.9	5.4	1.2	24,457	25,235	25.7	133.3
Total*	409	422			29,557	41,701	79.6	127.8
c. Other loans (non-housing)								
Up to 35	17.7	17.2	15.1	15.5	3,622	5,669	12.0	20.0
36-45	27.9	29.8	27.0	28.7	4,111	6,042	12.6	17.5
46-55	21.8	24.1	23.0	25.0	4,464	6,492	10.8	18.1
56-65	15.3	16.9	16.0	21.2	4,428	7,871	12.1	17.1
66-75	11.6	9.5	14.5	8.3	5,316	5,483	7.3	10.0
76+	5.6	2.5	4.4	1.3	3,320	3,332	8.5	11.9
Total*	889	998			4,246	6,275	11.2	17.0

* Refers to all indebted households and concerns, respectively, the number of households, their average outstanding debt and the median of outstanding debt to income.

sented by households headed by younger people. The share of those in the 25-35 year-old and the 46-55 year-old groups (particularly that of the former group) in the total balance outstanding on these loans has also increased.

For all households whose head is up to 65 years old, the average balance outstanding on housing loans has grown, with a particularly sharp

increase in the case of households in the lowest age group (head of household up to 35 years old), i.e. the youngest households. This result is to be expected, as such households have, in general, taken out a housing loan more recently and are, therefore, at the beginning of the repayment period. Not only do such households have the greatest loan burden, i.e. the highest outstanding loan balance to income ratio, but, in addition,

their burden increased during the period 2002-2005 at a much faster rate than that of other households (see Table 5).

A slight difference can be seen in the distribution of households as far as "other" (i.e. non-housing) loans are concerned. An increase is observed in the percentage of indebted households headed by people in the medium age groups (35-65 years old) and the share of these age groups in the total balance outstanding on loans within the sample shows a corresponding increase. For all age groups, however, the average balance outstanding on these loans has increased, as has the median of the loan balance to income ratio. The greatest increase in this median relates to younger households, i.e. those with a head 25-35 years old, which have the highest median.

7. Debt-service costs and income

The ratio of loan balance to income shows the relative loan burden on households. However, this ratio does not necessarily mean that all households with a high debt burden are facing difficulty in servicing their loans properly, as the loan repayment period may be sufficiently long. One indicator which measures financial pressure on households resulting from loan servicing is the ratio of instalments paid to monthly income. According to international literature, ratio values of up to 30% or 40% are considered satisfactory, in other words it is accepted that households with a debt service ratio of up to 40% can service their loans relatively comfortably (see DeVaney, 1994, Garman and Fogue, 1991, and Lytton, Garman and Porter, 1991). As noted in Bank of Greece (2006), the distribution of debt service costs improved in 2005 in

comparison with 2002, in the sense that in 2005, fewer households had a high debt service ratio. More specifically, the percentage of households which had a debt service cost greater than 40% of their income fell to 12% in 2005, from 17% in 2002. Of course, the significance of this ratio and the limits within which it is desired to fluctuate in order to allow households to service their loans without difficulty are both associated with households' disposable income and with the size of their other financial obligations, e.g. rent payment obligations in cases where the household is not an owner-occupier of a dwelling.

Table 6 presents the percentiles of the debt service to income distribution for three income groups for all households with some type of loan. It also gives an analysis for households with or without an owner-occupied dwelling. In addition, Chart 1 illustrates the distribution of this ratio for three income groups and for households as a whole in 2005 and 2002. As was to be expected, the debt service ratio for households in the lowest income group, i.e. with a net annual income of up to €15,000, is higher than the average for all households. Of these households, 35% have a debt service ratio higher than 30% and 21% have a ratio in excess of 40%. The distribution of the debt service ratio improves markedly for the next two income groups. In the medium income group (€15,000 to €30,000), 15% of households have a debt service ratio of more than 30% of their income and just 8% have a ratio higher than 40%. In the case of the highest income group, the percentage of households with debt-service costs higher than 30% drops to 11%.

Obviously, it is easier to service loans when there are no other obligations, e.g. rent. As



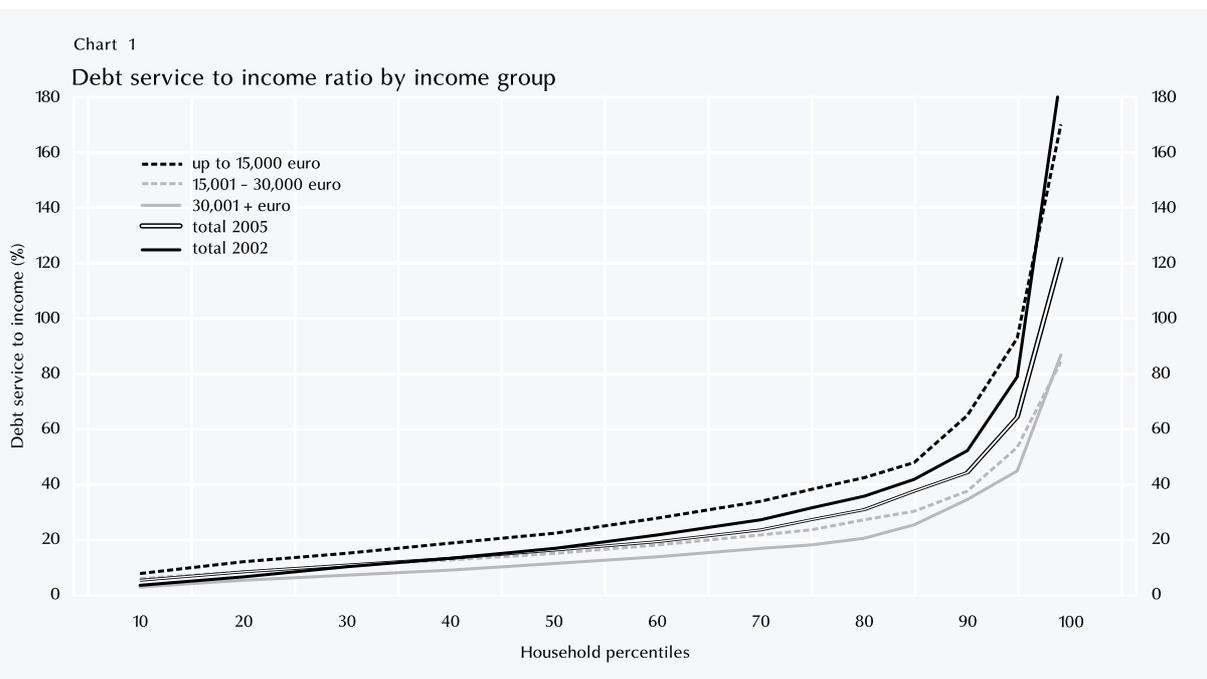
Table 6

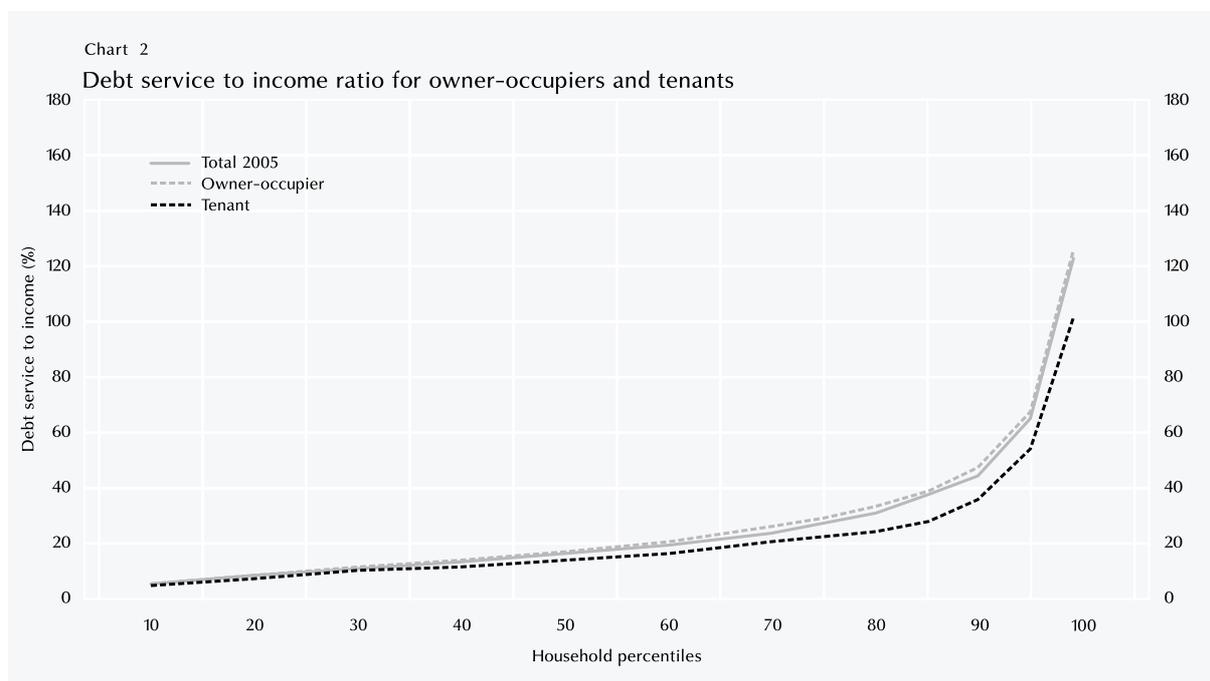
Debt service to income ratio by income group and for owner-occupiers and tenants

(Percentages)

Household percentiles*	Income group (in euro)			Dwelling:		Total households	
	Up to 15,000	15,001–30,000	30,001+	Owner-occupier	Tenant	2002	2005
10	8.2	6.0	3.3	5.7	5.1	3.7	5.6
20	12.0	8.7	5.3	8.6	7.2	6.7	8.3
30	15.2	11.0	7.1	11.4	10.3	10.4	11.0
40	18.7	13.0	9.4	14.0	11.5	13.4	13.6
50	22.6	15.6	11.6	17.1	13.8	17.3	16.2
60	28.0	18.6	13.8	20.7	16.4	22.1	19.7
70	34.3	22.1	17.1	26.1	21.0	27.3	24.0
75	38.7	24.0	18.1	29.3	22.3	32.0	27.6
80	42.5	27.8	20.6	33.3	24.1	36.3	31.3
85	48.0	30.4	25.3	39.1	28.1	42.1	37.6
90	65.2	37.9	34.7	47.3	36.0	52.4	44.3
95	93.3	53.5	45.0	67.4	54.0	79.3	64.9
99	171.1	84.7	87.2	126.0	101.4	189.1	122.8

* Percentage of households with a debt service to income ratio less than or equal to the corresponding value shown in the table, e.g. for 20% of households the debt service to income ratio did not exceed 8.3% of their income in 2005.





already mentioned, however,²² the bulk of the loan balance outstanding for households with a high debt service ratio relates to housing loans. Specifically, 80% of the loan balance of households with a debt service ratio of more than 40% of income relates to housing loans. However, although the debt service ratio is high, account must be taken of the fact that the majority of these households, though not all of them, are not burdened with rent payments. It is, therefore, particularly important to examine how high the debt service ratio is for households which do not own a home and are, as a result, further burdened by rent payments. In Chart 2, a comparison is provided of the distribution of the debt service to income ratio for owner-occupiers and tenants. Households which do not own their home face a lower debt-service ratio than those which do. Of the households which do not own their home 86% have a debt service cost of less than 30% of income.

8. Loan servicing by households

The 2005 questionnaire also asked if the borrower “pays, in general, the instalments on the loan regularly.”²³ Of the responding households, 11.5% declared that they do not pay their loan servicing instalments regularly. Below, certain socio-economic characteristics and financial indicators are examined which relate to households that declared they are late in making repayments compared with those which stated that they service their loans properly.

For both these groups of households, Table 7 indicates the average and the median for the income, the loan balance outstanding, the ratio of

²² See Bank of Greece, *Annual Report 2006*.

²³ This question referred to all bank loans (excluding credit card debt) and to loans from retail stores.



Table 7
Debt servicing and households' economic characteristics

Debt servicing	Outstanding debt (in euro)		Income (in euro)		Outstanding debt/income (percentages)		Loan instalments/income (percentages)	
	Average	Median	Average	Median	Average	Median	Average	Median
Proper	23,261	9,300	22,889	20,000	118.9	43.9	21.3	16.0
With a delay	23,370	11,336	21,315	17,420	177.0	64.1	28.9	16.5
Total households	23,273	9,783	22,704	20,000	125.7	46.7	22.3	16.0

the loan balance to income and the ratio of instalments to income.

Households which declared that they do not service their loans properly have lower income levels and a higher loan burden indicator. It can be observed that both categories of households have, on average, approximately the same loan balance outstanding. However, the median of the loan balance is significantly higher for households which declared they are late in servicing their loans. In other words, households which do not service their loans properly have generally higher loan balances outstanding than households which service their loans regularly. In addition, as shown in Table 7, households which do not service their loans properly generally have higher balances outstanding than other households, not only in absolute terms but also in relation to their income, as is to be expected. Roughly the same conclusion can be drawn when the ratio of instalments to income is examined. The median of this ratio does not differ substantially between the two groups of households. More specifically, for 50% of households in either group the instalments they pay do not exceed approximately 16.5% of their income. However, the average of this ratio is considerably greater, in comparison with that of other households, in the case of households

which declared they are late in repaying their loans. There are, therefore, some households in the specific group for which the values of this ratio are very high.

Table 8 presents the percentages of households which do not service their loans regularly broken down by income group, educational level, type of job (seasonal or otherwise) and size of household.

Except for the first income group, which, in comparison with the others, shows a considerably higher percentage of households which declared that they do not service their loans regularly, such percentages do not differ significantly among the other income groups, nor is any trend evident towards a reduction in the percentages when there is an increase in income. It would be normal to expect these percentages to approach or reach zero in the higher income groups (see Table 8.a).

A more powerful determinant, however, appears to be job stability, i.e. whether the head of the household has steady employment or is employed on a seasonal basis. As can be seen from Table 8.b, 31% of households headed by a person who is employed on a seasonal basis declared that they do not repay their loans regu-

Table 8
Households which declared that they do not service their loans properly
(Percentages)

Category	Improper servicing
a. By income group (in euro)	
Up to 7,500	22.0
7,501-15,000	13.4
15,001-25,000	10.2
25,001-35,000	9.6
35,001+	11.7
Total households	11.5
b. By employment type	
Seasonal	31.0
Non-seasonal	9.9
Total households	11.5
c. By size of household	
1 member	7.9
2 members	8.7
3-4 members	12.6
Over 4 members	14.0
Total households	11.5
d. By educational level	
Up to primary school	18.2
Lower secondary	12.2
Upper secondary	8.0
Higher education +	7.7
Total households	11.5

larly, while this percentage stands at 9.9% in the case of households where the head is employed on a permanent basis. The irregularity of income in such households appears to affect the proper settlement of their loan obligations.

The size of the household as well appears to be correlated with the failure of some households to repay their loans properly. As can be seen from Table 8.c, households with one or two members display a significantly lower percentage of improper debt servicing in comparison

with households with three or more members. This may, perhaps, be explained by the increased and, perhaps, to a large degree unpredictable needs faced by larger households.

In addition, there appears to be a correlation between the educational level and the delay in loan repayment. As can be seen from Table 8.d, the percentage of households which declared they are late in paying instalments on loans becomes steadily smaller in households where the head has a higher level of education. Thus, the percentage of households which do not service their loans regularly, which stands at 18.2% for households where the head was educated up to primary school level, falls to 12.2% when the household head has completed lower secondary school education and drops further to 8% when the household head has graduated from upper secondary school. It declines a little further for graduates of higher education colleges and universities and for those with postgraduate qualifications. Of course, as stressed in the previous section, there is a significant positive correlation between income and the level of education and the above finding partly reflects this correlation. However, in the logistic regression model where improper loan servicing was the dependent variable, the educational level proved statistically to be a more significant determinant than the income of the household. Thus, it appears that the correlation of the educational level with loan servicing is a more complex issue. However, the small number of households which declared that they do not service their loans properly makes it impossible to apply more complex models of logistic regression in order to examine the interaction of socio-economic household characteristics relating to this phenomenon.



9. Conclusions

This study examined borrowing by households, the degree of their loan burden, the cost to households of servicing their debts as well as whether or not they service their debts properly, in conjunction with their demographic and economic characteristics. The data used for this analysis were derived from sample surveys of households carried out by the Bank of Greece in 2002 and 2005.

To study how households' demographic and economic characteristics affect the probability of their having taken out some type of loan, logistic regression models were estimated. The results showed that the degree of urbanisation of the household location, the composition of the household, the age of the household head, the number of household members in employment, and the income and wealth of the household are all associated with the probability the household having taken a loan. More specifically, this probability is greater for households resident in Athens and Thessaloniki than for those in other urban and semi-urban areas of Greece, for families with several members (couples with two or more children or other household members resident), for households whose head is less than 66 years old and works in the public sector (in the case of housing loans), and for households where more than one member works (for non-housing loans). The probability of a loan being taken also rises as household income or wealth increases.

As for the level of borrowing, it is positively correlated with households' income and net wealth, as the average balance outstanding generally

increases with their income and wealth. In addition, the share of the higher income and wealth groups in the sample's total outstanding debt balance is greater than their share in the sample of households.

There is a correlation between the level of borrowing and the age of the household head. Households whose head is up to 55 years old have larger average balances outstanding and their share in the total balance outstanding within the sample is greater than their participation in the sample examined. It should be noted that, in comparison with 2002, a particularly sharp rise was observed in the loan burden among younger households, i.e. those whose head is up to 35 years old.

There was general improvement in comparison with 2002 concerning the financial pressure which loans create for households, as measured by the ratio of interest and amortisation payment instalments to household income. The most recent survey recorded a smaller percentage of households for which this ratio takes values which are considered high (above 30% or 40%). However, among households in the lower income groups (annual income up to €15,000), the percentage of households with a ratio above 30% and 40% is higher than the percentage of households as a whole they represent. A differentiation of the distribution of this ratio is also observed between households which own their home and those which do not. Servicing loans generally places greater financial pressure on owner-occupiers, although this pressure is at least partly offset by the absence of the requirement to pay rent.

The study also looked at the financial and demographic characteristics of the households which

declared that they do not service their loans properly. These households generally have greater outstanding loan balances, a lower income and a higher average debt service to income ratio, i.e. they are under greater financial pressure. However, the sharpest differentiation between those households who service their debts properly and those which do not can be seen when data are controlled for the size of the household, the educational level and the type of employment (permanent or seasonal) of the household head. Households with one or two members were less likely to report difficulty in servicing loans properly than households with

three or more members. In addition, the percentage of households whose head has completed primary school education and which declared delays in servicing their loans was more than twice that of households whose head has studied at a higher education college or university or at postgraduate level. This result, however, probably reflects the positive relationship between educational level and income. The percentage of households declaring delay in repaying their loans was three times greater for households whose head is seasonally employed. This must be associated with the fact that their income flow is not stable.



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Education, labour market and wage differentials in Greece*

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1. Introduction

Macroeconomic theory lays emphasis on the importance of human capital and its contribution to the theory of economic growth. Initially, economists such as Adam Smith and David Ricardo attempted to study economic growth and determine its causes. Much later, mostly in the 1950s and 1960s, the first theories on economic growth were formulated. In these initial attempts to interpret economic growth, changes in technology – and, therefore, the increase in productivity – were regarded as exogenous factors with no effect on the long-term growth rate. In the early 1980s, a new approach to economic growth theory underlined the role of human capital as an important factor of economic growth. The reinstatement of the concept of human capital shows its particular significance for economic growth and social welfare.

Faster economic growth is associated with a rise in the quality of the labour input through accumulating human capital, which requires education. This new aspect of education is very significant, as it affects economic growth, both directly, making employed persons more productive, and indirectly, leading to the creation of knowledge, ideas and technological innovation.¹

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¹ For an extensive review of literature on the effects of education on economic growth and empirical evidence in developed economies see, *inter alia*, Aghion and Howitt (1988) and Temple (2001).



Recent empirical studies at an international level show the importance of investing in human capital for productivity and economic growth (OECD, 2004). The improvement in human capital seems to be the key factor contributing to economic growth and an increase in productivity, particularly in Greece, Ireland, Italy and Spain. In these countries, more than half of every additional percentage point of increase in output during the 1990s, compared with the previous decade, is attributed to the improvement in human capital.

Apart from contributing to the economic growth of a country, another aspect of the significance of education is the one associated with the productive characteristics of a person and is identified by Becker and Mincer's human capital theory. According to the human capital theory, education increases a person's skills, while at the same time it helps develop and cultivate already existing ones, thus making an employee more productive and efficient, as well as better paid. Theory, as well as most empirical studies, supports the view that higher education levels are associated with higher remuneration and better opportunities for career advancement.

However, both theoretically and empirically, it seems that remuneration is different between employees with the same productive characteristics. In particular, studies probing the existence of wage differentials between men and women indicate that men are better paid than women. Moreover, studies go on to establish whether these differentials are explained by the productive characteristics of employees (education among other things) or they constitute the unexplained part of the differences in remuneration. Other recent empirical studies examine whether the wage dif-

ferential between male and female workers varies across the spectrum of the wage distribution, i.e. between lower- and higher-paid employees, as well as the extent to which the factors accounting for wage differentials which are associated with the productive characteristics of employees change across the wage distribution spectrum (Albrecht, Bjorklund and Vroman, 2003, Papatrou, 2004, de la Rica, Dolado and Llorens, 2005, and Arulampalam, Booth and Bryan, 2007).

However, although human capital plays an important role in the economic growth of a country and has a decisive effect on remuneration, there are few studies examining these associations in Greece.² The Greek labour market has similar characteristics to the labour markets of some European Union countries, such as Spain and Italy, but is quite different to the labour markets in other EU countries. There are major differences and similarities concerning genders, which depend on the education level of employees. Among other things, what differentiates the Greek labour market from that of other European countries is the women's participation rate.³ This rate is considerably lower in the Greek labour market than in the EU, but grows with the rise in the education level of women. There are relative remuneration differences between male and female employees in Greece, compared with other European countries. According to Eurostat data (2006),⁴ the ratio of the earnings of women to those of men in Greece is higher than the EU

² Regarding the role of education in the Greek labour market, see also Tsakloglou and Cholezas (2005), Kanellopoulos, Mavromaras and Mitrakos (2003) and Psacharopoulos (1999).

³ The labour force participation rate is defined as the labour force aged 15-64 as a percentage of the population aged 15-64.

⁴ Data refer to employees aged 15-64 working longer than 15 hours per week in the whole economy for the year 2004.

average. Particularly in 2004, the ratio of average gross hourly earnings of women to those of men in the economy as a whole was 90% in Greece, i.e. higher than the corresponding figure in the EU-25, which was 85%. A possible explanation is that in countries like Greece, where the labour force participation rate for women is relatively low, women participating in the labour market display a high education level, which allows for limited wage differentials between them and men. In contrast, in countries where the participation rate of women with a lower education and skill level is higher, wage differentials between men and women are probably larger (Papapetrou, 2003, 2004, and OECD, 2002).

The existence of wage differentials between men and women in Greece and the extent to which they can be accounted for by differences in the productive characteristics of employees is discussed in a recent survey (Papapetrou, 2004).⁵ According to this survey, even after controlling for different male and female productive characteristics, there still exists an unexplained part of the wage differential between men and women. However, the above survey does not explicitly probe the role played by education and the extent to which the observed wage differentials are explained by the productive characteristics of employees, depending on their education level. The present study aims to expand the examination of wage differentials between men and women and probe the effect of education levels on those differentials. For this purpose, men and women employees are distinguished according to their education into low education level employees (primary and secondary education) and high education level employees (post-secondary non-tertiary education, tertiary education

and post-graduate studies). Then, the existence of wage differentials between men and women depending on the education level is analysed, at the mean and across the entire wage distribution, employing the quantile regression analysis technique. Finally, the study makes use of a variation of the Oaxaca and Blinder decomposition technique in order to explain components of gender wage differentials by education level, on average and in various deciles of the wage distribution. Thus, it is possible to analyse the degree to which this differential is due to differences in the productive characteristics of employees or cannot be explained on the basis of them. The analysis uses statistical data for Greece from the 2004 NSSG survey on Income and Living Conditions (EU-SILC, European Union Statistics on Income and Living Conditions), which refer to income in 2003. This study is the first methodological approach for Greece which takes advantage of this particular database in order to analyse gender wage differentials.

The rest of the study is structured as follows: The second section briefly describes the relation between certain measures of the Greek labour market and the educational characteristics of the population. The third section presents the theoretical approaches used in the analysis of wage differentials between men and women, taking into consideration the role of education, while the fourth section is a presentation of the statistical data used in the analysis. The fifth section presents the methodology of the empirical analysis and reports the empirical results. The last section summarises the conclusions.

⁵ Papapetrou (2004) examines studies on wage differentials in Greece.



2. Education and the Greek labour market: some key features

2.1 Education and skill level of the population

The education level of the Greek population is an indication for the development capacity of the country. In Greece, almost 11% of the population over 15 years of age is university graduates, while 30% of the population of the same age has only completed primary education.

In detail, as regards the 25-34 age group, 17% are university graduates, while this rate decreases towards older ages (OECD, 2004). Younger persons record higher education levels (tertiary education) compared with those already participating in the labour market. This change in education characteristics over time possibly reflects the change in the education preferences of the population, which is attributed to stronger demand for a highly skilled workforce, the rise in unemployment, which affects the rate of young people wishing to get tertiary education, as well as the general increase in demand for education.

According to Eurostat data (2006) for 2005, the percentage of women aged 20-24 that has completed at least secondary education in Greece (88.7%) exceeds the Community average (80% for EU-25). As regards men of the same age group, the corresponding percentage is 79.4%, i.e. lower than that of women but higher than the Community average for men (74.6% for EU-25).

Particularly interesting is the progress of younger employees towards obtaining tertiary education. Greece is one of the three countries (with Portu-

gal and Mexico) that have managed to improve the level of obtaining tertiary education among generations, although in Greece the percentage of younger persons that have completed tertiary education is smaller than the average for OECD countries (24% in Greece, 28% in the OECD countries in 2002).

In 2005, the percentage of highly skilled persons (high education level) in Greece stood at 18% of the working age population (15-64 years), while almost 41% of this group was low-skilled (lower education level) and 42% was medium-skilled (medium education level – see Table 1). The percentage of the highly skilled working age population is lower than the corresponding percentage for the EU as a whole (around 20%). The same goes for both men and women who are highly skilled employees (European Commission, 2006). Highly skilled men and women constitute 18% and 17%, respectively, of the working age population in Greece.

2.2 Education and labour force participation

Labour force participation increases with the education level (see Table 2). According to Table 2, which presents the participation rates of the population aged 15-64 in the labour force by education level in Greece and in the EU, it seems that persons with a high education level are more likely to participate in the labour market. In 2003, the labour force participation rate of the population aged 15-64 was around 86% for highly educated persons and smaller for the others: almost 66% for medium education level employees and around 54% for lower education level employees. Moreover, in Greece the participation rate of the tertiary education graduates in the labour force is

Table 1

Working population structure¹ by education level in Greece and the European Union, 2005

(Classification by education level – skills and gender, percentages)

	Total education			Men education			Women education		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Greece	40.8	41.6	17.6	40.5	41.4	18.1	41.1	41.8	17.1
EU-25	32.8	47.3	19.9	32.1	48.0	19.9	33.5	46.6	19.9

1 15-64 years of age.

Note: Skills correspond to the UNESCO International Standard Classification of Education (ISCED) levels (1997) as follows:

Low skills: ISCED levels 0-2 (pre-primary, primary and lower secondary education).

Medium skills: ISCED levels 3-4 (upper secondary, post-secondary non-tertiary education)

High skills: ISCED levels 5-6 (first stage of tertiary education, second stage of tertiary education).

Source: European Commission, DG – Employment and Social Affairs, *Employment in Europe 2006, Recent Trends and Prospects*, on the basis of the Eurostat Labour Force Survey, Spring Results.

Table 2

Labour force participation by education level in Greece and the European Union, 2003¹

(Percentages)

Total education			Low education			Medium education			High education		
Greece	EU-15	EU-25	Greece	EU-15	EU-25	Greece	EU-15	EU-25	Greece	EU-15	EU-25
63.8	69.9	69.2	54.3	55.7	53.0	66.0	76.1	75.5	86.3	86.8	86.8

1 15-64 years of age.

Note: Low education: ISCED levels 0-2 (pre-primary, primary and lower secondary education).

Medium education: ISCED levels 3-4 (upper secondary, post-secondary non-tertiary education).

High education: ISCED levels 5-6 (First stage of tertiary education, second stage of tertiary education).

Source: European Commission, DG – Employment and Social Affairs, *Employment in Europe 2004, Recent Trends and Prospects*.

almost equal to the Community average, while the labour force participation rate of the population with medium education level (almost 66%) is smaller than the corresponding Community average (EU-15: 76%). Obviously, there is a positive correlation between education levels and participation rates in the labour force.⁶

2.3 Education and employment rate⁷

There are significant differences between the employment rate in the Greek market and the corresponding rate in other European countries and the Greek rate varies according to education levels (see Table 3).

The employment rate in Greece (around 60% of total population in 2004) is lower than the EU average (almost 65% in 2004 for EU-15 and 63% for EU-25), while it also falls short of the target-rate (70%) set for 2010 on the basis of the “Lisbon

6 The Greek educational system consists of three levels: primary, secondary and tertiary education level. Primary education is divided into pre-school education, i.e. kindergartens, and compulsory primary education, i.e. primary schools. Secondary education includes two cycles, compulsory lower secondary education, i.e. gymnasium, and post-compulsory upper secondary education, offered by Unified Senior High Schools and Technical Vocational Educational Institutions (TEE). Tertiary education is divided into university education and non-university education. Post-graduate courses are also available at tertiary education level.

7 The employment rate is defined as the ratio of the employed aged 15-64 to the total number of persons aged 15-64.



Table 3
Employment indicators in Greece and the European Union (2004)¹
(By education level and gender)

	Total education			Low education			Medium education			High education		
	Greece	EU-15	EU-25	Greece	EU-15	EU-25	Greece	EU-15	EU-25	Greece	EU-15	EU-25
<i>Total</i>												
Employment rate ²	59.6	64.5	63.0	49.5	49.2	46.2	60.7	70.1	68.3	81.2	82.5	82.5
Part-time employment rate ³	4.5	19.0	17.2	5.4	18.5	18.3	4.2	20.9	17.9	3.5	15.8	14.5
Unemployment rate ⁴	10.4	8.4	9.4	9.6	11.8	12.8	12.4	8.1	9.6	7.9	5.1	5.1
<i>Men</i>												
Employment rate ²	74.0	72.4	70.6	74.0	60.8	57.0	74.3	76.3	74.6	88.0	86.0	86.0
Part-time employment rate ³	2.0	6.6	6.3	2.2	6.4	6.8	2.1	6.7	6.2	1.6	6.4	6.1
Unemployment rate ⁴	6.5	7.7	8.7	6.3	10.4	11.5	7.6	7.6	9.0	4.6	4.6	3.7
<i>Women</i>												
Employment rate ²	45.5	56.6	55.4	32.3	38.0	36.0	47.4	63.8	61.8	75.2	78.9	78.9
Part-time employment rate ³	8.4	34.8	31.0	11.9	37.1	35.7	7.5	38.4	32.6	6.0	26.4	23.9
Unemployment rate ⁴	16.0	9.2	10.2	15.5	13.7	14.6	18.9	8.8	10.4	11.8	5.7	5.8

1 15-64 years of age. As regards education levels, see note in Table 2.

2 Employed persons aged 15-64 as a percentage of the population aged 15-64.

3 As a percentage of total employment.

4 Unemployed persons aged 15 and over as a percentage of the labour force.

Source: Eurostat, *Labour Force Survey*, second quarter, author's calculations.

Strategy" (see Table 3). However, in the last few years the employment rate in Greece rose gradually (56.6% in 2000, 57.7% in 2002, 58.9% in 2003 and 59.6% in 2004), while the corresponding employment rate for the EU-15 increased only marginally (from 62.2% in 2000 to 63.0% in 2004).

The employment rate for men in Greece rose (from around 72% in 2000 to 74% in 2004), while the corresponding rate in the EU-15 is stable. The employment rate for women in Greece is significantly lower than that for men (74% for men and 45.5% for women). Female employment rate in Greece rose in the last few years (from around 42% in 2000 to 45.5% in 2004), though it falls considerably short of the corresponding EU-15 rate (almost 57% in 2004). According to a recent

study (Nikolitsas, 2006), certain institutional, social and economic factors caused the increase in female participation in the Greek labour market during the post-1980 period.

Employment rates differ significantly depending on education levels and it seems that the employment rate increases with the rise in the education level. The employment rate for people with a high education level was almost 81% in 2004 (close to the EU average in this category, which is about 83%), while the corresponding rates for medium and low education level employees were around 61% and 50%, respectively.

The employment rate for men with a high education level (almost 88%) is close to the EU average

(approximately 86%). As regards women, the employment rate in Greece (45.5% in 2004) is lower than the EU-15 employment rate as a whole (about 57%), while it also falls short of the target-rate (60%) set for 2010 on the basis of the "Lisbon Strategy". The employment rate for women with a high education level (75%) is relatively close to the EU average (almost 79%) and more than double the employment rate for women with lower education (around 32%). The employment rates for women with low and medium education levels are significantly lower than those for men and lower than the corresponding employment rates for women in the EU. Women with a lower education level in Greece are in the most adverse position relative both to men of the same education level and to women in the EU as a whole. It also seems that there is a positive association between education level and employment, as high education levels increase a person's productivity, thus also enhancing the possibility both to enter the labour market and to find a job.

Part-time employment, i.e. the number of those employed part-time as a percentage of the total number of employed people in Greece (4.5%) is considerably lower than the EU-15 average (approximately 19%). The part-time employment rate in Greece is more than four times higher for women (8.4%) than for men (2.0%) but lower than the average part-time employment rate for EU-25 as a whole (31%). Part-time employment offers employees, particularly women, the opportunity to reconcile work with attending to the needs of their family, especially when the available child-care solutions are insufficient or in cases when the family cannot afford the cost. On the other hand, part-time jobs are typically associated with limited opportunities for career advancement and with lower remuneration (OECD, 1999). This is also indirectly supported by data in Table 3, which show that the part-time employment rate falls towards high education levels. Note that women of a lower education level show a higher part-time employment rate (11.9%), which is more than five times higher than the corresponding rate for male employees of a lower education level and almost double that of women with a high education level (6.0%).

2.4 *Education and unemployment*

There is an interesting relation between education and unemployment, as the unemployment rate is an indicator for the capacity of the economy to offer suitable employment to any person wishing to work. The unemployment rate in Greece (10.4% of the total labour force in 2004) is higher than the EU average (EU-15: 8.4% and EU-25: 9.4%).⁸ However, there is a differentiation of the rate of unemployment according to the education level of employees. High education levels increase skills, productivity and employment opportunities of a person participating in the labour force, while at the same time they diminish a person's possibility to remain unemployed. As seen in Table 3, the unemployment rate of the labour force with a high education level (7.9%) is significantly smaller than that of the labour force with a medium (12.4%) and a lower (9.6%) education level, although it exceeds the EU-15 average (5.1%). Women record higher unemployment rates, compared with men of the same education level. It is interesting to note that, while the unemployment rate of men with a high education level (4.6%) is close to the average EU rate (4.6%), the

2.4 *Education and unemployment*

⁸ It decreased to 9.9% in 2005 and fell below 9% in 2006.



unemployment rate for women with a high (11.6%) or medium education level (18.9%) is almost double the corresponding rate for the EU as a whole (high education level: 5.7%, medium education level: 8.8%). These figures demonstrate that there is a poor match between education in Greece and the needs of the Greek labour market.

Another aspect of unemployment concerns the number of the “new unemployed” (new participants in the labour market).⁹ In 2005 the “new unemployed” rose to approximately 38.4%¹⁰ of total unemployed persons, while “new” unemployed women accounted for 43.7% of total unemployed women. This percentage is drastically higher than the participation rate of “new” unemployed men in total unemployed men (28%). Secondary education graduates record the largest participation rate in the “new unemployed” (41%). University education graduates amount to approximately 15% of total “new unemployed” (26,000 “new unemployed” university graduates in a total of 178,000 new participants in the labour market in 2005), while the number of “new unemployed” female university graduates is double that of “new unemployed” men of the same education level (18,804 women, against 7,264 men).

The above analysis demonstrates that there is a significant relation between the education levels of men and women and certain labour market characteristics in Greece.

3. Empirical data and theoretical approaches to gender wage differentials

This section summarises recent empirical evidence and theoretical approaches explaining gen-

der wage differentials in various European countries, taking also into consideration the role of education.

Empirical studies tend to confirm that male employees receive higher wages than their female counterparts, a fact not solely attributable to different productive characteristics of employees. However, in most studies wage differentials do not concern the entire spectrum of the wage distribution, but focus on average remuneration. Recent studies examine the wage differentials between men and women across the entire spectrum of wage distribution, in order to establish whether there are wage differentials against higher-paid women, compared with wage differentials against lower-paid women. These studies observe whether wage differentials between men and women increase towards the upper end of the wage distribution (Albrecht, Bjorklund and Vroman, 2003, de la Rica, Dolado and Llorens, 2005, and Arulampalam, Booth and Bryan, 2007).

At theoretical level, many economists support the view that women’s interrupted careers affect and at the same time explain a significant portion of the gender wage gap, for two reasons. First, the fact that women have interrupted careers and remain in the labour market for a limited period of time could mean that they may not accumulate enough human capital during their working life. Second, while women do not participate in the labour market, this may result to a loss of human capital.

Albrecht, Bjorklund and Vroman (2003), using 1998 data for Sweden, estimate that wage dif-

⁹ “New unemployed” are those in search of a job for the first time.
¹⁰ Data refer to the second quarter of 2005.

ferentials increase along the wage distribution, with a sharp acceleration in the upper end of the wage distribution.

Using relevant statistical methodology, de la Rica, Dolado and Llorens (2005) study the case of Spain for 1999. The results for employees with high education show that wage differentials increase towards the upper levels of the wage distribution. In contrast, as regards lower-education employees, wage differentials decline towards higher levels of the wage distribution. The authors maintain that the career path of lower education level female employees is often interrupted due to discrimination against women on account of family responsibilities and duties. Employers may use statistics on the average performance of women (statistical discrimination), which results in lower remuneration for female employees compared with male employees, particularly towards the lower end of the wage distribution, which normally represents early employment years of employees.¹¹ Highly educated employees are usually employed in more permanent positions, under better working conditions and with better opportunities for career advancement. Thus, in the first few working years, the gaps between the wages of men and women tend to be limited or insignificant. However, towards the upper levels of wage distribution, female remuneration falls short of male remuneration, as women advance less than men, mostly being employed in positions with little opportunity for advancement (Lazaer and Rosen, 1990).

Arulampalam, Booth and Bryan (2007), using data for 11 countries (Austria, Belgium, United Kingdom, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands and Spain), show that

the wage gap between men and women employees increases significantly towards the upper end of the wage distribution. The authors present various possible explanations for gender wage differentials in the EU. According to this analysis, male-female wage differentials are due to institutional, economic and structural factors. For instance, certain institutional factors, such as legislation against gender discrimination, improvement in childcare infrastructure, as well as parental leave provisions, affect gender wage differentials (Jaumotte, 2003).

Improved childcare infrastructure and parental leave provisions may influence the behaviour of both men and women in a different way, thus the effects on wage differentials may vary (Blau and Kahn, 2003). On the one hand, it is claimed that women who are not subject to parental leave may choose to abandon the labour market and enter again at a future point of time, accepting lower-paid positions and less working hours. In contrast, women allowed parental leave may receive higher remuneration, as the implementation of such policies allows them to maintain their position and contact with their employer-companies, thus strengthening their motivation to increase their human capital. On the other hand, parental leave provisions might also have a negative effect on female remuneration. The absence of women from the labour market might be associated with a deterioration of their skills and

¹¹ According to the theory of statistical discrimination, wage differentials between men and women are possibly a result of the fact that employers make different assessments concerning the productivity of working men and women they wish to employ, which are based on the average performance of the specific group a candidate comes from. Thus, employers estimate that candidates show the same advantages and disadvantages as the members of the group they belong to. Therefore, some candidates may benefit from the fact that they belong to a certain group, while others may be damaged.



could thus have a negative effect on their remuneration and increase male-female wage differentials. Moreover, the improvement in childcare infrastructure is expected to have a positive effect on female remuneration, as it could strengthen the employees' bonds with their employer-companies or offer the opportunity for an early return to work. Therefore, improved childcare infrastructure could help increase female remuneration and narrow the gender remuneration gap.

According to an OECD study (2001), it seems that in countries implementing work-family policies, gender wage differentials are smaller towards the lower levels of the wage distribution and larger at the higher levels of the wage distribution.^{12,13}

Finally, Arulampalam, Booth and Bryan (2007) claim that the institutional framework for wage formation may have a direct effect on the gender wage gap. In countries with higher levels of unionisation and more centralised or coordinated bargaining that raise the minimum level of pay, the wage distribution spectrum is more compressed, and therefore the gender wage gap is smaller, particularly towards the lower end of the wage distribution (Blau and Kahn, 1996, 2003).^{14,15}

The "glass ceiling hypothesis" (see Albrecht *et al.*, 2003), according to which male and female wage differentials increase towards the upper end of the wage distribution spectrum, though exceptionally interesting due to the particular characteristics of the Greek labour market, has not been studied yet. The objective of this study is to examine wage differentials between men and women, according to education level, both on the basis of average wage and across the wage distribution, as well as to analyse these differentials in order to show

whether they reflect differences in the productive characteristics of employees, or are a part that cannot be explained on the basis of employees' productive abilities.¹⁶

4. Statistical analysis

The empirical analysis uses statistical data for Greece, derived from the NSSG survey on Income and Living Conditions (EU-SILC). The survey was carried out in 2003 and 2004 (covering 2002 and 2003 income data, respectively) and the results for Greece were released by the NSSG. The survey includes questions referring both to a household as a whole and to each separate member, and derives information regard-

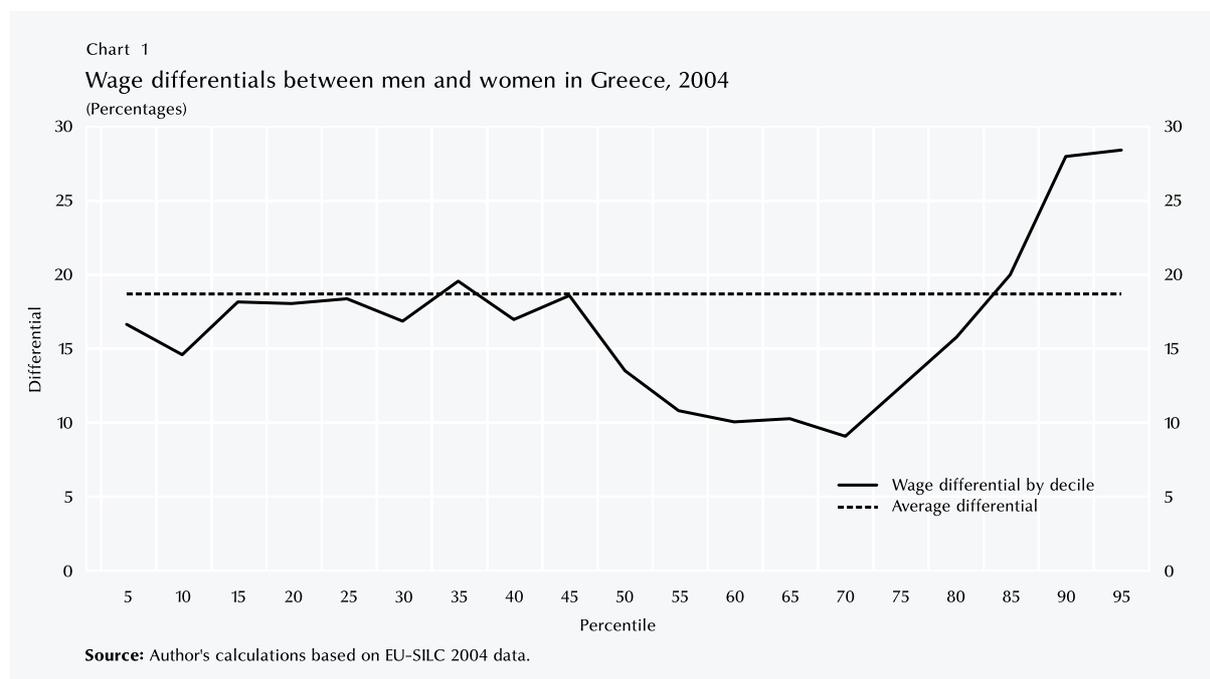
12 Work-family policies may have a different effect on female remuneration. On the one hand, they might increase female remuneration, as they enhance the employees' bonds with their companies, which is a significant motivation for employees to increase their human capital. On the other hand, these policies might push women away from the labour market, causing their remuneration to fall and increasing the gender wage gap.

13 Arulampalam, Booth and Bryan (2007) have an explanation concerning different gender wage differentials at the two ends of the wage distribution spectrum. Policies enhancing an improved work-family relation strengthen employees' bonds with their companies, thus female employees receive higher remuneration (a positive policy effect). On the other hand, these policies may keep female employees out of the labour market, thus causing their remuneration to decrease (negative policy effect). It seems that the positive policy effect is stronger than the negative policy effect at the lower end of the wage distribution spectrum, while the opposite occurs at the higher end of the wage distribution spectrum. Thus, as regards the 11 European countries examined by the authors, the analysis shows that gender wage differentials are smaller at the lower end and larger at the higher end of the wage distribution spectrum.

14 For further reference on the effect of the institutional framework on male-female wage differentials see, *inter alia*, Grimshaw and Rubery (2002).

15 Acemoglu and Pischke (2003) claim that, in countries with labour market deficiencies that cause narrower wage distribution spectra, companies may wish to increase the education and skill level of their personnel through training seminars. Thus, the effect of these policies on wage differentials between employees cannot be accurately defined.

16 Papapetrou (2004) examines the gender wage differentials in Greece irrespective of education level.



ing demographic characteristics, income, economic conditions, housing conditions etc. The questions on each separate household member present information about age, the family status of each member, education, income, type of work, type of employment, health etc. The EU-SILC survey replaced the European Community Household Panel (ECHP) sampling survey, conducted by Eurostat from 1994 to 2001 and covering all EU countries.

The following statistical analysis uses data from the 2004 survey, referring to 2003 income data. The total number of respondents for Greece in 2004 was 16,843. Out of this number, only wage earners were taken into account, while students were excluded. Thus, the sample narrowed down to 3,189 (women: 1,255, men: 1,964). Finally, respondents not answering to all the questions used in the empirical examination were not taken into account.

4.1 Wage differentials by education level

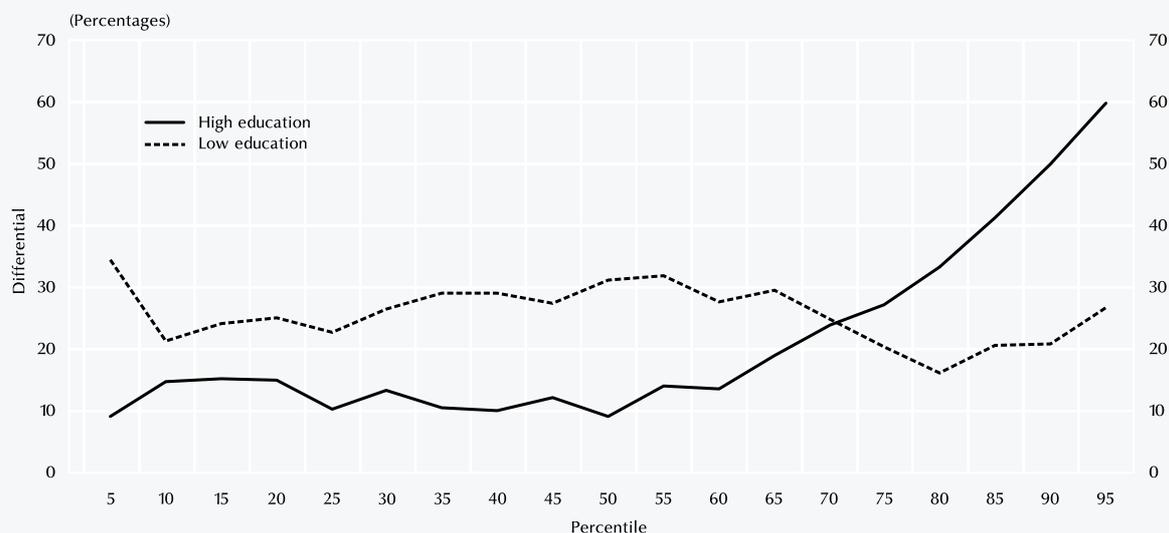
Using sample data from Chart 1, we present the percentage wage differentials between men and women in Greece across the entire range of the wage distribution and on average. The horizontal broken line represents the average percentage wage differential between men and women.¹⁷ This measure suggests that men receive higher remuneration (18.7% on average) than women (in other words, women receive almost 84% of the remuneration of men).

As seen in Chart 1, this gender wage differential across the wage distribution spectrum is consider-

¹⁷ The wage differential between men and women is determined by two methods: according to the first method, the differential is defined as the difference between male and female remuneration as a percentage of female remuneration (this differential is presented in Charts 1 and 2), while, according to the second method, the wage differential is defined as the female remuneration as a percentage of the male remuneration.



Chart 2
Wage differentials between men and women in percentiles by education level in Greece, 2004



Source: Author's calculations based on EU-SILC 2004 data.

ably different to the differential concerning average remuneration of men and women. The wage differential between men and women is almost stable (up until the 4th decile of the male-female wage distribution). After the 4th decile, the differential declines, stabilises around the 6th decile, and then increases. In particular, at lower wages the differential falls slightly short of the average differential, at medium wages it is much smaller than the average, and at the upper levels of wage distribution the differential is much larger than the average.

Chart 2 presents the percentage differential of male and female remuneration by education level in different deciles of the wage distribution. Employees are distinguished into two levels: high education level employees and low education level employees. Low education level employees also include secondary education graduates, while high education level employees also include post-secondary education level employees (post-

secondary non-tertiary education, tertiary education, and post-graduate education).

Data analysis shows that, on average, across all deciles of the wage distribution spectrum, the remuneration of men and women with lower education is smaller than that of high education level employees.¹⁸ Moreover, as seen in Chart 2, male and female wage differentials vary depending on the education level of employees. As regards employees with a high education level, the male-female wage differential increases towards the upper end of the wage distribution. In particular, male employees with a high education level in the 1st decile of the wage distribution spectrum earn almost 14.8% more than female employees (in

¹⁸ Table 4 below shows the logarithm of the average male and female remuneration by education level. The measures representing male and female remuneration by decile are not presented here, but are available from the author.

other words, female employees earn 87% of the remuneration of male employees), while male employees in the 9th decile of the wage distribution spectrum earn 60% more than female employees (or female employees earn 67% of the remuneration of male employees).

As regards low education levels, wage differentials between the two genders present a different picture. Almost up to the 7th decile, wage differentials between female and male employees are larger than those for female employees with a high education level. In particular, employees with low education level at the 1st decile of the wage distribution earn almost 20% more than female employees (in other words, female employees earn almost 82% of the remuneration of male employees), while male employees at the 5th decile earn 31.2% more than female employees (in other words, female employees earn 76% of the remuneration of male employees). Towards the upper end of the wage distribution spectrum (9th decile) male employees with a low education level earn almost 20% more than female employees (in other words, female employees earn 83% of the remuneration of male employees). However, over the 7th decile, wage differentials between the two genders are drastically higher for female employees with high education level, compared with female employees with low education level.¹⁹

The above analysis shows that it is of particular interest to explain and examine gender wage differentials on the basis of education levels across the wage distribution spectrum, since there is a differentiation between deciles. Therefore, a wage differential analysis based solely on summing up the two individual groups of employees and the average remuneration level leads to misleading conclusions.

4.2 Sample characteristics

Table 4 presents the average levels of the major variables used in the empirical analysis, both by education level and by gender. The wage is a logarithm of the respondent's monthly income through wages.²⁰ The difference between the respondent's current age and the age at which he or she started working is used as an indicator of the person's experience.

Statistical data in Table 4 show that the average income of high education level employees is larger than that of low education level employees. The average monthly income from wages is higher for men, compared with women, irrespective of education level. Women with a high education level earn, on average, 83% of the remuneration of male employees, while women with a low education level earn 79% of the remuneration of male employees. Earnings, family status, experience, age, type of employment and working hours are variables that show a statistically significant difference.

Moreover, Table 4 shows that the average age of male employees with a high education level is

¹⁹ The analysis of wage differentials between men and women is based on the sample as a whole and at this stage there is no distinction for specialty or profession of employees. In the following empirical analysis, profession, responsibilities, experience as well as other variables showing the employee's skills are used as independent variables to estimate the balance between male and female remuneration.

²⁰ The monthly income includes perks (e.g. a car), which might be offered by the employer to the employee but are not included in the monthly gross wage. Income does not include overtime payments. Table 4 shows that the average monthly income of women with a low education level is around €862, while that of men is €1,085. Correspondingly, the average monthly income of women with a high education level is around €1,224, while that of men is €1,465.



Table 4
Sample characteristics: average values by gender and education level

Variables	Education level			
	Low		High	
	Women	Men	Women	Men
Number of observations	657	1,323	568	641
Monthly wages (logarithm)	6.76	6.99	7.11	7.29
Age (years)	41.50	41.86	40.29	44.03
Experience (years)	15.17	17.91	13.20	16.24
Family status ¹ (single)	0.24	0.30	0.29	0.24
Employment hours per week	40.36	42.25	36.62	39.96
Permanent employment ¹	0.83	0.82	0.86	0.90
Primary education ¹	0.19	0.28		
Lower secondary education ¹	0.12	0.19		
Higher secondary education ¹	0.68	0.53		
Post-secondary non-tertiary education ¹			0.18	0.17
Tertiary education ¹			0.82	0.83

¹ Dummy variables with values of 1 and 0. E.g. the “permanent employment” variable has a value of 1 if the respondent has permanent employment and 0 in all other cases. The measures are presented as percentages, provided that, when calculating regressions, they receive values of 1 and 0.
Source: Author’s calculations based on EU-SILC 2004 data.

almost 3.5 years above that of female employees, while the average age of male employees with a low education level is almost 0.5 years above that of female employees. On the other hand, male employees seem to have higher levels of experience than female employees (around 3 extra years of experience, on average, irrespective of education level). Highly educated employees have less years of experience, as obtaining higher education forces them to enter the labour market at a later stage. Male and female employees with a high education level are mostly employed in permanent positions, compared with low education employees. Low education employees work more hours per week than highly educated employees. In particular, low education female employees work almost 4 hours more than highly educated female employ-

ees. Male employees with a low education level work almost 2 hours more than male employees with a high education level.

5. Methodology and empirical results

5.1 Methodology

The previous presentation of statistical data shows that there are wage differentials between men and women at both education levels (low and high). Therefore, it would be advisable to probe the degree to which existing wage differentials are attributed to personal productive characteristics of men and women and whether they account for the “unexplained part of the wage differential”, i.e. they are attributable to discrimination in the labour market.

The empirical approach and analysis method of gender wage differentials applied in this study is in accordance with the decomposition technique developed by Oaxaca (1973) and Blinder (1973). According to this method, two equations of wages are estimated. Specifically, one wage equation is estimated for working men

$$W^{\text{men}} = \beta^{\text{men}} X^{\text{men}} + \varepsilon^{\text{men}} \quad (1)$$

and another for working women

$$W^{\text{women}} = \beta^{\text{women}} X^{\text{women}} + \varepsilon^{\text{women}} \quad (2)$$

where W^{men} and W^{women} are the logarithms of men's and women's wages respectively, X^{men} and X^{women} are vectors of variables that describe the characteristics of employed men and women (such as demographic, human capital, or labour characteristics), β^{men} and β^{women} are the coefficients of the variables vector X^{men} and X^{women} ²¹ and ε^{men} and $\varepsilon^{\text{women}}$ are the error terms for employed men and women respectively. Consequently, the estimated β^{men} and β^{women} coefficients show the returns on men's and women's characteristics. Equations (1) and (2) were estimated at both low and high education levels.

If there were no wage differences, β^{men} should be equal to β^{women} , and men's earnings should be equal to women's earnings, since men and women have the same personal productive characteristics. However, the estimated coefficients are different, and it is of particular interest to empirically estimate women's wages if female employees received the same remuneration as male employees ($X^{\text{women}} \beta^{\text{men}}$).

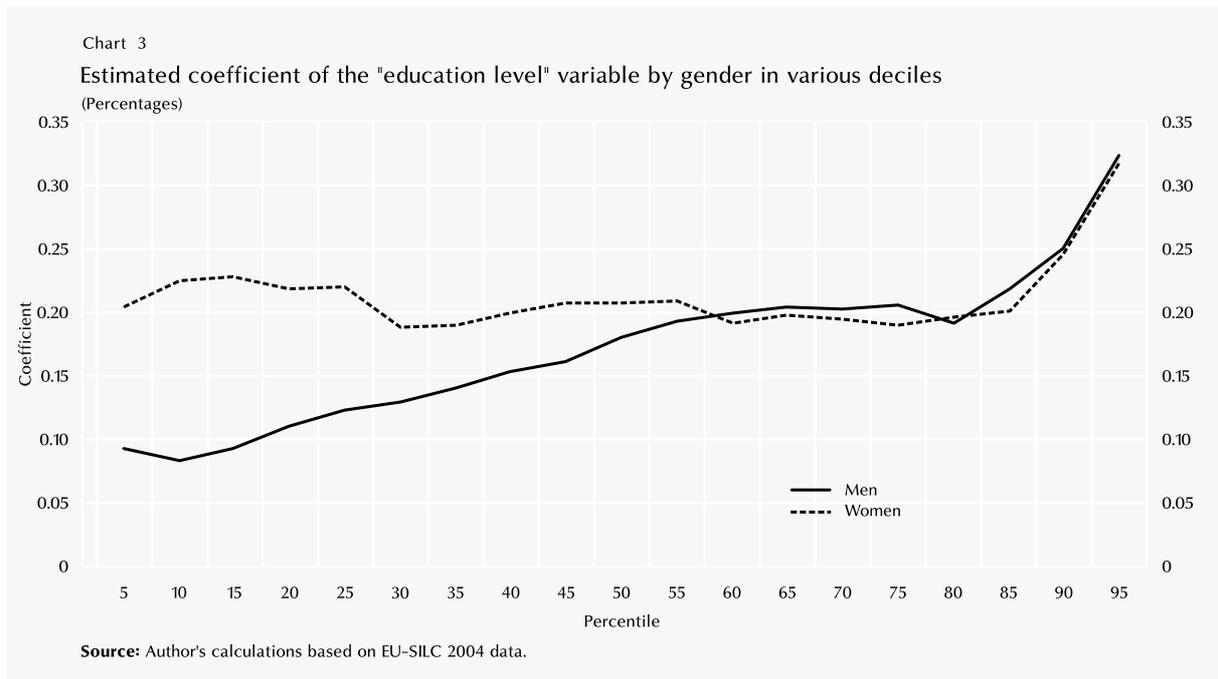
Determining wage differentials between men and women according to the Oaxaca and Blinder method allows the decomposition of wage differentials on the basis of two factors. In particular, through this method it is possible to analyse the degree to which existing wage differentials may be attributed to personal productive characteristics of male and female employees, or they constitute an "unexplained part of the wage differentials", i.e. what many economists call "discrimination factor" or "discriminations".²² To this end, the following equation is calculated:

$$\bar{W}^{\text{men}} - \bar{W}^{\text{women}} = (\bar{X}^{\text{men}} - \bar{X}^{\text{women}}) \hat{\beta}^{\text{men}} + \bar{X}^{\text{women}} (\hat{\beta}^{\text{men}} - \hat{\beta}^{\text{women}}) \quad (3)$$

The hat $\hat{\cdot}$ over parameters ($\hat{\beta}$) denotes estimated values. The left side of equation (3) estimates the difference in average wages between male and female employees. The first term on the right side of equation (3) estimates the total difference between the two genders in the means of the independent variables weighted by the returns of the vector X^{men} of the male wage equation. This term represents the part of the logarithm of the earnings differential between genders attributable to the observed differences in human capital or productive characteristics of the employed and is referred

²¹ In the equations of men's and women's earnings, the coefficients of the variables vector X , β^{men} and β^{women} show the extent to which the earnings of male and female employees increase with an increase in one human capital variable by one unit when all other factors remain unchanged (e.g. the extent to which men's or women's earnings increase with one additional year of experience). The "education" variable is not included in the estimated regression, as the sample is divided into two groups. The first sample includes employees with a high education level and the second group includes employees with a low education level.

²² The unexplained part of wage differentials can be seen as a measure of the extent to which the earnings of an employed woman are different from those justifiable by her qualifications.



to as the “characteristics differential” or “justifiable earnings”. The second term on the right side of equation (3) measures the total difference between the vector returns of independent variables on the basis of female characteristics. This term represents the part of the earnings differential that is attributable to labour market discrimination and would be equal to zero if male and female employees had the same returns. All estimates are on the basis of the wage distribution mean.

Moreover, the empirical analysis employs the Oaxaca and Blinder decomposition technique combined with the quantile regression analysis in order to estimate wage differentials between men and women in different deciles of the wage distribution and to explain which part of the wage differentials is attributed to different productive characteristics of employees and which part accounts for the unexplained part of wages across the wage distribution.

5.2 Empirical results

Initially, a wage equation for the total sample (men and women) was estimated in order to determine statistically significant socioeconomic variables that affect the workers’ wages.^{23,24,25} Next, wage equations were calculated, first on the basis of employees’ education level (low and high education level) for the sample as a whole (both men and women) and then separately for men and women. The results show that, irrespective of gender, monthly wage earnings are influenced by employees’ personal characteristics, human capi-

²³ As independent variables, the wage estimation model uses variables concerning the family status of the employee, experience, education, the size of the employer-company, the type of work, the type of employment, the job description and the place of work.

²⁴ The standard deviations, and thus the t statistics calculated for the estimated coefficients, have been corrected for heteroscedasticity following White’s method.

²⁵ The results of the wage equations estimation carried out according to the ordinary least squares method are not presented here, but are available from the author.

Table 5

Unexplained part of the wage differential between men and women with a high education level

	Total	10%	25%	50%	75%	90%
Wage differential	0.187	0.138	0.098	0.087	0.241	0.406
Unexplained wage differential as a percentage of the total wage differential	41.7	–	42.9	62.1	67.0	98.9

Note: Wage differentials are in logarithmic form.10% = 1st decile, 25% = 1st quartile, 50% = 2nd quartile, 75% = 3rd quartile, 90% = 9th decile.**Source:** Author's calculations based on EU-SILC 2004 data.

tal (education), working hours, experience, type of work, type of employment, responsibility, occupation and the size of the company. Moreover, quantile regression estimations at various points of the wage distribution were performed and it was tested whether the estimated coefficients are statistically different. A Wald test showed that at 1% significance level, the null hypothesis can be rejected, i.e. the hypothesis that the estimated coefficients are equal. Then, by applying the quantile regression analysis, the wage equations were estimated separately for men and women employees at each decile of the wage distribution. Chart 3 shows the size of each estimated coefficient for the “education level” variable by gender and by decile. The coefficient up to the 6th decile is higher for women than for men. This indicates that, up to the 6th decile, high education levels contribute more to the final wage of a female employee than a male employee. So, taking into account all other particular characteristics of the employee – such as family status, working hours, size of the company, experience, type of work, responsibility and type of employment– it seems that returns on education levels are higher for women with earnings equal or less than the average earnings of the sample. Possibly, this reflects the low participation rate of women in the labour

market. Female employees participating in the labour market are the most productive (with high education levels) and when they enter the labour market they enjoy higher returns, compared with their male counterparts. By contrast, it seems that returns on education are the same for highly paid men and women.

Next, equation (3) was estimated, to determine the percentage of the wage differential that cannot be explained on the basis of different characteristics between men and women with the same education level. Results are presented in Tables 5 and 6. Table 5 shows wage differentials for highly educated employees. For the whole sample, 41.7% of the wage differential cannot be explained on the basis of different productive characteristics of the respondents. As presented in the Table and analysed in Chart 2, gender wage differentials accelerate at the higher deciles of the wage distribution, and the unexplained wage differential seems to be larger at the higher deciles of the wage distribution.²⁶ Therefore, it

²⁶ Note that in order to estimate the measures in Tables 5 and 6, the empirical analysis takes into consideration the particular characteristics of employees, since these characteristics are used as independent variables to estimate the wage regression of men and women.



Table 6
Unexplained part of the wage differential between men and women with a low education level

	Total	10%	25%	50%	75%	90%
Wage differential	0.234	0.193	0.205	0.272	0.186	0.189
Unexplained wage differential as a percentage of the total wage differential	77.4	87.6	91.2	93.0	34.2	18.1

Note: Wage differentials are in logarithmic form.

10% = 1st decile, 25% = 1st quartile, 50% = 2nd quartile, 75% = 3rd quartile, 90% = 9th decile.

Source: Author's calculations based on EU-SILC 2004 data.

seems that, as regards employees with a high education level, the unexplained part of the gender wage differential increases towards the upper end of the wage distribution. Wage differentials between men and women with a high education level are mainly attributed to differences regarding productive characteristics towards the lower end of wage distribution, as well as differences concerning returns (non-productive characteristics-unexplained part of the remuneration differences) at higher levels of the wage distribution. A possible explanation is that highly educated female employees, who accumulated more human capital, are employed in permanent positions with better opportunities for career advancement, while they face less discrimination towards the lower levels of wage distribution. At higher levels of the wage distribution, female employees, possibly due to their weak bargaining power, reduced mobility or different assignments compared with their male colleagues, face larger wage differentials than male employees.

By contrast, as presented in Table 6, the unexplained part of the wage differential of the sample that includes low education level employees as a whole is higher (77.4%), while it is also higher

than that of employees with a high education level. In this employee category, the wage differential increases in the low deciles of the distribution and decreases towards the higher deciles. The same seems to hold for the percentage of the unexplained differential, which is particularly high in the lower deciles, while it falls considerably towards the upper deciles of the wage distribution. In contrast to findings about highly educated employees, the wage differential between men and women at the lower levels of the distribution is attributed to the unexplained part, while at the higher levels it is attributed to differences in the productive characteristics of employees. A possible explanation is that lower educated female employees, in the early years of their careers, accept jobs that correspond to the characteristics of the group they belong to, rather than to their productive ability. Thus, remuneration received in the early stages of their career reflects the average characteristics of the group they belong to (low participation rates in the labour market, strong possibility to leave the labour market, etc.). Over time (upper end of the wage distribution spectrum), as female employees remain employed, their skills, assignments and earnings increase, thus limiting wage differentials in comparison with male employees.

6. Conclusions

The aim of this study is to investigate the relation between the education level of employees and certain characteristics of the labour market in Greece (such as indices on labour force participation, unemployment and employment), to study wage differentials between men and women depending on the education level of employees across the wage distribution spectrum and to examine the extent to which these differentials represent differences concerning productive characteristics of the employees, or whether they account for a part that remains unexplained on the basis of the productive characteristics of employees (unexplained part or discrimination factor). The empirical analysis uses statistical data for Greece. These data derive from the NSSG survey on Income and Living Conditions (EU-SILC, European Union-Statistics on Income and Living Conditions), which refer to income earned in 2003.

To this end, employees were divided according to their education level into low educated employees and highly educated employees. Then, the existence of wage differentials between men and women based on their education level was examined, both in relation to average wages and across the wage distribution spectrum, using the quantile regression analysis technique. Then, the Oaxaca and Blinder decomposition technique was used in order to explain the components of wage differentials between men and women by education level, on average and at various deciles of the wage distribution of employees.

The brief presentation and analysis of the relation between education level and certain labour mar-

ket measures in Greece shows that younger workers in Greece have a higher education level than people already in the labour market. Moreover, the labour force participation rate of the population with a high education level is almost equal to the EU average, while the labour force participation rate of the population with a medium education level falls short of the EU average. Labour force participation and the employment rate increase with the education level. Employment rates of women with low and medium education levels are considerably lower than those of men and noticeably lower than the corresponding rates for female employees with the same education level in the EU. Greek female employees with a low education level are in the worst position, both compared with their male colleagues of the same education level and in relation to the average European female employee.

The empirical analysis performed shows that wage differentials between men and women depend on the education level of employees, as well as that, across all the deciles of the wage distribution, the remuneration of men and women with a low education level is lower than that of their colleagues with a high education level. As regards highly educated employees, wage differentials between men and women increase towards the upper part of the wage distribution. Thus, it seems that, as female employees with a high education level climb towards the upper parts of the wage distribution, the wage differential with their male colleagues increases. Finally, wage differentials between male and female employees are higher for employees with a low education level up to the 7th decile of the wage distribution. However, as regards the upper deciles of the wage distribution, gender wage differentials are considerably higher for



highly educated female employees, compared with those for low educated female employees.

Women employees with a high education level receive, on average, around 83% of the wages of men, while women employees with a low education level receive, on average, around 79% of their men counterpart's wages. Across the wage distribution there is substantial differentiation in terms of the relative remuneration of men and women. In particular, highly educated women employees at the lower parts of the wage distribution (1st decile of the wage distribution) receive almost 87% of the men's wages, while women employees at the upper parts of the wage distribution (9th decile) receive 67% of the men's wages.

In contrast, low educated female employees at the 1st decile of the wage distribution receive almost 82% of male remuneration, female employees at the 5th decile receive 76% of male remuneration and female employees at the upper parts of the wage distribution (9th decile) receive around 83% of male remuneration.

Finally, using the Oaxaca and Blinder decomposition methodology, we examined the extent to which these differences in male and female remuneration reflect differences concerning productive characteristics of employees or represent an unexplained part of the difference – the discrimination factor. As regards employees with low education, the unexplained part of the gender wage differential for the sample as a whole is considerably high (77.4%). The unexplained percentage is particularly high at the lower deciles of the wage distribution and declines significantly towards the upper deciles of the wage distribution. This implies that the male-female wage differential at

the lower parts of the wage distribution (lower wages) is attributable to the unexplained part, while at the upper parts of the wage distribution (higher wages) it is attributable to differences regarding the productive characteristics of employees. It is possible that female employees with low education in the early years of their career accept jobs corresponding to their group characteristics rather than their productive abilities, therefore wages reflect the average characteristics of the group they belong to (low labour market participation, strong possibility to exit the labour market, etc.). However, as female employees remain into the labour market (upper parts of the wage distribution), their skills, assignments and remuneration increase, thus narrowing wage differentials in relation to male employees.

In contrast, as regards employees with high education in the sample as a whole, the largest part of the wage differential (58,3%) is explained by differences in the productive characteristics of employees and a smaller part (41.7%) cannot be attributed to particular characteristics of the respondents and constitutes the unexplained part of the difference. At the lower levels of the wage distribution, wage differentials between men and women with high education level are attributed mainly to differences in the productive characteristics of employees, while at the upper parts of the distribution the difference cannot be explained by particular characteristics of the respondents and constitutes the unexplained part of the wage differential. A possible explanation is that highly educated female employees, who accumulated more human capital, are employed in permanent positions with better opportunities for career advancement, while they face less discrimination towards the lower levels of wage distribution (e.g. at the

early stages of their career). At the upper levels of wage distribution, female employees, possibly due to their weaker bargaining power, reduced

mobility or different assignments compared with their male colleagues, face larger wage differentials than male employees.



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The evolution of credit risk: phenomena, methods and management*

Report on a conference organised at the Bank of Greece

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Introduction

In response to continuous developments in the markets, regulation and characteristics of credit risk, the Bank of Greece organised an international research conference in 2006, under the title “The evolution of credit risk: phenomena, methods and management”. The conference, which took place in the headquarters of the Bank, served as a forum of interaction between banking, regulatory and academic researchers and offered new insights for the assessment, forecasting and management of credit risk. The emphasis of the conference was placed on the evolution of credit risk and the development of reliable models for estimation, early warning, management as well as methods of model validation.

The conference took place at a time when the management of risks is being seen as vital at all levels of economic activity, including corporations, financial institutions, national economies as well as monetary unions. The conference papers presented innovations in risk management methods which contribute to systemic financial stability, the calculation of capital adequacy in financial institutions as well as the validation of credit rating methods in the context of Basel II. Six invited speakers contributed original research papers, which were subsequently commented on by discussants. A common feature of those innovative papers is the development of risk management methods that can adapt in the presence of evolving financial phenomena and thus improve their performance under extreme shocks.

* The views expressed in this paper are those of the author and should in no part be attributed to the Bank of Greece.



The distribution of loan portfolio value

In this paper, Oldrich Alfons Vasicek, Moody's-KMV (see Vasicek, 2002), uses the classical Merton (1974) framework to derive the distribution of loan portfolio value. There are a number of important reasons for doing so. First, in the context of capital adequacy, consider the portfolio of loans of a credit institution, each of which is subject to default thus resulting in a loss for the lender. Following Merton, it is assumed that this portfolio is partly financed by equity and partly by debt. Hence, the credit quality of the lender's notes depends on the probability that the loss on the portfolio exceeds the value of the equity capital, which in turn depends on the probability of loan default. The credit institution maintains a certain credit rating for its own notes, e.g. Aa on a rating agency scale, by keeping the probability of default on the notes at the level corresponding to that rating, i.e. about 0.001 for the Aa class of quality. Thus, the adequate equity capital must be equal to the percentile of the distribution of the portfolio loss that corresponds to the desired rating probability.

Furthermore, the probability distribution of loan portfolio value has a number of other applications, such as the pricing of credit derivatives, e.g. CDOs, the calculation of Value-at-Risk as well as in regulatory reporting. Following Merton (1974), it is assumed that asset value follows a Brownian motion with drift and that a loan defaults if, at its maturity date, the value of the borrower's assets falls below the contractual value of its obligations payable. Then, if each loan's standard normal innovation process is composed of a common and an idiosyncratic factor, the (conditional on the

common factor) probability of loss can be obtained in closed form, as a function of structural parameters. Thus, for a portfolio of n loans, the loss distribution can be obtained as the limit of the binomial probability to observe k defaults out of n loans, as the portfolio size approaches infinity (see Vasicek, 1987; 1991; 2002). This is an influential work upon which many Basel II calculations are based.

The paper was discussed by Stephen Satchell, Trinity College, Cambridge, who emphasised the role of default frequency dynamic properties over time, the effects on non-normal shocks as well as the role of correlation between risk factors and diversification in determining the shape of the loan loss distribution. Recent work in these directions includes Schonbucher (2002), Hanson, Pesaran and Schuermann (2006) and Lamb and Perraudin (2006).

A simple multi-factor "factor adjustment" for the treatment of credit capital diversification

In this paper, Daniel Rosen, University of Toronto, (see Cespedes *et al.*, 2006), presented an extension to the single-factor credit capital model, which provides an adjustment accounting for the diversification obtained from a multi-factor setting. For institutions with extensive diversification over countries and industrial sectors, diversification is one of the key tools for managing credit risk, thus it is important the credit portfolio model used to calculate and allocate capital effectively captures portfolio diversification effects. Although this issue can also be addressed using simulation techniques, the authors utilise analytical approxima-

tions, which can be more useful both for regulatory purposes and credit portfolio management. They introduce the concept of a ‘diversification factor’ and show that it can be expressed as a function of two parameters that broadly capture the size concentration and the average cross-sector correlation. Furthermore, the ‘marginal diversification factors’ are also defined at the sub-portfolio or obligor levels, which account for their diversification contributions to the portfolio, thus allowing for intuitive capital allocation. The diversification factor is estimated for a family of factor models but requires substantial numerical work. The model can also be calibrated to a Monte Carlo-based framework to adjust periodically for changing market conditions and portfolio composition. In the context of risk management, the model can be used to understand concentration risk, capital allocation and sensitivities, stress testing, as well as to compute “real-time” marginal risk.

The paper was discussed by Lynda Allen, City University of New York, who emphasised the importance of the properties of risk concentrations in the model as well as the empirical performance of its parameterisation in the presence of more general shocks.

Markovian credit risk transition probabilities under non-negativity constraints for the US portfolio 1984-2004

In this paper, George Christodoulakis, Bank of Greece and Manchester Business School (see Christodoulakis, 2006), presented a new estimation method of credit risk transition probabilities in the context of a multiple-state Markov process for aggregate loan class data. The use of Markov

transition matrices is intuitively appealing, and in a quantitative context estimates of these quantities would constitute an indispensable input in a credit institution’s risk assessment. Although robust estimation of these probabilities can be trivially performed by calculating the proportion of risky objects, e.g. loans, which migrate for one risk category to another, it is often the case that such individual transitions cannot be observed or are unavailable to the analyst. A standard example is a regulator who usually collects aggregate data for performing, non-performing and written-off loans for credit institutions, without access to detailed credit portfolio data. In this case one could consider the evolution of credit risk with respect to broad rating classes using Markov Chains for proportions of aggregate data.

A recent application to aggregate credit risk data is given by Jones (2005), who estimates the transition matrices for quarterly US aggregate data on non-performing loans as well as interest coverage data using the generalised least squares approach proposed by MacRae (1977). Following Lee *et al.* (1970), when proportions data are available the Markov probability model can be expressed as a linear regression model under parameter constraints, the latter constituting the conditional transition probabilities. The least squares estimation of the transition probabilities – the regression coefficients – under linear equality constraints to ensure that probabilities sum to unity, is a typical quadratic programming problem with closed-form solution and known distribution for the estimator. However, when linear inequality constraints are imposed to ensure non-negative transition probabilities, it is not possible to obtain a closed-form solution. Thus, Judge and Takayama (1966) proposed a modified simplex algorithm for



an iterative solution of the inequality-constrained quadratic programme. In univariate regression, the transition probability estimator has a truncated normal distribution if the regression error is normally distributed. However, when there are more than two independent variables, it can be very difficult to obtain the desired sampling distributions using standard methods. One could at most assess the superiority or inferiority of the solution vs. the maximum likelihood estimator using the results of Judge and Yancey (1986).

This paper focuses on the development of an alternative estimation method for the stationary Markov model by adopting a Bayesian perspective to formally impose the non-negativity probability restrictions in the form of a prior probability density. To calculate the posterior density of model parameters, Monte Carlo Integration (MCI) as proposed by Kloek and van Dijk (1978) and van Dijk and Kloek (1980) is used and further studied by Geweke (1986). In the paper, this methodology is applied to estimate the transition probabilities of a first order Markov process for quarterly US aggregate data on non-performing loans from 1984 until 2004. The empirical results on the US portfolio of non-performing loan proportions are in some cases close to the estimates of Jones (2005), but also exhibit some statistically significant differences regarding the estimated transition probabilities. Furthermore, in-sample forecast evaluation statistics indicate that the estimator tends to slightly overpredict (underpredict) non-performing (performing) loan proportions but is substantially more accurate in all cases.

This paper was discussed by Alexandros Benos, National Bank of Greece, who emphasised the properties of the method with respect to parame-

ter uncertainty as captured by their posterior distributions as well as its forecasting performance.

The informational efficiency of the equity market as compared to the syndicated bank loan market

In this paper, Lynda Allen (see Allen and Gotsman, 2006) presents empirical evidence on the comparative efficiency between equity and syndicated bank loan markets. The loan market is comprised of financial institutions with access to both public and private information about borrowing firms. The paper tests whether this is reflected in efficient price formation in the loan market vis-à-vis the equity markets by forming four related hypotheses. Firstly, because the loan syndicates have access to regularly-provided inside information about the borrowing firm, the loan prices should reflect private information before it is released publicly and only then incorporated into the prices of publicly held equity securities. This is denoted as the private information hypothesis. Secondly, as syndicated bank loan markets are considerably less liquid than equity markets and although lenders may have access to superior information, noise in the price formation process in the syndicated bank loan market may hamper informational efficiency, a situation which is termed “the liquidity hypothesis”. Thirdly, since loans have limited upside gain potential, it is possible that the loan markets should be more sensitive to negative information, whereas positive information is more relevant to equity securities holders that share in potential upside gains. This situation is termed “the asymmetric price reaction hypothesis”. Finally, in the case that loan and equity securities markets are well integrated and

efficient, then simultaneous trading in both markets as warranted upon the release of any information should be observed. This is termed as the integrated markets hypothesis.

Empirical evidence suggests rejection of the private information hypothesis, the liquidity hypothesis, as well as the asymmetric price reaction hypothesis. Finally, empirical evidence is most consistent with an integrated markets hypothesis, thus suggesting that both the equity and syndicated bank loan markets are highly integrated such that information flows freely across markets.

This paper was discussed by Ulrich Bindseil, European Central Bank, who focused on the possible instability of the estimated parameters and their impact on potential asymmetries in the transmission of information between markets.

A framework for joint market and credit risk modelling: a central bank and practitioner's view

In this paper, Ulrich Bindseil and Ken Nyholm (2006), European Central Bank, presented a framework for integration of credit and market risk in portfolio management models. The paper is motivated by the observation that, although the insight that macroeconomic variables drive both credit risk and yield curves is very old, existing credit risk portfolio models in the market seem to assume that the interrelation between the two risks can be ignored. In this paper the authors present a flexible method for analysing market and credit risk separately and jointly within a portfolio context. Conditional upon the future macroeconomic state, the model allows for dynamic

evolution of yield curves for several credit grades simultaneously, as well as for time-varying credit transition matrices.

To illustrate the usefulness of the derived framework, they analyse marginal and joint loss distributions under three different macroeconomic scenarios of a simulated portfolio. In particular, through Monte Carlo experiments, the paper shows that the marginal credit risk distribution is skewed and has more losses than the normal distribution; the marginal distribution for market risk is closer to a normal distribution, however, with a somewhat fatter loss tail, and the joint loss distribution resembles a normal distribution but with significantly more mass in the loss tail.

This paper was discussed by Oldrich Vasicek, who placed emphasis on the possible effects of diversification in this context as well as the model performance in the tails of the distribution.

Assessing the accuracy of credit R.O.C. estimates in the presence of macroeconomic shocks

In this paper, Stephen Satchell (see Christodoulakis and Satchell, 2006) presented an assessment of the properties and performance of statistical metrics used in credit rating validation studies. In particular, the Receiver Operating Characteristic (ROC) curve is often used by creditors to assess credit scoring accuracy and as part of their Basel II model validation. The paper provides a mathematical procedure to assess the accuracy of ROC curve estimates for credit defaults in the presence of macroeconomic shocks. The developed approach supplements the non-parametric method recommended



by Engelmann *et al.*, (2003) based on the Mann-Whitney test which is used as a summary statistic of R.O.C. curves. Assuming initially that both sick and healthy loan credit rating scores are generated by normal distributions, the paper shows how R.O.C. estimates depend on the location and scale parameters. Then, using these results the paper constructs R.O.C. confidence intervals in closed form and examines the influence of exogenous macroeconomic shocks. Furthermore, the method is generalised by allowing credit rating scores to be generated by skew-normal distributions, thus allowing skewness to affect the moments of the distribution. It is then shown how the presence of skewness could further exacerbate the accuracy of model validation.

This paper was discussed by Ken Nyholm, who offered comments on the performance of the method using different empirical data and particularly shocks that may not be captured by normal and skew-normal density functions.

Conclusions

The Bank of Greece research conference “The evolution of credit risk: phenomena, methods and management” collected papers from regulatory, banking and academic origins, focusing on the dynamic properties of credit risk and the robustness of the developed models. The main research directions concerned the understanding of credit risk and loss in a portfolio context, its interaction with other types of risk particularly through the effects of common factors, the endogenous dynamic properties of risk factors, as well as the

model performance in the presence of extreme events. Three speakers of the conference, Ordreich Vasicek, Daniel Rosen and Ulrich Bindseil, contributed papers with developments on the properties of loan portfolio losses, focusing on the generating mechanism of their probability distribution in closed form, the effectiveness of loan portfolio diversification through multiple risk factors, as well as the interaction between credit and market risk, respectively. Their results shed further light into the nature of losses in loan portfolios and contribute to more effective internal credit risk management. Furthermore, knowledge of the distribution of loan losses greatly improves the banking supervisory practice as well as the monitoring of financial stability in both banking and systemic levels. The paper presented by George Christodoulakis offered a new method for the estimation of Markov credit transition matrices, which can be particularly useful from a supervisory and financial stability perspective when only aggregate loan class data can be observed in the system. Lynda Allen offered empirical evidence on the informational efficiency of syndicated loan vs. equity markets in the US, concluding that these markets appear to be highly integrated such that information flows freely across markets. Finally, Stephen Satchell presented analytical results on the properties of ordinal dominance graphs as popular tools for the validation of credit scoring models. Confidence intervals for these curves were provided in closed form, thus quantifying explicitly the range of values for which such validation methods are reliable. Application of the new method could improve the internal model validation process in credit institutions, as well as assist the supervisory practice.

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Inflation measurement in Greece*

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1. The Consumer Price Index

The Consumer Price Index (CPI), the most commonly used inflation measurement index, reflects the variation over time in the price level of goods and services purchased by Greek households. In other words, it captures changes in the cost of a “basket” of goods and services purchased by the average consumer in a given period of time. This “basket” represents households’ consumer habits; it remains stable throughout the index period and is revised at regular intervals (approximately every five years). The purpose of this revision is to update the composition of the basket so as to bring it closer in line with actual consumption patterns recorded in the latest Household Budget Survey. Furthermore, the revision allows for the redefinition of the share of each good or service in households’ total consumer spending. At the same time, it offers a window of opportunity to review and improve the methodology used to deal with special issues, thereby enhancing the reliability of the index.

In Greece, the Consumer Price Index was first compiled by the National Bank of Greece in 1924, under the title “Cost-of-Living Index”. In 1931, another “Cost-of-Living Index” was initiated by the General Statistical Service of the Ministry of Commerce encompassing 44 cities in Greece. From 1938 to 1958, the Bank of Greece measured inflation using the “Cost-of-Living in Athens Index”.

The National Statistical Service of Greece (NSSG) started compiling the CPI in 1959 and up to 2000 it covered urban areas only. The

* The views expressed in this article are solely the authors’ and not necessarily those of the Bank of Greece.



index was revised in 1969, 1973, 1974, 1982, 1988, 1994 and 1999. With the 1999 revision the geographical coverage of the index was expanded to cover the whole country and its methodology was significantly improved. The latest CPI revision was performed in 2005 with the addition of new goods and services related to health food and new technologies, thus further enhancing its reliability.

2. Household Budget Survey

The 2004-5 Household Budget Survey (HBS) provided the basis for the compilation of the current CPI. The survey was conducted by the General Secretariat of the NSSG between February 2004 and January 2005 and covered all areas (urban – suburban – rural). The sampling percentage was 0.2%, referring to a sample of 6,555 private households. In selecting the household sample, the area sampling method was applied to the whole country. The information derived from this survey formed the basis for decisions regarding population coverage, the number of items to be included in the index, as well as the number of retail outlets from which prices are to be collected.

Household expenditure on individual goods and services is presented as a monthly average of all households, irrespective of whether all households in a group reported spending on the respective goods and services or not. This average monthly expenditure is classified according to the geographical coverage of households (urban, suburban, rural), by household size (number of members), by income bracket, as well as by various characteristics of the household head, such as age, profession, professional position.

The Household Budget Survey provides important feedback on household consumption patterns over the respective period. Expenditure of the sample of households taking part in the survey on each item (good or service) consumed in the period covered by the survey is recorded in terms of both amount and share in the household's total consumption expenditure. Therefore, if household spending on a given item is high in the survey period, this item will have a relatively high weighting coefficient and, thus, any variation in its price will have a stronger impact – compared with the price variation of other items – on the total cost of the basket. A typical example is fuel (heating oil and petrol). While in the 1999 HBS the share of average household fuel expenditure in total consumption expenditure was 48.43%, in the 2005 HBS it came to 59.82%. This significant increase was due to the fact that in the period covered by the 2005 HBS world oil prices had risen considerably, causing the increase in household fuel expenditure. Thus, large fuel price variations, together with the high share of fuel in final household expenditure, play an important role in determining inflation.

3. Coverage and classification of CPI items

The current Consumer Price Index (CPI), as well as the CPI that resulted from the previous revision (base year: 1999), refers to the whole country (urban, suburban and rural areas) and covers private households only, i.e. it covers neither collective households (hospitals, homes for the elderly, boarding schools etc.) nor foreign visitors (tourists). CPI items (goods and services) were grouped according to the

Table 1
Comparison between CPI weights in the last three revisions
 (‰)

COICOP/ HICP	Main CPI categories	1994 weight	1999 weight	2005 weight
01	Food and non-alcoholic beverages	205.67	184.89	178.21
02	Alcoholic beverages and tobacco	34.98	38.87	41.60
03	Clothing – footwear	111.13	99.06	87.01
04	Housing	135.85	117.13	116.51
05	Durables – household articles and services	83.90	86.41	78.22
06	Health	57.40	69.07	74.55
07	Transport	135.87	129.81	132.21
08	Communications	18.10	37.55	47.02
09	Recreation – cultural activities	50.41	49.01	50.30
10	Education	27.28	27.43	26.63
11	Hotels – cafés – restaurants	82.88	96.60	100.18
12	Miscellaneous goods and services	56.53	64.17	67.56
	Overall CPI	1000.00	1000.00	1000.00

Source: NSSG.

COICOP,¹ adjusted for inflation measurement in EU Member States on the basis of the Harmonised Indices of Consumer Prices (HICPs).

For the collection of CPI item prices, 24 cities were selected on the basis of the 2001 general population census. The total number of goods and services included in the new index is 784; these items encompass a much larger number of varieties. Approximately 55,000 prices are recorded every month.

4. Weighting coefficients

The new weighting coefficients were derived from the 2005 HBS on the basis of monthly average household consumption expenditure by CPI group, sub-group and item (goods and services). In the last three revisions of the CPI, the devel-

opment of weighting coefficients over time (see Table 1) has been consistent with variation trends in world consumption patterns. As the income level rises, consumption patterns shift from expenditure to meet basic needs (food, clothing and footwear) to expenditure intended to improve living conditions and leisure, such as communications (mobile telephones, internet) and hotels-restaurants.

5. Comments on weighting coefficients and the CPI in general

Weighting coefficients reflect consumption patterns with respect to average household expenditure. However, certain groups of households/con-

¹ Classification Of Individual Consumption by Purpose (as defined by the United Nations).



sumers have different consumption habits to those of the average household. For example, average household consumption patterns are not adequately representative of an elderly couple, which constitutes a household in its own right. The couple's food expenditure (or any other type of expenditure for that matter) does not follow the average pattern, while its healthcare expenditure is larger. Obviously, the weighting coefficients for this household differ significantly from the CPI weighting coefficients. In fact, the inflation these groups of households/consumers actually experience may differ from that of the average household. Certain population groups, like the elderly, might prefer the general CPI to be replaced by a more representative inflation index. However, the compilation of a different index for each population group would be too costly, not to mention that such an endeavour would not be of much use. Besides, the CPI is not a cost-of-living index, i.e. it does not measure the differential in the cost required to reach the same living standards under different consumption patterns in terms of time and place; it measures the average price evolution on the basis of the variation in expenditure to maintain households' consumption pattern, as well as on the basis of population composition in the reference period. Furthermore, what is important from a macroeconomic perspective is the variation in the general price level of goods and services which are available throughout the economy in order to meet demand. It is impossible to monitor inflation for each consumer on the basis of their personal basket. Rather, with given weighting coefficients for the basket of the average household, it is possible to measure inflation for the economy as a whole.

As already mentioned, the CPI is revised approximately every five years. Weighting coef-

ficients are kept unchanged throughout the index period and until the CPI is revised on the basis of a new HBS. However, since consumption patterns and household habits change over time, it has been internationally agreed to revise the CPI no sooner than every five years and no later than every seven years so that it is more representative. Besides, it has been statistically proven that fixed-base inflation indices tend, by definition, to overestimate inflation as they move farther away from the base year, because it is not possible to replace higher-priced items with cheaper ones. Revision implies compiling the new index with the latest information, namely adding new items, crossing out items no longer in use or replaced, and generally updating the index in accordance with current consumption patterns, as these are reflected by weighting coefficients.

6. Special CPI issues

Special issues of particular interest for the improvement of CPI reliability, which have been effectively resolved by the NSSG, are as follows:

- (a) Calculation of rents. The sample of 1,300 rented houses in Athens and Thessalonici, which was used in the previous revision (1999) to determine the cost of rent in the CPI, was expanded to an area sample of 4,500 rented houses throughout the country.
- (b) The seasonality of certain CPI items which change over the year, such as fresh fruit and vegetables, clothing and footwear, heating oil, cinema and theatre tickets, as well as the reduced prices (discounts – special offers).

To deal with the seasonality of fresh fruit and vegetables, the NSSG applies the method of varying weighting coefficients. According to this method, the *composition* of the basket with respect to these items changes from month to month, in line with their seasonal production; hence these items have individual seasonal weighting coefficients.

As to the other items (*winter or summer clothing/footwear, heating oil, winter or summer cinema/theater tickets*) which vary over the year, their last observed price is kept for the months they are not available in the market.

Reduced prices on account of special offers and/or discounts are not taken into account when calculating the CPI – by contrast with the general discounts enacted by the Ministry of Development, which are distinguished into winter and summer discounts, and are taken into account. After the end of the discount period, prices return to their previous level; thus, there is no impact on the index when the comparison is made on a year-on-year basis.

(c) Variations in utility service prices are monitored through invoices of public utility companies and weighted with average consumption, as derived from all household expenditure in the country.

(d) Fixed and mobile telephony prices are calculated on the basis of average weighted variations in the prices of these services by company (provider). The weighting coefficients used are the company's receipts from the provision of the said services to household users in the base year.

(e) In some categories (taxis, hairdressing, served items) prices are surcharged over Christmas and Easter periods. These increased prices, due to the granting of the Christmas and Easter bonuses, are taken into account when calculating the CPI for the specific period during which the bonuses were granted.

7. The new revised CPI

As already mentioned, the final determination of household consumption expenditure and new weighting coefficients was based on the results of the Household Budget Survey, together with the latest data from National Accounts and expenditure stock data from public organisations (see Table 1). Furthermore, new items were added, as well as variations of previous items, the special seasonal weighting coefficients for fresh fruit and vegetables were changed, while the number of outlets and of collected prices was expanded.

These changes make the new index more representative than the previous one, since it contains further and more recent information regarding the consumption pattern of the household and takes into account developments in the product market through the addition of new goods and services.

8. The Harmonised Index of Consumer Prices (HICP)

The Harmonised Index of Consumer Prices (HICP)² is the most important inflation measurement index

² See previous study by N. Karabalis "Harmonisation of Consumer Price Indices in EU countries", Bank of Greece, *Economic Bulletin*, No. 7, March 1996.



used by the European Central Bank (ECB). Harmonised inflation indices of EU Member States were constructed in 1997,³ in order to address the need to compile indices that are comparable between Member States. They were one of the tools used to assess whether the inflation criterion, one of the main convergence criteria stipulated in the Maastricht Treaty for the entry of EU Member States into the European Monetary Union (EMU), is met. Since the start of Stage Three of EMU, euro area HICP, which is the outcome of the HICPs of euro area Member States, has been used by the ECB for the purpose of assessing price stability in the euro area (price stability is defined as an annual rate of change in the HICP below, but close to, 2%).

HICPs are based on national CPIs and are designed to cover prices of goods and services actually paid (by consumers). They are not intended to replace national CPIs and are not necessarily used within a country in the context of inflationary adjustments or wage bargaining.

HICPs use a single classification of sub-indices (COICOP/HICP⁴), while weighting coefficients differ between countries, according to the relative importance of consumer expenditure on every good or service in each country, i.e. there is no uniform basket (see Tables 2 & 3). Weighting coefficients are readjusted at the start of each year, based on previous year's inflation and on any other recent information, so that they reflect the specific consumption pattern. The basis for the computation of HICP items' weighting coefficients is provided by National Accounts and the Household Budget Survey.

Important items on the agenda of HICP compilers are the replacement, with quality standards, of

items for which prices are collected (quality adjustment procedure) and the inclusion of owner-occupied housing in the list of items covered. These issues have been discussed over a number of years between Eurostat and the national statistical institutes of Member States in the context of the ten-year efforts to harmonise inflation measurement between EU Member States. On the one hand, the *quality adjustment* procedure stems from the fact that inflation indices should measure "pure" price changes without being affected by changes in the quality of purchased items. Therefore, collected prices should be adjusted to reflect quality changes without being exclusively determined by them, which could give rise to biased inflation estimates.⁵ On the other hand, the *inclusion of owner-occupied housing costs* remains one of the most important issues to be resolved by Eurostat and the national statistical institutes of Member States, since owner-occupier expenditure, even though it forms a significant part of household spending, is still left out from the basket used to measure inflation.

9. HICP features

Eurostat, in agreement with national statistical institutes of Member States, defined the main features HICPs should cover in order to be reliable

³ In fact, the implementation of harmonised inflation indices at the EU level started in 1996; however, since that was an early stage, that year's indices were considered interim and temporary.

⁴ Classification of Individual Consumption by Purpose/Harmonised Indices of Consumer Prices.

⁵ Claims that inflation indices may be biased due to their inability to take into consideration changes in quality were raised after the 1996 Boskin Committee report in the USA (Boskin, M.J. et al., "Towards a more accurate measure of the cost of living", December 1996). The Boskin report argued that the CPI in the US was highly biased on account of effects from quality changes in goods and services (especially in high technology sectors) and the efforts made to remedy this bias were not considered successful.

Table 2
Greece's HICP weights for the 12 main categories (1996-2006)

Main HICP categories	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Food and non-alcoholic beverages	231.16	229.94	226.05	225.43	210.86	205.94	185.55	181.67	181.66	179.98	176.17
Alcoholic beverages and tobacco	39.16	38.20	39.77	52.24	50.31	50.85	49.35	50.47	52.39	51.08	51.02
Clothing – footwear	121.44	126.86	128.21	131.85	122.75	121.46	122.35	121.55	121.32	121.66	121.61
Housing	140.07	135.96	134.39	104.08	98.94	103.31	88.71	91.13	90.83	94.86	100.83
Durables – household articles and services	89.20	90.56	89.98	87.10	80.80	79.17	73.30	71.78	70.90	69.93	68.64
Health	11.84	11.49	9.42	6.53	47.92	57.41	53.29	54.52	55.06	56.06	56.36
Transport	125.26	122.91	123.24	135.54	128.33	129.23	135.00	136.05	134.34	134.20	136.38
Communications	24.12	23.33	23.42	33.16	26.76	23.20	29.55	26.51	25.11	23.18	22.75
Recreation – cultural activities	49.80	50.12	50.10	46.98	43.21	41.82	45.91	45.63	45.28	45.08	44.17
Education	13.66	13.87	14.26	11.16	21.67	21.52	18.95	19.14	19.38	19.61	19.65
Hotels – cafés – restaurants	90.15	91.76	94.67	115.33	111.84	111.89	141.35	145.36	148.00	149.00	147.45
Miscellaneous goods and services	64.14	65.00	66.49	50.60	56.61	54.20	56.69	56.19	55.73	55.36	54.97

Source: NSSG.

Table 3
Euro area HICP weights for the 12 main categories (1996-2006)

(%)

Main HICP categories	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Food and non-alcoholic beverages	186.53	185.03	184.24	180.66	159.79	157.02	158.11	154.54	156.02	154.91	152.74
Alcoholic beverages and tobacco	43.10	43.66	43.74	43.42	40.17	38.54	38.34	38.37	39.24	40.71	40.01
Clothing – footwear	89.20	88.73	87.66	84.75	77.12	75.13	77.12	75.71	74.61	74.20	72.73
Housing	157.72	159.60	161.64	163.24	160.68	156.83	151.86	149.41	149.23	150.50	153.55
Durables – household articles and services	83.41	83.15	82.47	84.54	82.03	79.86	80.30	78.94	77.64	76.50	75.74
Health	7.08	7.14	7.24	8.11	32.12	39.30	39.35	39.40	39.95	41.67	40.29
Transport	155.61	156.36	157.07	159.37	155.87	155.54	150.81	152.77	151.47	153.31	157.06
Communications	22.01	21.60	21.50	23.67	27.52	26.70	27.25	29.02	28.94	29.19	29.45
Recreation – cultural activities	102.10	101.95	101.70	102.00	100.52	98.18	98.43	97.12	95.67	94.66	94.68
Education	3.75	3.75	3.79	3.76	9.16	9.65	9.61	9.21	9.27	9.49	9.67
Hotels – cafés – restaurants	85.36	85.26	85.37	83.42	86.27	89.11	91.82	95.04	96.22	93.19	92.25
Miscellaneous goods and services	64.13	63.77	63.58	63.06	68.75	74.14	77.00	80.47	81.74	81.67	81.83

Source: Eurostat.

and comparable. These features formed part of the Council Regulation (EC 2494/95) which set out rules, guidelines and good practice standards for HICP compilation. So far, many other rules and directives laying down specific measures for further improvement of HICPs have been approved.

Some of the main HICP features are the following:

- Indices cover all goods and services included in the final consumption expenditure related to households' direct needs in the territory of the Member State, irrespective of nationality or permanent residence of households' members, and use the uniform classification of individual consumption by purpose, adapted to HICP requirements (COICOP/HICP).
- Prices used for HICP calculation are prices actually paid by households for the purchase of goods and services in the context of money transactions and not price estimates. In other words, prices included in the HICP are retail prices (or final demand prices) and not producer prices. Namely, they include taxes and discounts, while excluding product subsidies.
- Indices have the same base year.
- Harmonised indices are Laspeyres-type indices, i.e. monthly price changes are measured as the average of price indices weighted on the basis of expenditure corresponding to the population consumption pattern in the reference period of weighting coefficients.
- The basket is updated every 5-7 years, while expenditure (weighting coefficients) is adjusted every year.
- Harmonised indices do not include expenditure for interest payments, since the interest rates applied are neither goods nor services, but means of striking a balance between money supply and demand.
- National HICPs include expenditure by foreign visitors, but not expenditure by residents whilst in a foreign country, while expenditure incurred for business purposes is not taken into account.

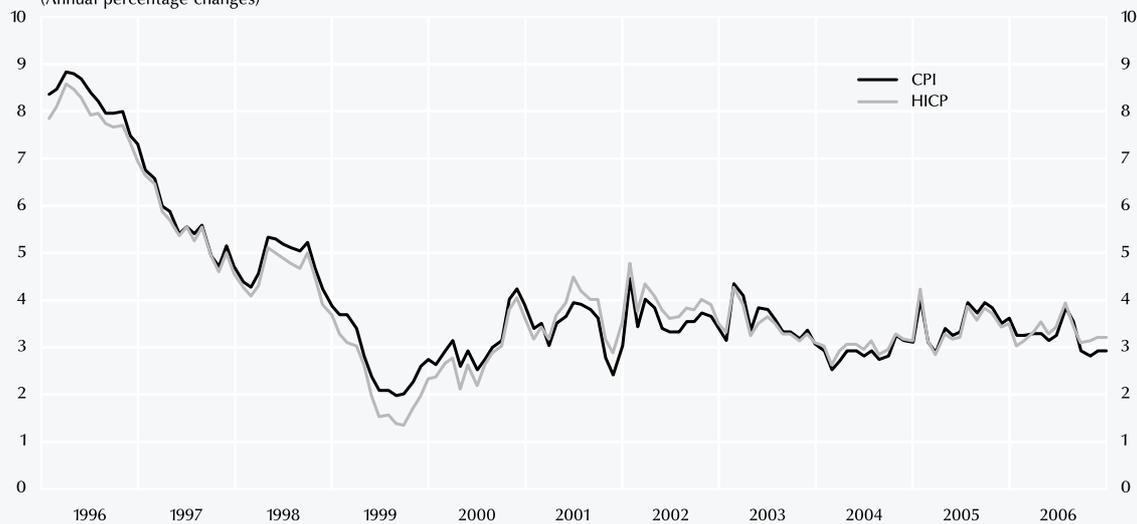
10. CPI and HICP in Greece

A comparison of the two inflation indices used in Greece, namely CPI and HICP, for the period 1996-2006 is presented in Chart 1. Both the parallel development of the two indices and any minor or major differences are quite obvious. Deviations are mainly due to the different share of individual types of expenditure in the shaping of general indices. More specifically, the fact that tourist expenditure is included in the HICP, but not in the CPI, differentiates considerably the weighting coefficients of certain goods and services in the basket, which results in a commensurate (greater or smaller) impact on HICP of price variations in these items. In other words, while price variations in these goods and services are identical in both indices, their contribution to shaping the general index (HICP or CPI) is different, and this causes the deviations observed in inflation measurement.

As already mentioned, the CPI covers consumption expenditure in the economic territory of Greece only by domestic private households, while the HICP also covers expenditure by for-



Chart 1
Greece's CPI and HICP
(Annual percentage changes)



Source: Calculations based on NSSG data.

Table 4
Comparison between CPI and HICP weights
(%)

COICOP/ HICP	Main CPI/HICP categories	2006 HICP weights	2005 CPI weights	Weight differential (HICP - CPI)
01	Food and non-alcoholic beverages	176.17	178.21	-2.04
02	Alcoholic beverages and tobacco	51.02	41.60	9.42
03	Clothing – footwear	121.61	87.01	34.60
04	Housing	100.83	116.51	-15.68
05	Durables – household articles and services	68.64	78.22	-9.58
06	Health	56.36	74.55	-18.19
07	Transport	136.38	132.21	4.17
08	Communications	22.75	47.02	-24.27
09	Recreation – cultural activities	44.17	50.30	-6.13
10	Education	19.65	26.63	-6.98
11	Hotels – cafés – restaurants	147.45	100.18	47.27
12	Miscellaneous goods and services	54.97	67.56	-12.59

Source: NSSG and calculations based on NSSG data.

foreign visitors and individuals living in institutions (collective households). In addition, different sources are used for the calculation of weighting coefficients of the two indices; the frequency of

renewal and updating of weighting coefficients is different (CPI weights are renewed when the index is revised, i.e. every five years, while HICP weights are mandatorily adjusted every January

Table 5
Deviations between the HICP and the CPI
(Percentage points)

Main CPI/HICP categories	2000	2001	2002	2003	2004	2005	2006	2000-06 average
Overall index*	-0.3	0.3	0.3	-0.1	0.1	-0.1	0.1	0.1
Food and non-alcoholic beverages	0.08	0.15	0.08	-0.03	0.06	0.04	-0.06	0.04
Alcoholic beverages and tobacco	0.03	0.08	0.07	0.05	0.06	0.03	0.05	0.05
Clothing – footwear	0.04	0.06	0.08	0.04	0.08	0.09	0.08	0.07
Housing	-0.11	0.08	-0.05	-0.10	-0.12	-0.16	-0.03	-0.07
Durables – household articles and services	-0.06	0.00	-0.02	-0.04	-0.04	-0.03	-0.03	-0.03
Health	-0.16	-0.08	-0.05	-0.06	-0.03	-0.03	-0.04	-0.07
Transport	0.00	0.06	-0.03	0.03	0.02	0.01	0.09	0.02
Communications	0.00	-0.02	0.05	0.04	0.06	0.01	0.00	0.02
Recreation – cultural activities	-0.04	-0.02	-0.03	-0.04	-0.02	-0.03	-0.01	-0.03
Education	-0.02	-0.02	-0.03	-0.05	-0.03	-0.04	-0.03	-0.03
Hotels – cafés – restaurants	0.05	0.11	0.28	0.20	0.20	0.16	0.12	0.16
Miscellaneous goods and services	-0.06	-0.06	-0.06	-0.09	-0.09	-0.09	0.00	-0.06

* Differences between the overall index and the sum of the figures for each category are due to rounding.
Source: Calculations based on NSSG data.

on the basis of previous December prices) and HICP (contrary to CPI) coverage of newly significant items which correspond to market developments is mandatory every year, provided that these items represent more than 1‰ of total consumption expenditure. No matter how important they are, new items cannot be added in the CPI during its effect, since the index refers to a specific consumption pattern that resulted from a specific HBS. New items can be incorporated in the CPI at the time of its revision, provided that the respective expenditure represents a significant share of household's consumption spending, according to the relevant HBS.

On the other hand, the two indices (CPI and HICP) have similarities regarding geographical coverage, price collection cities, goods and services for which prices are collected, outlets, use of the geometric mean for the calculation of individual indices, treat-

ment of seasonal items, reduced prices and discounts and, finally, use of COICOP.

Weight deviations between HICP and CPI (see Table 4) are entirely reasonable if we take into account the different population coverage of the two indices. As already mentioned, the CPI covers only domestic private household expenditure, while the HICP covers both private and collective households, as well as foreign visitors, whose expenditure mainly accounts for the large difference in weights. Expenditure by foreign tourists contributes significantly to the shaping of inflationary trends in the domestic market, particularly during summer, when population almost doubles and increased demand for goods and services clearly affects the prices of the items included in the basket. Besides, HICP weights may well rely on the Household Budget Survey, as CPI weights do, but they are adjusted every



year on the basis of National Accounts data, while CPI weights are adjusted every five years. The most important deviations for 2006 are recorded in “clothing-footwear”, “communications” and “hotels-café-restaurants” (see Table 5). More specifically, in the last seven years (2000-2006) “hotels-café-restaurants” was the expenditure category which recorded the most diverging pattern and, thus, contributed commensurately to the deviation between the CPI and the HICP. By contrast, the contribution of “clothing-footwear”, “housing” and “health” was lower, due to the smaller deviation between the respective HICP and CPI weights.

11. Conclusions

Each revision of the Consumer Price Index contributes to the creation of an improved and updated inflation index. This index incorporates the latest information and, on account of the fact that it is based on a more recent consumption pattern, it is more reliable and representative than the previous one. It is used for the official measurement of inflation within the country and it is taken into account in wage negotiations between the social partners and in any adjustment of the purchasing power of the currency.

In essence, the HICP is another inflation index with clear and pre-determined rules, in the form of EU directives or guidelines, in order to ensure that it is reliable and suitable for use in the context of the EU and, particularly, the euro area. The HICP is the result of a long harmonisation process and it is therefore comparable to the respective harmonised indices of EU Member States. The HICP, together with the respective harmonised indices of euro area Member States, is the main measure of price stability in the Monetary Union.

It is true that the measurement of inflation in Greece with two different indices (CPI and HICP), despite the fact that their differences are minor, can confuse users, even though the roles of the two indices are quite distinct. However, owing to their minor theoretical and practical differences, which do not exceed statistical deviation limits, as can be seen in their ten years of co-existence, it would be possible, in the context of best practice and European convergence, for these two indices to become a unified, single index. HICPs are undoubtedly the best means for measuring consumer price inflation at European level and their quality has reached a very high degree of comparability and precision compared with any other price variation index.

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Working Papers

(June 2006 – January 2007)

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Regional currency arrangements: insights from Europe

Working Paper No. 42

Josef Christl

The successful completion of EMU and the introduction of the euro have substantially increased the general interest in regional integration and especially in regional monetary arrangements. The basic theoretical foundation for this kind of analysis is the optimum currency area (OCA) literature. In the late 1990s, OCA theory was complemented by the finding that the criteria for successful monetary integration need not necessarily be fulfilled *ex ante* but that they can be fulfilled *ex post*, owing to the workings of a monetary union.

This paper focuses on the requirements and features of a successful monetary union on the basis of the optimum currency area theory. Analytically, it reviews the “logical roadmap” for economic integration as proposed by Balassa (1962), investigates the steps taken in Europe and draws some conclusions for the evolution and creation of currency arrangements in other regions of the world. The author reminds us that Europe went through a Balassa sequencing (free trade zone – common

external tariff – customs union) that took half a century before arriving at EMU.

The experience with monetary integration in Europe suggests that monetary union is contingent on a high degree of economic integration and strong political commitment. However, political union is not an *ex ante* requirement. Outside factors such as systemic shocks and globalisation seem to speed up the pooling of sovereignty in the economic domain. A firm commitment to stability-oriented monetary and fiscal policies is a precondition for gaining credibility and trust within and outside a monetary union. Last, but not least, convergence criteria, fiscal rules and strong institutions are necessary to ensure and monitor compliance. While Balassa’s roadmap reflects, to a certain extent, the European experience, it is unlikely to be possible to derive straightforward “laws” governing regional integration for global political economy. An important insight for other regions is that they may be more heterogeneous than Europe and might lack a strong region-minded centre.



Monetary unions, external shocks and economic performance: a Latin American perspective

Working Paper No. 43

Sebastian Edwards

This paper analyses the desirability of a monetary union from a Latin American perspective. Analysis is introduced through historical retrospective. A review of the existing literature indicates that Latin American countries do not seem to satisfy most of the Optimum Currency Area criteria, such as whether countries face similar shocks, exhibit macroeconomic convergence or business cycle synchronisation. It is underlined however that some criteria are partially endogenous to the monetary and exchange rate regime. Hence, the author prefers to examine the evidence on economic performance in countries in existing currency unions and to interpret the results from the perspective of Latin American nations. Random effects probit regressions are estimated using a large panel of pooled data to investigate whether participating in a currency union reduces the probability of experiencing a “sudden stop” of capital inflows and/or current account reversals. Both phenomena have

plagued Latin American countries, negatively affecting GDP growth. In addition, the question of whether countries in a currency union are better able to accommodate various external shocks is investigated. More particularly, the impact of terms of trade shocks, “sudden stops” and “current account reversals” shocks on growth are examined.

The results suggest that membership of a currency union does not lower the probability of facing a sudden stop or a current account reversal. Furthermore, external shocks are amplified in currency union countries compared to countries with a flexible exchange rate system, since the former group of countries cannot resort to exchange rate adjustments as a way of absorbing external shocks. Therefore, the benefits of participation in a union, i.e. credibility, lower transaction costs, increased trade and lower and more stable inflation, come at a cost.

What about a world currency?

Working Paper No. 44

Richard N. Cooper, Michael Bordo and Harold James

This paper consists of two different parts that debate the merits and disadvantages of a world currency. The opinions concerning a world currency are diverse and contradictory and the general debate is a part of the issue of whether countries should fix or float their exchange rates. The differing views depend on whether one believes that financial market imperfections and monetary policy shocks are the primary sources of disturbances or whether idiosyncratic shocks to fundamentals are. In the latter view, flexible exchange rates are preferred because, under nominal rigidities and asymmetric shocks, they act as shock absorbers.

Cooper R. N.: Proposal for a Common Currency Among Rich Democracies

The first part suggests that the governments of large industrial democracies (USA, EMU and Japan) should establish a common currency for three reasons. First, international financial transactions will come to dominate exchange rate determination and hence, in an integrated world, trade and investment profitability. Second, shocks

within the economic entities will be more important than shocks between and, third, financial markets will continue to be fickle in the future. Thus, elimination of monetary and exchange rates as sources of asymmetric shocks will contribute to more stable economic activity and possibly higher growth.

Bordo M. and James H.: One World Money, Then and Now

The second part discusses past currency arrangements, similar to those proposed today, that were tried and failed. These arrangements relied on the clear strategic superiority of that part of the world whose money was used in the international financial system. The authors note that: “[i]t is striking how the most widely touted proposals for world money do not attempt to deal with the issue of who is making policy and in whose interest.” They conclude that, even if the economic gains might seem attractive, they are probably not that large nowadays and that, at present, the political dynamics that are essential to successful currency and monetary unions are not there.



A worldwide system of reference rates

Working Paper No. 45

John Williamson

As global imbalances grow, it is becoming evident that the present exchange rate arrangements lack a disciplining mechanism that could help prevent the escalation of imbalances. This paper makes the case for reorganising the international monetary system on the basis of globally agreed upon reference rate parities. The proposed system, the reference rates system, is claimed to prevent large misalignments if the reference rates are built on a vision of a globally consistent outcome. In the context of this system, exchange rates are managed according to a well-specified set of rules that prohibit interventions and other policies intended to move the exchange rate away from an internationally agreed reference rate. Conversely, interventions that aim at bringing the exchange rate towards the internationally agreed reference rate are allowed.

As to the implementation of the system, it is proposed that each country, or at least each major country, will have a reference rate. The IMF staff

that has experience and credibility with macro-modelling would generate a suggested set of reference rates, which would be expressed as effective exchange rates rather than bilateral dollar rates, using their favoured approach or a variety of approaches. The suggested reference rates would be presented to the IMF Executive Board at regular intervals. Countries would have the right to object to the proposed rate but an agreement would have to be reached within a defined time interval. The IMF would also be endowed with a framework that would permit it to supervise the system and ensure that the countries are not adopting inconsistent policies or intervening inappropriately.

Marc Flandreau discusses the paper and agrees with the general thrust of the proposal. He offers a few suggestions for implementation and surveillance. Specifically, he has some reservation about the surveillance role of the IMF and proposes the BIS as an adequate alternative.

Technical and allocative efficiency in European banking

Working Paper No. 46

Sophocles N. Brissimis, Matthaïos D. Delis and Efthymios G. Tsionas

Conventional methods of efficiency estimation using stochastic frontiers do not decompose overall cost efficiency into its technical and allocative components, mainly due to the fact that the implied production function cannot be derived. In particular, Greene (1980) defined allocative inefficiency as the departure of the actual cost shares from the optimum shares, failing, in such a context, to derive the relationship between allocative inefficiency and cost increases from such inefficiency (Greene problem). For this reason, researchers have been content to either ignore allocative inefficiency or impose *ad hoc* restrictions to integrate it into an empirical model.

This paper specifies a stochastic frontier framework for estimating both technical and allocative efficiency, which is applied to a large panel of European banks over the years 1996 to 2003. Our methodology allows for a self-consistent measurement of technical and allocative inefficiency, in an effort to address the Greene problem. Following the theoretical model of Kumbhakar (1997), we estimate a translog cost function that incorporates allocative inefficiency and its associ-

ated cost share equations, using the method of maximum likelihood. We present an approximate solution that is relatively easy to implement, since we provide a log-likelihood function for this model in closed form. In this respect, we are able to obtain technical and allocative inefficiency for individual banks at each point in time and then present averages on a country-specific basis and for the European banking system as a whole.

The results suggest that, on average, European banks exhibit constant returns to scale and that technical and allocative efficiency are close to 80% and 75% respectively. Most importantly, models that include only technical inefficiency significantly overestimate it. Finally, both technical and allocative efficiency have shown a tendency to improve in recent years, as banks apply better managerial practices in order to enhance their overall performance. The significant inefficiencies observed and their differentiation in terms of the efficiency scores among the countries examined suggest that there is much to be done regarding the optimisation of banking inputs' usage and management.



Determinants of bank profitability in the Southeastern European region

Working Paper No. 47

Panayiotis P. Athanasoglou, Matthaios D. Delis and Christos K. Staikouras

The aim of this study is to examine the effect of bank-specific, industry-related and macroeconomic determinants of bank profitability in the Southeastern European countries. We utilise a panel of commercial banks of these countries that covers the period 1998-2002. The group of bank-specific determinants involves operating efficiency and financial risk. Size is also included to account for the effect of economies of scale. The industry-structure determinants that affect bank profits are industry concentration and ownership status of banks. The structure-conduct-performance (SPC) hypothesis figures prominently among theories that relate market power to bank profitability. We also test the validity of the efficiency-financial-structure (EFS) hypothesis. The third group of determinants relates to the macroeconomic environment within which the banking system operates. In this context, we include inflation and *per capita* income among the explanatory variables of our model.

Our study is novel in the sense that, first, it is among the few that examines extensively behav-

iour of bank profitability in this region. Second, it tests the validity of both SPC and EFS hypothesis. Third, it introduces the EBRD index of banking system reform in these countries in order to identify whether it has had any impact on profitability.

The empirical results show that profitability is affected by all the bank-specific determinants in the anticipated way. The SCP hypothesis is verified, as the effect of industry concentration on bank profitability was found significant. There is also some evidence in favour of the EFS hypothesis. Foreign banks operating in the region seem to perform better relative to the domestic banks mainly due to the fact that are more capitalised. However, a positive relationship between banking reform and profitability was not identified. It appears that reforms, at this relatively low level of financial system sophistication, cause banks to offer competitive interest rates. Finally, the evidence indicates that profitability, while affected by inflation, is not affected by *per capita* income.

The effect of the euro on foreign direct investment

Working Paper No. 48

Pavlos Petroulas

This paper addresses the issue of whether EMU has had any effects on foreign direct investment (FDI) flows. The recent economic and policy debate, concerning the economic effects of EMU on its Member States, has been based on an increasing body of empirical evidence and this paper is an attempt to investigate yet another aspect of EMU.

In spite of the intuitive appeal of the argument that lower exchange rate volatility will increase FDI-flows, empirical evidence regarding the effects of EMU on FDI flows is currently absent. In addition, this evidence could give an indication of whether EMU creates better conditions for firms making long-term investment decisions.

Using a new dataset on FDI flows, a panel of unilateral FDI flows between 18 developed countries for the years 1992 to 2001 is gathered. Since we are trying to uncover potential effects of an institutional reform, a difference-in-differences approach suitable for identifying such structural changes is used to gauge the effects of EMU on inward FDI. The estimations are carried

out both within a partial as well as a general equilibrium approach to FDI.

The results of this study show that EMU increases inward FDI flows within the euro area by approximately 14% to 16% and inward FDI from member countries to non-members by 11% to 13%; a weak increase in inward FDI from non-member countries to member countries of around 8% is also uncovered. The results are robust to changes in time and country sample. The central locations of Germany and Belgium-Luxembourg are shown to play an important role in euro area FDI where they act as hub.

Finally, an investigation of the economic geography of the euro is conducted by combining the inward FDI results with results obtained from export regressions. The findings indicate that the increase in FDI is concentrated in large economies, while the increase in exports is larger for small economies. This is suggestive of an increase in vertical specialisation or “third” country considerations in the sample.



Computational intelligence in exchange-rate forecasting

Working Paper No. 49

Andreas S. Andreou and George A. Zombanakis

The diversity of opinions in the international literature on the issue of exchange-rate forecasting sometimes raises doubts concerning the extent to which empirical contributions are able to agree on a method which can achieve a reliable prediction in such an important field at both a micro and a macro policy level. Considering, therefore, that the question of reliability in exchange-rate forecasting is still open, we have decided to resort to the use of artificial intelligence in an effort to improve the forecasting performance of selected exchange rate series. To do so, we use Artificial Neural Networks, which, being a data-driven approach, are considered preferable to traditional, model-driven approaches used for forecasting purposes.

We concentrate on attaining reliable forecasting performance for the U.S. dollar and the Japanese yen rates versus the euro. Indeed, following a

study of the selected exchange-rate series using traditional as well as specialised, non-parametric methods together with Monte Carlo simulations, we employ selected Neural Networks (NNs) trained to forecast rate fluctuations. More specifically, we use the Neuroshell 2 to show that Artificial Neural Networks can provide successful time series predictions with a substantial degree of accuracy. It is interesting to note that, although the data are shown by Rescaled Range Statistic (R/S) analysis to exhibit random behaviour, their internal dynamics are successfully captured by certain NN topologies, thus yielding accurate predictions. Indeed, different Multi-layer-Perceptron topologies trained with the Back Propagation algorithm are used to show that the NN employed manages to learn the underlying dynamics of the exchange-rate developments and yields successful results of above 98% accuracy.

An alternative definition of market efficiency and some comments on its empirical testing

Working Paper No. 50

Alexandros E. Milionis

There is little doubt that the concept of market efficiency is one of the most fundamental in modern financial theory. Although market efficiency is defined differently by different authors it is the definition of Fama that has become the established one and its empirical implications have been extensively tested. According to this definition, a market is efficient if “prices ‘fully reflect’ all available information”. However, as is discussed in this work, this definition is not based on well-defined econometric notions and, to a certain extent, generates ambiguity with respect to the substance of market efficiency as well as the econometric methodology for its empirical testing.

One of the main aims of this work is to remove this ambiguity by suggesting an alternative defi-

nition for market efficiency, based on well-defined econometric notions. It is argued that the proposed definition has some considerable advantages over the existing one, as it is simpler, clearer and can more easily be made operational. Moreover, it is shown that Fama’s definition can be derived as a consequence. Further the notion of market efficiency is discussed in a time-varying risk framework and some weak points in Fama’s econometric treatment are pointed out.

Finally, the conditions under which the results from the application of some commonly used methods for the empirical testing of market efficiency are meaningful are examined, and guidelines for practitioners are suggested.



Market conduct, price interdependence and exchange rate pass-through

Working Paper No. 51

Sophocles N. Brissimis and Theodora S. Kosma

The issue of the unresponsiveness of traded goods prices to exchange rate changes has been extensively analysed in the literature. Most existing studies focus on the analysis of the micro-foundations of foreign firms' pricing and attribute incomplete exchange rate pass-through to imperfectly competitive market structures and to the existence of market power by foreign firms. In this context, the existence of domestic competitors is recognised but their interaction with foreign producers is not fully integrated in the models. Thus, the possible impact of the exchange rate on domestic producers' pricing behaviour and its implications for the exchange rate pass-through have not been adequately analysed.

This paper attempts to fill this gap by developing a model which examines the pricing behaviour of foreign firms that produce a differentiated product and compete with domestic producers in the domestic market. Foreign and domestic firms simultaneously choose their pricing strategies and are assumed to have non-zero conjectural variations. The two price relationships derived, which correspond to exporting and domestic firms' reac-

tion functions, indicate that the prices of these producers are interdependent and this simultaneity establishes an indirect link between domestic producer prices and the exchange rate. Thus, the interaction between foreign and domestic producer prices and the exchange rate appears to be a key element in the determination of the exchange rate pass-through elasticity, which can be not only less than one but also equal to or greater than one, depending on these producers' conjectural variations. The paper therefore contributes to the literature by providing a richer pattern for exchange rate pass-through; models that assume zero conjectural variations typically come up with a pass-through elasticity which is lower than one.

The empirical implications of the model are tested with the Johansen multivariate cointegration technique using data for Japanese firms' exports to the US market. The results indicate that US producer prices are indeed influenced by the prices of their Japanese competitors and that, even after allowing for this influence, the pass-through is still found to be incomplete.

How homogenous are currency crises? A panel study using multiple-response models

Working Paper No. 52

Tassos G. Anastasatos and Ian R. Davidson

The purpose of this article is to assess empirically whether all currency crises are induced by a common set of generating factors or they differ from each other with respect to magnitude, geographical vicinity, process of evolution, timing, the degree of their success in forcing a devaluation and the exchange rate regime upon which an attack is launched. This is explored using a range of advanced Limited Dependent Variable (LDV) estimation procedures. Models for ordered and unordered outcomes along with their heteroskedastic and random effects extensions are applied to a large panel of data comprising 40 years of monthly observations on 23 developed countries and in various divisions of the sample.

Results provide evidence that fundamentals such as money supply growth, inflation and the real exchange rate are linked with crises across the

board. However, several structural factors, most consistently a lack of real growth but also unemployment, associate in a different way with – and are more important for – successful attacks compared to failed attacks, larger scale episodes compared to minor episodes, and crises that occur in bands and pegs compared to crises that occur in more flexible exchange rate regimes. Crises also differ over time. Formal tests establish these structural dissimilarities. This implies that the inherent hypothesis spanning most empirical studies that all crises are driven by the same imbalances and follow the same process is misguided. Heterogeneity of crises, complemented by indications of self-fulfilling expectations and noise, suggest that time and region specific predictive approaches and policy responses are more useful than trying to base analysis and policy decisions on more general patterns.



Monetary policy and financial system supervision measures

(July 2006 - February 2007)

Monetary policy measures of the Eurosystem

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.

3 August 2006

The Governing Council of the ECB decides, with effect from 9 August 2006, to increase:

1. the minimum bid rate on the main refinancing operations by 25 basis points to 3.0%;
2. the interest rate on the marginal lending facility by 25 basis points, to 4.0%; and
3. the interest rate on the deposit facility by 25 basis points to 2.0%.

31 August 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 3.0%, 4.0% and 2.0% respectively.

5 October 2006

The Governing Council of the ECB decides, with effect from 11 October 2006, to increase:

1. the minimum bid rate on the main refinancing operations by 25 basis points to 3.25%;



2. the interest rate on the marginal lending facility by 25 basis points to 4.25%;

3. the interest rate on the deposit facility by 25 basis points to 2.25%.

2 November 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 3.25%, 4.25% and 2.25% respectively.

7 December 2006

The Governing Council of the ECB decides, with effect from 13 December 2006, to increase:

1. the minimum bid rate on the main refinancing operations by 25 basis points to 3.50%;

2. the interest rate on the marginal lending facility by 25 basis points to 4.50%;

3. the interest rate on the deposit facility by 25 basis points to 2.50%.

22 December 2006

The Governing Council of the ECB decides to increase the allotment amount for each of the longer-term refinancing operations to be conducted in the year 2007 from €40 billion to €50 billion. This increased amount takes the following aspects into consideration: the liquidity needs of the euro area banking system have grown strongly in recent years and are expected to increase further in the year 2007. Therefore the Eurosystem has decided to increase slightly the share of the liquidity needs satisfied by the longer-term refinancing

operations. The Eurosystem will, however, continue to provide the bulk of liquidity through its main refinancing operations. The Governing Council may decide to adjust the allotment amount again at the beginning of 2008.

11 January, 8 February 2007

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 3.50%, 4.50% and 2.50% respectively.

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

10 July 2006

– IRF European Finance Investment Ltd. is authorised to acquire a qualifying holding of 30% in the share capital of Proton Investment Bank S.A.

– The ceiling on credit institutions' investment in equity and mutual fund units (25% of their own funds) will be calculated on the basis of their net positive position in equity, derivatives on equity and equity-indexed derivatives of their trading portfolios.

– JP Morgan Chase Bank N.A. is authorised to establish and operate a representative office in Greece.

26 July 2006

– The Paris-based Crédit Agricole S.A. is authorised to acquire up to 100% of the share capital of the Commercial Bank of Greece.

– The Agricultural Bank of Greece is authorised to acquire a qualifying holding of up to 57.12% (85% by a later decision) in the share capital of the Romania-based Mindbank S.A.

– Marfin Financial Group S.A. is authorised to acquire a qualifying holding of up to 49% of voting rights in Egnatia Bank.

– Société Générale Consumer Finance Holding Hellas SA is authorised to acquire 100% of the share capital of “Cofidis Hellas Finance S.A.”.

– EFG Eurobank Ergasias is authorised to acquire a qualifying holding of up to 70% in the share capital of the Turkey-based “Tekfenbank AS”.

6 September 2006

– The absorption of Omega Bank and of Proton Stock Brokers by Proton Investment Bank is approved.

– Dubai Financial LLC is authorised to acquire a qualifying holding of up to 34% in the share capital of Marfin Financial Group SA.

– “EFG Factors S.A.” is authorised to operate a branch in Bulgaria.

– EFG Eurobank Ergasias is authorised to acquire a qualifying holding of up to 99.34% in the share capital of the Ukraine-based Bank Universal.

– The Zurich-based I.B.I. Bank AG is authorised to establish and operate a representative office in Greece.

21 September 2006

The Agricultural Bank of Greece is authorised to acquire a qualifying holding of up to 24.99% in the

share capital of the Serbia-based Agroindustrijska Komercijalna Banka-AIK Banka AD.

29 September 2006

Marfin Bank S.A. is authorised to acquire a qualifying holding of up to 89.91% in the share capital of the Investment Bank of Greece.

2 October 2006

A branch of the Austria-based BMW Austria Bank GmbH commences its operation in Greece.

13 October 2006

– The National Bank of Greece is authorised to convert its branch network in Serbia into a subsidiary.

– The operational principles and the evaluation criteria for the structure of credit and financial institutions’ internal audit systems are specified, with a view to preventing the use of the financial system for money-laundering and terrorist financing.

– The authorisation for the establishment and operation of bureaux de change by “Dias Bureaux de Change S.A.” is withdrawn.

– Novabank SA is authorised to amend its Statute and its registered name. The latter becomes “Millennium Bank S.A.”.

8 November 2006

The National Bank of Greece is authorised to acquire 100% of the share capital of the Serbia-based “Vojvodjanska Banka AD Novi Sad”.

28 November 2006

– EFG Eurobank Ergasias is authorised to acquire 100% of the share capital of the Bulgaria-based “DZI Bank AD”.



– Piraeus Bank is authorised to acquire a qualifying holding of up to 27% in the share capital of “Trieris Real Estate Ltd.”.

11 December 2006

– The Cyprus-based Marfin Popular Bank Public Co. Ltd. is authorised to acquire a qualifying holding of up to 100% in the share capital of Egnatia Bank S.A. and of Marfin Financial Group S.A., and, through the latter, up to 100% in the share capital of Marfin Bank ATE and 91% in the share capital of Investment Bank of Greece S.A.

– The National Bank of Greece is authorised to acquire 100% of the share capital of P&K Investment Services S.A.

– Except for the cases where the manner of application of contractual terms is clearly determined, whenever the contractual terms agreed upon between customers and credit institutions are unilaterally amended by the credit institution, the latter is obliged to inform the counterparty individually. Besides, fees for the lack of transactions will not be applied to savings deposits, to the extent that such fees exceed interest amounts and reduce the outstanding balance of the deposited amount.

– “Intel Express Bureaux de Change S.A.” is authorised to operate in Greece.

– The terms for keeping sight deposit accounts and for the circulation of cheques through the banking system are amended and codified so as to meet market conditions and also to allow for their better application by credit institutions and customers.

1 January 2007

The Greek branch of the Italy-based bank “Sanpaolo IMI S.p.A.” changes its registered name to “Intesa Sanpaolo S.p.A.”.

9 January 2007

– The amendment of the Statute of “Geniki Bank” is approved.

– The amendment of the Statute of “Cooperative Bank of Pieria Ltd” is approved.

24 January 2007

– Piraeus Bank is authorised to increase its qualifying holding in the share capital of the Belgrade-based “Piraeus Bank AD, Beograd”.

– “Proton Bank S.A.” is authorised to increase its qualifying holding in the share capital of the Cyprus-based “Interfund Investments Ltd”.

– The amendment of the Statute of “Proton Bank S.A.” is approved.

1 February 2007

The branch of the Poland-based DaimlerChrysler Bank Polska SA commences its operation in Greece.

13 February 2007

The Greek branch of Société Générale, which is under liquidation, is authorised to prolong its administrative, accounting and tax-related operations.

20 February 2007

The framework for the processing and re-circulation of euro banknotes by credit institutions and professional cash handlers is determined.

Decisions of the Bank of Greece

Re: Supplementation of Bank of Greece Governor's Act 2577/2006 on the operational principles and criteria for the evaluation of the organisation and Internal Control Systems of credit and financial institutions, and relevant powers of their management bodies (Banking and Credit Committee Decision 231/4/13 October 2006)

The Banking and Credit Committee, having regard to:

- i) Article 55A of the Bank of Greece's Statute, as applicable;
- ii) the provisions of Law 2076/1992 re "Taking up and pursuit of the business of credit institutions and other relevant provisions", as applicable;
- iii) 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 terrorist financing, and the relevant Bank of Greece's Circular 16/2 August 2004;
- iv) Bank of Greece Governor's Act 2577/9 March 2006, "Operational principles and criteria for the evaluation of the organisation and Internal Control Systems of credit and financial institutions, and relevant powers of their management bodies";
- v) the need to further specify the above mentioned framework with respect to the prevention of money laundering and terrorist financing,

has decided:

1. to supplement Bank of Greece Governor's Act 2577/9 March 2006 with Annex 4, attached



hereto, specifying the principles and the evaluation criteria for the organisational structure of an Internal Control System (ICS), with regard to the prevention of money laundering and terrorist financing. The attached Annex 4 shall henceforth constitute an integral part of the above mentioned Bank of Greece Governor's Act.

2. As from the entry of this decision into effect, Bank of Greece's Circular 16/2 August 2004 shall be abolished.

All other provisions of Bank of Greece Governor's Act 2577/9 March 2006 shall remain unchanged.

Annex 4 to Bank of Greece Governor's Act No. 2577/9 March 2006

Re: Prevention of the use of the financial system for the purpose of money laundering and terrorist financing

INTRODUCTION

In the context of the prevention of the legalisation of proceeds from criminal activities (hereinafter: "money laundering") and terrorist financing, the Bank of Greece is the Competent Authority (Article 1(f) of Law 2331/1995, as amended by Law 3424/2005) for the implementation of the applicable institutional framework by supervised credit institutions (CIs) and financial institutions (FIs) (hereinafter: "Supervised Institutions" - "SIs", Table I).

Consequently, the provisions hereof concerning CIs:

- apply also to FIs; and

- constitute criteria for assessment of SIs by the Bank of Greece.

The Department for the Supervision of Credit and Financial Institutions may, by authority of Chapter VII of Bank of Greece Governor's Act 2577/2006, adjust the scope of certain requirements on certain categories of FIs according to the principle of proportionality.

GENERAL PROVISIONS

1. SIs shall:

- (a) require proof of the customer's identity;
- (b) examine with special attention any transaction that, by its nature or in the light of data concerning the customer or his capacity, may be associated with money laundering or terrorist financing;
- (c) establish internal control and communication procedures in order to prevent transactions associated with the above crimes;
- (d) take into account the customer's overall portfolio at group level, pursuant to decisions of the Minister of Economy and Finance issued according to Article 4(10) of Law 2331/1995, as currently in force, in order to verify the compatibility of the transaction with such portfolio;
- (e) ensure that these requirements also apply to their branches and subsidiaries abroad, according to the terms and conditions of Article 4(9) of Law 2331/1995, as currently in force, and the provisions on the adequacy of internal control procedures at banking group

level under Chapter III of Bank of Greece Governor's Act 2577/2006; and

- (f) take any other proper measure, including not carrying out the transaction or terminating the business relationship with the customer, if the identification and verification requirements according to the legislation on the prevention of money laundering and terrorist financing have not been satisfied or the customer's transaction behaviour is not in line with the policy and procedures applied by the bank for addressing the relevant risks.

2. To ensure effective implementation of the above provisions, SIs shall observe the general and specific provisions of the said Act (Chapter II, Sections 14.1-14.3) concerning:

- appropriate policies consistent with their business objects;
- procedures for detecting suspicious transactions;
- preventive measures, similar to those applied to other risks, notably classification of transactions and/or customers into risk grades;
- staff's awareness of risks, policies and procedures;
- the application of criteria for accepting and monitoring a business relationship with a customer; and
- regular assessment of methodologies and adaptation of training to changing conditions.

3. SIs shall be responsible for specialising policy measures and procedures in order to comply with

the requirements emanating from these provisions. With a view to ensuring uniform implementation, SIs shall observe the following procedures in order to comply with the relevant requirements.

CHAPTER 1

CUSTOMER IDENTIFICATION AND VERIFICATION PROCEDURES AND CUSTOMER DUE DILIGENCE

All anti-money laundering and counter-terrorist financing (AML/CFT) procedures are based on the collection, possession and use of adequate information on a customer to verify his identity and evaluate his profile. This is also the most effective protection against any adverse consequences on SIs' reliability and reputation.

In this context, SIs shall develop and apply a policy and procedures for accepting business relationships, in full compliance with the requirements of law and Bank of Greece Governor's Act 2577/2006, conducting customer due diligence (CDD). CDD implies taking the measures provided for herein to get to know existing and new customers and conducting ongoing monitoring of their transaction behaviour. For high-risk customers and transactions (Chapter 2), enhanced CDD policy and procedures shall be applied.

Specifically:

- 1.1 SIs may not open and keep **secret, anonymous** and numbered **accounts**, or accounts in fictitious names, or accounts without the owner's full name according to the identification documents.



1.2 SIs shall conduct CDD and require identification of any customer who wishes to:

- enter into any contract; and
- carry out any transaction amounting to the equivalent of €15,000 or more, whether such transaction is carried out in a single operation or in several operations which are effected on the same day or are legally connected; however, SIs should be able to

detect whether a transaction has been carried out in several operations.

1.3 SIs shall require the customer to provide identification documents that are difficult to be forged or obtained illegally, regardless of the bank account or services concerned. Without prejudice to the specific information required for high-risk categories (Chapter 2), the minimum particulars required and the documents verifying them are, indicatively, as follows:

Natural persons	
IDENTIFICATION PARTICULARS	IDENTIFICATION DOCUMENTS
<ul style="list-style-type: none"> • Full name and father's name • ID number or passport number <ul style="list-style-type: none"> • Issuing authority • Customer's signature specimen 	<ul style="list-style-type: none"> • Identity card issued by a police authority <ul style="list-style-type: none"> • Valid passport • Identity card of persons serving in law enforcement agencies and the armed forces
<ul style="list-style-type: none"> • Current address 	<ul style="list-style-type: none"> • Recent utility bill • Lease agreement certified by an internal revenue office • Tax clearance certificate issued by the internal revenue service • Valid stay permit
<ul style="list-style-type: none"> • Occupation and current occupational address 	<ul style="list-style-type: none"> • Employer's certificate • Tax clearance certificate issued by the internal revenue service • Copy of the last payroll slip • Self-employment startup declaration <ul style="list-style-type: none"> • Occupational identity card • Certificate issued by a social security fund
<ul style="list-style-type: none"> • Taxpayer's identification number 	<ul style="list-style-type: none"> • Tax clearance certificate issued by the internal revenue service

Concerning the identification of legal entities, the completeness of their establishing documents and the documents empowering their

legal representatives may be certified by the legal departments of the SIs. The minimum documents are as follows:

S/N	Legal entities
1.	<p>Sociétés anonymes and limited liability companies: The Sociétés Anonymes & Limited Liability Companies Issue of the Government Gazette where a summary of the charter of the société anonyme or limited liability company was published, including:</p> <ul style="list-style-type: none"> • the name, registered office, object, number of directors (for Sociétés anonymes) and names of administrators (for limited liability companies); • the names and identity particulars of the company's representatives and their powers; • the number and date of the decision of the authority that approved the formation of the société anonyme or the registration number referred to in Article 8(1) of Law 3190/1955 "Limited Liability Companies"; • Government Gazette issues in which any amendments to the charter in connection with the above particulars were published; and • the identity particulars of the legal representatives and all persons authorised to operate the company's account.
2.	<p>Partnerships:</p> <ul style="list-style-type: none"> • certified copy of the original partnership agreement that has been filed to the court of first instance, including any amendments thereto; and • the identity particulars of the legal representatives and all persons authorised to operate the company's account.
3.	<p>Other legal entities:</p> <ul style="list-style-type: none"> • their establishing documents, certified by a public authority; and • the identity particulars of the legal representatives and all persons authorised to operate the company's account.

1.4 The provisions of Bank of Greece Governor's Acts 2536/2004 and 2541/2004 shall apply to the verification of the identity of customers of fund transfer companies and exchange bureaux respectively.

1.5 SIs shall require customers acting **on behalf of another natural person**, in addition to identifying themselves as aforesaid, to provide identification of the other natural person on behalf of whom they act, either by following the procedure referred to in par. 1.3 or by presenting a power of attorney certified by a public authority. If this is not possible, the transaction shall not be carried out.

1.5.1 SIs shall take every reasonable measure to obtain information as to the real identity of the persons on behalf of which customers act, even if they have not stated that they are acting on behalf of another person, but there is reasonable doubt as to whether they are acting on their own behalf or it is certain that they are acting on behalf of someone else.

1.6 In the case of **joint accounts**, before conducting any transaction through the account concerned, the SI shall identify every co-owner according to the above procedures. Likewise, if someone wishes to open an account for a third person, the third person



shall be identified before conducting any transaction through the account.

1.7 SIs shall treat with caution applications for safekeeping of parcels and sealed envelopes and for **renting of safe deposit boxes**. When such services are requested by persons that do not keep an account with the SI concerned, the identification procedures stated hereinabove shall be followed.

1.8 **Ongoing monitoring of accounts and transactions**

SIs shall ensure that their customers' identity particulars remain fully updated throughout the existence of the business relationship. In this connection, SIs shall review on a regular basis, or when there are doubts about their veracity, the data in their possession, especially those that concern high-risk customers (Chapter 2). If any difficulties arise during the updating process, SIs shall consider terminating the business relationship and/or reporting the case to the National Authority for the Combatting of Money Laundering (hereinafter: the "National Authority").

Where a steady and lasting business relationship has been established, transactions shall be compared and assessed in order to identify any divergence from the customer's profile and his expected transactions. Any transactions that cannot be explained by the existing information on the customer shall be further scrutinised so as to determine whether there are any suspicions of money laundering or terrorist financing.

CHAPTER 2

RISK-BASED APPROACH TO MONEY LAUNDERING AND TERRORIST FINANCING

2.1 According to Chapter 14, paras. 14.1-14.3 of Bank of Greece Governor's Act 2577/2006, SIs must have in place a risk-based policy and procedures for customers and/or transactions. This policy includes classifying customers into at least three risk grades:

- low risk;
- normal risk; and
- high risk

on the basis of reflecting the possible causes of risk. The classification is accompanied by the corresponding CDD measures, ongoing monitoring and audits, which are diversified by customer and/or transaction category, so that the SI may decide whether or not to terminate the business relationship.

2.2 An assessment and classification system shall indicatively take into account the following **parameters**: the ultimate owner or beneficial owner; the kind of shares; the customer category; the reason of the transaction; the country of origin and destination of the funds; divergences from the customer's transaction behaviour; the nature of business transactions; and the expected source of funds.

2.3 **By 31 May 2007**, SIs shall adopt **adequate IT systems** and effective procedures for the

ongoing monitoring of accounts and transactions, in order to detect, monitor and assess high-risk transactions and customers.

Further indicative **measures** for implementing a risk management system:

- Assessment of the risk facing the SI concerned (transactions structure, review of basic clientèle, regions of activity, procedures, products, distribution networks and organisation).
- Recording and identification of customer-, product- and transaction-specific risks, using the expertise and techniques applied in the banking sector. The expertise required is obtained and updated on the basis, *inter alia*, of the international typology of suspicious events (including the relevant typology which the Bank of Greece Department for the Supervision of Credit and Financial Institutions requires on a minimum basis and periodically communicates to SIs), assessment of Press articles, analysis of suspicious events that the SI becomes aware of, and exchange of experience with the AML/CFT Compliance Officers.
- Development, through electronic data processing, of adequate parameters based on the results of the SI's risk analysis.
- Review and further development of preventive measures, taking into account the results of risk analysis.

Risk analysis shall be effected comprehensively in writing. Procedures shall determine

the degree of CDD according to the respective risk grade.

- 2.4 What follows is a discussion of the fundamental high-risk categories (by customer, transaction, country or geographical region) for which SIs shall conduct enhanced CDD, according to par. 2.1, reviewing customers and transactions on an at least annual basis. High-risk accounts shall be scrutinised according to the inherent risk, in order to decide whether or not to maintain them. The employee in charge of monitoring the account shall prepare a brief report stating the results of the review and send it to the AML/CFT Compliance Officer. Reports shall be processed by the AML/CFT Compliance Officer, who shall submit a report to the SI's management for approval (Chapter IV A3 of Bank of Greece Governor's Act 2577/2006).

2.4.1 Non-residents' accounts

Customers having their usual residence abroad shall be subject to the same information requirements and identity verification procedures as those who live permanently in Greece.

Non-residents that come in direct and personal contact with the SI shall be requested to produce their passports and identity cards (if any) issued by their country of origin. The relevant data shall be made available to the Bank of Greece auditors. In addition, when there is any doubt concerning the identity of a person (in relation to passport, identity card or address particulars), the SI shall seek verification by the



embassy or consulate of the issuing country in Greece, or by a professional subject to reporting requirements under the applicable Community legislation, or by reliable FIs in the customer's country of origin, or through the internet etc.

Information about the customer's residence and citizenship is also useful for verifying whether the customer comes from a high-risk country characterised by the FATF as non-cooperative. In addition to serving the ends of the AML/CFT policy, such information is also inextricably linked with the prevention of the violation of economic sanctions imposed on countries or persons by the United Nations or the European Union. In this connection, the number, date and country of issuance of the customer's passport shall always be recorded.

2.4.2 **Accounts of politically exposed persons from third countries**

The establishment of business relationships with natural persons characterised as "politically exposed persons" may expose the SI to risk. Enhanced CDD procedures shall apply to politically exposed persons residing in third countries. Specifically, such risk arises when the potential customer asking for an account to be opened comes from a country that is widely known as a high-corruption country having AML/CFT laws and regulations that do not meet internationally acceptable standards. To address any possible risks, SIs shall assess their customers' countries of origin in order to identify those that are more prone to corruption.

1. Politically exposed persons are natural persons that are or have been entrusted with a prominent public function, as well as their immediate family members or the persons known to be their close associates and notably:

- (a) heads of state, heads of government, ministers and assistant ministers;
- (b) members of parliaments;
- (c) members of supreme courts, of constitutional courts or of other high-level judicial bodies whose decisions are not subject to further appeal, except in exceptional circumstances;
- (d) members of courts of auditors or of the boards of central banks;
- (e) ambassadors, *chargés d'affaires* and high-ranking officers in the armed forces; and
- (f) members of the administrative, management or supervisory bodies of state-owned enterprises.

None of the categories set out in points (a) to (f) above shall be understood as covering middle-ranking or junior officials.

2. Immediate family members of the persons referred to in para. 1 shall include the following:

- (a) the spouse;
- (b) any partner considered by national law as equivalent to the spouse;

(c) the children and their spouses or partners; and

(d) the parents.

3. Persons known to be close associates of the persons referred to in para. 1 shall include the following:

(a) any natural person who is known to have joint beneficial ownership of legal entities or legal arrangements, or any other close business relations, with a person referred to in para. 1; and

(b) any person who has sole beneficial ownership of a legal entity or legal arrangement which is known to have been set for the de facto benefit of a person referred to in para.1.

4. Without prejudice to the application, on a risk-sensitive basis, of enhanced CDD measures, where a person has ceased to be entrusted with a prominent public function within the meaning of para. 1 of this article for a period of at least one year, SIs shall not be obliged to consider such a person as politically exposed.

2.4.3 Accounts of companies with bearer shares

SIs opening accounts for companies with bearer shares that do not meet the conditions of para. 2.5 shall indicatively apply the following procedures:

- Before opening the account, they shall verify the identity and financial condition of

the owners and the beneficial owners of the company on the basis of reliable and independent sources and/or by visiting the company's offices.

- They shall compare regularly the expected with the actual transactions through the account. Any significant divergences shall be scrutinised and the findings shall be entered in the customer's file.
- If there is a change in the actual beneficial owners, the SI shall consider whether or not to maintain the account.

2.4.4 Accounts of offshore etc. companies

Where the customer is a company that has no commercial or productive activity in the place of its establishment (such as an offshore company, a special purpose vehicle etc.), the SI shall conduct enhanced CDD.

To determine the countries where offshore companies operate, decision No. 1108437/2565/DOS of the Deputy Minister of Finance (Government Gazette B.1590/16.11.2005) shall be taken into account.

If the customer who requests the opening of an account is a company the beneficial owner of which is another company in Greece or abroad, SIs shall, before opening the account, verify the identity of the natural persons who are the beneficial owners of, and/or control the, other company.

To identify the beneficial owner, SIs shall require the legal representative of the com-



pany to submit a declaration and certified copies of confirmations of the beneficial owners' identities.

If the data collected are not enough to certify and verify the identity of the natural persons that control the company (paras. 2.4.3 and 2.4.4), no accounts shall be opened and no transactions shall be carried out. However, by way of derogation, SIs may allow the verification of their identity to be completed during the establishment of the business relationship if this is necessary in order not to interrupt the normal conduct of business and where there is little risk of money laundering or terrorist financing occurring. In such a situation, this procedure shall be completed as soon as practicable (in any case, within thirty (30) days). If the verification of the customer's and the beneficial owner's identity is not completed, the provisions of para. 1(f) hereof shall apply.

The term "beneficial owner" referred to in paras. 2.4.3 and 2.4.4 means:

- the natural person(s) who ultimately control(s) a legal entity through direct or indirect ownership or control a sufficient percentage of the shares or voting rights in that legal entity, including through bearer share holdings, other than a company listed on a regulated market that is subject to disclosure requirements consistent with Community legislation or subject to equivalent international standards; a percentage of 25% plus one share shall be deemed sufficient to meet this criterion;

- the natural person(s) who otherwise exercise(s) control over the management of a legal entity.

2.4.5 Accounts of non-profit organisations

With respect to accounts of non-profit organisations, SIs shall verify the legitimacy of their objects, requiring the submission of a certified copy of their establishing deed (charter etc.), their certificate of incorporation, the certificate of registration and the number of their registration with the competent public authority. When such corporation has appointed more than one authorised signatories to operate its account, the identities of all authorised signatories shall be verified, according to the identity verification procedures for natural persons.

2.4.6 Portfolio management accounts of important customers

SIs shall take the following measures in the case of portfolio management accounts of important customers (for example private banking):

- verify the identity of all their beneficial owners;
- verify whether the owner of the account is a politically exposed person within the meaning of para. 2.4.2 hereof;
- establish the source of funds and the expected use of the account; and
- examine whether the operation of the account is consistent with its purpose and report any suspicious activity.

2.4.7 Non-face to face transactions

SIs that provide their customers the possibility to carry out non-face to face transactions, notably at the opening of accounts (phone banking, e-banking etc.) shall adopt procedures that ensure their compliance with the requirements of Law 2331/1995, as currently in force, in relation to the identification procedures, where required.

The above requirements on natural persons shall also apply to companies or organisations that request the opening of an account by mail or through the internet. In order to minimise the risks arising out of the establishment of such a business relationship, SIs shall indicatively apply the following additional identification measures:

- obtain confirmation by a CI or FI operating in an EU Member State;
- demand that the first payment within the context of the business relationship be made through an account in the name of the customer kept with a CI operating in an EU Member State; and
- take appropriate measures to avoid establishing business relations with companies which the SI has reasonable grounds to suspect of being involved in illegal activities according to the AML/CFT legislation in force.

2.4.8 Cross-border correspondent banking relationships with respondent institutions from third countries

With respect to cross-border correspondent banking relationships with respondent institutions from third countries, SIs shall:

- (a) gather sufficient information about the respondent to fully understand the nature of the respondent's business and to determine from publicly available information the reputation of the institution and the quality of supervision, including information about its ownership, address and regions of activity;
- (b) assess the respondent institution's AML/CFT controls;
- (c) obtain approval from senior management before establishing new correspondent banking relationships;
- (d) document the respective responsibilities of each institution in relation to CDD measures; and
- (e) with respect to payable-through accounts, be satisfied that the respondent credit institution has verified the identity and performed ongoing monitoring of the customers having direct access to accounts of the correspondent that is able to provide relevant CDD data to the correspondent institution, upon request.

In particular, SIs may open correspondent accounts and act as correspondents for SIs



operating in non-EU countries under the following condition:

The bank that requests the opening of a correspondent account is physically present with a fully staffed office in the country of incorporation, from which it provides real banking services, i.e. the applying bank is not a shell bank. The existence and operation of the applying bank, as well as the regulatory framework to which it is subject, may be verified as follows:

- (i) on the basis of data from the central bank or other competent supervisory authority of the country of incorporation; or
- (ii) by a correspondent SI operating in the country of incorporation; or
- (iii) by evidence of the applying bank's authorisation to carry out financial and/or banking operations, submitted by the applying bank itself.

2.4.9 Countries which do not apply adequately the FATF recommendations

SIs shall examine with special attention transactions and conduct ongoing monitoring of business relationships and transactions with natural persons or legal entities, including CIs and FIs, from non-cooperative countries.

All transactions with natural persons or legal entities from these countries shall be examined with special attention and, if such examination gives rise to doubts about the legitimate origin of the funds, the procedure laid

down in Article 4(10) of Law 2331/1995, as currently in force, shall apply.

Records of the data and findings of the examination shall be kept for five years from the date of the transaction concerned. Transactions with no apparent financial or legal purpose shall be further investigated in order to identify their economic, commercial or investment motivation. If the SI does not obtain adequate information or explanations to be fully satisfied about the legitimacy of a transaction, it shall promptly submit, through the AML/CFT Compliance Officer, a report to the National Authority.

In any case, it is necessary to assess the AML/CFT risk of the customer's country of origin. The FATF, European Union and European Economic Area countries are considered of equivalent status to Greece.

To assess country risk for AML/CFT purposes, SIs may use the following criteria:

- inclusion in non-cooperative countries or tax havens;
- inclusion in the EU, UN and OFAC lists;
- FATF membership;
- implementation of EU directives;
- implementation of the Wolfsberg principles;
- ratification of the UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988;

- classification according to the US Department of State, in relation to the production and trafficking of narcotics;
- quality of local laws and regulations;
- government support;
- scope of the banking industry; and
- quality of government regulation and supervision.

2.5 SIs shall apply simplified CDD when the company requesting the opening of an account or its parent company (if any) has bearer shares, provided that one of the following conditions is met:

- the customer is a listed company whose shares are traded into a regulated market; or
- the company operates as a collective investment undertaking established in a country with an adequate regulatory and supervisory framework for such undertakings; or
- the customer is a CI situated in the EU or a third country which imposes requirements equivalent to those imposed in the EU and supervised for compliance with these requirements; or
- the shares or the company itself are controlled by the government or a government organisation.

SIs shall not apply simplified CDD when there are suspicions of money laundering or terrorist financing.

Enhanced CDD (Chapter 2, para. 2.4.3) shall apply to companies with bearer shares that do not meet any of the above conditions.

2.6 **List of exceptions:** SIs may draw up a “List of Exceptions”, registering their customers with business activities that justify a large number of transactions. Transactions of customers entered in the “List of Exceptions” shall be monitored and any unusual and/or suspicious transactions shall be reported within one month to the competent National Authority referred to in Article 7 of Law 2331/1995, except for cases that require additional time for the collection of the necessary data. The SI’s IT system shall allow access to the “List of Exceptions” to every competent employee.

2.7 **Customer acceptance policy:** SIs shall develop and apply a customer acceptance policy and procedures, fully in line with the provisions of Law 2331/1995 and hereof. SIs’ policies and procedures shall take into account such factors as the customer’s profile, country of origin, expected amount and nature of transactions, as well as the expected source of funds. SIs shall establish concrete criteria for customers and transactions of unacceptable risk. Such transactions include, mainly, those where a business relationship is either not established or terminated, as well as all cases of inadequate data or where the structure of the undertaking is so complex that identification is not possible etc.

CHAPTER 3

PERFORMANCE BY THIRD PARTIES

3.1 According to FATF Recommendation 9, SIs may rely on intermediaries or other third par-



ties to carry out the customer identification and verification procedure, applying the appropriate CDD, provided that the ultimate responsibility for customer identification and verification remains with the SI relying on such third party.

The criteria that should be met are as follows:

- A SI relying on a third party shall be able to obtain immediately all the necessary information relating to the customer identification and verification procedure. SIs shall take adequate measures to satisfy themselves that copies of identification data and other relevant documentation relating to CDD requirements will be made available by the third party upon request without delay.
- The SI shall satisfy itself that the third party is regulated and supervised for, and has measures in place to comply with, CDD and record-keeping requirements in line with Recommendations 5 and 10.

3.2 SIs may rely on third parties for the identification and the verification of the identity of the customer or beneficial owner and for the collection of data on the purpose and nature of the business relationship.

“Third parties” shall mean SIs or equivalent institutions and organisations situated in a third country that meet the following requirements:

- they are subject to mandatory professional registration, recognised by law;

- they apply CDD and record-keeping requirements and their compliance is supervised.

Third parties shall, upon request, immediately make available to the SI the above information, the relevant copies of identification data and other relevant documentation relating to the identity of the customer or beneficial owner.

3.3 When they use third parties, SIs may not waive the ultimate responsibility for customer identification and verification and compliance with the “**Know your customer**” principle. Specifically, in these cases SIs shall observe the following procedures:

- The AML/CFT Compliance Officer shall assess the customer identification and CDD procedures applied by the professional intermediary or third party/associate recommending the customer and shall verify that they are in line with acceptable international standards and at least equivalent to those applied by the SI. The relevant assessment report shall be prepared and entered in a separate file kept for every professional intermediary or third party/associate.
- The professional intermediary or third party/associate shall be subject to regulation and supervision by the appropriate Greek or foreign AML/CFT authority.
- All the data and documentation relating to the customer’s identity shall be submitted to the SI (in certified copies) by the pro-

fessional intermediary or third party/associate together with the request for opening of an account or provision of a service or execution of a transaction.

- The SI shall enter into an agreement with the professional intermediary or third party/associate according to which the SI may verify, whenever deemed advisable, the CDD procedures applied by the latter for AML/CFT purposes, and access by the Bank of Greece (Department for the Supervision of Credit and Financial Institutions) shall be ensured. Annex 1 to Bank of Greece Governor's Act 2577/2006 (outsourcing) shall apply in all other respects.

CHAPTER 4

RECORD KEEPING

4.1 SIs shall keep records of the contracts and transactions (including the establishing documents of legal entities and the documents empowering their legal representatives, photocopies of identification documents, account files etc.) for a period of **at least five years** after the business relationship with their customer has ended, in the case of contracts, and the last transaction has been executed, in the case of transactions, unless they are required by law to keep such records for a longer time period.

4.2 SIs shall ensure that they can provide the following **information**:

- the identity of the owners of the account;

- the identity of the beneficial owners of the account;
- the identity of the persons authorised to operate the account;
- data on the transactions through the account;
- associated accounts;
- the source of funds;
- the currency and amount of each transaction;
- the manner of deposit or withdrawal of funds (cash, cheques, wire transfer etc.);
- the identity of the person who carried out the transaction;
- the destination of funds;
- the nature of the instructions and authorisation given; and
- the type and number of the account involved in the transaction.

4.3 Data and documentation relating to ongoing investigations shall be kept until the National Authority confirms that the investigation has been completed and the case has been closed. Such data may also be kept in forms other than the originals (e.g. in electronic form).



CHAPTER 5

DETECTION, HANDLING AND REPORTING OF SUSPICIOUS TRANSACTIONS

5.1 SIs shall examine with **due diligence** any transaction that is particularly likely, by its nature, to be related to money laundering or terrorist financing. Unusual or suspicious transactions normally belong to this category.

Unusual transactions are those that have no apparent economic or visible lawful purpose. As a general principle, **suspicious transactions** are usually incompatible with the customer's profile (lawful business, personal activities, usual transactions through the account in question).

Therefore, SIs must have adequate information, be familiar with their customers' activities and have in place a risk assessment system, using their experience and information from other sources, in order to be capable of detecting in time any unusual or suspicious transaction.

5.1.1 After the examination of these transactions, if there are any doubts concerning the legitimate use of the funds, the procedure described in Article 4(10) of Law 2331/1995, as currently in force, shall apply.¹

5.1.2 Reports shall include at least the following data:

- full particulars of the reporting SI;
- all the available information on the customer;

- the date of establishment of the business relationship and a full account of transactions;

- possible justification of the unusual or suspicious transaction; and

- in international transactions, the origin and course of the incoming remittance.

5.1.3 Employees' reports (as well as reports issued by SIs' IT systems) shall be kept in a special file and shall be dated and signed by the reporting employee. The reports may be kept in electronic files provided that they satisfy terms of controlled access, application of user id and dating.

5.1.4 SIs shall communicate to the Bank of Greece the identity of the persons designated as AML/CFT Compliance Officers and shall notify it of any relevant change according to the provisions in force.

AML/CFT Compliance Officers shall have at least the following **duties**, according to the principles of Chapter Vc of Bank of Greece Governor's Act 2577/2006:

¹ "The senior management and employees shall report to the competent officer any suspicious transaction and any event that comes to their attention in the performance of their duties and may be an indication of criminal activity. In branches, such suspicions shall be reported directly to the branch director, who shall report them immediately to the competent officer, if he shares them. If the branch director or his deputy is unavailable or rejects or disregards or does not share the reporting employee's suspicions, then the employee shall report them to the competent officer. The latter shall inform, both on the phone and by a confidential document, the Competent (National) Authority, providing any useful information or evidence, if his examination leads to the conclusion that the existing information and evidence suggest criminal activity" (Article 4(10) of Law 2331/1995).

- They shall receive from bank employees any information that makes them have reasonable grounds or suspicions of money laundering or terrorist financing.
- They shall examine and assess the information in correlation with other available sources and discuss the facts with the information provider and, where necessary, the principals of the information provider. The AML/CFT Compliance Officer shall assess such information on a special form, which shall also be kept in a special file. If, after the assessment, the AML/CFT Compliance Officer decides to disclose the information to the National Authority, he shall prepare a report and submit it to the National Authority as soon as possible. If, as a result of such assessment, he decides not to report the information to the National Authority, he shall fully justify this decision in the relevant file.
- The AML/CFT Compliance Officers shall act as first point of contact with the National Authority both at the commencement and throughout the investigation of a report in writing, answering to all questions, providing all clarifications requested, furnishing all information required and cooperating fully with the National Authority.
- They shall develop all the knowledge and skills required for improving the AML/CFT procedures.

5.2 Submission of reports to the National Authority

Reports shall be sent to the National Authority on a confidential basis.

After the submission of the report, the SI may wish to terminate the business relationship with the customer in order to avoid the risk that may arise from the maintenance of the account. In such case, SIs shall pay particular attention not to reveal to the customer that a report has been submitted. Therefore, SIs shall cooperate closely with the National Authority to prevent any obstacles or difficulties in the investigation.

Following the submission of the report, SIs shall follow any instructions given by the National Authority, notably whether to complete a transaction or maintain an account. According to Article 6 of Law 3424/2005, where the money laundering investigation is conducted by the National Authority, its Chairman may, in case of an emergency, prohibit the operation of accounts or the transfer or sale of any asset.

CHAPTER 6

INTERNAL CONTROL AND COMMUNICATION PROCEDURES

6.1 AML/CFT internal control and communication procedures shall be governed by the provisions of Bank of Greece Governor's Act 2577/2006.

SIs' internal procedures shall mainly aim at the detection of unusual transactions which



must be examined with special attention in order to verify whether the procedure described in Article 4(10) of Law 2331/1995 should be applied thereto.

In addition to obtaining the data mentioned in the above Act, SIs shall instruct the competent employees to apply “**Know your customer**” procedures as a necessary instrument for performing their obligations.

6.2 In addition to applying the AML/CFT **procedures and measures** referred to in Chapter II, paras. 14.1-14.3 of the said Act, SIs shall ensure that:

- all employees know the person to whom they must report their information on transactions they believe or suspect are aimed at money laundering or terrorist financing;
- there is a clear and short channel of communication for reporting information on suspicious and/or unusual transactions to the AML/CFT Compliance Officer. The internal AML/CFT practice, procedures and controls shall be recorded in a manual, to be distributed to all the employees that handle, monitor and control customers' transactions in any manner; and
- there shall be a clear assignment of duties and responsibilities within the SI in order to ensure effective management of the AML/CFT policy and procedures and compliance with this document and any specific instructions of the Bank of Greece.

6.3 Without prejudice to the specific provisions to be enacted pursuant to Article 5(4) of Law 3424/2005 and Chapters III and Vc of Bank of Greece Governor's Act 2577/2006, SIs shall apply AML/CFT policies, procedures and controls at group level and shall inform the Bank of Greece on any divergences of the laws of the host country. Special attention shall be paid to branches established in countries that are not fully compliant with the FATF Recommendations.

6.4 The external auditors' report referred to in Bank of Greece Governor's Act 2577/2006 (Annex 3, Chapter IIe) shall include an assessment of the adequacy and effectiveness of the AML/CFT system.

CHAPTER 7

PERSONNEL EDUCATION AND TRAINING

7.1 Understanding the need to prevent money laundering and terrorist financing is the prerequisite of successful implementation of the relevant policy and procedures. Integrated and modern training programmes are essential for the development of an effective risk management system for money laundering and terrorist financing.

7.2 SIs shall develop employee training (including web training) programmes. In the context of these programmes:

- employees shall be informed on the legislation and the legal obligations of the staff, as well as the procedures adopted, includ-

ing customer identification, record keeping and internal reporting procedures;

- the duration and subject of training programmes shall be tailored to each staff category (newly-hired, front office, compliance, customer recruitment staff); and
- training programmes shall be repeated regularly, in order to ensure that the staff know their duties and obligations and are kept abreast of developments.

CHAPTER 8

WIRE TRANSFERS

Without prejudice to the entry into force of the Regulation of the European Parliament and the Council “on payer information accompanying transfers of funds”, SIs receiving cross-border wire transfer orders shall include in the relevant information the name and address of the originator and, where the funds to be transferred are drawn from a deposit account held with the ordering institution, the originator’s account number (according to art. 5, par. 2 of Law 3424/2005).

The requirement to report the originator’s data shall not apply to transactions where both the originator and the beneficiary are CIs or FIs acting on their own behalf. It shall also not apply to transfers in the context of transactions carried out through credit or debit cards, provided that the information contains the number of the card involved. However, if a credit or debit card is used for transfers not associated with com-

mercial transactions, the above requirements shall apply.

CHAPTER 9

REPORTING TO THE BANK OF GREECE

SIs shall submit to the Bank of Greece Department for the Supervision of Credit and Financial Institutions in March every year an Annual Report containing the following information:

1. The name and post of the AML/CFT Compliance Officer and his deputy (and of the coordinator, for financial groups) appointed under Article 4(10) of Law 2331/1995, as well as the particulars of the decision appointing them. If the AML/CFT Compliance Officer is replaced during the calendar year, the Bank of Greece shall be informed in writing to this effect within ten working days from such replacement.
2. A copy of the AML/CFT internal control and communication procedures established in writing. The Bank of Greece shall be notified of any change in these procedures within ten days from their effective date.
3. Brief information on important measures taken and/or procedures adopted during the year.
4. (a) The audits carried out to assess the adequacy of CDD procedures in customer identification, as well as the scope of such audits (procedures, transactions, employees’ training etc.).

(b) Any important defects and weaknesses detected (especially in the internal procedures



for reporting suspicious and/or unusual transactions, the quality of reports and their timely processing), as well as the actions and/or recommendations for corrective measures.

This information shall not be transmitted separately if included in the Annual Report of the Internal Audit Unit, according to the provisions of Chapter Va, para. 2.13.2, and Chapter VI, para. 1.

5. (a) The number of suspicious and/or unusual transactions reported by SI's employees to the AML/CFT Compliance Officer, as well as the approximate time between the transaction and the submission of the report to the competent officer.

(b) The number of reports of suspicious and/or unusual transactions submitted by the AML/CFT Compliance Officer to the National Authority, as well as the approximate time between the submission of the report to him and its transmission to the Competent Authority.

6. The training received by the AML/CFT Compliance Officer and its content.

7. The education/training provided to the staff during the year, including the number of seminars, their duration, and the number and posts of participating employees.

In order to reduce SIs' administrative costs, the data on procedures and regulations referred to in (2) and (3) above shall not be reported anew to the Bank of Greece unless changes are important and modify all arrangements.

CHAPTER 10

SANCTIONS

According to Article 4(8) of Law 2331/1995, as currently in force, and without prejudice to any specific provisions of the legislation in force, in the event that a SI violates its obligations under the law or the regulatory provisions issued by the Bank of Greece, sanctions shall be imposed by a decision of the Competent Authority. Specifically, the Bank of Greece may impose on SIs the administrative sanctions provided for by Article 55A of its Statute and the legislation in force.

TABLE I

List of supervised CIs and FIs for AML/CTF purposes
(Law 2331/1995, as amended, in particular by Law 3224/2005)

- credit institutions;
- leasing companies;
- factoring companies;
- exchange bureaux;
- fund transfer intermediaries;
- credit companies; and
- postal companies, only to the extent they act as fund transfer intermediaries.

TABLE II

List of FATF member countries
and organisations *

Argentina	Luxembourg
Australia	Mexico
Austria	Netherlands
Belgium	New Zealand
Brazil	Norway
Canada	Portugal
Denmark	Russian Federation
Finland	Singapore
France	South Africa
Germany	Spain
Greece	Sweden
Hong-Kong	Switzerland
Iceland	Turkey
Ireland	United Kingdom
Italy	United States of America
Japan	

* European Commission (EC) and Gulf Cooperation Council (GCC).

* * *

R e: Sight deposit accounts kept with credit institutions and circulation of cheques through the banking system (Banking and Credit Committee Decision 234/23/11 December 2006)

The Banking and Credit Committee, having regard to:

- i) article 55A of the Bank of Greece's Statute, as applicable;
- ii) Law 5960/1933 "on cheques", as applicable, especially article 29 thereof;
- iii) article 11 of Law 1957/1991;
- iv) the provisions of Monetary and Credit Committee Decision 502/3/23 June 1992, as applicable;
- v) Bank of Greece Governor's Act 2523/12 June 2003;
- vi) Bank of Greece Governor's Act 2577/9 March 2006, especially the sub-section "Risk Management" of Section II thereof;
- vii) the advisability of amending and codifying all the provisions of Monetary and Credit Committee Decision 502/3/23 June 1992, as applicable, in order to meet current market conditions and to allow easier implementation of these provisions by credit institutions and transacting parties,

has decided as follows:

Monetary and Credit Committee Decision 502/3/23 June 1992, as applicable, is amended and codified as follows:

A. SIGHT DEPOSIT ACCOUNTS

1. Sight deposit accounts with credit institutions may also be opened in the name of natural persons (individual or joint accounts), under terms (interest rate, overdraft, cheque-book, cheque guarantee etc.) freely set by credit institutions.

Sight deposit accounts shall include current accounts.

2. Overdrafts on sight deposit accounts shall not be deducted from the balances of the accounts but shall be recorded in the financial statements that credit institutions submit to the Bank of Greece in accordance with Bank of Greece Governor's Act 2558/7 February 2005 and shall be subject to the surcharge provided for in article 1, paragraph 3, of Law 128/1975, as applicable.

B. CIRCULATION OF CHEQUES THROUGH THE BANKING SYSTEM

I. Bank cheques

The account of the bearer of a bank cheque shall be credited with value date at the latest one working day after the date of the cheque purchase.

II. Private cheques

1. Cheques presented for payment to the credit institution with which the chequing account is kept shall be subject to the following:

- i) The chequing account shall be debited with value date the cheque's date of payment.



ii) The payee's account shall be credited with the value of the cheque (provided that this account is kept with the payer bank) with value date at the latest the next working day after the day of the cheque purchase.

2. The following shall apply to cheques presented for collection to a credit institution other than the one with which the chequing account is kept:

i) The account shall be debited with value date the day on which the particulars of the cheque were electronically entered to the Interbank Cheque Clearing System or the day when the cheque went through the Clearing Office.

ii) The bearer's account shall be credited with the value of the cheque (provided that the account is kept with the purchasing bank) with value date at the latest the third working day after the date of the cheque's purchase. If, however, in the city where the private cheque is purchased there is no branch of the paying bank nor a Clearing Office and one of the two banks (purchasing-paying) is not a member of the Interbank Cheque Clearing System or if, due to the applicable ceiling as regards the value of cheques, it is not possible to perform a clearing through the above System, then the value of the cheque shall be credited to the account with value date at the latest the fifth working day after the date of the cheque's purchase.

C. NOTIFYING OF BOUNCED CHEQUES - SANCTIONS

1. i) Credit institutions with which chequing accounts are kept shall notify (through the

branch where the account is kept) "Tiresias Bank Information Systems SA" of any bounced cheques within the next working day after the deadline for the presentation of the cheque for payment, in accordance with article 29 of Law 5960/1933 (provided that the cheque has not been paid by the deadline).

ii) The above notification of "Tiresias Bank Information Systems SA" shall include data on the legal representatives (Board members, Managing Directors, General Managers, administrators and partners) of the legal persons who have issued bounced cheques in their above capacity.

2. If the owner of a sight deposit account has issued, within a period of twelve (12) months, bounced cheques the total amount of which exceeds by more than one thousand euro (€1,000) the outstanding balance of the account or the agreed overdraft ceiling, all credit institutions with which the above person keeps sight deposit accounts shall take action so that the beneficiary returns all the chequebooks in his possession.

A new chequebook shall not be issued earlier than twelve (12) months after the issuance of the last bounced cheque, provided that all relevant debts have been settled.

If the credit institution decides that the beneficiary should be deprived of the chequebooks for a longer period because of a significant excess in the above limit, the Bank of Greece shall be duly notified thereof.

For bounced cheques drawn on joint sight deposit accounts, the consequences mentioned above

shall apply to all co-beneficiaries but only in relation to the particular joint account.

3. Credit institutions are allowed to grant, at their discretion, chequebooks to enterprises that are under revival or consolidation (Law 3562/1956, Law 1892/1990, articles 44 and 45 of Law 1892/1990, as applicable), even if the conditions referred to in paragraph C.2 above exist.

D. OTHER PROVISIONS

As from the entry into force of this decision, the provisions of Monetary and Credit Committee Decision 502/3/23 June 1992, as amended by

Monetary and Credit Committee Decision 513/6/4 December 1992, Monetary and Credit Committee Decision 519/4/5 February 1993, Banking and Credit Committee Decision 121/1/1 March 2002, Banking and Credit Committee Decision 139/6/3 December 2002 and Banking and Credit Committee Decision 149/1/30 April 2003, as well as any other provision contradictory to the present decision shall be abolished.

References to the Monetary and Credit Committee Decision 502/3/23 June 1992 and to the amending decisions listed above shall be henceforth meant to be references to the present decision.



Statistical
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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
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
2006	3.2	2.5	2.7	3.4	3.0	3.7	3.3	10.9
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
III	3.4	2.4	2.7	3.9	2.8	5.1	10.8	11.8
IV	2.9	2.8	3.0	2.7	3.1	4.6	9.4	-1.2
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
April ...	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
April ...	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
July	3.8	2.3	2.6	4.6	2.7	5.8	15.9	17.3
Aug.	3.5	2.4	2.7	3.9	2.9	4.7	7.5	14.4
Sept. ...	2.9	2.5	2.7	3.0	2.8	4.7	9.4	4.0
Oct.	2.8	2.8	3.0	2.7	3.0	5.1	10.1	-2.4
Nov.	2.9	2.8	3.0	2.8	3.2	4.5	8.6	-0.6
Dec.	2.9	2.9	3.0	2.7	3.2	4.3	9.5	-0.6
2007 Jan.	2.7	3.1	3.1	2.3	3.3	4.4	11.4	-6.4

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		
	General index	Inter-mediate goods	Capital goods	Consumer goods			Energy		General index excl. energy	General index	General index excl. energy
				Total	Durables	Non-durables	Total	Fuel (oil refinery products)			
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
2006	6.9	7.5	2.3	5.9	3.5	6.0	8.1	12.9	6.3	4.2	2.7
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
II	8.6	7.6	1.7	7.4	3.4	7.6	12.0	21.6	7.2	5.9	2.9
III	6.8	9.2	3.1	6.2	3.6	6.3	6.1	8.1	7.2	3.2	2.7
IV	3.0	8.6	2.7	1.6	3.2	1.5	0.0	-3.6	4.3	0.8	2.3
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
April	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
April	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
June	8.0	8.9	2.6	6.5	3.4	6.6	9.7	16.7	7.2	5.2	2.7
July	8.3	9.0	3.2	6.6	3.4	6.8	10.6	18.2	7.3	4.3	2.4
Aug.	7.7	9.3	3.2	5.5	3.9	6.7	8.2	10.9	7.4	4.2	3.0
Sept.	4.5	9.2	3.1	5.5	3.4	5.6	-0.3	-3.8	6.8	1.0	2.9
Oct.	3.0	9.7	2.8	2.6	3.4	2.5	-2.1	-7.4	5.3	0.6	2.8
Nov.	3.4	8.4	2.6	1.6	3.2	1.5	1.3	-1.2	4.3	0.8	2.5
Dec.	2.7	7.8	2.6	0.6	3.0	0.5	1.0	-1.9	3.4	0.9	1.7

Source: Calculations based on NSSG data.

Table 1.3

Import price index in industry

(Percentage changes with respect to the corresponding period of the previous year)

Period	Import price index in industry								
	General index	Intermediate goods	Capital goods	Consumer goods			Energy*		General index excl. energy
				Total	Durables	Non-durables	Total	Crude oil and gas pumping	
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
2006	4.4	5.7	0.6	2.0	0.4	2.3	10.5	10.8	2.8
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
II	6.8	5.1	0.9	2.1	0.7	2.4	23.1	23.9	2.7
III	2.7	7.0	0.6	1.8	0.4	2.1	1.3	0.9	3.1
IV	0.7	8.2	0.3	1.7	0.0	2.1	-8.4	-8.8	3.4
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
April	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
April	7.4	3.9	1.1	2.1	0.5	2.5	28.2	29.7	2.4
May	8.1	5.3	0.9	2.1	0.8	2.4	30.3	31.7	2.7
June	5.0	6.2	0.8	2.1	0.7	2.4	12.3	12.1	3.0
July	3.8	6.6	0.7	1.9	0.8	2.2	6.5	5.6	3.0
Aug.	2.3	7.3	0.7	1.8	0.5	2.1	-1.1	-2.2	3.3
Sept.	2.1	7.1	0.4	1.7	0.0	2.1	-1.2	-0.6	3.1
Oct.	1.2	7.9	0.2	1.8	0.0	2.2	-5.9	-5.7	3.3
Nov.	0.6	8.3	0.3	1.6	-0.1	2.0	-8.8	-9.3	3.4
Dec.	0.2	8.4	0.3	1.6	-0.1	2.0	-10.6	-11.3	3.4

* 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 1.4

Industrial production index (2000=100)

(Percentage changes with respect to the corresponding period of the previous year)

Period	Industry								
	General index	Manufacturing	Mining-quarrying	Electricity-gas-water supply	Main categories of goods				
					Energy	Intermediate goods	Capital goods	Consumer durables	Consumer non-durables
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
2006	0.9	1.4	-2.2	0.1	1.3	0.7	7.6	1.7	-1.2
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	1.3	1.5	-0.5	1.5	3.6	1.0	-0.4	1.4	-0.4
II	0.7	1.5	-4.0	-0.9	3.1	-0.1	7.7	-4.2	-2.3
III	0.5	0.9	1.1	-1.0	-0.6	2.7	8.1	6.6	-2.5
IV	1.2	1.7	-5.2	1.0	-0.6	-0.8	14.4	4.0	0.9
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
April	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
April	-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.	1.5	1.6	-3.9	2.7	1.0	1.8	-6.0	2.3	3.8
Feb.	-1.2	-2.5	-1.6	4.4	6.0	-1.8	-5.4	-7.0	-6.4
March.	3.8	5.4	3.7	-2.8	3.9	3.2	9.0	9.2	2.4
April	-3.0	-1.2	-12.6	-7.7	4.6	-6.6	16.4	-12.5	-10.4
May	2.0	1.3	4.8	4.6	2.3	3.8	-4.9	-1.0	2.0
June	3.0	4.3	-4.6	0.3	2.6	2.5	13.1	1.5	1.4
July	1.9	3.9	8.7	-7.8	-2.1	6.5	6.3	8.0	-0.2
Aug.	2.6	2.2	-2.1	5.6	2.4	2.6	19.3	20.8	-0.5
Sept.	-2.6	-3.0	-3.2	-0.3	-2.1	-1.0	4.1	-2.4	-6.5
Oct.	2.5	3.8	-11.0	1.9	1.7	-0.1	19.6	10.0	0.9
Nov.	-1.9	-2.6	1.9	-0.2	-3.1	-3.6	5.7	1.5	-1.3
Dec.	3.1	4.1	-5.2	1.5	-0.2	1.6	18.2	0.8	3.4

* Provisional data.

Source: NSSG.

Table 1.5

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 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
II	9.0	11.6	0.8	18.4	-1.5
III	11.0	11.8	-2.3	25.4	1.4
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
April	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
April	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	-0.2	-1.9	-2.6
Sept.	2.1	3.6	1.4	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	0.4	-8.1	4.0
Feb.	5.9	14.3	-9.6	0.0	8.6
March	6.0	8.0	-5.8	14.0	14.3
April	9.9	13.3	11.2	11.8	7.2
May	7.0	10.3	-5.9	14.4	-7.8
June	10.1	11.0	-4.6	29.0	-4.0
July	10.7	10.3	-4.8	27.6	-0.3
Aug.	10.5	12.0	-4.1	21.9	0.6
Sept.	11.9	13.1	2.1	26.4	3.5
Oct.	5.1	3.9	5.1	14.6	-5.8
Nov.	6.7	1.1	7.7	27.4	1.5

Source: NSSG. Revised index of retail sales volume (on the basis of a new NSSG sample for the year 2000).



Table 1.6
Demand and gross domestic product at market prices
(1995 constant prices)

	Annual percentage changes				
	2002	2003	2004	2005	2006*
Private consumption	3.6	4.5	4.7	3.7	3.8
Public consumption	7.5	-2.1	2.8	3.1	2.1
Gross fixed capital formation:	5.7	13.7	5.7	-1.4	9.1
Housing	8.8	7.3	-0.6	-1.4	18.0
Other construction	0.7	13.2	6.0	-6.1	10.1
Equipment	6.9	18.3	8.0	0.5	5.5
Other	21.0	3.4	7.0	14.5	3.0
Stocks and statistical discrepancy (% of GDP)	0.5	0.4	0.4	0.3	0.0
Domestic final demand	5.0	5.5	4.7	2.3	4.5
Exports of goods and services	-7.7	1.0	11.5	3.0	5.1
Exports of goods	-7.1	4.2	-2.5	8.2	12.0
Exports of services	-8.1	-1.3	21.8	-0.1	0.7
Final demand	2.7	4.8	5.8	2.4	4.6
Imports of goods and services	-0.8	4.8	9.3	-1.2	6.5
Imports of goods	3.7	7.7	9.0	-0.1	6.6
Imports of services	-18.7	-10.0	11.0	-7.6	5.9
GDP at market prices	3.8	4.8	4.7	3.7	4.0

* According to the provisional quarterly national accounts data published by the NSSG, which, however, refer to the revised GDP and are not comparable with the data in the table, it turns out that in 2006 GDP at constant prices increased by 4.3%, private consumption by 3.5%, public consumption by 2.0%, gross fixed capital formation by 9.5%, exports of goods and services by 5.8% and imports of goods and services by 7.1%.

Source: NSSG/National Accounts, March 2006. For 2006, Ministry of Economy and Finance, Updated Stability and Growth Programme 2006-2009 (December 2006).

Table II.1
Balance of payments
(Million euro)

	January – December			December		
	2004	2005	2006*	2004	2005	2006*
I CURRENT ACCOUNT BALANCE (I.A+I.B+I.C+I.D)	-10,717.1	-14,637.5	-23,640.3	-1,842.4	-2,521.0	-2,815.2
I.A TRADE BALANCE (I.A.1– I.A.2)	-25,435.8	-27,558.9	-35,286.3	-2,389.0	-2,841.3	-3,225.3
Oil	-4,511.1	-6,629.2	-8,761.3	-339.7	-976.7	-779.2
Non-oil	-20,924.7	-20,929.7	-26,525.0	-2,049.3	-1,864.6	-2,446.1
Ships	39.1	-952.1	-3,390.5	-253.7	-194.4	-421.6
Trade balance excluding oil and ships	-20,963.8	-19,977.6	-23,134.5	-1,795.6	-1,670.2	-2,024.5
I.A.1 Exports of goods	12,653.3	14,200.9	16,154.3	1,237.0	1,328.8	1,244.3
Oil	1,544.7	2,257.7	2,939.8	143.6	162.6	161.3
Ships (receipts)	1,194.9	1,373.1	1,631.8	122.8	61.3	73.5
Other	9,913.7	10,570.1	11,582.7	970.6	1,104.9	1,009.5
I.A.2 Imports of goods	38,089.0	41,759.8	51,440.6	3,626.0	4,170.1	4,469.6
Oil	6,055.8	8,886.9	11,701.1	483.3	1,139.3	940.5
Ships (payments)	1,155.8	2,325.2	5,022.3	376.5	255.7	495.1
Other	30,877.4	30,547.7	34,717.2	2,766.2	2,775.1	3,034.0
I.B SERVICES BALANCE (I.B.1–I.B.2)	15,467.0	15,497.1	15,356.5	655.6	602.8	434.8
I.B.1 Receipts	26,742.5	27,359.5	28,393.5	1,726.8	1,763.7	1,644.3
Travel	10,347.8	10,835.5	11,386.1	228.8	230.0	200.6
Transport	13,307.0	13,871.4	14,324.7	1,212.3	1,279.6	1,130.5
Other	3,087.7	2,652.6	2,682.7	285.7	254.1	313.3
I.B.2 Payments	11,275.5	11,862.4	13,036.9	1,071.2	1,160.9	1,209.5
Travel	2,310.4	2,445.7	2,392.7	231.9	240.0	255.9
Transport	5,728.2	6,237.7	6,991.3	497.6	637.0	613.7
Other	3,236.9	3,179.0	3,652.9	341.8	283.9	339.9
I.C INCOME BALANCE (I.C.1– I.C.2)	-4,377.4	-5,676.1	-7,118.8	-410.2	-629.7	-688.1
I.C.1 Receipts	2,810.6	3,273.5	3,626.1	241.1	292.4	374.1
Wages, salaries	280.0	287.1	318.1	26.7	29.4	30.8
Interest, dividends, profits	2,530.6	2,986.4	3,308.0	214.4	262.9	343.4
I.C.2 Payments	7,188.0	8,949.6	10,744.9	651.3	922.1	1,062.3
Wages, salaries	188.9	219.8	280.7	16.7	27.4	27.0
Interest, dividends, profits	6,999.1	8,729.8	10,464.2	634.5	894.7	1,035.2
I.D. CURRENT TRANSFERS BALANCE (I.D.1–I.D.2)	3,629.0	3,100.4	3,408.2	301.3	347.3	663.4
I.D.1 Receipts	6,356.0	6,876.4	6,847.4	601.2	599.8	924.8
General government (mainly EU transfers)	4,080.3	4,615.5	4,462.4	418.0	376.6	732.1
Other (emigrants' remittances, etc.)	2,275.7	2,261.0	2,385.0	183.2	223.2	192.7
I.D.2 Payments	2,727.0	3,776.0	3,439.2	299.9	252.6	261.4
General government (mainly to the EU)	2,216.8	2,921.4	2,472.7	247.6	196.6	178.8
Other	510.3	854.6	966.5	52.3	55.9	82.6
II CAPITAL TRANSFERS BALANCE (II.1–II.2)	2,386.1	2,048.6	3,041.3	274.5	361.9	454.3
II.1 Receipts	2,618.3	2,324.9	3,310.7	291.2	386.9	477.2
General government (EU transfers)	2,463.9	2,137.1	3,116.5	275.9	369.8	456.8
Other	154.4	187.8	194.2	15.2	17.0	20.3
II.2 Payments	232.2	276.3	269.5	16.7	25.0	22.9
General government (mainly to the EU)	69.8	22.9	32.2	1.3	3.7	3.0
Other	162.4	253.4	237.3	15.3	21.3	19.9
III CURRENT ACCOUNT AND CAPITAL TRANSFERS BALANCE (I+II)	-8,331.0	-12,588.9	-20,599.0	-1,567.9	-2,159.1	-2,360.9
IV FINANCIAL ACCOUNT BALANCE (IV.A+IV.B+IV.C+IV.D)	863.6	-679.0	953.8	57.7	47.7	-271.9
IV.A DIRECT INVESTMENT¹	-828.8	-1,166.7	-3,321.6	-66.9	-91.6	-536.5
By residents abroad	1,692.4	487.7	4,275.4	124.6	139.3	264.6
By non-residents in Greece	13,727.5	7,322.6	8,115.4	3,243.3	-212.4	2,651.5
IV.B PORTFOLIO INVESTMENT¹	-11,489.4	-18,459.7	-6,961.2	-1,266.1	-1,176.7	2,076.0
Assets	25,216.9	25,782.3	15,076.6	4,509.5	964.3	575.6
Liabilities	-9,104.1	5,914.0	11,518.5	-2,368.9	2,124.4	-381.5
IV.C OTHER INVESTMENT¹	-6,215.7	-6,301.5	-5,851.0	5,140.5	6,807.0	2,657.5
Assets	-2,888.4	12,215.5	17,369.5	-7,509.4	-4,682.6	-3,038.9
Liabilities	-1,027.4	-447.0	-447.7	-222.7	-330.0	-237.6
(General government loans)	2,611.0	49.0	-224.0	706.0	33.0	150.0
IV.D CHANGE IN RESERVE ASSETS²	233.0	-17.7	235.3	-70.3	166.4	212.7
V ERRORS AND OMISSIONS				1,994.0	1,945.0	2,169.0
RESERVE ASSETS³						

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
2002	94.7	1.9	1.9
2003	98.9	4.5	4.5
2004	100.3	1.4	1.4
2005	99.6	-0.7	-0.7
2006	99.7	0.1	0.1
2004 I	100.4	0.7	2.7
II	99.7	-0.8	0.4
III	100.0	0.3	1.2
IV	100.9	0.9	1.2
2005 I	100.5	-0.4	0.1
II	99.7	-0.9	0.0
III	99.2	-0.5	-0.8
IV	99.0	-0.2	-1.9
2006 I	98.9	-0.1	-1.6
II	99.8	0.9	0.1
III	100.1	0.3	0.9
IV	100.1	0.0	1.1
2004 Jan.	100.8	0.3	3.6
Feb.	100.6	-0.2	2.9
March	99.9	-0.7	1.8
April	99.4	-0.6	1.0
May	99.9	0.5	0.2
June	99.8	-0.1	0.1
July	100.0	0.2	0.9
Aug.	100.0	0.0	1.3
Sept.	100.1	0.2	1.6
Oct.	100.6	0.5	1.3
Nov.	100.9	0.4	1.5
Dec.	101.2	0.3	0.7
2005 Jan.	100.7	-0.5	-0.1
Feb.	100.3	-0.4	-0.3
March	100.6	0.3	0.6
April	100.3	-0.3	0.9
May	99.8	-0.4	0.0
June	98.9	-0.9	-0.9
July	99.1	0.2	-0.9
Aug.	99.3	0.2	-0.7
Sept.	99.2	-0.1	-1.0
Oct.	99.1	0.0	-1.4
Nov.	98.9	-0.2	-2.0
Dec.	98.9	0.0	-2.3
2006 Jan.	99.0	0.1	-1.7
Feb.	98.7	-0.3	-1.6
March	98.9	0.3	-1.6
April	99.3	0.4	-1.0
May	99.8	0.5	0.0
June	100.1	0.2	1.2
July	100.1	0.0	1.0
Aug.	100.1	0.0	0.8
Sept.	100.0	-0.1	0.9
Oct.	99.8	-0.2	0.7
Nov.	100.0	0.2	1.2
Dec.	100.4	0.4	1.5
2007 Jan.	100.2	-0.2	1.2

* 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 28 major trading partners (including the other 12 euro area countries, including Slovenia) and the weights are calculated on the basis of imports and exports of manufacturing goods (categories 5-8 of the Standardised International Trade Classification – SITC 5-8) in the period 1999-2001, also taking account of 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			Japanese yen			Danish krone			Pound sterling		
		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
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
2006	1.2556	0.93	0.93	146.02	6.7	6.7	7.4591	0.1	0.1	0.68173	-0.3	-0.3
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
III	1.2743	1.3	4.5	148.09	3.0	9.2	7.4604	0.0	0.0	0.67977	-1.2	-0.5
IV	1.2887	1.1	8.4	151.72	2.5	8.8	7.4557	-0.1	0.0	0.67314	-1.0	-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
April	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	-0.04	0.2	0.68935	0.9	-0.4
April	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	0.001	0.2	0.68666	0.5	2.6
July	1.2684	0.3	5.4	146.70	1.1	8.9	7.4602	0.048	0.0	0.68782	0.2	0.0
Aug.	1.2811	1.0	4.2	148.53	1.3	9.2	7.4609	0.010	0.0	0.67669	-1.6	-1.3
Sept.	1.2727	-0.7	3.8	148.99	0.3	9.5	7.4601	-0.011	0.0	0.67511	-0.2	-0.4
Oct.	1.2611	-0.9	5.0	149.65	0.4	8.4	7.4555	-0.061	-0.1	0.67254	-0.4	-1.3
Nov.	1.2881	2.1	9.3	151.11	1.0	8.2	7.4564	0.012	0.0	0.67397	0.2	-0.8
Dec.	1.3213	2.6	11.4	154.82	2.5	10.1	7.4549	-0.020	0.0	0.67286	-0.2	-0.9
2007 Jan.	1.2999	-1.6	7.4	156.56	1.1	12.0	7.4539	0.0	-0.1	0.66341	-1.4	-3.3

* Positive values indicate an appreciation of the euro, negative ones a depreciation.

Sources: Bank of Greece and European Central Bank (ECB).



Table 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:	
		Pre-vious period	Pre-vious year		Pre-vious period	Pre-vious year		Pre-vious period	Pre-vious year		Pre-vious period	Pre-vious year		Pre-vious period	Pre-vious year
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
2006	9.25	-0.3	-0.3	1.573	1.6	1.6	8.05	0.5	0.5	1.667	2.1	2.1	1.424	-5.6	-5.6
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
III	9.23	-0.7	-1.4	1.577	0.9	1.5	8.06	2.9	2.3	1.683	0.0	4.8	1.428	1.2	-2.6
IV	9.14	-1.0	-3.6	1.593	1.0	2.9	8.27	2.6	5.0	1.674	-0.5	4.7	1.467	2.7	5.1
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
April	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
April	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
July	9.22	-0.2	-2.2	1.569	0.5	0.7	7.94	1.1	0.2	1.687	-1.4	5.4	1.430	1.5	-2.9
Aug.	9.21	-0.1	-1.4	1.578	0.6	1.6	7.99	0.7	1.0	1.679	-0.5	4.0	1.434	0.2	-3.2
Sept.	9.27	0.6	-0.7	1.584	0.4	2.2	8.26	3.3	5.7	1.684	0.3	5.2	1.420	-0.9	-1.7
Oct.	9.25	-0.1	-1.8	1.590	0.4	2.6	8.40	1.7	7.2	1.673	-0.6	5.0	1.424	0.2	0.6
Nov.	9.10	-1.6	-4.8	1.592	0.2	3.1	8.24	-1.8	5.3	1.668	-0.3	4.1	1.463	2.8	5.0
Dec.	9.04	-0.7	-4.2	1.597	0.3	3.2	8.16	-1.1	2.3	1.681	0.8	5.2	1.521	3.9	10.4
2007 Jan.	9.08	0.5	-2.5	1.615	1.2	4.3	8.28	1.5	3.0	1.660	-1.3	2.8	1.528	0.5	9.0

* 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 area¹

(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 ² (10)=(6)+(7)+ (8)+(9)
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	2,946.8	3,479.6	1,123.7	1,549.6	6,152.9	221.9	615.8	126.2	7,116.8
2006	592.2	3,154.6	3,746.8	1,416.6	1,559.7	6,723.1	239.8	613.3	194.2	7,770.4
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
April	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	106.0	6,627.8
April	481.1	2,550.0	3,031.1	1,034.8	1,672.5	5,738.4	226.3	627.8	120.9	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	6,830.7
July	506.4	2,814.7	3,321.1	1,042.5	1,525.7	5,889.4	238.6	635.1	119.2	6,882.9
Aug.	500.9	2,767.7	3,268.7	1,054.3	1,530.0	5,853.0	249.2	639.7	121.0	6,862.8
Sept.	507.1	2,815.4	3,322.5	1,078.4	1,532.0	5,933.0	234.4	631.5	119.9	6,918.7
Oct.	510.5	2,838.8	3,349.3	1,088.7	1,532.2	5,970.3	241.4	629.0	121.4	6,962.0
Nov.	514.5	2,864.0	3,378.5	1,085.9	1,531.3	5,995.7	239.3	629.6	130.0	6,994.7
Dec.	532.8	2,946.8	3,479.6	1,123.7	1,549.6	6,152.9	221.9	615.8	126.2	7,116.8
2006 Jan.	520.8	2,930.2	3,451.0	1,113.8	1,565.8	6,130.6	237.0	608.4	143.5	7,119.4
Feb.	524.9	2,921.0	3,445.9	1,134.9	1,569.3	6,150.0	235.0	610.2	152.7	7,147.9
March ..	532.3	2,937.6	3,469.8	1,162.1	1,571.0	6,202.9	235.9	603.1	163.1	7,205.0
April	540.3	2,981.7	3,522.0	1,201.5	1,569.4	6,292.9	249.7	613.1	163.9	7,319.5
May	543.6	3,000.9	3,544.5	1,189.2	1,568.6	6,302.2	258.2	621.6	173.7	7,355.7
June	553.7	3,045.0	3,598.7	1,208.8	1,565.8	6,373.2	245.1	616.5	161.7	7,396.6
July	562.7	3,010.9	3,573.6	1,233.0	1,562.7	6,369.3	250.5	627.4	160.3	7,407.4
Aug.	559.0	2,957.5	3,516.5	1,267.9	1,562.7	6,347.1	264.9	639.7	179.2	7,430.9
Sept.	563.2	3,016.8	3,579.9	1,304.8	1,558.9	6,443.6	263.8	645.6	178.9	7,531.9
Oct.	567.1	2,995.8	3,562.9	1,343.1	1,551.8	6,457.8	261.2	643.2	194.4	7,556.6
Nov.	571.5	3,035.3	3,606.8	1,368.7	1,543.5	6,519.0	260.8	636.8	199.4	7,615.9
Dec.	592.2	3,154.6	3,746.8	1,416.6	1,559.7	6,723.1	239.8	613.3	194.2	7,770.4

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 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		Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months ¹	Repurchase agreements (repos)	Money market fund units	Debt securities of up to 2 years	Total ² (M3 excluding currency in circulation)	
	Sight deposits and current accounts	Savings deposits							
(1)	(1.1)	(1.2)	(2)	(3)	(4)	(5)	(6)	(7)=(1)+(2)+ +(3)+(4)+ +(5)+(6)	
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
2006	100.1	26.0	74.1	69.3	2.9	1.6	5.8	0.5	180.2
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
April	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
April	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
April	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
June	99.2	25.1	74.0	60.4	3.6	2.5	5.2	0.6	171.5
July	98.0	24.2	73.8	61.7	3.5	2.1	5.3	0.6	171.1
Aug.	97.0	23.4	73.6	63.3	3.4	2.0	5.4	0.6	171.7
Sept.	96.8	23.4	73.3	63.7	3.3	2.1	5.5	0.5	171.9
Oct.	95.3	23.1	72.3	65.4	3.2	1.9	5.6	0.5	171.9
Nov.	95.3	23.4	71.9	66.8	3.0	1.6	5.7	0.5	173.0
Dec.	100.1	26.0	74.1	69.3	2.9	1.6	5.8	0.5	180.2

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 the 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	Deposits in other currencies	Sight deposits	Savings deposits	Time deposits ²
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
2006	173,370.4	151,321.5	22,048.9	23,525.0	77,858.2	71,987.2
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
April	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
April	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
April	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
June	164,328.2	143,200.2	21,128.0	22,398.2	78,543.2	63,386.8
July	164,473.3	143,231.3	21,242.0	21,667.6	78,137.8	64,667.9
Aug.	164,706.1	143,088.1	21,618.0	20,710.5	77,844.8	66,150.8
Sept.	164,750.2	143,309.9	21,440.3	20,693.0	77,479.1	66,578.1
Oct.	164,848.2	143,096.0	21,752.2	20,410.6	76,266.5	68,171.1
Nov.	166,195.3	144,335.6	21,859.7	21,116.2	75,520.4	69,558.6
Dec.	173,370.4	151,321.5	22,048.9	23,525.0	77,858.2	71,987.2

1 Other Monetary Financial Institutions (OMFIs) comprise credit institutions (other than the Bank of Greece) and money market funds.

2 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
2006	156,896.4	76,659.8	3,051.0	16,371.4	20,572.0	4,194.1	32,471.3	80,236.6	52,502.5	25,599.2	2,134.9
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
April	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
April	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
April	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
June	148,322.9	76,259.8	3,192.4	16,900.2	20,531.4	4,416.8	31,219.0	72,063.1	46,929.0	23,275.7	1,558.4
July	150,012.0	76,374.7	3,203.6	16,706.6	20,573.2	4,350.0	31,514.3	73,637.3	48,165.4	23,610.7	1,861.2
Aug.	150,031.2	76,033.8	3,204.1	16,658.0	20,371.5	4,301.8	31,498.4	73,997.4	48,138.4	23,956.0	1,903.0
Sept.	152,943.1	77,450.6	3,239.2	16,769.4	20,916.6	4,337.6	32,187.8	75,492.5	49,140.0	24,394.4	1,958.1
Oct.	153,584.8	76,893.8	3,226.8	16,627.6	20,662.5	4,346.0	32,030.9	76,691.0	49,923.5	24,709.6	2,057.9
Nov.	152,551.9	74,519.8	3,141.2	16,223.8	19,823.8	4,213.5	31,117.5	78,032.1	50,672.3	25,283.7	2,076.1
Dec.	156,896.4	76,659.8	3,051.0	16,371.4	20,572.0	4,194.1	32,471.3	80,236.6	52,502.5	25,599.2	2,134.9

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 April	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 April	2.75	3.75	4.75	20 April	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					
	9 Aug.	2.00	3.00	4.00					
	11 Oct.	2.25	3.25	4.25					
	13 Dec.	2.50	3.50	4.50					

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 On 8 June 2000, the ECB announced that, starting from the operation to be settled on 28 June 2000, the main refinancing operations of the Eurosystem would be conducted as variable rate tenders. The minimum bid rate refers to the minimum interest rate at which counterparties may place their bids.

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
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
2006	3.44	3.58	3.72	3.87	4.07	4.16	4.23	4.42
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	...
April	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
April	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
April	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
July	3.54	3.78	3.98	4.10	4.33	4.42	4.50	4.72
Aug.	3.61	3.72	3.88	3.98	4.19	4.29	4.37	4.58
Sept.	3.72	3.71	3.81	3.89	4.06	4.15	4.21	4.39
Oct.	3.80	3.77	3.87	3.93	4.08	4.15	4.21	4.35
Nov.	3.87	3.77	3.82	3.86	3.98	4.05	4.09	4.23
Dec.	3.92	3.84	3.89	3.93	4.04	4.12	4.17	4.30
2007 Jan.	4.06	4.01	4.08	4.13	4.28	4.33	4.38	4.51

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		Repurchase agreements (repos)
	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	
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
2006	1.02	0.98	2.86	0.79	2.81	2.67
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
April	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
April	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
April	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
June	1.02	0.98	2.76	0.75	2.70	2.60
July	1.02	0.98	2.84	0.74	2.79	2.60
Aug.	1.04	1.00	2.95	0.83	2.96	2.74
Sept.	1.05	1.00	3.03	0.83	2.97	2.85
Oct.	1.11	1.06	3.24	0.93	3.15	3.02
Nov.	1.09	1.04	3.26	0.89	3.24	3.09
Dec.	1.14	1.09	3.47	0.92	3.48	3.30

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		
	Loans without defined maturity ^{2,3}	Consumer loans		Housing loans		Loans without defined maturity ^{3,4}	With a floating rate or an initial rate fixation of up to 1 year	
		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		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
2006	13.45	7.89	8.58	4.20	4.28	7.18	5.76	4.37
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
April	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
April	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
April	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
June	13.45	8.09	8.75	4.22	4.32	7.18	5.65	4.41
July	13.41	7.85	8.59	4.28	4.36	7.19	5.70	4.40
Aug.	13.60	7.99	8.77	4.51	4.53	7.26	5.88	4.27
Sept.	13.58	8.03	8.85	4.50	4.54	7.26	5.91	4.72
Oct.	13.72	8.15	8.87	4.64	4.62	7.37	6.14	4.83
Nov.	13.81	8.19	8.86	4.50	4.52	7.25	6.15	4.94
Dec.	13.80	6.82	7.82	4.07	4.26	7.35	6.30	5.16

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)

	Annual data		
	2004	2005	2006*
Central government	15,605	14,424	10,467
Percentage of GDP	9.3	8.0	5.4
– State budget	15,377	14,793 ⁷	11,500 ⁸
(Ordinary budget) ⁴	8,841	10,033	7,020
(Public investment budget)	6,536	4,760	4,480
– OPEKEPE ^{5,6}	228	–369	–1,033

1 This table shows the borrowing requirement of central government on a cash basis. The borrowing requirement of public entities is calculated by the NSSG on the basis of detailed data collected directly from these entities through 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 Greek government debts 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 OPEKEPE account's balance for 2006 is high, because the Ministry of Rural Development, through a loan of about €600 million in December, effected advance payments to farmers. This amount will be offset within 2007 by OPEKEPE, when final payment orders to the beneficiaries will have been issued.

7 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 €1,239.3 million from the sale of 16.4% of OPAP shares and €826 million from the sale of 10% of OTE shares.

8 Including €149.7 million from National Telecommunications and Post Commission revenue settlement, €299.3 million from the decrease in the capital of the Greek Postal Savings Bank, €34 million from the decrease in the capital of the Agricultural Bank of Greece (ATE), €290 million from additional dividends paid by the Deposits and Loans Fund, €323 million from the sale of ATE shares, €597.4 million from the sale of Greek Postal Savings Bank shares and €364.4 million from the sale of Emporiki Bank shares.

* Provisional data and estimates.

Source: Bank of Greece.



Table IV.2
Financing of borrowing requirement of central government
(Million euro)

	Annual data					
	2004		2005		2006*	
	Amount	Percentage of total	Amount	Percentage of total	Amount	Percentage of total
Greek Treasury bills and government bonds ^{1,2}	16,829	107.8	15,325	106.2	11,342	108.4
Change in balances of central government accounts with the credit system ³	-901	-5.8	-1,224	-8.5	-1,145	-10.9
External borrowing ⁴	-323	-2.1	323	2.2	270	2.6
Total	15,605	100.0	14,424	100.0	10,467	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 and excluding non-residents' holdings of domestically issued government bonds.

5 Comprising the change in government deposits with foreign banks.

* Provisional data.

Source: Bank of Greece.

Table IV.3
State budget results
(Million euro)

	Year			Percentage changes	
	2005	2006*	Budget for 2007	2006*/05	Budget for 2007/06*
I. REVENUE¹	<u>47,446</u>	<u>52,399</u>	<u>55,260</u>	<u>10.4</u>	<u>5.5</u>
1. Ordinary budget <i>(of which: extraordinary revenue)</i>	44,760	48,685 772 ³	51,370	8.8	5.5
2. Public investment budget	2,686	3,714	3,890	38.3	4.7
– (Own revenue)	63	...	140		
– (Revenue from the EU)	2,623	...	3,750		
II. EXPENDITURE¹	<u>58,764</u>	<u>60,770</u>	<u>64,310</u>	<u>3.4</u>	<u>5.8</u>
1.1 Ordinary budget <i>(Interest payments)²</i>	51,240 ⁴ 9,774	52,586 9,589	55,560 9,750	2.6 –1.9	5.7 1.7
1.2 Ordinary budget primary expenditure <i>(of which: tax refunds)</i>	41,466 ⁴ 2,554	42,997 2,392	45,810 2,200	3.7 –6.3	6.5 –8.0
2. Public investment budget	7,524	8,184	8,750	8.8	6.9
III. STATE BUDGET RESULTS	<u>–11,318</u>	<u>–8371</u>	<u>–9,050</u>		
Percentage of GDP	<u>–6.3</u>	<u>–4.3</u>	<u>–4.3</u>		
1. Ordinary budget	–6,480	–3,901	–4,190		
2. Public investment budget	–4,838	–4,470	–4,860		
IV. PRIMARY DEFICIT (–)/SURPLUS(+)	<u>–1,544</u>	<u>1,218</u>	<u>700</u>		
Percentage of GDP	<u>–0.9</u>	<u>0.6</u>	<u>0.3</u>		
AMORTISATION PAYMENTS ²	21,752	17,856		–17.9	
MINISTRY OF NATIONAL DEFENCE PROGRAMMES FOR THE PROCUREMENT OF MILITARY EQUIPMENT ²	1,400	2,067		47.6	

1 For comparability purposes, tax refunds are included in expenditure and have not been deducted from revenue. This practice has been adopted by the Ministry of Economy and Finance in recent years.

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 Comprising €149.7 million from National Telecommunications and Post Commission revenue settlement, €299.3 million (not included in the budget for 2006) from the decrease in the capital of the Greek Postal Savings Bank, €34 million from the decrease in the capital of ATE and €290 million from additional dividends paid by the Deposits and Loans Fund.

4 Including a grant of €330 million to OTE's personnel insurance fund (TAP-OTE) and the settlement of a €345 million liability of the Greek State to ATE. These expenditures were not included in the estimates of the Ministry of Economy and Finance for 2005, as published in the Introductory Report on the 2006 Budget.

* Provisional data.

Source: General Accounting Office.



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