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Contents

EMU strategies for new Member States: the role of Exchange Rate Mechanism II
Theodoros S. Papaspyrou 7

Education and economic inequalities
Theodore M. Mitrakos 27

Gender wage differentials in Greece
Evangelia Papapetrou 47

Working Papers 65

Monetary policy and financial system supervision measures 75

Decisions of the Bank of Greece 77

Statistical section 95

Articles published in previous issues of the *Economic Bulletin* 121

EMU strategies for new Member States: the role of Exchange Rate Mechanism II*

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1. Introduction

Once EU enlargement was completed on 1 May 2004, the issue of preparation of new Member States for euro area membership has occupied centre stage in economic policy discussions. This paper reviews the institutional and economic policy framework faced by the new Member States and examines the main analytical aspects and policy issues related to the preparation for euro area membership. Against the background of past experience,[1] and in the light of EU rules, the role of Exchange Rate Mechanism II (ERM II) in the convergence effort of the new Member States is examined. Key aspects of the mechanism are analysed, including the appropriate timing and duration of participation in ERM II, intervention in the foreign exchange markets to defend central rates, the practical significance of the Balassa-Samuelson effect, fiscal adjustment as well as exit strategies from existing regimes.

The choice of monetary and exchange rate strategies can be expected to both influence the timing of ERM II entry and the outcome of the whole effort to meet the Maastricht convergence criteria. This paper examines the conditions under which different monetary frameworks could ensure both price and exchange rate stability.

* Helpful comments by Vassilis Droucopoulos, Heather Gibson, Isaac Sabethai and George Tavlas are gratefully acknowledged. The views expressed in this paper are those of the author and do not necessarily reflect those of the Bank of Greece.

1 An analysis of the main lessons to be drawn from past convergence experience, notably that of Greece, the most recent member of the euro area, is provided in T. Papaspyrou: *"EMU strategies: lessons from past experience in view of EU enlargement"*, Bank of Greece, Working Paper No. 11, March 2004. Also, analysis of Greece's monetary and exchange rate strategy in the drive to EMU is supplied in *"Greece's economic performance and prospects"*, Bank of Greece and The Brookings Institution, 2001.

Particular attention is paid to policy issues and the risks associated with the free movement of capital. The risk of destabilising capital movements can be considerably reduced by the implementation of sound and consistent economic policies. Moreover, monetary authorities have at their disposal instruments to cope with the undesirable effects of massive capital movements in the short term, while more sustainable solutions are introduced by adapting policies and improving the policy mix over the medium-to-long term.

Finally, it emerges from the analysis that existing Community institutions, rules and mechanisms provide a helpful framework to guide the convergence effort of new Member States towards EMU. It is therefore essential that full use is made by new Member States of the institutions, mechanisms and assistance available through EU instruments in order to enter EMU under the best possible conditions.

2. New Member States and the EU institutional and policy framework

From the date of accession, EU rules on economic and budgetary policy also apply to new Member States, which "shall regard their economic policies as a matter of common concern".[2] This implies that new Member States:

- will participate in the mechanisms for multilateral surveillance and co-ordination of economic policies, implemented through the Broad Economic Policy Guidelines and the Stability and Growth Pact, thus influencing economic policy decisions at EU level, and;
- will have to comply with rules prohibiting monetary financing and privileged access of governments to funds from financial institutions, as well as with rules specifying that the Community or Member States shall not assume the commitments of any Member State[3] (no bail out).

New Member States are expected to join the euro area, as no opt-out clause exists for any of them similar to that for the United Kingdom and Denmark. Indeed, all new Member States have declared their intention to adopt the euro as soon as is economically feasible, and some of them plan to join ERM II soon after their accession to the EU.[4]

With regard to euro membership, the new Member States have the status of "Member States with a derogation".[5] This means that from the date of accession to the EU, they are members of the European System of Central Banks and participate in certain bodies of the European Central Bank, such as the General Council —a key responsibility of which is to monitor the operation of ERM II — but they are not involved in the formulation and implementation of monetary policy for the euro area. The status of Member States with a derogation will cease once they become members of the euro area.

2 Article 99 of the Treaty establishing the European Community (thereafter EC Treaty).
3 These provisions, of Articles 101 to 103 of the EC Treaty, apply to all members of the EU, regardless of their participation or not in the monetary union. They are, however, even more important for the smooth operation of EMU.
4 The Estonian kroon, the Lithuanian lita and the Slovenian tolar were included in ERM II on 27 June 2004, with the following central rates: 1 euro = 15,6466 kroon, 1 euro = 3,45280 litas and 1 euro = 239,640 tolar, and with the standard fluctuation band ±15%. According to the EU Communiqué of 27 June 2004, Estonia and Lithuania are joining ERM II with their existing currency board arrangements in place, as a unilateral commitment, thus placing no additional obligations on the ECB.
5 Article 122 of the EC Treaty.

A precondition for euro membership is fulfilment of the Maastricht convergence criteria on inflation, interest rates, fiscal performance and exchange rate stability, as well as harmonisation of each Member State's legislation with the Treaty and the Statute of the ESCB. The latter concerns, in particular, national legislation ensuring central bank independence.

Exchange rate developments and policies during the transition towards the single currency have been the subject of specific references in Community legislation, as currency movements could affect the functioning of the single European market. Specifically, in the transition to the euro, each Member State must treat its exchange rate policy *as a matter of common interest*.[6] Moreover, the European Council Resolution of Amsterdam[7] states that the single market must not be endangered by real exchange rate misalignments, or by excessive nominal exchange rate fluctuations between the euro and the other EU currencies, which would disrupt trade flows between Member States, and, further, that the surveillance of Member States' macroeconomic policies will be organised with a view to avoiding such misalignments or fluctuations.

ERM II is the framework for monitoring and assessing exchange rate stability and the sustainability of central rates. In implementing these tasks, the mechanism is expected to play a key role in the EU surveillance and co-ordination mechanisms, in combination with other key instruments such as convergence programmes. Several references in Community legislation specify the role of ERM II:

- According to the Amsterdam Resolution and the Agreement[8] between the ECB and central banks of Member States participating in ERM II, the mechanism will help to ensure that Member States outside the euro area participating in the mechanism orient their policies towards stability, foster convergence and thereby help them in their efforts to adopt the euro.

- In the above Resolution, it is specified that ERM II will help to protect Member States outside the euro area and Member States adopting the euro from unwarranted pressures in the foreign exchange markets. In such cases the mechanism may assist Member States outside the euro area participating in it, when their currencies come under pressure, to combine appropriate policy responses, including interest rate measures, with coordinated intervention.

- Furthermore, economic and monetary policy objectives presented in convergence *programmes*[9] —which are key means in defining convergence strategies and monitoring progress towards EMU— will have to be compatible with ERM II exchange rate stability requirements. Thus, for Member States participating in the mechanism, policies should be oriented to stability. For those outside, policies need to avoid real exchange rate misalignments and excessive nominal exchange rate fluctuations.

6 Article 124 of the EC Treaty.
7 Resolution of the European Council on the establishment of an exchange rate mechanism in the third stage of EMU, Amsterdam, 16 June 1997, OJ C 236, 2 August 1997, p. 5.
8 Agreement of 1 September 1998, as last amended on 29 April 2004, between the ECB and the national central banks of the Member States outside the euro area laying down the operating procedures for an exchange rate mechanism in stage three of EMU, OJ C 236, 2 August 1997, OJ C 362, 16 December 2000, and OJ C 135, 13 May 2004.
9 For provisions governing convergence programmes, see Council Regulation No. 1466/97 of 7 July 1997 "On the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies", OJ L 209, 2 August 1997.

It emerges from the above that existing EU institutions, rules and mechanisms provide a consistent and helpful framework to guide the convergence effort of new Member States towards EMU. Despite some recent controversies about how key frameworks, such as the Stability and Growth Pact, would be used in practice, no Member State contested the usefulness of these frameworks in ensuring sound and sustainable economic and fiscal policies for the EU and the euro area.

The next section examines in more detail the role of ERM II in the strategies of new Member States in preparing for EMU.

3. ERM II as a framework for guiding convergence

This section reviews the main aspects of ERM II and draws a number of conclusions about its expected role in guiding new Member States in their drive towards EMU, on the basis of past experience of the operation of the mechanism in its various forms, taking account of the present EU institutional framework.

ERM II replaced the European Monetary System as from 1 January 1999.[10] The mechanism links currencies of Member States outside the euro area to the euro and operates within the framework of stability-oriented policies which are at the core of economic and monetary union. An Agreement[11] between the ECB and national central banks lays down the operating procedures for ERM II. The mechanism is based on a central rate of the participating currencies against the euro, with one standard fluctuation band of ±15%, although narrower bands can be agreed. Central rates, fluctuation bands and realignments are set by common procedure involving Finance Ministers, the ECB and national central bank Governors and the Commission.[12] Intervention at the margins by the ECB and the central banks participating in ERM II will in principle be automatic and unlimited, unless it is deemed to conflict with the primary objective of ensuring price stability.

ERM II should be seen as a mechanism testing the consistency of policies, encouraging necessary adjustment and helping to achieve convergence. It provides both more flexibility and stability compared with earlier versions of the mechanism; with the wider fluctuation bands it offers more policy flexibility and acts as a buffer against one-way bets, discouraging speculative attacks.[13] It also offers greater stability, as the objective of euro area membership, made credible by appropriate economic policies and Community multilateral surveillance mechanisms, supports convergence efforts.

ERM II rules are flexible enough so that they can accommodate a number of exchange rate regimes

10 The Danish krone had been the only participating currency in ERM II, from 1 January 2001 to 27 June 2004, date at which the Estonian kroon, the Lithuanian litas and the Slovenian tolar joined the mechanism (see footnote 4). It is noted that the Danish krone observes the narrow fluctuation band ±2.25%. The drachma participated in ERM II from 1 January 1999 until 31 December 2000, the last day before Greece joined the euro area.

11 See footnote 8.

12 "Decisions on central rates and the standard fluctuation bands shall be taken by mutual agreement of the ministers of the euro-area Member States, the ECB and the ministers and central bank governors of the non-euro area Member States participating in the new mechanism, following a common procedure involving the European Commission, and after consultation of the Economic and Financial Committee..." Resolution of the European Council on the establishment of ERM II (see footnote 7).

13 Further analysis on the use of fluctuation bands in assessing compliance with the exchange rate criterion is provided in T. Papaspyrou (2004).

followed by new Member States.[14] However, some regimes have already been identified at this stage as incompatible with ERM II, namely free floating,[15] crawling peg and exchange rates fixed to currencies other than the euro. In particular, currency board regimes linked to the euro could, in principle, be accepted as special arrangements within the ERM II fluctuation bands.[16] Unilateral euroisation is not considered compatible with the Treaty.[17]

The *guiding principle* which should govern the EU approach to new Member States' exchange rate strategies within ERM II is that their exchange rate regimes must be adapted to the requirements of ERM II and not vice versa. In practice, this would imply that, although every effort should be made to accommodate specific exchange rate regimes (e.g. euro-based currency board regimes which have proven their sustainability), this must be done on the condition that these regimes are supported by appropriate economic and budgetary policies agreed by all parties concerned.

New Member States have made significant progress towards a fully-fledged open economy system, in reforming the economic and financial system and the institutions in general and in liberalising capital movements. However, the sustainability of these reforms has not yet been tested under the competitive pressure implied by full EU membership and, further, under the rigorous framework of ERM II. This is an additional reason why the convergence effort, including structural reforms, must be designed and implemented with care, in connection with the timing of ERM II entry and the length of stay in the mechanism.

The *timing* of entry into ERM II is a key issue in the convergence process. In tackling this sensitive issue, it may be useful to examine, first, the substance of the needed adjustment and then see what would be, in each case, the optimal timing of entry. The first period of EU membership would be the time to introduce/complement necessary reforms[18] in key markets and institutions and test the capacity of the economy to implement them successfully. In a second phase, policies and reforms will be corrected and/or strengthened in the light of the experience gained during the first period and of external developments. The whole —first plus second— period could be about five years, and may be shorter or longer depending on the situation in each country.

The adjustment and reform period could coincide, fully or partly, with that of ERM II participation. The criteria for such participation would be both the interest of the Member State concerned and, also, the need to preserve the credibility of ERM II. In practice, this requires a sufficient degree of progress towards sustainable convergence, ensuring that the objective of meeting the convergence criteria remains on track. The second part of the

14 A summary of monetary and exchange rate regimes in new Member States is given in the Annex, Table A.
15 For our purposes, the relevant aspect here is: floating vis-à-vis the euro.
16 The ECB does not consider currency boards to be a substitute for participation in ERM II but rather as a unilateral commitment on the part of the countries concerned, specifying that such arrangements will be assessed on a case-by-case basis (see ECB's document: "Policy position of the Governing Council of the ECB on exchange rate issues relating to the Acceding Countries", made public on 18 December 2003). This position seems to be the same as those of the Commission and the ECOFIN Council on this specific issue.
17 See ECOFIN report, Athens, 5 April 2003.
18 Such reforms could be introduced before entering ERM II. Indeed, in some cases this could present an optimal situation both for the credibility of the mechanism and for the medium to long-term interest of the country concerned.

adjustment effort, which could correspond to the final stage of ERM II participation, should represent the conditions that will, in general, prevail in the euro area. It is, as a consequence, important that ERM II membership not be seen as an "ante room" for euro-area membership, but as a useful framework providing the opportunity to make valuable adjustments and introduce reforms which would form the basis for real convergence and sustainable nominal convergence. This is the reason why in some cases, notably if the success of certain major reforms is uncertain, early participation in ERM II may not be an optimal option.

In conclusion, if the following elements are in place:

- clear definition of policy priorities in connection with the convergence criteria,
- sustainability of policies and adequacy of budgetary resources for their implementation, and
- commitment to implement the adjustment and reform programme,

then experience shows us that a country will be able to participate successfully in ERM II. On the other hand, if the Member State concerned feels that a higher degree of freedom in setting priorities is preferred and/or no consensus exists for the implementation of major reforms, it may be better to delay entry into ERM II.

How long should a country stay in ERM II? There is no predetermined, optimal duration for such participation, between the two-year legal minimum and a longer time period. The decisive element should be that adequate progress was made by the Member State concerned in achieving sustainable convergence.[19] However, the participation period should not be too long as, in such a case, there is a risk that convergence momentum is lost and the commitment to the adoption of the euro fades. It is, therefore, necessary that the convergence effort keeps its momentum and once a critical mass of reform and convergence progress has been achieved, entry into ERM II may be sought. This requires a careful design of the convergence effort, notably the setting of priorities and policy instruments to achieve them, thus avoiding any reversals in the convergence effort.

A key feature of ERM II is obligatory intervention at the margins, which is in principle automatic and unlimited, with very short term financing available.[20] However, the ECB and the central banks of the other ERM II participants could suspend intervention if this were to conflict with their primary objective, which is to maintain price stability. This conditional intervention was considered by some analysts as introducing uncertainties about the ECB's commitment to defending ERM II central rates.[21] However, this provision is a direct consequence of the ECB's mandate defined in the Treaty to give priority to maintain-

19 A high degree of sustainable convergence is an objective explicitly mentioned in the relevant Treaty provisions (convergence criteria) and an essential element of sustainable exchange rate stability in the ERM II Resolution (see footnote 7).

20 For the purpose of intervention, the ECB and each participating non-euro-area national central bank must open for each other very short term credit facilities (VSTF). The VSTF is in principle automatically available and unlimited in amount for the purpose of financing intervention in participating currencies at the margins. For the purpose of intra-marginal intervention, the VSTF may, with the agreement of the central bank issuing the intervention currency, be made available subject to conditions (see Agreement mentioned in footnote 8).

21 Folsz (2003), for example, argues that "the defensive system would be stronger if the commitment of the ECB to intervene were free of all uncertainties".

ing price stability. Therefore, references to conditional intervention should be interpreted as implying that the ECB would, in general, intervene to defend a specific central parity, provided that the country concerned follows the economic and fiscal policies agreed through the ERM II framework and through Community surveillance and co-ordination mechanisms, or adaptations to these policies decided upon with the same procedures.[22] Moreover, events during the EMS crisis during 1992-93 showed that intervention by central banks to defend a currency parity can only continue if it is supported by sustainable economic and financial policies. Therefore, the focus and the effort must be, first of all, to ensure sound policies. This would be the best "guarantee" for both a smooth transition to euro area membership and support by the ECB, through foreign exchange market intervention, if the need arises.

A specific issue concerns the *Balassa-Samuelson (B-S) effect*, namely whether ERM II provides enough flexibility to allow for an appreciation of the real exchange rate (in high-growth, catching-up economies of new Member States) resulting from higher productivity growth in the traded-goods sector. Real appreciation could be achieved through nominal appreciation, increased inflation or a combination of both. It emerges from the analysis of ERM II provisions, as well as from past assessments of compliance with the convergence criteria, that ERM II provides enough flexibility to accommodate nominal appreciation as this would not be an obstacle to meeting the requirements of the exchange rate convergence criterion.[23] On the other hand, higher inflation due to wage equalisation across tradable and non-tradable sectors could pose a problem. However, the size of such an effect should not be overestimated. According to recent research, the inflation differentials between EU and Central and Eastern European countries attributed to the B-S effect (estimated in the literature between 1% and 4% per annum) should be treated with caution, as a number of factors may reduce such an effect.[24] It is noted, in this respect, that in the case of two high-growth EU economies, Ireland and Greece, in the qualification period for euro membership (1996-99) no particular inflation problems had arisen, although the revaluation of their currencies' central rates during the last year before euro area membership contributed to containing price increases.

Probably more important than the possibility of accommodating the eventual B-S effect through a currency appreciation is the possibility for new Member States to adjust the exchange rate through a devaluations in order to recover lost competitiveness, in the event of price increases not justified by B-S effects. Although such adjustments could be made within ERM II, sizeable exchange rate adjustments might better be made

22 The low share of new Member States' money supply to the euro area's money supply suggests that the risk of excess liquidity from a hypothetical intervention by the ECB in defence of a currency is very limited. It is noted that in the biggest new Member State (Poland) the share of M3 in euro area's M3 is about 0.7%, while the share of M1 to the corresponding figure for the euro area is somewhat higher, about 1.2%

23 A nominal appreciation, within the fluctuation bands, is considered as complying with the exchange rate criterion of the Treaty, following an interpretation applied in the convergence reports of the EMI (1998), the ECB (2000) and the European Commission (1998 and 2000).

24 According to Von Hagen and Zhou (2003): (a) The B-S effect is a long-run tendency, which may be less prominent over a shorter time horizon; (b) productivity growth of the services sector, which is the main component of the non-tradable sector, can be very fast in the accession countries, as it is developing essentially from very low starting levels; (c) productivity growth of the tradable sector will gradually lose its momentum as it reaches a higher level; and (d) the pressure of high unemployment rates may prevent the wage rate from equalising at a level compatible with tradable-sector productivity growth.

before the currency in question enters the mechanism (see also above the discussion about the timing of ERM II entry).

Concerning *fiscal adjustment*, new Member States must respect the provisions of the Treaty about general government balances and debt ratios, as well as those of the Stability and Growth Pact about a budgetary position close to balance or in surplus in the medium term.[25] A key issue is how these obligations can be reconciled with the need for most acceding countries to undertake important investment projects in order to improve infrastructure and make progress towards real convergence. This is, indeed, one crucial aspect of the adjustment process of new Member States and underlines how important it is that they pursue a policy of sound public finance, controlling current primary expenditure so that adequate budgetary resources can be allocated to the necessary investment in order to improve infrastructure. It also implies the need to consider carefully the strategy of convergence towards EMU, the right setting of priorities and the timing of ERM II membership and accession to the euro area.

How do Commission proposals, of November 2002, for fiscal coordination, as approved by the Council,[26] affect new Member States' convergence strategy? The proposals' aim was to clarify certain provisions of the Stability and Growth Pact and put the focus on the cyclically-adjusted fiscal balance as well as the long-term sustainability of public finance.[27] They are helpful to the new Member States by putting emphasis on sustainable fiscal adjustment, including structural reforms which raise the growth potential of the economy, and on the need to reduce public debt at a satisfactory pace towards the 60% of GDP reference value. This approach increases new Member States' leeway as their government debt ratio was estimated at 42% of GDP, on average, in 2003, much lower than either that of the EU (64% of GDP) or that of the euro area (70.5% of GDP).[28]

An issue related to fiscal consolidation is whether *macroeconomic stabilisation*, pursued in order to achieve the nominal convergence criteria, is also compatible with real convergence i.e. the capacity to obtain, in parallel, high enough rates of real GDP growth in order to maintain progress towards real convergence. The examples of Ireland and Greece showed that the two processes can be mutually supported, notably if the process of nominal convergence acquires enhanced credibility, thus affecting the formation of key variables such as interest rates, wages and prices.

The *"exit strategy"* is a key issue of exchange rate policies in relation to ERM II membership. The issues covered under this concept concern both

25 It should be recalled that the Stability and Growth Pact applies to all Member States of the EU. However, Member States that have not adopted the euro cannot be subject to the possible sanctions provided for by the Pact.

26 Commission Communication on "Strengthening the co-ordination of budgetary policies", COM(2002) 670 final, 27 November 2002, and Report of ECOFIN Council of 7 March 2003, endorsed by the Brussels European Council of 20 and 21 March 2003.

27 As was noted by both the Commission and the ECOFIN Council, these clarifications were made within the framework established by the Treaty (Article 104, on excessive deficits), secondary legislation (Stability and Growth Pact) and the "Code of conduct" on the content and format of stability and convergence programmes (July 2001).

28 It may be worth exploring what room for interpretation is allowed for, notably for catching-up economies, in the provisions of Article 104 (3) of the EC Treaty on excessive deficits, stating that the Commission in its assessment "shall take into account whether the government deficit exceeds government investment expenditure and take into account all other relevant factors..."

exit from current exchange rate regimes to ERM II and from ERM II to the euro. In analysing this issue, a number of situations can be distinguished:

a. *currency board arrangements (CB) based on the euro,*
b. *pegs to the euro, and*
c. *managed float and free float regimes.*

The above situations involve large differences, especially with respect to the policy options available in each case. For example, CB regimes can find their place in ERM II as arrangements involving (very) narrow fluctuation bands, provided that the corresponding central rate in each case is judged appropriate. "Peg to the euro" regimes can fall more easily into the normal fluctuation band of ±15% of the ERM, notably if they have been shadowing ERM II fluctuation bands already. "Managed float" and "free float" regimes can also be relatively easily adapted to the ERM II rules provided that they are supported by appropriate policies.

Despite the differences that exist in the above situations, the basic policy requirement for ERM II participation is, in all cases, the same: an appropriate and sustainable *central rate* must be chosen, supported by the right economic and monetary policies. This basic requirement must guide decisions on central rates, including those cases where the continuation of pre-ERM II exchange rate regimes seems attractive, in view of the complications of alternative solutions.[29]

Regarding exit from ERM II towards the adoption of the euro, it seems advisable to follow the same approach adopted in the case of the eleven Member States in 1998 and, later, by Greece in 2000: when the Council decided that these countries fulfilled the convergence criteria, the conversion rate of each currency was also determined.[30] Any other option (e.g. postponing the decision on conversion rates until the last day before entry into the euro area) would increase uncertainty about the sustainability of central rates, inviting speculative attacks against the currencies.

4. Options for monetary and exchange rate strategies

The choice of the appropriate monetary and exchange rate strategy is an important issue, as it could influence the outcome of the whole effort to meet the Maastricht convergence criteria, notably those referring to price and exchange rate stability. Such a choice could determine, in particular, the timing of ERM II entry, as participation in the mechanism implies specific obligations regarding

29 This last remark, referring notably to CB regimes, does not imply that the merits of the continuation of existing parities should be overlooked. It only means that if the risks of imbalances or serious economic problems are considerable, then necessary adjustments and reforms must be introduced in order to strengthen the sustainability of currency parities.

30 Strictly speaking, the Council determined only the bilateral central rates (and not the final conversion rates) when deciding, in May 1998, which Member States will adopt the euro from 1 January 1999. This was necessary for technical reasons, as explained in the Joint Communiqué issued on 2 May 1998: "Since the ECU was a currency basket, which included the Danish krone, the Greek drachma and the pound sterling, it was not possible to announce before the end of 1998 the irrevocable conversion rates at which the euro would be substituted for the participating currencies. However, it is possible to announce the bilateral rates of the currencies participating in the euro area which will be used on 31 December 1998 in computing the exchange rates of the official ECU and thus in computing the irrevocable euro conversion rates for these currencies." Of course, no such technical constraints existed when a decision was taken about Greece's participation in the euro area, as the euro was already in place.

exchange rates. As a consequence, monetary and exchange rate strategies should be determined jointly, taking account of economic conditions and prospects, and the time horizon of planned convergence effort.

An analytical distinction can be made between, firstly, monetary policy regimes based on exchange rate targeting and, secondly, regimes in which monetary policy is centred on targets other than the exchange rate.

In the case of exchange rate-based monetary strategies, the main issue is the sustainability of the chosen strategy and, therefore, the effort is normally focused on strengthening the elements which support such a strategy. Examples of such regimes are euro-based currency board regimes, euro targeting within pre-determined fluctuation bands and a number of other variations of exchange rate-based regimes.

For the second category of monetary regimes, a notable example of which are those based on "inflation targeting", a key issue is whether they can also ensure exchange rate stability, which is one of the convergence criteria and an explicit requirement of ERM II, within the currency fluctuation bands specified by the mechanism. Such monetary regimes, in particular the "inflation targeting" framework followed, for example, by the Czech Republic and Poland, seem to have served well the countries concerned in reducing and containing inflation. As a consequence, these countries may be reluctant to abandon them in favour of exchange rate-based regimes.

Available evidence[31] from past convergence experiences indicates that both exchange rate-based monetary regimes as well as inflation targeting regimes can lead to a successful outcome. An example of countries having followed the first kind of monetary regime is Austria and of the second Finland, both of which managed to qualify for euro membership in 1998. A more careful examination of facts seems to suggest that it is rather sound and sustainable policies implemented by the countries concerned —within a credible EU institutional and policy framework— that are the main determinants of the successful convergence process and, probably, less the specific monetary policy framework. The following elements seem to support this view:

- an inflation targeting regime, which is effective in reducing inflation and maintaining price stability, leads to reduced exchange rate variability;[32]

- research has shown that inflation targeting regimes associated with independence of central banks (one of the requirements for euro area membership) also lead to lower exchange rate variability than in those where such independence is absent;

- the dichotomy between inflation targeting and exchange rate targeting may not be that sharp in practice, as there is a strong pass-through from nominal exchange rates to domestic inflation in small open economies.[33]

31 See for example Genberg (2004).
32 Kuttner and Posen (2001) argue that the more weight monetary authorities place on stabilising inflation relative to output the more exchange rate variability is reduced and further that exchange rate stability can be the outcome of credible policies, aimed at controlling inflation, and is not exclusively the outcome of hard pegs.
33 Coricelli *et al.* (2003).

The above seem to attenuate concerns about possible incompatibilities between inflation targeting (and other non-exchange-rate-based monetary regimes) and exchange rate stability requirements.[34] Nevertheless, Member States concerned should design with care their monetary and exchange rate policies with a view to avoiding inconsistent situations and strategies. Moreover, the fact that certain monetary regimes have served well the monetary policy objectives in a number of Member States does not necessarily imply that this would be the case in the future, taking also account of exchange rate stability requirements. As a consequence, the choice of monetary and exchange rate regimes must be made in each case not on grounds of facility, for example in order to avoid ERM II constraints or because the current regime served the country concerned well in the past, but as a part of a plan to achieve specific policy objectives. Moreover, there is the risk that monetary strategies associated with floating exchange rate regimes may provide a way out of difficult but necessary choices and lead, thus, to a postponement of necessary adjustments. Therefore, preparation to accommodate requirements of exchange rate stability and entry into ERM II and to the euro area must be given timely and due attention.[35]

5. Capital mobility and ERM II: an adversary or an ally in the drive to euro membership?

This section examines, on the basis of existing evidence, first, the policies by which the risks of destabilising capital movements can be considerably reduced and, second, how to deal with such capital movements when they, eventually, occur. Free capital movements are an integral part of an open economic and financial system and can contribute importantly to economic efficiency and development, by making available financial resources and valuable know-how (in the case of foreign direct investment) where they are most needed. However, speculative capital movements had often been associated with currency instability and crises under fixed or quasi-fixed exchange rate regimes. This was the case within the EMS in the past, as well as in many instances elsewhere in the world.

How can capital mobility be best managed within the ERM II framework and what are the policy measures which could turn capital movements from an adversary into an ally in the convergence effort? Some tentative answers can be given to this question on the basis of past experience within the EMS as well as of international evidence. They include the following elements:

(i) Sound and sustainable economic, monetary and fiscal policies in order to enhance confidence in the prospects of the economy and avoid a situation which might invite an attack on the currency. A solid and well-supervised financial system and implementation of reforms in the labour, goods and services markets are indispensable elements of the policy package.

(ii) Clear and unambiguous commitment to the objectives of convergence and euro area membership and readiness to take corrective measures, if needed, to ensure their achieve-

34 Some authors do not share this view. Buiter (2004), for example, argues that the simultaneous pursuit of three nominal targets (i.e. inflation, nominal exchange rate and interest rate) involves significant risks.

35 According to the ECB, a number of new Member States are reviewing their monetary and exchange rate strategies in view of their future participation in ERM II (ECB, *Annual Report 2003*, April 2004).

ment; capacity to mobilise all available policy instruments to this end.

(iii) Transparency in economic policy-making and openness in dealing with Community and international institutions, the business community and the general public.

The factors under (i) above are indispensable elements of a consistent and credible convergence strategy. Readiness to adapt and take corrective measures is also essential; in this respect, the signals conveyed by capital movements and asset prices may be useful as early indicators of emerging difficulties. Furthermore, transparency and openness mentioned under (iii) above reduce uncertainty about the policies and intentions of policymakers and positively affect expectations (important factors in modern economies), thus exerting a stabilising influence.

As already noted, ERM II provides a more helpful framework for limiting speculative pressures — notably through the wider fluctuation margins which make one-way bets less likely— compared to the earlier, pre-1993 EMS. Furthermore, by focusing on the implementation of sound and sustainable policies, including structural reforms, the mechanism encourages timely corrective action and adjustments, thus reducing the risk of central rate misalignments. Both these elements enhance the usefulness of ERM II as a tool for streamlining stabilisation and convergence.

In addition to appropriate economic policies, a *sound financial system* is necessary in order to limit the risks of instability or delays in the convergence process. A fragile financial system may prove to be a serious constraint. For example, a policy of high interest rates considered necessary to defend the currency could create problems for domestic banks in the case of weak balance sheets.

Extensive *borrowing in foreign currency* by the banking and/or the corporate sector, not hedged or unmatched by receipts in foreign exchange (natural hedge) could also create problems for the banking sector and affect the performance of the economy more generally, putting at risk exchange rate policy and the implementation of the convergence process. Although enterprises make their commercial and financial decisions freely and assume the corresponding risks, vigilance should be exercised in relation to the potential impact of foreign currency exposure of the corporate sector and, in turn, of the banking system.

The above constitute indispensable elements of policies aimed at contributing to a safe drive towards EMU. They are, therefore, factors helping to *prevent* destabilising capital movements. However, speculative capital movements may occur for a number or reasons, including inappropriate policies, international factors beyond the control of the authorities or a combination of factors.[36]

The authorities should be in a position to cope with speculative capital movements when they occur.[37] Indeed, the authorities are not deprived

36 For a discussion of these issues see also Gibson and Tsakalotos (2004).

37 It may be useful in this regard to clarify that Community legislation, which provides for complete freedom of capital movements within the EU, does not distinguish between "speculative" and "non-speculative" capital movements. However, for analytical reasons a distinction between capital operations may be useful. "Pure" speculative capital movements can be considered as those involving borrowing in domestic currency with simultaneous selling against foreign exchange, in an attempt to force a devaluation of the domestic currency. If the devaluation takes place, speculators repay the loan and gain the difference.

of means of action in such situations despite general perceptions to the contrary. Experience shows that the monetary authorities do have ways of dealing effectively with the undesirable effects of massive capital movements, "speculative" or other. Such instruments include, in particular, interest rate changes, sterilisation operations or the imposition of reserve requirements and prudential measures within, of course, the margins allowed by Community law on free movement of capital and free provision of financial services.

It is, however, true that some of these measures do not, usually, provide a lasting solution to the problem of destabilising capital flows – which are often inherent to the convergence process. They, nevertheless, make it possible to cope with a difficult situation, gaining time in order to develop more sustainable solutions, by adapting economic policies and improving the policy mix.

The challenges the monetary authorities face in dealing with massive capital movements largely emanate from the unwelcome effects of measures taken to defend the exchange rate on monetary conditions and the economy in general. Such difficulties arise from the well-known difficulty of reconciling independent monetary policy with fixed exchange rates and free capital mobility. This implies, in practice, that interest rates are primarily used to defend the exchange rate — notably in the case of massive capital outflows — and cannot at the same time be used to adapt monetary policy to changing economic and monetary conditions, if this is not compatible with the exchange rate target.

Also, in the case of massive capital inflows, a reduction in interest rates to render domestic financial assets less attractive to foreign investors can lead to an undesirable loosening of monetary conditions. The unwelcome effects of capital inflows on the monetary base and liquidity can be met by sterilisation operations. Changes in reserve requirements can also be used. Despite the limits of sterilisation operations, they are useful tools in the short term, enabling the authorities to gain time and adapt the policy mix. The main drawback of sterilisation is the fact that, if successful in absorbing excess liquidity, it maintains domestic interest rates unchanged, thus continuing to attract foreign capital, perpetuating the excess liquidity problem which gave rise to the sterilisation operations in the first place.[38]

Although both situations pose difficult problems for the monetary authorities, massive capital outflows present often a more acute problem, as they may lead to the depletion of foreign reserves to defend the currency. They also necessitate rises, sometimes sharp, in interest rates, a development that could adversely affect economic activity and the financial situation of companies and financial institutions.[39]

38 Sterilisation may, also, be costly, as the replacement of high interest rate domestic securities for lower interest rate foreign securities in the balance sheet of the central bank implies loss of interest income for the bank.

39 It might look somewhat paradoxical, but the more sophisticated the financial sector, the more exposed the currency of the Member State concerned to speculative attacks seems to be, as it is easier to borrow in domestic currency in domestic or international financial markets (see footnote No. 37). For this reason (regardless of other aspects related, for example, to how strong the commitment to euro membership was) it was easier to attack the pound sterling during the 1992 EMS currency crisis than other currencies; an additional argument, in the same vein, is that a Member State with an international financial centre, such as London, is very reluctant to introduce measures which, although not incompatible with rules about freedom of capital movements or prudential measures, could be perceived as restrictive by the international financial community and thus not compatible with its reputation of an open financial centre. It emerges from the above that it is excessive to evoke, as some analysts do, the pound sterling's example during the 1992/93 EMS crisis, as a typical case of a speculative attack which new Member States could face during their participation in ERM II.

In the event of *balance of payments* difficulties, often taking the form of massive capital outflows and pressure on the currency in the foreign exchange markets, Member State(s) concerned may use the Community balance of payments facility foreseen in Article 119 of the EC Treaty.[40] The facility, providing medium-term financial support accompanied by economic terms, may be used only by Member States with a derogation (i.e. Member States not having adopted the euro), as participants in the monetary union are by definition not concerned, individually, with balance of payments problems.[41]

In conclusion, free movement of capital provides useful and timely information to the authorities about inconsistent or unsustainable policies, enabling timely action to remedy the situation. To fully exploit such precious early signals, a strategy of openness and transparency about policies, data and future plans should be in place. This strategy should also support full co-operation and openness in dealing with Community and international institutions, including acknowledgment of eventual difficulties. Such openness and transparency prevent incomplete information, which often leads to mis-information. As expectations are central in the operation of today's internationalised economies, where the role of financial markets is crucial, the best way to stabilise expectations and render them a stabilising instrument is openness and transparency.

6. Conclusions

The issue of euro area membership for the new Member States has occupied centre stage in policy discussions after May 2004. This paper examined the role of ERM II in the convergence effort of the new Member States, against the background of past convergence experience and in the light of EU rules for economic and monetary policy. ERM II is the framework for monitoring and assessing exchange rate stability and the sustainability of central rates, and plays a key role in the EU surveillance and co-ordination mechanisms. It provides both more flexibility and stability compared with earlier versions of the mechanism and should be seen as an instrument testing the consistency of policies, encouraging necessary adjustment and helping to achieve convergence.

ERM II rules are flexible enough to accommodate a number of new Member States' exchange rate regimes except those of free floating[42] (or managed float without a mutually agreed central rate) and currency boards based on currencies other than the euro. The choice of exchange rate regime should be made, in each case, as part of a plan to achieve specific policy objectives, before opting for ERM II membership and, in a second stage, to ensure a successful participation in the mechanism.

Decisions on the timing of ERM II participation will largely depend on whether convergence and structural reforms are well on track or whether uncertainties remain which might necessitate sizeable economic policy adjustments, including perhaps a change in the exchange rate. In the new Member States, the sustainability of progress

40 An analysis of this facility is provided in Papaspyrou (1993).
41 The facility for Medium-Term Financial Assistance for the Member States balance of payments (Council Regulation No. 332/2002, 28 February 2002) should be distinguished from the Very Short-Term Financing Facility, which is part of the ERM II arrangements and whose purpose is intervention in euro and in the participating non-euro area currencies.
42 See footnote 15.

made in these areas has to be tested under the competitive pressure of full EU membership and, further, under the rigorous framework of ERM II. It cannot be excluded that, in certain cases, delaying entry could be to the benefit of both the country concerned —to allow greater freedom in setting policy priorities— while also preserving the credibility of ERM II.

There is no, *a priori,* optimal duration for ERM II participation between the two-year legal minimum and a longer time period. The decisive element should be the progress made by the Member State concerned in achieving sustainable convergence. However, the participation period should not be too long as, in such a case, there is a risk that convergence momentum is lost and the commitment to the euro may fade.

The choice of the appropriate monetary and exchange rate strategy would influence the timing of ERM II entry and the outcome of the whole effort for meeting the Maastricht convergence criteria. Available evidence suggests that both exchange rate-based monetary regimes as well as inflation targeting regimes can lead to a successful outcome, if accompanied by sound economic and fiscal policies.

Macroeconomic stabilisation, pursued in order to achieve the nominal convergence, criteria, is also compatible with real convergence, i.e. the capacity to achieve, in parallel, high enough rates of real GDP growth in order to maintain progress towards real convergence. Experience has shown that the two processes can be mutually supported, notably if the process of nominal convergence acquires enhanced credibility, thus affecting the formation of key variables such as interest rates, wages and prices. Moreover, convergence of new Member States' economies to the EU average will be supported by funds allocated through the EU budget.

Particular attention was paid to policy issues and risks associated with the free movement of capital. Risks of destabilising capital movements can be considerably reduced by the implementation of sound and sustainable economic policies. Furthermore, transparency and openness in economic policy reduce uncertainty about current policies and future plans, contributing to a stable economic and financial environment. Capital movements also provide useful and timely information to the authorities about inconsistent and unsustainable policies, enabling timely corrective action.

However, massive short-term capital movements may occur and the authorities should be in a position to cope with such a situation. Monetary authorities have at their disposal ways to deal effectively with the undesirable effects of massive capital movements; such instruments include, in particular, interest rate changes and sterilisation operations. Such measures may not constitute lasting solutions but make it possible to cope with a difficult situation, gaining time in order to develop more sustainable solutions by adapting economic policies and improving the policy mix.

Finally, it emerges from the analysis that existing Community institutions, rules and mechanisms provide a helpful framework to guide the convergence effort of new Member States towards EMU. It is therefore essential that new Member States make full use of the institutions, mechanisms and assistance available through EU instruments in order to enter EMU.

Annex

Table A
Exchange rate and monetary regimes in new Member States

	Exchange rate strategy	Currency	Features
Cyprus	Peg to the euro, with a ±15% fluctuation band	Cyprus pound	
Czech Republic	Free float	Czech koruna	Inflation targeting 2-4% by end-2005
Estonia*	Currency board to the euro	Estonian kroon	Introduced in 1992
Hungary	Peg to the euro, with a ±15% fluctuation band	Hungarian forint	Exchange rate regime combined with inflation targeting: 4.0% by end-2005
Latvia	Peg to the SDR (euro weight: 29%)	Latvian lat	Exchange rate band ±1%
Lithuania*	Currency board to the euro	Lithuanian litas	Introduced in 1994. Repegged from the US dollar to the euro in February 2002
Malta	Peg to a basket	Maltese lira	Currency basket (euro: 70%, US dollar, pound sterling) Exchange rate fluctuation band: ±0.25%
Poland	Free float	Polish zloty	Inflation targeting: 2.5% (with ±1 percentage point tolerance) after 2003
Slovakia	Managed float	Slovakian koruna	
Slovenia*	Managed float	Slovenian tolar	Prominent role of monetary aggregates; the euro is used informally as reference currency

* Joined ERM II with effect from 28 June 2004.
Sources: ECB, *Annual Report 2002,* and national central banks.

Table B

New Member States of the EU from 1 May 2004 (EU–10)

	2003												2002	Annual average 2000-2003	
	Population (in million)	Nominal GDP (in € billion)	Per capita GDP, (in €)	Per capita GDP, in € and PPS*	Per capia GDP, in PPS*, EU-15 = 100	Change in real GDP	HICP inflation (annual average)	Unemployment rate	General government balance as % of GDP	General government debt as % of GDP	Current account balance, as % of GDP	Real effective exchange rate (1995= 100)**	Foreign direct investment (net inflow, as % of GDP)	Greece's exports to EU-10 as % of Greece's total exports	Greece's imports from EU-10 as % of Greece's total imports
Cyprus	0.8	11	14,063	18,930	78.0	2.0	4.0	4.4	–6.3	72.2	–4.4	104.5	4.3	4.76	0.26
Czech Republic	10.2	76	7,417	15,236	62.7	2.9	–0.1	7.8	–12.9	37.6	–6.5	134.8	13.4	0.53	0.50
Estonia	1.4	7	5,460	10,230	42.2	4.8	1.4	10.0	2.6	5.8	–13.7	146.3	4.4	0.05	0.01
Hungary	10.2	72	7,092	13,400	55.3	2.9	4.7	5.8	–5.9	59.0	–5.7	137.6	1.8	0.54	0.38
Latvia	2.3	9	3,756	8,890	36.6	7.5	2.9	10.5	–1.8	15.6	–9.1	134.9	4.6	0.05	0.02
Lithuania	3.5	16	4,488	10,050	41.4	8.9	–1.1	12.7	–1.7	21.9	–6.1	177.8	5.3	0.07	0.02
Malta	0.4	5	11,353	16,800	69.2	0.4	1.3	8.2	–9.7	72.0	–3.4	104.6	8.8	1.06	0.05
Poland	38.2	185	4,830	10,400	42.9	3.7	0.7	19.8	–4.1	45.4	–2.0	123.5	2.2	1.13	0.44
Slovakia	5.4	29	5,446	11,900	49.1	4.2	8.5	17.1	–3.6	42.8	–0.9	133.7	17.0	0.16	0.15
Slovenia	2.0	24	12,279	16,920	69.7	2.3	5.7	6.5	–1.8	27.1	0.2	104.2	8.3	0.26	0.09
EU-10	**74.2**	**434**	**5,843**	**11,810**	**48.7**	**3.6**	**2.1**	**14.3**	**–5.7**	**42.2**	**–3.7**		**5.8**	**8.61**	**1.93**
Greece	11.0	153	13,928	17,820	73.6	4.2	3.4	9.3	–3.0	103.0	–7.0	105.1		100.00	100.00
EU-15	*379.0*	*9,197*	*24,268*	*24,300*	*100.0*	*0.8*	*2.0*	*8.0*	*–2.6*	*64.0*	*0.2*	*100.5*		*44.87*	*55.54*
EU-25	*453.2*	*9,711*	*21,428*	*22,220*	*91.7*	*0.9*	*2.0*	*9.0*	*–2.7*	*63.1*	*0.1*			*53.48*	*57.47*
EU-10/EU-15	20%	5%	24%	49%	49%									19%	3%

* PPS=Purchasing Power Standards.

** The real effective exchange rate referred to here is calculated by the European Commission on the basis of the nominal effective exchange rate and the relative developments of the private consumption deflator among 24 industrial countries, main trading partners of the new MS.

Note: Data on net FDI for Malta refer to 2001.

Sources: Bank of Greece, *Annual Report 2003*, based on data by Eurostat, European Commission, IMF, National Statistical Service of Greece and Bank of Greece calculations.

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Education and economic inequalities*

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1. Introduction

The question of income distribution has always been at the forefront of economic debate. Of fundamental importance to both social peace and development, income distribution continues, as in the past, to be a matter of theoretical debate and controversy, as well as a source of ideological conflict. Researchers first focused on what is known as the *functional* distribution of income (i.e. how total income is distributed among factors of production: labour, capital and land). The literature on the *personal* distribution of income (i.e. the distribution of income among family units or households) is relatively more limited and fragmentary, with attention usually targeted at explaining the shape of the income distribution curve. More recently, however, efforts have been made to interpret the rising inequality trends observed in several developed countries over the past two decades.

In recent years inequality and poverty have also been at the centre of Greek political debate. However, the arguments frequently put forward with regard to the size, structure and evolution of inequality are insufficiently documented or contradict the findings of available empirical studies. Furthermore, too much emphasis seems to have been placed on secondary or even less important determinants of economic inequality (demographic, regional, etc.), while far too little has been said about the decisive role of education. This study will attempt to resolve this confusion

* This article reflects the opinions of the author and not necessarily those of the Bank of Greece. The author is grateful to Heather Gibson, Vassilios Droukopoulos and Isaac Sabethai for their helpful comments and suggestions.

as much as possible. Furthermore, the increase in economic inequalities observed over the last few decades in several EU countries, and more recently in Greece, warrants a more thorough investigation of this phenomenon and its determinants.[1] The present study will therefore focus on the structure and determinants of inequality, mainly in Greece and the EU countries. Particular attention is given to the regional dimensions of inequality and to highlighting the fundamental role of education.

Section 2 presents the statistical data and describes some of the methodological issues associated with the analysis of inequality. Section 3 presents the methodology and technique used to estimate the contribution of individual factors to aggregate inequality. Section 4 analyses the empirical findings relating to the role of regional and educational inequalities. The structure and the determinants of inequality in the countries of the EU are examined in Section 5, while our conclusions and certain policy proposals are formulated in Section 6.

2. Data and methodology

The data used in this study came from two sources. Firstly, micro-data was drawn from the last Household Budget Survey (HBS) of the entire population of Greece conducted from October 1998 to September 1999 by the National Statistical Service of Greece (NSSG). For the purposes of this study, we used data on both consumption expenditure and household income.[2] Consumption expenditure was defined as including the value of goods and services purchased plus imputed consumption expenditure (consumption of own production, income in kind, imputed rent, etc.). These expenditures were also added to the current income of households. Some adjustments were made to the initial HBS data so that the population's level of well-being could be better approximated. More specifically, all consumption expenditure and income figures were expressed at constant 1999 prices, a certain number of households (only 54 out of 6,276) were removed from the initial sample because the information they provided was considered either insufficient or unreliable, and the sample was reweighted based on the results of the 1999 Labour Force Survey. Also, the values of imputed car services were estimated and added to both consumption expenditure and household income (while the value of cars purchased was subtracted from consumption expenditure).

For almost all of the EU countries, our findings were consistent with the latest data from the European Community Household Panel (ECHP) survey. This second source of data was used to examine the structure of inequality and analyse inequality determinants in the EU-15. The main purpose of the ECHP income survey is to provide recent and comparable information on households and their members, in terms of personal income, employment and working conditions, health and various other social indicators concerning their living conditions, by recording various household characteristics (composition,

1 On the recent evolution of inequality in Greece, see Mitrakos and Tsakloglou (2003) and Mitrakos (2003). As shown by these studies, the high and rather steady level of inequality observed since the early 1980s continued into the early or mid-1990s and since then may even have increased.

2 For a comparative analysis of income and consumption data from earlier HBSs and corresponding national accounts data, see Kanellopoulos (1986) and Sarris and Zografakis (1993).

employment, education, income, etc.) over consecutive years. The ECHP is thus a recurring and ongoing survey, which at various points in time (waves) collects information from the same initial sample of households and individuals, even when individuals move or otherwise join or form another household. The fact that the questionnaires were designed in close consultation with the Member States, under Eurostat supervision and guidelines, seems to have ensured a high degree of data comparability across the EU.[3] This sample survey has been conducted every year since 1994 and interviews a total of some 60,000 households and 128,000 individuals aged 16 years and over in the EU-15. The seventh wave of the ECHP survey, used in the present study, concerns the year 2000.[4]

Any attempt to empirically examine economic inequality must inevitably address a series of methodological issues. One such issue is the level of analysis: Should the analysis of inequality take place at the level of the individual or at that of the household? Owing to the considerable differences in size usually observed between rich and poor households, it is easy to see how the selection of the analysis level could influence results. Two other important facts, regardless of the unit of analysis chosen, need to be taken into account: the existence of economies of scale in household consumption, and the difference in needs between adults and minors, which call for the use of what are known as "family equivalence scales". In the present study, we chose the individual as the unit of analysis, while the distribution data were equivalised to make allowances for economies of scale and differences in needs between adults and minors. More specifically, the distributions we chose to use concerned the *per capita* equivalent consumption expenditure and equivalent current (disposable) income, both of which were calculated by dividing the expenditure and income of each household by the number of equivalent adults, and assigning the quotient to each member of the household. In order to calculate the number of equivalent adults in each household, we used Eurostat's family equivalence scales (Hagenaars *et al.*, 1994), which assign weights of 1 to the household head, 0.5 to each additional adult in the household and 0.3 to each child (aged up to 13 years). It is interesting to note that the results presented in the following sections were only slightly affected when alternative equivalence scales were used.

Choosing a measure of inequality and, in particular, a suitable way to estimate the structure and dimensions of inequality are another major difficulty. There are two general approaches in the international literature on how to estimate inequality between the members of a community or population.[5] The first approach always consists in a full ranking of the distributions to be compared, since it attempts to describe and incorpo-

3 For a detailed presentation of the methodology used in the ECHP survey, see Eurostat (1996), Volume 1.

4 The eighth wave of the ECHP, made available only recently, was also the last (problems caused by the non-replacement of households that had left the survey seem to be the main reason why the ECHP survey was stopped). Since 2003, Eurostat has been conducting a new survey entitled "European Union-Statistics on Income and Living Conditions (EU-SILC)" across the EU. The NSSG has already conducted two waves of the SILC study in Greece (for 2003 and 2004) and, before that, extended the previous ECHP survey by one year by conducting an extra (ninth) wave for the year 2002.

5 The literature on how to measure inequality is very extensive. Particularly interesting overviews can be found *inter alia* in Atkinson (1970), Sen (1973, 1992), Champernowne (1974), Kakwani (1980), Kanbur (1984), Foster (1985), Jenkins (1991), Lambert (1993), Cowell (1995). For a presentation of the techniques widely used to measure inequality in Greece on the basis of Greek data, see Mitrakos (2003).

rate the characteristics and the dispersion into a simple statistical inequality index. The second standard approach (using the Lorenz curves) often leads to a partial ranking of the distributions to be compared. Since different indices can lead to different results, we are therefore faced with the problem of which index to choose. Moreover, since each index places emphasis on a different type of inequality, depending on the weighting system used by the specific index to co-estimate the respective differences in the various parts of the distribution, we must bear in mind that all inequality indices involve some element of subjectivity. Each index corresponds directly or indirectly to a different function of social well-being and, since there is no unanimously acceptable function of social well-being, there can be no universally accepted inequality index. The form and properties of the social well-being function selected each time are decisive factors and lead to the construction of different "normative" inequality indices, which do not necessarily yield the same results.

Since there is no general consensus on one suitable index for measuring and analysing the inequality of a distribution, we decided for the purpose of the present study to adopt two widely used inequality indices: the Theil index *(T)* and the mean logarithmic deviation *(N)*. These two indices were selected on the basis of the following criteria: First, the indices satisfy all the axioms that are considered particularly desirable in the relevant literature (symmetry, mean independence, population size independence, and the principle of transfers).[6] Second, the Theil index is relatively more sensitive to transfers in the upper tail of the distribution, while the mean logarithmic deviation is more sensitive in the lower tail (Champernowne, 1974; Cowell, 1975). Third, these indices enable the dissociation between the "between-group inequality" component of aggregate inequality and the "within-a-population-group" component. This property of decomposability is presented and systematically put to use in the following sections of the study.

3. Methodology used to estimate the contribution of respective factors to inequality

In the past few years, much of the literature on the structure of inequality has systematically focused on decomposing overall inequality into various components. The view has been advanced that some inequality measures have the particularly useful feature of being decomposable in such a way as to estimate the contribution to aggregate inequality from respective factors (inequality decomposition by population subgroups).[7]

Indeed, a number of inequality measures can be used to decompose overall or aggregate inequal-

6 As already stressed, the approach of inequality measures is axiomatic. In other words, an inequality measure is considered suitable if it satisfies the following axioms: symmetry (the measure of inequality must remain unchanged when individuals switch places in the income order), mean independence (the measure must remain unaffected by the income unit measure), population independence (the measure must remain unaffected if two or more identical population groups merge) and the Dalton-Pigou principle of transfers (any progressive transfer of income between two members of the population that does not modify their income order must lead to a decrease in index value).

7 For some useful applications of aggregate inequality decomposition, see *inter alia* Cowell (1980), Shorrocks (1980, 1984), Anand (1983), Kanbur (1984), Cowell and Jenkins (1995), Jenkins (1995). For the application of the same techniques on Greek data, see Tsakloglou (1993), Mitrakos and Tsakloglou (1997, 2000, 2003), Mitrakos, Panopoulou and Tsakloglou (2001).

ity into its between-group and within-group components once the population has been divided into mutually exclusive sub-groups on the basis of various criteria (region, age group of the household head, occupation, etc.). The share of between-group inequality can be defined as the value of the inequality measure once all the within-group income differences have been artificially eliminated. In other words, it is the value of the inequality measure for the hypothetical distribution where the earnings of each individual within the same group are equal to the group's mean. Thus, within-group inequality is eliminated, and what remains are the between-group income differences. Similarly, within-group inequality can be defined as the value of the inequality measure when between-group income differences are eliminated, but the within-group income differences remain steady. In other words, it is the value of the inequality measure for a hypothetical distribution where each group mean is equal to the overall mean. Such a situation can arise when the income of all individuals within the same group changes proportionally and only has meaning when the specific inequality measure satisfies the mean independence axiom. Whenever an inequality measure can be expressed as the sum of the two respective inequalities (within and between groups), as previously defined, it is considered "additively decomposable". Using such indices, it is possible e.g. to estimate the percentage contribution to aggregate inequality of each region, as well as that of interregional (between-region) inequality.

The Theil index (T) and the mean logarithmic deviation (N) selected for the present study belong to this category of "additively decomposable" inequality measures. These indices can be expressed with the following equations:

$$\mathrm{T} = \frac{1}{n}\sum_{i=1}^{n}\frac{y_i}{\mu}\ln\left(\frac{y_i}{\mu}\right) \tag{1}$$

$$\mathrm{N} = \frac{1}{n}\sum_{i=1}^{n}\ln\left(\frac{\mu}{y_i}\right) \tag{2}$$

where:

y_i is the expenditure or the income of individual i (i= 1, ..., n),
n is the size of the population, and
μ is the arithmetic mean of the adopted distribution.[8] When the population is decomposed into J non-overlapping groups, these indices can be reformulated as follows (Anand, 1983):

$$\mathrm{T} = \sum_{j=1}^{J}\frac{n_j\mu_j}{n\mu}T_j + \sum_{j=1}^{J}\frac{n_j\mu_j}{n\mu}\ln\left(\frac{\mu_j}{\mu}\right) \tag{3}$$

$$\mathrm{N} = \sum_{j=1}^{J}\frac{n_j}{n}N_j + \sum_{j=1}^{J}\frac{n_j}{n}\ln\left(\frac{\mu}{\mu_j}\right) \tag{4}$$

where:

n_j is the size of the population, μ_j is the arithmetic mean of the adopted distribution, and T_j and N_j are the T and N indices of group j. When using equations 3 and 4, the adopted inequality measures are additively decomposable. Indeed, aggregate inequality can be expressed as the weighted sum of the indices themselves for the various sub-groups ("within-group" inequality), plus the value of the index if all members within one same group have incomes equal to the group mean ("between-group" inequality).

8 It is apparent from these equations that the T and N indices will take on values ranging between zero and ln (n) and between zero and infinity, respectively. It should be noted that the absolute values of the two indices are not intercomparable and that only the values of the same index can be compared.

4. Empirical results

In this section we perform a series of successive decompositions of overall inequality into "between-group" and "within-group" components, using two variables: current consumption expenditure and the current income of households, as drawn from 1998/99 HBS data. As already noted, we chose the individual as the unit of analysis and converted the distributions into equivalent *per capita* terms using the Eurostat equivalence scales.

The results of our inequality decompositions presented in Tables 1-4 contain estimates for the T and N indices for the respective groups, together with population shares and the mean relative equivalent consumption expenditure/income of these groups (national mean: 100.0). The values quoted in parentheses under the respective index values represent the percentage contribution of "within-group" inequality. These contributions for the T and N indices are equal to $100(n_j\mu_j/n\mu)T_j/T$ and $100(n_j/n)N_j/N$, respectively. The last row of each table indicates the size of aggregate inequality, while the percentage contributions of between- and within-group inequality are given in the two previous rows.

4a. The role of regional inequalities

In this first sub-section, we present the results of our decomposition of overall inequality into intraregional and interregional components. The population was divided into groups depending on the region and the type of locality, as determined by the size of the households' municipality or community of residence.

The results of our overall inequality decomposition by household region of residence are presented in Table 1. The differences between regions in the relative mean values of equivalent expenditure and income seem very important. The ratio of the highest average equivalent expenditure (Athens region) to the lowest (Western Macedonia) is 1.64, which, at first glance, seems to denote relatively important regional disparities. The corresponding income distribution ratio is 1.45. This result not only coincides with the conclusions of earlier studies for Greece (Geronymakis, 1970; Prodromidis, 1975; Voloudakis and Panourgias, 1980),[9] but also supports the widely accepted view that Greece presents significant regional disparities in terms of well-being. However, interregional inequality was found to account for only 6.1%-11.1% of overall inequality depending on the distribution and the index used. This important finding suggests that even a total elimination of interregional inequalities would only have a limited effect on the level of overall inequality. What this means in more practical terms is that even if a government were to redistribute total expenditure (income) and make each region's mean expenditure (income) equal to the national mean, the overall inequality in the expenditure (income) distribution would not fall by more than 11.1% (6.4%) so long as the level of intraregional inequality remained unchanged. It is also worth noting that the two inequality indices used (T, N) produced only slightly different results, whereas the selection of the variable (expenditure, income) seems to have a

9 For more recent studies, see Petrakos and Saratsis (1997), Vassilopoulos and Bila (1995) and the bibliographical references contained in the latter.

Table 1
Measurement and decomposition of inequality by region

Classification criterion: Household region of residence	Population shares (%)	Distribution of consumption expenditure			Distribution of current income		
		Mean equivalent expenditure	Theil index	Mean logarithmic deviation	Mean equivalent income	Theil index	Mean logarithmic deviation
Greater Athens	34.2	123.8	0.151 (39.2)	0.147 (31.8)	119.3	0.190 (41.4)	0.170 (32.9)
Greater Salonika	8.8	106.2	0.124 (7.1)	0.120 (6.7)	104.8	0.124 (6.1)	0.125 (6.3)
Eastern Macedonia and Thrace	5.5	76.9	0.143 (3.7)	0.146 (5.1)	82.5	0.213 (5.2)	0.202 (6.3)
Central Macedonia	7.8	83.0	0.138 (5.5)	0.139 (6.9)	84.0	0.157 (5.5)	0.154 (6.8)
Western Macedonia	2.8	75.5	0.111 (1.4)	0.112 (2.0)	82.2	0.167 (2.0)	0.160 (2.5)
Epirus	3.1	77.6	0.168 (2.5)	0.172 (3.4)	82.9	0.140 (1.9)	0.148 (2.6)
Thessaly	6.0	80.3	0.141 (4.2)	0.140 (5.4)	85.3	0.195 (5.3)	0.178 (6.1)
Ionian islands	2.1	89.7	0.106 (1.2)	0.107 (1.4)	100.4	0.204 (2.3)	0.187 (2.2)
Western Greece	5.9	82.0	0.224 (6.6)	0.157 (5.8)	84.1	0.155 (4.1)	0.153 (5.1)
Mainland Greece	4.6	90.6	0.146 (3.8)	0.140 (4.1)	90.1	0.154 (3.4)	0.152 (4.0)
Rest of Attica	4.8	95.4	0.145 (4.1)	0.154 (4.7)	88.3	0.200 (4.6)	0.211 (5.8)
Peloponnese	5.0	88.9	0.144 (3.9)	0.141 (4.5)	91.2	0.179 (4.3)	0.172 (4.8)
Northern Aegean	2.1	ζ83.7	0.113 (1.2)	0.119 (1.6)	93.9	0.208 (2.2)	0.188 (2.2)
Southern Aegean	3.1	99.4	0.103 (2.0)	0.106 (2.1)	91.8	0.148 (2.3)	0.145 (2.6)
Crete	4.2	84.1	0.136 (2.9)	0.135 (3.6)	97.3	0.153 (3.3)	0.152 (3.6)
"Within" group inequality			*89.3%*	*88.9%*		*93.9%*	*93.6%*
"Between" group inequality			*10.7%*	*11.1%*		*6.1%*	*6.4%*
National total	**100.0**	**100.0**	**0.163**	**0.158**	**100.0**	**0.187**	**0.177**

Source: Calculations based on primary HBS data of 1998/99.

more decisive impact. The figures in Table 1 do not point to any clear relationship between the regions' absolute level of inequality and their mean expenditure and income (i.e. their standards of living).

Our estimates of the contribution of locality to overall inequality are presented in Table 2. Here, inequality was decomposed on the basis of the size of the individuals' municipality or community of residence. Depending on their place of residence, the HBS households were grouped into three main categories: urban, semi-urban and rural (note: urban households were then further divided into two sub-categories). The results indicate that the mean values of the two distributions are clearly and positively correlated to locality size, whereas the level of inequality (T and N indices) is not. The mean equivalent expenditure of Greece's two major urban centres is 62.9%

Table 2
Measurement and decomposition of inequality by size of municipality/commune

Classification criterion: Type of locality	Population shares (%)	Distribution of consumption expenditure			Distribution of current income		
		Mean equivalent expenditure	Theil index	Mean logarithmic deviation	Mean equivalent income	Theil index	Mean logarithmic deviation
Greater Athens & Salonika	43.0	120.2	0.148 (46.9)	0.143 (39.0)	116.3	0.179 (47.9)	0.163 (39.5)
Other urban areas (over 10,000 inhabitants)	23.1	93.4 (17.5)	0.133 (19.5)	0.134	95.4 (19.1)	0.163 (21.3)	0.164
Semi-urban areas (2,000-10,000 inhabitants)	12.2	88.4	0.174 (11.5)	0.148 (11.4)	92.9	0.186 (11.2)	0.174 (11.9)
Rural areas (up to 2,000 inhabitants)	21.8	73.8	0.134 (13.2)	0.134 (18.5)	76.6	0.170 (15.2)	0.162 (20.0)
"Within" group inequality			*89.0%*	*88.4%*		*93.3%*	*92.7%*
"Between" group inequality			*11.0%*	*11.6%*		*6.7%*	*7.3%*
National total	**100.0**	**100.0**	**0.163**	**0.158**	**100.0**	**0.187**	**0.177**

Source: Calculations based on primary HBS data of 1998/99.

higher than the corresponding expenditure of rural regions, while, in terms of mean equivalent income, the interregional disparities were found to be smaller (51.8%). In spite of the important differences in the mean values obtained for the variables, inequality between areas with a different locality size does not account for more than 11.6% of overall inequality.

In summary, the analytical results of Tables 1 and 2 indicate that the contribution of regional factors to aggregate inequality in Greece is fairly limited.[10] This finding is particularly reliable: not only does it remain valid when we used a different inequality measure, distribution, equivalence scale, unit of reference, but it also remains valid through time.[11] However, it contradicts the widely accepted view that interregional inequalities or disparities between urban and rural regions are responsible for a significant share of economic inequality in Greece.

10 Several studies in the international literature have also recorded a relatively small contribution of between-region inequality to aggregate inequality (Bell *et al.*, 1994; Jenkins, 1995; Parker, 1999, for the United Kingdom, del Rio and Ruiz-Castollo, 1997, for Spain, Cardosa, 1997 for Portugal, etc.). In the United Kingdom, for instance, differences between the country's 12 regions were found to account for a mere 3.1%-3.7% of aggregate inequality (Jenkins, 1995). However, the contribution of regional inequalities seems to be relatively more important in less developed and more inegalitarian rural economies (Tsui, 1993, Cowell, 1995 for China; Anand, 1993, for Malaysia; Mishra and Parikh, 1992, for India; Fields and Schultz, 1980, for Colombia, etc.). Obviously, larger countries with more numerous and unevenly developed regions can be expected to present greater interregional discrepancies.

11 In studies based on earlier HBS data (Tsakloglou, 1993, 1997; Mitrakos and Tsakloglou, 1997), regional factors do not usually account for more than 10% of aggregate inequality. One possible exception is the study of Carantinos (1981), which estimated that 25.9% of aggregate inequality in 1974 was attributable to differences between urban and rural regions. This finding can most likely be explained by the fact that Carantinos used sub-aggregate data on consumption expenditure that largely conceal intraregional differences.

Table 3
Measurement and decomposition of inequality by educational level of household head

Classification criterion: Educational level	Population shares (%)	Distribution of consumption expenditure			Distribution of current income		
		Mean equivalent expenditure	Theil index	Mean logarithmic deviation	Mean equivalent income	Theil index	Mean logarithmic deviation
University graduate	15.2	155.1	0.151 (21.8)	0.140 (13.5)	160.0	0.165 (21.5)	0.150 (12.9)
Upper secondary education completed	26.7	111.1	0.111 (20.0)	0.110 (18.5)	105.7	0.131 (19.7)	0.129 (19.4)
Lower secondary education completed	10.9	93.7	0.133 (8.3)	0.133 (9.2)	95.0	0.181 (10.0)	0.169 (10.4)
Primary education completed	36.6	80.6	0.113 (20.4)	0.112 (26.1)	82.1	0.148 (23.7)	0.139 (28.8)
Primary education not completed	10.6	66.3	0.172 (7.4)	0.160 (10.7)	66.3	0.144 (5.4)	0.145 (8.7)
"Within" group inequality			*78.0%*	*78.2%*		*79.7%*	*79.8%*
"Between" group inequality			*22.0%*	*21.8%*		*20.3%*	*20.2%*
National total	**100.0**	**100.0**	**0.163**	**0.158**	**100.0**	**0.187**	**0.177**

Source: Calculations based on primary HBS data of 1998/99.

4b. The role of education

Considerable international literature focuses on the impact of education on the personal distribution of income and/or consumption. Most of these studies examine income from labour and draw on the theory of human capital. This theory roughly concludes that, *ceteris paribus*, the earnings of individuals with different education levels in a perfectly competitive economy tend to differ, whereas their consumption expenditure does not differ significantly. Differences in levels of consumption expenditure can arise either because of imperfections in specific markets (goods, production factors, etc.) or because the education level of individuals is related to other features that influence their consumption behaviour.[12]

To obtain the results presented in Table 3, we used the same decomposition technique as before, only this time we divided the sample population into 5 groups depending on the educational level of the household heads, ranging from "university graduates" at the upper end to "primary education not completed" at the lower. Since the educational level of the household head seems to be closely related to that of the other household members, the results of this table are all the more indicative of the link between education and inequality.

12 For Greece, see Psacharopoulos (1982, 1988), Psacharopoulos and Kazamias (1985), Lambropoulos and Psacharopoulos (1992), Patrinos (1992, 1995), Chryssakis (1993), Kanellopoulos (1996), Kanellopoulos and Psacharopoulos (1997), Papatheodorou and Pichaud (1998), Tsakloglou and Antoninis (1999).

Three interesting conclusions can be drawn from the figures of Table 3. First, there is a strong positive correlation between the education level of the household head and the mean values of the expenditure and income distributions. In addition, the mean values obtained for the two variables differ significantly from one education-level group to the other. For instance, the mean equivalent expenditure of households headed by a university graduate is more than double the expenditure of households whose head has not finished primary school. This relationship is even stronger for the current income distribution, with the ratio of mean incomes reaching 2.41. Second, with nearly all of the indices and variables, the absolute levels of inequality recorded for the various education-level groups were significantly lower than the respective level of inequality for the entire population. Third, since the inequality within each of the respective education-level groups is relatively low, whereas intergroup differences, in terms of mean values, were found to be particularly important, between-group inequality can thus be termed significant, especially considering that our population sample was only divided into 5 groups. More specifically, between-group inequality contributed 20%-22% to aggregate inequality,[13] thereby suggesting that educational inequalities are more closely related than other determinants to economic inequalities. This rather important finding further implies that policies aimed at reducing educational inequalities can be fundamentally instrumental in reducing aggregate inequality.[14]

4c. The influence of other demographic and occupational factors

We still need to examine whether the use of other criteria to break down the population modifies the previously obtained results. The answer to this question is provided in Table 4, for which the population was broken down by a number of demographic characteristics (household head gender and age group, household size) and occupational characteristics (insurance, type of profession, occupational status and sector of activity). Apart from the percentage contribution of between-group inequality obtained at this stage, we also chose to reproduce the corresponding results of Tables 1-3 in the top three rows of the table to facilitate comparisons. In all of the new classifications based on the households' demographic characteristics, between-group inequality never accounts for more than 5% of aggregate inequality. More specifically, the highest contributions to inequality that can be attributed to household head gender, household size and household head age group are just 0.2%, 2.8% and 4.4%, respectively. In contrast, the contribution of occupational factors is more important, with the household head's insurance organisation, type of profession, occupational status and sector of activity accounting respectively for as much as 17.5%, 16.8%, 6.4% and 11.9% of aggregate

13 In other studies using similar population decomposition and grouping approaches, education characteristics were found to account for 22.1% of aggregate inequality in Spain (del Rio and Ruiz-Castillo, 1997), 27.0% in Portugal (Cardosa, 1997) and 18.3% in the US (Johnson and Shipp, 1997).

14 The findings of a number of empirical studies have shown that the improvement in Greece's educational system in recent decades has led to a decrease in economic inequality. This was mainly due to interventions at primary and secondary education levels. The redistributional role of public tertiary education has been seriously called into question, since its financing from tax revenues and primarily through indirect taxation places a proportionally higher burden on the lower-income classes whose participation in this level of education is comparatively smaller (Athanassiou, 1984; Psacharopoulos and Kazamias, 1985; Psacharopoulos, 1988; Patrinos, 1992; Lambropoulos and Psacharopoulos, 1992; Chryssakis 1993; Kanellopoulos and Psacharopoulos, 1997; Tsakloglou and Antoninis, 1999; Asteriou and Agiomirgianakis, 2001).

Table 4
Aggregate results of the decomposition of overall inequality:
Percentage contribution of "between-group" inequality

Classification criterion:	Number of population groups	Distribution of consumption expenditure		Distribution of current income	
		Theil index	Mean logarithmic deviation	Theil index	Mean logarithmic deviation
Region of residence	15	10.7	11.1	6.1	6.4
Type of locality	4	11.0	11.6	6.7	7.3
Level of education	*5*	*22.0*	*21.8*	*20.3*	*20.2*
Gender	2	0.1	0.1	0.2	0.2
Household size	6	2.5	2.8	2.5	2.7
Age group	7	4.0	4.4	1.8	2.0
Insurance organisation	17	16.4	17.3	16.7	17.5
Type of profession	12	16.8	16.6	14.3	14.3
Occupational status	6	6.4	6.4	5.6	5.9
Sector of activity	19	11.8	11.9	8.9	9.0

Source: Calculations based on primary HBS data of 1998/99.

inequality. However, even these maximum percentage contributions fall short of the values obtained for education, which alone accounts for almost one fourth of aggregate inequality in spite of our very basic decomposition of the population into only 5 education-level groups.[15]

Finally, it is worth noting that our findings are corroborated by the results of the multivariate decomposition analysis of inequality. Even when the population was broken down into as many as 560 small and extremely homogenous groups, the four variables (locality, household composition and the household head's occupational status and education level) jointly accounted for roughly 1/3 of aggregate inequality, whereas only the education level of the household head seems to retain its significant independent explanatory power. Furthermore, this finding remains valid over time, and is even further confounded by sensitivity analysis with regard to the unit of reference and the equivalence scales. In other words, educational inequalities seem to be more closely related than other demographic and socio-economic factors to economic inequality.

5. The structure of inequality in the EU countries

In this section, we examine the structure of inequality based on the distribution of dispos-

15 Some of these classifications, with results similar to those previously presented, have also been used by Mookherjee and Shorrocks (1982), Bell *et al.* (1994), Jenkins (1995) and Parker (1999) for the United Kingdom, Borooah *et al.* (1995) for Northern Ireland, Cowell (1984), Cowell and Jenkins (1995) for the US, Burkhauser *et al.* (1997) for the US and Germany, and Cardosa (1997) for Portugal.

Table 5
Aggregate results of the decomposition of overall inequality in the EU-15

Country	Level of overall inequality: mean logarithmic deviation	Percentage contribution (%) of "between-group" inequality using the following classification criteria:		
		Type of household (12 groups)	Occupational status of the reference person (12 groups)	Educational level of the reference person (3 groups)
Austria	0.106	8.9	10.4	6.1
Belgium	0.164	10.2	9.3	12.2
Denmark	0.085	18.0	14.7	8.7
Finland	0.098	16.0	16.3	12.0
France	0.139	5.1	20.9	19.8
Germany[1]	0.112	6.4	3.3	10.5
Greece	0.198	5.1	16.5	23.4
Ireland	0.154	9.8	21.7	18.1
Italy	0.166	3.1	13.5	10.4
Luxembourg[1]	0.113	7.9	13.1	22.9
Netherlands	0.112	13.8	9.0	-
Portugal	0.228	6.4	24.5	28.3
Spain	0.199	2.7	21.3	20.0
Sweden	0.114	16.7	-	6.5
United Kingdom[1]	0.186	14.7	13.0	6.6

1 These countries have incorporated primary data from other surveys conducted nationwide into the ECHP.
Group definitions:
- *Type of household:* one person aged 65 or over, one person aged 30-64, one person aged up to 30, one parent with children aged up to 16, childless couple with one partner aged 65 or more, childless couple with both aged less than 65, couple with one child aged up to 16, couple with two children aged up to 16, couple with children (one child at least aged 16 or more), other type of household.
- *Occupational status of the reference person:* manager or executive, self-employed, technical assistant, clerk, service or sales worker, skilled agricultural or fishery worker, specialised technician, machine operator or assembler, unskilled worker, unemployed, pensioner, other type of economically inactive persons.
- *Educational level of the reference person:* Tertiary education graduate, upper secondary school graduate, graduate at most of lower secondary school.

Source: Calculations based on primary ECHP data (7th wave, 2000).

able income in the 15 "older" EU countries, meaning that we will once again attempt to determine how much of aggregate inequality can be attributed to income disparities within and between the various population groups. The inequality decomposition technique used in this section is exactly the same as the one described and applied in the previous sections for Greece based on HBS data. The variable used to decompose aggregate inequality was the disposable monetary income of households, as drawn from the European Community Household Panel (ECHP, seventh wave, survey year 2000). The unit of analysis was the individual, while the incomes of households were once again equivalised using the Eurostat equivalence scales.

In order to decompose aggregate inequality, we once again grouped the population on the basis of demographic, occupational and educational criteria for the households or, more specifically, for the "reference persons" of households.[16] The

16 The "reference person" is often referred to in this section as the "household head", even though the two terms are not always interchangeable.

aggregate results of the decomposition of overall inequality using the mean logarithmic deviation (N) index for the 15 EU countries are presented in Table 5.[17] The first classification criterion used in this table is the type of household. More specifically, the households of the sample were all divided into 12 non-overlapping groups, based on the composition of the household and the age of the household members. From the figures of column 3, we can see that there is no country where "between household type" inequality accounts for more than 18% of total inequality and that —with the exception of Denmark, Sweden and Finland (where this component scores 18.0%, 16.7% and 16.0% respectively)— this inequality is in fact less than 15%. This specific component is particularly small in Spain (2.7%), Italy (3.1%) and the other southern countries (Greece and France 5.1%, Portugal 6.4%). When further analysing the population shares corresponding to each type of household, we were able to draw an important conclusion: in the less developed countries where family as an institution is still comparatively strong, one-member and single-parent households as well as younger couples without children are comparatively fewer than in the more developed countries where the family institution has weakened. For instance, one-member households do not account for more than 20% of all households in Greece, Portugal, Spain and Italy, but represent more than 30% in the other countries and more than 40% in the Scandinavian countries. Ranking the different types of households by mean equivalent disposable income, we were able to conclude that middle age group households with fewer children fared better than other groups. In practically all countries, the mean disposable income was found to be highest among the younger households without children, and progressively decreased as the number of children rose.

To obtain the percentage contribution of between-group inequality presented in the fourth column of Table 5, we divided the population into a total of 12 groups on the basis of the reference person's occupational status. Households whose reference person was currently employed were placed in one of the first nine groups, while the households whose head was outside the labour market were placed in one of the last three (i.e. unemployed, pensioner, housekeeper or other economically inactive person, see explanatory note at the bottom of Table 5). In 4 of the 15 countries, the occupational status of the household reference person was found to account for a relatively high percentage of aggregate inequality. More specifically, the "between occupation group" inequality component represents 24.5% of aggregate inequality in Portugal, 21.7% in Ireland, 21.3% in Spain and 20.9% in France. This specific component, however, is particularly low in Germany (3.3%) and ranges around 10% in Austria, Belgium and the Netherlands. In several cases, the population shares of the respective occupational groups differ significantly across countries. For instance, crop and animal farmers account for a relatively high share of the total population in Greece and Portugal, as do manual professions in the Mediterranean countries. In practically all of the EU-15, households whose reference person is either self-employed, a high-ranking manager or executive or a technical assistant were found to be in the best economic position.

17 We have deliberately chosen to omit the results of the decomposition obtained with the Theil index (T), since they do not differ significantly from those presented in Table 5.

Households, on the other hand, whose head is unemployed were shown to be in the worst economic position, followed by the households headed by crop/animal farmers and other manual professions.

Finally, the percentage of aggregate inequality attributed to disparities between education-level groups is presented in the last column of Table 5. More specifically, the households of the ECHP sample were grouped into three general categories depending on the reference person's education: the higher (accredited tertiary) education level, the middle (upper secondary) level and the lower secondary level. This breakdown of the population into only three education-level groups may indeed be too basic, considering that in several countries a large majority of the population belongs to the third group. However, even these basic findings are illustrative of the relationship between education and inequality in the EU, while these results must be interpreted in the light of the human capital theory. The percentage of aggregate inequality that is attributable to the educational differences between households, in spite of the distinction into merely 3 groups, is 28.3% for Portugal, 23.4% for Greece, 22.9% for Luxembourg and 20.0% for Spain. These four countries all happen to have the lowest level of inequality within their education-level groups and the largest group differences in terms of mean income. In contrast, the education factor seems to play a particularly limited role in Austria (6.1%) and the United Kingdom (6.6%), where income disparities between the education-level groups are relatively small and where within-group inequality is sometimes higher and in other cases lower than aggregate inequality.

A number of interesting observations can be drawn from the further analysis of the population and income shares of the respective education-level groups used to calculate the figures of Table 5. More specifically, the highest percentages of secondary and tertiary graduates are encountered in the United Kingdom (47.9%) and Belgium (31.0%), while the educational level of the population in the Mediterranean countries is considerably lower than in the rest of the EU. It is worth noting that 84.4% of the reference persons in Portugal are concentrated in the lower education level, while the corresponding percentages for Spain, Italy and Greece are 68.7%, 66.2% and 60.1%. In addition, there is a strong positive correlation across the EU-15 between the educational level of the reference person and the households' average disposable income. Thus, the average disposable income of households with the highest educational level is more than three times higher in Portugal and at least twice as high in Ireland, Spain, Luxembourg and Greece than the respective income of households with the lowest educational level. Furthermore, apart from very rare exceptions in certain countries and groups, the absolute levels of inequality within the various education groups are significantly lower than the absolute level of inequality for the population as a whole. For instance, based on index N, the level of inequality within the higher educational level (university/college graduates) is at least 20% lower in Greece, Ireland and especially Portugal than for the population as a whole.

In conclusion, our analysis of the structure of inequality in the EU-15, using analytical income data from the ECHP and the decomposition technique of the mean logarithmic deviation (index N), showed that the occupational and in particu-

lar the educational characteristics of the reference persons often account for a significant percentage of aggregate inequality. Each of these two factors accounts for 20-28% of the existing income differences in all of the Mediterranean countries (except Italy) and in Ireland.

The type of household contributes only 16-18% to aggregate inequality in Denmark, Sweden and Finland, while none of the other mainly demographic factors examined (gender, marital status, age group, household size, etc.) was found to play a significant role in aggregate inequality. Even the combined contributions of these factors and the application of multivariable decomposition techniques, as well as the sensitivity analysis with regard to the equivalence scales used (Eurostat, OECD) and to the reference unit (person or household), did not contradict the previous findings.[18]

6. Summary and conclusions

The present study examined the structure and determinants of economic inequality in Greece and the EU-15 using micro-data from the latest available Household Budget Survey (HBS) and the 7th wave of the ECHP survey.

Our objective was to examine the quantitative dimensions, as well as the contribution of regional inequalities to aggregate inequality in Greece. Our findings challenge the prevailing view that regional inequalities play a particularly determinant role in overall inequality and that further convergence between Greece's regions is needed. They also point to the possibly less known but nonetheless important role of education in the shaping of economic inequalities.

In spite of the significant mean differences presented by the various socio-economic groups of the population in terms of consumption expenditure and current income, aggregate inequality was found to be caused more by within-group rather than by between-group disparities. These results, which remained unchanged when different population subgroups, inequality measures, equivalence scales and reference units were used, also remained consistent over time. More specifically, when dividing the population by region of residence, size of locality, demographic characteristics and occupational status of the household head, within-group differences were found to be accountable for over 83% of aggregate inequality. Thus, no matter how much funding is allocated to completely eliminating the between-group differences, aggregate inequality will not be contained by more than 17% so long as within-group differences remain unchanged. However, when the population is broken down into 5 basic groups depending on the household heads' education level, nearly one fourth of aggregate inequality is attributed to disparities between these education-level groups.

Turning to the question of the structure and determinants of inequality in the 15 pre-enlargement countries of the EU, the results of this analysis show that, in Greece as most elsewhere, economic inequalities are primarily due to within population group disparities, which account for almost 3/4 of aggregate inequality. Nevertheless, in most coun-

18 As far as Greece is concerned, the results of the analysis presented in this section do not substantially contradict the results of the same analysis conducted with micro-data from the Household Budget Survey (HBS) and presented in previous sections. In both analyses, only the educational and, to a lesser extent, the occupational characteristics of the population accounted for a relatively higher share of aggregate inequality.

tries (and first and foremost in the Mediterranean countries and Ireland), nearly 1/4 of aggregate inequality was found to be attributable to differences between the population groups defined according to their educational characteristics — even though only 3 basic groups were established— and to a lesser extent to the occupational characteristics of the household head.

Based on these conclusions, we can formulate certain proposals that could increase the efficiency of policies targeted at reducing economic inequalities, although certain remarks must be made beforehand. First, the analysis conducted in this study was based on the structure of income and consumption expenditures, as drawn from the analytical data of the Household Budget Surveys (HBSs) and the ECHP. Thus, the validity of our findings depends on how reliably data has been recorded by the specific surveys. Second, the population sample used in both the HBS and ECHP surveys is made up of private households and thus by definition excludes certain small, but possibly very poor segments of the population (persons who are homeless, confined to institutions or asylums, etc.). Third, it is most likely that the non-negligible immigrant share of the population in Greece and other EU countries —particularly in terms of illegal entrants— has been seriously underestimated in the sample of both surveys. Finally, the economic and fiscal situation of the country must always be taken into consideration when formulating policy proposals. As demonstrated by the redistribution policies implemented in Greece in the 1980s and from the experience of several other countries, incomplete redistribution policies can ultimately lead to economic stagnation and serious undesired side-effects, after generating an initial phase of euphoria.

Taking these facts into consideration and based on the findings of this study, we formulate certain proposals which could make social and economic policy measures more effective in alleviating economic inequalities in both the short and the long term. First, since inequality in the EU stems primarily from differences within the various socioeconomic groups, policies aimed at alleviating inequality should be "general" rather than "specific". General policies (for instance, tax policies, general welfare policies, etc.) apply to the entire population and do not take specific group characteristics into account. Specific policies (such as regional or agricultural policies), on the other hand, are targeted at specific population groups. Although specific policies may be warranted for other reasons, our analysis indicates that they are not very effective in reducing economic inequality. Educational policies, however, stand out as a possible exception to this general finding. Since educational inequalities were more than any other factor shown to be closely linked to economic inequality, policies aimed at reducing educational disparities and improving the human capital within the more disadvantaged groups of the population could help reduce economic inequality in the long run. Educational policy objectives to be considered include: increasing the length of compulsory education, encouraging participation in post-compulsory levels of education and setting up special tutoring schemes to assist the more disadvantaged groups of the population. Finally, as shown by the results of this study, the possibly greater effectiveness of educational policies in alleviating economic inequalities, far from being specific to Greece, may very well also apply to most of the EU-15, especially the Mediterranean countries.

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Gender wage differentials in Greece*

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1. Introduction

Becker's human capital theory interprets differences in the earnings of women and men as the result of differences in their abilities, knowledge and acquired skills (or productive characteristics), commonly called human capital (which includes among other things the education and experience of the employed). According to this theory, returns on investment in productive characteristics or "investment in human capital" are expected to be the same for all employees, men and women. However, studies for various countries and time periods have shown that returns on investment in human capital are not the same for the two genders (Blau and Kahn, 1996; Altonji and Blank, 1999).

Various studies focus on the existence of wage differentials between men and women. Particularly after the seminal contributions of Oaxaca (1973) and Blinder (1973), numerous studies were carried out worldwide, aiming mainly at interpreting wage differentials —that is, the fact that men receive higher earnings than women— and examining whether such differentials reflect differences in skills or constitute the unexplained part of earnings differentials, in which case they are often attributed to a "discrimination against women".

According to data drawn from the quarterly sample surveys on earnings conducted by the

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National Statistical Service of Greece (NSSG) — most recent data concern 1998— the ratio of female to male pay in key branches of the Greek economy's secondary sector was 69.7%.[1] Moreover, according to the European Community Household Panel (ECHP) —a sample survey of households conducted in European Union (EU) countries— the ratio of average gross hourly earnings of women to those of men in the whole economy was 86.8% in Greece (data from the 1998 survey), i.e. higher than the corresponding figure in the EU, which was 83.8% (European Commission, 2002).[2]

This study aims at probing the existence of wage differentials between male and female employees in Greece and determining the factors that can explain them. Specifically, the Oaxaca-Ransom decomposition analysis is used to explain the components of wage differentials and verify whether earnings differentials reflect differences in productive characteristics or constitute the "unexplained part" of earnings differentials. Using the quantile regression estimation technique, the differences between men's and women's earnings in various deciles of the wage distribution are estimated. Then, for the entire spectrum of the wage distribution, the part of the differential that is due to differences in the productive characteristics of the employees and the one constituting the "unexplained part" of earnings differentials are estimated. The analysis uses statistical data for Greece from the 1999 ECHP referring to 1998 income data.

The study is divided into six sections. The second section briefly describes some basic features of the Greek labour market and the position of women in it. The third section specifies the various theoretical and empirical approaches applied in the study and analysis of wage differentials between men and women. The fourth section presents the variables and the methodology used in the empirical analysis, while the fifth section reports the empirical results. The last section summarises the conclusions.

2. Some key features of the Greek labour market

Although the Greek labour market and the position of women in it present a number of peculiarities, in many aspects they are similar to those of the other EU countries.[3] Throughout this section, data refer to 2002 unless otherwise indicated.

Female labour supply in Greece has increased over the last decades. Nevertheless, the rate of female labour force participation (see Table 1), despite an increase over the years, remains considerably lower (50.1%) than the average participation rate of women in the EU as a whole (60.9%). Moreover, women's participation rate in Greece remains considerably lower than men's (76.6%).

The employment rate of women in Greece (42.5%) is considerably lower than in the EU as a whole

1 Averages of monthly earnings in mining/quarrying/saltworks, industry/small-scale manufacturing and power/water supply for the second quarter of 1998. Monthly earnings are regular earnings plus overtime pay and other types of remuneration for 26 working days.

2 Analysis is based on the special sample survey (ECHP) of the EU for 1998. Income data refer to 1997, although this is not mentioned in the European Commission report that presents them (DG Employment and Social Affairs, *Employment in Europe 2002*, Recent Trends and Prospects, p. 35).

3 Throughout this study EU data refer to the EU-15 (not the 25 Member States after the enlargement of the EU).

Table 1
Employment indicators in Greece and in the European Union (2002)
(Breakdown by gender)

	Greece	EU
Total:		
– Employment rate[1]	56.7	64.3
– Unemployment rate[2]	10.0	7.7
– Labour force participation rate[3]	63.1	69.7
– Employment rate (full-time equivalent)[1]	56.3	58.9
– Part-time employment rate[4]	4.5	18.1
Men:		
– Employment rate[1]	71.4	72.8
– Unemployment rate[2]	6.6	6.9
– Labour force participation rate[3]	76.6	75.4
– Employment rate (full-time equivalent)[1]	72.0	71.2
– Part-time employment rate[4]	2.3	6.5
Women:		
– Employment rate[1]	42.5	55.6
– Unemployment rate[2]	15.0	8.7
– Labour force participation rate[3]	50.1	60.9
– Employment rate (full-time equivalent)[1]	41.3	46.8
– Part-time employment rate[4]	8.1	33.5

1 Employed persons aged 15-64 as a percentage of the population aged 15-64.
2 Unemployed persons aged 15 or over as a percentage of the labour force.
3 Labour force aged 15-64 as a percentage of the population aged 15-64.
4 As a percentage of total employment.
Source: European Commission, DG Employment and Social Affairs, *Employment in Europe 2003*, Recent Trends and Prospects.

(55.6%) and even lower than the target (60.0%) set at the European Council of Lisbon for 2010.

In Greece, unemployment especially affects women and the young. The unemployment rate of women (15.0%) is considerably higher than that of men (6.6%) and also considerably higher than the EU average for women (8.7%). The unemployment rate of women aged 15-24 (34.3%) is more than double the corresponding figure for the EU as a whole (15.5%).

Considerable divergences are observed in the rates of female employment, labour force participation and unemployment across different education levels.[4] Women's employment and labour force participation rates increase as the level of education rises. The employment and participation rates of women holding a university degree are more than double those of women with lower education levels. Among women, secondary education graduates show the highest unemployment rate while tertiary education graduates the lowest.

The degree of women's integration into the labour market is low, as evidenced by the full-time

4 For a detailed presentation of employment rates by education level and gender in Greece and in the EU, see Papapetrou (2003).

Table 2
Employment rates (%) in full-time equivalent units in the EU (2002)

Countries	Employment rate[1]			Spread of employment rates of
	Total (1)	Men (2)	Women (3)	Men-Women (4)=(2)-(3)
Belgium	55.4	67.6	43.2	24.4
Denmark	69.7	76.7	63.1	13.6
Germany	58.1	69.9	46.4	23.5
Greece	56.3	72.0	41.3	30.7
Spain	56.2	72.2	40.1	32.1
France	60.4	70.4	50.9	19.5
Ireland	60.7	74.4	47.0	27.4
Italy	53.6	68.4	39.2	29.2
Luxembourg	60.9	76.0	45.7	30.3
Netherlands	63.0	74.8	51.4	23.4
Austria	63.0	74.8	51.4	23.4
Portugal	67.1	76.7	58.0	18.7
Finland	65.8	69.3	62.4	6.9
Sweden	68.1	72.9	63.4	9.5
United Kingdom	62.1	74.0	50.8	23.2
Total (EU-15)	58.9	71.2	46.8	24.4

1 Employed persons aged 15-64 as a percentage of the population aged 15-64, in full-time equivalents.
Source: European Commission, DG Employment and Social Affairs, *Employment in Europe 2003*, Recent Trends and Prospects.

equivalent employment rate (see Tables 1 and 2).[5] In Greece, this rate is particularly low (41.3%), the third lowest in the EU and well below the corresponding EU average (46.8%). Moreover, the employment rate of women in Greece in full-time equivalents falls considerably short of that of men (72.0%), which in turn is slightly higher than the corresponding EU average (71.2%).

Part-time employment —i.e. the number of those employed part-time as a percentage of the total number of the employed— is more than three times higher for women than for men (8.1% against 2.3%, respectively) but, overall, the share of part-time employment in Greece (4.5%) is considerably lower than the corresponding EU average (approximately 18%). Part-time employment offers women the opportunity to reconcile work with attending to the needs of their family, especially when the available child-care solutions are insufficient or unaffordable. On the other hand, part-time jobs are typically associated with limited opportunities for career advancement and with lower remuneration (OECD, 1999).

Differences are also evident in the relative earnings of men and women. According to NSSG 1998 data for Greece, the ratio of female employee average monthly earnings to male employee average

5 The employment rate in full-time equivalent units is the total of hours worked divided by the average annual working time (hourly) of full-time employees, as a percentage of the population aged 15 to 64.

monthly earnings in key branches of the Greek economy's secondary sector was 69.7%[6] – more specifically, 84.2% in mining-quarrying, 70.8% in manufacturing and 62.7% in power/water supply.

According to 1998 data from the ECHP, in Greece the ratio of average gross hourly earnings of women to those of men in the whole economy was 86.8% (as already mentioned), while in the EU as a whole it was 83.8% (see Table 3).[7] According to these data, the ratio of female to male pay is higher than the EU average. A possible explanation mentioned is that, in countries like Greece with low female labour force participation rates, the women participating in the labour market are of a high education level, and as a result wage differentials between men and women are relatively narrow. In contrast, in countries where a larger proportion of women of a lower level of education and skills participate in the labour market, wage differentials between men and women tend to be wider (OECD, 2002).

Finally, according to OECD data (OECD, 2002), working women in Greece have strong presence in 14 occupations (out of a total of 115) which are female-dominated (with a female share of 69% in total on average).[8] In contrast, three quarters of working men have strong presence in 29 occupations.[9]

3. Theoretical framework and empirical evidence on the gender wage differential

Studies explaining the existence of wage differentials between men and women follow one of two different approaches.[10] The first approach uses quantitative methods to determine the relative strength of the various factors affecting the wage differentials between the two genders. This is the most widely used empirical approach for the determination and analysis of these differentials. One such quantitative method is the Blinder-Oaxaca decomposition, which is applied in order to estimate the components of wage differentials between men and women and examine whether earnings differentials reflect differences in the skills of those employed, and thus in their productivity, or constitute the "unexplained part" of the earnings differentials. Some researchers refer to this unexplainable part of wage differentials as the "discrimination factor". Others call it the "unexplained residual", arguing that it reflects the effect of certain differences between men and women which may be affecting their productivity (and therefore earnings) but cannot be observed. In that sense, this residual includes the effects of "unobserved heterogeneity". Researchers using the term "discrimination factor" consider that such discrimination between men and women is truly at play in the labour market and constitutes a social problem. In contrast, those opting for the term "unexplained residual" hold that the observed wage differentials result from the perfect functioning of the input market (Weichselbaumer and Winter-Ebmer, 2003). According to the proponents of this method, analysis of wage differentials between

6 See footnote 1.
7 See footnote 2.
8 OECD (2002), "Women at work: Who are they and how are they faring?" in Employment Outlook 2002, Chapter 2, Table 2.11, p. 89, Paris.
9 For a breakdown of men and women in Greece by occupation according to ECHP data for 1999 see Section 4, "Methodology and statistical data".
10 For a bibliographical overview of theoretical as well as empirical studies on wage differentials between men and women see, *inter alia*, Grimshaw and Rubery (2002), Weichselbaumer and Winter-Ebmer (2003) and Borjas (2000).

Table 3
Gender pay ratios in the EU, 1998
(average gross earnings)

Countries	Ratio of women's average earnings to men's average earnings
Belgium	92.7
Denmark	89.6
Germany	80.6
Greece	86.8
Spain	85.7
France	89.2
Ireland	80.2
Italy	91.4
Netherlands	78.9
Austria	78.9
Portugal	94.1
United Kingdom	75.7
Total	83.8

Note: Ratio of women's average gross hourly earnings with respect to men's average gross hourly earnings, ECHP (1998) data (for all of the employed working 15 hours or more). No data are available in 1998 for Luxembourg, Finland and Sweden.
Source: European Commission, DG Employment and Social Affairs, *Employment in Europe 2002*, Recent Trends and Prospects, p. 35.

men and women enables economic policy makers to identify the factors explaining wage differentials and thus to address these factors through appropriate policies. In contrast, critics of this method argue that such analysis is based on some simplifying assumptions concerning the operation of markets, and for that reason remain sceptical towards its findings.

The second approach to the analysis of gender wage differentials is the comparative institutional approach. In this respect, differences in the earnings of men and women result from the entrenched institutional norms in the various societies and reflect the structure and operation of labour markets, the functioning of the market in general, and the relative value attached to individual occupations within each society (Grimshaw and Rubery, 2002). Furthermore, this approach posits that differences in wage structures, both across countries and over time, can largely explain the earnings differentials between the two genders. These differentials are not explained by differences in productivity and abilities, but reflect contemporary and historical effects of social and institutional processes. Labour market features, such as a classification of occupations according to gender, can explain the wage differentials between the two genders better than an analysis based on the skills of those employed. In order to analyse wage differentials between men and women, this approach examines how societal differences have led to a gender separation of occupations and how relative earnings are determined in female-dominated occupations. Critics of this method argue that, according to the human capital theory, women rationally choose certain occupations and avoid others. The occupations favoured by women require abilities that need not be renewed often and therefore do not become obsolete very quickly.

Studies probing the existence of wage differentials between men and women in Greece are relatively scarce. Psacharopoulos (1983) estimates earnings differentials between women and men and posits that these do not reflect differences in productive characteristics. Patrinos and Lambropoulos (1993) show that, despite an increase in women's earnings in relation to men's over time, earnings differentials attributable to productivity differences account for little of the gross earnings gap. Kanellopoulos and Mavromaras (2002) examine the labour market participation process of the two genders and the wage differentials between them in Greece in 1988 and 1994. Following the "sample selection methodology" they study the factors

affecting the decision to participate in the labour market. Then, using this decision as an independent variable in the wage equation, they examine wage differentials between men and women. Karamessini (2002) argues that the position of women in the Greek labour market has improved, as reflected in the increased ratio of female-to-male pay in most economic sectors during the last two decades.

Equally limited is the number of studies exploring the earnings differentials between men and women in Greece in comparison with other countries. Rice (1999), using ECHP 1995 data for eight EU countries (Denmark, Greece, France, Germany, Italy, Portugal, Spain and the United Kingdom),[11] looks into the case of Greece compared to the other European countries. Finally, a recent study by the OECD (OECD, 2002) on European and other countries includes Greece among the countries showing the narrowest wage differentials between men and women, but also among those with the lowest female employment rates. According to this study, the relatively narrow differential in the earnings of men and women is attributable to the fact that in countries with low female participation in the labour market the employed women have a higher education level compared with the employed men, as already mentioned.

However, the studies explaining wage differentials between men and women in Greece have not looked at the earnings differentials between men and women across the entire range of the wage distribution and have not investigated the extent to which the observed wage differentials reflect differences in human capital or constitute the unexplained part of the earnings differentials. The present study seeks to fill this gap.

4. Methodology and statistical data

The method followed in this study for the empirical approach and analysis of wage differentials between men and women is a variant on the decomposition technique suggested by Oaxaca and Ransom (1994).[12] According to this method, as a first step, three equations of wages are estimated. Specifically, one wage equation is estimated for men

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

and another for women

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

where W^{men} and W^{women} are the logarithms of the men's and women's wages respectively, X is a vector of variables that describe the characteristics of the employed (such as demographic, human capital, or labour characteristics), β^{men} and β^{women} are the coefficients of the variables vector X,[13] and ε^{men} and ε^{women} are the error terms for the employed men and women respectively. Once wage equations (1) and (2) —i.e. one for men and

11 As well as Hungary, based on data from the Hungarian Household Panel, a national survey on household budgeting.

12 Several researchers have used this triple equation methodology and have applied the Oaxaca and Ransom (1994) decomposition method to explain components of wage differentials. Weichselbaumer and Winter-Ebmer (2003) provide an extensive bibliographical overview of studies that use the regression equation estimation methodology, as well as the Blinder-Oaxaca decomposition technique. For the variation of the Oaxaca and Ransom (1994) decomposition that is used in this study, see, *inter alia*, the study by Christofidis and Pashardes (2000) for Cyprus.

13 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 the males and females 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 education).

one for women— are estimated, a third wage equation is then estimated for all the employed, men and women together (non-discriminatory wage structure). This triple equation estimation technique for the estimation of wage differentials between men and women enables a decomposition based on the modified Oaxaca and Ransom (1994) methodology. It is thus possible to investigate the extent to which differences between the earnings of men and women are due to the different productive characteristics and the extent to which they constitute the "unexplained part" of the earnings differentials – that is, the part which remains unaccounted for and which many economists describe as "discrimination factor" or "discriminations".[14] Furthermore, this method allows for the decomposition of this unexplained part into two constituents, the "male advantage" and the "female disadvantage".

To further illustrate the above, a more thorough examination of the Oaxaca-Ransom (1994) decomposition would be necessary. This decomposition is based on the following equation:

$$\overline{W_{men}} - \overline{W_{women}} = (\overline{X_{men}} - \overline{X_{women}})\hat{\beta}_{total} + \\ + \overline{X_{men}}\,(\hat{\beta}_{men} - \hat{\beta}_{total}) + \\ + \overline{X_{women}}\,(\hat{\beta}_{total} - \hat{\beta}_{women}) \qquad (3)$$

where the estimated β_{total} are obtained employing the non-discriminatory wage structure. This structure is estimated by pooling male and female employees together. The symbol (^) over the variables indicates estimated values. The left side of equation (3) estimates the difference in average wages between men and women. 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 estimated regression coefficient of the estimated non-discriminatory wage structure. 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 to as the "characteristics differential" or "justifiable earnings". The second term on the right side of equation (3) measures the total difference between the men regression and the pooled regression for male and female employees in the coefficients of the estimated wage equations, weighted by the means of the regressors in the equation for men. This term represents the part of the earnings differential that is attributable to the "male advantage" – i.e. the part of the positive difference between the earnings of men and the average earnings of men and women together that is solely due to the fact that they are men and not to characteristics differentials. The third term on the right side of equation (3) measures the total difference between the pooled regression for men and women in the coefficients of the estimated wage equations and women, weighted by the means of the regressors in the equation for women. This term shows which part of the earnings differential is attributable to the "female disadvantage" – i.e. which part of the negative difference between the earnings of women and the average earnings of men and women together is solely due to the fact that they are women and not to characteristics differentials.

14 The unexplained part of earnings differentials can be seen as a measure of the extent to which the earnings of an employed person, man or woman, are different from those justifiable by his or her qualifications.

In our analysis, the decomposition technique suggested by Oaxaca and Ransom (1994) along with a quantile regression analysis is applied, in order to estimate the differences between men's and women's earnings in various deciles of the wage distribution and explain which part of these differences is due to characteristics differentials and which is the unexplained part of earnings differentials, across the entire range of the wage distribution.

The empirical analysis uses statistical data for Greece drawn from the European Community Household Panel (ECHP). This questionnaire dataset comprises information from all EU countries for eight time periods (i.e. the years 1994, 1995, 1996, 1997, 1998, 1999, 2000 and 2001). The survey includes questions that refer to the household as a whole (demographic information, income, financial standing and place of residence), as well as to the individual members of each household (age, marital status, education, income, occupation, employment and health).

Out of this database, the following analysis draws data from the survey conducted for Greece in 1999 and referring to 1998 income. In 1999, the total number of Greek interviewees was 9,574. Excluding those still pursuing studies, the sample was reduced to 2,070 observations collected from (759 female and 1,311 male) informants who stated that they worked as wage earners. The study also excluded those interviewees who had not answered all of the questions used in the empirical investigation.

Table 4 presents the average values of the most significant variables used in the empirical analysis, broken down by gender. Wages are calculated as the logarithm of the informant's regular annual income from wages.[15] Experience is approximated as the difference between the informant's age and the age at which he/she started working.

Table 4
Sample characteristics: means by gender

Variables	Female	Male
Number of observations	759	1,311
Lnwage	14.64	14.93
Age	36.93	39.67
Experience	14.52	19.51
Secondary education	0.41	0.38
College education	0.34	0.25
Marital status (unmarried)	0.24	0.26
Public sector	0.42	0.39
Hours of work	37.09	41.51
Number of children less than 16 years old	0.72	0.78

Note: Definitions of the variables can be found in the Appendix.
Source: Calculations based on ECHP (1999) data.

The statistical data reported in Table 4 show that average annual income from wages is higher for men. Women receive on average approximately 75% of the earnings received by men.[16] A statistically significant difference is detected in the variables of age, experience, tertiary (college) education and hours of work. Table 4 also reveals that the average age of male employees is about

15 This income does not include earnings from overtime employment. Table 4 shows that women's average annual earnings amount to 2,280,716 drachmas while men's come to 3,048,011 drachmas.

16 This ratio refers to *annual* earnings and is lower than the ratio mentioned in the introduction with reference to *hourly* earnings (86.8%). As noted further below, men typically work more hours than women, a fact that explains, at least partly, the difference between the two ratios.

Table 5
Breakdown of men and women by occupation

Occupation	Female		Male	
Legislators, senior officials and managers	20.0	(1.3)	80.0	(3.1)
Professionals	45.7	(21.7)	54.3	(15.0)
Technicians and associate professionals	49.7	(12.3)	50.3	(7.2)
Clerks	52.5	(26.7)	47.5	(14.0)
Service workers and shop and market sales employees	42.1	(14.5)	57.9	(11.5)
Skilled agricultural workers and fishery workers	31.8	(0.9)	68.2	(1.1)
Craft and related trade workers	16.4	(7.5)	83.6	(22.1)
Plant and machine operators and assemblers	8.3	(2.5)	91.7	(16.0)
Elementary occupations	52.2	(12.4)	47.8	(6.6)

Note: Non-parenthesised: For each occupation category, percentages out of total covered by men and women respectively.
Parenthesised: For each gender, percentage working in individual occupation categories.
Source: Calculations based on ECHP (1999) data.

3 years higher than the average age of female employees. Moreover, working men's experience appears to be greater than that of women's (on average by 5 years). The percentage of tertiary education graduates is higher among women than among men. In contrast, no statistically significant difference is detected between the percentages of male and female secondary education graduates. Male employees seem to work at least four hours more per week than women.[17] Furthermore, no statistically significant differences are detected in relation to marital status and number of children. For the most part, employed men and women are married and have on average one child less than 16 years old.

Table 5 shows the breakdown of men and women by occupation. Women form the larger part of clerks (52.5%) and unskilled workers (52.2%). The employment of women as senior officials and managers is particularly low compared with that of men, given that only 20% of such positions are occupied by women while only 1.3% of all employed women hold managerial posts. As a percentage of the total employees for the specific gender considerably more women (26.7%) than men (14%) work as clerks. Therefore, significant differences are detected between the genders with respect to basic characteristics and type of employment, which justify separate estimations for men and women.

Table 6 shows the distribution of wages of males and females in the 10th, the 25th, the 50th, the 75th and the 90th percentile. It also presents a measure of wage dispersion, the 0.9-0.10 spread. This spread is wider for female employees than for male ones, which means that men's earnings

17 In the sample at hand, 7.4% of women and 3.2% of men work as part-time employees. The difference between men's and women's hours of work remains statistically significant even when the sample is divided into those employed part-time and those employed full-time. Specifically, this difference of four hours for full-time employees is reduced to approximately two hours for those employed part-time.

Table 6
Wage differentials between genders

	Quartile or decile					90%-10% spread
	10%	25%	50%	75%	90%	
Male	14.426	14.746	14.978	15.174	15.384	0.958
Female	14.047	14.463	14.732	14.916	15.085	1.038

Note: Figures in logarithmic form.
10% = 1st decile, 25% = 1st quartile, 50% = 2nd quartile, 75% = 3rd quartile, 90% = 9th decile, 90%–10% spread = difference between the 9th and the 1st decile.
Source: Calculations based on ECHP (1999) data.

are more compressed. It appears that, for all deciles of the wage distribution, men earn more than women (for the corresponding deciles of the wage distribution). The same table also shows that the difference between the earnings of men and women declines as we move from the 1st decile of the wage distribution towards the 5th decile (or 2nd quartile), and then increases again up to the 9th decile of the wage distribution.

Furthermore, non-parametric methods (kernel density estimators) are used to examine the wage distributions between the two genders. In particular, distributions were calculated based on the "kernel estimator". The chart presents men's and women's wage distributions respectively and shows that earnings for men are higher and less dispersed than for women.[18]

Empirical analysis estimates three wage models (one for the entire sample, one for men and one for women), using variables referring to the personal and productive characteristics of the employed.[19] Aside from such variables, wage estimation models also include variables referring to the interviewee's occupation and place of residence.[20]

5. Empirical results

Separate wage equations for the entire sample (men and women pooled together), for men and women have been estimated.[21,22] The results show that, for both genders, annual earnings from wages are affected by the personal characteristics, the human capital, the working hours, the employment sector, the type of employment, the occupation and the location of work. For most variables, the estimated coefficients are statistically significant for all three equations.

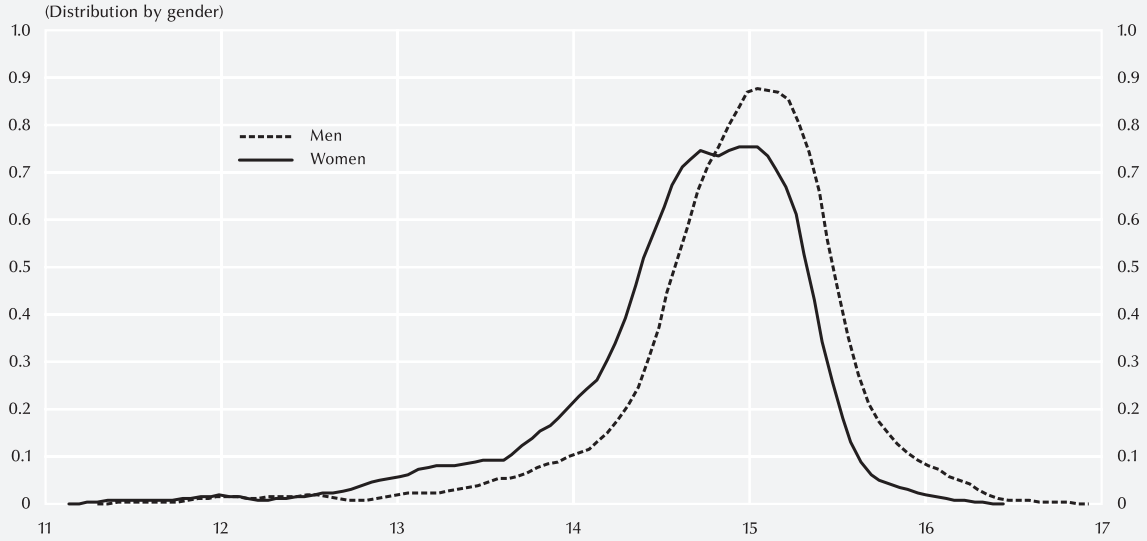
Comparison between the estimated coefficients reveals that the effect of secondary and tertiary

18 The logarithm of average earnings and the standard deviation are, respectively, 14.93 and 0.618 for male employees, and 14.64 and 0.662 for female employees.
19 Specifically, the analysis estimates wage equations as outlined in Section 3.
20 The dependent and independent variables of the wage models used in the empirical analysis of wage differentials between men and women are presented in the Appendix. Specifically, the Appendix presents all the variables used as independent variables in the wage estimation equations.
21 The standard deviations, and thus the t statistics calculated for the estimated coefficients, have been corrected for heteroscedasticity following White's method.
22 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.

Chart

Kernel density estimates

(Distribution by gender)



Source: Calculations based on ECHP (1999) data.

education on earnings is stronger for women than for men. The estimated coefficients show that compared with men, women have higher returns on education for a given level of education attainment. Work experience has a particularly significant effect on earnings for men and women alike. The results show that the wage-experience curve is bell-shaped. On the basis of the estimated coefficients, work experience seems to be raising the earnings of women more than those of men. Therefore, these results suggest that the effects of experience and education on wages are greater for women than for men. Full-time employment increases earnings for both genders, but its effect is greater for men. Marital status, age, working hours, professional skills and place of residence have statistically significant coefficients and affect earnings for both genders. Finally, most occupation coefficients are statistically significant for both genders.

Wage decomposition

The Oaxaca and Ransom (1994) decomposition analysis can be used to attribute gender wage differentials to: (i) observed differences in the human capital or productive characteristics and (ii) the part that remains unexplained, in particular differences stemming from some "advantage" that men have and from some "disadvantage" that women have.

Table 7 presents a breakdown of the differences in wages between the two genders for the entire sample, as well as for the 1st and the 9th deciles and by quartile. This analysis provides important information on the differences between the earnings of the two genders, as it decomposes wage differentials into one part attributable to differences in endowment, one part reflecting a presumed "male advantage" and another part reflecting a presumed "female disadvantage".

Table 7
Decomposition of wage differentials between male and female employees (1999)

	Total	Quartile or decile				
		10%	25%	50%	75%	90%
Wage gap	0.288	0.379	0.283	0.246	0.258	0.299
Differences in the productive characteristics of the employed	0.117	0.149	0.104	0.087	0.104	0.103
Male advantage	0.063	0.095	0.079	0.055	0.039	0.067
Female disadvantage	0.108	0.135	0.100	0.104	0.115	0.129

Note: Figures in logarithmic form.
10% = 1st decile, 25% = 1st quartile, 50% = 2nd quartile, 75% = 3rd quartile, 90% = 9th decile.
Source: Calculations based on ECHP (1999) data.

The Oaxaca-Ransom wage decomposition shows that, for the entire sample, the most influential factor behind the differences in employee earnings between the two genders is the unexplained part of the earnings differential, as further decomposed into a "male advantage" and a "female disadvantage". In contrast, differences in endowment seem to explain a smaller fraction of the wage differential. That is, only the smaller part of wage differentials stems from differences in the productive characteristics of men and women. Specifically, for the entire sample, differences in the employees' characteristics explain 40.6% of the gender wage differential, while the remaining 59.4% is the unexplained part. Out of this, 21.9 percentage points are characterised as the "male advantage", i.e. the fact that men receive higher wages compared with the total of the employed men and women, even when both men and women have the same productive characteristics. The remaining 37.5 percentage points are the "female disadvantage", i.e. the fact that women receive on average lower earnings compared with the total of the employed (both genders), even when they have the same productive characteristics.

In a next step, wage differentials are examined as we move from the 1st to the 9th decile. These results suggest that the difference between men's and women's earnings is sizeable in the 1st decile, tends to decrease towards the higher deciles up to the 5th, and increases again thereafter. In the 1st decile, differences in the abilities, skills and knowledge of the employed explain 39.5% of the gender wage differential, while 60.7% represents the unexplained part. Out of this "unexplained residual", 35.6 percentage points constitute the "female disadvantage" and 25.1 percentage points the "male advantage". In the 1st quartile, approximately 37% of the wage differential is attributable to the characteristics differential and the remaining 63% is the unexplained part. The 35 percentage points of this unexplained part of the earnings differential constitute the "female disadvantage" and the approximately 28 remaining percentage points are the "male advantage". In the 5th decile (or 2nd quartile) the difference between men's and

women's earnings takes the lower value (0.246) and the earnings differential explained by differences in the productive characteristics is 35.4%, while the unexplained part of the earnings differential is 64.6%. In the 3rd quartile, 40.3% of the earnings differential is attributable to the productive characteristics and the remaining 59.7% is the unexplained part. In the 2nd and 3rd quartile of the wage distribution, the "female disadvantage" forms the larger part of the unexplained part of the earnings differential. In the 9th decile, the gender wage differential takes the second highest value (0.299). Differences in the productive characteristics of the employed explain 34.4% of this differential and the unexplained part is 65.6%, of which 22.4 percentage points constitute the "male advantage" and 43.2 percentage points are the "female disadvantage".

The foregoing analysis indicates that: (i) both for the entire sample and for the various quantiles of the wage distribution, men receive on average higher earnings than women; (ii) the wage differential between men and women decreases as we move up to the 5th decile and then increases; (iii) only the smaller fraction of the wage differential is a result of the fact that working men and women have different productive characteristics; and (iv) the unexplained part of the wage differential, to which many economists refer as the "discrimination factor", is explained mainly by the "disadvantage" that working women have and to a lesser extent by the "advantage" that working men have.

6. Conclusions

The aim of this study was to investigate the existence of wage differentials between men and women across the entire range of the wage distribution and to identify the factors explaining these wage differentials. The empirical analysis has used statistical data for Greece, drawn from the European Community Household Panel (ECHP) for 1999.

Applying quantile regression estimation techniques, the study estimated the wage differential between genders across the entire range of the wage distribution, as well as in its various deciles. Finally, applying a variant of the Oaxaca and Ransom decomposition method, it sought to explain the extent to which the gender wage differentials reflect differences in the abilities, skills and knowledge (or productive characteristics) of the employed, or constitute the unexplained part of the wage differential, or "discrimination factor", which is attributable to some "male advantage" or some "female disadvantage", both for the entire sample as well as in various deciles of the wage distribution.

The brief overview of the Greek labour market and women's position in it revealed in summary the following: In Greece, female participation and employment rates are low, while the female unemployment rate is high. Women's employment and labour force participation rates increase as their level of education rises. Women's integration into the labour market is low and their employment rate in Greece falls considerably short of the men's employment rate (in full-time equivalent units). Also, the ratio of women's earnings to those of men is higher than the EU average.

The analysis of the data shows that male employees are older and more experienced than female

employees. Differences are also detected with respect to the level of education. The percentage of women with tertiary education is higher than that of men. In contrast, no significant difference in percentages is detected between male and female employees with secondary education. Non-parametric investigations show that the earnings of men are higher and less dispersed than those of women.

Men's earnings are on average higher than those of women. The ratio of women's average earnings to men's average earnings stands at 75% for the entire sample of employees, i.e. the earnings of women are on average 25% lower than those of men. Men receive on average higher earnings than their female counterparts in the same decile of the wage distribution. The wage differential between men and women decreases as we move from the 1st decile (the lower end) of the wage distribution towards and up to the 5th decile, and then increases again up to the 9th decile (the top end). Women in the bottom decile of the wage distribution receive on average approximately 68% of the earnings received by their male colleagues, i.e. they receive 32% less than men. Women in the 1st and the 2nd quartile of the wage distribution receive respectively 75% and 78% of the earnings of their male colleagues. Women in the two top quartiles of the wage distribution receive respectively 77% and 74% of their male colleagues' earnings.

The results of the quantile regression analysis show that, for the entire sample, differences in the productive characteristics of the employed explain approximately 40% of the wage differential between the genders, while the unexplained part of that differential ("unexplained residual" or "discrimination factor against women") is the remaining some 60%. Out of this, about 22 percentage points are characterised as an "advantage" of men, i.e. the fact that working men receive higher earnings because they are men and not because they have different productive characteristics, and the remaining 38 percentage points are the "disadvantage" of women, i.e. the fact that they receive lower earnings because they are women and not because they have different human capital characteristics. The same picture is drawn in all deciles of the wage distribution, as it seems that the gender wage differentials are not explained by the different productive characteristics of the employed but rather constitute the unexplained part of the earnings differential or a discrimination against women.

A future study should investigate how wage differentials between men and women in Greece have evolved over time. Further research in that direction would be quite valuable and could lead to useful conclusions and policy proposals.

Appendix

As dependent variable in the wage equations estimation models this study uses the logarithm of the interviewee's income from wages. A number of variables referring to the interviewee's personal and human capital characteristics are used as independent variables. The "marital status" variable takes the value 1 for unmarried employees and 0 otherwise. The "secondary education" variable takes the value 1 when the interviewee has completed secondary but not tertiary education and 0 otherwise. The "college education" variable takes the value 1 when the interviewee is a tertiary education graduate and 0 otherwise. The "age" variable measures the interviewee's age in years.

The "experience" variable measures the informant's experience in years, while the "experience^2" variable is equal to the square of the "experience" variable. The "full-time employment" variable is a dummy variable that takes the value 1 when the interviewee is a full-time employee and 0 when he/she is a part-time employee. The "public sector" variable is a dummy variable that takes the value 1 when the interviewee works in the public sector and 0 when the interviewee is a private-sector employee. The "number of children under 16" variable is the number of children less than 16 years old who are members of the household to which the interviewee belongs.

The "skills" variable is a dummy variable that takes the value 1 for interviewees who believe that they are endowed with skills not utilised in their current choice of employment. Moreover, the variables from "legislators, senior officials and managers" through to "elementary occupations" refer to the informant's type of employment (occupation). Specifically, these are dummy variables that take the value 1 for interviewees who stated that they are in the corresponding occupation and 0 for those who stated that they follow a different line of work. For example, if the interviewee is a technician, then the "technician" variable takes the value 1 and all other occupation variables take the value 0. Finally, the model includes variables describing the informant's location of work. Thus, the "islands" variable is a dummy variable that takes the value 1 when the interviewee's place of work is on one of the Greek islands and 0 otherwise; the "central" variable is a dummy variable that takes the value 1 for interviewees who work somewhere in Central Greece and 0 for those who work elsewhere; the "north" variable takes the value 1 for interviewees who work in Northern Greece and 0 for those who work elsewhere.

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Working Papers

(January - July 2004)

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Contents

9. Cost efficiency in Greek banking
   Nicos C. Kamberoglou, Elias Liapis, George T. Simigiannis and Panagiota Tzamourani

10. Forward-looking information in VAR models and the price puzzle
    Sophocles N. Brissimis and Nicholas S. Magginas

11. EMU strategies: lessons from past experience in view of EU enlargement
    Theodoros S. Papaspyrou

12. Wage rigidity and monetary union
    Harris Dellas and George S. Tavlas

13. Inflation persistence during periods of structural change: an assessment using Greek data
    George Hondroyiannis and Sophia Lazaretou

14. Econometric modelling at the Bank of Greece
    Nicholas G. Zonzilos

List of Working Paper abstracts published in previous issues of the *Economic Bulletin*

22nd issue

1. Empirical modelling of money demand in periods of structural change: The case of Greece
   Sophocles N. Brissimis, George Hondroyiannis, P.A.V.B. Swamy and George S. Tavlas
2. Greek monetary economics in retrospect: The adventures of the drachma
   Sophia Lazaretou
3. The dynamic adjustment of a transition economy in the early stages of transformation
   Christos Papazoglou and Eric J. Pentecost
4. An indicator measuring underlying economic activity in Greece
   Stephen G. Hall and Nicholas G. Zonzilos
5. Changes in financial structure and asset price substitutability: A test of the bank lending channel
   Sophocles N. Brissimis and Nicholas S. Magginas
6. Capital flows and speculative attacks in prospective EU Member States
   Heather D. Gibson and Euclid Tsakalotos
7. The importance of variance stationarity in economic time series modelling: A practical approach
   Alexandros E. Milionis
8. The effect of dynamic hedging of options positions on intermediate-maturity interest rates
   Thanasis Christodoulopoulos and Ioulia Grigoratou

Cost efficiency in Greek banking

Working Paper No. 9

Nicos C. Kamberoglou, Elias Liapis, George T. Simigiannis and Panagiota Tzamourani

This study investigates cost efficiency in a panel of Greek banks over 1993-1999, a period characterised by major changes in the banking sector. The deregulation of the financial system, the liberalisation of external transactions and the completion of the European internal market have led to intensified competition among financial institutions. In this regard, concerns about the long-run competitive viability of various Greek banks in the new environment have been raised. Accordingly, the objective of the paper is to investigate the efficiency of Greek banks and how it has evolved in recent years. More specifically, the aim is to shed light on the following: (1) whether all banks are cost efficient, that is whether all banks operate on or close to the best practice cost frontier; (2) whether larger banks enjoy a cost advantage over smaller competitors, that is, whether the system is characterised by important economies of scale; and (3) whether factor productivity has changed over time, that is, whether banks have benefited from technical progress.

To measure cost efficiency, the distribution free approach is employed, whereby a fixed effects model is applied to the data. Technical progress can be incorporated in the model. Furthermore, the estimated parameters can be used to calculate scale economies.

The results obtained indicate that important cost X-inefficiencies are in place. Some evidence is provided that bank characteristics such as bank size, type of ownership and risk behaviour affect inefficiency. Technical progress was found to have marked effects in particular years through the examined period. Examination of scale economies indicates that the Greek banking industry experiences economies of scale, though they have declined throughout the observed period. This suggests that competitive viability may be an important factor for further consolidation in the Greek banking industry.

Forward-looking information in VAR models and the price puzzle

Working Paper No. 10

Sophocles N. Brissimis and Nicholas S. Magginas

A large part of the empirical literature on monetary transmission uses vector autoregressive models (VARs). However, isolating the economic effects of monetary policy shocks in these models is not straightforward, as the response of economic variables to monetary policy impulses reflects the combined effect of the policy actions and of the variables to which policy responds. This identification problem is addressed with the imposition of a number of identifying restrictions based on economic theory.

In many cases the empirical analysis made on the basis of identified VARs leads to puzzling responses of some of the variables included in the system to a monetary policy innovation. The positive response of the price level to a monetary policy tightening – the price puzzle – is the most often cited puzzle in the literature and is viewed as evidence of a serious misspecification problem in the underlying system and in particular in the model's equation describing the monetary policy reaction function.

Several proposals to solve the price puzzle have been put forward. Most of them attempt to deal with the major disadvantages of the VAR approach, i.e. the inadequate description of the central bank's operating procedures and the insufficient amount of information incorporated in the analysis due to the small number of variables that can be included in a VAR system.

In this paper we suggest a VAR specification that proves to be successful in resolving the price puzzle featuring in monetary VARs for the US. This specification addresses the disadvantage of the VAR model associated with its ability to handle directly issues related to the forward-looking behaviour of the central bank. We show that augmenting a standard VAR with a small number of variables that have forward-looking informational content is capable of producing theory-consistent responses to monetary policy shocks. The VAR is estimated for the US with data covering the period 1989-2001, a period characterised by a relatively homogeneous monetary policy regime and a pronounced price puzzle in standard VAR specifications. Most important among these forward-looking variables are (i) the federal funds rate future reflecting expectations of future monetary policy and (ii) a leading composite indicator providing information about near-term developments in economic activity. The significant steps towards greater openness, accountability and transparency of monetary policy that have been taken during the last fifteen years have increased the ability of the markets to anticipate policy actions and this makes financial market instruments, such as the federal funds rate futures, ideal candidates for incorporating parsimoniously a large amount of information into a low-dimension VAR.

EMU strategies: lessons from past experience in view of EU enlargement

Working Paper No. 11
Theodoros S. Papaspyrou

The paper, after reviewing briefly the early steps of European monetary integration and key elements of the EMU project as reflected in the Treaty of Maastricht, analyses the monetary integration strategy and convergence experience of Member States, notably that of Greece, in the 1990s which led to the adoption of the euro. From this analysis, a number of lessons are drawn which may be useful, in the light of enlargement, to future candidates for euro area membership in designing their economic and monetary convergence strategies.

Such lessons include the comprehensive and coherent character of the convergence effort, the strong commitment to the objective of euro membership as a factor limiting uncertainty, the right setting of priorities in pursuing the convergence criteria and the importance of a sound financial system in ensuring a safe and sustainable convergence. It is argued that macroeconomic stabilisation, pursued in order to achieve the nominal convergence criteria, is also compatible with real convergence, as the two processes can be mutually re-enforcing, notably if the process of nominal convergence acquires enhanced credibility, thus affecting the formation of key variables such as interest rates, wages and prices. Moreover, convergence of the economies of the new members to the EU average will be supported by funds allocated through the EU budget.

ERM II should be seen as a mechanism testing the consistency of policies, encouraging necessary adjustment and helping to achieve convergence. It provides both more flexibility and stability compared with earlier versions of the mechanism. ERM II rules are flexible enough to accommodate a number of new member states' exchange rate regimes, except those of free floating and currency boards based on currencies other than the euro. The alleged merits of free floating regimes —notably the extra degree of monetary and economic policy freedom— must be carefully weighed against the risks involved, i.e. loss of an external nominal anchor and the risk that the exchange rate drifts away from fundamentals. The choice of exchange rate regime should be made, in each case, not on grounds of facility —e.g. to avoid the ERM II constraint or because the current regime served the country concerned well in the past— but only as part of a plan to achieve specific policy objectives before joining ERM II.

Risks of destabilising capital movements can be considerably reduced by the implementation of sound and sustainable economic policies; furthermore, transparency and openness in economic policy reduce uncertainty about current policies and future plans, contributing to a stable economic and financial environment. Capital movements also provide timely information to the authorities about inconsistent and unsustainable policies, enabling corrective action to be taken. However, massive short-term capital movements may occur and the authorities should be in a position to cope with such a situation. Monetary authorities have at their dis-

posal instruments to deal effectively with the undesirable effects of massive capital movements, such as interest rate changes and sterilisation operations. Such measures may not constitute lasting solutions, but make it possible to cope with a difficult situation, gaining time in order to develop more sustainable solutions by adapting economic policies and improving the policy mix.

Finally, available evidence from the operation of monetary union so far, in particular the persistence of relatively high inflation and sizeable fiscal imbalances —notably high public debt— in some Member States, suggest that the effort to ensure sound public finances and improve the competitiveness of the economy and its overall performance must be a permanent process and not be limited to satisfying the Maastricht convergence criteria.

Wage rigidity and monetary union

Working Paper No. 12
Harris Dellas and George S. Tavlas

We compare monetary union to flexible exchange rates in an asymmetric, three-country model with active monetary policy. The features of our model include nominal wage rigidities, active monetary policy (Taylor rules), complete asset markets and a variety of shocks (supply, fiscal and monetary). Three international monetary arrangements are considered: flexible exchange rates for all three countries, a two-country monetary union with the third country pursuing a floating regime (we call this "mixed") and a catholic monetary union. Our main results can be summarised as follows:

In the benchmark case of perfect symmetry, countries are better off when they participate in a currency union and the benefits increase with the number of participants. The gains can be significant when the degree of nominal wage rigidity is high, but they tend to be small when rigidity is low. This contrasts with the traditional optimum currency area (OCA) analysis as well as Friedman's (1953) case for flexible rates (namely, that they fare well when wage rigidity is high) and obtains in spite of the fact that policy is activist. The improvement in welfare comes from three sources. First, from the existence of nominal wage rather than price rigidities. Second, from the existence of important supply and monetary shocks. For fiscal shocks, flexible rates fare better (for the reasons suggested in the traditional OCA literature, see also Poole, 1970). Third, from the fact that the model uses foreign intermediate goods in domestic production. This implies that an exchange rate change that has favourable effects on the demand for domestic products has unfavourable effects on the supply side of the economy as it increases the cost of domestic production.

We also show that asymmetries in wage flexibility across countries play a more important role in the evaluation of alternative regimes than other types of asymmetries (e.g. in the shocks, monetary policy etc.). Countries with substantial wage rigidities benefit from monetary union, especially when their partners are equally rigid. Countries with relatively more flexible wages are better off when they stay out. When we take into account the various sources of actual asymmetries that exist in the EU, we find that substantially greater wage flexibility in the UK relative to France and Germany would discourage her from forming a currency union. In contrast, France and Germany always benefit from forming a currency union. Whether they would also like to include the UK or not depends on the type of monetary policy rules considered.

To be published in *The Economic Journal*.

Inflation persistence during periods of structural change: an assessment using Greek data

Working Paper No. 13

George Hondroyiannis and Sophia Lazaretou

Conceptually and empirically, considerable attention has focused in recent years on the idea that the degree of inflation persistence depends on the monetary policy regime. Empirical studies, mainly dealing with the US economy and other industrial economies and applying different methodologies, have found abundant evidence that post-war inflation in these countries exhibits very high persistence.

We define inflation persistence as the "speed with which inflation returns to baseline after a shock" (Willis 2003). Following the typology proposed by Batini and Nelson (2001) and Batini (2002), measures of inflation persistence refer, first, to positive serial correlation in inflation series, second, to lags between systematic monetary policy actions and their peak effect on inflation and, third, to lagged responses of inflation to policy shocks.

This paper presents a model-free assessment of the time profile of inflation persistence for the Greek economy from 1975 to 2003. Greece is a country with a high variance in inflation which has experienced a variety of policy regimes post-1975 that might have considerably affected the behaviour of inflation process both in the sense of the steady state inflation rate and its autocorrelation properties. In particular, during this period, major inflation peaks occurred, in 1979-80, 1985-86 and 1990; on each occasion, inflation rose to at least 20%. By 1995, however, the annual rate of inflation had fallen for the first time during the period to single-digit levels and, by the late 1990s, had fallen even further. Moreover, the post-1975 period has also been characterised by changes in the monetary policy regime. Prior to 1990, monetary policy was not effective at reducing inflation. Subsequently, the effectiveness of monetary policy increased while deregulation and expansion of the Greek financial market was set in motion and, beginning in 1995, monetary policy was successful in curbing price pressures and bringing inflation down to a level consistent with the Maastricht criterion.

Based on different definitions of persistence proposed in the empirical literature, we offer purely statistical evidence on the autocorrelation properties of the inflation series, as well as on the sluggish response of inflation to monetary policy changes, using quarterly macro data for CPI inflation in Greece. To this end, two empirical methodologies, univariate autoregressive (AR) modelling and second generation random coefficient (RC) modelling are employed. The advantage of RC modelling is that it estimates time-varying inflation persistence and relaxes key restrictions, such as a specific functional form, often imposed in empirical literature. The empirical results from all the procedures employed and definitions used indicate that Greek inflation is rather persistent in the period under study. Overall, the methods provide qualitatively similar results, even though the RC estimation produces slightly lower estimated values for the persistence parameter.

In particular, according to the autoregressive estimates using classical analysis and the RC estimates, CPI inflation persistence was high during the inflationary period and the first six years of the disinflationary period. Only after 1997 did it start to decline. There appears to have been a sizeable shift in the mean of Greek inflation over the past twenty-five years, but only a small shift in inflation persistence. However, concerning the normative aspects of persistence, inflation persistence does not have the same notion in an inflationary period (vicious circle) as in disinflation (virtuous circle). For example, the persistence of the 1970s and the 1980s is more of the type we would associate with negative effects – a shock occurred which raised inflation and inflation returned only very slowly to its previous low level. By contrast, the persistence of the 1990s results from steadily falling inflation which can hardly have a negative connotation.

Rolling regressions were also applied as an alternative way of analysing the influence of structural breaks in the coefficients of the autoregressive process. We found that the sample mean of the inflation rate had dropped dramatically in the 1990s, while the persistence parameter started to decline only by the end of the sample.

We are also interested in identifying whether inflation responds with a delay to changes in monetary policy and whether this delay varies with monetary policy regime switches. We try to determine the length of the response of inflation, i.e. the number of periods it takes for a change in monetary policy to have its peak effect on inflation. The estimated correlations between CPI inflation and different policy stance measures suggest that inflation, in the period under consideration, responded with a certain delay to changes in monetary policy. However, the lead-lag relationships seem to have changed little over time, despite several shifts in the monetary policy framework.

A summary version of this paper was published in the Working Paper Series of the European Central Bank (No. 370).

Econometric modelling at the Bank of Greece

Working Paper No. 14
Nicholas G. Zonzilos

Econometric modelling has a long tradition at the Bank of Greece and this paper is a brief but comprehensive overview of the model-building process at the Bank, as well as a description and documentation of the use of models in forecasting and policy analysis.

As model development at the Bank of Greece is an ongoing and probably never-ending activity, driven mainly by the changes that the Greek economy has undergone in recent years as well as by consensual theoretical advances provided by academia, the aim of the paper is to portray in rather descriptive terms the evolution and extensions of the model over the years. Against this background, the paper approaches the issue of modelling at the Bank in an evolutionary perspective, starting from the first attempts to model the Greek economy in the mid-70s, when the development of the Bank's first model of the Greek economy was started under the leadership of the now Governor of the Bank Nicholas C. Garganas.

Until the mid-90s, the formulation of the model was predominantly Keynesian.[1] In the late 90s, the model was drastically revised and the current version of the model is more in line with the "neoclassical synthesis", taking explicitly into account the long-run supply side of the economy. The long-run structure of the model is theory-based, while the dynamics are data-instigated.

The paper proceeds by tracing out the main changes which the model has undergone over time and provides a complete if discursive description of the specification of the current version of the model. The properties of the model are assessed through a set of standard simulations results. The paper also gives a complete description of the uses of model in the context of the forecasting process at the Bank of Greece (internal forecasting rounds as well as the ESCB Broad Macroeconomic Forecasting Exercise). One of the key characteristics of forecasting practice at the Bank of Greece is the blending of pure model-based forecasts with judgements about the course of the economy from Monetary Policy Committee (MPC) members and other experts in the Bank. The role of the model in this process is central by combining realistic evaluation of the current economic conditions and policy stances while maintaining theoretical coherence and consistency of the numerical results. Furthermore, the usefulness of the model as a story-telling device used by the MPC members of the Bank in order to shape their views about the prospects of the Greek economy is highlighted. Last but not least, the role of the model in the policy process of the Bank, as an organising framework necessary for processing and combining information emanating from different sources is fully explained.

1 A comprehensive presentation of the model, at it stood in 1991, is included in a book written by Governor Garganas, entitled *The Bank of Greece Econometric Model of the Greek Economy*.

Monetary policy and financial system supervision measures

(January - July 2004)

Monetary policy measures of the Eurosystem

8 January 2004

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 2.0%, 3.0% and 1.0% respectively.

12 January 2004

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 2004 from €15 billion to €25 billion. This increased amount takes into consideration the higher liquidity needs of the euro area banking system anticipated for the year 2004. The Eurosystem will, however, continue to provide the bulk of liquidity through its main refinancing operations.

5 February, 4 March, 1 April, 6 May, 3 June, 1 July 2004

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 2.0%, 3.0% and 1.0% respectively.

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

16 January 2004

The Bank of Greece approves the merger of the Investment Bank of Greece and Marfin Hellenic

Securities SA (through the absorption of the latter by the former).

20 January 2004
In implementation of ECB decisions, the Bank of Greece sets a framework for the reproduction of euro banknotes.

21 January 2004
The rules governing credit institutions' statistical reporting to the Bank of Greece of all transactions (capital movements and current transactions) in euro and foreign exchange between Greek residents and non-residents are amended and codified into a single text.

4 February 2004
Under authorisation by Law 3148/2003, the Bank of Greece specifies the terms and conditions for granting authorisation to, and the rules for the supervision of, money transfer intermediaries.

11 February 2004
With a view to providing more thorough information to the Bank of Greece for compiling the balance of payments and the international investment position, credit institutions shall submit, on a monthly basis, detailed lists of the securities they either hold for their own account or keep in custody/manage on behalf of their customers.

27 February 2004
– In the framework of Law 3066/2002 establishing the "Credit Guarantee Fund for Small and Very Small Enterprises SA" (TEMPME), the Bank of Greece lays down supervisory rules governing TEMPME's capital adequacy, liquidity and investment of its funds.

– The provisions relating to the authorisation of bureaux de change in Greece and the rules for their supervision by the Bank of Greece are codified into a single text and updated.

– The bank "Societé Générale S.A." is authorised to acquire the majority of the share capital of General (Geniki) Bank.

23 March 2004
The Tirana-based "American Bank of Albania" is authorised to establish and operate a branch in Greece.

18 June 2004
Credit institutions are required to report to the Bank of Greece quarterly data on their open positions in foreign exchange on both an individual and a consolidated basis. Thus, the frequency of reporting is harmonised with that for overall capital adequacy data.

23 June 2004
The ceiling on borrowing from credit institutions and members of the Athens Exchange for conducting stock exchange transactions is increased from €150,000 per customer to €1,000,000, following a proposal by the Hellenic Capital Market Commission, in accordance with the provisions of Law 2843/2000.

Decisions of the Bank of Greece

Re: Amendment to, and codification of, provisions on the reporting of data to the Bank of Greece on transactions between residents and non-residents in euro and foreign currency (Bank of Greece Governor's Act 2535/21.1.2004)

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

a) Article 1 of Law 1266/1982 "Authorities responsible for the conduct of monetary, credit and exchange rate policies, and other provisions", in conjunction with Article 12(1) of Law 2548/1997;

b) the provisions of the Statute of the Bank of Greece, in particular Articles 55A and 55C thereof, as currently in force;

c) Presidential Decrees 96/23.3.93 and 104/14.5.94, as well as Article 16 of Chapter III of Law 3148/5.6.2003;

d) Law 2331/24.8.95 "Prevention and suppression of money laundering, and other criminal provisions —Supreme Court Plenum— Arbitration and other provisions";

e) Presidential Decree 33/2000 "Adjustment of the Greek legislation to Directive 97/5/EC/27 January 1997 on cross-border credit transfers", in conjunction with Regulation (EC) No. 2560/2001 of the European Parliament and the Council on cross-border payments in euro, in particular Article 6 thereof;

f) Law 2842/25.9.2000 "Supplementary measures for the implementation of Regulations (EC) 1103/97, 974/98 and 2866/98 of the Council, as currently in force, on the introduction of the euro";

g) the Bank of Greece (Statistics Department) Balance of Payments Compilation Manual;

h) Bank of Greece Governor's Acts 2302/16.5.94, 2344/19.12.94, 2345/19.12.94 and 2416/28.7.97, as currently in force;

i) Banking and Credit Committee Decision 92/5/2001 "Operation of accounts in euro, national currencies of the euro area Member States and other currencies";

j) Bank of Greece Governor's Act 2523/12.6.03 "Amendments to the provisions of Bank of Greece Governor's Act 1955/91, as currently in force, on consumer credit and personal loans"; and

k) Bank of Greece Governor's Act 2456/3.2.2000 "Transactions in gold", in particular par. 3 thereof;

has decided:

to amend and codify as follows the provisions regarding credit institutions' reporting to the Bank of Greece of data relating to current account and financial account transactions of any type in euro and foreign currency between residents of Greece and non-residents (i.e. residents of European Union Member States and of third countries):

I. TRANSACTIONS CARRIED OUT WITH THE INTERMEDIATION OF RESIDENT CREDIT OR FINANCIAL INSTITUTIONS

A. 1. Where funds exceeding the equivalent of €12,500 are transferred by residents of Greece to non-residents, the intermediary credit or financial institution shall request from the resident customer (originator) the following information:

— particulars (full name, address, identity card number etc.) of both the resident originator and the non-resident recipient (beneficiary);

— type of transaction;

— country of destination of the funds or country of residence of beneficiary;

— country of origin of the goods, in the case of imports;

— transaction value and currency of denomination;

— initial maturity (less than/equal to/over one year), in the case of loans;

— kind of good – Combined Nomenclature Code (CNC), in the case of purchases/imports of goods other than those intended for covering personal needs;

— taxpayer's identification number, in accordance with the provisions of Presidential Decree 96/1993, as amended by Law 3148/5.6.2003.

2. Where private (non-bank) cheques are paid abroad, credit institutions shall require the above data from resident customers who have transferred such cheques to non-residents, provided that the cheques have only one endorsement and their value exceeds the equivalent of €12,500.

B. Intermediary credit or financial institutions shall:

1. report to the Bank of Greece, in accordance with the current instructions of the Statistics Department (Balance of Payments Statistics Division), data on all the transactions exceeding the equivalent of €12,500 which they carry out, either for their own account or on behalf of their customers, with non-residents.

   The above requirement shall not imply an obligation upon credit or financial institutions to keep records.

2. inform their resident customers who wish to carry out transactions with non-residents of their obligations under this Act.

II. TRANSACTIONS CARRIED OUT WITHOUT THE INTERMEDIATION OF RESIDENT CREDIT OR FINANCIAL INSTITUTIONS

Resident legal persons shall report directly to the Statistics Department (Balance of Payments Statistics Division), in accordance with the form attached herewith and the current instructions of the said Department, data on all the transactions, irrespective of type and amount, with non-residents which they carry out without the intermediation of resident credit or financial institutions (such as receipts and payments abroad, investments using funds held abroad etc.).

III. GENERAL PROVISIONS

1. In the event of incomplete or delayed reporting of data by the persons indicated in I.B and II hereof, the sanctions provided for in the Statute of the Bank of Greece (Articles 55A and 55C, as currently in force) shall apply.

2. a) The following are hereby repealed:

   i) Bank of Greece Governor's Acts 2302/16.5.94, 2417/28.7.97 and Bank of Greece Governor's Acts 2344/19.12.94, 2449/5.8.99 on the procedures for capital movements and current transactions abroad, respectively;

   ii) the provisions of par. 4 of Bank of Greece Governor's Act 2345/19.12.94;

   iii) the provisions of par. 3 of Bank of Greece Governor's Act 2456/3.2.2000; and

   iv) any other existing provision contrary to this Act.

   b) It is clarified that the provisions of this Act do not prevent residents from fulfilling directly all their obligations by using deposits held with non-resident credit institutions or the proceeds from liquidation of investments abroad, as well as from depositing such proceeds in a foreign currency account held with resident credit institutions.

3. The provisions of this Act shall be without prejudice to the obligations of bank customers and credit or financial institutions vis-à-vis the Bank of Greece as the supervisory authority or vis-à-vis other authorities within their respective fields of competence, or to their obligations under the provisions of Law 2331/1995 as applicable and the relevant Bank of Greece Administra-tion's Circular 2/18.2.97.

* * *

Re: Requirements for granting authorisation to, and rules for the supervision of, money transfer intermediaries by the Bank of Greece (Bank of Greece Governor's Act 2536/4.2.2004)

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

a) the Statute of the Bank of Greece, in particular Article 55A thereof, as currently in force;

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

c) Article 18 of Law 3148/2003 "Money transfer intermediaries";

d) Law 2331/1995 "Prevention and suppression of money laundering and other provisions", as currently in force, the recommendations of the Financial Action Task Force (FATF) on the obligations of money transfer intermediaries, and the relevant circulars of the Bank of Greece Department for the Supervision of Credit and Financial Institutions (latest circular: 654/22 July 2003);

e) Presidential Decree 33/2000 on cross-border credit transfers, in conjunction with Regulation (EC) 2560/2001 of the European Parliament and the Council on cross-border payments in euro;

f) Bank of Greece Governor's Act 2501/31 October 2002 "Informing credit institutions' customers on the terms and conditions applying to their transactions";

g) the need to establish a regulatory framework for money transfer intermediaries;

has decided the following:

I. TERMS AND CONDITIONS FOR AUTHORISATION

A. The Bank of Greece can authorise sociétés anonymes to operate as money transfer intermediaries, on the following terms and conditions:

1. a) The applicant société anonyme has a minimum initial share capital of one hundred and fifty thousand euro (€150,000) fully paid-in in cash and deposited with a credit institution operating in Greece. This amount shall remain in deposit until the société anonyme has been officially incorporated.

The own funds of undertakings which convert into sociétés anonymes for the purpose of operating as money transfer

intermediaries may not fall below the current minimum amount.

b) Throughout the operation of the above mentioned sociétés anonymes, their own funds may not fall below the above minimum amount.

2. The application submitted to the Bank of Greece shall contain the following information along with the necessary supporting documents:

a) The registered name and the location of the société anonyme.

b) Identification of the natural or legal persons which hold, directly or indirectly, at least 10% of the capital or voting rights of the money transfer intermediary.

c) Information on the main shareholders referred to in the preceding indent shall include:

(i) complete curricula vitae;

(ii) copy of type A criminal record (for shareholders that are natural persons);

(iii) non-bankruptcy certificate;

(iv) declaration stating the sources of the funds with which they will acquire their shares;

(v) in the event that any of the main shareholders is a legal person, identification of the natural persons who directly or indirectly control it.

d) Identification of the person in charge of the company's operation, as well as the person responsible for the company's compliance with anti-money laundering legislation (Article 4, paragraph 10, of Law 2331/1995, as applicable). For these persons, the following documents shall be submitted to the Bank of Greece, at the latest by the intermediary's start of operation:

(i) the documents referred to in paragraph 2 (i) to (iii). Curricula vitae shall include information on the above persons' professional background and previous experience.

(ii) two letters of recommendation for each person; these must not come from shareholders, prospective Board members or (prospective or current) executives of the applicant (under establishment or existing) company.

e) Identification of the company's Board members along with the supporting documents referred to in paragraph 2 (i) to (iii).

f) For companies under establishment, Draft Articles of Association; for existing companies, copy of the Articles of Association incorporating all amendments up to date or amendments envisaged considering the operation of these companies as money transfer intermediaries.

g) Detailed organisational and administrative structure of the company as well as number of personnel.

h) Description of the accounting system, the IT system and the management information system, as well as the procedures for conducting money transfer transactions.

i) The société anonyme's internal audit procedures aimed at monitoring compliance with this Act, Law 2331/1995, as currently in force, the relevant circulars of the Bank of Greece and the provisions of law governing the société anonyme's specific area of activity.

j) An estimate of the amount of funds to be transferred within the next six months.

k) Name and postal address of the company/companies with which the applicant has contracted for the purpose of transferring money.

l) The selection criteria for the company's associates (natural and legal persons).

3. The Bank of Greece reserves the right to request additional information and data before granting authorisation.

In the event that any data or information provided in compliance with this Act are inaccurate or misleading, the Bank of Greece reserves the right to revoke authorisation.

B. The authorisation granted to a money transfer intermediary shall be valid for a period of six (6) months from the communication of the relevant decision of the Bank of Greece to the applicant, unless a different period is specified in the decision.

To this end, said intermediaries shall notify the Bank of Greece (Department for the Supervision of Credit and Financial Institutions) of their start of operation within fifteen (15) days from such start, providing full addresses of their headquarters and branches (including the name and address of any agents), along with a list of the credit institutions with which they will hold accounts for clearing their transactions related to money transfers.

II. RULES OF OPERATION – CUSTOMER INFORMATION

1. Money transfers can be settled either on a one-to-one basis or on a netting basis, at regular intervals, through an account held by the intermediary with a credit institution operating in Greece. Entries in this account shall exclusively reflect respective flows under money transfer orders.

2. For the funds to be transferred, the procedures on statistical reporting to the Bank of Greece (Bank of Greece Governor's Act 2535/2004) shall be observed.

3. The intermediary shall forward its customer's money transfer order to its associate or agent on the same day it collects the corresponding amount from the originator.

4. For every transaction, the money transfer intermediary shall issue a transaction slip, delivered

to its customer and including at least the following information:

— name and address of the originator,

— the transacted amount,

— name and address of the beneficiary,

— date of the transaction,

— place of payment.

The intermediary shall keep records of its operations for at least five (5) years.

5. a) Money transfer intermediaries shall provide their customers with the information referred to in Articles 2 and 4 of Presidential Decree 33/2000, irrespective of amount and currency, and shall establish procedures for the examination of customer complaints.

b) The provisions of this section shall be without prejudice to the rights and obligations of the persons involved that may arise from other legal provisions and/or regulatory decisions issued by other authorities within their fields of competence.

III. CAPITAL REQUIREMENTS – RULES FOR INVESTMENTS

1. In the event that the intermediaries' own funds are lower than the average daily balance of funds received during the preceding calendar half-year, the shortfall shall be covered by a letter of guarantee issued by a credit institution for securing fulfilment of the intermediary's obligations. In the case of newly established intermediaries, the calculation basis shall be the estimated amount of funds to be transferred within the first six months of operation, as reported to the Bank of Greece.

2. The intermediary shall at all times maintain sufficient liquidity, in the form of sight deposits, deposits with an agreed maturity of up to 3 months, and securities issued by central governments of EU Member States. The composition and amount of these liquid assets shall be determined by the Bank of Greece Department for the Supervision of Credit and Financial Institutions, mainly on the basis of the intermediary's turnover as well as the internal procedures it has put in place for securing the funds collected by its agents (e.g. adequate coverage by bank guarantees issued in favour of the intermediary at the agent's instruction).

IV. REPORTING TO THE BANK OF GREECE

Money transfer intermediaries shall notify the Bank of Greece (Department for the Supervision of Credit and Financial Institutions) in writing of any change in the data referred to in section I.A., paragraph 2, excluding indent (j), at least fifteen (15) days before the change. Specifically:

a) If the change relates to the persons referred to in indents (d) and (e) of paragraph 2, Section I.A., the notification shall be accompanied by the documents referred to therein.

b) In the event of transfer of a shareholding stake or voting rights which leads to a shareholder

acquiring more than 10% of the intermediary's share capital, the party intending to acquire such holding shall submit to the Bank of Greece the documents set out in Section I.A., paragraph 2, indents (b) and (c). If the Bank of Greece does not communicate a negative response within forty-five (45) days from the above submission, this shall mean approval of the share transfer. The same obligation shall apply in the event of a shareholding stake increase leading to the assumption of the intermediary's control.

V. SANCTIONS

The Banking and Credit Committee shall impose as per the case the sanctions set out in Article 18 of Law 3148/2003.

Administrative fines shall be paid within one month from the communication of the relevant decision. Failure to pay such fine shall incur suspension or even revocation of authorisation.

VI. OTHER PROVISIONS

1. Money transfer intermediaries already operating at the time when this Act enters into force shall conform to the provisions of this Act; to this end, they shall submit to the Bank of Greece an application within four months from the Act's publication in the Government Gazette. The Bank of Greece shall determine within two months from this submission whether the requirements set herein are met and shall communicate its decision to the intermediaries concerned. In the event of non-authorisation, companies shall discontinue their money transfer intermediation activity immediately.

   If the aforementioned application and the supporting documents referred to herein are submitted with a delay, the Bank of Greece shall impose the sanctions set out in paragraph 2, Article 18 of Law 3148/2003.

2. The provisions of Circular 654/22 July 2003 of the Bank of Greece Department for the Supervision of Credit and Financial Institutions on the prevention and suspension of money laundering (Law 2331/1995) shall apply to all money transfer intermediaries under this Act.

3. Mailing companies, which are subject to the legal framework governing the supply of mailing services and which, alongside their main activity, take up business in the field of money transfer intermediation, shall notify the Bank of Greece thereof, so that the latter can determine whether such companies fall within the scope of this Act; in any event, the provisions of paragraph 2 above shall apply.

4. The Bank of Greece Department for the Supervision of Credit and Financial Institutions is hereby authorised to provide clarifications and instructions for the implementation of this Act.

* * *

Re: Rules for the supervision of the "Credit Guarantee Fund for Small and Very Small Enterprises SA" (TEMPME SA) by the Bank of Greece – Supervisory treatment of credit insti-

tutions' claims carrying the explicit guarantee of TEMPME SA (Bank of Greece Governor's Act 2540/27.2.2004)

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

a) Article 55A of the Statute of the Bank of Greece;

b) Article 1 of Law 1266/1982 "Authorities responsible for the conduct of monetary, credit and exchange rate policies, and other provisions" in conjunction with Article 12, paragraph 1, of Law 2548/1997;

c) the provisions of Section A of Law 3066/2002 "Establishment of the Credit Guarantee Fund for Small and Very Small Enterprises SA" (TEMPME SA), in particular Article 9 thereof, which specifies that the supervision of TEMPME in terms of capital adequacy, liquidity, amount and type of holdings shall be exercised by the Bank of Greece;

d) joint decision 12882/867/2003 of the Minister of Economy and Finance and the Minister of Development, approving the Regulation of Guarantees and the Regulation of Operation of TEMPME;

e) the Community regulatory framework governing the operation as well as the financing of the Guarantee Funds (including TEMPME SA) subsidised by EU Structural Funds;

f) Bank of Greece Governor's Act 2053/18 March 1992 "Definition of own funds of credit institutions established in Greece", as currently in force;

g) Bank of Greece Governor's Act 2524/23 July 2003, "Codification of the provisions of Bank of Greece Governor's Act 2054/18 March 1992, as amended, on the solvency ratio of credit institutions established in Greece";

h) the need to establish a supervisory framework for TEMPME SA, comparable to the framework applying to supervised financial institutions undertaking similar risks;

Has decided as follows:

I. SUPERVISORY RULES

In the context of Article 9 of Law 3066/2002, the following rules for the supervision of TEMPME SA by the Bank of Greece are specified:

A. Capital adequacy

For the calculation of TEMPME SA capital adequacy, the provisions of Bank of Greece Governor's Acts 2053/18 March 1992, as currently in force, and 2524/23 July 2003, shall apply by analogy. In particular:

1. a) TEMPME's supervisory own funds shall be the key asset items defined in Bank of Greece Governor's Act 2053/1992, as currently in force, plus reserves from the revaluation of fixed assets, less the items deductible from own funds under the said Act and less the amount of any shortfall in the provisions for doubtful debts against the

provisioning requirements calculated in accordance with indent (b) below.

b) Minimum provisioning requirements for outstanding guarantees provided by TEMPME SA shall be calculated for the purposes of this Act using the following ratios:

- 0.75% of total guarantees with an initial maturity of less than one year;
- 1.0% of total guarantees with an initial maturity of more than one and up to three years; and
- 1.25% of total guarantees with an initial maturity of over three years.

(i) These ratios shall be raised by 20% in the case of newly established enterprises, for a period of two years from their establishment.

(ii) In the case of guarantees on loans overdue for more than 180 days (loans in permanent delay), provisions shall amount to at least 60% of the claim guaranteed by TEMPME SA.

(iii) The provisioning ratios shall be lowered by 50% where the guaranteed credit is covered by collateral in the form of real estate of an objective value equal to the maximum limit laid down in Section IV of the Regulation of Guarantees. If collateral coverage is smaller than the limit, the lower ratio shall apply to a proportionately smaller part of the guarantee.

(iv) In the event that part of the credit is secured by assets which, for the purposes of Bank of Greece Governor's Act 2524/2003, bear zero risk weighting, no provisioning shall be required for the amount of the guarantee which corresponds to the secured part of the credit.

(v) The minimum provisioning ratio shall be raised to 80% in the event of a guarantee on a "loan in permanent delay" for which TEMPME SA has waived the benefit of discussion, in accordance with Law 3066/2002 and TEMPME Regulation of Guarantees.

(vi) The Bank of Greece may:

- adjust the ratios laid down herein; or
- accept, alternatively to the application of these ratios, for the purposes of this Act, TEMPME's own estimation of potential losses from guarantees and counter-guarantees provided, after the estimation methodology applied by TEMPME has been evaluated by the Bank of Greece Department for the Supervision of Credit and Financial Institutions.

2. TEMPME SA shall keep its solvency ratio at a level not lower than 10%, applying by analogy the provisions of Bank of Greece Governor's Act 2524/23 July 2003. It is hereby clarified that the guarantees provided to financing banks and other financial institutions for covering credit, leasing and factoring deals, as well as counter-guarantees covering letters of guarantee, shall be deemed high-risk items

and shall be subject to the weights and the weighting methodology set out in Section six of Bank of Greece Governor's Act 2524/23 July 2003.

B. Rules for investment – Liquidity

1. TEMPME SA may invest its assets in holdings with limited credit and market risks, as follows:

   a) in securities with adequate liquidity, bearing zero risk weighting, under Bank of Greece Governor's Act 2524/2003,

   b) in sight deposits and/or time deposits with a maturity of up to three months, with credit institutions in Zone A countries, as specified in Bank of Greece Governor's Act 2524/2003, i.e. the countries of the European Economic Area (EEA) and other countries which are full members of the OECD, provided that the latter countries are rated at least "A" by Standard & Poor's or are given a comparable rating by another recognised rating agency.

2. The part of the above holdings which constitutes claims on the same legal entity as well as on legal entities connected with it, within the meaning of the provisions of Section 42e of Law 2190/1920, as currently in force, shall not exceed 25% of TEMPME's own funds.

3. The sum total of TEMPME's holdings as above plus its cash holdings shall not fall below 20% of its outstanding guarantees. Asset and risk management shall conform to TEMPME's Investment Regulation, which shall be communicated to the Bank of Greece.

II. OTHER PROVISIONS

1. For the purpose of calculating the solvency ratio of credit and financial institutions supervised by the Bank of Greece, under Bank of Greece Governor's Act 2524/2003, asset items covered by a TEMPME SA guarantee shall be assigned a 20% weight. The above mentioned reduced weighting shall apply only if all terms and conditions set out by law for the operation of TEMPME SA and its financing by EU funds are fulfilled. The application of this reduced weighting shall be reconsidered after the EU monitoring period has expired (31 December 2008).

2. The Department for the Supervision of Credit and Financial Institutions of the Bank of Greece is hereby authorised to provide clarifications and instructions on the application of this Act.

3. Bank of Greece Governor's Act 2434/3 June 1998, setting out the supervisory framework for Mutual Guarantees Companies, is hereby repealed.

* * *

Re: Codification and amendment of Bank of Greece Governor's Act 2440/11 January 1999, "Establishment and operation of bureaux de change in Greece by sociétés anonymes other than credit institutions", as currently in force (Bank of Greece Governor's Act 2541/ 27.2.2004)

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

a) The Statute of the Bank of Greece, in particular Article 55A, as currently in force, thereof;

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

c) Article 15 of Law 2515/1997 "Bureaux de change";

d) Law 2331/1995 "Prevention and suppression of money laundering and other provisions", as currently in force, and the related circulars of the Bank of Greece Department for the Supervision of Credit and Financial Institutions (latest relevant circular: 654/22 July 2003);

e) Bank of Greece Governor's Act 2440/11 January 1999, as currently in force, on the establishment and operation of bureaux de change in Greece by sociétés anonymes other than credit institutions;

f) the need to codify into a single text and to update the provisions regarding the authorisation and supervision of bureaux de change by the Bank of Greece;

g) the relevant recommendation of the Bank of Greece Department for the Supervision of Credit and Financial Institutions;

Has decided:

I. TERMS AND CONDITIONS FOR AUTHORISATION

The Bank of Greece shall authorise a société anonyme to operate as bureau de change under Law 2515/1997, as currently in force, as long as it meets the following terms and conditions:

1. a) The société anonyme shall have a minimum initial share capital of two hundred thousand euro (€200,000), fully paid-in and deposited with a credit institution operating in Greece prior to the authorisation. This amount shall remain in deposit until the société anonyme has been officially incorporated.

   b) Throughout the operation of the société anonyme, its own funds may not fall below the above minimum amount. This shall also apply to business firms converted into sociétés anonymes - bureaux de change.

   The aforementioned minimum own funds shall cover the establishment of up to six (6) branches and shall be increased by twenty-five thousand euro (€25,000) for each additional branch.

   c) Own funds of the bureau de change shall be considered, for purposes of supervision by the Bank of Greece, the key items of own funds specified in Bank of Greece Governor's Act 2053/1992, as currently in force, plus reserves from the revaluation of fixed assets less the items defined in the said Act.

2. The application submitted to the Bank of Greece shall contain the following information plus the necessary supporting documents:

   a) The registered name and the location of the société anonyme.

b) Identification of the natural or legal persons which hold, directly or indirectly, at least 10% of the capital or voting rights of the société anonyme.

Information on the above main shareholders shall include:

(i) Complete curricula vitae.

(ii) Copy of type A criminal record (for shareholders that are natural persons).

(iii) Non-bankruptcy certificate.

(iv) Declaration stating the sources of the funds with which they will acquire their shares.

(v) For shareholders that are legal persons, identification of the natural persons who directly or indirectly control these legal persons.

c) Identification of the person that will be in charge of the operation of the société anonyme, as well as of the person responsible for compliance with anti-money laundering legislation (Article 4, paragraph 10, of Law 2331/1995, as currently in force). As regards these two persons, the following documents shall be submitted to the Bank of Greece, latest by the société anonyme's start of operation:

(i) the supporting documents referred to in paragraph 2(b), indents (i) to (iii) above. Curricula vitae shall include information on the professional background and previous experience of the said persons.

(ii) two letters of recommendation for each person; these letters must not come from shareholders, Board of Directors members or (prospective or working) executives of the applicant (under establishment or existing) société anonyme.

d) Identification of the Board of Directors members and submission of the supporting documents referred to in paragraph 2(b), indents (i) to (iii), above.

These persons shall be reliable and suitable for the sound and prudent management of the bureau de change.

e) Draft Articles of Association of the société anonyme under establishment or copy of the codified (applicable or prospective) Articles of Association of the existing société anonyme.

f) Detailed organisational and administrative structure of the company as well as the anticipated number of personnel.

g) Description of the accounting system, the IT system and the management information system, as well as the manuals on transaction processing procedures.

h) The société anonyme's officially applying internal audit procedures aimed at monitoring fulfilment of the obligations that stem from this Act, Law 2331/1995, as currently in force, the relevant circulars of the Bank of

Greece and the provisions of law governing the société anonyme's operation.

i) The exact number of branches to be established and their location.

j) The registered name and the postal address of the head office of any companies with which the applicant has contracted in order to operate as an intermediary.

3. The Bank of Greece shall reserve the right to request additional information and data for granting the authorisation. In the event that any data or information provided for under this Act are inaccurate or misleading, the Bank of Greece shall reserve the right to revoke authorisation.

4. The authorisation shall be valid for six (6) months from the communication of the relevant decision of the Bank of Greece to the applicant, unless this decision sets another time limit.

II. OPERATIONS ALLOWED

1. Bureaux de change operating as sociétés anonymes may engage in the following foreign exchange operations:

a) Purchase of banknotes, travellers' cheques, personal cheques and bank cheques in foreign currency, including those surrendered by Hellenic Post SA, as well as by tourist and other businesses accordingly authorised by Currency Committee Decision 176/4/1997, as currently in force.

b) Sale of foreign banknotes and travellers' cheques.

2. Bureaux de change may also offer the following intermediary services, ancillary to the above operations:

a) Promotion of, and intermediation in, the supply of bank products and services, within bilateral agreements, excluding both the undertaking of any commitment on behalf of credit institutions and the carrying out of receipts or payments on behalf of such institutions. This limitation shall not affect the operations referred to in paragraph 1 above or indent (b) below.

b) Cooperation with credit card issuers domiciled in Greece or abroad for supplying credit card holders with cash, up to the respective cash advance limit.

c) Intermediation in fund transfer within Greece or across borders, according to the provisions of Bank of Greece Governor's Act 2536/4 February 2004.

d) Acceptance of payment of bills issued by non-credit institutions.

e) Sale of tickets for domestic and international means of public transport, concerts and other cultural events.

f) Travel agency and travel insurance services, sale of the products of Hellenic Post SA and of "Athens 2004", provided that any required authorisation has previously been granted by the competent authorities.

g) Promotion and sale of mobile and fixed telephony companies' products and of internet access providers' products.

3. A bureau de change may participate in the share capital of another bureau de change operating as a société anonyme, provided that it has notified accordingly the Bank of Greece Department for the Supervision of Credit and Financial Institutions at least fifteen (15) days prior to acquiring such holding, without prejudice to the provisions of Section IV, paragraph 1.

III. RULES OF OPERATION

1. The daily ceiling on the foreign exchange reserves of the bureau de change shall be five times as high as its own funds. In calculating this ceiling, any credit balances in foreign exchange deposits shall be counted in.

2. Bureaux de change are allowed to:

   a) Purchase, daily, foreign banknotes from banks authorised to carry out exchange operations, from other bureaux de change and from the Bank of Greece up to the amount of the daily ceiling for each bureau's foreign exchange reserves, in accordance with the provisions of paragraph 1 above and paragraph 2(a) of Section VI.

   b) Issue foreign exchange purchase vouchers or other equivalent documents certifying the import of funds, according to applicable law or competent authorities' decisions.

3. Foreign exchange amounts in excess of the daily ceiling for each bureau's reserves, as per paragraph 1 above and paragraph 2(a) of Section VI, shall be surrendered within the next working day either to the banks authorised for the conduct of foreign exchange operations or to the Bank of Greece. Formal documentation for such surrender shall be kept in the accounting department of the bureaux and shall remain at the disposal of the supervising officials of the Bank of Greece.

4. For the transactions referred to in paragraphs 1 and 2(b) of Section II, the bureaux de change shall issue vouchers, which, in the event that the value of the transaction exceeds the amount of €1,000, shall include at least the following information:

   — time when the transaction was carried out,

   — name and address of the counterparty to the transaction (as evidenced by his/her ID card or passport or other official document),

   — the transacted amount.

   For transactions connected with fund transfer intermediation, any documents issued shall comply with the provisions of Bank of Greece Governor's Act 2536/2004.

5. Each branch of the bureau shall each business day post at a prominent position a table depicting the exchange rates applicable for the day, which shall be freely determined by the bureau, same as the amounts or rates of any commissions charged (also freely determined).

6. Each branch of the bureau de change shall keep its own financial data. The bureau de change shall keep records of its operations for five years.

7. Bureaux de change shall apply the Greek Chart of Accounts for Banks. A separate accounting procedure shall apply to the transactions pertaining to the provisions of paragraph 2, Section II.

8. Bureaux de change shall comply with the circulars of the Bank of Greece Department for the Supervision of Credit and Financial Institutions (latest relevant circular: 654/22 July 2003) relating to the implementation of Law 2331/1995 "Prevention and suppression of money laundering and other provisions", as currently in force.

9. The provisions of this section shall apply without prejudice to the rights and obligations of bureaux de change, which may stem from applicable legislation and/or the decisions of other authorities with regard to matters falling within their field of competence.

IV. REPORTING TO THE BANK OF GREECE

1. In the event of transfer of a shareholding stake or voting rights leading to a shareholder acquiring more than 10% of the bureau's share capital, the party intending to acquire such holding shall submit to the Bank of Greece the documents set out in section I, paragraph 2(b). If the Bank of Greece does not communicate a negative response within forty-five (45) days from the above submission, this shall mean approval of the share transfer.

2. For the establishment of new branches, an application shall be submitted to the Bank of Greece Department for the Supervision of Credit and Financial Institutions. If the Bank of Greece does not communicate a negative response within three months from the submission, this shall mean approval of the application.

3. Bureaux de change shall submit the following data to the Bank of Greece Department for the Supervision of Credit and Financial Institutions:

   a) In writing, any changes relating to the contents of Section I, paragraph 2, excluding indent (b), at least fifteen (15) working days prior to effecting the change. If the change relates to the persons referred to in indents (c) and (d) of paragraph 2, Section I, the documents referred therein shall also be submitted.

   b) On an annual basis (at the latest by end-April), financial statements and data on the société anonyme's business activity (monthly turnover per branch, broken down by type of operation as set out in section II) for the preceding financial year.

   c) Within the first ten days after each calendar quarter, a detailed list of daily balances of: purchases-sales, reserves in foreign banknotes, and cheques for the quarter (in the form provided by the Bank of Greece Department for the Supervision of Credit and Financial Institutions). This list shall also be communicated to the Bank of Greece Financial Operations Department.

   d) List of the credit institutions with which the bureau de change keeps its deposit accounts.

e) Notification of the start of operation and the exact postal address of the bureau de change and any authorised new branches within fifteen (15) days from their start of operation.

f) Any amendments to the bureau's Articles of Association.

V. SANCTIONS

1. The Bank of Greece may impose sanctions (suspension of operation, administrative fines, revocation of authorisation) on the bureaux de change as well as on the persons acting in violation of the provisions of this Act, any decisions relating to the operation of the bureaux and foreign exchange legislation in general. In the event that bureau shareholders do not comply with the provisions of Section IV, paragraph 1, the following sanctions shall be imposed on them, individually or collectively:

   a) fine in favour of the Greek government up to 30% of the value of the shares transferred in breach of the above mentioned provisions,

   b) for natural persons, barring from the bureau's Board of Directors as well as from any other executive position in the bureau, for a definite or an indefinite period of time.

2. Fines shall be paid within one month from the communication of the relevant decision. The bureau's failure to pay the fine imposed shall incur suspension of operation or even revocation of authorisation.

VI. OTHER PROVISIONS

1. The provisions of this Act shall also apply to all bureaux de change already operating in Greece with the authorisation of the Bank of Greece.

2. The Bank of Greece Department for the Supervision of Credit and Financial Institutions is hereby authorised:

   a) to determine a daily ceiling on the bureau's foreign exchange reserves lower than the levels referred to in Section III, paragraph 1, taking into consideration, indicatively, the bureau's turnover, the number of its branches or its non-conformity with the relevant decisions of the Bank of Greece,

   b) to monitor compliance with the provisions of this Act, to further specify requirements on reporting to the Bank of Greece for supervisory purposes, and to provide clarifications relating to the implementation of this Act.

3. Bank of Greece Governor's Act 2440/11 January 1999, as amended by Bank of Greece Governor's Act 2473/10 April 2001, Banking and Credit Matters Committee Decisions 112/8/5 November 2001 and 36/1/29 June 1999 is hereby repealed. Any reference to Bank of Greece Governor's Act 2440/11 January 1999 or its amendments shall mean to refer to this Act.

Statistical section

Tables

I. Prices and economic activity

1. Consumer price index 99
2. Wholesale price index 100
3. Industrial production index 101
4. Retail sales volume 102
5. Gross added value at basic prices and gross domestic product at market prices 103

II. External transactions

1. Balance of payments 104
2. Effective exchange rate of the euro calculated on the basis of Greece's external trade 105
3. Bilateral exchange rates of the euro 106-107
4. General government external debt servicing 108

III. Monetary aggregates and interest rates

1. Monetary aggregates in the euro area 109
2. Greek contribution to the main monetary aggregates of the euro area 110
3. Greece: deposits of domestic firms and households with OMFIs, by currency and type 111
4. Domestic MFI loans to domestic enterprises and households, by branch of economic activity 112
5. ECB and Bank of Greece interest rates 113
6. Greek government paper yields 114
7. Greece: bank rates on new euro-denominated deposits of, and loans to, euro area residents 115-116

IV. Public finance

1. Borrowing requirement of central government and public entities 117
2. Financing of borrowing requirement of central government and public entities 118
3. Government budget results 119

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
2000	3.2	2.0	2.0	3.4	2.8	1.9	1.4	26.8
2001	3.4	3.7	3.8	3.2	3.7	5.1	9.2	–4.8
2002	3.6	3.6	3.6	3.2	4.3	5.3	13.8	–1.7
2003	3.5	3.1	3.2	3.1	4.2	5.0	10.7	3.9
2001 I	3.3	3.8	3.8	2.9	3.9	1.9	–5.7	3.4
II	3.7	3.6	3.8	3.7	3.7	4.6	7.4	2.4
III	3.8	3.9	4.0	3.9	3.6	6.2	14.0	–4.4
IV	2.7	3.4	3.6	2.2	3.6	7.8	23.7	–18.7
2002 I	4.0	3.4	3.3	4.0	3.9	9.9	43.2	–7.4
II	3.5	3.9	3.9	3.0	4.4	4.7	9.0	–4.9
III	3.5	3.6	3.7	2.7	4.6	4.0	4.5	–0.4
IV	3.6	3.5	3.5	3.0	4.5	2.9	1.0	6.7
2003 I	3.8	3.4	3.6	3.4	4.5	2.3	–5.4	15.9
II	3.7	3.0	3.1	3.4	4.1	8.3	27.6	–2.4
III	3.4	2.9	3.0	2.9	4.1	6.1	19.2	0.9
IV	3.2	3.3	3.2	2.5	4.3	3.3	4.6	1.9
2004 I	2.7	3.2	3.3	1.8	4.0	3.3	2.6	–5.7
II	2.9	3.2	3.3	2.3	3.9	–0.7	–16.3	11.7
2002 Jan.	4.4	3.2	3.3	5.2	3.3	12.9	59.0	–6.4
Feb.	3.4	3.2	3.1	3.1	3.9	8.6	38.1	–10.3
March	4.0	3.7	3.6	3.8	4.4	8.1	33.4	–5.5
Apr.	3.8	3.5	3.4	4.0	3.6	7.2	26.7	–2.9
May	3.8	4.3	4.2	2.4	4.9	3.0	–0.6	–6.8
June	3.3	3.8	3.9	2.5	4.5	3.9	2.2	–4.8
July	3.3	3.5	3.7	2.7	4.4	3.9	1.7	–1.0
Aug.	3.5	3.6	3.6	2.9	4.5	4.2	6.1	0.5
Sept.	3.5	3.8	3.7	2.7	4.8	3.9	5.8	–0.8
Oct.	3.7	3.6	3.5	3.2	4.6	4.1	8.1	4.3
Nov.	3.6	3.5	3.5	3.1	4.5	4.0	6.3	4.0
Dec.	3.4	3.5	3.5	2.8	4.3	0.8	–9.1	12.1
2003 Jan.	3.1	3.6	3.7	2.1	4.7	–1.4	–19.6	13.7
Feb.	4.3	3.5	3.8	4.1	4.7	3.7	–0.5	18.6
March	4.1	3.1	3.4	4.1	4.1	4.7	5.5	15.4
Apr.	3.4	3.1	3.4	2.6	4.5	5.8	10.9	–1.9
May	3.8	2.8	2.9	3.9	3.7	10.3	40.2	–3.7
June	3.8	3.0	3.0	3.6	4.2	8.9	34.6	–1.6
July	3.6	2.9	2.9	3.2	4.1	7.4	28.5	0.5
Aug.	3.3	2.9	3.0	2.8	4.0	5.6	17.0	1.6
Sept.	3.3	3.1	3.2	2.8	4.2	5.2	12.6	0.7
Oct.	3.2	3.2	3.2	2.5	4.2	3.7	4.9	1.1
Nov.	3.3	3.2	3.1	2.9	4.1	3.3	5.6	6.3
Dec.	3.1	3.4	3.3	2.2	4.5	3.0	3.2	–1.4
2004 Jan.	2.9	3.2	3.2	2.3	3.9	3.5	4.9	–3.0
Feb.	2.5	3.1	3.1	1.5	4.0	3.7	4.7	–8.7
March	2.7	3.3	3.4	1.8	4.2	2.8	–1.3	–5.4
Apr.	2.9	3.2	3.2	2.3	3.9	0.4	–10.2	8.3
May	2.9	3.2	3.3	2.4	3.8	–1.0	–17.4	14.9
June	2.8	3.3	3.5	2.1	3.9	–1.5	–20.9	11.7

Source: Calculations based on National Statistical Service of Greece (NSSG) data (CPI 1999=100).

Table I.2

Wholesale price index

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

Period	General index	Sub-indices: Final domestic products for home consumption: Primary	Final domestic products for home consumption: Industrial	Exported products (primary and industrial)	Final imported products
1999	1.8	2.2	2.8	0.5	0.6
2000	6.6	1.5	5.2	12.3	6.4
2001	2.3	10.0	2.7	0.7	1.9
2002	2.4	11.2	2.6	1.9	0.4
2003	2.1	8.6	2.7	0.1	1.1
2002 I	4.3	34.7	2.6	2.4	0.6
II	1.7	6.9	2.2	1.2	0.2
III	1.6	4.8	2.4	1.3	0.2
IV	2.0	0.6	3.1	2.7	0.6
2003 I	1.7	–2.5	3.6	1.1	1.5
II	2.2	19.6	1.9	–2.0	0.9
III	2.2	12.2	2.4	0.2	1.0
IV	2.2	7.1	3.1	1.0	0.8
2004 I	1.8	4.6	2.8	1.6	0.0
2002 Jan.	5.1	44.4	2.7	2.4	0.8
Feb.	3.6	29.5	2.0	1.9	0.5
March	4.2	30.5	3.0	2.8	0.5
Apr.	3.7	23.3	2.7	2.8	0.4
May	1.2	1.4	2.1	1.2	0.2
June	0.3	–3.4	1.8	–0.3	0.0
July	0.8	–0.7	2.3	0.5	–0.1
Aug.	2.1	9.2	2.5	1.7	0.4
Sept.	1.9	6.0	2.5	1.7	0.4
Oct.	2.4	5.6	3.1	3.2	0.3
Nov.	2.1	4.5	2.9	2.2	0.5
Dec.	1.4	–6.8	3.2	2.7	0.9
2003 Jan.	0.5	–14.2	3.5	1.4	1.4
Feb.	2.6	2.5	4.1	1.9	1.6
March	2.0	4.9	3.0	0.0	1.4
Apr.	1.0	6.5	1.8	–2.2	1.0
May	2.4	28.1	1.7	–3.3	0.9
June	3.1	26.6	2.2	–0.3	1.0
July	2.9	20.9	2.2	0.7	1.2
Aug.	2.2	10.6	2.5	0.7	1.0
Sept.	1.5	5.6	2.5	–0.7	0.9
Oct.	1.9	7.5	2.7	0.2	0.9
Nov.	2.6	7.9	3.5	1.8	0.9
Dec.	2.0	5.9	3.0	1.1	0.6
2004 Jan.	2.3	10.6	2.7	1.9	0.0
Feb.	1.4	4.7	2.5	0.5	–0.1
March	1.6	–0.7	3.1	2.3	0.0
Apr.	2.8	–2.3	5.0	4.6	0.7
May	3.1	–8.5	5.9	7.5	0.7

Source: NSSG.

Table I.3

Industrial production index (1995=100)

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

Period	Industry								
					Main categories of goods				
	General index	Manu-facturing	Mining-quarrying	Electricity-town gas-water supply	Energy	Inter-mediate goods	Capital goods	Consumer durables	Consumer non-durables
2000	7.2	5.1	13.4	11.5	12.3	6.2	7.3	12.7	1.9
2001	1.0	1.8	–1.4	–0.3	–0.3	–1.0	5.1	–1.8	4.1
2002	1.8	1.2	9.1	2.0	2.3	0.8	–5.1	–13.9	5.9
2003	1.3	–0.4	–4.8	6.9	5.3	0.2	–3.8	–1.2	–0.7
2002 II	4.0	2.9	10.7	5.8	5.0	3.4	–2.3	–13.7	7.2
III	–0.2	–0.5	0.6	0.6	0.1	–0.2	–1.6	–10.5	0.6
IV	3.1	2.9	14.4	1.6	2.5	1.5	0.2	–16.2	9.0
2003 I	0.0	–1.6	–10.6	6.0	4.6	–0.2	–15.0	–4.5	–0.9
II	2.0	0.4	–6.2	8.1	6.0	–1.8	1.6	–5.2	2.4
III	2.4	–0.2	–3.5	9.7	8.7	–0.4	2.8	1.7	–2.4
IV	0.7	–0.5	0.9	3.8	1.9	3.4	–4.6	2.9	–1.9
2004 I	2.6	0.0	5.2	8.1	6.7	–1.3	2.4	0.3	1.5
2001 July	2.7	4.1	3.0	–0.4	0.2	–0.6	2.2	3.8	10.0
Aug.	–0.2	–0.1	1.8	–0.8	0.1	–0.6	–19.8	–3.1	4.0
Sept.	3.2	2.6	10.2	2.9	3.0	2.7	1.1	–0.1	4.6
Oct.	2.2	1.2	2.7	4.8	5.9	–0.4	–4.2	–0.8	3.4
Nov.	1.0	2.7	–7.3	–1.4	–0.3	–4.3	–1.5	–6.4	11.2
Dec.	–4.1	–5.4	–24.4	2.3	1.4	–14.0	7.4	–9.5	–4.1
2002 Jan.	–1.4	–5.9	9.9	6.8	6.2	–8.3	–30.9	–25.1	8.1
Feb.	–1.0	–0.9	17.0	–4.7	–2.3	1.1	–23.7	–11.1	8.4
March	2.9	4.0	10.7	–1.5	1.4	1.4	6.0	–10.3	6.7
Apr.	8.3	9.2	9.0	5.7	5.2	12.9	4.1	–7.1	9.7
May	0.7	–0.4	11.5	1.4	1.0	–2.4	–6.8	–15.7	7.8
June	3.3	0.2	11.6	9.9	8.5	0.7	–4.2	–18.1	4.3
July	2.7	0.6	3.7	7.3	5.5	0.5	–3.9	–13.2	4.6
Aug.	–1.6	–2.9	7.7	–0.8	0.2	–1.0	–1.8	–18.3	–3.6
Sept.	–1.7	0.3	–7.3	–5.6	–5.9	–0.2	1.0	–3.6	0.7
Oct.	–1.2	–0.5	4.9	–4.1	–3.0	–0.6	–3.8	–10.6	2.0
Nov.	4.0	2.4	15.6	6.1	6.9	–0.8	–2.5	–14.6	9.9
Dec.	7.0	7.6	28.2	3.0	3.5	7.4	5.8	–22.2	16.5
2003 Jan.	0.0	5.1	–6.0	–8.9	–7.7	10.2	–7.0	10.3	1.6
Feb.	0.8	–4.1	–16.5	17.3	12.9	–3.7	–19.7	–10.7	–2.2
March	–0.7	–4.5	–8.8	11.8	9.8	–5.3	–15.7	–8.0	–1.9
Apr.	–1.5	–4.3	–2.0	6.2	6.5	–7.1	–14.5	–18.9	1.2
May	4.4	2.1	–7.9	13.8	12.0	–0.4	0.9	2.9	2.4
June	3.3	3.6	–8.1	4.8	0.4	2.3	19.4	1.6	3.5
July	1.4	1.1	–6.7	3.7	3.1	1.4	0.8	3.7	–0.7
Aug.	–0.9	–6.3	–4.5	10.6	9.2	–5.4	–1.2	0.9	–10.0
Sept.	6.3	3.2	0.5	16.4	15.1	1.5	7.3	0.2	2.7
Oct.	3.1	1.0	1.7	9.2	5.7	2.3	–1.4	8.7	2.2
Nov.	–2.2	–3.2	–10.5	2.0	–1.1	2.5	–5.6	0.6	–7.5
Dec.	1.3	0.7	15.1	0.8	1.4	5.7	–6.3	–0.4	0.3
2004 Jan.	–0.3	–7.1	–4.9	15.9	13.6	–11.2	1.3	–22.2	–5.2
Feb.	2.9	2.1	8.4	3.5	2.9	1.4	–0.1	4.2	5.1
March	4.9	4.1	11.5	5.7	4.4	5.5	5.2	13.8	4.1
Apr.	2.2	3.0	9.7	–1.3	–1.4	4.3	–0.7	17.6	3.9
May*	0.3	3.5	1.8	–7.7	–6.4	5.7	3.0	14.9	0.9

* Provisional data.
Source: NSSG.

Table I.4

Retail sales volume (2000=100)

(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
2000	8.8	7.4	13.3	11.5	8.3
2001	4.4	2.3	3.3	4.7	5.9
2002	4.5	4.5	2.8	4.4	5.2
2003	4.6	5.4	1.6	4.0	7.5
2002 I	2.9	–0.7	6.5	7.8	4.0
II	3.7	4.1	–0.7	1.8	7.4
III	5.5	7.6	0.9	5.7	6.3
IV	5.9	7.0	3.9	2.9	3.3
2003 I	6.7	7.7	–3.5	13.7	7.2
II	2.6	1.3	10.5	–1.7	11.5
III	5.9	4.7	7.8	3.6	8.8
IV	3.5	7.7	–4.9	1.7	3.2
2004 I	4.9	6.2	0.7	5.7	6.6
2001 Oct.	0.3	–2.6	–1.4	2.7	4.4
Nov.	3.4	1.6	–0.5	6.5	7.3
Dec.	1.5	–0.2	–0.3	5.2	6.8
2002 Jan.	0.3	–3.4	2.0	6.6	3.8
Feb.	3.5	–1.8	10.8	10.0	6.5
March	5.0	3.4	7.2	6.8	1.7
Apr.	–1.9	–4.7	–3.2	1.7	2.2
May	7.9	10.8	2.1	–0.1	12.8
June	5.8	7.7	–0.6	3.6	7.7
July	3.6	4.6	1.6	1.9	7.0
Aug.	4.3	9.7	–8.8	6.7	3.3
Sept.	8.6	8.7	10.0	9.0	8.0
Oct.	5.4	6.4	7.7	0.7	4.1
Nov.	4.8	6.4	3.9	2.2	0.0
Dec.	7.2	7.9	1.5	5.1	5.0
2003 Jan.	8.2	9.6	–4.2	19.8	11.6
Feb.	4.6	7.0	–8.5	10.1	3.5
March	7.3	6.6	5.0	10.8	6.3
Apr.	4.2	4.2	12.3	–8.0	21.2
May	1.8	–0.8	12.3	1.8	8.1
June	1.7	0.3	6.2	1.4	5.3
July	2.1	–0.1	5.5	2.0	3.0
Aug.	11.2	9.1	12.5	6.9	12.6
Sept.	5.2	5.3	6.4	2.2	11.2
Oct.	3.2	6.8	–5.6	5.7	1.2
Nov.	6.5	9.4	1.3	2.8	9.5
Dec.	1.4	7.2	–8.7	–2.4	0.5
2004 Jan.	2.9	7.2	–3.9	–3.4	2.2
Feb.	6.4	4.8	5.6	13.0	10.1
March	5.4	6.5	0.2	9.1	8.1
Apr.	5.6	8.5	–3.4	9.4	2.6

Sources: NSSG and Eurostat. Revised index of retail sales volume (excluding VAT).

Table I.5

Gross value added at basic prices and gross domestic product at market prices

		Million euro	Annual percentage change (at constant 1995 prices)					
		1995	1998	1999	2000	2001	2002	2003
1.1	Primary sector (agriculture)	7,277	2.3	3.5	–3.7	–3.8	–1.1	–5.2
1.2	Secondary sector	16,550	7.2	2.4	5.4	6.3	2.8	8.9
1.2.a	Mining and quarrying	476	13.0	–17.9	23.1	2.2	8.5	–9.7
1.2.b	Manufacturing	9,572	5.3	1.3	4.6	3.3	3.0	4.1
1.2.c	Electricity - town gas - water supply	1,751	6.8	13.4	4.8	0.2	2.9	6.3
1.2.d	Construction	4,751	10.6	2.3	5.7	12.9	2.0	18.0
1.3	Tertiary sector	50,031	3.1	2.0	5.0	4.9	4.4	5.6
1.3.a	Trade	10,018	3.6	–0.8	3.1	11.7	1.2	11.7
1.3.b	Hotels - restaurants	4,821	3.7	–5.7	5.4	6.2	4.0	–3.5
1.3.c	Transport - communications	4,978	4.1	33.4	16.2	1.3	5.9	7.3
1.3.d	Financial intermediaries	3,112	11.5	11.0	10.0	5.9	–0.3	9.0
1.3.e	Real estate management and other activities	12,577	2.5	–5.9	3.3	3.0	4.0	4.7
1.3.f	Public administration - security	5,308	–0.6	0.9	–2.8	2.3	6.0	1.8
1.3.g	Education	3,298	–0.7	–2.2	1.6	–1.2	11.0	4.1
1.3.h	Health	3,855	1.2	–2.0	3.0	0.9	7.9	7.3
1.3.i	Other activities	2,064	6.5	9.6	7.6	15.0	6.3	5.4
1.4	Gross value added	73,858	3.9	2.1	4.4	4.6	3.7	5.6
1.5	Imputed bank services	–2,175	16.5	2.8	13.8	12.1	1.6	11.5
1.6	Gross value added at basic prices	71,683	3.6	2.1	4.1	4.3	3.7	5.3
2.1	Final consumption	70,655	3.2	2.4	2.1	2.3	3.3	3.4
2.1.a	Private consumption	58,405	3.5	2.5	2.0	2.9	2.8	3.5
2.1.b	Public consumption	12,250	1.7	2.1	2.2	–1.0	5.8	2.9
2.2	Gross fixed capital formation	14,867	10.6	11.0	8.0	6.5	5.7	15.8
2.2.a	Residential	4,031	8.8	3.7	–4.3	4.8	8.8	8.3
2.2.b	Non-residential construction	5,391	9.4	6.6	8.9	8.2	0.7	13.7
2.2.c	Equipment	4,680	16.5	21.4	14.1	4.9	6.9	22.7
2.2.d	Other investment	765	–14.0	–2.4	7.6	20.1	20.8	–0.8
2.3	Stocks and statistical discrepancy (percentage of GDP)	251	0.3	0.0	0.4	0.0	0.2	0.1
2.4	Domestic final demand	85,774	4.6	3.8	3.7	2.9	3.9	6.2
2.5	Exports of goods and services	14,087	5.3	18.1	14.1	–1.0	–7.7	–0.2
2.5.a	Exports of goods	8,344	2.7	6.3	8.7	–1.6	–7.1	5.8
2.5.b	Exports of services	5,743	7.7	29.0	18.2	–0.7	–8.1	–4.4
2.6	Final demand	99,861	4.7	6.1	5.6	2.1	1.7	5.1
2.7	Imports of goods and services	19,934	9.2	15.0	8.9	–3.4	–4.7	8.0
2.7.a	Imports of goods	18,084	9.4	8.5	7.6	–4.2	1.1	11.1
2.7.b	Imports of services	1,849	8.5	52.9	14.4	–0.3	–26.6	–8.0
2.8	GDP at market prices	79,927	3.4	3.4	4.4	4.0	3.9	4.3

Source: NSSG/National Accounts (provisional estimates for 2000-2003), May 2004.

Table II.1
Balance of payments
(Million euro)

	January – May			May		
	2002	2003	2004*	2002	2003	2004*
I CURRENT ACCOUNT BALANCE (I.A+I.B+I.C+I.D)	**–4,463,4**	**–5,067,2**	**–4,038,3**	**–741,3**	**–738,0**	**–681,0**
I.A TRADE BALANCE *(I.A.1– I.A.2)*	***–9,365,6***	***–9,420,6***	***–10,080,4***	***–1,827,1***	***–1,877,2***	***–2,022,8***
Non-oil trade balance	–7,958,4	–7,470,2	–8,289,6	–1,576,6	–1,613,8	–1,621,6
Oil trade balance	–1,407,2	–1,950,4	–1,790,8	–250,5	–263,4	–401,2
I.A.1 *Exports of goods*	*4,243,2*	*4,488,9*	*4,898,5*	*892,7*	*861,4*	*962,9*
Oil	493,0	595,4	528,3	99,1	83,1	99,3
Other	3,750.2	3,893.5	4,370.2	793.6	778.3	863.6
I.A.2 *Imports of goods*	*13,608.8*	*13,909.6*	*14,978.9*	*2,719.8*	*2,738.6*	*2,985.8*
Oil	1,900.2	2,545.8	2,319.1	349.6	346.5	500.5
Other	11,708.6	11,363.8	12,659.8	2,370.2	2,392.1	2,485.3
I.B SERVICES BALANCE *(I.B.1– I.B.2)*	***2,288.9***	***2,624.9***	***4,008.5***	***945.0***	***1,018.6***	***1,381.9***
I.B.1 *Receipts*	*6,409.4*	*6,341.6*	*8,403.8*	*1,915.2*	*1,774.2*	*2,230.3*
Travel	1,755.7	1,610.2	1,852.0	980.5	832.2	954.0
Transport	3,642.7	3,820.3	5,361.3	765.1	772.4	1,079.2
Other	1,011.0	911.2	1,190.5	169.7	169.6	197.1
I.B.2 *Payments*	*4,120.4*	*3,716.7*	*4,395.3*	*970.2*	*755.6*	*848.4*
Travel	701.1	651.9	809.5	275.1	168.1	194.0
Transport	2,187.8	1,947.5	2,269.7	465.9	371.6	418.5
Other	1,231.6	1,117.3	1,316.1	229.3	215.9	235.9
I.C INCOME BALANCE *(I.C.1– I.C.2)*	***–887.5***	***–1,041.6***	***–1,107.4***	***–200.1***	***–208.6***	***–269.8***
I.C.1 *Receipts*	*689.5*	*688.9*	*642.6*	*117.4*	*108.2*	*104.2*
Compensation of employees	231.3	137.9	114.8	39.6	28.1	20.0
Interest, dividends, profits	458.2	551.1	527.8	77.8	80.0	84.2
I.C.2 *Payments*	*1,576.9*	*1,730.5*	*1,750.0*	*317.4*	*316.8*	*374.0*
Compensation of employees	115.4	64.4	72.5	23.9	12.8	17.5
Interest, dividends, profits	1,461.5	1,666.1	1 677.5	293.5	304.0	356.6
I.D TRANSFERS BALANCE *(I.D.1– I.D.2)*	***3,500.7***	***2,770.1***	***3,141.0***	***340.9***	***329.2***	***229.7***
I.D.1 *Receipts*	*4,619.6*	*3,765.0*	*4,233.4*	*535.4*	*522.3*	*447.8*
General government (EU transfers)	3,722.9	2,804.7	3,223.3	352.1	335.5	244.9
Other (emigrants' remittances, etc.)	896.7	960.3	1,010.0	183.2	186.8	202.9
I.D.2 *Payments*	*1,118.8*	*994.9*	*1,092.4*	*194.5*	*193.1*	*218.1*
General government	840.1	777.3	827.7	129.5	151.6	170.3
Other	278.8	217.6	264.7	64.9	41.6	47.8
II FINANCIAL ACCOUNT (II.A+II.B+II.C+II.D)	**4,338.6**	**5,439.7**	**4,704.7**	**1,042.9**	**1,236.9**	**1,046.5**
II.A DIRECT INVESTMENT [1]	***–271.7***	***–768.6***	***439.0***	***15.7***	***–332.9***	***–46.9***
By residents abroad	–199.8	–336.9	–209.9	–6.5	–33.9	–52.1
By non-residents in Greece	–71.9	–431.7	649.0	22.2	–299.0	5.1
II.B PORTFOLIO INVESTMENT [1]	***5,556.5***	***10,138.0***	***5,675.3***	***636.0***	***3,457.5***	***–3,041.8***
Assets	–1,054.4	–4,563.8	–5,172.2	12.0	120.2	–3 237.8
Liabilities	6,610.9	14,701.8	10,847.4	623.9	3,337.3	195.9
II.C OTHER INVESTMENT [2]	***584.9***	***–8,147.7***	***–2,609.6***	***555.2***	***–2,132.7***	***4,021.2***
Assets	–5,109.2	–3,595.0	–3,701.4	1,048.7	–1,061.8	1,931.6
Liabilities	5,694.1	–4,552.7	1,091.8	–493.5	–1,070.9	2,089.6
(General government loans)	–1,927.0	–1,628.0	–207.0	–1,465.7	–136.8	–52.6
II.D CHANGE IN RESERVE ASSETS [2]	***–1,531.0***	***4,218.0***	***1,200.0***	***–164.0***	***245.0***	***114.0***
III ERRORS AND OMISSIONS	**124.7**	**–372.4**	**–666.4**	**–301.7**	**–498.9**	**–365.5**
RESERVE ASSETS [3]				***8,562.0***	***4,796.0***	***3,412.0***

1 (+) net inflow, (–) net outflow.
2 (+) decrease, (–) increase.
3 Reserve assets, as defined by the European Central Bank, include only monetary gold, the reserve position in the IMF, the special drawing rights and the Bank of Greece claims in foreign currency on residents of non-euro area countries. Conversely, reserve assets do not include claims in euro on residents of non-euro area countries, claims in foreign currency and in euro on residents of euro area countries, and the Bank of Greece participation in the capital and reserves of the ECB.
* Provisional data.
Source: Bank of Greece.

Table II.2

Effective exchange rate of the euro calculated on the basis of Greece's external trade*

(Period averages)

Period	Index (1990=100)	Percentage changes over:[1] Previous period	Previous year
1995	66.3	–3.5	–3.5
1996	65.5	–1.1	–1.1
1997	64.3	–1.9	–1.9
1998	60.5	–5.9	–5.9
1999	59.9	–0.9	–0.9
2000	56.2	–6.2	–6.2
2001	55.9	–0.6	–0.6
2002	56.4	0.9	0.9
2003	58.0	2.9	2.9
2002 I	55.9	0.0	–0.3
II	56.2	0.5	1.0
III	56.6	0.7	1.4
IV	56.8	0.4	1.6
2003 I	57.5	1.2	2.8
II	58.2	1.2	3.5
III	58.1	–0.2	2.6
IV	58.2	0.3	2.5
2004 I	58.5	0.5	1.8
II	58.2	–0.6	0.01
2002 Jan.	56.0	0.0	–0.3
Feb.	55.9	–0.2	–0.2
March	55.9	0.0	–0.4
Apr.	55.9	0.1	0.0
May	56.2	0.4	1.0
June	56.5	0.6	1.9
July	56.7	0.3	2.0
Aug.	56.6	–0.2	1.1
Sept.	56.6	0.1	1.1
Oct.	56.7	0.2	1.2
Nov.	56.8	0.2	1.8
Dec.	57.0	0.3	1.8
2003 Jan.	57.3	0.6	2.4
Feb.	57.6	0.4	3.0
March	57.7	0.2	3.2
Apr.	57.8	0.2	3.3
May	58.4	1.1	3.9
June	58.4	0.1	3.4
July	58.2	–0.3	2.8
Aug.	58.1	–0.3	2.7
Sept.	58.0	–0.2	2.4
Oct.	58.1	0.3	2.5
Nov.	58.1	–0.1	2.2
Dec.	58.5	0.7	2.6
2004 Jan.	58.6	0.2	2.3
Feb.	58.6	–0.1	1.8
March	58.4	–0.4	1.3
Apr.	58.1	–0.5	0.5
May	58.3	0.4	–0.2
June	58.2	–0.1	–0.3

* The effective exchange rate 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 effective exchange rate 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. In the present table, the weighting of the euro exchange rate vis-à-vis the other currencies is calculated on the basis of the country's non-oil external trade. As from January 2001, the change in the index is limited, since trade with the 11 other euro area countries (which accounts for a large share of total trade) is conducted in euro. 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 A positive sign indicates an appreciation of the euro, while a negative sign a depreciation.

Source: Bank of Greece.

Table II.3

Bilateral exchange rates of the euro*

(Units of national currency per euro, period averages)

Period	US dollar	Percentage change over: Previous period	Percentage change over: Previous year	Japanese yen	Percentage change over: Previous period	Percentage change over: Previous year	Danish krone	Percentage change over: Previous period	Percentage change over: Previous year	Pound sterling	Percentage change over: Previous period	Percentage change over: Previous year
1995	1.308			123.0			7.33			0.829		
1996	1.270	–2.9	–2.9	138.1	12.3	12.3	7.36	0.4	0.4	0.814	–1.8	–1.8
1997	1.134	–10.7	–10.7	137.1	–0.7	–0.7	7.48	1.7	1.7	0.692	–14.9	–14.9
1998	1.121	–1.1	–1.1	146.4	6.8	6.8	7.50	0.2	0.2	0.676	–2.3	–2.3
1999	1.066	–4.9	–4.9	121.3	–17.2	–17.2	7.44	–0.8	–0.8	0.659	–2.6	–2.6
2000	0.924	–13.3	–13.3	99.5	–18.0	–18.0	7.45	0.1	0.1	0.609	–7.6	–7.6
2001	0.896	–3.1	–3.1	108.7	9.3	9.3	7.45	0.03	0.03	0.622	2.1	2.1
2002	0.945	5.5	5.5	118.1	8.6	8.6	7.43	–0.3	–0.3	0.629	1.1	1.1
2003	1.131	19.7	19.7	131.0	10.9	10.9	7.43	0.003	0.003	0.692	10.1	10.1
2001 I	0.923	6.2	–6.5	109.0	14.1	3.2	7.46	0.1	0.2	0.633	5.3	2.9
II	0.873	–5.4	–6.5	107.1	–1.7	7.6	7.46	–0.1	0.04	0.615	–2.8	0.8
III	0.891	2.0	–1.6	108.3	1.1	11.1	7.44	–0.2	–0.2	0.619	0.8	1.1
IV	0.896	0.5	3.0	110.6	2.2	15.8	7.44	–0.03	–0.2	0.621	0.2	3.4
2002 I	0.876	–2.1	–5.1	116.0	4.8	6.4	7.43	–0.1	–0.4	0.615	–1.0	–2.8
II	0.919	4.9	5.3	116.5	0.4	8.8	7.43	0.04	–0.3	0.629	2.3	2.3
III	0.984	7.0	10.4	117.3	0.7	8.3	7.43	–0.1	–0.2	0.635	1.0	2.6
IV	1.000	1.7	11.7	122.5	4.4	10.7	7.43	0.000	–0.2	0.636	0.2	2.5
2003 I	1.074	7.3	22.5	127.7	4.2	10.1	7.43	0.03	–0.02	0.670	5.3	9.0
II	1.136	5.9	23.7	134.7	5.5	15.6	7.43	–0.1	–0.1	0.701	4.7	11.6
III	1.124	–1.1	14.3	132.1	–1.9	12.7	7.43	0.1	0.04	0.699	–0.4	10.0
IV	1.189	5.8	18.9	129.5	–2.0	5.7	7.44	0.1	0.1	0.697	–0.2	9.6
2004 I	1.251	5.2	16.5	134.0	3.5	5.0	7.45	0.2	0.3	0.680	–2.5	1.5
II	1.204	–3.7	6.0	132.1	–1.4	–1.9	7.44	–0.1	0.2	0.667	–1.9	–4.9
2002 Jan.	0.883	–1.0	–5.9	117.1	3.3	6.9	7.43	–0.1	–0.4	0.617	–0.6	–2.9
Feb.	0.870	–1.5	–5.6	116.2	–0.8	8.5	7.43	–0.04	–0.4	0.612	–0.8	–3.5
March	0.876	0.6	–3.7	114.6	–1.4	3.9	7.43	0.03	–0.4	0.616	0.7	–2.1
Apr.	0.886	1.2	–0.7	115.8	1.0	4.9	7.43	0.02	–0.4	0.614	–0.3	–1.2
May	0.917	3.5	4.9	115.9	0.4	8.8	7.44	0.02	–0.3	0.628	2.3	2.4
June	0.954	4.1	11.8	117.8	1.6	12.8	7.43	–0.03	–0.3	0.644	2.5	5.6
July	0.992	4.0	15.3	117.1	–0.6	9.2	7.43	–0.04	–0.2	0.639	–0.8	5.0
Aug.	0.978	–1.5	8.6	116.3	–0.7	6.4	7.43	–0.04	–0.2	0.636	–0.4	1.5
Sept.	0.981	0.3	7.7	118.4	1.8	9.4	7.43	0.001	–0.2	0.631	–0.9	1.2
Oct.	0.981	0.03	8.3	121.6	2.7	10.7	7.43	0.04	–0.1	0.630	–0.1	1.0
Nov.	1.001	2.1	12.7	121.7	0.1	11.9	7.43	–0.02	–0.2	0.637	1.1	3.0
Dec.	1.018	1.7	14.1	124.2	2.1	9.5	7.43	–0.02	–0.2	0.642	0.8	3.6
2003 Jan.	1.063	4.4	20.3	126.2	1.6	7.8	7.43	0.1	–0.004	0.657	2.4	6.6
Feb.	1.077	1.4	23.8	128.6	1.9	10.6	7.43	–0.01	0.02	0.670	1.9	9.5
March	1.081	0.3	23.4	128.2	–0.3	11.8	7.43	–0.1	–0.1	0.683	1.9	10.8
Apr.	1.085	0.4	22.5	130.1	1.5	12.4	7.43	–0.03	–0.1	0.689	0.9	12.2
May	1.158	6.8	26.3	135.8	4.4	17.2	7.42	–0.01	–0.1	0.713	3.5	13.5
June	1.166	0.7	22.2	138.1	1.6	17.2	7.43	0.01	–0.1	0.702	–1.5	9.1
July	1.137	–2.5	14.6	135.0	–2.2	15.3	7.43	0.1	0.04	0.700	–0.3	9.7
Aug.	1.114	–2.0	13.9	132.4	–1.9	13.8	7.43	–0.01	0.1	0.699	–0.2	9.9
Sept.	1.122	0.7	14.4	128.9	–2.6	8.9	7.43	–0.1	0.003	0.697	–0.3	10.5
Oct.	1.169	4.2	19.2	128.1	–0.6	5.4	7.43	0.04	0.01	0.698	0.1	10.7
Nov.	1.170	0.1	16.9	127.8	–0.2	5.1	7.44	0.1	0.1	0.693	–0.7	8.7
Dec.	1.229	5.0	20.7	132.4	3.6	6.6	7.44	0.1	0.2	0.702	1.3	9.3
2004 Jan.	1.261	2.7	18.7	134.1	1.3	6.3	7.45	0.1	0.2	0.692	–1.4	5.3
Feb.	1.265	0.3	17.4	134.8	0.5	4.8	7.45	0.04	0.3	0.677	–2.2	1.1
March	1.226	–3.0	13.5	133.1	–1.2	3.9	7.45	–0.02	0.3	0.671	–0.8	–1.7
Apr.	1.199	–2.3	10.5	129.1	–3.0	–0.8	7.44	–0.1	0.2	0.665	–0.9	–3.4
May	1.201	0.2	3.7	134.5	4.2	–1.0	7.44	–0.04	0.2	0.672	0.9	–5.8
June	1.214	1.1	4.1	132.86	–1.2	–3.8	7.43	–0.1	0.1	0.664	–1.1	–5.4

* To 31 December 1998, rates for the ECU; from 1 January 1999, rates for the euro. A positive sign indicates an appreciation of the euro, while a negative sign a depreciation. On 1 January 2001, Greece adopted the euro. Therefore, the evolution of the exchange rate of the drachma vis-à-vis the currencies of non-euro area countries is identical with the evolution of the exchange rate of the euro vis-à-vis these currencies. Up to end-2001, however, the differentiation observed in the annual rates of change is attributable to the deviation of the drachma from its central parity in 2000.

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	Percentage change over: Previous period	Percentage change over: Previous year	Swiss franc	Percentage change over: Previous period	Percentage change over: Previous year	Norwegian krone	Percentage change over: Previous period	Percentage change over: Previous year	Australian dollar	Percentage change over: Previous period	Percentage change over: Previous year	Canadian dollar	Percentage change over: Previous period	Percentage change over: Previous year
1995	9.33			1.546			8.29								
1996	8.51	–8.8	–8.8	1.568	1.4	1.4	8.20	–1.1	–1.1	1.623			1.731		
1997	8.65	1.6	1.6	1.644	4.9	4.9	8.02	–2.2	–2.2	1.528	–5.9	–5.9	1.569	–9.4	–9.4
1998	8.92	3.1	3.1	1.622	–1.3	–1.3	8.47	5.6	5.6	1.787	17.0	17.0	1.665	6.1	6.1
1999	8.81	–1.2	–1.2	1.600	–1.4	–1.4	8.31	–1.8	–1.8	1.652	–7.6	–7.6	1.584	–4.9	–4.9
2000	8.45	–4.1	–4.1	1.558	–2.6	–2.6	8.11	–2.4	–2.4	1.589	–3.8	–3.8	1.371	–13.4	–13.4
2001	9.26	9.5	9.5	1.510	–3.1	–3.1	8.05	–0.8	–0.8	1.732	9.0	9.0	1.387	1.1	1.1
2002	9.16	–1.0	–1.0	1.467	–2.9	–2.9	7.51	–6.7	–6.7	1.737	0.2	0.2	1.483	6.9	6.9
2003	9.12	–0.4	–0.4	1.521	3.6	3.6	8.00	6.5	6.5	1.738	0.1	0.1	1.582	6.7	6.7
2001 I	9.00	4.6	5.9	1.533	1.1	–4.6	8.20	2.0	1.1	1.740	6.6	11.3	1.410	6.3	–1.7
II	9.13	1.4	10.3	1.528	–0.3	–2.3	8.01	–2.3	–2.3	1.704	–2.1	7.5	1.346	–4.5	–2.6
III	9.42	3.2	12.1	1.506	–1.4	–2.5	8.01	–0.1	–1.2	1.737	1.9	10.1	1.376	2.2	2.5
IV	9.48	0.6	10.2	1.474	–2.2	–2.8	7.97	–0.5	–0.9	1.749	0.7	7.1	1.415	2.9	6.7
2002 I	9.16	–3.4	1.7	1.473	–0.001	–3.9	7.81	–2.0	–4.8	1.692	–3.3	–2.8	1.397	–1.3	–0.9
II	9.16	–0.02	0.3	1.465	–0.6	–4.1	7.52	–3.7	–6.2	1.666	–1.5	–2.2	1.428	2.2	6.1
III	9.23	0.8	–2.0	1.464	–0.1	–2.8	7.40	–1.6	–7.6	1.796	7.8	3.5	1.536	7.6	11.7
IV	9.09	–1.5	–4.0	1.467	0.2	–0.5	7.32	–1.1	–8.2	1.792	–0.3	2.4	1.570	2.2	10.9
2003 I	9.18	1.0	0.3	1.466	–0.02	–0.5	7.58	3.5	–3.0	1.809	1.0	6.9	1.620	3.2	16.0
II	9.14	–0.4	–0.1	1.518	3.5	3.6	7.96	5.0	5.8	1.774	–1.9	6.5	1.589	–1.9	11.3
III	9.16	0.2	–0.7	1.545	1.8	5.6	8.25	3.7	11.5	1.709	–3.7	–4.9	1.553	–2.2	1.1
IV	9.01	–1.7	–0.9	1.554	0.6	5.9	8.22	–0.3	12.4	1.661	–2.8	–7.3	1.566	0.8	–0.2
2004 I	9.18	1.9	–0.01	1.569	0.9	7.0	8.64	5.0	14.0	1.633	–1.7	–9.7	1.649	5.3	1.8
II	9.15	–0.4	0.03	1.538	–2.0	1.3	8.26	–4.3	3.9	1.689	3.4	–4.8	1.637	–0.8	3.0
2002 Jan.	9.23	–2.2	3.6	1.475	–0.03	–3.6	7.92	–0.9	–3.8	1.709	–1.5	1.2	1.413	0.4	0.3
Feb.	9.18	–0.5	2.3	1.477	0.2	–3.8	7.79	–1.7	–5.2	1.696	–0.8	–1.6	1.388	–1.8	–1.0
March	9.06	–1.3	–0.7	1.468	–0.6	–4.4	7.72	–0.9	–5.4	1.670	–1.5	–7.6	1.390	0.2	–1.9
Apr.	9.14	0.8	0.3	1.466	–0.2	–4.1	7.62	–1.2	–6.1	1.654	–1.0	–7.3	1.401	0.8	0.8
May	9.22	0.9	1.8	1.457	–0.6	–5.0	7.52	–1.3	–5.9	1.666	0.8	–0.9	1.421	1.4	5.5
June	9.11	–1.1	–1.0	1.472	1.0	–3.3	7.40	–1.5	–6.7	1.678	0.7	2.0	1.462	2.9	12.3
July	9.27	1.7	0.1	1.462	–0.7	–3.4	7.41	0.01	–7.1	1.792	6.8	6.1	1.532	4.8	16.5
Aug.	9.25	–0.2	–0.7	1.464	0.1	–3.4	7.43	0.3	–7.8	1.805	0.7	5.1	1.533	0.1	10.7
Sept.	9.17	–0.9	–5.2	1.465	0.1	–1.8	7.36	–0.9	–8.0	1.793	–0.7	–0.6	1.543	0.7	8.2
Oct.	9.11	–0.7	–4.9	1.465	0.01	–1.0	7.34	–0.3	–8.2	1.783	–0.5	–0.7	1.548	0.3	8.8
Nov.	9.08	–0.3	–3.6	1.467	0.2	0.1	7.32	–0.3	–7.6	1.785	0.1	3.9	1.574	1.6	11.2
Dec.	9.10	0.2	–3.6	1.468	0.04	–0.5	7.29	–0.3	–8.7	1.808	1.3	4.2	1.587	0.9	12.8
2003 Jan.	9.18	0.9	–0.5	1.462	–0.4	–0.8	7.34	0.6	–7.4	1.822	0.8	6.6	1.636	3.1	15.8
Feb.	9.15	–0.3	–0.4	1.467	0.3	–0.7	7.54	2.8	–3.1	1.811	–0.6	6.8	1.630	–0.4	17.4
March	9.23	0.9	1.8	1.470	0.1	0.1	7.85	4.0	1.7	1.795	–0.9	7.5	1.594	–2.2	14.7
Apr.	9.15	–0.8	0.2	1.496	1.8	2.1	7.83	–0.2	2.7	1.781	–0.8	7.7	1.585	–0.6	13.2
May	9.16	0.02	–0.7	1.516	1.3	4.0	7.87	0.5	4.7	1.787	0.3	7.2	1.602	1.0	12.7
June	9.12	–0.4	0.04	1.541	1.7	4.7	8.16	3.7	10.2	1.755	–1.8	4.6	1.580	1.6	8.1
July	9.19	0.7	–0.9	1.548	0.4	5.8	8.29	1.6	11.9	1.718	–2.1	–4.1	1.569	–0.7	2.4
Aug.	9.24	0.6	–0.1	1.540	–0.5	5.2	8.26	–0.4	11.1	1.711	–0.4	–5.2	1.557	–0.8	1.5
Sept.	9.07	–1.8	–1.1	1.547	0.5	5.6	8.20	–0.7	11.3	1.697	–0.9	–5.4	1.533	–1.5	–0.7
Oct.	9.01	–0.6	–1.0	1.549	0.1	5.7	8.23	0.4	12.1	1.687	–0.6	–5.4	1.549	1.0	0.1
Nov.	8.99	–0.2	–1.0	1.559	0.7	6.2	8.20	–0.4	12.0	1.634	–3.1	–8.5	1.536	–0.8	–2.4
Dec.	9.02	0.3	–0.8	1.554	–0.3	5.9	8.24	0.6	13.0	1.663	1.8	–8.0	1.613	5.0	1.6
2004 Jan.	9.14	1.3	–0.4	1.566	0.7	7.1	8.59	4.3	17.1	1.637	–1.5	–10.1	1.635	1.3	–0.1
Feb.	9.18	0.4	0.3	1.573	0.5	7.2	8.78	2.1	16.3	1.626	–0.7	–10.2	1.682	2.9	3.2
March	9.23	0.6	0.1	1.567	–0.4	6.6	8.54	–2.7	8.9	1.637	0.7	–8.8	1.631	–3.0	2.3
Apr.	9.17	–0.8	0.1	1.555	–0.8	3.9	8.30	–2.8	5.9	1.614	–1.4	–9.4	1.607	–1.5	1.4
May	9.13	–0.4	–0.3	1.540	–0.9	1.6	8.21	–1.1	4.3	1.703	5.5	–4.7	1.654	2.9	3.3
June	9.143	0.2	0.3	1.519	–1.4	–1.4	8.29	1.0	1.5	1.748	2.6	–0.4	1.649	–0.3	4.4

* To 31 December 1998, rates for the ECU; from 1 January 1999, rates for the euro. A positive sign indicates an appreciation of the euro, while a negative sign a depreciation. On 1 January 2001, Greece adopted the euro. Therefore, the evolution of the exchange rate of the drachma vis-à-vis the currencies of non-euro area countries is identical with the evolution of the exchange rate of the euro vis-à-vis these currencies. Up to end-2001, however, the differentiation observed in the annual rates of change is attributable to the deviation of the drachma from its central parity in 2000.

Sources: Bank of Greece and European Central Bank (ECB).

Table II.4

General government external debt servicing

(Million euro)

	Year		
	2001	2002	2003
Interest	2,003	1,572	1,241
Amortisation	2,686	4,443	4,720
Total	4,689	6,015	5,961

Source: Bank of Greece.

Table III.1

Monetary aggregates of the euro area[1,2]

(Outstanding balances in billion euro, not seasonally adjusted)

End of period	Currency in circulation (1)	Overnight deposits (2)	**M1** (3)=(1)+(2)	Deposits with an agreed maturity of up to 2 years (4)	Deposits redeemable at notice of up to 3 months (5)	**M2** (6)=(3)+(4)+(5)	Repurchase agreements (7)	Money market fund units (8)	Money market paper and debt securities with an initial maturity of up to 2 years (9)	**M3**[3] (10)=(6)+(7)+(8)+(9)
2000	348.4	1,784.4	2,077.1	991.8	1,165.5	4,290.0	174.9	300.0	135.7	4,900.7
2001	239.7	1,968.2	2,207.9	1,088.8	1,367.9	4,664.6	218.5	402.0	145.9	5,430.9
2002	341.2	2,158.3	2,499.4	1,075.7	1,406.3	4,981.4	226.9	470.5	127.7	5,806.4
2003	397.9	2,331.6	2,729.5	1,039.0	1,529.6	5,298.1	208.7	581.8	87.7	6,176.3
2002 Jan.	246.5	1,976.8	2,223.3	1,081.0	1,335.0	4,639.3	216.2	416.6	141.8	5,413.9
Feb.	240.3	1,972.2	2,212.5	1,076.8	1,339.1	4,628.4	221.1	427.0	138.8	5,415.2
March	254.3	1,984.4	2,238.7	1,088.5	1,343.1	4,670.2	229.6	431.2	137.2	5,468.4
Apr.	261.7	2,016.5	2,278.1	1,092.1	1,336.1	4,706.3	228.1	437.5	134.7	5,506.6
May	273.8	2,016.7	2,290.5	1,099.6	1,338.1	4,728.2	234.8	442.6	144.0	5,549.6
June	285.7	2,064.1	2,349.8	1,074.9	1,343.5	4,768.2	229.6	439.2	132.8	5,569.6
July	296.6	2,031.5	2,328.1	1,083.7	1,346.5	4,758.3	228.8	450.3	125.5	5,562.7
Aug.	301.1	2,000.3	2,301.5	1,096.9	1,351.9	4,750.3	236.5	463.4	126.5	5,576.7
Sept.	306.7	2,057.8	2,364.4	1,073.6	1,354.1	4,792.1	238.3	460.4	131.3	5,622.7
Oct.	313.9	2,041.2	2,355.1	1,093.7	1,362.2	4,811.0	235.6	463.1	133.7	5,643.4
Nov.	321.4	2,093.1	2,414.5	1,086.3	1,374.6	4,875.5	229.6	477.6	131.1	5,713.8
Dec.	341.2	2,158.3	2,499.4	1,075.7	1,406.3	4,981.4	226.9	470.5	127.7	5,806.4
2003 Jan.	312.1	2,128.7	2,440.8	1,077.2	1,405.5	4,923.5	232.8	534.9	109.2	5,800.5
Feb.	319.3	2,131.9	2,451.2	1,079.6	1,420.7	4,951.5	233.3	547.2	109.0	5,841.1
March	327.2	2,170.3	2,497.5	1,072.9	1,435.8	5,006.2	224.0	550.8	99.4	5,880.3
Apr.	336.3	2,190.9	2,527.2	1,082.1	1,443.1	5,052.4	230.5	563.0	123.9	5,969.8
May	343.8	2,217.7	2,561.5	1,097.4	1,450.5	5,109.4	231.7	571.1	105.0	6,017.2
June	351.0	2,254.4	2,605.4	1,060.6	1,464.0	5,130.1	215.0	571.0	97.0	6,013.1
July	361.5	2,223.3	2,584.8	1,064.1	1,475.3	5,124.3	219.9	585.6	90.9	6,020.6
Aug.	362.7	2,210.5	2,573.2	1,070.1	1,482.7	5,126.0	217.1	587.8	89.6	6,020.5
Sept.	364.8	2,250.7	2,615.6	1,038.6	1,482.8	5,136.9	211.5	576.9	91.3	6,016.6
Oct.	371.3	2,249.1	2,620.4	1,049.6	1,487.9	5,157.9	224.7	582.3	100.9	6,065.8
Nov.	379.2	2,288.6	2,667.8	1,043.5	1,494.8	5,206.1	224.7	584.7	101.0	6,116.5
Dec.	397.9	2,331.6	2,729.5	1,039.0	1,529.6	5,298.1	208.7	581.8	87.7	6,176.3
2004 Jan.	389.1	2,314.0	2,703.1	1,021.3	1,547.2	5,271.6	214.6	591.6	91.0	6,168.8
Feb.	393.5	2,310.3	2,703.8	1,016.0	1,553.8	5,273.6	228.6	599.2	91.2	6,192.6
March	399.5	2,347.8	2,747.3	1,004.7	1,559.2	5,311.1	217.5	600.6	89.3	6,218.6
Apr.	409.3	2,363.2	2,772.5	1,005.7	1,567.5	5,345.6	225.5	611.5	94.3	6,276.9
May*	416.5	2,370.3	2,786.8	1,012.7	1,573.3	5,372.9	221.6	609.6	88.3	6,292.3

1 Monetary aggregates comprise monetary liabilities of MFIs and central government (Postal Savings Bank, Ministry of Finance) vis-à-vis non-MFI euro area residents excluding central government.
2 Euro area-11 up to end-2000. Euro area-12 from 1 January 2001 onwards.
3 M3 and its components do not include 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[1]

(Outstanding balances in billion euro, not seasonally adjusted)

End of period	Overnight deposits (1)=(1.1)+(1.2)	Sight deposits and current accounts (1.1)	Savings deposits (1.2)	Deposits redeemable at notice of up to 3 months (2)	Deposits with agreed maturity of up to 2 years[2] (3)	Repurchase agreements (repos) (4)	Money market fund units (5)	Debt securities of up to 2 years (6)	Total[3] (M3 excluding currency in circulation) (7)=(1)+(2)+(3)+(4)+(5)+(6)
2000	61.2	13.3	47.9	28.9	2.0	18.5	15.4	0.2	126.2
2001	70.8	16.1	54.7	29.4	2.4	24.2	9.7	0.1	136.7
2002	71.7	15.2	56.5	28.9	2.3	20.0	10.7	0.2	133.8
2003	79.5	17.6	61.9	32.3	2.0	10.8	15.7	0.5	140.8
2002 Jan.	69.2	14.3	54.9	26.5	2.4	23.9	9.8	0.1	131.9
Feb.	68.9	13.8	55.1	27.3	2.4	23.0	9.4	0.1	131.1
March	67.4	12.5	54.9	27.2	2.4	24.2	9.3	0.1	130.7
Apr.	69.3	13.7	55.6	26.9	2.4	22.9	8.9	0.0	130.4
May	69.0	13.3	55.7	26.6	2.4	22.8	8.9	0.0	129.8
June	70.6	14.2	56.4	26.0	2.3	22.6	8.7	0.0	130.2
July	70.8	14.3	56.5	26.0	2.3	22.5	8.9	0.0	130.6
Aug.	71.3	14.1	57.2	26.3	2.3	22.8	8.9	0.1	131.7
Sept.	72.3	14.7	57.6	25.4	2.3	22.9	9.1	0.1	132.2
Oct.	70.0	13.5	56.5	26.6	2.3	23.2	9.0	0.1	131.2
Nov.	69.1	13.3	55.8	27.3	2.3	22.0	9.1	0.2	130.0
Dec.	71.7	15.2	56.5	28.9	2.3	20.0	10.7	0.2	133.8
2003 Jan.	70.3	14.2	56.1	28.9	2.2	20.2	12.0	0.2	133.7
Feb.	71.8	14.4	57.4	27.1	2.2	19.2	12.9	0.2	133.5
March	72.5	14.9	57.6	27.3	2.2	16.8	14.1	0.2	133.2
Apr.	72.7	14.6	58.1	28.7	2.2	16.3	14.4	0.3	134.7
May	71.9	14.5	57.4	28.8	2.0	15.7	14.7	0.3	133.4
June	74.9	16.7	58.2	29.7	2.1	13.5	15.7	0.4	136.3
July	72.9	15.8	57.1	32.0	2.1	13.0	15.8	0.4	136.3
Aug.	74.0	16.1	57.9	33.0	2.2	12.2	15.7	0.4	137.5
Sept.	74.9	17.1	57.8	32.7	2.1	12.0	15.6	0.4	137.7
Oct.	74.0	16.2	57.8	33.3	2.1	11.8	15.6	0.5	137.3
Nov.	74.1	15.4	58.7	32.9	2.1	11.6	15.5	0.5	136.7
Dec.	79.5	17.6	61.9	32.3	2.0	10.8	15.7	0.5	140.8
2004 Jan.	79.5	17.2	61.6	32.5	2.1	10.6	15.2	0.5	139.7
Feb.	79.6	17.3	62.3	32.1	2.1	10.5	15.2	0.5	139.9
March	82.1	17.8	64.3	31.8	2.1	9.5	15.8	0.4	141.6
Apr.	81.4	17.8	63.6	33.5	2.2	9.1	15.9	0.4	142.5
May	82.5	17.0	65.5	32.2	2.1	8.9	15.6	0.4	141.8

1 The Greek contribution begins upon Greece's entry into the euro area (1 January 2001). For statistical reasons, however, the data on monetary aggregates were extended to cover previous years as well.

2 Including savings deposits in currencies other than the euro.

3 The Greek M3 (and likewise any euro area national M3) can no longer be accurately calculated, since part of the quantity of euro banknotes and coins that have been put into circulation in a euro area country is held by residents of other euro area countries and/or by non-residents. Due to these technical problems, the compilation of the Greek M0, M1, M2 and M3 was interrupted in January 2003.

Source: Bank of Greece.

Table III.3

Greece: Deposits of domestic firms and households with OMFIs,[1] by currency and type

(Outstanding balances in million euro, not seasonally adjusted)

End of period	Total deposits	By currency		By type		
		Deposits in euro[2]	Deposits in other currencies	Sight deposits	Savings deposits	Time deposits[3]
2000	90,737.8	73,720.2	17,017.6	11,007.0	50,917.8	28,813.0
2001	101,809.5	79,566.0	22,243.5	13,385.2	58,323.1	30,101.1
2002	104,761.1	87,732.3	17,028.8	13,367.3	60,406.1	30,987.7
2003	115,750.1	98,119.3	17,630.8	15,395.8	65,141.1	35,213.2
2002 Jan.	97,542.0	78,693.6	18,848.4	11,839.1	58,355.2	27,347.7
Feb.	98,302.4	79,029.9	19,272.4	11,356.7	58,674.4	28,271.3
March	96,741.8	77,970.2	18,771.6	10,267.5	58,309.6	28,164.7
Apr.	98,685.7	80,274.3	18,411.5	11,584.4	58,979.2	28,122.2
May	97,779.9	79,934.6	17,845.3	10,795.2	59,174.0	27,810.7
June	98,751.5	81,549.4	17,202.1	11,758.3	59,654.1	27,339.2
July	99,132.9	81,816.4	17,316.4	11,888.0	59,768.1	27,476.8
Aug.	99,924.1	82,255.7	17,668.4	11,656.2	60,475.4	27,792.5
Sept.	101,076.4	84,497.2	16,579.2	12,328.6	61,820.2	26,927.6
Oct.	100,492.7	83,175.9	17,316.8	11,399.8	60,572.9	28,519.9
Nov.	100,771.6	83,612.4	17,159.2	11,686.3	59,933.8	29,151.4
Dec.	104,761.1	87,732.3	17,028.8	13,367.3	60,406.1	30,987.7
2003 Jan.	102,687.7	85,423.3	17,264.4	11,703.0	59,707.7	31,277.0
Feb.	102,455.9	85,527.5	16,928.4	12,419.8	60,981.4	29,054.7
March	103,684.4	86,637.5	17,046.9	12,996.7	61,203.6	29,484.0
Apr.	105,407.4	87,642.8	17,764.6	12,664.5	61,690.6	31,052.2
May	104,593.8	86,997.3	17,596.5	12,586.4	60,809.6	31,197.8
June	108,637.5	90,199.0	18,438.5	14,702.7	61,700.5	32,234.3
July	108,694.9	89,934.1	18,760.8	13,670.6	60,471.2	34,553.1
Aug.	110,793.2	91,498.3	19,294.9	14,035.9	61,242.3	35,515.0
Sept.	111,384.5	92,881.7	18,502.8	14,958.4	61,151.5	35,274.5
Oct.	111,068.9	92,207.8	18,861.1	14,024.4	61,020.5	36,024.0
Nov.	110,668.9	92,383.7	18,285.2	13,157.4	61,846.9	35,664.6
Dec.	115,750.1	98,119.3	17,630.8	15,395.8	65,141.1	35,213.2
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
Apr.	118,835.4	99,526.4	19,309.0	15,687.6	66,697.8	36,450.0
May	118,645.4	99,905.7	18,739.7	14,995.6	68,548.9	35,100.9

1 Other Monetary Financial Institutions (OMFIs) comprise credit institutions (other than the Bank of Greece) and money market funds.
2 Including (until 31 December 2001) deposits in drachmas and the other euro legacy currencies.
3 Including blocked deposits.

Source: Bank of Greece.

Table III.4

Domestic MFI loans to domestic enterprises and households, by branch of economic activity

(Balances in million euro)

End of period	Total	In euro	In foreign currency	Branches of economic activity: Agriculture	Industry[1]	Trade	Housing	Tourism	Consumer credit	Other
2000	59,330.0	50,065.6	9,264.4	3,884.9	11,823.7	12,374.2	11,271.9	1,814.3	5,511.3	12,649.7
2001	74,027.4	66,722.6	7,304.8	3,724.2	12,614.9	15,524.3	15,652.2	2,171.3	7,852.0	16,488.5
2002	86,510.5	80,099.7	6,410.8	3,224.7	14,364.0	15,670.8	21,224.7	2,903.2	9,755.4	19,367.7
2003	101,178.1	95,649.4	5,528.7	3,082.7	15,865.1	16,514.4	26,534.2	3,488.2	12,409.6	23,283.9
2002 Jan.	73,982.0	66,648.1	7,333.9	3,230.0	12,435.1	15,174.6	16,024.7	2,236.0	7,783.7	17,097.9
Feb.	75,202.2	67,723.9	7,478.3	3,030.3	12,724.5	15,846.7	16,417.5	2,267.5	7,944.7	16,971.0
March	76,235.3	69,080.0	7,155.3	3,139.4	13,168.1	15,788.0	16,891.9	2,316.4	8,129.8	16,801.7
Apr.	76,958.0	69,886.9	7,071.1	3,196.1	12,801.1	15,939.4	17,362.1	2,341.0	8,301.2	17,017.1
May	78,009.6	71,192.8	6,816.8	3,193.0	12,912.6	16,064.7	17,721.8	2,372.2	8,508.3	17,237.0
June	79,960.9	73,475.3	6,485.6	3,167.7	13,360.0	16,516.2	18,194.3	2,414.5	8,678.1	17,630.1
July	81,233.9	74,622.8	6,611.1	3,167.7	13,720.8	16,570.9	18,759.9	2,411.6	8,868.0	17,735.0
Aug.	82,041.4	75,311.8	6,729.6	3,191.4	13,625.4	16,580.6	19,304.9	2,399.3	8,997.7	17,942.1
Sept.	82,662.6	75,930.7	6,731.9	3,212.8	13,785.6	16,059.8	19,503.8	2,560.0	9,228.1	18,312.5
Oct.	83,996.1	77,164.1	6,832.0	3,221.6	13,961.2	16,161.2	19,914.7	2,635.0	9,420.9	18,681.5
Nov.	85,614.8	78,732.9	6,881.9	3,167.1	14,528.2	15,663.2	20,416.6	2,761.1	9,612.9	19,465.7
Dec.	86,510.5	80,099.7	6,410.8	3,224.7	14,364.0	15,670.8	21,224.7	2,903.2	9,755.4	19,367.7
2003 Jan.	88,241.8	81,751.6	6,490.2	2,964.2	14,529.2	16,321.5	21,599.4	2,978.4	9,884.9	19,964.2
Feb.	88,787.7	82,332.2	6,455.5	2,980.5	14,485.6	16,310.3	22,062.6	3,049.0	10,023.3	19,876.4
March	89,363.0	83,075.2	6,287.8	2,994.0	14,422.3	16,053.5	22,366.8	3,095.5	10,247.3	20,183.6
Apr.	90,770.3	84,710.6	6,059.7	3,043.0	14,565.0	16,113.4	22,747.1	3,149.2	10,344.7	20,807.9
May	92,497.1	86,811.4	5,685.7	3,027.6	14,866.7	16,488.6	23,183.1	3,085.8	10,432.6	21,412.7
June	94,344.1	88,447.4	5,896.7	3,062.3	15,165.2	16,139.3	23,705.7	3,201.0	10,600.9	22,469.7
July	96,253.7	90,203.0	6,050.7	3,062.9	15,674.1	16,307.5	24,267.2	3,207.5	10,871.8	22,862.7
Aug.	97,350.8	91,177.5	6,173.3	3,102.1	15,681.4	16,700.8	24,573.2	3,255.1	11,075.2	22,963.0
Sept.	97,747.2	91,865.5	5,881.7	3,103.0	15,544.4	16,612.9	25,043.9	3,278.1	11,301.1	22,863.8
Oct.	98,403.4	92,480.6	5,922.8	3,117.3	15,481.2	16,393.0	25,559.5	3,321.0	11,670.4	22,861.0
Nov.	99,829.3	94,044.9	5,784.4	3,093.6	15,780.9	16,633.3	25,808.6	3,392.4	12,063.2	23,057.3
Dec.	101,178.1	95,649.4	5,528.7	3,082.7	15,865.1	16,514.4	26,534.2	3,488.2	12,409.6	23,283.9
2004 Jan.	102,748.9	96,982.9	5,766.0	3,055.4	16,005.1	16,822.7	26,902.8	3,536.8	12,690.8	23,735.3
Feb.	103,899.7	98,214.0	5,685.7	3,042.0	15,948.2	17,060.8	27,334.5	3,587.7	13,041.9	23,884.6
March	105,263.2	99,372.4	5,890.8	3,095.5	15,831.8	17,012.4	27,894.2	3,661,6	13,442.3	24,325.4
Apr.	106,447.1	100,530.0	5,917.1	3,150.5	15,734.1	17,134.7	28,465.8	3,703.2	13,798.6	24,460.2
May	108,835.0	103,158.1	5,676.9	3,242.6	15,950.4	17,773.5	29,080.6	3,766.9	14,169.3	24,851.7

1 Comprising manufacturing and mining.

Source: Bank of Greece.

Table III.5

ECB and Bank of Greece interest rates

(Percentages per annum)

1. ECB interest rates				2. Bank of Greece interest rates				
With effect from[1]	Deposit facility	Main refinancing operations[3]	Marginal lending facility	With effect from	Overnight deposit facility, first tier[4]	Overnight deposit facility, second tier[4]	14-day intervention rate	Lombard rate
1999 1 Jan.	2.00	3.00	4.50	**1999** 14 Jan.	11.50	9.75	12.00	13.50
4 Jan.[2]	2.75	3.00	3.25	21 Oct.	11.00	9.75	11.50	13.00
22 Jan.	2.00	3.00	4.50	16 Dec.	10.25	9.25	10.75	12.25
9 Apr.	1.50	2.50	3.50	27 Dec.	10.25	9.00	10.75	11.50
5 Nov.	2.00	3.00	4.00					
2000 4 Feb.	2.25	3.25	4.25	**2000** 27 Jan.	9.50	8.50	9.75	11.00
17 March	2.50	3.50	4.50	9 March	8.75	8.00	9.25	10.25
28 Apr.	2.75	3.75	4.75	20 Apr.	8.00	7.50	8.75	9.50
9 June	3.25	4.25	5.25	29 June	7.25	–	8.25	9.00
28 June[3]	3.25	4.25	5.25	6 Sept.	6.50	–	7.50	8.25
1 Sept.	3.50	4.50	5.50	15 Nov.	6.00	–	7.00	7.75
6 Oct.	3.75	4.75	5.75	29 Nov.	5.50	–	6.50	7.25
				13 Dec.	4.75	–	5.75	6.50
				27 Dec.	3.75	–	4.75	5.75
2001 11 May	3.50	4.50	5.50					
31 Aug.	3.25	4.25	5.25					
18 Sept.	2.75	3.75	4.75					
9 Nov.	2.25	3.25	4.25					
2002 6 Dec.	1.75	2.75	3.75					
2003 7 March	1.50	2.50	3.50					
6 June	1.00	2.00	3.00					

1 The date refers to the deposit and marginal lending facilities. For main refinancing operations, unless otherwise indicated, 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.

2 On 22 December 1998 the ECB announced that, as an exception 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 regime.

3 Until 21 June 2000: fixed rate tenders, from 28 June 2000: minimum bid rate in variable rate tenders.

4 On 29 June 2000 the second tier of the deposit facility was abolished; the interest rate thereafter applies to the unified deposit acceptance account.

Sources: ECB and Bank of Greece.

Table III.6

Greek government paper yields

(Percentages per annum, period averages)

Period	Yield on one-year Treasury bills	Yield on government bonds					
		3-year	5-year	7-year	10-year	15-year	20-year
2000	6.22	5.99	5.98	6.05	6.10	6.26	6.35
2001	4.08	4.28	4.58	4.82	5.30	5.51	5.76
2002	3.50	4.06	4.45	4.78	5.12	5.24	5.52
2003	2.34	2.82	3.37	3.83	4.27	4.32	4.91
2002 Jan.	3.48	4.27	4.51	4.95	5.24	5.36	5.55
Feb.	3.59	4.37	4.73	5.07	5.31	5.41	5.60
March	3.81	4.58	5.00	5.27	5.51	5.58	5.78
Apr.	3.86	4.59	4.99	5.27	5.51	5.60	5.84
May	3.98	4.63	5.00	5.27	5.52	5.60	5.86
June	3.87	4.46	4.81	5.09	5.36	5.47	5.71
July	3.65	4.23	4.59	4.90	5.21	5.33	5.57
Aug.	3.44	3.90	4.29	4.60	4.95	5.07	5.34
Sept.	3.24	3.59	3.98	4.33	4.73	4.86	5.18
Oct.	3.13	3.52	3.95	4.34	4.79	4.94	5.32
Nov.	3.02	3.40	3.87	4.26	4.76	4.90	5.33
Dec.	2.87	3.19	3.63	4.05	4.58	4.71	5.13
2003 Jan.	2.70	2.91	3.36	3.81	4.43	4.51	4.97
Feb.	2.50	2.65	3.31	3.89	4.24	4.27	4.83
March	2.41	2.82	3.38	3.83	4.26	4.33	4.90
Apr.	2.46	2.99	3.50	3.96	4.38	4.45	5.02
May	2.25	2.64	3.12	3.57	4.02	4.09	4.73
June	2.02	2.38	2.88	3.33	3.81	3.86	4.57
July	2.08	2.62	3.18	3.65	4.12	4.16	4.83
Aug.	2.28	2.98	3.51	3.91	4.29	4.34	4.90
Sept.	2.26	2.91	3.47	3.91	4.32	4.37	4.96
Oct.	2.30	2.94	3.52	3.95	4.38	4.43	5.02
Nov.	2.41	3.06	3.67	4.09	4.51	4.55	5.10
Dec.	2.38	2.97	3.58	4.02	4.45	4.49	5.04
2004 Jan.	2.21	2.71	3.34	3.81	4.37	4.33	4.94
Feb.	2.17	2.91	3.28	3.90	4.35	4.28	4.91
March	2.06	2.71	3.26	3.71	4.17	4.43	4.75
Apr.	2.16	2.90	3.45	3.90	4.35	4.72	4.88
May	2.30	3.08	3.63	4.07	4.49	4.86	5.01
June	2.41	3.19	3.73	4.15	4.55	4.89	5.03

Source: Bank of Greece.

Table III.7

Greece: bank rates on new euro-denominated deposits of, and loans to, euro area residents

(Percentages per annum)

Period	Deposits by households			Deposits by non-financial corporations		Repurchase agreements (repos)[3]
	Overnight[1,2]	Savings[2]	With agreed maturity of up to 1 year[3]	Overnight[2]	With agreed maturity of up to 1 year[3]	
2002 Sept.	1.57	1.57	3.13	0.84	3.36	3.22
Oct.	1.56	1.57	3.17	0.90	3.39	3.01
Nov.	1.55	1.55	3.15	0.84	3.46	3.17
Dec.	1.10	1.09	2.93	0.74	3.10	2.97
2003 Jan.	1.10	1.09	2.83	0.74	2.88	2.75
Feb.	1.10	1.10	2.73	0.75	2.79	2.71
March	1.06	1.05	2.68	0.69	2.40	2.54
Apr.	1.05	1.04	2.70	0.73	2.67	2.46
May	1.04	1.03	2.61	0.70	2.66	2.45
June	0.82	0.81	2.44	0.55	2.41	2.10
July	0.80	0.79	2.38	0.60	2.36	2.04
Aug.	0.81	0.79	2.29	0.52	2.31	2.00
Sept.	0.81	0.80	2.30	0.55	2.30	1.98
Oct.	0.87	0.85	2.27	0.62	2.37	1.98
Nov.	0.87	0.85	2.29	0.54	2.33	1.94
Dec.	0.87	0.86	2.22	0.59	2.35	1.98
2004 Jan.	0.88	0.86	2.26	0.55	2.18	1.99
Feb.	0.88	0.87	2.18	0.57	2.17	1.98
March	0.89	0.87	2.29	0.54	2.13	1.95
Apr.	0.89	0.88	2.26	0.56	2.13	1.97
May	0.90	0.89	2.24	0.56	2.23	1.95

1 Weighted average of the current account rate and the savings deposit rate.
2 End-of-the-month rate.
3 Average monthly rate.
Source: Bank of Greece.

Table III.7 *(continued)*

Greece: bank rates on new euro-denominated deposits of, and loans to, euro area residents

(Percentages per annum)

Period	Loans to households					Loans to non-financial corporations		
		Consumer loans[3]		Housing loans[3]			With a floating rate oran initial rate fixation of up to 1 year[3]	
	Loans without defined maturity[1,2]	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 housing loans	Loans without defined maturity[2,4]	Up to €1 million	Over €1 million
2002 Sept.	14.40	10.86	10.43	4.62	4.74	7.31	6.64	5.33
Oct.	14.51	10.69	10.45	4.65	4.81	7.28	6.37	4.98
Nov.	14.48	10.87	10.61	4.56	4.75	7.23	5.78	4.54
Dec.	14.54	10.58	10.45	4.42	4.61	7.23	5.76	4.50
2003 Jan.	14.71	10.46	10.17	4.53	4.77	7.15	5.53	4.39
Feb.	14.68	11.13	10.60	4.58	4.81	7.09	5.59	4.27
March	14.66	10.82	10.76	4.58	4.87	7.04	5.37	4.06
Apr.	14.76	11.15	10.82	4.58	4.93	7.07	5.55	4.14
May	14.58	11.13	10.70	4.59	4.93	6.95	5.68	3.76
June	14.54	10.61	10.44	4.53	4.86	6.84	5.15	3.47
July	14.24	10.41	10.33	4.37	4.66	6.70	5.06	3.68
Aug.	14.05	10.24	10.37	4.48	4.76	6.67	4.95	3.60
Sept.	14.14	10.37	10.60	4.62	4.81	6.67	5.14	4.27
Oct.	14.22	10.57	10.58	4.57	4.81	6.68	5.24	4.68
Nov.	14.27	10.36	10.46	4.35	4.63	6.72	5.14	3.66
Dec.	14.08	9.60	9.86	4.31	4.53	6.78	5.13	3.78
2004 Jan.	13.92	9.82	9.94	4.36	4.68	6.74	5.12	3.92
Feb.	13.97	9.94	9.99	4.35	4.63	6.85	5.16	4.09
March	14.00	9.44	9.87	4.37	4.63	7.13	4.88	3.45
Apr.	14.06	9.56	9.85	4.36	4.55	7.11	5.15	3.49
May	13.72	9.82	10.07	4.33	4.54	7.02	4.91	3.45

1 Weighted average of interest rates on loans to households through credit cards, open loans and current account overdrafts.
2 End-of-the-month rate.
3 Average monthly rate.
4 Weighted average of interest rates on corporate loans through credit lines and sight deposit overdrafts.
Source: Bank of Greece.

Table IV.1

Borrowing requirement of central government and public entities

(Million euro)

	Year		January-April		
	2002	2003*	2002	2003	2004*
1 Central government[1,2]	**7,102**	**10,535**	**2,259**	**4,669**	**6,543**
– Government budget	6,674	10,842	3,244	5,843	7,608
(Ordinary badget)[2]	2,128	4,115	3,513	4,457	6,300
(Public investment budget)	4,546	6,727	–269	1,386	1,308
– OPEKEPE[3]	428	–307	–985	–1,174	–1,065
Percentage of GDP	5.0	6.9	1.6	3.1	4.0
2 Public entities[4]	**–1,657**	**–1,971**	**–1,099**	**–1,027**	**–366**
– Financing of social security funds	44	135	–118	38	–77
– Financing of local authorities	123	49	0	–26	–30
– Financing of other entities	395	86	–16	116	397
– Liquid assets	–2,219	–2,241	–965	–1,155	–656
Total (1+2)[5]	**5,445**	**8,564**	**1,160**	**3,642**	**6,177**

1 As shown by the movement of relevant accounts with the Bank of Greece, the Agricultural Bank of Greece and commercial banks.
2 Including the movement of public debt management accounts.
3 Payment and Control Agency for Guidance and Guarantee Community Aid. It replaced DICAGEP (Agricultural Markets Management Service) as of 3 September 2001.
4 Including their liabilities towards the banking system and, their bank deposits as well as their investment in Greek government paper intermediated exclusively by the Bank of Greece; excluding other investment in securities, which nevertheless affects their cash surplus.
5 Including the borrowing requirement of central government, as well as that of public entities as calculated on the basis of the exclusive intermediation of the Bank of Greece.
* Provisional data and estimates.
Source: Bank of Greece.

Table IV.2

Financing of borrowing requirement of central government and public entities

(Million euro)

	Year				January-April					
	2002		2003*		2002		2003		2004*	
	Amount	Percentage of total	Amount	Percentage of total	Amount	Percentage of total	Amount	Percentage of total	Amount	Percentage of total
Greek government paper held by OMFIs[1]	–2,476	–45.5	–9,268	–108.2	156	13.4	–5,176	–142.1	–1,997	–32.3
Greek government paper held by private investors and enterprises[1]	1,159	21.3	814	9.5	917	79.1	1,988	54.6	587	9.5
Net borrowing from OMFIs[2]	650	11.9	117	1.4	–5,160	–444.8	–1,753	–48.1	–4,842	–78.4
Bank of Greece[3]	273	–5.0	–616	–7.2	189	16.3	–159	–4.4	–233	–3.8
Borrowing from non-residents	6,385	117.3	17,517	204.5	5,058	436.0	8,742	240.0	12,662	205.0
Total	**5,445**	**100**	**8,564.0**	**100**	**1,160**	**100.0**	**3,642**	**100.0**	**6,177**	**100.0**

1 Including sales of securities in the secondary market. For the definition of OMFIs, see Table III, footnote 1.
2 Net borrowing is equal to the change in the outstanding balance of loans less the change in central government and public entities deposits with OMFIs.
3 Concerns changes in the balance of government's accounts with the Bank of Greece and not central bank financing.
* Provisional data.
Source: Bank of Greece.

Table IV.3
Government budget results
(Million euro)

	Year			Percentage changes		January – May			Percentage changes	
	2002	2003*	Budget 2004	2003*/02	Budget 2004/03*	2002	2003	2004*	2003/02	2004*/03
I. REVENUE[1]	41,605	41,808	47,740	0.5	14.2	15,154	16,014	17,676	5.7	10.4
1. Ordinary budget	39,048	39,879	43,620	2.1	9.4	14,981	15,401	16,582	2.8	7.7
2. Public investment budget	2,557	1,929	4,120	–24.6	113.6	173[4]	613	1,094	254.3	78.5
(Own revenue)	14	83	100	492.9	20.5	0	...	...	–	–
(Revenue from the EU)	2,543	1,846	4,020	–27.4	117.8	173	...	...	–	–
II. EXPENDITURE[1]	46,412	51,604	54,000	11.2	4.6	19,020	22,076	24,229	16.1	9.8
1.1 Ordinary budget	39,398	43,066	44,750	9.3	3.9	17,122	19,359	21,309	13.1	10.1
(Interest and other expenditure)[2]	9,134	9,416	9,750	3.1	3.5	5,682	5,779	5,844	1.7	1.1
1.2 Ordinary budget primary expenditure	30,264	33,650	35,000	11.2	4.0	11,440	13,580	15,465	18.7	13.9
2. Public investment budget	7,014	8,538	9,250	21.7	8.3	1,898	2,717	2,920	43.2	7.5
III. GOVERNMENT BUDGET RESULTS	–4,807	–9,796	–6,260	103.8	–36.1	–3,866	–6,062	–6,553	56.8	8.1
Percentage of GDP	–3.4	–6.4	–3.8			–2.7	–4.0	–4.0		
1. Ordinary budget	–350	–3,187	–1,130	810.6	–64.5	–2,141	–3,958	–4,727	84.9	19.4
2. Public investment budget	–4,457	–6,609	–5,130	48.3	–22.4	–1,725	–2,104	–1,826	22.0	–13.2
IV. PRIMARY SURPLUS	4,327	–380	3,490	–108.8	–1,018.4	1,816	–283	–709	–115.6	150.5
Percentage of GDP	3.1	–0.2	2.1			1.3	–0.2	–0.4		
AMORTISATION[2,3]	20,860	22,454	19,844	7.6	–11.6	9,880	13,074	18,398	32.3	40.7

1 To ensure comparability, tax refunds are included in expenditure and have not been deducted from revenue.
2 Including expenditure on national defence debt servicing.
3 Excluding redemption of Treasury bills held by the private sector.
4 The low level for January-May 2002 is due to the different methodology used that year by the State General Accounting Office between five-month and annual data. Using the same methodology as for annual data, this figure would have been €1,196 million.
* Provisional data.
Source: State General Accounting Office.

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