THE EURO IMPACT
ON THE BANKING SYSTEM
OF GREECE:
Cost - Benefit Analysis

KOSMIDOU KYRIAKI
KOSK 28547204

October 1998
PREFACE

The introduction of the single currency is a cornerstone of the third and final stage of economic and monetary union, provided for in the treaty on European Union. It is an unprecedented challenge, in which the banking sector will play a key role.

The Greek Banking System, in its effort, to prepare itself for the changeover to the EURO, will face some initial costs. As the basic institution of money distribution, this changeover will impose a heavy burden on banks. In addition to the costs that banks will sustain, they will derive new benefits. The primary objective of this study is to examine the costs that will arise from this changeover and the benefits that will be produced, as explained by the change in the bank profits. We explain the impact of the EURO on the banking system of Greece through a cost-benefit analysis. This analysis provides a perspective of the bank’s anticipated costs, benefits and outcome. The study results consider the existence of two projects: one with the introduction to EURO and one without the introduction to EURO. After having estimated the bank’s break-even point we proceed through an incremental method to determine when profits will be produced. To further demonstrate this, we calculate the NPV of the introduction to the EURO by considering the year 2002 as the basic year. The analysis finds that the NPV of the project is positive. Although there is a high cost associated with the changeover to the EURO, it is a worthwhile investment as the benefits will be greater. Banks, during the short term (2002-2005), will face a loss in their bank profits, however by medium term (2005-2008), the banks will show steady growth. Further analysis indicates that profits will rapidly show increases by the long term. Therefore, we forecast that the changeover to the EURO will be very lucrative for the banking system of Greece and the economy in general, over the long-term.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section I</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Methodology</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section II</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 A historical review towards the EURO</td>
<td>9</td>
</tr>
<tr>
<td>2.2 The Banking System of Greece</td>
<td>12</td>
</tr>
<tr>
<td>2.2.1 Commercial Banks</td>
<td>13</td>
</tr>
<tr>
<td>2.2.2 Specialised Credit institutions</td>
<td>18</td>
</tr>
<tr>
<td>2.2.3 Cooperative Banks</td>
<td>19</td>
</tr>
<tr>
<td>2.2.4 The Bank of Greece</td>
<td>19</td>
</tr>
<tr>
<td>2.3 The changeover to the EURO</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section III</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Costs</td>
<td>26</td>
</tr>
<tr>
<td>3.1.1 Transition costs</td>
<td>27</td>
</tr>
<tr>
<td>3.1.2 Transaction costs</td>
<td>31</td>
</tr>
<tr>
<td>3.1.3 Assumptions</td>
<td>33</td>
</tr>
<tr>
<td>3.1.4 Product and Function costs</td>
<td>35</td>
</tr>
<tr>
<td>3.1.5 Sensitivities</td>
<td>38</td>
</tr>
<tr>
<td>3.2 Benefits</td>
<td>39</td>
</tr>
<tr>
<td>3.2.1 Sources of bank profits</td>
<td>42</td>
</tr>
<tr>
<td>3.3 Cost-benefit analysis</td>
<td>46</td>
</tr>
<tr>
<td>3.3.1 Analysis of costs</td>
<td>46</td>
</tr>
<tr>
<td>3.3.2 Analysis of benefits</td>
<td>48</td>
</tr>
<tr>
<td>3.4 Conclusion</td>
<td>64</td>
</tr>
</tbody>
</table>

Appendix I                  | 69    |
Appendix II                 | 70    |
Bibliography                | 75    |
<table>
<thead>
<tr>
<th>Table 2.3a</th>
<th>The convergence criteria</th>
<th>pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2.3b</td>
<td>Economic outlook for the EU Member States</td>
<td>22</td>
</tr>
<tr>
<td>Table 2.3c</td>
<td>Basic macroeconomic factors</td>
<td>24</td>
</tr>
<tr>
<td>Table 3.1.4</td>
<td>Cost of transition to the single currency by product and function</td>
<td>37</td>
</tr>
<tr>
<td>Figure 3.2.1a</td>
<td>Composition of the Greek banks' net income (1996)</td>
<td>42</td>
</tr>
<tr>
<td>Figure 3.2.1b</td>
<td>Net interest revenues / Total assets (%)</td>
<td>43</td>
</tr>
<tr>
<td>Figure 3.2.1c</td>
<td>Commissions revenues / Total assets (%)</td>
<td>44</td>
</tr>
<tr>
<td>Figure 3.2.1d</td>
<td>Supplementary income / Total assets (%)</td>
<td>45</td>
</tr>
<tr>
<td>Table 3.3.1a</td>
<td>Costs of a single currency</td>
<td>46</td>
</tr>
<tr>
<td>Table 3.3.1b</td>
<td>Expected inflation rates</td>
<td>48</td>
</tr>
<tr>
<td>Figure 3.3.2a</td>
<td>Bank profits of Project B</td>
<td>50</td>
</tr>
<tr>
<td>Table 3.3.2</td>
<td>Scenarios for the profitability of the Greek commercial banks during 2002</td>
<td>53</td>
</tr>
<tr>
<td>Figure 3.3.2b</td>
<td>Bank profits of Project A</td>
<td>55</td>
</tr>
<tr>
<td>Figure 3.3.2c</td>
<td>Bank profits of Project A and Project B</td>
<td>56</td>
</tr>
<tr>
<td>Figure 3.3.2d</td>
<td>Bank profits of Project A and Project B</td>
<td>56</td>
</tr>
<tr>
<td>Figure 3.3.2e</td>
<td>PV of incremental profit flows (A-B)</td>
<td>57</td>
</tr>
<tr>
<td>Figure 3.3.2f</td>
<td>PV of Project A and Project B</td>
<td>58</td>
</tr>
<tr>
<td>Figure 3.3.2g</td>
<td>Total operating costs of Project A</td>
<td>62</td>
</tr>
<tr>
<td>Figure 3.3.2h</td>
<td>Total bank profits of Project A</td>
<td>62</td>
</tr>
<tr>
<td>Figure 3.3.2i</td>
<td>Total profit / cost curves</td>
<td>63</td>
</tr>
<tr>
<td>Figure 3.4a</td>
<td>Bank profits - Growth cycle curves</td>
<td>65</td>
</tr>
<tr>
<td>Figure 3.4b</td>
<td>Stages of Growth</td>
<td>66</td>
</tr>
</tbody>
</table>
1. Introduction

The purpose of the present study is to provide you with a clear perspective that will help you in understanding the economic impact that the transition towards monetary union will have on the banking system of Greece.

Our objective for this study is to determine and demonstrate the economic results that the changeover to the EURO will produce for the banking system of Greece.

The introduction of the EURO; the future European currency common to all countries/members of the European Monetary Union (EMU), will be a historic event in the true sense of the term. The introduction of the EURO is a unique event of national and international importance. It will be part of our lives no later than the year 2002, once Eurocoins and banknotes will be available. With the introduction to EURO and the impending monetary union, every aspect of our lives (social, political, economical, ...) will be affected. There will be a restructurization of bank operations within all segments of the banking business, such as account management, payment transactions, credit relations, savings and time deposits, securities, automated teller machines e.t.c.

The banking system’s central planning process is to prepare now for EMU to be ready on time for January 1st, 1999. Other scenarios regarding the possible timing of Greece’s entry are subject to continuous review. In any event, it is the banks’ position that a minimum notice period of 36 months should be given preceding Greece’s membership of EMU. This will allow sufficient time for all parts of the Greek economy, particularly retail areas, to prepare as a result of the creation of the emerging single market / single currency economy.

Project feasibility is clearly demonstrated by the intense and advanced efforts that are being made by the banking sector of Greece to prepare for the changeover to EURO. The EURO will contribute in a number of ways. It will in particular increase market transparency by making prices more easily comparable, by eliminating the costs associated with currency conversion and by eliminating the exposure to exchange risks. All this will help create an environment that favours a steady and sustainable economic growth. EMU will bring benefits to banks, along with other sectors of the economy. The
banks, however being the primary mechanism for money distribution, will be faced with much higher costs.

The changeover towards monetary union will be made largely through the banking system. Carrying out the necessary changes will impose a heavy burden on the banks. As in any other industry, the banking industry is ready and willing to make the necessary investments in technology, marketing, training and the introduction and purchase of new products that will be required to operate and manage the new EURO system. Much of this work is already in process.

There will also be expensive one-off tasks during the final changeover which will be imposed on the banks. For example, the introduction of the new currency; the EURO; both as book money and as physical notes and coins, will be handled by the banking system on behalf of the public authorities. Banks will undertake these tasks in the public interest and not because they are in the banks' own interests. Consequently, managing and bearing the specific related costs cannot be regarded as a commercial duty on banks. It will be a major public duty. Neither the Maastricht Treaty nor any other legislation requires that the costs of introducing the EURO be assumed by the banks alone.

The banking system was chosen due to the fact that from all the sectors of economic activity, banks will play the most important role during the transition period. The banks and the other financial institutions are those that administer the monetary pools and the final division of deposits and investments. Therefore, banks will be responsible for the large influx of transactions during the transition period from 1999 to 2002, where EURO will exist in a logistic form.

Preparation is taking place across all business units within banks. The central team has specified the scenario planning, but individual business units are actively responsible for impact assessment, determining requirements and setting out implementation plans. Each has an executive accountable for EURO compliance defined processes in place and where appropriate, dedicated resources. There is a recognition that in order to succeed, mere systems compliance will not be enough. Business consideration and opportunities must drive the technical conversions. Competition will undoubtedly intensify and relationships will become more concentrated. This will have an impact on business, on
systems and on delivery. A radical change to the whole banking system is necessary in order to be ready to adopt the new currency and cooperate with other European banks.

The question we are compelled to answer is: Will these costs be compensated by the benefits? In answering this question we have considered the most important determinants such as new government fiscal and monetary policies, the bank’s profit building process including investment strategies, financial investments such as real estate, fixed income (including bonds, treasury bills, bank deposits), stocks, as well as increased competitive pressures and economic fluctuations. This study succeeds in giving you an answer to the above question, through a cost-benefit analysis, illustrating the long-term financial rewards that the changeover to the EURO will offer.

We have separated this study into three sections, in our effort to help you in comprehending the effect that the changing environment will have on the future of the Greek banking system. In section one, we include the present introduction and describe the methodology to be used to further help you in understanding how we have proceeded in obtaining our forecasted results. Section two highlights a historical review leading towards the changeover to the EURO; a description of the Greek banking system; the present situation among the European countries; the Maastricht Treaty and the economic policy of the Greek government. In section three we will give you a more detailed description of the main costs that the banking system of Greece will sustain during the transition period, as well as a description of the benefits that will become evident after the introduction of the EURO. In our effort to clearly explain the impact of EURO on the banking system of Greece, we include an analysis examining the banks’ profitability, by identifying the banks’ break-even point and determining anticipated profits, as demonstrated in our comparative project study results.

We believe you will find that we have provided you with a useful tool as well as answers to all pertinent questions that indicate that in the final analysis, the banking system of Greece will have a bright future with the introduction of the EURO.
1.1 Methodology

In this section we will explain the methodology that will be used to evaluate the impact of EURO on the banking system of Greece, through a cost-benefit analysis.

The utility function is represented by the banks, as we are effectuating this study from the banks’ point of view.

The introduction to the EURO is the required investment. The costs will be assessed based on the cash outflow towards this investment, and the benefits will be determined by the cash inflows and/or change in the bank’s profits. By calculating the NPV, we determine whether or not the investment is profitable.

The following diagram gives a more detailed outline of the methodology to be used in this study.

\[
\text{Benefits} = \Delta \text{Bank profits}
\]

\[
\begin{array}{ccccccccccc}
-4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 \\
\end{array}
\]

\[
\text{Cash Inflows}
\]

\[
\text{Cash Outflows}
\]

- transition costs
- transaction-conversion costs
- basic year

\[
FV \text{ Costs} \quad \rightarrow \quad NPV \text{ Benefits}
\]

\[
\text{NPV} = -(FV \text{ costs}) + \text{NPV benefits}
\]
Taking the year 2002 as the basic year, t=0, we will calculate the future value of costs (during 1998-2002) and the net present value of benefits by that year (i.e. 2002).

As far as the costs are concerned, the years 1998 to 2002 will mark the transition period for the EURO. During this period the banks will have to plan major strategic and organisational changes towards innovative solutions and development. At this time the transition, transaction and conversion costs will be gradually increased.

Based on the above, we conclude that the future value of costs compounded at 2002 will be the sum of all the future value of costs incurred during the years 1998 to 2002.

\[
FV_{\text{costs}}^{2002} = FV_{C}^{2002} + FV_{C}^{2002} + FV_{C}^{2000} + FV_{C}^{2001}
\]

\[
FV_{\text{costs}}^{2002} = \sum_{t=1}^{4} FV_{C_t}^{2002} \tag{1}
\]

The discount rate that we will use, will be the annual interbank interest rate "ATHIBOR" of the Bank of Greece. As the Greek money market is an over-the-counter interbank market for short-term transactions in Greek drachma and foreign exchange, domestic and foreign credit institutions operating in Greece participate regularly in this market in order to manage their liquidity position, while the Bank of Greece intervenes to achieve its monetary policy objectives. The reference interbank interest rate is the Athens Interbank Offered Rate (ATHIBOR). ATHIBOR is calculated on the basis of quotes given by eighteen credit institutions operating in Greece according to the detailed provisions of its operating rules. The ATHIBOR rate is usually calculated as the arithmetic means of all prices remaining after eliminating the 25% of the highest and the 25% of the lowest bid and offer prices. If the number of participating banks is 18, the four highest and the four lowest bid and offer prices are eliminated. The maximum bid-offer spread for participating banks is 75 basis points.

The "ATHIBOR" discount rate is the most appropriate, as this study deals with costs (transition costs, transaction costs) and with benefits, specifically with interbank transactions in national and foreign exchange currency.
Note that the future value of each year’s costs is compounded annually.

\[
FV_{C_t}^{2002} = C_t \prod_{i=1}^{t} (1+r_i), \quad t=1,...,4 \quad (2)
\]

Where \( C_t \) is the amount of costs at date \( t \), \( t=1,...,4 \)

\( r_i \) is the discount rate at year \( i \), \( i=1,...,t \)

Equations (1) & (2) give:

\[
FV_{\text{costs}}^{2002} = \sum_{t=1}^{4} [C_t \prod_{i=1}^{t} (1+r_i)] \quad (A)
\]

It is expected that during the year 2002, implementation costs (costs that will occur when everything related to the transition period will be implemented) will be at their highest point. Following the year 2002, implementation costs will gradually be eliminated and will be included in the bank’s operating costs.

It is obvious that by referring to benefits, we refer to the bank profits resulting from the introduction of the EURO. This leads us to question, what would happen to the bank profits if there were no common currency. Would the banks have been more profitable? In this case we assume the existence of two projects:

Project A, refers to the bank profits resulting from the introduction of EURO.

Project B, refers to the bank profits without the EURO currency.

In calculating the NPV of the project (the introduction to the EURO) and by proceeding through an incremental method, only profit flows that are incremental to the project will be used. By referring to incremental profit flows we mean the changes in
bank profits that occur as a direct consequence of accepting the project. Specifically, we are interested in the difference between the bank profits with and without the project.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project A</td>
<td>X1</td>
<td>X2</td>
<td>X3</td>
<td>X4</td>
<td>X5</td>
<td>X6</td>
</tr>
<tr>
<td>Project B</td>
<td>Y1</td>
<td>Y2</td>
<td>Y3</td>
<td>Y4</td>
<td>Y5</td>
<td>Y6</td>
</tr>
<tr>
<td>Incremental profit flows A-B</td>
<td>X1-Y1</td>
<td>X2-Y2</td>
<td>X3-Y3</td>
<td>X4-Y4</td>
<td>X5-Y5</td>
<td>X6-Y6</td>
</tr>
</tbody>
</table>

In estimating the bank profits of 2002, we have chosen the Greek commercial banks. Our decision was based on the facts that all major changes within mergers and privatization will be effectuated within this banking sector in the coming months. After examining the banks’ financial statements it becomes evident that a fluctuation of revenues is expected within the banking sectors with some activity moving upward and some declining after the introduction of the EURO. According to the equation \( \Delta \text{bank profits} \), we explain the benefits by this change in the bank profits. By analyzing all related measures we will forecast the bank profits as a percentage of total assets that will transpire by 2002 and beyond.

The NPV of the incremental profit flows is equal to:

\[
\text{NPV} = (X_1-Y_1) + \left[ \frac{(X_j-Y_j)}{(1+r_j)^j} \right] , \quad j=2,\ldots,6 \quad \text{(B)}
\]

Where \( r_j, j=2,\ldots,6 \) is the discount rate at year \( j \)
The year 2002 is taken as the basic year. Taking into account all the benefits and all the costs as of year 2002, we calculate the NPV of the project; that being the introduction to EURO, as the net present value of future profit flows minus the future cost values of the project.

Equations (A) & (B) give:

\[ NPV = - (FV \text{ costs}) + NPV \text{ benefits} \]
SECTION II
2.1 A historical review towards the EURO

European economic integration has become a specialization in its own right. It has developed its own terminology and concepts. Its current significance is still influenced by its historical background and the forms of development of the European Union since the 1950s. Europe emerged from the Second World War with an economy in ruins. Infrastructural and housing damage was enormous; the age structure of available labour skills had been shaken and the capital stock had suffered greatly. The continent found it had fallen behind in technology with respect to the USA. Even its relations with colonies, dominions and other traditional suppliers of raw materials and minerals had to some extent been affected.

The Marshall Plan, introduced in 1948, extended direct aid to Europe on the condition of extensive intra-European cooperation. Behind this US policy laid the double goals of prompting the Europeans to establish economic and other cooperation not only as the best way to pre-empt new animosities on the continent, but also as a fast track to prosperity and hence a bastion against the lures of communism. The Marshall Plan foresaw economic cooperation in the OEEC as the framework for donations and loans. Apart from the OEEC, the actual results of regional economic cooperation were fostered by several other sources, such as Benelux, not only setting an example but also prompting proposals on wider customs unions; the federalist movement in Europe; and the GATT.

The Schuman Plan (May 1950) provides the establishment of the ECSC (European Coal and Steel Community) integrating the two then basic industries for war-making under a supranational authority. The ECSC treaty, signed in Paris in 1951 by Germany, France, Italy and the Benelux countries, is a hybrid of an FTA (Free Trade Area) and a common regime for competition, investment, adjustment and research. The successful appeal by Schuman led France to propose a European Defense Community and a European Political Community as an umbrella over the ECSC and the EDC (European Defense Community). This prompted Benelux in the Beyen Plan to propose an economic component of EPC (European Political Community), namely a CU (Customs Union) of the six. This second attempt by Benelux was no longer a vague linkage of Germany with
the Benelux and French-Italian CUs but a detailed proposal of a single CU with timetables, escape clauses and an adjustment fund. The reactions were interesting; the automaticity for 10-12 years was considered as too inflexible; intermediate target reductions were called for; some countries wished to minimize the safeguard clauses by more far-reaching economic policy coordination; finally, there were strong signals that capital and labour mobility would have to be addressed as well. All these points would find their way into the negotiations of the EEC treaty, only a few years later.

The EDC, and with it the Beyen Plan, was rejected by the French Senate in 1953, however. By early 1955 it seemed that the active search for economic regionalism in Europe had failed, yet the quota liberalisation in the regional OEEC had proved to be broadly successful.

After negotiations, seven countries-participants of the OEEC (Organisation for European Economic Cooperation), signed the EEC and Euratom treaties in Rome in March 1957. The Rome Treaty goes far beyond a traditional customs union in suggesting the novel idea of a common market, whereas the emergence of the Euratom Treaty can, in part, be explained by the desire to act together on the newly expected main energy resource which would have a bearing on coal policies.

The treaty on European Union, commonly called the Maastricht Treaty was negotiated only three years after the Single Act had legally come into force. It was signed in December 1991 in Maastricht (the Netherlands). After a tortuous ratification process with three national referenda (one of which -the Danish- had to be repeated after a "reinterpretation" of the implied obligation), constitutional court cases in the UK and Germany and two exchange rate crises in the EMS, closely related to the treaty's monetary provisions, the Maastricht treaty went into force on 1 November 1993.

The economic goals of this treaty are reformulated and extended, a third general means (Economic and Monetary Union, EMU) is added, a legal basis for a host of new instruments is provided for and a number of guiding principles is introduced. EMU is firmly grounded in a strict monetary constitution, based on price stability and centralisation of monetary policy. The Maastricht Treaty is explicit about the economic
order: principles include "an open market economy with free competition" and guidance for sound macro-economic stabilisation policies.

The Madrid European Council of June 1985 proposed the creation of EMU (European Monetary Union) in three phases, while that of December 1995 chose "EURO" as the name for the single currency of the monetary union. It declared that ECU (the term used in the Maastricht Treaty) was merely a "generic term" (i.e. European Currency Unit). The true reason for the switch to the EURO is to move away from the soft currency image of the ECU in the ERM - currency countries. EURO will replace ECU on a one to one (1:1) basis at the cost recovery that will exist on changeover day.
2.2 The Banking System of Greece

With the deregulation of the banking system and the liberalization of capital flows between domestic and foreign residents, the Greek financial marketplace has become much more attractive for institutional and private investors seeking to raise funds or invest part of their asset portfolio in drachma denominated or foreign currency denominated financial assets through financial institutions operating in Greece. Several financial intermediaries have established a physical presence in Greece either to provide a wide range of financial services or as niche players because of these market opportunities, introduced during the last decade.

It is true that although conditions did not favour the establishment of new banks since the 1960s, the internationalization of banking activities led to an increase in the number of foreign banks opening branch offices in Greece. Greece’s association with the European Community in the 1970s and then Greece’s membership in the European Community reinforced this trend in 1981.

Greek financial law has adapted to the requirements of the new environment. The legal framework now makes the operation of several types of financial intermediaries possible. Depending on the financial activities in which they are engaged, these financial intermediaries, all under close prudential supervision of public authorities, are classified in the three main groups described below.

a) Credit institutions, the only financial intermediaries that can accept deposits, are permitted by law to provide the widest range of commercial banking and investment services. According to the "three-pillar" Greek banking system, credit institutions operating in Greece are divided into three sub-groups.

- commercial banks, including the branches of credit institutions incorporated either in other member states of the European Union or in third countries
- specialised credit institutions
- cooperative banks
Greek commercial banks also can be classified in two groups according to their ownership status. They are as follows:

a) **State controlled commercial banks**

   Nine commercial banks, as per following list, are controlled by the Greek state either directly (Agricultural Bank of Greece) or indirectly through public pension funds, municipalities and other funds.
   - National Bank of Greece
   - Commercial Bank of Greece
   - Agricultural Bank of Greece
   - Macedonia-Thrace Bank
   - Bank of Attica
   - General Bank
   - Ionian Bank of Greece
   - Cretabank
   - Bank of Central Greece

   Among these state controlled banks are three large credit institutions which are parent companies of significant Greek banking groups. These are:
   - **The National Bank of Greece**, the largest credit institution operating in Greece and is expected to be one of the primary leaders in the banking system after the introduction of the EURO.
   - **The Agricultural Bank of Greece**, established in 1929 as a specialised credit institution to financially assist the agricultural policy of Greek governments and support agricultural modernization, was given full powers to operate as a commercial bank in 1991.
   - **The Commercial Bank of Greece**, previously a privately owned commercial bank, came under the control of the Greek state during the 1970s.

   Apart from other subsidiary companies in the financial sector, these three commercial banks have a majority or minority (controlling) participation in other Greek credit institutions. In particular:
The National Bank of Greece is the parent institution of the specialised credit institution, the National Investment Bank for Industrial Development (ETEVA). It also controls the new National Mortgage Bank of Greece with which it is going to merge in 1998.

The Agricultural Bank of Greece has a majority participation in the bank of Central Greece.

The Commercial Bank of Greece has a majority participation in the Ionian Bank of Greece and a minority participation in the Bank of Attica.

In April 1998 Bank of Piraeus acquired through the Athens Stock Exchange a significant part of Macedonia-Thrace Bank's share capital from the National Bank of Greece, ETEBA and the Postal Savings Bank.

It is expected that in the coming months several state-controlled Greek banks will be partly or wholly privatized according to official announcements, these include the Ionian Bank, the Cretabank, The General Bank and the Bank of Central Greece.

b) Private commercial banks

These are commercial banks owned by private institutional or individual investors residing in Greece and abroad. They are classified according to whether or not a foreign institutional investor, (in particular another credit or financial institution), residing abroad has a dominant participation in them, and are characterized into two groups.

Group 1 includes the Greek private commercial banks, listed as follows:

- Alpha Credit Bank
- Ergobank
- Xiosbank
- Egnatia Bank
- Bank of Piraeus
Group 2 includes the Greek bank subsidiaries of international financial conglomerates, listed as follows:

<table>
<thead>
<tr>
<th>Greek Bank</th>
<th>Major Shareholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFG Eurobank</td>
<td>European Financial Group Holding (Switzerland)</td>
</tr>
<tr>
<td>Credit Lyonnais (Greece)</td>
<td>Credit Lyonnais (France)</td>
</tr>
<tr>
<td>Bank of Athens</td>
<td>HANWHA Holding (Luxembourg)</td>
</tr>
<tr>
<td>Dorian Bank</td>
<td>Dorian Holdings S.A. (Luxembourg)</td>
</tr>
<tr>
<td>European Popular Bank</td>
<td>Popular Bank of Cuprys Ltd.</td>
</tr>
</tbody>
</table>

All of the above-mentioned private commercial banks, some being the largest and most innovative Greek credit institutions (e.g. Alpha credit Bank, Ergobank, EFG Eurobank), operate within the same legal framework as the state owned commercial banks. It is expected that the Alpha Credit Bank and the EFG Eurobank will be the remaining two leaders of the banking system following European Monetary Union.

The main differences between them are derived from the continuity of their managements and a higher degree of flexibility in the decision-making process. In addition, those incorporated after the deregulation of the financial system (e.g. EFG Eurobank and Xiosbank) have a more flexible portfolio, since they can pursue and implement rational investment policies from the beginning.

c) Branches of foreign credit institutions

Several credit institutions incorporated in other EU member states of third countries have branches in the Greek banking market. Thirteen (13) EU commercial banks are operating in Greece according to the principles of the single market program, as per following list:

- Midland Bank
- Societe Generale
Royal Bank of Scotland
Credit Commercial de France
Instituto Bancario San Paolo di Torino
ING Bank
ABN-AMRO
National Westminster Bank
Banque Nationale de Paris
Bayerische Vereinsbank
Grindlays Bank
Banque Paribas

The following nine non-EU commercial banks also operate branches in Greece:

Citibank
Bank of Nova Scotia
Chase Manhattan Bank
Bank of America
BANCOREX
American Express
Bank of Cyprus
Arab Bank
Bank Saderat Iran

All the above foreign bank branches are in direct competition with the Greek commercial banks. They adapted to local conditions while also being innovative, contributing to the operational and technical modernisation of the Greek financial market.
2.2.2 Specialised credit institutions

Although structural despecialisation has dominated the recent reform program, specialised credit institutions in the Greek banking system remain significant. Their number has been reduced during the last years, following the transformation of the Agricultural Bank of Greece into a commercial bank in 1991. The Investment Bank was absorbed by its parent institutions; the Commercial Bank of Greece and the Ionian Bank of Greece. The new National Mortgage Bank of Greece was created by the merger of the National Mortgage Bank of Greece with the National Housing Bank in 1997. Accordingly, in February 1998 there were only seven specialised credit institutions operating within the Greek banking system. These are characterized and itemized in the following table.

<table>
<thead>
<tr>
<th>Mortgage banks</th>
<th>Mortgage Bank of Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspis Bank</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Development banks</td>
<td>ETBA</td>
</tr>
<tr>
<td>ETEBA</td>
<td></td>
</tr>
<tr>
<td>Special purpose credit institutions</td>
<td>Postal Savings Bank</td>
</tr>
<tr>
<td></td>
<td>Deposits and Loans Fund</td>
</tr>
<tr>
<td>Shipping bank</td>
<td>Citibank Shipping, SA</td>
</tr>
</tbody>
</table>
2.2.3 Cooperative banks

Recent legislation has permitted Greek credit cooperatives to create credit institutions. The initial capital of these cooperative banks which are subject to specific legislation, can be substantially lower than that of other credit institutions, depending upon the territorial range of their activities. By the end of 1997, the following seven cooperative banks were incorporated and operating in Greece.

- Cooperative Bank of Lamia
- Cooperative Bank of Ioannina
- Cooperative Bank of Evros
- Cooperative Bank of the Dodecanese
- Achaiar Credit
- Pancoretian Bank
- Cooperative Bank of Chania

2.2.4 The Bank of Greece

The Bank of Greece is a state controlled limited company with shares based in Athens and operating 28 branches throughout the country. It is responsible for conducting monetary policy with the purpose of maintaining price stability.

On January 1\textsuperscript{st}, 1999, the Bank of Greece will become a member of the European System of Central Banks and its governor will become a member of the General Council of the European Central Bank. However, according to EU law, the powers of the Bank of Greece in the decision-making bodies of the new European monetary institutions (i.e. the European System of Central Banks and the European Central Bank) will only become significant when Greece joins the European Monetary Union. It is expected that this will be feasible in 2001.
2.3 The changeover to the EURO

The current year is the year of major changes within the banking industry. It is very difficult to ascertain the precise changes and acquisitions that will occur within the banking environment as the predictions change daily. Introducing the EURO is a complicated and costly affair. One might be inclined to think of the direct costs of printing new banknotes and coins, changing automated teller machines and the invoicing and accounts of enterprises. Indeed, this massive operation takes years to prepare and entails considerable one-off costs, but some fascinating and critical questions arise as well. Introducing the EURO, amounts to a sequencing challenge as the decision to go for monetary union in 1998, precedes the date for irrevocably fixing the conversion rates (January 1st, 1999). In order to meet this challenge we could consider creating a "big bang" when fixing the rates. The EURO would then be introduced as the exclusive currency in the monetary union, replacing national currencies (or the ECU, where relevant), in all its functions. There has been speculation towards the feasibility of a short transition period. However, the longer the transition period in such changeovers, the greater the uncertainty in financial markets.

Preparations for the introduction of EURO have been made based on a planned timetable that the EMU follows (see appendix - table A1). According to this timetable, there are three stages to European monetary integration to the 1990s.

Stage 1 preceded the Maastricht treaty and emphasized removal of capital controls and exchange rate stabilization.

Stage 2 commenced January 1st 1994 and supported the newly established EMI (European Monetary Institut). The real challenge for the member states during stage 2 is to obtain an entry ticket for EMI in 1999, based on a stricter element of coordination as outlined in the “excessive deficit” procedure.

Stage 3 will be introduced in 1999, when a number of European currencies will be «outs» and a reformed kind of EMS will connect their currencies with the EURO, thus protecting the single market by facilitating future membership.
The Maastricht Treaty, concluded in December 1991, establishes a firm route to EMU and provides a solid monetary constitution once the third and explicitly irreversible stage of EMU starts. The issue of stability lies at the heart of the convergence criteria. It is vital to the success of the single currency that the convergence between the participating economies is sustainable.

The entry ticket to EMU is earned once four (nominal) convergence criteria are met by a country, as summarised in the following table:

**Table 2.3a: The convergence criteria**

<table>
<thead>
<tr>
<th>Inflation rate</th>
<th>Not more than 1.5% higher than the level of the three best performers (the three lowest - inflation member states)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long – term interest rates</td>
<td>Not more than 2.0% higher than the level in the three best inflation performers.</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>Currency values must remain within the exchange rate mechanism (ERM) fluctuation bands for two years prior to the qualification date, without devaluation nor sever tensions.</td>
</tr>
<tr>
<td>Government: financial position</td>
<td>The sustainability of the government’s financial position is assessed on the basis of the following criteria:</td>
</tr>
</tbody>
</table>
|                              | i) the ratio fiscal deficit / GDP shall not exceed 3%, unless
|                              | - in substantial decline and coming close to the 3% level
|                              | - exceptional overshooting and staying close to 3%
|                              | ii) the ratio fiscal debt / GDP shall not exceed 60%, unless
|                              | - declining and approaching 60% at satisfactory pace                                                        |

*Source: European Integration – Jacques Pelkmans, 1997, p.301*

The convergence criteria is perhaps arbitrary, especially for the fiscal deficit and the debt ratio. However, these are subject to a trend and policy assessment and are not a mere threshold. For instance, in the case of the 60% reference value for the public debt / GDP ratios, there is a degree of flexibility in countries qualifying, if their debt ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace.
Regarding the 3% GDP limit for annual fiscal deficits, the Treaty allows for deviations in temporary or exceptional circumstances.

Monetary union will start on January 1st, 1999 requiring European countries to pass the fourfold test on May 1998, and those meeting the entry conditions will initiate monetary union.

It appears that in May 1998 only 11 of the 15 countries will be part of the EMU, as only these countries fulfill the convergence criteria.

Table 2.3b: Economic outlook for the EU Member States

<table>
<thead>
<tr>
<th></th>
<th>Inflation Rate (%)</th>
<th>Fiscal Debt as % of GDP</th>
<th>Fiscal Deficit as % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>1.5</td>
<td>61.3</td>
<td>2.7</td>
</tr>
<tr>
<td>France</td>
<td>1.3</td>
<td>58.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Italy</td>
<td>1.9</td>
<td>121.6</td>
<td>2.7</td>
</tr>
<tr>
<td>Spain</td>
<td>1.9</td>
<td>68.8</td>
<td>2.6</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1.9</td>
<td>72.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Belgium</td>
<td>1.5</td>
<td>122.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Austria</td>
<td>1.2</td>
<td>66.1</td>
<td>2.5</td>
</tr>
<tr>
<td>Finland</td>
<td>1.2</td>
<td>55.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Portugal</td>
<td>1.9</td>
<td>62.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Ireland</td>
<td>1.2</td>
<td>66.3</td>
<td>-0.9</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1.4</td>
<td>6.7</td>
<td>-1.7</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1.9</td>
<td>53.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.8</td>
<td>76.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Denmark</td>
<td>2.0</td>
<td>65.1</td>
<td>-0.7</td>
</tr>
<tr>
<td>Greece</td>
<td>5.4</td>
<td>108.7</td>
<td>4.0</td>
</tr>
<tr>
<td>Maastricht Limit</td>
<td>2.7</td>
<td>60.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source: Greek Newspaper 2-3 May 1998

Greece appears with an inflation rate of 5.4%, a fiscal deficit ratio of 4.0% and a debt ratio of 108.7%. It is apparent that it does not fulfill any of the convergence criteria, so it will not participate in the EMU by the year 1999.

Greece has been a member of EMI as of March 14th, 1998 and it is making great efforts to adopt EURO between the years 2001-2002.

United Kingdom, Sweden and Denmark have the qualifications and complete the criteria but according to economic studies and analysis that took place, they prefer not to
participate in the EMU from the beginning. They chose to be among the «outs» for the first years. The decision of no-participation of these countries is a choice that comes from the enmity against EMU. As the United Kingdom decided not to enter EMU in 1999, Denmark and Sweden were left with little choice due to the commercial bonds that they hold with United Kingdom.

By joining the ERM in March 1998 the Greek Government clearly signalled its intention to participate in the EMU process from the 1st of January 2001. This suggests that the Government believes that the Maastricht conversion criteria can be fulfilled or be shown to have been fulfilled, before that date.

The major objectives enabling the Greek economy to succeed in order to participate into EMU by the year 2001 are as follows:

a) The inflation rate is estimated to go up to 4.5% in 1998, 2.5% in 1999, 1.9% in 2000 and 1.7% in 2001.

b) The public deficit is likely to be set at 2.4% of GDP in 1998, 2.1% of GDP in 1999, 1.7% of GDP in 2000 and 0.8% of GDP in 2001, which is lower than the rate proposed by the convergence criteria.

c) The public debt is estimated to go up to 107.8% of GDP in 1998, 105.8% of GDP in 1999, 102.5% of GDP in 2000 and 99.8% of GDP in 2001.

The Greek government believes that it will be able to fulfill the above objectives, meeting the convergence criteria of the Maastricht Treaty after imposing the following economic implications, proposed by the Executive Committee that took place on March 15th, 1998.

a) 49% of all the profitable government stocks (DEKO), such as the Greek telecommunications monopoly “OTE”, the petrol stocks and all twelve remaining government stocks will be made public.

b) All the government owned concerns that are in deficit such as Olympic Airways, OSE, urban transports and post mail will be restructured. New investments,
stabilization of their old debts, modification of their employment labour standards and the working conditions for the staff and relocation of the surplus staff to other government institutions such as hospitals, local administration e.t.c. will be required to take place.

c) Changes within the employment sector will be made in order to promote employment and to set fairer salary scales to match production.

d) Apart from the merger of identical treasury institutions, new laws will be adapted towards better regulation of the insurance and retirement sectors.

e) Measures for the acceleration of the fiscal deficit adjustments assuring that the fiscal deficit will go down to 2.4% of GDP in 1998 and to 2.1% of GDP in 1999. The Greek government will succeed in producing the above results, by imposing heavy reductions in government spending and increased penalties for tax evasion.

| Table 2.3c: Basic macroeconomic factors (% annual index) |
|----------------------------------------|---|---|---|---|---|---|
| GDP                                    | 2.0 | 2.1 | 2.7 | 3.5 | 3.5 | 3.7 |
| Inflation rate                         | 10.9 | 8.9 | 8.2 | 5.5 | 4.5 | 2.5 |
| Fiscal deficit                         | 10.0 | 10.3 | 7.5 | 4.0 | 2.4 | 2.1 |
| Fiscal debt                            | 109.3 | 110.1 | 111.6 | 108.6 | 107.8 | 105.8 |
| Mid-term interest rates                 | 19.0 | 15.5 | 12.9 | 10.3 | 9.5 | 7.5 |

Source: National Accounts & Department of macroeconomic analysis, 1994-1997
Minister of National Economics

The years preceding 2002 will mark the transition period for the EURO. A planned timetable / scenario, divided into 3 phases, for the introduction to EURO has been adopted by Greece.

During the 1st phase (January 1st, 1999 - December 31st, 2000) the EURO will continue to be treated as foreign exchange for Greece, whereas it will no longer be foreign exchange for the 11 of the 15 country participants of the EMU.
Phase 2 (January 1\textsuperscript{st}, 2001 - December 31\textsuperscript{st}, 2001) will mark the entrance of Greece into EMU. During this transition period EURO will become the legal currency and national currency remains temporary; both currencies (drachma and EURO) will be in use.

The 1st of January 2002 is EURO - day! This date will mark the beginning of phase 3, during which Eurocoins and banknotes will be available. The withdrawal of the national coins will take place and by the 1st of July 2002, EURO will be the unique currency in all member states of EMU.
3.1 Costs

The introduction of a single European currency by the EU Member States in general, and by Greece, requires three phases of activity.

a) an investigation phase leading to decisions by the authorities and by the banks (to enable the necessary preparations and investment of resources to commence)

b) a preparation phase during which extensive consultation and detailed planning take place, the legislative framework is decided at European and national levels, and key specifications, standards, etc, are determined

c) an implementation phase in which the detailed design and implementation of the many systems and other changes are carried out, prior to a specific time when the single currency is introduced.

There may be an overlap between these phases but some tasks can only take place in sequence.

A survey, made by the Banking Federation of the European Union, finds that the shortest period required to implement the single currency while remaining cost-effective, is three to four years for most commercial banks in the EU. This period starts after the investigation and preparation phases, during which time, the government authorities will have set the definitive scenario for the changeover and will have decided upon all the necessary enabling measures.

The main components of costs are:

a) transition costs

b) transaction costs - conversion costs
3.1.1 Transition costs

During the transition period, Banks will have to plan major strategic and organisational changes towards innovative solutions and development.

The Banks' technical preparations are very broad. In addition to developing EURO facilities to service their own customers' prospective needs, the Banks are developing the infrastructure they will provide for the marketplace as a whole. For example, the payments and securities settlement field, and planning towards full participation in the ECB's future preparations. They will prepare for wholesale payments in EURO through the development of an information system and through the competing alternative EURO payment arrangements, including the EBA (ECU Banking Association) net settlement system.*

There will be a key changeover process required regarding the information systems that will also involve major strategic and organisational issues. The Banking and Market Services Divisions are preparing payments and banking facilities for the start of EMU. Various options will be available for EURO settlements on a cross-border basis, including TARGET and the EBA Clearing. TARGET (Trans-European Automated Real-time Gross Settlement Express Transfer system)* will be used for cross-border transactions. The Commission fully supports the principle of full cost recovery in determining pricing in TARGET, in order to avoid unfair competition between TARGET and other payment arrangements.

The Banks of Greece are working in determining the best means of managing access to these systems and of primary importance, still retaining access to EURO liquidity and collateral.

The Bank has a key role in developing Greece's interface problem (of non-simultaneously conversion of all systems), with the TARGET system, involving several

* see Appendix A11 for more details on the interbank funds transfer systems
discrete tasks within the Banks’ EMU project. These include, modifications to the processor which handles payment messages; upgrading the system which ensures that adequate intraday collateral is held against liquidity granted to banks; building interfaces with the ECB and the Greek settlement banks; and upgrading the banks’ own message switching system which handles the electronic data flows.

The existing RTGS (Real-Time Gross Settlement) processor for drachma payments is being enhanced to accommodate the EURO, and to interface with the TARGET interlinking network, which will link with both drachma HERMES and HERMES EURO*.

These developments involve substantial changes to the banks’ software; and may also involve an upgrade during 1998 of the hardware on which the current systems run, in order to cope with a prospective increase in volume.

Interlinking allows EURO payments to pass between pairs of EU NCBs (National Central Banks). It involves complex electronic message structures passing through a special communication network provided by SWIFT (Society for Worldwide Interbank Financial Communication). A similar network will be used within Greece for HERMES EURO payments between Greek commercial banks and the Central Bank of Greece. This development requires the banks’ message switching software to be upgraded.

The HERMES system will provide its member banks with the facility to effect wholesale payments in EURO, and they, in turn, will be able to provide a full payment service in wholesale payments in EURO to their customers.

Another task is the development of the IT system, which manages the collateral lodged by Greece’s settlement banks against the liquidity advanced to them for use in HERMES. The potential introduction of a EURO-denominated parallel system and the interconnections with the rest of Europe through TARGET, complicate the way in which this collateral may be held and the liquidity advanced.

In addition to the necessary development work for wholesale payments, the Banks are also preparing to incorporate for their own customer’s businesses, the changes for retail payments traffic.

* see Appendix A II for more details on the interbank funds transfer systems
If Greece stays «out», firms which currently keep accounts of transactions in other major European currencies will need to handle the EURO, but other business accounts will not be affected. By the time Greece joins, firms can continue to compile their accounts in drachma at least until the end of the transition period. This allows for flexibility in changing all their systems to EURO accounts earlier or randomly changing different systems at different times. A major part of the banks’ banking system supports the banks’ market operations in the foreign exchange and money markets. The banks’ system for the settlement of open market operations should be adapted to ensure that they are capable of accommodating the methods by which the ESCB will conduct operations in the EURO money market. Data processing, software, amendments to the systems that will operate in EURO are necessary to take place. Design, development and testing of these systems are among the preparation costs.

It has been decided that a fully automated system for processing separate EURO-denominated cheques, with the currency indicated by the EURO symbol and a two-digit transaction code in the MICR codeline, will be available early in the transition period, but not from January 1st, 1999. Such a system could be introduced by mid 2000 at the latest. Therefore, further work on evaluating manual or semi-automated systems for processing high volumes of EURO-denominated cheques is underway.

Systems like those of treasury management, risk management, costing systems, invoicing and billing, payroll systems, work in process, accounting software, should be modified to be ready for the conversion.

The providers of both national and international securities settlement systems have continued the development work necessary for the clearing and settlement of EURO-denominated securities. Settlement facilities will be provided to meet market demand for settlement in EURO. These systems will have multi-currency functionality once they have been upgraded. As a result, they will be capable of settling drachma debt securities and debt securities denominated in EURO.

Preparations in the field of logistics will take place. The process of introducing a new set of notes and coin while withdrawing the old will present a considerable logistical
challenge. This will require additional storage, transportation and security arrangements and the most careful and timely planning.

Institutions may use ISIN numbers for cross-border transactions, but another set of numbers (SEDOL codes) for domestic transactions.

Work to develop a new EURO credit system has begun. The banks recognize the need to develop innovative solutions in order to continue to add value, to mitigate the cost of EMU while continuing to move the business forward in the favoured direction. Within all banking institutions, deemed to be affected by the introduction of the EURO, bank personnel especially need to understand the changes resulting from EMU that will inevitably affect their business practices in order to be empowered to explain all relevant implications to their customers.

For many customers, the EURO will not be just another currency. As far as customers are concerned, most have undertaken little or no planning for the EURO. The impact on the bank’s customers and on the banking system is substantive, affecting many services. Actions taken by the banks to improve understanding, includes the distribution to all business sector customers of an explanatory booklet and a series of country-wide seminars. Detailed workshops as well as promotions will be held to create an understanding of the potential service requirements. The banking system of Greece will have to overcome the obvious marketing and logistical challenges and consider how customers will take the opportunity to do things very differently, not only in 1999, but beyond.

Other issues that banks need to consider, include the legal implications of the EURO. National implementing legislation will have to be in place. Work should be underway on drafting the legal documentation for the information systems. Potential conflicts between national insolvency laws in the EU and the rules of payment and securities settlement systems, which could affect the legal certainty of settlements (domestic as well as cross-border), will be addressed by an EU Directive. He will facilitate and enable clarifications towards all positions concerning collateral, including interests in securities held via book-entry systems. The Directive will therefore provide a useful underpinning to cross-border payment and settlement arrangements in Stage 3 (of EMU).
3.1.2 Transaction costs

The introduction of the EURO will undoubtedly have a great impact on the banking services; a major part of revenues related to cross-border or interbank transactions will be reduced. This will cause basic banking consumer costs to increase, as consumers will have to be informed about the new methods and systems of transactions.

The withdrawal of national currency during the first semester of 2002 will imply the reduction of some banking sectors.

Conversion of all information systems, including payroll, work-in-process, reconciliation and accounting systems will take place. Account balances, revenues, profits, asset values, balance sheets, indexes and historical data should be converted into EURO at the conversion rates. Notes of foreign currency of member states will be converted into EURO.

The Board of the Cheque and Credit Clearing Company agreed that work should proceed on the functional specification for processing cheques. Banks and retailers would both strongly prefer individuals’ use of cheque transactions for the changeover to EURO from the date of issue of EURO cash (E-day).

Banks will be obliged to charge interest costs on both the initial currencies; either the national one or the foreign exchange, and the EURO.

The clearing settlement will have to be done in EURO, while the currency of the transactions will have to be recorded as well.

LIBOR, the standard measure used for the cost of funds, will be replaced by the EURIBOR (European Inter-bank Offer Rate), a EURO «LIBOR». In the event that the EURO is introduced in place of the ECU, there is also a possibility that some national price source panels will cease to exist and be replaced by a single EURO pricing panel for the EURO area as a whole, the «EURIBOR». It will be fixed as a «spot» currency, i.e. on the basis of a two day value.

Conversion of foreign exchange notes into EURO will have to take place by the year 1999 for all member states that are participating in EMU.
Rounding and triangulation is part of the calculation of the amount in EURO as conversion takes place. Seven banknotes and eight EUROcoins will go into circulation by the 1st of January 2002. The cost recovery of conversion will have 6 dials. Due to this changeover there will be costs related to the prevention of odd nominal values.

Decisions need to be taken regarding the implications arising from the introduction of the EURO for equity indices. It could affect derivative contracts and fund management benchmarks. The implication is that quotations displayed on the screens of trading systems in participating member states would be in EURO. Transactions would be executed, recorded, watched, confirmed and transmitted to settlement in EURO.

There will be additional costs of modification for the screen based services such as the stock exchange (Reuters, Tolerate).

Taking into consideration that the period from January 1st, 2002 to June 30th, 2002, will be the dual period; that is the period during which two currencies (EURO and national currency) will be in use, each information system should be adapted to show calculations and amounts in both EURO and national currencies simultaneously.
3.1.3 Assumptions

In view of the uncertainties surrounding the introduction of a single currency, as far as the timetable and the country-participants, it is necessary to build a framework of assumptions for the transition within which the banks could work in making their responses. These assumptions are working hypotheses intended to ensure consistency and to simplify the inquiry.

The most important assumptions referring to this study are as follows:

A) The "big bang" transition

There are a number of models for a "big bang". For the study it has been taken to be an event in which the entire banking system switches over from operating and processing in domestic currency to operating and processing in EURO at a certain date (the E-day). It has been assumed that domestic currencies will remain legal tender for a period following E-day to allow for customer adaption.

It has been assumed that banks will not be obliged to offer EURO accounts and products such as payment services before E-day. Checks and other means of payment presented in old currency for a short time following E-day would be converted for processing in EURO. Banks would receive old currency notes and coin over the counter for a short time, but would issue only EURO notes and coin to retailers and the general public after E-day. Although banks would process customer accounts in EURO after E-day, some banks may choose to provide information on the old currency equivalent as well, as a service to customers.

No general assumptions have been made concerning the need for several day closures of branches to make the final changes before E-day.

B) Current business profile.

The results are based on current business systems and volumes of activity.

C) Required legislation would be in place.

It is assumed that legislation will be put in place by the government authorities to clarify all contractual and related legal issues that banks could face. For example, it is assumed that such legislation would enable commercial and financial contracts between
banks and their counterparts, customers, suppliers and agents to remain legally valid under the new currency, avoiding any need for renegotiations or redocumentation.

New legislation would also be in place to establish rules for conversion to EURO, in particular rounding and calculation of totals.

D) A full public awareness campaign will be undertaken.

It is assumed that the authorities will launch satisfactory public awareness programs. Against this background, the role of banks would be to provide personnel and customers with a briefing on bank-specific issues only; for example, branch and Automated Teller Machine (ATM) operations during the transition, treatment of direct debits and arrangements for obtaining the new currency.

E) The estimates allocate the shortest time span in which the changes can be effectuated without major disruption to the banks' activities.

The shortest period feasible towards the introduction of the EURO; the single currency, through the most cost-effective means, is three to four years for most commercial banks.

In our analysis we have taken into consideration that there are major differences not only in the nature of the bank business and structure, but also in the degree of preparedness and in the level of sophistication within the banks' internal processes with particular emphasis on information systems. Also, banks are in different stages of their computerisation and systems development programs. The changes and time needed to adapt them will therefore differ from bank to bank.

Moreover, it will take some time to withdraw national notes and coin from circulation. For this reason it should be anticipated that the old and new sets of notes and coin will both be in use by the general public for a short period following the E-day (this is the so-called dual period). If banks were to be required to also disburse old notes and coins to customers over this transition period, their costs would be significantly higher. The reasons for this are that banks would have to carry abnormally high stocks of both old and new currencies, which would add to costs, for example in storage and distribution.
The total transition cost to the Greek banking system, based on the above assumptions, is estimated to be within the range of 30 billion drachmas or up to 2% of operating costs for each year spread over 3-4 years. This figure represents the minimum costs incurred in effectuating the transition over the period of three to four years from the time the tasks become clearly defined. In our study, the estimates are confined to the operational costs involved in the change, and take no account of other financial effects such as competitive or opportunity losses and gains, or even costs of bank mergers. Total costs could be significantly higher under different assumptions to the above. In this case, we are dealing with the Greek banks collectively by referring to the Greek banking system and not with each individual bank. It is apparent that the costs incurred within each bank will differ from bank to bank, depending for example, on the range of activities, business strategies and levels reached within the cycle of investment in information technology.

3.1.4 Product and Function Costs

We will proceed by effectuating a detailed breakdown of costs by function and product area based on the above.

We consider the major function costs to be: systems, marketing and public relations, staff training and stationery accounted for over 80% of the costs incurred in a move to a single currency.

A detailed overview of each of these costs is provided as follows:

A) Changes to IT systems and equipment are estimated to cost over half of the total. The complexity and linkages between IT systems make it difficult to make changes in isolation. Most banks will need to outsource or otherwise acquire additional resources, assuming they are available, to undertake a major restructurization program.
All system changes for banks and inter-banking systems will need to be thoroughly tested in advance of simultaneous introduction on E-day.

B) Marketing, public relations and stationery will account for approximately 20% of the total. Most of this arises from redesigning forms and leaflets, and the production and mailing of statements and cheque books. Many banks have considered it essential that customers be sent statements soon after E-day, showing the EURO balances on their accounts.

C) The cost of the personnel training programs are estimated at approximately 10% of total costs, reflecting the complexity of the change and the expectations of high levels of customer queries.

Looking at the major product segments, we deduce the following:

A) Money transmission activities, including international services, are estimated at around 60% of total costs, split as follows:
   - Plastic cards with associated processing and mostly systems changes. These costs include those incurred in-house by banks and an estimate of the additional costs which will be passed on to banks by third party processors of card transactions.
   - Other payment systems costs arising mainly from IT changes and marketing / public relations.
   - The introduction of new EURO notes and coins and removal of domestic currency from circulation. The figures assume that extra secure transport is available for these few weeks, and that the rates charged by security carriers, who will also face increased demand from retailers, remain unaltered.
   - Changes to ATM networks, mainly in software and cassette modifications.

B) Loans and deposits are estimated at around 20% of the total. These areas have a heavy reliance on IT systems and a high degree of customer interface.

C) Foreign exchange dealing, treasury management and capital markets are estimated to cost around 20% of the total. A large part of the cost arises from the systems changes required. Significant legal costs are also likely to be incurred, and the scale of these could be substantially higher if appropriate legislation is not put in place.
Table 3.1.4: COST OF TRANSITION TO THE SINGLE CURRENCY BY PRODUCT AND FUNCTION (as a percentage of total cost: 30 billion drachmas)

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>Notes &amp; coin</th>
<th>ATMs</th>
<th>Cards</th>
<th>Payment Systems And Services</th>
<th>For Ex. Dealing &amp; Treasury Management</th>
<th>Loan</th>
<th>Deposits</th>
<th>Capital markets</th>
<th>Other</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Technology</td>
<td>4%</td>
<td>3%</td>
<td>7%</td>
<td>15%</td>
<td>6%</td>
<td>5%</td>
<td>4%</td>
<td>5%</td>
<td>5%</td>
<td>54%</td>
</tr>
<tr>
<td>Marketing &amp; Public Relations</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>6%</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
<td>0%</td>
<td>1%</td>
<td>15%</td>
</tr>
<tr>
<td>Legal</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Audit &amp; Security</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Accounting &amp; Management</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Staff Training</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>10%</td>
</tr>
<tr>
<td>Stationery</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>1%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
<td>6%</td>
</tr>
<tr>
<td>External Reporting</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Total Cost</td>
<td>12%</td>
<td>6%</td>
<td>9%</td>
<td>27%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>8%</td>
<td>8%</td>
<td>100%</td>
</tr>
</tbody>
</table>

3.1.5 Sensitivities

In addition to the main assumptions under which the study is conducted, there are a number of other key sensitivities, including the following, whose impact on costs would have to be assessed:

- If there were significant changes to existing bank systems and national operating practices.
- If personal resources became scarce as a result of heavy demand in many areas the availability of specialist resources and external suppliers will be critical to achieving the minimum timing. However, organizations outside the banking sector have not been involved in the study, so there is no corroboration that external suppliers and sub-contractors will be able to meet the demand from banks and other sectors.
- If prices charged by external suppliers in certain areas (particularly IT) rose in response to the sharp increase in demand.
3.2 Benefits

After bearing the costs and risks of the transition period, benefits will be derived by mid to long-term.

We explain the benefits that will become evident to the banking system of Greece after the introduction to EURO by the change in the net bank profits, as follows:

\[
\text{Benefits} = \Delta \text{Net Bank Profits}
\]

The Greek banks’ perspectives, after the introduction of EURO, will mainly be the loss of interest revenues, the loss of jobs related to the foreign exchange transactions and asset management and the reduction of bank revenues coming from their portfolio administration. Moreover, there will be pressure from the side of forecasting for high risk stocks and bonds as well as write-offs.

The time associated with operating exportation and importation transactions will be lessened as the foreign exchange rate will be eliminated. The number of banking personnel will decrease so the related personnel expenses will be reduced. Moreover, banks will benefit from the development of information systems and systems referring to the capital market.

Banks will try to recover from the loss of revenues that will be caused following the introduction of the EURO by looking for new income resources especially from the sector of commissions and the financial administration (cash-cards, mutual funds, derivative products in money market – bond market – stock market, e.t.c.). Although the foreign exchange transactions within the European countries that participate within the European Monetary Union will be reduced, banks will develop their activities towards new foreign exchange markets, such as the Balkanian countries and countries of Eastern Europe. There will also be transactions with USA and Japan.

This change in bank profits; first by their reduction and then their recovery is explained as the \( \Delta \text{Net Bank Profits} \).
Generally, the new monetary and financial environment in EURO will be a stable macroeconomic one, characterized by low inflation rates, higher growth and employment, and fiscal discipline among country members. Transparent prices enabling the removal of the quotation of prices in the same currency is made possible, as a result of the elimination of exchange rate risks. This environment will spur the reduction of transaction costs, and thus increasing bank profits while eliminating the costs linked to exchange transactions. There will no longer be a need to cover exchange risks, buying or settling rates as these no longer apply.

Foreign exchange trading volumes within «in» countries will be reduced. The USD, Yen and EURO market will develop. An interbank foreign exchange market is likely to remain in Athens for as long as Greece is outside EMU and the drachma remains a traded currency. Thereafter, the business logic for maintaining an interbank foreign exchange trading capability in Athens will be greatly diminished.

We mentioned the word «transparency» in connection with the pricing of banking services. Examples include the price of making cross-border payments between «in» countries. Foreign exchange commission will vanish for payments between «in» countries and the payment charges will be reduced.

The relatively low interest rate will provide a wide range of investment and financing opportunities causing a rise in significant shifts in bonds and money markets.

The rating agencies think that corporates, particularly those with lower ratings, will reduce borrowing costs as they will access a European junk bond market. Furthermore, they believe that EMU’s impact is likely to be negative on bank credit ratings because of the increased competition that will come from greater «transparency» in banking services. Most seriously affected will be the banks in smaller member states that enjoy a substantial local franchise in foreign exchange and government debt markets. By removing foreign exchange risk consideration, lenders will be able to concentrate more on Europe-wide comparative industry analysis in assessing the credit standing of companies operating within «in» countries. The removal of uncertainty about exchange rates is a benefit for the corporate sector. Similarly, institutional and private investors
will increasingly concentrate on industry rather than country based investment selection criteria.

The common currency will create the conditions for a sizeable and liquid capital market to develop rapidly. The removal of foreign exchange risks and the greater transparency in pricing services will remove a major impediment to cross-border lending. Borrowers will increasingly seek out the lowest cost financing sources without regard to national borders. We believe that this will hasten the process of disintermediation for larger corporates in Greece, who will increasingly look towards the capital markets rather than the individual banks for financing.

Moreover, information systems and systems of capital markets will be developed, the salary scale costs will decline, the time of import and export consignment will be reduced, while there will be no relatively large differences between the interest rates ("spread") and investments will increase.

Before proceeding to the analysis and forecasting of bank profits, it would be useful to refer to the main sources of bank profits that will be affected by the introduction to the EURO.
3.2.1 Sources of bank profits

The major influx of the Greek bank revenues comes primarily from three source areas: specifically interest rates, commissions and financial activities (revenues from dividends).

More precisely, by the end of 1996 the Greek commercial banks showed a net operating income of around 980 billion drachmas. From this amount, 530 billion drachmas were derived from the net interest revenue, 283 billion drachmas were derived from the commissions revenue, 89 billion drachmas from the financial activities and 70 billion drachmas from supplementary income, as illustrated in the following pie-chart:

*Figure 3.2.1a: Composition of the Greek Banks' net income (1996)*

Source: Banking Association of Greece, April 1998, p. 71
Through our analysis, we have concluded that the interest income of Greek banks is less than the average of most European banks. According to the data of the European Banking Association the net interest income related to the total asset of the largest Greek banks was 2.0% at the end of 1995, a percentage less than that of most European banks, as illustrated in the following bar graph:

*Figure 3.2.1b: Net interest revenues / Total Assets(%)*


It is worth taking into consideration that a large part of this income is derived from deposits to the Greek government concerns, which comparatively clearly demonstrates the relatively small relation of profits from subsidies to the net income of Greek banks.
The commissions revenues are more than the average rate of most European banks, as illustrated in the following bar graph:

*Figure 3.2.1c: Net commissions revenues / Total Assets (%)*


A large part of the commissions revenues come from jobs such as foreign exchange transactions and the sale of government concerns through the banking net. The introduction of EURO is likely to affect many of these activities and especially those related to the foreign exchange transactions, which means that banks will have to develop other sectors such as the financial foreign exchange, asset management, cash-cards, e.t.c.
Finally, the supplementary income and that from financial activities (revenues from dividends) is considerably increased. It reaches an average of 0.37% compared to most European banks, as illustrated in the following bar graph:

Figure 3.2.1d: Supplementary income / Total Assets (%)


The reconstructions among the banks, that will have taken place during the transition period, are expected to cause a fluctuation of revenues (as mentioned in the previous section) within the banking sectors, - such as the sector of commissions revenues, the sector of foreign exchange transaction, e.t.c.-, with some activity moving upward and some declining after the introduction of the EURO. Banks will seek new profit centers in order to recover this fluctuation of their income.
3.3 Cost - benefit analysis

3.3.1 Analysis of costs

As referred in the cost section of our analysis, the total transition cost to the Greek banking system will be within the range of 0.05% - 0.14% of the total assets of the banks spread over a period of three to four years. It is expected that the Greek banking system will approach the highest amount of the estimated transition cost, that is the amount of 30 billion drachmas.

Moreover, transaction costs are estimated to be around 30 billion drachmas, whereas conversion costs are not yet known. We should take into consideration that in 1996 the amount of coins that should have been withdrawn was estimated to cost approximately 40 million drachmas.

The following table gives a brief reference of the expected amounts of costs that will incur during the transition period.

<table>
<thead>
<tr>
<th>Nature</th>
<th>Magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition costs</td>
<td>30 (billion drachmas – 1998)</td>
</tr>
<tr>
<td>Transaction costs</td>
<td>30 (billion drachmas – 1998)</td>
</tr>
<tr>
<td>Conversion costs</td>
<td>40 (million drachmas – 1996) =</td>
</tr>
<tr>
<td></td>
<td>= 0.04 billion drachmas</td>
</tr>
</tbody>
</table>

*Source: Banking Association of Greece, April 1998, p.61-69*

The above cost amounts will be spread over a period (transition period) of three to four years.

As the transition period, we take the period 1998 to 2002.

Although the sum of the costs described in the above table is equal to 60.04 billion drachmas, the Banking Association of Greece has estimated that the total cost to the banking system of Greece will be as high as 70 billion drachmas. This is the amount we have taken into consideration for our analysis.
During the first period 1998-1999 the discount rate "ATHIBOR" is equal to 12.5% (source: Greek trade magazine “Economicos Tahidromos”, May 1998, p. 104). Following the economic policy that the Greek government has announced, it is expected that the interbank interest rate will go down by the end of this year and approach the range of 4.5% for the period 1999 to 2000. By the year 2000 and further, the Bank of Greece, as a member of the European System of Central Banks, will follow the average interest rate of the country participants within the European monetary union. That means that by the year 2000 and beyond, the discount rate is expected to be around 6.5% (source: Greek trade magazine “Economicos Tahidromos”, May 1998, p.105), based on the assumptions of the Bundesbank policy.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>r</td>
<td>-4</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ r_1 = 12.5% \quad 4.5\% \quad 6.5\% \]

Discount rate grid

By replacing the estimated total cost values into the formula that gives us the future value of costs as outlined in our methodology, (in million drachmas), we obtain:

\[
FV_{\text{costs}} = C_1 \prod_{i=1}^{4} (1 + r_i)
\]

\[
FV_{\text{costs}} = 70,000 \times (1+12.5\%) \times (1+4.5\%) \times (1+6.5\%) \times (1+6.5\%) = 93,334 \quad \text{(equation 3.1a)}
\]

It is expected that the maximum future value of costs in 2002 will be around 93,334 (in million drachmas) based on the fact that the maximum total cost is 70 billion drachmas (constant value of 1998).
The estimated implementation costs, that will occur no earlier than the year 2002, will be around 115 billion drachmas (as in constant values of 1997). Taking into account the expected inflation rates that will occur between the years preceding 2002, the implementation costs will be around 129 billion drachmas in values of 2002.

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected inflation rates</td>
<td>4.5%</td>
<td>2.5%</td>
<td>1.9%</td>
<td>1.7%</td>
<td>1.25%</td>
</tr>
</tbody>
</table>

*Source: National Accounts and Department of macroeconomic analysis, 1994-1997*  
*Minister of National Economics*

**Implementation costs (2002) = 129 billion drachmas**

### 3.3.2 Analysis of benefits

The benefits are explained through the changes in the bank profits  
Benefits = Δ Bank profits

**PROJECT B** represents the bank profits prior to the introduction of the EURO currency. We will proceed by forecasting these bank profits. We have selected the Greek commercial banks in establishing our basis for analysis and have taken into consideration their financial statements, the economic policy that the Greek government is planning to follow, and the growth of change among the banking sectors; that is the fluctuation of revenues. We forecast the bank profits as a percentage of total assets that will transpire from 2002 to 2007.
Therefore, we obtain the following table:

<table>
<thead>
<tr>
<th>PROJECT B</th>
<th>(as a percentage of total assets)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
</tr>
<tr>
<td>Net interest revenues</td>
<td>2.9</td>
</tr>
<tr>
<td>Non-bearing interest revenues</td>
<td>2.2</td>
</tr>
<tr>
<td>Total revenues</td>
<td>5.1</td>
</tr>
<tr>
<td>Expenses</td>
<td>3.0</td>
</tr>
<tr>
<td>Outcome (without write-offs &amp; forecasting)</td>
<td>2.1</td>
</tr>
<tr>
<td>Profits before tax</td>
<td>1.4</td>
</tr>
</tbody>
</table>

*Source: These calculations were made based on a comparative analysis of the financial statements of the Greek Commercial Banks for the years 1996 and 1997*

As illustrated in the above table, we expect that with the fluctuation of revenues that will take place especially related to the expenses and the net interest revenues, the total amount of bank profits will be around 1.4% of total assets each year.

A forecast of the total assets provide us with the following results (in million drachmas):

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>33,261,172</td>
<td>33,676,936</td>
<td>34,097,898</td>
<td>34,525,122</td>
<td>34,955,673</td>
<td>35,392,620</td>
</tr>
</tbody>
</table>

*Source: These calculations were made based on a comparative analysis of the financial statements of the Greek Commercial Banks for the years 1996 and 1997*
Taking into consideration the above two tables, we have calculated the bank profits (in million drachmas) that Project B will bring into the year 2002 and beyond.

Bank profits (2002) = 33,261,172 * 1.4% = 465,656

Bank profits (2003) = 33,676,936 * 1.4% = 471,477

Bank profits (2004) = 34,097,898 * 1.4% = 477,370

Bank profits (2005) = 34,525,122 * 1.4% = 483,351

Bank profits (2006) = 34,955,673 * 1.4% = 489,379

Bank profits (2007) = 35,392,620 * 1.4% = 495,496

Figure 3.3.2a: Bank profits of Project B

Source: Author's computation
PROJECT A outlines and implies that the banks are now preparing for the introduction to EURO. We have calculated the bank profits that will occur following acceptance of Project A, which refers to the bank profits resulting from the introduction of the EURO. As the benefits are explained by the change in the bank profits and in order to study the impact of EURO towards the profitability of the banking system of Greece, we adopt the following hypotheses:

a) The percentage of net interest revenues ("spread") will go down gradually in the following years from the range of 2.1% to the range of 1.7%

b) The commissions revenues (as a percentage of total assets) will go down from the range of 1.1% to the range of 0.7%.

c) The results of financial activities (as a percentage of total assets) will go down from the range of 0.5% to the range of 0.1%. This fact is due to the interest reduction and consequently to the elimination of capital profits.

d) Forecasts and write-offs will be around the average rate of the European banks

e) The number of staff and the assets will remain at the same levels.

In our effort to examine the impact of this changeover to EURO on the banking system of Greece, we examine the above hypotheses with the aid of three scenarios (as described in Table 3.3.2, page 53), concerning the fluctuation of revenues after the introduction to the common currency.

*Scenario 1*, as per the above hypotheses, indicates the reduction of the Greek banks profitability.
are that the succession planning shouldn’t be more than the resignations and the wage increases should be limited to 2.5% annually.

Table 3.3.2: Scenarios for the profitability of the Greek commercial banks during 2002

<table>
<thead>
<tr>
<th>PROJECT A</th>
<th>1997</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net interest revenues</td>
<td>2.1</td>
<td>1.7</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Non-bearing interest revenues</td>
<td>1.9</td>
<td>1.1</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>a. Commissions</td>
<td>1.1</td>
<td>0.7</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>b. Financial activities</td>
<td>0.5</td>
<td>0.1</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>c. Supplementary income</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Total revenues</td>
<td>4.0</td>
<td>2.8</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Expenses</td>
<td>2.5</td>
<td>2.5</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>a. Salary scales</td>
<td>1.8</td>
<td>1.8</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>b. General expenses &amp; supplementary expenses</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Outcome (without write-offs &amp; forecasting)</td>
<td>1.5</td>
<td>0.3</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Write-offs</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Forecasting</td>
<td>0.3</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Profits before tax (ROA)</td>
<td>1.0</td>
<td>-0.6</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Wages per employee (in million drachmas)</td>
<td>8.5</td>
<td>9.5</td>
<td>9.5</td>
<td>11.2</td>
</tr>
<tr>
<td>Number of employees in Greek commercial banks</td>
<td>43043</td>
<td>43043</td>
<td>32887</td>
<td>43043</td>
</tr>
<tr>
<td>Average Asset per employee (in million drachmas)</td>
<td>433.0</td>
<td>486.6</td>
<td>636.9</td>
<td>749.4</td>
</tr>
</tbody>
</table>

It is evident that since the transition period for the Greek banking system should be related to the transition period for the introduction of EURO, the changeover should be done during a period of four years. Therefore, the 2nd Scenario indicating sustainability of the employment levels and an increase of banking jobs is nearest to the reality.

We should take into consideration that the above results refer to the Greek banking system as a whole; there are many other combinations / scenarios for optimum results for each individual bank according to their capabilities.

Therefore, accepting the 2nd Scenario which refers to the profitability of the banks for the year 2002 and in our effort to forecast the bank profits that will occur up to the year 2007, following the introduction of the EURO, we obtain the following table:

<table>
<thead>
<tr>
<th>PROJECTA</th>
<th>(as a percentage of total assets)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scenario 2</td>
</tr>
<tr>
<td></td>
<td>2002</td>
</tr>
<tr>
<td>Net interest revenues</td>
<td>1.7</td>
</tr>
<tr>
<td>Non-bearing interest revenues</td>
<td>1.9</td>
</tr>
<tr>
<td>Total revenues</td>
<td>3.6</td>
</tr>
<tr>
<td>Expenses</td>
<td>2.0*</td>
</tr>
<tr>
<td>Outcome (without write-offs &amp; forecasting)</td>
<td>1.6</td>
</tr>
<tr>
<td>Profits before tax</td>
<td>0.7</td>
</tr>
</tbody>
</table>

* The operating costs of 2002 do not take into consideration the implementation costs required for the start up of the project as these are one time only costs.

A forecast of the total assets, following the introduction of the EURO, produces the following results (in million drachmas):

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>38,416,653</td>
<td>40,841,704</td>
<td>41,352,226</td>
<td>41,869,129</td>
<td>42,392,493</td>
<td>42,922,400</td>
</tr>
</tbody>
</table>

* Source: These calculations were made based on a comparative analysis of the financial statements of the Greek Commercial Banks for the years 1996-1997
Therefore, based on the above, we obtain the bank profits (in million drachmas), that **Project A** will procure, as follows:

Bank profits (2002) = 38,416,653 * 0.7% = 268,916 – 129,000 = 139,916

NOTE: It is estimated that the implementation costs for the project will be 129,000 (in millions)

Bank profits (2003) = 40,841,704 * 0.8% = 326,733

Bank profits (2004) = 41,352,226 * 1.1% = 454,874

Bank profits (2005) = 41,869,129 * 1.4% = 586,168

Bank profits (2006) = 42,392,493 * 1.9% = 805,457

Bank profits (2007) = 42,922,400 * 2.2% = 944,292

---

*Figure 3.3.2b: Bank profits of Project A*

*Source: Author's computation*
The following diagrams provide you with a comparison of the forecasted bank profits of both Project A and Project B.

**Figure 3.3.2c: Bank profits of Project A and Project B**

![Graph showing line plots for project A and project B.](image)

*Source: Author's computation*

**Figure 3.3.2d: Bank profits of Project A and Project B**

![Bar graph showing bank profits for project A and project B.](image)

*Source: Author's computation*
To further illustrate the differences between Project A and Project B, we provide you with the incremental profit flows, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Project A</th>
<th>Project B</th>
<th>Incremental profit flows A - B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>139,916</td>
<td>465,656</td>
<td>-325,740</td>
</tr>
<tr>
<td>2003</td>
<td>326,733</td>
<td>471,477</td>
<td>-144,744</td>
</tr>
<tr>
<td>2004</td>
<td>454,874</td>
<td>477,370</td>
<td>-22,496</td>
</tr>
<tr>
<td>2005</td>
<td>586,168</td>
<td>483,351</td>
<td>102,817</td>
</tr>
<tr>
<td>2006</td>
<td>805,457</td>
<td>489,379</td>
<td>316,078</td>
</tr>
<tr>
<td>2007</td>
<td>944,292</td>
<td>495,496</td>
<td>448,796</td>
</tr>
</tbody>
</table>

*Source: Calculations based on the forecasted bank profits, see section 3.3.2, pages 50 and 55*

As mentioned in section 3.3.1, the discount rate after the year 2000 is equal to 6.5%.

The NPV of the incremental profit flows are equal to:

\[
\text{NPV (A-B)} = -325,740 + \left[ \frac{-144,744}{(1+6.5\%)^1} \right] + \left[ \frac{-22,496}{(1+6.5\%)^2} \right] + \left[ \frac{102,817}{(1+6.5\%)^3} \right] + \left[ \frac{316,078}{(1+6.5\%)^4} \right] + \left[ \frac{448,796}{(1+6.5\%)^5} \right] \\
= -325,740 + (-135,909) + (-19,837) + 85,113 + 245,783 + 327,349 = \\
= \text{176,759} \quad \text{(equation 3.2a)}
\]

The calculations above show the NPV of the incremental investment to be positive.

*Figure 3.3.2e: PV of incremental profit flows (A-B)*

*Source: Author's computation*
The PV of the incremental profit flows are positive as of the year 2005 and beyond. That means that banks, during the first years of the EURO currency; that is during the years of 2002 to 2005, will face a loss in their bank profits.

Calculating the NPV of project A, we obtain:

\[
\text{NPV (A)} = 139,916 + \frac{326,733}{(1+6.5\%)} + \frac{454,874}{(1+6.5\%)^2} +
\frac{586,168}{(1+6.5\%)^3} + \frac{805,457}{(1+6.5\%)^4} + \frac{944,292}{(1+6.5\%)^5} -
\]

\[
= 139,916 + 306,791 + 401,123 + 485,238 + 626,327 + 688,761 =
\]

\[
= 2,648,156
\]

Calculating the NPV of project B, we obtain:

\[
\text{NPV (B)} = 465,656 + \frac{471,477}{(1+6.5\%)} + \frac{477,370}{(1+6.5\%)^2} +
\frac{483,351}{(1+6.5\%)^3} + \frac{489,379}{(1+6.5\%)^4} + \frac{495,496}{(1+6.5\%)^5}
\]

\[
= 465,656 + 442,701 + 420,961 + 399,463 + 380,543 + 361,412 =
\]

\[
= 2,470,736
\]

We illustrate the PV of Project A and Project B through the following graph:

*Figure 3.3.2f: PV of Project A and Project B*

*Source: Author's computation*
It is obvious that at a discount rate of 6.5% the present value of B declines more rapidly than the present value of A. The above graph shows that the years preceding 2004, project B has a PV greater than the PV of A.

More precisely, the present value of the bank profits, that Project A will bring up to the years 2004, discounted at year 2002 is equal to:

\[
PV(A) = 139,916 + \left[ \frac{326,733}{(1+6.5\%)} \right] + \left[ \frac{454,874}{(1+6.5\%)}^2 \right] = \\
= 139,916 + 306,791 + 401,123 = \\
= 847,830
\]

\[\begin{array}{cccccc}
\text{Value} & 139,916 & 326,733 & 454,874 & 477,370 & 477,370 & 477,370 \\
\end{array}\]

On the other hand, the present value of the bank profits, that Project B will bring up to the years 2004, discounted at year 2002 is equal to:

\[
PV(B) = 465,656 + \left[ \frac{471,477}{(1+6.5\%)} \right] + \left[ \frac{477,370 + (1+6.5\%)^2}{(1+6.5\%)} \right] = \\
= 465,656 + 442,701 + 420,961 = \\
= 1,329,318
\]

We obtain \( PV(A) = 847,830 < PV(B) = 1,329,318 \)
After the year 2004 the PV of A becomes greater than that of Project B.

The present value of the bank profits, that Project A will bring by the year 2005 up to the year 2007, discounted at year 2002 is equal to:

\[
\text{PV (A)} = \left[ \frac{586,168}{(1+6.5\%)^3} \right] + \left[ \frac{805,457}{(1+6.5\%)^4} \right] + \left[ \frac{944,292}{(1+6.5\%)^5} \right] = \\
= 485,238 + 626,327 + 688,761 = \\
= 1,800,326
\]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

The present value of bank profits, that Project B will bring by the year 2005 up to the year 2007, discounted at year 2002 is equal to:

\[
\text{PV (B)} = \left[ \frac{483,351}{(1+6.5\%)^3} \right] + \left[ \frac{489,379}{(1+6.5\%)^4} \right] + \left[ \frac{495,496}{(1+6.5\%)^5} \right] = \\
= 399,463 + 380,543 + 361,412 = \\
= 1,141,418
\]

We obtain \( \text{PV(A)} = 1,800,326 > \text{PV(B)} = 1,141,418 \)
After evaluating and analyzing the benefits and costs pertaining to the introduction of the EURO, we have proceeded in determining the NPV, based on the equations (3.1a) and (3.2a). Our conclusions are as follows:

\[ \text{NPV} = - ( \text{FV costs}) + \text{NPV of incremental profit flows} \]
\[ = -(93,334) + 176,759 = \]
\[ = 83,425 \]

The calculations above show that the NPV of the project proves positive.

The findings of our analysis prove that the introduction to EURO; Project A; will be profitable and worthwhile for the banks.

Based on our forecasts indicating the banks profits of Project A and the total bank assets, as shown on page 54, we have calculated the operating costs as follows:

Operating costs (2002) = 38,416,653 * 2.0% = 768,333

Operating costs (2003) = 40,841,704 * 2.1% = 857,675

Operating costs (2004) = 41,352,226 * 2.2% = 909,749

Operating costs (2005) = 41,869,129 * 2.2% = 921,121

Operating costs (2006) = 42,392,493 * 2.0% = 847,849

Operating costs (2007) = 42,922,400 * 2.0% = 858,448
Following are the total profit / cost curves that will result with the introduction of Project A.

*Figure 3.3.2g: Total operating costs of Project A*

[Graph showing total operating costs (in millions) from 2002 to 2007.]

*Source: Author's computation*

*Figure 3.3.2h: Total bank profits of Project A*

[Graph showing bank profits (in millions) from 2002 to 2007.]

*Source: Author's computation*
Figure 3.3.2i: Total profit / cost curves

Source: Author's computation

We have assessed the break-even point to be attained by 2007, and the banks will look forward to healthy gains thereafter. It is clear that the banks initial investment will yield a consistently healthy return, once profits become strong as of year end 2007.
3.4 Conclusion

The introduction of a single European currency will represent one of the most fundamental redefinitions of the banking landscape. The new monetary system will herald major changes in our domestic and international banking environment and challenge all the banks to make timely preparations for the changeover process.

EMU planning is not just a question of preparation for a single currency, but also an issue of preparation for the single market. The changeover to the single currency will bring its own demands, but the real challenge is to position the banks for the expanded and more competitive environment that will swiftly follow.

The emergence of the EURO with economic union, will force the Greek banks to become more structured, competitive and innovative in order to meet the new challenges that the European Monetary Union will surface.

We have made an effort in concisely providing you with an overview of the historical events that took place; the events that will take place leading to the introduction of the EURO; and the action plans that are taking place within the bank’s changing environment. We have done this, to provide you with a greater understanding and vision of the effects that the European Monetary Union will have on the banking system of Greece. This will prove useful in providing you with a solid foundation in examining the impact that EURO will have on the banking system with greater clarity.

In providing you with an accurate analysis and understanding of the projected implications that such a change will have on the banking system of Greece, we have proceeded in reviewing three alternative Scenarios. Among these, we have chosen the one we feel most confident will result, and have used it as a basis for our forecasts. We believe our projections will enable you to see the differences based on the various assumptions we have included, as well provide you with an overview and greater perspective of the EURO impact on the banking system of Greece.

After having outlined the banks profits and activity forecasts, we conclude that although there is an initially high cost associated with the changeover to the EURO, it will prove to be a worthwhile investment as the benefits far outweigh the costs. Our
analysis results suggest a positive impact. We have clearly assessed that the costs will be compensated by the benefits within five years, and a healthy yield will be earned thereafter, therefore the return on the initial investment proves to be very healthy. We estimate that by the year 2012 large financial benefits and bank profits will be obtained as critical mass is reached propelling growth to soar forward.

*Figure 3.4a: Bank profits - Growth cycle curves*

![Graph showing growth cycle curves](image)

*Source: Author's computation*

a. foundation  b. concentration  c. critical mass  d. stability

We have provided you with an illustration of the projected growth cycle curves to allow you to further explore and anticipate the inherently bright economic future that lies ahead for the banking system of Greece after the cost-recovery from the introduction of the EURO. (Also see: Stages of Growth on following page, Figure 3.4b.)
Stages of Growth

Figure 3.4b: Stages of Growth

Source: Author's computation

2002-2005:
- Implementation period.
- Profits are lower in comparison to anticipated profits had the EURO not been introduced.

2005-2007:
- Profits gradually increase.
- Momentum.
- The costs towards the introduction to the EURO are compensated by the bank profits (2007).
- By the year 2007 and beyond, the project will show a profit.

2012:
- Period of financial growth.
- Financial benefits and bank profits soar.
In conclusion, we believe our study has clearly provided you with the answer to our initial question: Will costs be compensated by the benefits?

Our study results positively determine that the benefits will surpass the costs.

The results outlined within our analysis offer you a basis to further examine, study and establish the long-term implications and effects that monetary union will have on the banking system of Greece. We believe you will find that the further we project into the banks future after the introduction of the EURO, the more secure the outlook.
APPENDIX
Planned timetable for the introduction of the euro

**Chart A**

**Stage 1:**
- EMI established
- Dublin Summit: Stability Pact, ERM 2, Regulations on the euro
- Convergence reports produced by Commission and EMI
- TARGET testing begins
- Year for which convergence data will be assessed

**Stage 1A:**
- Operational decisions by ECB
- Testing of systems
- No compulsory prohibition in usage of euro
- National banknotes and coin remain legal tender
- Latest date for introduction of euro banknotes and coin
- Beginning of mass changeover of retail activity to euro
- End of legal transition period

**Stage 1B:**
- Madrid changeover scenario agreed
- Regulatory, organisational and logistical framework for ESCB to be published by EMI
- Irrevocable locking of conversion rates
- Euro becomes a currency in its own right
- Single monetary policy commences
- ECB operations & new issues of government debt all denominated in euro
- Wholesale financial activity expected to move rapidly to euro denomination
- Hulk of public administration changeover
- Latest date for withdrawal of legal tender status from national banknotes and coin

Source: Banking Federation of the European Union
APPENDIX II

This Appendix describes the various systems surrounding the banks’ new evolving infrastructure.

A II. INTERBANK FUNDS TRANSFER SYSTEMS

Since October 1997, there were several interbank fund transfer systems operating in Greece.

- One mixed (both retail and large value) net clearing and settlement system for cheques and interbank loans provided by the Athens Clearing Office.
- Several retail interbank payment systems developed by DIAS for the clearing of cheques, eurocheques, and credit transfers among credit institutions in Greece.

In addition, the Bank of Greece is developing a real-time gross settlement system called HERMES (Hellenic Real-time Money transfer Express System) for large value payments. The creation of HERMES, which is expected to start operating in 1998, is a technical requirement if Greece is to participate in the European Monetary Union as a member state without derogation. It will be the local settlement system of the cross-border interbank fund transfer system called TARGET (Trans-European Automated Real-time Gross settlement Express Transfer), which will allow same day cross-border transfers denominated in the EURO throughout the monetary union and the conduct of the single monetary policy.

Moreover, Greek credit institutions make wide-spread use of the international SWIFT payment system to settle both credit transfers and, recently, bank cheques.

The above interbank fund transfer systems meet the access conditions laid down in the following table, for which implementation is being monitored on an annual basis by the European Monetary Institute. The transparency of the access criteria and the
procedures for removing a participant from the systems are guaranteed as well. All these conditions will also apply in participation in HERMES.

Minimum common features for domestic payment systems in the European Union

| Access conditions | □ Direct access to interbank funds transfer systems should be confined to central banks, credit institutions, institutions of public nature and supervised financial institutions.  
|                   | □ Any EU credit institution incorporated in a particular member state should be granted access to the interbank funds transfer systems operating in other member states  
|                   | □ The access criteria to interbank funds transfer systems should be transparent  
| Risk management policies | □ Each member state should have at least one large-value real-time gross settlement system  
|                          | □ Existing national large-value net settlement systems (if settling at the central bank) may continue to operate under specific conditions  
|                          | □ National central banks must oversee the operation of all retail net settlement systems  
| Legal issues | □ The legal basis of payment systems should be sound and enforceable  
| Payment system oversight | □ Central banks should have sufficient oversight powers in all domestic payment systems  
| Technical and economic efficiency | □ No technical issue should remain unresolved  
|                                  | □ Pricing policies of central banks should avoid competitive distortions within the single market and the monetary union  
|                                  | □ A closer coordination of operating hours of central bank settlement services should be pursued  


THE DIAS RETAIL PAYMENT SYSTEMS

DIAS is a limited liability company with shares incorporated in 1989; its shareholders include the Bank of Greece and 32 direct participants. It is directed by an eleven member board. Responsibility for its management is assigned to the president of the board and a managing director.
DIAS has developed three interbank funds transfer systems:

a) The electronic system DIASCHEQUE for clearing Greek drachma of foreign currency denominated cheques bought by a Greek credit institution and drawn against a deposit account of another

b) The system DIASTRANSFER for the transfer of retail funds among credit institutions established in Greece. The relevant transactions are settled through the Bank of Greece

c) The national clearing center for EUROcheques bought from Greek credit institutions

The Bank of Greece directly oversees these systems and can adequately assess the scale and nature of the settlement risks involved, meeting the relevant principle of the minimum features of payment systems in the European Union.

DIAS has also developed and provides several other systems and services, such as:

- The interbank payroll system DIASPAY
- The DIASNET system for ATM switching services among credit institutions. The relevant transactions are cleared by DIAS and settled through the Bank of Greece.
- The private telecommunication network DIASPAC.

**TARGET**

The TARGET (Trans-European Automated Real-time Gross settlement Express Transfer) system will constitute a mechanism by which cross-border monetary operations are settled. It will also be used to process cross-border payments in EURO. The principal aim of the European Central Banks in designing this payment system was to enhance the safe and efficient transfer of money, and hence the choice of a real-time gross settlement (RTGS) system with a high degree of security and very short processing times.

The TARGET system is composed by the following mechanisms:

a) The fifteen national RTGS (one for each country-member of the European Union)

b) The payment mechanism of the European Central Bank
c) The Interlinking System, through which the orders among the national central banks will be transferred. In this case every national central bank develops an interlinking component, which will convert the payment order from the national currency to the TARGET and vice versa. In order to accomplish the transfer of orders among the national central banks, a system called SWIFT (Society for Worldwide Interbank Financial Telecommunication), is selected.

As with domestic RTGS, TARGET will provide for the immediate and final settlement of all payments, provided there are sufficient funds (or overdraft facilities) available on the sending bank’s account with its own Central Bank.

The EME has outlined three guiding principles for TARGET:

- The market principle – TARGET will be mandatory for monetary policy payments but not for interbank or commercial payments
- The decentralisation principle – whereby settlement accounts will be held at the national central banks
- The minimum approach – whereby each national RTGS will retain its specific features in order to minimize cost.

Although there is no intention to set an upper or lower limit for the amounts to be processed through TARGET, it can be expected that retail payments will be more likely to be processed by other fund transfer systems offering lower costs and longer processing times.

Questions remain regarding the volume of transactions for which TARGET will ultimately be used. Clarification is also required as to what extent the low volume, high value domestic RTGS could be affected by other countries which may have the capacity to send smaller value, higher volume payments which domestic RTGS will be obliged to accept.

In reality, most countries’ national RTGS systems have limited capacity. Although less urgent payments will likely be transferred by other methods, concern will not be eased unless TARGET volumes, and by consequence, national RTGS capacities, are
agreed and planned. This issue needs to be urgently addressed at both the national and European levels.

**ECU Clearing and Settlement System**

The ECU clearing and settlement system is a private multi-lateral net settlement system for ECU. It is planned that the ECU clearing will become EURO clearing and operate alongside TARGET.

The ECU Bankers’ Association (EBA), owners of the ECU clearing, has been assessing its future business potential in a EURO environment. They have concluded:
- EBA should achieve 30% market share, with TARGET and Correspondent banking 20% each.
- Estimate for EBA pricing – 1 EURO per transaction (to be compared to TARGET pricing, estimated at, 1-3 EURO).
- Financial investments will be shared by at least 50 banks and should not be significant.

The EBA assessment of market share, while hardly objective, is one that is difficult to argue with at this juncture.

**HERMES**

Since Greece won’t participate into EMU by the 1st of January 1999, EURO will exist as foreign exchange currency. In order to meet this transitory challenge, the Bank of Greece has developed the “EURO” HERMES system, a real-time gross settlement system (RTGS), that will process the EURO currency as foreign exchange transactions. By the time Greece joins the European Monetary Union and the EURO becomes national currency, there will be one HERMES, the “National” HERMES, which will be used for the settlement of the cross-border interbank funds.
BIBLIOGRAPHY

Alpha Credit Bank, I poria pros to EURO, Athens, February 1997

Bank of England, Practical Issues arising from the introduction of the EURO, Issue no. 5, August 1997

Banking Association of Greece, EURO-I prosarmoges & I epiptosis ston helliniko trapeziko tomea apo tin ekonomiki & nomismatiki enosi, April 1998

Banking Association of Greece, Aferoma sto EURO, vol 13, A’ trimestre 1998


Banking Federation of the European Union, “Cross-Border payments after the changeover to the EURO”, Brussels, 1997


Gortsos, Christos, The Greek Banking System, Athens, April 1998


Pelkmans, Jacques, *European Integration – Methods and Economic Analysis*, 1997


*Financial Statements, Greek Banks:*
Alpha Credit Bank, 1996, 1997
Dorian Bank, 1996, 1997
EFG Eurobank, 1996, 1997
Ergobank, 1996,1997
Xiosbank, 1996, 1997
Greek seminars:

Garganas, N., "Ti ekonomikes sinepies tha ehi gia to trapeziko sistima I metastasi sto eniaio europaiko nomisms", 2nd Greek – Italian Symposium of the Italian Commercial Institution for Greece, Athens, January 1997


Greek Newspapers:
European Union, May 2-3 1998
European Union, July 12-13 1998

Greek Trade Magazine:
Economicos Tahidromos, May 1998