

## **Greece and the European Union: An assessment of macroeconomic policies and trade effects**

Arghyrou, Michael Georgiou

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**GREECE AND THE EUROPEAN UNION:  
AN ASSESSMENT OF MACROECONOMIC POLICIES  
AND TRADE EFFECTS**

**by**

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*Thesis submitted for the degree of*

*Ph.D. in Economics*

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Στους γονείς μου Γιώργο και Βέρα

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This thesis is dedicated to my parents George and Vera.

July 1998

*Michael G. Arghyrou*

## ABSTRACT

This thesis aims to make a contribution to the study of the Greek economy by means of (i) assessing a number of macroeconomic policies adopted by successive Greek governments; (ii) assessing the present effort of Greece to join the EMU; and (iii) evaluating the trade effects caused by EU participation.

**Chapter 1** provides a detailed account of the main macroeconomic policies adopted by Greece during the period 1960-97. It also describes the Greek institutional environment and reports the movements of the leading economic indicators. Emphasis is placed on the post-1980 period.

**Chapter 3** attempts an assessment of a number of fiscal, monetary and exchange rate policies adopted by successive Greek governments based on the theoretical background and econometric methodology presented in **chapter 2**. We conclude that the post-1974 deterioration of the Greek macroeconomic performance is, to a large extent, explained by the fundamental change of the international economic environment and a number of sub-optimal decisions taken by the Greek authorities. We argue that the continuation of the currently applied policy mix, involving a combination of rather loose fiscal and incomes policies and a tight monetary/exchange rate policy, is questionable.

**Chapter 4** examines the future prospects of Greek macroeconomic policy in the light of the pursuit of EMU participation. We suggest that if Greece is to achieve EMU participation in the foreseeable future, it should adopt an economic strategy involving a reduction in public consumption and a number of structural adjustments. We also argue that Greece should not rush to join any new ERM-II arrangement without making sure that its participation involves a sustainable exchange rate, i.e. an exchange rate possibly different to the present one .

**Chapter 5** uses the original data sets presented in the **Trade Data Appendix** to examine the trade effects caused by the accession of Greece to the EU. It concludes that during the post-integration period the external trade of Greece has been reoriented towards the EU countries and that Greece lost part of her comparative advantage in those sectors in which such an advantage exists.

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## INTRODUCTION

Over the last four decades, Greece has displayed an impressive contrast in the field of macroeconomic performance. Between 1960 and 1974 she managed to achieve very satisfactory growth rates, low rates of inflation and high levels of employment. On the other hand, following a transition period during the late 1970s, the opposite phenomena have been observed since 1980. The obvious questions which arise are the following:

*Why did Greece, the best-performing European economy during the 1960-73 period, achieve less satisfactory performance thereafter?*

and

*How can Greece correct the existing macroeconomic imbalances and return to conditions of economic prosperity?*

This thesis is mainly concerned with the above two questions. More specifically, it aims to make a contribution to the study of the Greek economy by means of: (i) assessing a number of macroeconomic policies adopted by successive Greek governments; (ii) assessing the present effort of Greece to join the European Economic and Monetary Union (EMU); and (iii) evaluating the trade effects caused by the accession of Greece to the European Union (EU).

To begin with the first question, a number of observers have argued that, given the nature of the post-war development of the Greek economy, the economic slowdown which took place after 1974 should primarily be attributed to external factors. According to these economists, the post-war economic development of Greece was based on strong protectionism against imports and a high degree of state intervention in all fields of the economy. These resulted in a distortion of the forces of competition and isolated domestic producers from international developments. As a result, in the new, competitive environment which was created after the accession of the country to the EU in 1981, the highly protected Greek economy, and in particular its industrial sector, had neither the means nor the ability to compete efficiently in the home and international markets. These factors led to an increase in imports, to de-industrialization and to the destabilization of the development process.

Few people would deny that there is truth in these arguments. However, there are a number of reasons which render them rather unconvincing as a *full* explanation of the post-1975 deceleration of the growth process. First, the recession in Greece lasted much longer than the recession in Europe. Second, there are countries such as Portugal, Spain, Cyprus and Ireland whose economies present a number of similarities with the Greek one but which, in contrast to Greece, managed to achieve very satisfactory growth rates during the 1980s and the early 1990s. Finally, it is not correct to say that EU participation abolished completely state protection in favour of domestic firms as Greece secured a long transition period, extending up to 1989.

Therefore, it would appear that the causes of the economic stagnation which hit Greece after 1975 should also be sought within the country and not in external factors only. The first three chapters discuss the validity of this statement. More specifically, **chapter 1** provides a detailed account of the main macroeconomic policies adopted by Greece during the period 1960-97, placing emphasis on the post-1980 period<sup>1</sup>. On the other hand, **chapter 3** attempts an assessment of a number of these policies, based on the theoretical background and econometric methodology presented in **chapter 2**.

Three main differences between the pre- and post-1975 Greek economic policy mix lie in the fields of fiscal policy; monetary and exchange rate policy; and institutional framework. As far as fiscal policy is concerned, prior to 1975 Greek governments endeavored to keep the budget deficit at reasonable levels, usually smaller than 3% of GDP. On the other hand, in the late 1970s and especially in the 1980s, Greek governments, aiming to achieve a fairer distribution of income in favour of the low-income classes as well an increase in investment spending through a higher level of aggregate demand, proceeded to a significant increase in public expenditure (primarily public consumption). This choice was accompanied by a similar increase in public receipts and public borrowing and resulted in high levels of fiscal deficit and public debt.

With regard to monetary and exchange rate policy, the main characteristic of the pre-1975 period was the participation of the drachma in the Bretton Woods

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<sup>1</sup> It also refers briefly to some important developments which took place in 1998.



system of fixed exchange rates. The Greek national currency remained pegged to the US Dollar until 1974. The situation changed thereafter. In 1975, in an effort to support the competitiveness of Greek products and allow the economy to overcome the recession caused by the first oil shock, the government asked the Bank of Greece (BOG) to initiate a crawling peg exchange rate policy against the major foreign currencies. At the same time, in an effort to control the rising rate of inflation, the BOG introduced intermediate monetary targets for the annual rate of growth of money supply.

Finally, as far as the institutional framework is concerned, the situation prevailing in Greece prior to 1975 was a mixture of private initiative and state intervention, aiming to deliver economic development, mainly through the expansion of the industrial sector. As a result of the limitations existing in the field of political activities, political uncertainty was rather limited, labour unions were largely controlled by the government and important legislative changes were not very frequent. The situation changed significantly after 1975. The restoration of full political freedom was accompanied, among other effects, by the nationalization of a number of loss-making private firms, the liberalization of labour union activities and the introduction of new labour and taxation legislation.

The post-1975 policy shift and the deterioration of the Greek economic performance which followed pose a number of important questions. More specifically, is there any evidence suggesting that fiscal expansion contributed to a higher level of national income? Has the increase in public consumption led to a higher rate of growth for the Greek economy? What has been the effect of the post-1975 fiscal policy on the dynamics of public debt? Why did the BOG miss most of the monetary targets set between 1975 and 1990? What has been the impact of the exchange rate policy followed after 1975?

These are some of the issues addressed in the first part of chapter 3.

During the 1990s, in the light of the macroeconomic imbalances created after 1975 and in view of the Maastricht criteria of nominal convergence, Greek governments initiated a stabilization effort with the dual aim of putting the country back on the track of sustainable, non-inflationary growth and achieving the participation of Greece in the EMU. So far, this effort has taken the form of three

convergence programmes: the three-year Medium Term Adjustment Programme (MTAP) 1991-93, the Convergence Programme (CP) 1993-98 and the Revised Convergence Programme (RCP) 1994-99. All three programmes, and in particular the RCP, placed emphasis on reducing inflation, budget deficits and public debt.

During the period 1991-97 the reduction in fiscal imbalances was mainly pursued by means of increasing public revenue, i.e. through an intensified effort to curb tax evasion and the imposition of higher taxation on personal incomes and firms' profits. On the other hand, until very recently, the effort to reduce inflation had mainly taken the form of the strong drachma policy. This policy was introduced in 1988 and involved a nominal depreciation of the drachma vis-à-vis the ECU smaller than the inflation differential which exists between Greece and the European average. However, the recent accession of the drachma to the Exchange Rate Mechanism (ERM) of the European Monetary System in March 1998 was accompanied by a 14% devaluation of the Greek national currency against the ECU.

Despite the undeniable progress which has taken place in the field of economic stabilization, in contrast to the rest of the *Club-Med* countries (i.e. Italy, Portugal and Spain), Greece is not among the countries which form the first wave of EMU participants. Furthermore, as most major international economic organizations and Greek authorities admit, important macroeconomic imbalances are still existent. The above pose a second set of important questions. Why did the convergence programmes of the 1990s fail to secure an EMU place for Greece in 1999? Does the effort to achieve an increase in public revenue constitute an optimal fiscal strategy or should Greek authorities attach a higher weight to a reduction in public consumption? What were the advantages and disadvantages of the strong drachma policy and why did Greek authorities decide (or, perhaps, were obliged) to proceed to the recent devaluation?

These are some of the issues addressed in the second part of chapter 3.

Although Greece is not included in the first wave of EMU participants, the Greek authorities have announced their intention to continue the convergence effort with an aim to join the EMU by 2001. **Chapter 4** examines the prospects of Greek

macroeconomic policy towards EMU participation in the light of the wider European environment which is now taking shape.

More specifically, the first part of chapter 4 examines, among others, the prospects of national fiscal policies within the EMU under the light of the recently signed Budget Stability Pact; the prospects of the common monetary policy to be conducted by the European Central Bank (ECB) on behalf of the EMU INS; and the future monetary relationship between the EMU INS and the EMU OUTS, i.e. the proposed ERM-II arrangement. The reason for the existence of this part is that as Greece will have to continue its bid for EMU participation after 1999, knowledge and understanding of the external environment will be vital factors for the final success of the Greece's convergence effort. More specifically, they will enable Greek authorities to proceed to a number of policy choices which will increase the chances of Greece to achieve EMU participation in the foreseeable future and will render the adjustment of the Greek economy in the new, even more competitive external conditions as smooth as possible.

This, in turn, raises a number of important questions which are addressed in the second part of chapter 4. In particular, what kind of structural reforms should the Greek authorities promote in order to achieve the desired modernization of the Greek economy? What fiscal strategy will maximize the chances of Greece to meet the Maastricht fiscal criteria and ensure a lasting improvement in the field of public debt? How should Greece proceed in the field of monetary policy? What are the dangers involved in the participation of Greece in the proposed ERM-II arrangement? What are the potential and limitations of the new monetary framework which has been created after the introduction of legislation granting independence to the Bank of Greece ?

Finally, **chapter 5** examines another aspect of the European dimension of the Greek economy, namely the trade effects caused by the accession of Greece to the EU. To that end, we use some original time-series which have been constructed by the author himself to be presented here for the first time. These series, which can be found in the **Trade Data Appendix**, present Greek trade flows disaggregated according to the twenty one categories of the Greek Tariff Schedule (GTS).

Prior to 1981 there were two main opinions concerning these effects. The first one (the pessimistic scenario) argued that Greece was not ready for EU participation which would only lead to de-industrialization and a deterioration of the trade balance. The second opinion (the optimistic one) argued that EU participation would increase the competitiveness of the Greek economy, would cause further exploitation of existing comparative advantages and would give rise to economies of scale, all of which would result in an increase of exports rather than imports.

The question which naturally arises is which of the two predictions presented above is now justified by the post-1981 evidence. Chapter 5 attempts to provide an answer. To that end, we review the historical movements of Greek industrial production; trade flows; trade deficit; and Greek shares in total imports of the main commercial partners of Greece. We also examine developments relating to competitiveness and intra-industry specialization. Furthermore, we examine trade creation and trade diversion effects as they are indicated by the historical movements of the *ex-post* elasticity of demand for imports and the results of the estimation of a number of import demand functions. Finally, the hypothesis that EU participation has led to an increase in Greek exports to the European markets is tested by means of estimating a number of export demand functions.

The thesis ends with a chapter offering a **summary and concluding remarks**. This outlines the objectives set by each chapter and aims to integrate the findings and conclusions emerging from the analysis in a brief and coherent fashion.

## **CHAPTER 1**

# **Institutional framework and macroeconomic performance in Greece, 1960 - 97**

### **1.1. Introduction**

This chapter describes Greek economic policy and macroeconomic performance over the period 1960-97. It also refers briefly to some of the most important latest events like the accession of the drachma to the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) in March 1998. The chapter aims to report the developments of the leading economic indicators, to describe the institutional environment in which agents operate in Greece and provide a detailed historical account of the key decisions of Greek macroeconomic policy makers.

Some aspects of post-war Greek macroeconomic history have been discussed in the past by other economists such as Papademos (1990), Christodoulakis (1994), Stone (1994), Alogoskoufis (1995). However, their reference to the subject is rather brief and constitutes an introductory part of broader studies, dedicated to particular topics. This chapter, apart from reporting the movements of the leading macroeconomic indicators, presents a more detailed account of developments relating to the institutional framework of the Greek economy as well as the main lines of the fiscal, monetary, incomes and exchange rate policies followed by Greek authorities over the last four decades.

The remainder of the chapter is organized as follows: Section 1.2 presents the profile of the Greek economy in terms of the historical movements of the main macroeconomic indicators. Section 1.3 presents the institutional framework of the Greek economy and the course of Greek economic policy within the framework of four sub-period periods, namely 1960-73, 1974-79, 1980-90 and 1991-97. Emphasis is placed on the last two sub-periods. Section 1.4 discusses the process of financial liberalization initiated in 1987 and the new financial and monetary environment created by it. Finally, section 1.5 summarizes the chapter.

## 1.2. The profile of the Greek economy

The contemporary Greek economy displays significant differences compared to that of the early 1960s. First of all, the nature of economic activity has changed considerably as the importance of the agricultural sector declined substantially in favour of the industrial and the services sectors<sup>1</sup>. However, the most striking characteristic of the post-war Greek macroeconomic performance is the strong contrast observed between the pre- and post-1980 GDP growth rates (see Figure 1.1). More specifically, during the years under consideration (1960-97) one can distinguish four sub-periods:

First, the period 1960-73. During these years the Greek economy was developing very rapidly (with an annual average growth rate of 7.5%), it was the fastest growing in Europe and the second fastest growing economy in the OECD area behind Japan. As a result, Greek per capita income was converging to the European average at a very satisfactory pace. At the same time, unemployment was falling and price stability prevailed. This era of prosperity ended in 1974 when the Cyprus crisis erupted and the economy was hit by the first oil shock.

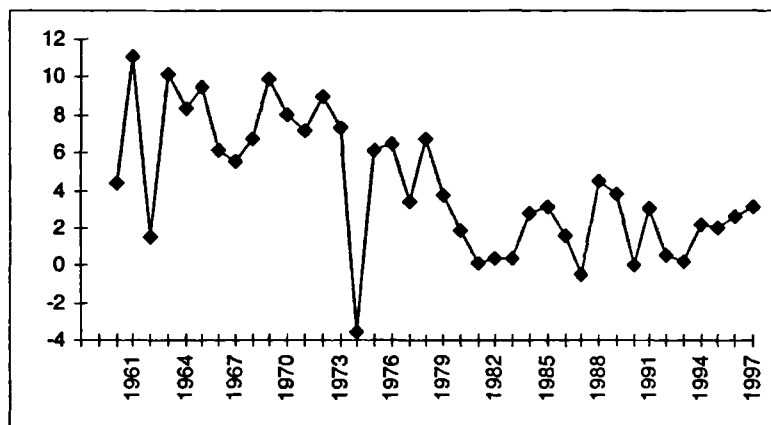
Second, the period 1975-80. During these years Greece achieved satisfactory growth rates (4.7% in average), albeit lower than those achieved in the previous sub-period. The Greek economy continued to grow faster than most of the Western economies and conditions of full employment were maintained. However, the average inflation rate was significantly higher than in the 1960-73 period.

Third, the period 1981-90. During these years the Greek economy displayed a deterioration of its macroeconomic performance and experienced the creation of a number of serious macroeconomic imbalances which are evident in the movements of all leading indicators. First of all, it is obvious by the very small, zero or even negative rates of growth. This stagnation, involving an average growth rate of 1.5%, brought Greece almost to the last place on the growth list of

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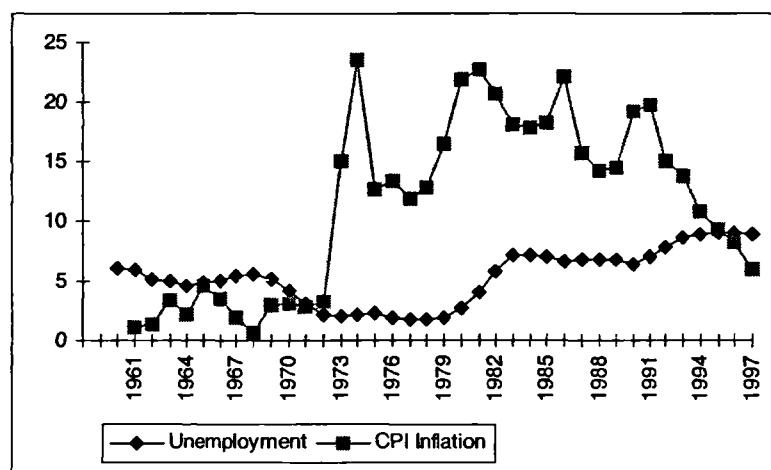
<sup>1</sup> In 1960 the agricultural, industrial and services sectors accounted for 57% , 17.5% and 25.5% of total employment respectively. In 1996 the relevant figures were 20%, 24% and 56% respectively. In terms of percentage in GDP, in 1960 agriculture accounted for 23%; industry for 26%; and services for 51%. In 1996 agriculture was down to 12%; industry down to 22%; and services up to 66%.

**Figure 1.1**  
**Real GDP - Annual Growth Rate**



Data Source: *European Economy No 64, Statistical Appendix.*

**Figure 1.2**  
**CPI Inflation and Unemployment Rate**

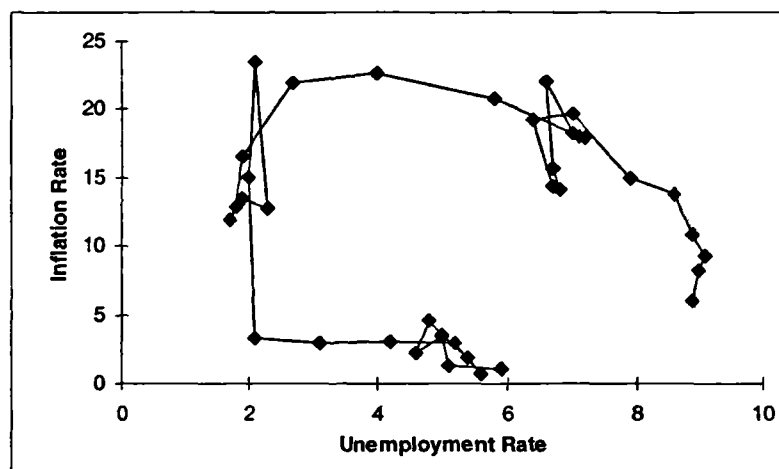


Data Source: *European Economy No 64, Statistical Appendix.*

Europe and the OECD area. On the other hand, inflation remained in high levels whereas unemployment increased (see Figure 1.2). As a result, the short-run Philips curve shifted to the right (see Figure 1.3). The deterioration of Greek macroeconomic performance is also evident in the developments on the fiscal front and the external sector of the economy: in the 1980s Greece experienced a significant increase in the budget and current account deficits as well as in the public debt (see Figures 1.4 and 1.5).

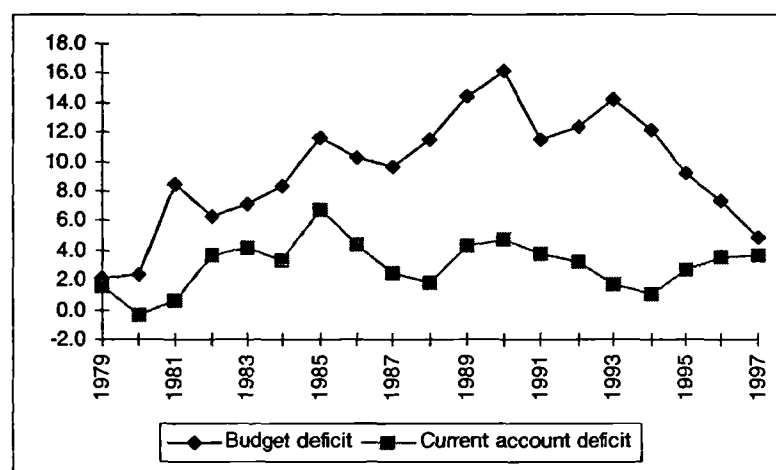
Finally, the fourth period covers the years between 1991 and 1997. During this period Greek governments have been applying stabilization policies with the

**Figure 1.3**  
**The Phillips Curve in Greece**



*Data Source: European Economy No 64, Statistical Appendix.*

**Figure 1.4**  
**Budget and Current Account Deficits (% of GDP)**



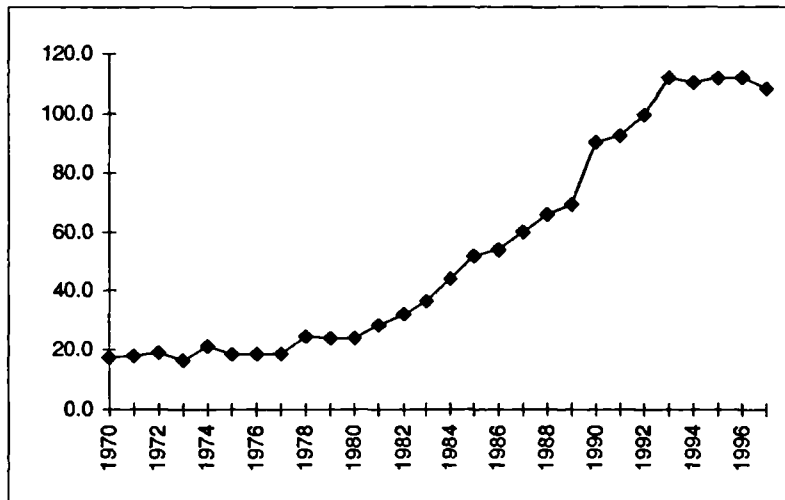
*Data Source: European Economy No 64, Statistical Appendix.*

aim of correcting the macroeconomic imbalances which arose after 1974 and achieving the participation of Greece to the European Economic and Monetary Union (EMU). As can be seen in the figures presented above and Table 1.1, this effort has achieved a number of positive results, including a reduction in inflation and budget deficits. However, this improvement has come at the cost of recession and higher unemployment.

Before closing this section, it might be worth mentioning that the four sub-periods which have been distinguished above are matched by some data



**Figure 1.5**  
**Public Debt (% of GDP)**



*Data Source: European Economy No 64, Statistical Appendix.*

**Table 1.1**  
**Leading Economic Indicators**

Period	GDP growth	Inflation (CPI)	Unemployment	Budget Deficit	Public Debt	Current Account
1961-73	7.5	3.5	4.6	N/A.	17.7	-2.4
1974-80	4.7	14.9	2.1	2.3	21.2	-1.4
1981-90	1.6	18.3	6.4	10.4	53.1	-3.6
1991-97	1.9	11.8	8.5	10.2	106.5	-2.8

*Data Source: European Economy No 64, Statistical Appendix.*

regularities. The years of non-inflationary fast growth (1960-73) coincide with a stable reduction in the share of private consumption in GDP, stability in the share of public consumption and a continuous increase in the share of gross fixed capital formation. Years of high growth are also accompanied by increasing gross national savings (both private and public). In contrast, the opposite phenomena are observed during the period of stagnation (see Table 1.2).

**Table 1.2**  
**GDP composition (% in value added)**

<b>Period</b>	<b>Private consumption</b>	<b>Public consumption</b>	<b>Gross fixed capital formation</b>	<b>Net stock building</b>	<b>Net exports of goods and services</b>
<b>1961-73</b>	74.9	8.5	27.6	2.5	-13.5
<b>1974-80</b>	68.1	11.2	28.5	4.5	-12.4
<b>1981-90</b>	70.4	14.0	23.4	1.1	-8.9
<b>1991-97</b>	74.0	14.0	21.3	1.0	-10.2

*Data Source: European Economy No 64, Statistical Appendix.*

### **1.3. Macroeconomic policy, performance and institutional framework, 1960-97.**

#### **1.3.1. The period 1960-73.**

The main characteristics of Greek economic policy between 1960 and 1973 were fiscal discipline and the participation of the country in the Bretton Woods system of fixed exchange rates. Governments of the time endeavored to keep the budget deficit at reasonable levels, usually smaller than 3% of GDP. Public revenue was higher than public consumption and any small budget deficit was the result of public investment expenditure. The participation of the state in economic activity was relatively small, with average public expenditure and revenue equal to 21.5% and 18.5% of GDP respectively. As a result of this prudent fiscal stance, gross public debt in 1973 was equal to 16.1% of GDP, a figure much lower than the European average (35.7%). On the other hand, average inflation during the period 1960-72 (i.e. the period which preceded the first oil shock) was kept at 2.6%.

Prior to 1975, monetary policy in Greece used to pursue a number of policy objectives including: a high growth rate for real GDP; a high level of employment; the meeting of the financial needs of the public sector; price

stability; and the controlling of the balance of payments. The major characteristic of Greek monetary policy was the participation of the drachma in the Bretton Woods system of fixed exchange rates. This participation took place after a 50% devaluation of the drachma in 1953 and involved the maintenance of a fixed exchange rate against the US Dollar<sup>2</sup> as one of the primary targets of monetary policy. In fact, during the three years which followed the collapse of the system (i.e. for the period 1971-74) the drachma continued to shadow the movements of the US Dollar.

During the sub-period under consideration, monetary policy was designed and conducted by the powerful Currency Committee, a ministerial body whose President was the Minister of Coordination and whose members were the Ministers of Finance, Industry, Commerce and Agriculture and the Governor of the Bank of Greece (BOG). The decisions of the Currency Committee determined developments in all areas of the Greek monetary policy, including the rate of growth of money supply, the level of interest rates, the level and the composition of business credit and, after 1974, the rate of devaluation or depreciation of the drachma against foreign currencies. The policy of the BOG was always in line with the decisions of the Currency Committee and its Governor was expected to resign in cases of disagreement with the prime minister or in cases of change of the party in office<sup>3</sup>.

In the absence of developed money markets, the instruments used in order to meet the objectives of monetary policy were the administratively set interest rates, the reserve requirements, the obligation of commercial banks to invest part of their reserves in government securities and the extensively used credit controls designed to channel credit into desirable, from the governments' point of view, uses. In addition, in order to maintain exchange rate stability, the BOG used to apply strict capital controls.

More specifically, during the sub-period under examination, the Greek financial system was heavily regulated with the largest banking groups of the country being under state ownership and obliged to provide the public sector with

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<sup>2</sup> Namely 30 Drs. per US Dollar

<sup>3</sup> A thorough study of the Greek financial system, institutions and monetary policy up to the mid-1970s can be found in Halikias (1978).

high proportions of credit at low interest rates. Consumer credit was almost non-existent whereas in the absence of any developed securities market, the only source of business credit was the state-controlled and oligopolistically structured banking system which consisted of commercial banks and Specialized Credit Institutions (SCIs). With regard to the former, the BOG used to determine the level of credit creation in line with the decisions of the Currency Committee. This was done by manipulating the reserve requirements and other liabilities of the BOG to the commercial banks. With regard to the SCIs, a ceiling for the level of credit they were supposed to provide was defined at the beginning of each year and the BOG decided on the allocation of credit by category of loan as well as the terms of the loans, the source of the funds etc. The aim of this heavy regulatory system was to meet the financial needs of the public sector and to direct credit to those sectors of the economy which the authorities considered to contribute to economic development. As a result, a complicated system of administratively fixed and highly differentiated interest rates was developed characterized by low nominal and real interest rates<sup>4</sup>.

All in all, the institutional framework characterizing the Greek economy during this period could be described as what is defined by Alogoskoufis (1995) as “state corporatist”, a mixture of private activity and state intervention aiming to steer the economy towards industrialization and economic development. Although private agents were encouraged to invest in new projects, the state regulated the price of some vital commodities and kept some vital sectors of the economy such as telecommunications, water, electricity supply etc. under its control through the existence of state monopolies and market-entry prohibition. In spite of the partial reduction in import restrictions which accompanied the devaluation of 1953, and despite the fact that Greece had signed an Association Agreement with the EEC

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<sup>4</sup> This system was introduced in the 1950s. Non-privileged borrowers paid higher interest rates and as banks had an incentive to channel credit there, authorities created a complicated system of reserves and withdrawals in order to eliminate this incentive: in case a bank granted credit to non-privileged borrowers, it had to deposit 20% of the value of the loan to a non-interest bearing account with the BOG. The commercial bank was then allowed to withdraw a part of this deposit in order to provide loans to privileged borrowers at low, subsidized interest rates. As a result, most banks directed credit to privileged borrowers. This situation gave rise to what has been called “round tripping”, i.e. privileged borrowers started lending the funds of their own loans to non-privileged firms at higher interest rates than those they had to pay to the bank.

in 1961<sup>5</sup>, the Greek market was strongly protected from imports and Greek exports were generously subsidized. Finally, as a result of the limitations existing in the field of political activities, the labour unions were fully controlled by the government and the economy was not disrupted by strikes or strained industrial relations.

### 1.3.2. The period 1974-80

In 1973-74 the first oil shock and the Cyprus crisis erupted. The Greek economy was negatively affected by both events and in 1974 real GDP contracted by 3.6%. As in the rest of the Western economies, inflation soared, reaching 15% in 1973 and 23.5% in 1974. Against this background, the restoration of democracy was accompanied by an increase in state intervention in the Greek economy. Between 1974 and 1980 the first major nationalizations took place when firms such as Olympic Airways and the Commercial Bank of Greece (the second largest Bank of the country) passed into state control. Also, the first generous increases in nominal and real wages of public (and private) employees were effected and for the first time the so-called "once and for all contributions" (a system of lump-sum taxation) imposed on firms' profits appeared. As a result of the increase in public revenue, public finance remained under control, although the budget deficit increased slightly reaching the level of 2.4% of GDP in 1980. However, public debt started rising and by 1980 it had reached the level of 23.8% of GDP. Finally, labour legislation was significantly altered, giving absolute freedom to unions most of which did not confine themselves to the representation of their members in industry but assumed an active political role against the first post-dictatorship right-wing governments.

Apart from a slight decrease of protectionism against imports, there were no major changes in the institutional framework of the Greek economy between 1974 and 1980. The major difference in comparison to the period 1960-73 lies in the field of monetary policy. In an effort to soften the negative impact of the 1973-74 events and avoid a prolonged recession, the first post-dictatorship governments decided to abandon officially the commitment to a fixed exchange rate against the US Dollar. Under governmental instructions, the BOG initiated a crawling peg

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<sup>5</sup> For a detailed discussion of the provisions of the Association Agreement see chapter 4.

exchange rate policy against the major foreign currencies whose aim was to support the competitiveness of Greek products and allow the economy to overcome the recession<sup>6</sup>.

Compared with the pre-1975 period, the objectives pursued by monetary policy remained more or less unchanged: the Currency Committee and the BOG continued to pursue a high GDP growth rate, a high level of employment, a sustainable current account deficit and the financing of the needs of the public sector. Price stability was also included in the set of targets but, as it is shown by inflation developments, it was not considered the most important one. However, the persisting high inflation rates of the 1974-75 period obliged the authorities to realize that some kind of control over the liquidity of the economy was necessary. As a result, in 1976 the Currency Committee introduced for the first time intermediate targets for the conduct of monetary policy and between 1976 and 1982 Greece chose to target the monetary base M0 which amounts for 70-80% of M1<sup>7</sup>. Targets were also set for domestic credit expansion. However, the introduction of these targets was accompanied by a significant increase in the rate of growth of money supply and credit expansion as well as negative real interest rates. As a result, one could say that after 1974 monetary policy in Greece entered a new phase as the country passed from a fixed exchange rates regime to a floating one and exchange rate targets were replaced, at least formally, by monetary ones<sup>8</sup>.

As far as the instruments of monetary policy are concerned, they remained identical to those employed during the pre-1975 period. Authorities continued to set all interest rates administratively and decide alone where and on what terms credit should be directed. They also intensified the credit controls imposed on commercial banks and SCIs. In addition, they increased the proportions of the commercial banks' reserves to be invested in government securities and obliged commercial banks to dedicate another significant proportion of their reserves to the financing of small-size firms.

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<sup>6</sup> In practice, however, between 1977 and 1979 the drachma remained stable against the dollar but not against the rest of the major foreign currencies.

<sup>7</sup> In standard macroeconomics textbooks M0 is defined as currency in circulation plus reserves of the commercial banks with the Central Bank. In Greece, however, the latter part is not included. On the other hand, M1 in Greece is defined as currency in circulation plus private sight deposits.

<sup>8</sup> Monetary and credit targets were set according to the desired position in the balance of payments and projections regarding the rates of growth of real GDP, inflation and interest rates.

In spite of the introduction of intermediate monetary targets, during the 1975-78 period inflation stabilized at two-digit levels. In addition, the crawling peg policy did not avert a deterioration in the trade deficit. Furthermore, emigrants remittances (which had played such an important role in the development of the country during the previous sub-period) started declining. However, these reductions were matched by an increase in revenues in the tourist and shipping sectors (see the Trade Data Appendix). As a result, during the 1975-79 period the current account improved.

All in all, with the exception of increased inflation, the governments who ruled Greece between 1975 and 1978 thought that there were not many reasons to believe that their economic policy was unsuccessful. After the contraction of 1974, real growth was back on track with an average value of 4.7%, a figure much higher than the growth rate achieved in most of the European countries. Gross capital formation had been increasing again. The fiscal deficit and public debt had experienced a slight increase but they were firmly under control. In contrast to the rest of Europe, unemployment had not risen and conditions of full employment had been preserved. Also, in March 1979 Prime Minister Karamanlis signed on behalf of Greece the Agreement of Accession in the EEC (effective from January the 1st, 1981) which represented the fulfillment of a long-run strategic goal of Greek foreign policy.

However, in 1979-80 the second oil shock took place and international interest rates increased. As a result of the increased energy bill, the deterioration of the terms of trade and rising interest (external) payments on public debt, the current account deteriorated. Inflation soared again and this time an increase in unemployment could not be averted. The uncertainties connected with the forthcoming elections of 1981 made things worse. By the end of 1980 most of the leading indicators had deteriorated. GDP growth was limited to 1.8% and it would have been even lower had the agricultural sector not presented an exceptionally strong performance that year. As a result of high oil prices, the increasing cost of imported raw materials, the abolition of some agricultural subsidies and the depreciation of the drachma against the major foreign currencies, inflation

returned to 21.9%. Unemployment increased to 2.7% and gross fixed capital formation declined by more than one and a half percentage points of GDP.

### **1.3.3. The period 1981-90.**

#### **1.3.3.1. The expansion of the early 1980s**

1981 saw two important events for the Greek economy. The first one, which has already been mentioned, was the accession of Greece to the EEC which has contributed decisively to the opening of the Greek market to foreign competition<sup>9</sup>. The second was the shift of economic policy towards fiscal expansion. It started in 1981 when the conservative government of the New Democracy party initiated a loose fiscal and monetary policy in an effort to create a feeling of prosperity and increase the probability of its re-election. That policy involved a significant increase in public expenditure, mainly caused by an increase in employment in the public sector, an increase in pensions and salaries and a stagnation of public revenues caused by the official reduction in tax rates and the unofficial laxity in collecting taxes. Furthermore, according to Christodoulakis (1994), in 1981 total loans to the private sector increased by 30% compared with a 20% increase in 1980. In a period of increasing interest rates abroad, loans were issued without any serious evaluation and monitoring mechanism and most of them were directed into consumption or redeposited in commercial banks at a higher interest rate. As a result, fixed capital formation and residential construction continued to decline. Also, in spite of a 17% effective depreciation of the drachma against the ECU in 1980 and a further 3.7%, in 1981, total imports of goods and services increased whereas industrial production started falling and exports decreased. Combined with the impressive fall in inflows of real foreign direct investment, tourism revenue, shipping revenue and emigrants' remittances (see the last two tables in the Trade Data Appendix), the deficit of the current account deteriorated. As a result, in 1981 real GDP growth totally collapsed (0.1%). Inflation and unemployment continued to increase and reached 22.7% and 4% respectively.

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<sup>9</sup> However, the accession to the EEC did not abolish protectionism completely because Greece secured a long transition period (extending up to 1989) for the abolition of some forms of protection against imports. For a detailed exposition of these issues see chapter 5.



In spite of that expansion, New Democracy did not manage to remain in office. The socialist PASOK party came to power having promised to improve the welfare standards of the less prosperous Greeks and reduce inequality in the distribution of income by means of increasing minimum wages, expanding the social welfare system and reinforcing the role of the state in the economy. It had also promised to put the economy back on the path of sustained and lasting growth and to stop unemployment by means of applying a higher degree of economic planning, the nationalization of many private firms and the creation of new public ones. On the other hand, the officials of the new government recognized that the pre-election fiscal expansion as well as the aftermath of the second oil shock had limited the margin available for the fulfillment of these promises. As a result, they announced the imposition of new price controls, a non-accommodating monetary policy to the private sector (involving many credit controls) and a deceleration in the growth of real public expenditure.

1982 was the first year of socialist administration and PASOK fulfilled many of the promises it had given to voters. Although the government accused their predecessors of having left behind them what they called "scorched earth", they decided to increase the level of minimum wages and pensions by 40%. In addition, the system of automatic indexation of wages and pensions (ATA) was introduced, a backward looking mechanism which aimed to protect the purchasing power of wages in the face of high inflation. Furthermore, employment in the public sector continued to increase through recruitment of new personnel in public administration and state-owned firms. Also, new labour legislation was introduced which increased the power of the unions by reducing the number of allowed layoffs<sup>10</sup>. This fact, combined with the increase in minimum wages, increased labour costs significantly. In an effort to cheer up sceptical investors, the authorities passed a new Development Law providing a number of incentives for the realization of investment projects. The Law favoured investment in less developed regions of the country and in sectors hit by economic stagnation.

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<sup>10</sup> Up to 1984 firms had to acquire the approval of the Ministry of Labour in order to proceed to any layoffs. In 1984 they were allowed to dismiss up to 2% of their personnel per month without asking for such an approval. However, the minister's approval is still necessary for layoffs exceeding the 2% threshold.

The government hoped that increased aggregate demand would create the conditions for a resumption in investment which would put the economy back on a high growth track. It was also hoped that the planned increase in public revenues would provide a solution for the fiscal problems inherited from New Democracy. Finally, it was hoped that inflation would be kept at low levels through credit rationing of the private sector (i.e. the channeling of the limited credit towards activities which were considered productive and socially desirable) and the imposition of direct price controls. In the institutional field, in July 1982 the Currency Committee was dissolved and its functions were distributed between the government and the BOG<sup>11</sup>. The former (and in particular its newly formed Council of Government Policy) undertook the responsibility of setting the objectives for monetary and credit policies whereas the latter was allocated the task of implementing the policies decided by the government. This was to be done by manipulating variables such as interest rates, reserve requirements, credit ceilings etc. However, the objectives of monetary policy remained unchanged and authorities continued to pursue the same set of different, and often contradicting, targets. The BOG continued its crawling-peg exchange rate policy and the drachma did not join the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) created in 1979. Although the elimination of the Currency Committee theoretically empowered the BOG with competencies it had not enjoyed previously, in reality it did not hinder the government from applying the expansionary fiscal and monetary policies to which it was committed.

By the end of 1982 it was obvious that the effects of the measures taken were not what was desired. Despite the increase in public employees, unemployment increased significantly for the second consecutive year whereas the rate of growth of real GDP was limited to a very modest 0.4%. Gross capital formation fell whereas foreign direct investment and invisible receipts continued their decline. The current account deteriorated in spite of the reduction in oil prices and the consumption of existing stocks. The fact that the nominal depreciation of the drachma in 1981 and 1982 was much smaller than the inflation

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<sup>11</sup> This event followed the publication of the report of the *Harissopoulos Committee* (named after its president) whose task was to provide a detailed description of the banking system and advance a number of proposals referring to the possibilities of its modernization. The report was published in 1981.

differential against the main commercial partners probably played a role in this. Of course, it is true that the budget deficit of 1982 was smaller than that of 1981 but this had been expected in view of the extraordinary nature of the latter<sup>12</sup>. Some progress was made in the field of inflation which, however, remained above 20%. The increasing inflation differential between Greece and her European partners created competitiveness problems for most Greek firms. Under the pressure of increasing labour costs, adverse international economic conditions, increased competition in the Greek and the foreign markets and bad management, many of these firms became insolvent whereas many of those which survived had problems in servicing debts.

### **1.3.3.2. The 1983 (Arsenis) stabilization programme**

Against this background, in January 1983 the minister of National Economy Mr. Arsenis introduced a stabilization programme aiming to restore equilibrium in the external sector of the economy, reduce fiscal and external disequilibria and give a boost to the profitability of Greek firms. In the monetary field, the programme involved a 15.5% nominal devaluation of the drachma against the US dollar in early January. The devaluation aimed at restoring the declining competitiveness of Greek products and the curbing of rising inflation through the stabilization of the exchange rate at a sustainable level. To that end, it was decided that the BOG would defend the newly (post-devaluation) established exchange rate against the US Dollar and indeed, during the January-August 1983 period the drachma shadowed the American currency. Also, in an effort to control the liquidity of the economy in a more effective way, in 1983 the BOG introduced the publication of Monetary Programmes and switched from targeting M0 to targeting M3<sup>13</sup>. It was also announced that the authorities would pursue a rate of growth of M3 slightly higher than that of nominal GDP, allowing private firms easier access to credit. At the same time, the BOG started increasing the administratively set interest rates, a fact which subsequently led to higher nominal interest rates. To promote price stability, the government decided on the effective freezing of wages and salaries through an eight-month postponement of the wage

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<sup>12</sup> In fact, compared with the average value of the deficit over the period 1975-80, the budget deficit of 1982 was higher by 3 percentage points.

<sup>13</sup> M3 is defined as M1 plus private savings and time deposits, bank bonds and repurchase agreements (repos). Repos were included in the definition of M3 in 1992.

increases set by the wage indexation ATA system. They also decided on the implementation of a set of measures designed to cut public spending and increase public revenue, mainly through increases in indirect taxes and the prices of services offered by public enterprises and organizations. At the same time, and in accordance with Article 130 of the EEC Accession Treaty, it was decided, with the approval of the European Commission, to impose temporary restrictions on imports of selected products in order to help sectors which were in a critical situation.

### 1.3.3.3. The 1984-85 expansion

In spite of the above, the Arsenis programme proved short-lived and ineffective in taking the Greek economy out of recession<sup>14</sup>. As a result, in November 1983 the Parliament approved a new five-year Economic and Social Development Plan (1983-87), aiming to resume the economic development of the Greek economy by planning 3.5% to 4% annual growth rates. The goal was to be pursued through a supply side policy where the state would play the major role. Thus, instead of declining, public expenditure increased. A vital point in this development was the creation of the Organization for Enterprise Restructuring (OAE) in 1983. OAE nationalized all those large private firms which were on the brink of bankruptcy for the reasons earlier explained. Faced with this situation, the government had a choice between two options: either they could let the enterprises close down and unemployment would automatically rise; or they could nationalize the firms, undertake the payment of the employees and cover operating losses through subsidies from the public budget. The government opted for the second choice, at the cost of a higher deficit. Furthermore, the authorities proceeded to the foundation of a number of new public enterprises and institutions which were also financed from the public budget. Having such a vast number of enterprises under its control, and in view of the European Parliament elections in 1984 and the general elections of 1985, PASOK followed the example which New Democracy set in 1981 by employing personnel *en masse*. But that was not all. The wage increases agreed by the ATA were finally given and there was a major uprating of the income brackets where full indexation applied. All these measures, combined

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<sup>14</sup> For a discussion of the reasons see chapter 3.

with the realization of the long overdue adjustment in administered prices of public utilities, offset the slowdown of labour costs and led to increased inflation. Furthermore, in 1983 the authorities proceeded to a reform of the national pension system which increased dramatically the number of persons entitled to pensions<sup>15</sup>. In order to cover this fiscal expansion, authorities increased tax revenue by more than 1.5% of GDP but that was not enough. As a result, they resorted to domestic and external borrowing.

In the monetary field, the BOG continued to finance the fiscal expansion and channel credit into uses as determined by the government<sup>16</sup>. Within that framework, in the 1980s credit was mainly directed to the public sector, small and medium size industrial firms, agriculture, export and ailing state-owned enterprises. It used to be allocated through the same complicated system of administratively fixed and highly differentiated interest rates which were kept low in order to hold down the cost of public borrowing and boost the development of the privileged sectors<sup>17</sup>. In the absence of developed money markets and of treasury bills sold directly to the private sector, the BOG financed fiscal requirements through an overrun of the predetermined credit ceilings of the specialized credit institutions.

As a result, in spite of the realization of relatively high growth rates in 1984 and 1985 (2.8% and 3.1% respectively)<sup>18</sup>, when PASOK was re-elected to office in June 1985 the situation was critical. The budget deficit had reached an unprecedented 11.6% of GDP in comparison to 2.4% in 1980 and the public debt was equal to 51.6% of GDP in comparison to 23.8% in 1980. Due to the continuation of price controls and delays in adjusting public service charges to increased costs, inflation remained relatively stable at 18.3% but it was still much higher than the EU average. Consequently, the improvement of the

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<sup>15</sup> Pensions were given to soldiers and national resistance members who fought in World War II, to political refugees who returned home with their families after having fled to Eastern European countries after the end of the civil war in 1949, to farmers and other categories. Furthermore, the government lowered the retirement limit to 23 full working years for men and 17 years for women.

<sup>16</sup> Up to 1986 commercial banks were obliged to provide the public sector with 75% of their liquidity.

<sup>17</sup> In 1985 the public sector received loans equal to 48.5% of total deposits. The equivalent share for small-size firms and big industrial firms was 10% and 15% respectively.

<sup>18</sup> These high growth rates can be attributed to the expansion described above, some carry-over effect of the 1983 devaluation, high tourist revenue and an exceptionally good agricultural performance.

competitiveness of Greek products caused by the devaluation of 1983 was no longer valid. This, combined with a decline of shipping revenues and emigrants' remittances, as well as a marked deterioration of the trade balance, created a current account crisis and a new devaluation was expected by the markets. In addition, real gross capital formation stagnated.

#### **1.3.3.4. the 1986-87 (Simitis) stabilization programme**

Under the circumstances, a new minister of National Economy, Mr. Simitis was appointed. Mr. Simitis launched a new stabilization programme in October 1985, originally planned to cover the period 1986-87. The new programme aimed at reducing inflation to 10% and cutting the public sector net borrowing requirement by 8% of GDP by the end of 1987 (no official targets were announced for public debt). It involved a new devaluation of the drachma by 15%, the introduction of a compulsory deposit on a large proportion of imports, the total freezing of nominal wages above a certain level (in both the private and the public sectors of the economy) and the adjustment of other wages according to the targeted, rather than the observed, rate of inflation (excluding the impact of import prices). It also included a set of measures aiming to cut public expenditure (through a reduction in public employees, the closure of some loss-making public firms, the abolition of some tax allowances etc.) as well as an increase in public revenues mainly through a reduction in tax-evasion and the imposition of a once-for-all tax on company profits and self-employment incomes and rents. Also, in November 1986 a temporary three-month price freeze was imposed in order to avoid speculation in view of the introduction of the VAT system which, in accordance with EU legislation, was introduced on 1<sup>st</sup> January 1987, and replaced a series of other indirect taxes. Furthermore, the government asked for and was granted a loan from the EC, the first installment of which was paid immediately, with the second installment paid in 1987. In the monetary field, the targets of monetary policy shifted towards price stability: the government announced that domestic credit expansion and the rate of growth of M3 were to be limited and under no circumstances would they exceed the rate of growth of nominal GDP. Also, it was decided that it was high time to take all necessary steps in order to replace the outmoded institutional and operational framework of the financial

system. To that end, the government appointed the *Karatzas Committee* (named after its president) with the task of advancing a number of proposals in reforming the financial system and sales of medium-term government securities to the general public were introduced.

Under the positive influence of a number of international favourable events (such as the fall in the price of oil, the acceleration of growth in the Western economies and a fall in international interest rates), by the end of 1987 the programme had achieved a certain degree of success in the fields of inflation, public finance and the current account: in spite of a temporary increase in inflation in 1986 (caused to a large extent by the inflationary impact of the devaluation), in 1987 the rate of growth of prices fell to 15.7%. The primary deficit of the government budget fell to 3.7% of GDP in comparison to 7.2% in 1985. Also, due to the stagnation of imports, increasing exports, increasing EC transfers and other invisible receipts, the current account deficit fell to 2.5% of GDP. In addition, in 1987 the *Karatzas Committee* published its *Report for the Reform and the Modernization of the Greek Banking System*. The Report confirmed the outmoded structure of the financial system and highlighted the distortions for which it was responsible. Following its publication, the process of financial liberalization was initiated and some progress was effected in reforming and liberalizing the heavily regulated financial and banking system<sup>19</sup>. By the end of 1987 preferential interest rates for certain categories of agents were abolished and the commercial banks were granted a higher degree of freedom in fixing their lending rates<sup>20</sup>. This event was followed by a gradual increase in nominal and real interest rates. In addition, a higher degree of flexibility was established in providing firms with credit and in December 1988 the complicated reserve/rebate system of credit distribution was abolished.

But in spite of the above, the progress achieved by the stabilization programme was not as envisaged. To begin with, combined with a bad year for

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<sup>19</sup> Actually, the first reluctant step towards financial reform was taken in 1984 when all the large number of categories of administratively set interest rates on loans to the private sector were unified into three categories, namely long-term investment; working capital; and housing, small-scale industry and agriculture.

<sup>20</sup> In June 1987 the BOG set, for the first time, a minimum interest rate (21%) for all short-run bank loans and allowed commercial banks to negotiate with their customers higher interest rates if they wished to. Until 1987 the BOG used to set maximum lending interest rates.

agricultural production, the programme caused a recession as output declined by 0.5% in 1987. This recession was anticipated in view of the planned reduction in demand and, from that point of view, it was not as disturbing as the fact that, although the tougher fiscal stance resulted in the reduction in the primary deficit, the overall budget deficit deteriorated further. This was the result of increasing interest payments, difficulties associated with the collection of the VAT revenues and expenditure overruns by public corporations. Furthermore, the public debt had reached the level of 59.7% of GDP and the prospect was for a further increase. In addition, in spite of progress in the field of inflation, Greece still had the only double-digit inflation rate in the EC, four times greater than the EC average. As a result, early in 1986 there were fears of a new devaluation. Although credit to the private sector was kept within the limits announced, the monetary targets of the programme were not met, basically due to the rather poor response of the public to the selling of treasury bills. And finally, gross capital formation did not pick up because the increase in private investment was offset by a higher decline in public investment.

#### **1.3.3.5. The 1988-89 expansion**

The Simitis stabilization programme was due to finish in December 1987 but bearing in mind that considerable problems remained unsolved, Mr. Simitis proposed its continuation. The argument was that, without a strict fiscal policy, the proposed restructuring of the public debt towards bond financing together with a monetary policy aiming at higher real interest rates (in an attempt to stabilize the savings ratio of the economy) would result in an increase in the cost of servicing of the public debt which would preserve the vicious circle of high debt, high interest rates and higher debt. Furthermore, the fiscal progress which had been achieved was, to a great extent, the result of the reduction in public investment. The continuation of such a policy would lead to problems of deterioration in the already inadequate public infrastructure. Therefore, public consumption had to be cut. Also, issues such as the reorganization of the pensions system, the widening of the tax base through fuller taxation of certain categories of taxpayers and the abolition of export and agricultural subsidies should be tackled in no uncertain



terms. In brief, Mr. Simitis suggested that the situation was such that it did not allow a relaxation of the tight fiscal policy.

Initially, the late Prime Minister Andreas Papandreou agreed to the suggestions of Mr. Simitis but he subsequently changed his mind in view of the facts that 1989 was an election year and that real incomes had fallen by 7.7% in 1986 and 3.6% in 1987. Labour Unions openly declared that if PASOK wanted the votes of the workers they would have to abandon the stabilization programme. The Prime Minister accepted this ultimatum, Mr. Simitis resigned and a new minister of National Economy was appointed. This was regarded as a signal that the stabilization effort had been abandoned, and indeed a new fiscal and monetary expansion was initiated. It was accompanied by the familiar measures of hiring new public employees, increasing social expenditure, overlooking tax collection and expanding bank credit.

Due to the existence of the well known lag effects of economic policy, the stabilization programme 1986-87 paid some dividends in 1988-89. The gains were expressed in terms of reduced inflation (which descended to the level of 14%), a halt in the increase in public debt, an improvement of the current account and an increase in private investment. In addition, the increased demand combined with the increase in gross capital formation, an extremely good agricultural performance, accelerating international growth and terms of trade gains led to high growth rates in 1988 and 1989 (4.4% and 4.0% respectively). One could say that the prospects of the economy appeared bright for a short period of time. However, the picture was deceptive. In order to finance the expansion, in 1989 both the primary and the overall deficit of public budget reached record levels and the government resorted to increasing borrowing.

In the monetary field, in an effort to keep inflation under control, in 1988 the BOG introduced unofficially the policy of the *strong drachma*, i.e. a policy involving a depreciation of the national currency against the ECU (mainly against the DM) smaller than the inflation differential with the rest of the EU countries. However, this policy did not abolish the official strategy of targeting M3<sup>21</sup>. In fact, no specific official targets were announced for the depreciation of the drachma

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<sup>21</sup> However, in 1988 the BOG switched from value to range targets for the rate of growth of M3.

against the ECU prior to 1995. In addition, in view of the introduction of medium-term government securities in the financial markets, the BOG introduced the monitoring (but not the targeting) of M4<sup>22</sup>.

As in 1981, the expansionary economic policy of 1988-89 did not save the incumbent party from electoral defeat. However, given the new fiscal expansion, public debt was already on an unsustainable path. Expectations about the Greek economy were rapidly deteriorating and were undermining the prospects of an early exit from the crisis. The high interest rates which would be needed in order to finance the high public debt were expected to make the realization of private investment even more difficult. The newly introduced policy of the strong drachma could help to keep inflation at reasonable levels but, in the absence of prudent fiscal policy, it had started creating problems in the external sector of the economy. The already bad situation was further aggravated by the political instability caused by the lack of a stable government to cope with the problems. In spite of the fact that both parties of the coalition in the Tzannetakis government (formed after the elections of June 1989)<sup>23</sup> had been criticizing PASOK for the fiscal situation it had left behind it, they could not improve the situation given the agreed short-horizon of their government. On the other hand, the Zolotas government which followed the elections of November 1989 and was supported by all parties, could not really apply any correction policy because although all partners agreed that the fiscal situation was desperate, none of them wanted to undertake the political cost of adjustment. Leading economic organizations had started warning of the danger of inflationary expectations which “..would lead to a flight into real estate and hasty purchases of goods. Besides pushing up product prices, such a development would result in higher imports and a wider trade deficit, while confidence in the drachma would decline, leading to a weakening of the balance of payments...such a negative scenario is not pure fiction but a worrying possibility”<sup>24</sup>. Hence, it would not be an exaggeration to say that given the existence of this “worrying possibility”, for the first time in its post-war

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<sup>22</sup> M4 is defined as M3 plus public securities of maturity up to one year.

<sup>23</sup> The Tzannetakis government was supported by the conservative party of New Democracy and the left-wing party Coalition of the Left and Progress.

<sup>24</sup> *European Economy* No 42, Nov. 1989, Annual Economic Report for 1989-90, p. 86.

history, in 1989-90 Greece faced the danger of national default<sup>25</sup>. Indeed, the mounting macroeconomic imbalances combined with political uncertainty had already led to significant capital flight and had given rise to further devaluation and inflation expectations as well as speculative import demand. As a result, the current account deficit had reached a very worrying level (4.7% of GDP). Eventually, after the elections of April 1990, having promised that they would put in order the fast deteriorating economic affairs of the country, New Democracy managed to form a government. But the anticipated storm had already broken. In 1990 real GDP stagnated, inflation reached 19%, the overall budget deficit hit the record level of 16% of GDP and public debt climbed to 90% of GDP.

#### **1.3.4. The period 1991-97**

##### **1.3.4.1. The Medium-Term Adjustment Programme 1991-93**

The New Democracy administration introduced a new three-year Medium Term Adjustment Programme (1991-93) aiming to achieve macroeconomic adjustment and structural reform. It involved a set of stabilization measures such as an increase in taxation, a cut in expenditure, the complete abolition of the ATA system, the abolition of some pension rights, a reduction in recruitment in the public sector, an increase in the prices of public utilities, an increase in VAT rates and the announcement of a privatization programme. Furthermore, in order to avoid the danger of insolvency, the new government decided to re-negotiate the terms of repayment of some loans and finally managed to capitalize some interest payments, thus postponing their payment for a period of two years. Greece was also granted a loan of 2200 million ECU from the EU with the first installment of ECU 1000 million immediately granted. Finally, the new government passed legislation which aimed at increasing labour market flexibility<sup>26</sup> and reforming the problematic pension system of the country. In addition, controls on profit margins were abolished and most of price controls were lifted. In the field of monetary

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<sup>25</sup> The debt accumulation had created such a situation that according to Alogoskoufis and Christodoulakis (1991) in the absence of immediate action in 1990 a major debt crisis would have certainly taken place in 1991. For further discussion on this point, see chapter 3.

<sup>26</sup> Such measures included the abolition of government intervention in the wage setting negotiations between employers and employees; the abolition of impediments to part-time work; the introduction of a fourth work-shift etc. For a detailed discussion of the Greek labour market and the 1991 legislation reform see OECD Economic Survey of Greece, 1995-96.

policy, price stability was given a higher priority and the BOG started abandoning all other objectives which had been pursued in the past. With regard to intermediate monetary targets, the BOG continued to target the rate of growth of M3 and monitor the rate of growth of M4 but it also started attaching increasing weight to the exchange rate targets implied by the strong drachma policy. As a result, in 1991 the nominal depreciation of the drachma against the ECU was equal to 11.8% compared with an inflation differential of 13.2%. In addition, the BOG reduced the rate of growth of M3 to 12.3% compared to 14.6% in 1990 and 23.8% in 1987-89. In the institutional field, some progress was effected in the field of financial liberalization where compulsory investment by commercial banks in Treasury bills was reduced, long-term capital movements were liberalized and restrictions on consumer credit and on foreign currency loans were lifted.

Although the situation stopped deteriorating in many fields, it is now accepted that because of internal and external reasons (such as the Gulf war and the war in ex Yugoslavia), the programme was not as drastic as the emergency of the situation required and the improvement was not as expected. Of course, in 1991 the rate of GDP growth was 3.2% (largely supported by a good harvest), the current account deficit fell slightly and the primary budget deficit declined. But, on the other hand, inflation fell only marginally from 19.2% in 1990 to 18.8% in 1991 and unemployment started increasing again. In addition, the public debt continued to deteriorate reaching 86.1% of GDP and the budget deficit overshoot the targets set by the government's programme. The main reason was a shortfall in public revenue, which could be attributed to a deeper than expected recession (largely explained by the Europe-wide recession of the early 1990s). the decline of tourist revenue, persisting tax-evasion, the weaknesses of the tax-collection services and the failure to reduce employment in the public sector. Furthermore, the privatization programme was not taking place at the speed which was expected and the process of deregulation in the goods and labour markets was not as quick as envisaged.

### 1.3.4.2. The Convergence Programme 1993-98

In view of the slow progress observed, a new minister of National Economy, Mr. Manos, was appointed in 1992. He announced his intention to apply stricter measures in order to tame the fiscal problems and he launched a new stabilization effort in the context of the Greek Convergence Programme 1993-98 whose aim was to lead Greece to the fulfillment of the Maastricht criteria by 1999. This was to be achieved through the reinforcement of the structural and institutional reforms and a more active pursuit of macroeconomic adjustment. More specifically, the programme involved a reduction in public consumption, an increase in public investment, the speeding up of privatization, a reform of the tax system aiming to curb tax-evasion (involving a reduction in personal income tax and corporate tax rates as well as an increase in property taxes), new cuts in pension rights and an increase in social security contributions. In addition, because of the observed shortfall in public revenue and in view of the financial obligations of the government to its creditors, in August 1992 Mr. Manos decided on a high increase in indirect taxes on petrol and other goods of low income elasticity. In the monetary field, the programme involved the continuation of the policy of strong drachma, its future participation in the ERM, the abolition of the remaining obstacles in the field of capital movement, the discontinuation of monetary accommodation of public expenditure and the granting of a higher degree of political and economic independence to the BOG. All these were expected to lead to a better business climate and improve expectations of the private sector which, as a result of the rather hesitant economic policy followed between 1991-92, had started to doubt the credibility of the economic policy of New Democracy.

The measures mentioned above achieved some results: in 1992 the primary deficit fell to 0.6% of GDP and, in spite of a temporary increase caused by the measures taken in August, inflation declined to 15%. However, public debt rose to 99.2%, unemployment continued to rise and reached the level of 7.9%<sup>27</sup> and

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<sup>27</sup> Another important development in the labour market during the 1990s was the mass illegal immigration of foreign workers (mainly from Eastern European countries) to Greece. At present it is estimated that half a million illegal workers live in the country. Almost all of them are working in the agricultural and the construction sector. As a result, it has been argued (see OECD Survey for Greece, 1995-96) that their impact on unemployment must not be significant because they do not compete with Greek workers in the field of services and industry.

real gross capital formation stagnated. Like his predecessors in 1990-91 Mr. Manos was also unlucky as his stabilization effort coincided with the EMS crisis of 1992-93 which brought turmoil in the international financial markets and contributed to a deep recession in Europe. But in addition to the problems caused by external factors, the government of New Democracy was facing an internal crisis caused by disagreements related to foreign and economic policy and had also to face strong social reaction against its new stabilization programme which led to many strikes that disrupted production. The inter-governmental disagreements led to the resignation of the government and to the announcement of elections in October 1993. As in previous years, there was a pre-electoral expansion but not at the scale of previous elections. Nevertheless, the leading economic indicators did not improve according to the convergence plan. In 1993 real GDP stagnated, gross fixed capital formation declined (mainly due to a reduction in public investment) and the unemployment rate reached 8.6% of the labour force. On the other hand, the recession in the economy and the policy of strong drachma contributed to a further reduction in inflation which fell to 13.6%. However, the reduction in inflation would have been greater if monetary targets had been met. In spite of the fact that credit to the private sector was again tight, M3 grew at a rate above 15% compared with the target band of 9% to 12%. But the major set-back in 1993 was the overshooting of the target for the public budget deficit which was equal to 14.2% of GDP compared to an 8.6% target. The difference was mainly due to a large shortfall in budget revenues and to a smaller overrun in expenditure. Furthermore, public debt reached a new high record of 111.8% of GDP, leaving little room for a fast decline in interest rates.

#### **1.3.4.3. The Revised Convergence Programme 1994-99**

Despite its pre-electoral announcements against the austerity programme and the privatization process, the new PASOK administration which emerged from the 1993 elections was committed to continue the consolidation effort and lead Greece to EMU participation. As the fiscal overshoot of 1993 had invalidated the Convergence Programme 1993-98, the new government prepared the Revised Convergence Programme (RCP) for the period 1994-99. The target of the RCP

was explicitly defined to be the fulfillment of the Maastricht criteria by 1999 and the reconstruction of the Greek economy.

The RCP (see Appendix 1.1) acknowledged explicitly that the main obstacles for the stabilization and the development of the Greek economy are the fiscal imbalances and the outmoded nature of the infrastructure of the economy. As a result, its three main targets were set to be: (a) fiscal consolidation through an increase in public revenues and a reduction in public expenditure; (b) the improvement of the supply side of the economy through the realization of new private and public investment, largely financed from funds provided by the Delors Package II<sup>28</sup>, and the full or partial privatization of some state-owned enterprises; (c) lowering inflation, mainly through the continuation of the strong drachma policy<sup>29</sup> and modest rates of growth for M3.

Since 1994 the economy has shown some signs of improvement as Greece achieved increasing rates of growth for four consecutive years (1993-97). There has also been a recovery of private and public investment led by the EU transfers (mainly in the field of telecommunications, transportation, energy and human capital) from the Delors Package II<sup>30</sup>. Unemployment stopped increasing and has

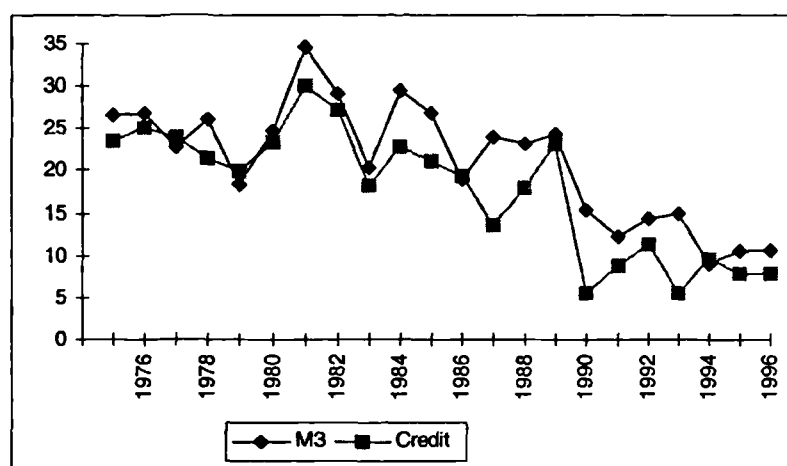
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<sup>28</sup> The Delors Package II allocated to Greece 14 billion ECU from the Structural Funds and 3.1 billion from the Cohesion Fund, a total of 17.1 billion ECU. The Second Community Support Framework provided for investment projects of total value 29.7 billion ECU to be financed by the above mentioned EU funds, the Greek State budget (7.1 billion ECU) and the private sector (8.6 billion ECU). All EU funds must be committed prior to 1999 and disbursed prior to 2001. For further discussion of the Delors Package II see chapters 3 and 4.

<sup>29</sup> The RCP (which was published in 1994) planned the accession of the drachma to the ERM in the middle of 1996.

<sup>30</sup> In 1995 40% of public investment projects was financed by funds from the Delors Package II. For a detailed exposition of the projects undertaken by the Second Community Support Framework see Alogoskoufis and Prodromidis (1995). Here, however, it should be stressed that serious delays have appeared with regard to the performance of Greek governments in absorbing EU funds allocated to Greece. In 1994 only 40% of the allocated funds were released. In 1995 the relevant figure was 60% with total disbursements over the two years being equal to 4 billion ECU. We will return to this point in chapters 3 and 4.

**Figure 1.6**  
**Money supply and credit growth (annual % change)**



*Data Source: Bank of Greece, Monthly Statistical Bulletin (various editions)*

now stabilized at around 10% of the labour force. There has also been a partial accomplishment of the fiscal consolidation targets (see Appendix 1.1)<sup>31</sup> which has been mainly achieved through a higher level of public revenue<sup>32</sup>.

In the monetary field, the policy of the BOG remained restrictive (see Figure 1.6) and the BOG largely met the targets it had set for the rate of growth of money supply. In addition, during the period 1993-97 the BOG continued the policy of the strong drachma, with even smaller rates of depreciation against the ECU (see Figure 1.7). The Greek Central Bank managed to avert a devaluation of the drachma on four occasions of exchange rate crisis, i.e. the one of May 1994, when all capital movements, including short-term ones, were fully liberalized<sup>33</sup>,

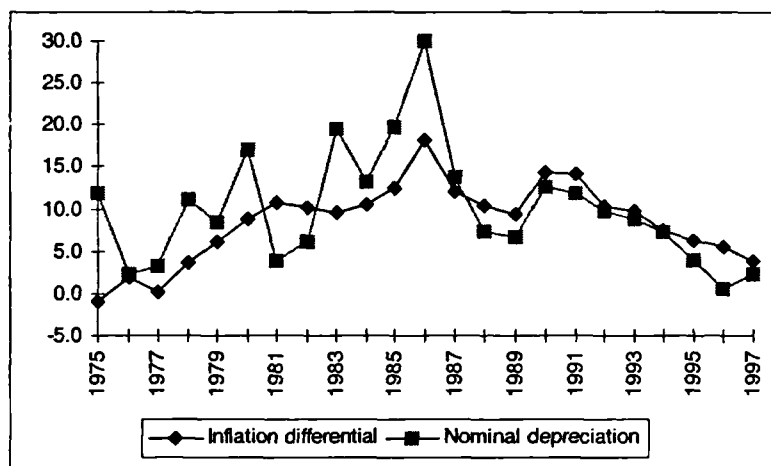
<sup>31</sup> There is some confusion with regard to the latest data for Greek fiscal indicators. Specifically, revised national accounting published in 1996 led to the detection of additional public revenue originating from social security contributions. As a result, the fiscal figures have been revised for the period 1992-95. According to the revised figures, in terms of percentage in GDP, the general government budget deficit for the relevant years have as presented in Appendix 1.1. The revision has an interesting effect: the revised figure for 1995 meets the target set by the RCP whereas the initial figure did not.

<sup>32</sup> During the period 1994-97 the authorities took a number of measures aiming to increase public revenue. Some of these measures are the following: an increase in property and corporate taxation; the introduction of the "objective criteria" taxation system, i.e. the definition of minimum tax payments for liberal professionals, self-employed businessmen and farmers; the introduction of taxation on interest payments on public bonds; and the introduction of taxation on the volume of transactions which place in the Athens Stock Exchange.

<sup>33</sup> Full liberalization of capital movements was expected to take place on the 1<sup>st</sup> of July 1994 but in order to beat the speculators the BOG proceeded to it earlier than planned, specifically on the 16<sup>th</sup> of May 1994. In order to defend the drachma against speculative attacks, the BOG resorted to significant rises in short-term interest rates. For further discussion of the policy of the BOG during the period May-June 1994, see Bank of Greece, Economic Bulletin No. 4, Nov. 1994, pp. 7-12.

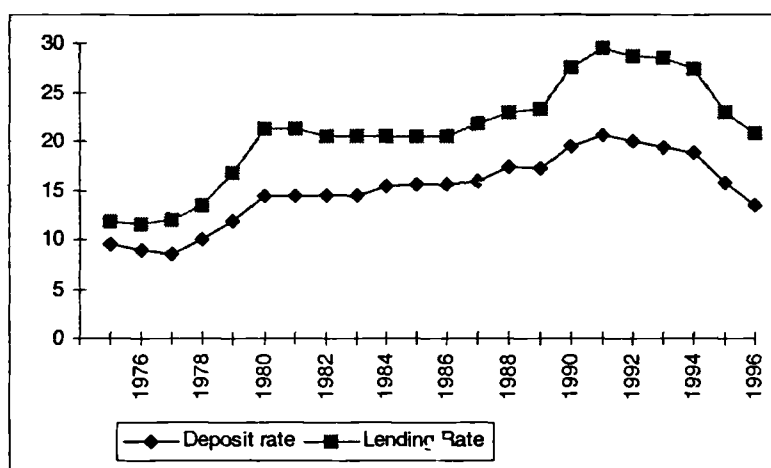


**Figure 1.7**  
**Inflation differential against the EU average**  
**and average annual nominal depreciation against the ECU**



Data Source: *European Economy No 64, Statistical Appendix.*

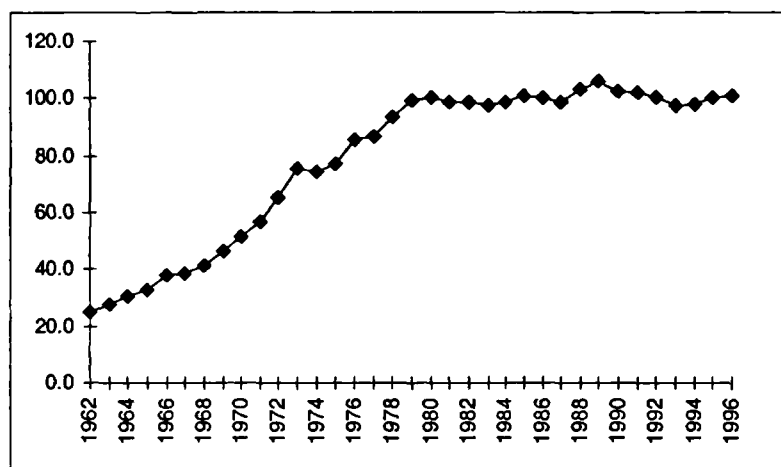
**Figure 1.8**  
**Average Nominal Interest Rates**



Data Source: *IMF International Financial Statistics, CD 09-97*

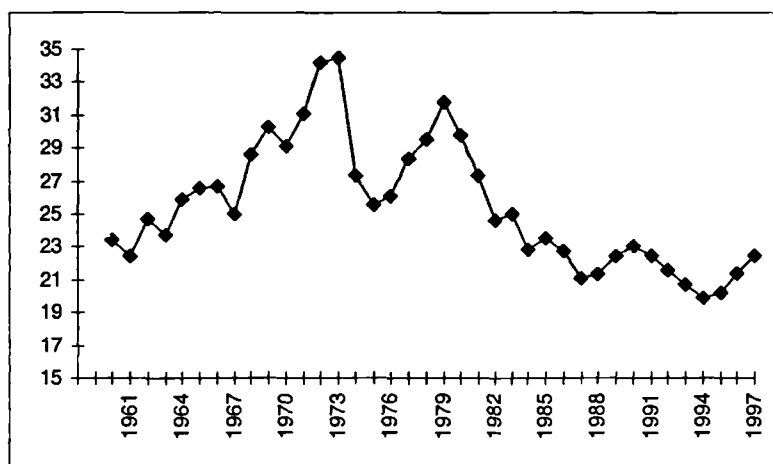
the European monetary upheavals of March 1995 and, more recently, in November 1997, the exchange rate crisis followed the Hong-Kong Stock Exchange crisis. By December 1997 inflation declined to 5.0% on an annual basis, the lowest level over a period of more than twenty years. The decline in inflation has also left room for a similar reduction in nominal interest rates (see Figure 1.8),

**Figure 1.9**  
**Industrial production (1980=100)**



*Data Source: Bank of Greece, Monthly Statistical Bulletin, various editions.*

**Figure 1.10**  
**Gross fixed capital formation (% of GDP)**



*Data Source: European Economy No. 64, Statistical Appendix*

a fact which has allowed the government to reduce its interest payments on public debt. The above mentioned developments have undoubtedly created a better business climate which is reflected in other fields of the Greek economy such as an increasing industrial production and a higher percentage of GDP dedicated to gross fixed capital formation (see Figures 1.9 and 1.10). Finally, one important development in the field of institutional environment was the completion of the harmonization of Greek Central Bank legislation with the provisions of the Maastricht Treaty. More specifically, on December 2, 1997 the Greek parliament voted (with overwhelming majority) the Central Bank Independence Bill (Law

No. 2548/97) which granted to the Bank of Greece full independence in the design and conduct of monetary policy.

However, in spite of the progress achieved, in 1994 and 1995 many targets set by the RCP were missed. This is due to the fact that in 1995 there was a significant overshooting of the targets in the field of inflation and a less pronounced overshooting in the field of public expenditure (See Appendix 1.1). Public debt continued to increase and in 1996 it was equal to 111% of GDP. In addition, after a very satisfactory performance in 1994, the current account experienced a remarkable deterioration in 1995 and 1996. The deficit was covered by capital inflows (mainly of short and medium term nature), largely explained by the interest rate differential between Greece and the rest of the EU. Finally, progress in the field of privatization was much below expectations. In view of the above, Greek authorities acknowledged as early as 1996<sup>34</sup> that the country would not be in position to meet the Maastricht criteria of nominal convergence in 1997 and, as a result, would not be among the first wave of EMU participants.

#### **1.3.4.4. The accession of the drachma to the ERM**

Given that the progress achieved by the RCP was not enough to secure an EMU position for Greece in 1999, the authorities decided to intensify the convergence effort and pursue EMU participation by 2001. To that end, after the exchange rate crisis of November 1997 the Greek government decided to take the following steps: (a) to apply for immediate ERM participation; (b) to update the RCP aiming at a more active reduction in public expenditure and the speeding of the planned structural adjustments.

As far as point (a) above is concerned, the drachma accession to the ERM was effected on 14 March 1998. The price of ERM admission was the discontinuation of the strong drachma policy, i.e. a 14% discrete devaluation of the drachma vis-à-vis the ECU. Greece formally adopted a  $\pm 15\%$  band of fluctuation against the central rate which was set to be 357 drachmas per ECU. With regard to point (b) above, the Greek government announced that the Updated

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<sup>34</sup> The 1997 public budget explicitly acknowledged that Greece would not be ready to join the EMU before 2001. On the other hand, in his annual report for 1995 the Governor of the BOG Mr. L. Papademos had stated that "under the assumption that the EMU will be introduced in 1999, the possibility that Greece will participate in the first group of participants seems not feasible" (Bank of Greece, Report of the Governor for 1995, p. 64).

Revised Convergence Programme<sup>35</sup> will aim at the meeting of the Maastricht criteria by 2001 and will introduce a package of drastic economic measures, including the following: (i) the full privatization of three or four state-owned banks and 11 other loss-making public sector enterprises; (ii) the streamlining of those state-owned enterprises, such as Olympic Airways, the Greek railway company OSE, the post-office service ELTA and urban transportation, which may be partially privatized but whose control will remain in the government's hands; (iii) the promotion of legislation aiming at a higher degree of labour market flexibility; (iv) the introduction of specific measures aiming at a reduction in public consumption; and (v) a strict incomes policy in the public sector of the economy providing for salary increases which will not exceed a 2.5% threshold over the next four years.

In the monetary field, the BOG announced that its ultimate objective is price stability, explicitly defined as an inflation rate equal to 2% by the end of 1999<sup>36</sup>. One interesting characteristic of the 1998 Monetary Programme is that for the first time after 1976 there is no formal target for the rate of growth of M3, M4, credit or any other monetary aggregate<sup>37</sup>. In order to achieve the 2% inflation objective by 1999, the BOG announced that the main target of monetary policy for the next three years (1998-2000) remains the maintenance of exchange rate stability against the post-devaluation central rate against the ECU (and the euro after 1/1/1999). More specifically, despite the fact that the allowed band of fluctuation against the drachma/ECU central rate is  $\pm 15\%$ , the BOG announced a  $\pm 2.5\%$  target for the average annual rate of fluctuation. The main instrument to be used for the meeting of this target will be short-term interest rates. Making use of its newly acquired independence in choosing the targets and instruments of monetary policy, the BOG has already announced that it will not hesitate to

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<sup>35</sup> At the time of the writing of this section, the Updated Revised Convergence Programme had not been published.

<sup>36</sup> See Bank of Greece, Monetary Programme for 1998, presented to the Greek Parliament on 28/4/98.

<sup>37</sup> However, the Programme acknowledges that the movements of these aggregates provide useful information regarding the future movements of inflation. Therefore, the BOG will continue to monitor their growth. As a result, the BOG announced indicative (but not committing) forecasts regarding the rates of growth of M3 (6%-9%) and total credit (4%-6%).

increase interest rates if fiscal and incomes policy developments are inconsistent with the Bank's ultimate objective.

#### **1.4. The process of financial liberalization and the new monetary environment.**

##### **1.4.1. The process of financial liberalization**

The process of financial liberalization was initiated in 1987, immediately after the publication of the Report of the *Karatzas Committee*<sup>38</sup>. The starting point was the abolition of the administratively set maximum lending rates which led to a gradual liberalization of all interest rates. Interest rate deregulation was completed in May 1993 when the last remaining controls on interest rates of saving deposits were abolished. At the same time (May 1993) the obligation on commercial banks to provide loans to small-size firms and invest in public bonds was eliminated. This was accompanied by the elimination of all sorts of interest rate subsidization. Consumer credit which was almost non-existent up to 1992 was largely liberalized during that year. The lifting of foreign exchange controls which was initiated in 1989<sup>39</sup> was completed in May 1994. Also, in 1992 a forward market for foreign exchange was created.

After 1990 and according to the EU banking directives, Greek banking legislation has become less rigid and, as a result, a considerable number of private and foreign banks and institutions have entered the market<sup>40</sup>. The banking law of August 1992 abolished the distinction between commercial banks and SCIs, allowing each side to undertake activities and offer services which were hitherto exclusively assigned to the other side. This has led to impressive progress in

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<sup>38</sup> For a detailed survey of the Greek financial markets and a chronology of the financial deregulation in Greece see OECD Survey of Greece, 1995 Part III. Also, for an overview and an assessment of the process of financial liberalization in Greece see Provopoulos (1995). Finally, for a brief exposition of the same process see Ericsson and Sharma (1996), Sections I and II.

<sup>39</sup> In 1989 the authorities relaxed some restrictions imposed on commercial banks with regard to the amount of foreign exchange they were allowed to provide to their customers. By July 1992 all restrictions referring to current transactions had been abolished. In 1993 the BOG abolished all restrictions pertaining to long and medium-term capital movements.

<sup>40</sup> In 1980 the share of the state-owned banks in total lending and deposits was equal to 92.5% and 87.2% respectively. In 1993 the relative figures were 82.5% and 79%. Also, in 1985 there were three mutual funds whereas in 1994 there were ninety with their assets rising from negligible levels in the late 1980s to 1% of GDP in 1990 and 6% in 1994.

eliminating the market segmentation which existed prior to 1992<sup>41</sup>. In 1993 the 3% tax on bank loan contracts was eliminated and in 1994 the 8% tax on bank turnover was reduced. In addition, the BOG has initiated a gradual process of eliminating the obligation of the commercial banks to re-deposit their foreign currency deposits with the BOG<sup>42</sup>. In the field of banking supervision, new legislation compatible with EU regulations was introduced and in 1993 the BOG (which is responsible for the healthy operation of the banking system) introduced new procedures of banking control.

In an effort to facilitate and expand the ability of the BOG to proceed to money market interventions, in September 1993 the public debt securities held by commercial banks were converted into marketable assets and their trade between the BOG and credit institutions (with or without a repurchase agreement) was permitted. In the secondary market, the bulk of transactions is at present represented by trade in bonds among banks, mutual funds, insurance companies and financial institutions. It is expected however that in the future individual customers will increase their participation because they will be able to hold bond accounts with the banks. Another development, which is also expected to promote the efficiency of the secondary market, is the fact that in 1995 government securities were dematerialized and an electronic book-entry bond trading system operated by the BOG was introduced. Furthermore, in 1994 the BOG introduced the Athibor and Athibid interest rates for the interbank market for transactions of duration of one, two, three and six months. These rates represent the average offered and bid rates of 13 major participants in the money market. The BOG does not participate directly in the daily determination of these two rates which are

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<sup>41</sup> For example, mortgage banks now have the right to open current deposit accounts and the Agricultural Bank of Greece is no longer restricted to agricultural loans. Investment and development banks have acquired the right to accept drachma deposits and grant loans for working capital, issue credit cards and foreign exchange loans. The same banking Law obliged banks to stop accruing interest on loans that have not been serviced for a period greater than 12 months and obliged them to stop granting new loans in order to repay overdue interest. Finally, it abolished the right of the Finance Minister to vote in the shareholders' meeting of the state-owned commercial banks as a representative of public entities. This has reduced, at least in theory, the control of the government over these banks.

<sup>42</sup> In April 1995 this requirement was reduced to 70% of foreign currency deposits. The released funds are estimated between 650 and 700 billion drachmas and were largely used in order to provide loans in foreign currency to small and medium size firms which were not able to borrow from international capital markets.

considered very important for the stability and reliability of the Greek money market and the development of securities market.

Finally, in 1988 a strong effort aiming to modernize the Athens Stock Exchange (ASE) was launched. To that end, in 1992 the Capital Market Committee was upgraded and was given responsibility for supervision of the proper operation of the securities market<sup>43</sup>. However, despite the considerable progress which was achieved both in terms of participating companies as well as in the field of legislation and operation, until very recently the ASE was classified as an emerging market as it was (and still remains) a relatively thin market<sup>44</sup>. The fact that the ASE had still a long way to go in order to be comparable with other stock exchanges was clearly shown during the crisis of November 1996<sup>45</sup> and, more recently, the crisis of November 1997 which followed the Hong Kong Stock Exchange crisis and resulted to a substantial reduction in the level of the ASE general index<sup>46</sup>.

However, a new situation seems to be emerging since the accession of the drachma in the ERM in March 1998. The first weeks which followed ERM participation saw a substantial increase in the volume of transactions which is mainly attributed to the increased interest of foreign investors in the Greek capital market and has resulted to a dramatic increase in the level of the ASE general index<sup>47</sup>. Although it is still early to draw any conclusions, many financial analysts have claimed that this increase has marked the beginning of a new era for the Greek Stock Exchange.

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<sup>43</sup> The CMC is responsible for the licensing and supervision of brokerage firms, mutual funds and portfolio investment companies, the approval of initial public offerings of companies in the ASE including overseeing their operation and the authorization of new financial products.

<sup>44</sup> In December 1996 the ASE was capitalized at 24 billion USD and had 232 listed companies.

<sup>45</sup> In November 1996, as a result of a share-trading scandal, the bourse was shut for three days and authorities hired three international accounting firms to carry out emergency audits of all 65 Greek brokerage houses. The scandal burst when it was revealed that leading Greek brokerage houses, including several controlled by state-owned banks, had manipulated the price of the shares of some companies in an effort to boost their commission income. It followed a dispute over registering shares of construction companies bidding for large public works contracts and the cancellation of a casino license awarded to a consortium of listed Greek companies following allegations of bribes to government officials.

<sup>46</sup> During the first two weeks of November 1997 the General Index of the Athens Stock Exchange lost approximately 20% of its nominal value: from approximately 1750 units in the end of October 1997 it went down to approximately 1350 units in mid-November 1997.

<sup>47</sup> On 29/1/98 the index was at the level of 1380 units whereas on 4/5/98 it was up to 2621 units. This represents a yield of 90% over a period of three months.

### 1.4.2. Monetary policy in the new financial environment

The macroeconomic imbalances created in the 1980s and the process of financial liberalization presented above have now created a completely new framework for the conduct of monetary policy. To begin with, in line with the spirit of the convergence programmes of the 1990s, the BOG gradually abandoned all other objectives and focused on the pursuit of price stability. Here the role of the Maastricht Treaty has to be emphasized: according to the provisions of the Treaty, since the 1<sup>st</sup> of January 1994 the BOG is no longer allowed to finance the borrowing requirements of the public sector and, as a result, meeting the financial needs of the latter is not one of its objectives. In addition, according to the Banking Law of August 1992, the government is entitled to no more than 5% of the budgeted increase in expenditure in the form of BOG advances. Following this gradual abolition of the privileged access of the state to the credit market, the Greek authorities are now obliged to resort to the bond markets in order to fund the public deficit<sup>48</sup>.

As was shown above, since 1988 (the year that the strong drachma policy was introduced) the BOG has been pursuing two intermediate targets, namely the rate of growth of broad money supply M3 and M4<sup>49</sup> as well as the rate of nominal depreciation of the drachma against the ECU. However, an explicit quantitative target for the rate of depreciation of the drachma against the ECU was announced for the first time in 1995. Over the last years it has been increasingly evident (and recently officially acknowledged) that the BOG has been attaching an increasing weight to the exchange rate target which has now become the main intermediate target pursued by monetary policy.

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<sup>48</sup>At present, the Greek government issues three kinds of securities: (a) Treasury bills (b) Floating-rate bonds with maturity of three, five and seven years. In addition, the issue of bonds with maturity of ten years is considered imminent. (c) Bonds denominated in foreign currencies (US Dollars, DM, yen and sterling). The Greek Treasury is now trying to change the composition of public debt, aiming to substitute short-term treasury bills by longer-term fixed rate issues. In 1995-96 significant progress was achieved in this field. It is also attempted to substitute foreign debt by drachma denominated issues and, finally, to eliminate completely bonds denominated in foreign currencies. Towards that end, in 1994 the treasury introduced the so called Marathon bonds which are fixed rate bonds with maturity of three, four and five years. The attractive rate of return of these bonds, combined with their exemption from taxation, has made them very popular among international investors. Finally, in 1995 70% of the funds lent to the government were provided by the non-bank private sector, 20% from foreign investors and only 10% from the banking system.

<sup>49</sup> An official target for the rate of growth of M4 was announced for the first time in 1995.



As far as the instruments of monetary policy are concerned, most of the traditional ones have now been abolished: all capital, foreign exchange and credit controls have been eliminated. In addition, the obligation on the commercial banks to invest in public bonds and provide loans to small-size firms has gradually vanished (see above). In the new financial environment created after the deregulation of the system, the meeting of the intermediate targets of monetary policy required new means of exercising monetary policy. The BOG responded to the newly formed conditions by introducing new credit facilities and manipulating a number of offered and bid interest rates (some traditional, some newly introduced). Basically, one could say that over the last years the BOG has basically been trying to manage the liquidity of the economy mainly by means of short-term money market operations in the interbank money market.

More specifically, the BOG intervenes on a daily basis in the interbank money market, by lending funds or accepting deposits, with the aim of controlling the economy's liquidity by means of influencing the interbank overnight interest rate. Also, as from November 1994, the BOG intervenes on a weekly basis in the one-month interbank market. Within the context of the strong drachma policy, typically the BOG interventions aimed at absorbing liquidity (accepting funds) but there have been cases when its intervention aimed at injecting liquidity (lending funds). The overnight and one-month intervention bid rates of the BOG are the main determinants of the rates prevailing in the interbank money market (overnight and one-month interbank rates) and at present, they are regarded as the most important instrument used by monetary policy. They are also considered as the most credible indicator as far as the intentions of the BOG with regard to the direction of monetary policy are concerned. They are also one of the most flexible instruments of monetary policy and in the past they have been used in order to deal with difficult situations. For example, the BOG increased dramatically its overnight bid rate in order to avert a depreciation of the drachma during the two EMS crisis in 1992 and 1993, during the exchange rate upheaval which followed the lifting of the short-term capital controls in May 1994 and during the recent crisis in November 1997.

Another instrument of monetary policy which has been increasingly employed by the BOG over the last years is the performance of open market operations, taking place by means of auctions in the form of repurchasing agreements (repos) of government securities. These open market operations, which in contrast to the interventions in the interbank money market, influence the liquidity of the system in an indirect way, were established in 1989 but have been extensively used since mid-1995. At present, there are two types of auctions: first, the one which takes place every other Wednesday when the BOG conducts an auction in the form of repos whose maturity is a two-week period. Second, the one which takes place every Friday when the BOG conducts an auction in the form of repos whose maturity is a period of one month. This instrument of monetary policy (repos) has a number of advantages over other instruments<sup>50</sup> and it is expected that as the secondary market for bonds and public securities will be further developed, its significance will increase.

In addition to the above instruments, in the 1990s the BOG has also used three credit facilities and their respective interest rates in order to meet the temporary financial needs of commercial banks. First, the Lombard facility: in June 1993 the BOG allowed credit institutions to borrow funds against collateral of government securities. This facility was introduced in order to allow credit institutions access to liquidity in periods of unexpected money demand caused by unpredictable circumstances. The rationale behind its introduction was to avert a significant increase in interest rates in unexpected circumstances. The Lombard rate aims to provide a ceiling to the interest rates prevailing in the interbank money market (provided that the ability of the BOG to lend funds on a short-term basis has not been exhausted). However, as there is still a quota for the amount of funds which commercial banks can absorb from this facility, it has not operated yet as such (except during the exchange rate upheaval of May-June 1994). As the

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<sup>50</sup> First, transactions are reversed at a predetermined date and as a result they do not affect the liquidity of the system in a permanent way; second, repos constitute a very flexible method of intervention as operations are concluded rapidly (in 2-3 hours); third, a high degree of safety is ensured because transactions are covered by government securities and the amount of financing is restricted by the volume of available securities; fourth, they safeguard the transparency of the system as the rules of the auction are known beforehand; fourth, the BOG is in position to obtain information relating to market expectations about interest rates, not only from the average interest rates but also from the range of bids (see Filippides, Kyriakopoulos, Moschos, 1995)

Lombard facility is activated on the initiative of commercial banks, it is not considered a flexible instrument of monetary policy. However, its signaling role should not be underestimated.

Second, the discount facility: in June 1993 the BOG reactivated the discount service it used to offer to commercial banks, i.e. it allowed credit institutions to absorb funds by discounting their customers' bills of exchange and promissory notes<sup>51</sup>. In practice however, commercial banks have not made extensive use of the discount facility as the volume of bills and notes presented to banks for discounting by their customers is rather small due to the practical difficulties existing in their monitoring and their higher cost in comparison with other methods of financing<sup>52</sup>. Also, the discount facility, like the Lombard one, is activated on the initiative of commercial banks, therefore it is not considered a flexible instrument of monetary policy. As a result, the role of the discount rate is rather signaling.

Third, the overdraft facility: The BOG offers to the credit institutions an overdraft facility and charges for this facility an overdraft penalty rate. The overdraft rate is currently the upper limit of the money market and, as such, it operates as a counter-motive for excessive credit creation.

Other instruments which have been used in the 1990s, mainly with an aim of absorbing liquidity, are the increase in reserve requirements<sup>53</sup> and intervention in the spot market of foreign exchange where, in the context of the strong drachma policy, the BOG typically sells foreign currencies and buys drachmas. Also, on some occasions and on an as-needed basis, the BOG has used one-month drachma-dollar swaps in order to inject liquidity. But, overall, when it comes to draining or supplying liquidity, one could say that the most extensively used instrument of monetary policy the BOG currently uses is intervention in the

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<sup>51</sup> While the discount facility had existed earlier, it had not been used extensively and the total amount that banks could absorb through it was limited.

<sup>52</sup> It should be noted, however, that promissory bills and bills of exchange are extensively used by private agents as collateral for receiving credit facilities from commercial banks.

<sup>53</sup> Over the period 1985-97 the reserve requirement ratio has taken values between 6% and 11%. As far as the last three years are concerned, in an effort to control liquidity and avoid inflationary pressures, in July 1996 the BOG imposed an 11% reserve requirement on existing non-resident liabilities and increased the commercial banks' reserve requirements from 9% to 11%. Reserve requirement increases had also taken place on August and October 1995.

overnight interbank money market and, to a lesser extent, intervention in the spot market of foreign exchange.

### **1.5. Summary**

This chapter has examined Greek macroeconomic policy and performance over the last four decades, placing emphasis on the post-1980 period. Between 1960 and 1980 Greece managed to achieve high growth rates, low inflation and declining unemployment. The opposite phenomena are observed since 1981. The course of economic policy has also followed different directions over the years. There are also significant differences in the field of institutions and legislation which are closely connected with the developments in the political life of the country.

Greek governments have repeatedly attempted to correct the macroeconomic imbalances which appeared after 1974 by means of five stabilization/convergence programmes, two in the 1980s and three in the 1990s. The latter, and in particular the Revised Convergence Programme 1994-1999, pursued a reduction in inflation by means of the strong drachma policy, a correction of the fiscal imbalances mainly through an increase in public receipts, and the restructuring of the supply side of the economy through the realization of public investment (largely financed by the sizable EU transfers) and the passing of legislation aiming to reduce distortions in the goods, labour and credit markets. However, despite the progress which it achieved, the RCP did not secure a place for Greece in the first wave of EMU participants. The strong drachma policy was discontinued in March 1998 after the accession of the drachma in the ERM which was accompanied by a 14% devaluation against the ECU. The convergence effort will now be continued within the framework of the Updated Revised Convergence Programme (URCP) with an aim to achieve EMU participation by 2001.

## CHAPTER 2

### Greek macroeconomic policies, 1960-97:

### theoretical background and econometric methodology

#### 2.1 Introduction

The main message emerging from chapter 1 was that after 1974, and especially in the 1980s, Greece experienced a significant deterioration of her macroeconomic performance. The obvious question which arises is the following:

*Why did Greece, the best-performing European economy during the 1960-73 period, achieved less satisfactory performance thereafter?*

In this chapter and the one which follows we attempt to provide some answers.

To begin with, it would appear that in order to identify the causes of the negative metamorphosis observed during the last twenty years one should consider four important developments that took place after 1975: (a) the world-wide economic slow-down which followed the two oil shocks; (b) the post-1975 reorientation of Greek macroeconomic policy towards fiscal expansion; (c) developments in the political life of Greece: since 1974 Greece has become a full democracy whose economy is subject to the previously milder or non-existent influence of democratic politics over the economy; (d) the accession of Greece to the EU.

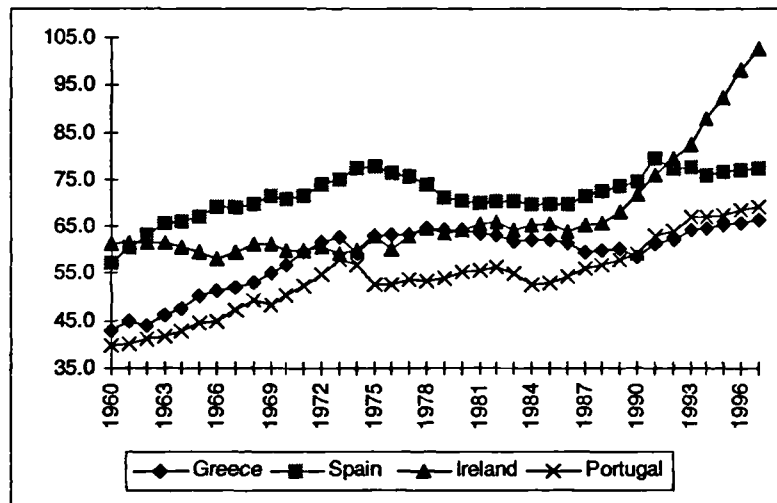
Regarding point (a) above, there is little doubt that the external economic environment influences Greek economic performance: Greece is a small, open economy which does not have the power to offset fully adverse external shocks. From that point of view, a reduction in the economy's rate of growth after 1973 should not be surprising<sup>1</sup>. Based on this indisputable fact, some economists (e.g. Katseli, 1990 and Giannitsis, 1988, 1993) have argued that the post-1975 international slowdown, combined with increased international competition and the accession of the country to the European Union (EU), have been the primary

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<sup>1</sup> Darwick and Nguyen (1989) argue that economic gaps between countries tend to increase during periods of recession and decrease during periods of international prosperity. The fact that Greek GDP is strongly correlated with economic performance abroad has also been suggested by Christodoulakis, Dimelis and Kollintzas (1995).

Figure 2.1

Per-capita GDP as % of EU average (PPS, EU15=100)



Source: *European Economy No 64, Statistical Appendix.*

reason for the economic stagnation observed after 1980. More specifically, these economists argued that Greek post-war economic development was based on strong protectionism against imports and a high degree of state intervention in all fields of the economy. These conditions resulted in a distortion of the forces of competition and isolated domestic producers from international developments. In the new, competitive environment which was created after the accession of Greece to the EU, the highly protected Greek economy, and in particular its industrial sector, had neither the means nor the ability to compete efficiently in the home and international markets. All these led to an increase in imports, to de-industrialization and to the destabilization of the development process.

Few people would deny that there is truth in these arguments. However, there are a number of reasons which render them rather unconvincing as a *full* explanation of the post-1980 deceleration of the growth process. *First*, the recession in Greece lasted much longer than the recession in Europe. *Second*, there are cases such as Cyprus, Portugal, Spain and Ireland whose economies present a number of similarities with the Greek one but, in contrast to Greece, managed to achieve very satisfactory growth rates during the 1980s and the early 1990s<sup>2</sup> (see Figure 2.1). *Finally*, it is not correct to say that EU participation abolished

<sup>2</sup> For a discussion of the convergence process in Spain, Portugal and Greece during the 1980s see Larre and Torres (1991).

completely state protection in favour of domestic firms as Greece secured a long transition period extending up to 1989<sup>3</sup>.

Therefore, it seems that the causes of stagnation should also be sought within the country and not in external factors only. In the following chapter we assess some of the economic policies followed by consecutive Greek governments based on the theoretical background and econometric methodology presented here. More specifically, section 2.2 presents a brief overview of the literature on economic growth, fiscal policy, the theory of intermediate monetary targets and the influence of politics over the economy. Section 2.3 presents the econometric methodology which is used in our empirical analysis. In chapter 3 we discuss aspects of the Greek macroeconomic policy within the framework of four sub-periods, namely 1960-73, 1975-80, 1981-90 and 1991-96. Due to space limitations, emphasis is placed on the last two sub-periods where we pay particular attention to the post-1975 fiscal expansion, the convergence programmes applied by the Greek governments in the 1990s and the strong-drachma policy.

## **2.2. Theoretical background**

### **2.2.1. Economic growth**

Growth theory is one of the most prominent areas in the science of economics, further enriched by numerous empirical studies. Space limitations do not allow a thorough review of the existing literature; in any case, the analysis which follows in chapter 3 does not fall directly in its context<sup>4</sup>. However, highlighting its main points could provide us with useful insights in order to assess the wider impact the Greek macroeconomic policies which we discuss.

The benchmark model of economic growth is often attributed to Solow (1956) who postulated an aggregate production function where total output depends on capital, labour and total factor productivity. The latter accounts for

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<sup>3</sup> OECD (1993) argue that in 1980 the rate of protection for manufacturing goods in Greece (consisting of tariffs, quotas etc.) was between 20 and 25% of their value. In 1987, the corresponding figure was around 15% and subsidies to exports 16%. It should also be kept in mind that in the 1980s the Greek governments continued to provide support to domestic producers in the form of various investment incentives which reduced production costs. For further discussion on this point, see chapter 5.

<sup>4</sup> For an excellent exposition of the literature, see Barro and Sala-i-Martin (1995).

technological progress which is taken as an exogenous variable. Solow assumed constant returns to scale and diminishing capital and labour marginal productivity. His main results are the following (a) in the steady-state equilibrium, the rate of growth of total output is a function of the rate of growth of labour and the rate of growth of total factor productivity; (b) the rate of growth of per-capita income is a function of the rate of growth of total factor productivity only. In the steady-state equilibrium of this prototype model of *neoclassical (exogenous) growth theory*, an increase in the savings rate of the economy *does not* cause an increase in total output growth or per-capita output growth. However, it does lead to an increase in the steady-state *level* of per-capita output and capital. Furthermore, during the transition from the old steady-state to the new one, an increase in the savings rate causes a *temporary* increase in the rate of growth of per-capita output.

The results provided by the Solow model have two important implications. First, countries with access to the same production function, identical population growth, saving and capital depreciation rates end with identical growth rates and identical steady-state per-capita income levels. Second, and perhaps more interesting, in the face of diminishing marginal capital productivity, differences among the rates of growth of total output of different countries are bound to vanish. The intuition behind this proposition, which is often quoted in the literature as the *convergence hypothesis* (see e.g. Mankiw, 1995), is that as capital stock is accumulated, profitability of investment in developed countries declines. Agents start investing in less developed countries where the marginal product of capital is higher. They continue to do so as long as a difference exists. Thus, less developed countries accumulate more capital and, through new investment, acquire the same production function with advanced economies. Hence, they achieve temporarily (i.e. during the catch-up process), a higher rate of growth than the latter group. This process leads to equalization of profitability rates and eventually, equalization of growth rates.

However, the above mentioned optimistic views have not been fully confirmed in reality. Historic experience (see e.g. De Long 1988, Summers and Heston 1991, Levine and Renelt 1992) provides mixed evidence. During the past decades, some countries with an initial low level of per-capita income displayed



impressive economic growth (e.g. the countries of South-Eastern Asia) whereas some others are almost as poor as they were fifty years ago (e.g. some African countries). In addition, neither a general reduction in the growth rate of the developed countries nor an equalization of real interest rates (as implied by the equalization of the marginal productivity of capital) have taken place. On the other hand, countries seem to converge to steady states which are conditional on their share of investment in total output. In this context, economists have highlighted the fact that those countries among which growth and income convergence is observed, dedicate a higher proportion of income to investment purposes than the less developed ones. This observation, which is often quoted in the literature as *conditional (adjusted) convergence*, prompted economists to explore new avenues in the theory of economic growth.

More specifically, the 1980s and the 1990s saw the development of the new, *endogenous growth theory*, pioneered by the seminal contributions of Romer (1986) and Lucas (1988)<sup>5</sup>. The central idea in these models is that convergence should not be expected to take place automatically as the rate of growth of per-capita income may not be exogenous. For example, the rate of growth of total factor productivity (i.e. technological progress) may depend on investment on research and development, as it is the case in the models by Grossman and Helpman (1991), Romer (1990) and Aghion and Howitt (1992). Furthermore, there may be production factors which are less mobile than physical capital and enter the aggregate production function with constant or even increasing returns to scale. Such production factors include human capital, as in the models by Mankiw *et al* (1992), Azariadis and Drazen (1990), Becker *et al* (1990), Rebelo (1991); or knowledge, as in the model by Romer (1986). Other factors which may give rise to increasing returns to scale include “learning-by-doing” effects, positive spillovers and externalities (see Lucas, 1988). In these models, the aggregate production function presents increasing rather than constant returns to scale and the steady-state growth rate of the economy is affected by the rate at which the factors of production responsible for them are accumulated. Hence, growth turns out to depend on the savings rate of the economy, therefore countries which save

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<sup>5</sup> For an excellent collection of essays on endogenous economic growth, see the papers by Romer; Grossman and Helpman; Solow; and Pack in *Journal of Economic Perspectives* 8, 1992.

(and invest) more are more likely to achieve a permanently higher rate of growth than those who invest less.

Therefore, both the exogenous and the new endogenous growth theory accept that the role of national savings and investment in the process of economic growth (either in terms of income levels or growth rates) is vital, therefore as long as different investment rates are observed, differences in growth rates and per-capita incomes can persist. A number of empirical studies offer further support to this view. For example, investment in physical equipment seems to be positively correlated with growth (see De Long and Summers, 1991). Similar evidence has been provided in relation to the role of spending on human capital (see Barro 1991) and public infrastructure (see Aschauer, 1989). The question which then arises, is what economic policy can do in order to promote such spending. The answer is by no means simple. However, a number of researchers (see e.g. Feldstein 1986, Mankiw 1995) tend to agree that investment spending and economic growth is positively related to a number of factors including<sup>6</sup>: the efficiency of the banking system and the level of development of the financial market system. An ineffective banking system may keep the difference between the borrowing and lending interest rate at high levels and increase the cost of capital (see Gersovitz 1988, King and Levine, 1993b, Japelli and Pagano, 1994)<sup>7</sup>; markets distortions (see Easterly, 1993); and distortionary taxation and suppression of the forces of competition (see Levin and Renelt 1992, Young 1992). Last, but not least, there exists empirical evidence (see e.g. Fisher, 1993) which indicates that economic growth is negatively correlated with a high level of inflation, large budget deficits and distorted exchange rates. For their part, Alesina (1989), Barro (1991) Grilli *et al* (1991) provide empirical evidence suggesting that high inflation and large budget deficits are associated with political instability (i.e. the influence of politics over the economy) which causes economic uncertainty (see section 2.2.4).

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<sup>6</sup> For an interesting empirical study on the role of a number of the factors mentioned below in explaining economic growth, see Barro and Sala-i-Martin 1995, chapter 12.

<sup>7</sup> See however Arestis and Demetriades (1997) who argue that causality may run from economic development to financial development and not the other way round.

## 2.2.2. Monetary policy: the “time-inconsistency” problem and the theory of intermediate targets

### 2.2.2.1. The case for intermediate targets

For many years prior to 1973, monetary policy in industrialized countries was formulated with a substantial amount of judgmental discretion and, as in Greece, pursued a number of objectives, including full employment, price stability and a fair distribution of income<sup>8</sup> (see Crockett, 1994). The underlying perception was that there exists a trade-off between price stability and economic growth which governments can exploit according to the revealed preferences of their constituencies as suggested by Phillips (1958). However, the world-wide stagflation which followed the two oil shocks, together with the rational expectations revolution, put this view in question and prompted the development of a vast literature on the potential and limitations of monetary policy. In this context, the vast majority of researchers have endorsed the following views (see e.g. Goodhart, 1995):

(a) Although in the short-run output fluctuations may be stabilized at the cost of a higher inflation rate, the long-run Phillips curve is vertical, corresponding to a vertical long-run aggregate supply curve. As Roll *et al* (1993, p.8) argue, “at best, monetary policy can affect output and jobs only in the short-run. In the long-run, it affects only inflation”. Therefore, sustained high inflation rates are essentially a monetary phenomenon, caused by excessive creation of money, and long-run unemployment is not a problem created by reduced aggregate demand alone as the traditional Keynesian analysis implied. It also has to do with rigidities in the labour market, the power of the unions to preserve high real wages for “insiders” even in periods of recession, the expectations formed by the private sector, the levels of productivity and profitability, the cost of layoffs and the costs of social insurance (see Lindbeck and Snower, 1988).

(b) Inflation involves real economic costs. In addition to the standard “shoe-leather” and “menu” costs of rising prices and their effect on the distribution of income (see Romer, 1996), much more importantly, inflation is thought to generate “uncertainty as to how far it will go, how long it will last and

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<sup>8</sup> However, it can be argued that the exchange rate obligations implied by participation in the Bretton Woods system acted as an important constraint on monetary policy.

what action will ultimately be needed to bring it under control. That uncertainty distorts savings and investment decisions, which tend to place excessive weight on the short-term; and it obscures the relative price signals that are necessary to efficient resource allocation. So, it damages long-run economic performance” (see Bank of England, 1996 p. 1). Recent empirical evidence (see e.g. Fisher, 1993) provides further support to this view.

(c) Monetary policy, if conducted in a discretionary way, may be subject to an inflation bias. As a result, it may lack credibility<sup>9</sup>, as agents fully anticipate the temptation of monetary authorities to exploit the short-run output-inflation trade-off and adjust their expectations accordingly (see Barro and Gordon, 1983)<sup>10</sup>.

Based on these grounds, it became increasingly acknowledged that monetary policy should focus primarily, if not exclusively, on preserving conditions of price stability. The questions which subsequently arise are the following: first, what is meant by the term price stability ? and second, what is the best strategy to achieve it ? With regard to the first question, perhaps surprisingly, there is no precise answer as it is not quite clear whether price stability conditions should imply a zero rate of inflation or a small, positive one. There are arguments in favour of both opinions<sup>11</sup>. As far as the second question is concerned, many

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<sup>9</sup> However, this is not a view shared by all economists. See our analysis in chapter 4 on the views expressed by McCallum (1995, 1997).

<sup>10</sup> In the model developed by Barro and Gordon both inflation and unemployment enter the loss function of the government. The private sector and the labour unions (who move first) form their inflation expectations according to the fundamentals of the economy and set their wage contracts accordingly. If the government follows a policy resulting in an inflation rate consistent with the fundamentals, unemployment will not fall. However, if they follow a policy resulting to a higher price level, real wages will temporarily decline because wage contracts do not change instantly. Thus, real production cost falls and employment increases. Therefore in terms of output, only unexpected inflation makes a difference. Consequently, the government has an incentive to “cheat” by announcing one policy and following another. But the following period new contracts will be set according to the new price level and production costs will rise again. Unemployment will increase unless a new unexpected increase in prices takes place. Eventually, the economy ends up with a higher level of inflation and the same level of unemployment. Here the issue of credibility of economic policy enters the picture. Governments cannot “cheat” indefinitely. If they do so once, the private sector will not believe its announcements any more. Therefore, governments which have acquired a non-credible reputation in the past face difficulties in applying their preferred policies.

<sup>11</sup> For example, Roll *et al* (1993, p.5 ), argue that “it is hard to sustain confidence for any length of time in the permanence of any particular target other than zero inflation. The pursuit of moderate inflation easily becomes the pursuit of rising inflation”. On the other hand, in addition to the standard argument that seignorage/inflation tax revenue may be useful to reduce fiscal imbalances (see section 2.2.3 below), it has been argued that official statistics tend to overestimate the actual rate of inflation by 0.5 to 2 percentage points (see Moulton 1996). This is due to a substitution bias in the fixed-weight index, “new goods” bias and failure to account adequately for quality

researchers, based on the seminal paper by Kydland and Prescott (1977) on *rules versus discretion and the time-inconsistency of optimal plans*, adopted the view that the inflation bias inherent in monetary policy could be eliminated by means of introducing a *nominal anchor*, i.e. a pre-commitment technology aiming to guarantee a disciplined monetary policy. Despite limiting flexibility in the conduct of monetary policy, i.e. the ability of authorities to cope with unexpected output disturbances, such pre-commitment may entail significant economic benefits. More specifically, it has been argued that the Central Bank, by communicating its intentions to the general public and by adhering to the targets set, may reduce uncertainty with regards to the future course of monetary policy, stabilize inflation expectations, and, through them, reduce actual inflation (see King, 1997).

If the above is true, the next question to be addressed is what is the best form of pre-commitment. In the 1970s and the 1980s a number of countries announced value or range targets for the level or rate of growth of *intermediate monetary variables*. Monetary policy in such a framework is conducted in two steps: firstly, an intermediate variable (e.g. a monetary aggregate or the level of the exchange rate), thought to be highly correlated with the ultimate objective variable (i.e. the price level), is selected; secondly, the Central Bank uses *monetary instruments* (e.g. short-term interest rates, reserve requirements etc.) in order to influence the movements of the intermediate variable and meet the pre-determined target. Unlike monetary instruments, intermediate monetary variables are not under the direct control of monetary authorities. However, unlike monetary

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improvements. Therefore, a recorded zero inflation rate may imply deflation in reality. Second, with positive productivity growth, a zero inflation rate might necessitate a decline in nominal wages. However, on the realistic assumption of downward rigidity in nominal wages, reductions in real wages (necessary for labour market adjustments), can only take place through an increase in prices. If this is not feasible, a zero inflation rate may hinder relative wage and price adjustments which in turn would hinder economic efficiency. From that point of view, setting a zero inflation target might increase distortions in the labour market and lead to an increase in the natural rate of unemployment (see Fisher 1995). Finally, a third argument for the existence of a small, positive inflation rate is related to the existence of the Summers effect. Summers (1991) suggested that nominal interest rates cannot take negative values as agents can always keep their wealth in the form of cash whose nominal yield is zero. This implies the existence of a downward limit for real *ex-post* (*ex-ante*) interest rates, namely minus the observed (expected) rate of inflation. A zero rate of inflation would obviously peg the value of this limit at the value of zero. However, it has been suggested (see Yates, 1995) that there may be circumstances where a negative real interest rate may be desirable, not least for stabilization purposes. By imposing a zero limit on this rate, the authorities would deprive monetary policy of its ability to coping with unexpected economic circumstances.

instruments, they are presumed to be linked with the final objective variable (i.e. actual inflation) with a fundamentally stable relationship.

The rationale behind the adoption of a two-step monetary strategy, as opposed to a one-stage approach, i.e. a monetary framework in which the Central Bank attempts to control the actual rate of inflation by changing the value of monetary instruments, is based on the following two arguments: (i) monetary policy is subject to “long and variable” time lags: the impact of changes in the value of monetary instruments on actual inflation appears after a considerable period of time. Furthermore, when it appears, it may not be the one expected, as the exact nature of the relationships which link movements of monetary instruments with the final objective is largely unknown and subject to changes over time; (ii) inflation is affected by factors which are beyond the control of monetary policy makers (see Issing, 1994). The implication of the above is that if the Central Bank attempts to influence inflation directly by means of the wrong policy instrument and it adheres to it for too long, the economy may face inflationary or even deflationary dangers (see Crockett, 1994).

If, however, a two-stage monetary strategy is to be adopted, what is the most suitable intermediate variable to be targeted by monetary authorities? A number of proposals have been advanced. It is widely accepted (see e.g. Issing, 1997) that an intermediate variable should have the following three properties: *measurability*, to allow the authorities to determine the degree to which the movements of the intermediate variable are consistent with the targets set; *controllability*, to allow the authorities to meet the targets set in cases where the intermediate variable has diverged from the desired course; and finally *predictability*, i.e. the relationship between the intermediate variable and the final objective should be a stable one in order for the authorities to be able to adjust the movement of the intermediate variable and ensure that the final objective (i.e. price stability) will be achieved. In this context, due to the difficulties associated with the practical implementation of some of the other alternatives, countries which have adopted the intermediate variables approach to monetary policy, have set targets for the rate of growth of various monetary aggregates or/and the level of the

exchange rate<sup>12</sup>. Therefore, we now focus our attention on these two approaches, which are also the most relevant in the context of our discussion on Greece.

### 2.2.2.2. Money supply targets

The rationale behind the adoption of money supply targets is quite straightforward as it is directly based on the quantity theory of money. The latter states that the product of money supply ( $M$ ) times the income velocity of money supply ( $V$ ), hereafter quoted as velocity, is equal to the nominal value of output, i.e. the product of price level ( $P$ ) times the level of real output ( $Y$ ), usually defined as the level of real GNP or real GDP.

$$M V = P Y \quad (1)$$

In terms of percentage changes, equation (1) can be written as follows:

$$m + v = p + y \quad (2)$$

It is generally accepted that the rate of growth of real output is not a very volatile variable, therefore  $y$  in equation (1) is largely predictable. As a result, provided that velocity remains constant or its rate of growth is largely predictable (i.e.  $v = 0$  or  $v = \text{constant}$ ), the Central Bank can meet an objective relating to the

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<sup>12</sup> *Nominal GNP or GDP targets* have been proposed by various economists, including Tobin (1983) and, more recently, Green (1996). The usefulness of a nominal income target derives in part from its close association with the ultimate policy goals, i.e. real output growth and inflation, which represent the components of the growth rate of nominal income. Essentially, nominal spending targets correspond to money supply targeting corrected for velocity instability (see below). However, nominal GDP targets are considered to be difficult to implement in practice as nominal spending is subject to the influence of a number of factors, therefore central banks can only try to control such a variable over long periods of time. Other proposals include *credit targets* (see e.g. Bernanke and Blinder, 1988), *nominal or real interest rate targets* (see e.g. Barro, 1989), and *yield curve targets* (see e.g. Estrela and Hardouvelis, 1990). Credit targets are indeed used as supplementary to money supply targets in many countries. On the other hands, the main objections to the use of interest rates are the following (see Issing, 1994): nominal interest rate targets distort information regarding market conditions and encourage a pro-cyclical impact of monetary policy which can lead to cumulative inflationary and deflationary processes. Furthermore, long-run interest rates are controlled by the central bank only to a limited extend. Finally, due to the low degree of controllability of real interest rates, real interest rate targeting, despite avoiding some of the risks which arise when nominal interest rates are targeted, can only be implemented with a considerable margin of error.

rate of growth of prices  $p$  by means of manipulating the rate of growth of nominal money  $m$ <sup>13</sup>.

In many countries where monetary targets have been implemented, inflation declined immediately after their introduction. Nevertheless, in many cases the targets set were not met. This failure was rather disturbing because, despite the reduction in inflation, it was seen to undermine public confidence in the monetary policy framework as a whole (see Bank of England, 1996). The reasons behind the missing of monetary targets has been the subject of extended academic debate (see e.g. Stone and Thornton 1987, Goodhart 1989, Leventakis and Brissimis, 1991). The most influential explanations attribute the missing of the targets to misspecification of the quantity theory equation; and unpredictable shifts in velocity, associated with structural shifts and the effect of cyclical factors.

(i) *Misspecification of the quantity theory equation.* It has been suggested that real GNP and real GDP may not be the appropriate activity variables to be included equation in (1) above, as they do not take into consideration wealth effects caused by changes in interest rates or increases in taxation. The underlying argument is that in reality, agents' money demand for transaction purposes is a function of the level of perceived permanent rather than current income; or disposal income respectively. Furthermore, measures of income like GNP and GDP disregard the effect of large swings in inventories and net exports on money demand. Finally, the use of a narrow money aggregate like M1 may be inappropriate, as narrow money aggregates are not highly correlated with inflation. On the other hand, the use of a broader money aggregate (e.g. M3) may give rise to practical difficulties in the conduct of monetary policy as the broader the definition of money, the more difficult is for the Central Bank to control its level by changing the value of monetary instruments<sup>14</sup>.

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<sup>13</sup> Actually, the theoretical case for the adoption of intermediate monetary targets was initially made by Friedman (1960) who argued in favour of a low and fixed growth rate for the money stock (a 4% annual growth rate of money supply in order to accommodate a 3% annual real growth and a 1% annual reduction in velocity) with an aim to yield a zero rate of inflation.

<sup>14</sup> The selection of the monetary aggregate to be used as an intermediate target is usually left as an empirical matter. As it was earlier argued, the "best" aggregate is the one whose relationship with monetary instruments and the price level seems to be the most stable and predictable (see Cagan, 1982). However, this selection procedure has been criticised on the following two grounds (see Modigliani and Papademos, 1980): first, the existence of a stable relationship in the past does not guarantee future stability, especially if the macroeconomic environment in which it operates is subject



(ii) *Structural shifts causing velocity instability.* The process of financial deregulation and the financial innovations which followed are regarded to be among the most important factors in explaining the missing of monetary targets. To begin with, the emergence of new financial products has often given rise to changes in definition of monetary aggregates, particularly the broader ones. The same innovations are often thought to make money demand more responsive to changes in interest rates, as they may increase the opportunity cost of holding money. Finally, money demand is thought to have been influenced by technical innovations like automatic teller machines, automatic payments systems etc.

(iii) *Cyclical factors explaining velocity instability.* Exogenous changes in money supply can induce cyclical swings in velocity because of their lagged effect. The argument here is that if money supply increases by a given percentage, nominal GDP will not increase by the same percentage immediately. On the other hand, it may also be the case that a change in inflation expectations will have an impact on money demand, and *ceteris paribus*, on velocity: an increase in expected inflation may reduce money demand and lead to an increase in velocity. Finally, velocity instability may be caused by developments in the field of nominal and real exchange rates. For example, an appreciating currency faces increased demand which, in turn, leads to velocity reduction.

### 2.2.2.3. Exchange rate targets

Following episodes of financial deregulation in the 1980s and the subsequent missing of monetary targets, a number of countries sought an alternative pre-commitment mechanism in the form of an exchange rate targeting regime. In this context, the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) is the most notable example. The theoretical case for the adoption of exchange rate targets, especially by relatively small countries where inflation is largely imported, is that by pegging the national currency to the currency of a traditionally low inflation country (e.g. Germany), domestic monetary authorities abolish their ability to apply independent, discretionary monetary policy and, consequently, “borrow credibility” from the Central Bank of the low-inflation country (see e.g. Giavazzi and Pagano 1988, Giavazzi and

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to changes; second, the stability of such relationships may be affected by changes in the structure of financial markets (see below).

Giovannini 1989). Furthermore, as the exchange rate target is “more tangible and understandable to the general public than an abstract M” (Goodhart, 1995 p. 222), it can be more effective than monetary targets in stabilizing inflation expectations and actual inflation.

However, historic experience (e.g. the EMS crisis of 1992-93) has shown that nominal anchors in the form of exchange rate targets may also suffer from credibility problems. To begin with, the pegging regime cannot survive in case the reputation of the reference country as an inflation-averse country is put to question. The collapse of the Bretton Woods system of fixed exchange rates in the face of increasing prices in the USA is an obvious confirmation of the validity of this view. Furthermore, it is often argued (see e.g. De Grauwe, 1994a) that the credibility of exchange rate arrangements is doubtful when the short-run national interests of the participating countries are not identical, i.e. when the countries of the system find themselves in different cyclical positions. The events of 1992 involving the pound sterling and the DM are a typical example of such a situation. Finally, and perhaps more importantly, as De Grauwe 1996b and Persson and Tabellini 1996 have formally shown, an exchange rate pegging regime lacks credibility in the face of substantial structural, inflation, and productivity differences among the participating countries. Under such circumstances, a high-inflation, low-productivity country can sustain an exchange rate peg to the currency of a low-inflation country only by means of maintaining a significant nominal and real interest rate differential. However, the latter, if held for too long, leads to currency overvaluation which damages the international competitiveness of the economy, puts pressure on the current account and attracts short-term portfolio inflows (hot money) aiming to take advantage of the high real interest rates. Such inflows tend to jeopardise the anti-inflationary character of monetary policy by increasing liquidity while, at the same time, making the country vulnerable to speculative attacks. The reason is that short-term capital inflows can turn around very quickly either because of a shock to the fundamentals or because of just a shift in portfolio preferences, things which could trigger a crisis with no choice but devaluation. In other words, the exchange rate makes sense as a nominal anchor in

the medium-term, but if the peg is maintained for too long, it may become *self-defeating* and could create real dangers to the economy.

#### 2.2.2.4. Alternative solutions to the time-inconsistency problem

As a result of the difficulties associated with implementing monetary and exchange rate targets, economists have sought alternative solutions to the inflation-bias problem. In the context of the “flexibility-versus-credibility trade-off” discussion, the general tendency among researchers in recent years is to achieve what Bernanke and Mishkin (1997) define as “constraint discretion”, i.e. a greater degree of discretion in the use of monetary instruments (to avoid procyclical monetary policies) without abolishing an effective precommitment mechanism and long-run discipline in the conduct of monetary policy.

Within this framework, a number of economists have argued that the adoption of rigid rules like those adopted in an intermediate variables approach may not be necessary if the Central Bank is able to establish an anti-inflation reputation. In this spirit, researchers like Backus and Driffill (1985), Barro (1986), Cukierman and Meltzer (1986) and Rogoff (1987) developed *reputational models* where in the presence of uncertainty regarding the authorities characteristics, a low observed inflation rate is thought to convey information regarding the authorities preferences and is subsequently interpreted by agents as a commitment to low inflation in the future. This results in low inflation expectations which gives the authorities an incentive to continue pursuing low-inflation policies. It also provides them with a wider margin of discretion in dealing with unexpected shocks<sup>15</sup>. The success of some Central Banks, like e.g. the German Bundesbank in maintaining price stability even during and immediately after periods when intermediate targets were missed, seem to confirm the validity of the views expressed above. However, the main problem associated with the reputation approach is that the latter takes time to be established, therefore it may not be available to governments for a considerable period of time.

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<sup>15</sup> Roll *et al* (1993, p. 12) argue that “when [credible central banks] relax monetary policy, it is understood that they have identified a valid reason for shifting demand between today and tomorrow, and will correspondingly tighten future monetary policy precisely to prevent the validation of inflation in the long-run...In short, credible central banks rarely use monetary policy to deal with real shocks, but can do so safely when needed. Non-credible central banks enjoy short windows of opportunity and face long periods of testing”.

An alternative approach in the search of an effective precommitment technology, which has recently gained considerable popularity among researchers and policymakers in many countries (including Greece), is the introduction of credibility-inducing institutional reforms aiming to restrict the ability of the government to interfere with monetary policy. As they are not directly relevant in the context of our discussion on the assessment of past Greek macroeconomic policies, a detailed discussion of these relatively recent contributions is reserved for chapter 4. However, at this stage it is important to say that this new literature was pioneered by the seminal paper by Rogoff (1985) on *Central Bank Independence*. Other notable proposals developed in this framework include the one by Walsh (1995) on *optimal contracts* between the government and the independent Central Bank; and one by Svensson (1997a and 1997b) on *inflation targets*.

### **2.2.3. Fiscal policy: the theory of deficit financing and public debt stabilization**

#### **2.2.3.1. Monetary versus debt deficit financing**

Budget deficits and public debt are topics which have attracted considerable attention in economic research, especially after the appearance of fiscal imbalances in many industrial countries in the 1970s and the 1980s (among others see Buiters 1990, Oxley and Martin 1991, Van der Ploeg 1994, Alesina and Perotti 1995,1996). In particular, two issues which have attracted much attention are (a) the output implications of deficits (especially of discretionary ones)<sup>16</sup> and the alternative methods of their financing; and (b) the dynamics of public debt under different deficit-financing regimes.

The government's annual budget constraint in nominal terms is given by equation (3) below :

$$PG - PT + i(PB) = \Delta M + \Delta (PB) \quad (3)$$

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<sup>16</sup>*Cyclical budget deficits* are those which are caused by the impact of economic slowdowns on taxation revenue and transfer payments (e.g. unemployment benefits). In contrast, *discretionary deficits* are deliberately pursued by authorities, usually for output stabilization purposes.

In equation (3),  $P$  is the price level,  $G$  is real public expenditure,  $T$  is real tax revenue,  $i$  is the nominal interest rate on public debt,  $B$  is the existing stock of real public debt,  $\Delta(PB)$  is the annual increase in the stock of nominal public debt and  $\Delta M$  is change in the stock of nominal money. Equation (3) states that a country which runs a nominal deficit, comprised by the primary deficit  $PG-PT$  and nominal interest payments on the existing stock of public debt  $i(PB)$ , has two options in order to finance it: (a) to monetize (accommodate) the deficit; or/and (b) to proceed to bond-financing of the deficit, i.e. to increase the existing stock of public debt. As simple Keynesian models of fiscal policy suggest, both choices should give rise to increased aggregate demand and, in the absence of full employment, an increase in output. After all, the widely accepted idea that fiscal policy may be useful for macroeconomic stabilization purposes, i.e. output and consumption smoothing, is essentially based this argument. However, the medium and long-term implications of the two alternative ways of deficit financing may be different.

In a standard IS-LM framework, a money-financed deficit results in an once-and-for-all shift of the IS curve and does not give rise to an increase in interest rates, therefore crowding-out effects like those to be discussed below are avoided. In this context, monetary policy would be the natural companion of fiscal policy and a money-financed fiscal expansion would deliver the strongest possible impetus to aggregate demand and output. However, when a medium-term upward-sloping aggregate supply schedule is introduced into the analysis, the output effect of the expansion is dampened, as increased public expenditure results in rising prices, especially if budget deficits and monetary accommodation are anticipated by agents (see above).

On the other hand, Blinder and Solow (1973) suggest that a bond-financed deficit may involve expansionary effects of a more lasting nature in case the anticipation and payment of interest payments cause wealth effects on current and future aggregate consumption. However, the expansionary outcome of a bond-financed fiscal expansion may be mitigated in the event of crowding-out effects which can take place through two channels. The first has to do with the possibility of portfolio effects: an increase in the stock of bonds may necessitate a similar

increase in interest rates to maintain equilibrium in the bonds market. Such an increase may imply a shift of the LM curve to the left, which could reduce, or even offset, the expansionary impact of the bond-financed deficit. A second channel through which crowding-out effects can take place is associated with an upwards-sloping aggregate supply curve: given a certain level of nominal money, increasing prices caused by a fiscal expansion would lead to a reduction in real money stock. That would cause an increase in interest rates and wealth effects which may reduce private investment and consumption respectively. Finally, a bond-financed budget deficit would have no expansionary effects at all if the Ricardian Equivalence hypothesis were valid. The latter, which has been put forward by a number of neoclassical economists (see e.g. Barro, 1989a and 1989b), suggests that the aggregate private sector does not consider public bonds as part of its wealth because increased public borrowing at a certain point in time will result in increased cost of servicing the public debt in the future. Agents increase their savings in anticipation of higher future taxation and this offsets the expansionary impact of higher public spending. Nevertheless, empirical evidence in favour of the Ricardian Equivalence hypothesis is at best mixed (see e.g. Poterba and Summers, 1987) and the views expressed by its supporters have been questioned on various grounds (see e.g. Barro, 1987). To begin with, the hypothesis is based on the assumption of a tax system involving lump-sum taxation. Second, tax-payers have finite life horizons (i.e. some of them will not be subject to future taxation) and may not want to not leave bequests to future generations. Third, there are agents who face borrowing constraints and, in the event of a reduction in taxation (causing a bond-financed deficit), would prefer to increase their consumption instead of their savings. Finally, agents may not be perfectly rational as indicated by the Ricardian Equivalence hypothesis and may not be able to grasp the future implications of increased public borrowing.

### **2.2.3.2. The dynamics of public debt**

Equation (3) states that public debt may continue to grow even in the event of a balanced primary budget, due to the existence of the interest payments component. Deficit accumulation raises the issue of public debt sustainability as the intertemporal government budget constraint implies that an ever-increasing

ratio of public debt to real output cannot be sustained indefinitely (see Blanchard *et al.*, 1990). At some stage, the authorities will have to reverse any increasing dynamics in order to avoid the prospect of insolvency. Dividing both sides in equation (3) by nominal output ( $PY$ ), using the approximation  $\Delta (PB / P Y) = \Delta(PB)/ PY - (PB/PY) (g + \pi)$ , where  $g$  is the rate of growth of real output and  $\pi$  inflation, and after some algebra, we get the dynamic government budget constraint in per output terms<sup>17</sup>:

$$\Delta (B/Y) = [(G-T)/Y] + (r-g) B/Y - \Delta M/ PY \quad (4)$$

Stabilization of public debt at a given percentage of real output implies a zero value for  $\Delta (B/Y)$ . One can now distinguish between three different cases:

(a) *No output growth, no inflation* ( $g = 0, \Delta M = 0$ )

Under such a scenario, public debt stabilization implies a real primary surplus equal to real interest payments, i.e.  $(T-G)/Y = r B/Y, T-G > 0$ .

(b) *Non-inflationary growth* ( $g > 0, \Delta M = 0$ )

In this case, public debt stabilization implies that  $(T-G) / Y = (r-g) (B/Y)$ . Therefore, in the presence of growth, debt stabilization requires a smaller primary surplus compared to case (a) above. However, if  $r$  exceeds  $g$ , public debt becomes explosive as  $\Delta (B/Y)$  always takes a positive value. In other words, in a zero-inflation regime, if the real interest rate on public debt exceeds the rate of growth of the economy, public debt is on unsustainable path.

(c) *Inflationary growth* ( $g > 0, \Delta M > 0$ )

Under such a scenario, the condition for public debt stabilization is adjusted for the possibility of partial monetary accommodation of the debt and takes the form  $(T-G) / Y = (r-g) (B/Y) - \Delta M/ PY$ . In the presence of inflation, the necessary primary surplus for debt stabilization is even smaller compared to case (b) and a real interest rate lower than the rate of growth of the economy is not a necessary condition for public debt reduction. In fact, the government may even run a primary deficit provided that money creation is enough to accommodate it. However, the implications of such a strategy (monetary stabilization) will be quite

<sup>17</sup> See Burda and Wyplosz 1993, p. 302.

different compared to those of stabilization through the creation of primary surpluses.

*Monetary stabilization of public debt* works through two interrelated channels. Firstly seignorage, i.e. the increase in nominal money stock which allows the authorities to finance part of the recorded deficits without adding to the existing stock of public bonds. Secondly the inflation tax, which follows the initial increase in nominal money. Inflation can be seen as a form of taxation in the following sense: interest payments on public bonds are usually denominated in non-indexed nominal terms. Therefore, as inflation erodes the purchasing power of money, it also reduces the real value of future nominal interest payments and results in a reduced real debt stock. However, there are two problems associated with this approach. Firstly, as earlier argued, inflation involves real economic costs and may affect the rate of growth of the economy by disturbing the operation of the price mechanism as a guide to the efficient allocation of sources. In terms of equation (4), this may imply a reduction in  $g$  which could offset, partially or fully, the impact of increasing money stock on public debt. Secondly, in the absence of financial regulation and in the presence of capital mobility, high inflation expectations result in higher real interest rates through an increase in the risk-premium embodied in the nominal interest rate. Agents demand a higher nominal interest rate in order to protect the real value of their money savings in the face of increasing prices. Therefore, for monetary stabilization to be effective it has to be unanticipated, otherwise the increase in  $r$  in equation (4) may offset the impact of inflation on future nominal interest payments. Under such conditions, monetary stabilization of public debt may lead to excessive inflationary outcomes which, as experience has shown, may even result in hyperinflations<sup>18</sup>.

If the above remarks take a critical view towards monetary accommodation of deficits and debt, a word of caution may be due here. As Sargent and Wallace (1981) have suggested in a seminal paper on “unpleasant monetary arithmetics”, a tight monetary policy may actually have more severe long-run inflationary consequences compared to a more accommodating policy. The intuition behind this rather paradoxical suggestion is quite clear. If monetary authorities refuse to

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<sup>18</sup> A seminal paper on seven famous incidents of hyperinflation is provided by Cagan (1956).



accommodate public deficits and debt, fiscal authorities may resort to increased bond financing. Given a certain level of nominal money stock, this will result in high interest rates and higher interest payments. An increasing stock of public debt leads to higher interest rates for a number of reasons including the following: (a) the government has to attract a large amount of domestic and foreign savings in order to service the high level of interest payments; (b) agents realise that highly indebted countries have a motive to engineer a high level of inflation in order to eliminate part of its debt (see above). They also have the motivation to proceed to a devaluation of their national currency in order to reduce external debt, provided that a substantial part of the latter is denominated in terms of national currency. Under such circumstances, interest rates on public securities should include a risk premium to compensate for the perceived inflation/devaluation risk; and (c) in the same spirit, interest rates should include a risk premium to compensate for the perceived risk of national default. All these imply that if a tight monetary policy results in a real interest rate higher than the rate of growth of the economy, the Central Bank may be obliged to resort to higher seignorage in the future than what would otherwise have been the case.

Finally, *as far as stabilization of public debt through the creation of primary surpluses is concerned*, this may be achieved either by means of a higher level of tax revenue or through a reduction in public expenditure. One of the arguments against a reduction in public expenditure is related to the previously mentioned function of fiscal policy regarding output and consumption stabilization. A fiscal strategy aiming at public debt stabilization through reductions in public expenditure may affect the operation of the automatic stabilizers of the economy. Under such circumstances, fiscal policy may become pro-cyclical and may result in macroeconomic instability<sup>19</sup>. On the other hand, a standard argument against the creation of primary surpluses through higher taxation revenues is that the latter would increase distortions caused by taxation and, from that point of view, may prove an obstacle to economic efficiency. Furthermore, a number of economists have questioned the effectiveness of raising taxes as a means of stabilizing public debt, on the grounds that increased taxation

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<sup>19</sup>This argument is further discussed in detail in chapter 4 in the context of our analysis on the usefulness of rules in the conduct of fiscal policy and the implications of the Budget Stability Pact.

leads to increased spending and possible to higher deficits (see section 3.4.1 in chapter 3).

#### 2.2.4. Politics and economics

We end this section with a brief reference to literature on the impact of political events over the economy. It is widely accepted that politics and macroeconomics are deeply interconnected. This interrelation has been the subject of extensive macroeconomic research<sup>20</sup> and takes place through various channels. Alesina (1989) identifies the two most important ones, namely the desire of governments to create conditions which will maximize the probability of their re-election; and the effort of governments to achieve economic conditions which will benefit their constituencies. These incentives can give rise to the following kinds of business cycles:

(a) *Political business cycles (PBC)*: This theory was developed before the development of the rational expectations literature. It was extensively discussed by Nordhaus (1975) who argued that governments are non-ideological and their economic decisions are exclusively motivated by their desire to be re-elected in office. The PBC postulates backward-looking, short-sighted voters and an exploitable Philips Curve. During pre-election periods, governments follow expansionary economic policies in an attempt to create and exploit a feeling of economic prosperity. Voters do not realize that this strategy creates economic conditions which lead to costly adjustments after the elections (e.g. fiscal overruns, high inflation rates and consequent recessions caused by stabilization policies). Consequently, sub-optimal, unnecessary economic cycles are created. However, the irrationality of voters allows governments to repeat such policies every time elections occur.

(b) *Rational political business cycles (RPBC)*: The rational expectations revolution put the above mentioned assumptions of the PBC theory into question. Specifically, the assumed short-sightedness of voters was considered to be too simplistic. Voters' rationality implies a strategic interaction between the public and the private sector and as a result, government cannot manipulate economic performance at will (see above). However, even under such conditions, some

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<sup>20</sup> A survey of some of the models developed can be found in Alesina and Tabellini, 1988.

models, including the ones by Cukierman and Meltzer (1986), Rogoff and Sibert (1988), have shown that Nordhaus' insights can still apply if voters are not perfectly informed about the real economic environment, the shocks which affect the economy, the future objectives of the government etc. In this category of models, governments remain non-ideological and office-motivated. Uncertainties such as those mentioned above may give rise to policies which can lead to relatively short-run cycles of fiscal and monetary aggregates and, by implication, of output and employment. As elections approach, governments attempt to appear more efficient than they really are. This is done by means of signalling mechanisms whose future cost is not easily identifiable even by rational, attentive voters<sup>21</sup>. However, the long-run picture is less clear; the private sector acquires information about the variables for which uncertainties exists. From that point of view, the RPBC theory does not have clear implications for the long-run movements of output and employment.

(c) *Partisan business cycles*: Like the PBC theory, the Partisan Theory (PT) was developed before the rational expectations revolution. The PT highlights the different economic preferences of the constituencies which support different political parties. Here governments are assumed to be ideologically driven. More specifically, Hibbs, (1977) has argued that some parties attach a greater weight to low unemployment, thus exhibiting a higher level of tolerance of inflation, whereas the preferences of some others are exactly the opposite. This difference has its roots in the income redistribution consequences of different economic outcomes. Therefore, the alternation of parties in office gives rise to abrupt changes in the course of economic policy and these changes create sub-optimal economic fluctuations.

(d) *Rational partisan business cycles*. Like the PBC, the PT has been criticised on the grounds that it is based on a trade-off (inflation versus unemployment) which does not exist in the long-run. However, the revised rational partisan theory (RPT), which takes into consideration the adaptive expectations of private agents, survives this criticism. Models developed within

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<sup>21</sup> One way to signal efficiency is to reduce taxes: a more efficient policy-maker can deliver public goods at lower costs. Increased public expenditure may be financed through non-easily deductible sources of taxation such as the inflation tax. The inflationary impact of seignorage appears with a time lag, i.e. after the elections.

the RPT framework (e.g. Alesina 1987, Alesina and Sachs 1988) are based on the uncertainty existing as far as the electoral outcome is concerned: prior to the elections, contracts are set according to an anticipated rate of inflation which represents a weighted average of the perceived inflation preferences of the two parties (the weights being equal to the probabilities attached to each party to win the elections). If “expansionists” win, actual inflation will be higher than anticipated, therefore nominal wages set before the elections turn out to be lower than they would otherwise have been. As a result, real labour cost and unemployment decline. In contrast, if an inflation-averse party wins, nominal wage arrangements are too high, real labour cost increases and a temporary recession follows. However, as agents adapt their expectations to the new situation, the effects described above tend to disappear<sup>22</sup>. As a result, the RPT is compatible with short output cycles appearing immediately after elections but does not support the existence of long-term fluctuations.

### 2.3. Econometric methodology

Our applied analysis in chapter 3 is mainly based on cointegration techniques. More specifically, we make use of the Engle and Granger (1987) cointegration method; and the Johansen maximum likelihood cointegration method developed by Johansen (1988) and Johansen and Juselius (1990). Extended presentation and evaluation of these methodologies can be found in Perman (1991), Muscatelli (1992) and Harris (1995). Here, we highlight the main points.

#### 2.3.1. Testing for stationarity

A stochastic process  $Y_t$  is weakly stationary if its mean, variance and autocovariances are independent of time. More formally, weakly stationarity requires the following set of conditions to be satisfied for all values of  $t$  (see Perman 1991 p. 7):

$$E(Y_t) = \mu \quad (5)$$

$$E[(Y_t - \mu)^2] = \chi(0) \quad (6)$$

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<sup>22</sup> Such effects will be stronger in case agents cannot recognize the preferences of the two parties before the elections or when agents are not perfectly rational.

$$E [(Y_t - \mu)(Y_{t-\tau} - \mu)] = \chi(\tau) \quad \tau = 1, 2, \dots \quad (7)$$

As Perman (1991, p. 8) suggests, “the investigation of stationarity in a time series is closely related to the tests for “unit roots”. Consider the (first-order) autoregressive model:

$$Y_t = \beta Y_{t-1} + \varepsilon_t \quad (8)$$

where we regard the process as having begun at some point in the distant past,  $\beta$  is a real number and  $\varepsilon_t$  is a sequence of independent, normal zero-mean random variables with variance  $\sigma^2$ . The series  $Y_t$  is stationary if  $|\beta| < 1$ . If  $|\beta| = 1$  the series is not stationary; the variance of  $Y_t$  is then  $t\sigma^2$  and is thus increasing with time (p.8)... Model (8) with  $|\beta| = 1$  is termed a random-walk. In testing for unit roots we are essentially testing the null  $\beta = 1$  against the one-tailed alternative  $\beta < 1$ . Now, consider the case where the null is true and so  $\beta = 1$ . In this case (8) is said to have a unit root. Furthermore, the first difference  $\Delta Y_t$  will be stationary under the null, as then

$$Y_t - Y_{t-1} = \varepsilon_t \quad (9)$$

with  $\varepsilon_t$  being stationary by assumption. Model (8) with  $\beta = 1$  is known as a Difference Stationary Process (p.9)”. Perman proceeds to say that the hypothesis that  $\beta = 1$  can be tested by means of estimating model (8). However, in applied studies a reparameterised version of (8) is most commonly used. More specifically, the stationarity of  $Y_t$  is usually tested by means of the Dickey-Fuller test (see Dickey and Fuller, 1979). The latter involves the estimation of regression (10) below and the testing of the (null) non-stationarity hypothesis which postulates that  $\rho = 0$ . However, if  $v_t$  in equation (10) is not white noise, the recommended procedure is to use the Augmented DF (ADF) test, i.e. re-specify equation (10) to include lagged values of  $\Delta Y_t$  as in equation (11) below and apply the same procedures as above (i.e. test the validity of the hypothesis that  $\rho = 0$ ).

$$\text{DF equation: } \Delta Y_t = \rho Y_{t-1} + v_t \quad (10)$$

$$\text{ADF equation: } \Delta Y_t = \rho Y_{t-1} + \sum \theta_j \Delta Y_{t-j} + \omega_t \quad (11)$$

If the null hypothesis ( $\rho = 0$ ) is rejected, the conclusion would be that the variable is stationary. In that case,  $Y_t$  is said to be integrated of order zero. If, on the other hand, the null is not rejected, the conclusion would be that the series is not stationary. In general  $Y_t$  is said to be integrated of order  $k$ ,  $I(k)$ , if its  $k^{\text{th}}$  difference ( $\Delta_k Y_t$ ) is stationary.  $Y_t$  would be difference-stationary if its order of integration were equal to one. Both the Engle and Granger and the Johansen cointegration methodologies involve unit roots tests for the variables involved. The reason is that proceeding to regression analysis without ensuring that the variables involved have the same order of integration results in problem of spurious regressions (see Granger and Newbold, 1974).

Before proceeding to the presentation of the two cointegration methodologies, two notes of caution are due. First, the DF and ADF tests do not have the standard  $t$  and  $F$  distributions. For these tests, tables with critical values have been provided by Dickey and Fuller (1981), reprinted in Harris (1995). Second, one has to distinguish between difference stationary (DS) series described by (9) above, which will exhibit an upwards or downwards stochastic trend due to accumulation of stochastic shocks on  $\epsilon_t$ , and trend stationary (TS) series which include a deterministic trend, i.e. they fluctuate *systematically* around a time-trend. Both series, DS and TS do not meet the stationarity conditions (5) to (7) above as they do not have a time-invariant mean. However, in contrast to DS, TS series exhibit stationarity properties in the sense that the observed deviations from the trend fluctuates around zero with a constant variance. More formally, in terms of equation (12) below, (see Perman, 1991 p. 11), a TS process implies that  $|\rho| < 1$  and  $\gamma \neq 0$ . A DS process implies that  $\rho = 1$  and  $\gamma = 0$ .

$$Y_t = \mu + \rho Y_{t-1} + \gamma t + u_t \quad (12)$$

In terms of empirical analysis, the presence of deterministic trends is of importance. As Perman (1991, p. 27) argues, “if the coefficient on time cannot be restricted to zero, then the series contains a trend that should be removed prior to further modelling or (alternatively), a time trend should be included in subsequent analysis”. However, a trend observed in the series may be stochastic rather than deterministic, not calling for such treatment. Now, whether an observed trend in the series under examination should be considered stochastic or deterministic largely depends on theoretical expectations. Muscatelli (1992, p. 13), commenting on the question of whether to include a trend-term into the analysis or not, argues that “the prior views of the researcher are likely to dominate the selection or exclusion of particular variables”. For example, one would expect that certain macroeconomic variables, like for e.g. national accounts series (national income, aggregate consumption, public expenditure etc.), include a deterministic trend component, as a non-zero steady-state positive rate of growth for their levels is compatible with growth theory. This is certainly the view taken by Cohanne (1988) in relation to the level of real GDP. However, if no theoretical expectations exist, the formal way to proceed is to test for the existence of a deterministic trend by means of testing the statistical significance of the joint restriction  $c_2 = \rho = 0$  in equation (13) below (see Perman, p. 27). Equation (13) is a reparameterization of (12). Under the null hypothesis ( $c_2 = \rho = 0$ ),  $Y$  is a random walk with drift. Under the alternative, the series includes a deterministic trend which should be included in subsequent regression analysis. We reject the null if the value of the  $\Phi_3$  statistic is greater than the critical value provided by Dickey and Fuller (1981)<sup>23</sup>. If, however,  $\varepsilon_t$  in (13) is not white noise, an ADF equation like (14) can be estimated and the same restrictions ( $c_2 = \rho = 0$ ) can be tested.

$$\Delta Y_t = c_1 + c_2 + \rho Y_{t-1} + \varepsilon_t \quad (13)$$

$$\Delta Y_t = c_1 + c_2 + \rho Y_{t-1} + \sum \beta_i \Delta Y_{t-i} + \varepsilon_t \quad (14)$$

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<sup>23</sup> See Dickey and Fuller, 1981, p.1063, Table VI, reprinted in Harris (1995), p. 156.

### 2.3.2. The two-step Engle and Granger cointegration methodology

The concept of cointegration suggested by Engle and Granger (1987) has as follows (see Muscatelli 1992, p. 2): suppose that we have a vector  $x_t$  containing  $n$  variables, all of which are  $I(d)$ . The series contained in  $x_t$  are said to be cointegrated, if there exists a linear combination  $z_t = \alpha'x_t$  such that  $z_t$  is  $I(d-b)$ , where  $\alpha$  is known as the cointegrating vector.

The base-line case considered by the Engle and Granger (1987) methodology considers, as our analysis in chapter 3 does, the investigation of cointegration between a pair of variables,  $X_t$  and  $Y_t$ , which are both  $I(1)$ . If  $X_t$  and  $Y_t$  are  $I(1)$ , any linear combinations of the two will also be integrated of order 1 and any statistically significant relationship between the two variables indicated by a regression of  $Y_t$  on  $X_t$  would actually be the result of correlation existing between stochastic trends (see Harris, p.22). However, if there exists a linear combination of  $X_t$  and  $Y_t$ ,  $Z_t = Y_t - \beta X_t$ , which is stationary, then the implication would be that a long-run equilibrium relationship exists between the two variables and the variables will continue to move closely in the long-run, even if they are occasionally subject to stochastic shocks. More formally, the hypothesis of cointegration between  $X_t$  and  $Y_t$  is not rejected if the residuals of the so-called cointegrating regression (15) below exhibit stationarity properties. The long-run equilibrium is then represented by the cointegrating vector which, in this case, is  $(1, -\beta)$ . Note, however, that as Perman (1991, p. 14) argues, in general an intercept should be included in the cointegrating regression. Furthermore, a trend term should also be included in case deterministic trends are known to be involved in the series (see above).

$$Y_t = \beta X_t + \varepsilon_t \quad (15)$$

Engle and Granger (1987) prove that if  $X_t$  and  $Y_t$  are cointegrated, they may be modelled within the framework of an Error Correction Mechanism (ECM) representation like (16) below. Conversely, if the ECM term  $(Y - \beta X)_{t-1}$  in equation (16) is statistically significant, that would imply that  $X_t$  and  $Y_t$  are



cointegrated<sup>24</sup>. More generally, the ECM term can take the form of equation (17) or (18), to include lagged values of  $\Delta Y_t$  and  $\Delta X_t$ <sup>25</sup>. In all cases, for estimation purposes, the ECM term can be approximated by the estimated residuals of the cointegration regression (15) above, lagged for one period.

$$\Delta Y_t = \alpha \Delta X_t + \lambda (Y - \beta X)_{t-1} + v_t \quad (16)$$

$$\Delta Y_t = \sum_{j=1}^m \phi_j Y_{t-j} + \sum_{j=1}^n \alpha_j X_{t-j} + \lambda (Y - \beta X)_{t-1} + v_t \quad (17)$$

$$\Delta Y_t = \sum_{j=1}^m \phi_j Y_{t-j} + \alpha \Delta X_t + \sum_{j=1}^n \alpha_j X_{t-j} + \lambda (Y - \beta X)_{t-1} + v_t \quad (18)$$

As Muscatelli (1991, p. 2) argues, “the main reason for the popularity of the ECM models is that they provide a way of separating the long-run relationship between the economic variables ( $Y_t = \beta X_t$ ) from the short-run responses (the  $\Delta Y_t$ ,  $\Delta X_t$ ) terms. In other words, in the presence of cointegration, the ECM provides a useful specification to model short-run deviations from the equilibrium while maintaining the latter’s specification unaltered. A second important function of an ECM representation is that it can provide information regarding the long-run causality patterns existing between the two variables as it captures causal effects which cannot be detected by traditional causality tests. More specifically, cointegration between  $X_t$  and  $Y_t$  implies the existence of at least one causality pattern between the two variables (see Granger, 1988)<sup>26</sup>. The concept of causality suggested by Granger (1969) refers to the predictability of a time series. In the context of a two-variable framework, the conventional Granger causality test involves the estimation of the following system of equations.

$$X_t = \sum_{j=1}^k \alpha_j X_{t-j} + \sum_{j=1}^k \beta_j Y_{t-j} + u_t \quad (19)$$

$$Y_t = \sum_{j=1}^k \gamma_j X_{t-j} + \sum_{j=1}^k \delta_j Y_{t-j} + e_t \quad (20)$$

<sup>24</sup> This is the well-known Granger Representation Theorem (see Harris, p. 25).

<sup>25</sup> See Harris 1995, Harvey, 1993 p. 160 and Muscatelli 1992. Muscatelli (1992, p. 3).

<sup>26</sup> Granger (1988) comments that this is a somewhat surprising result, when taken at face value, as co-integration is concerned with the long-run and equilibrium whereas the concept of causality is concerned with short-run forecastability. However, Granger argues that what the result says is that for a pair of series to have an attainable equilibrium, there must be some causation between them to provide the necessary dynamics.

If the regression of  $Y_t$  on its own past values and past values of  $X_t$  produces a smaller variance for the prediction error of  $Y$  than the one produced by the regression of  $Y_t$  on its past values only, and, at the same time, the opposite does not hold, then  $X_t$  is said to Granger- cause  $Y_t$  ( $X_t \rightarrow Y_t$ ). Alternatively, one-way (unidirectional) causality running from  $X_t$  to  $Y_t$  suggests that the  $\gamma$  coefficients in equation (20) are jointly statistically different than zero while the  $\beta$  coefficients in equation (19) are not. Under such circumstances, the conclusion would be that in the past, an increase (reduction) in  $X_t$  has caused an increase (reduction) in  $Y_t$  or, in other words, lagged values of  $X_t$  are related to future values of  $Y_t$  whereas lagged values of  $Y_t$  are not related to future levels of  $X_t$ . In short, movements of  $X_t$  precede in time movements of  $Y_t$ .

However, if the variables in equations (19) and (20) have unit roots, the testing procedure becomes more complex. In such a case, the conventional Granger tests described by (19) and (20) can be specified in terms of first differences. But then, the econometric interpretation of such tests becomes problematic since there is no longer a stable linear relationship between the variables in levels. The paper by Granger (1988) is dedicated to an elaborate discussion on this issue. Granger (1988, p. 203) states that if " $x_t, y_t$  are both  $I(1)$  but are cointegrated, such that a linear combination of theirs  $z_t = x_t - Ay_t$  is  $I(0)$ , they will be generated by an error-correction model taking the form

$$\Delta x_t = \gamma_1 z_{t-1} + \text{lagged } \Delta X_t, \Delta Y_t + \varepsilon_{1t}$$

and

$$\Delta y_t = \gamma_2 z_{t-1} + \text{lagged } \Delta X_t, \Delta Y_t + \varepsilon_{2t}$$

where one of  $\gamma_1, \gamma_2 \neq 0$  and  $\varepsilon_{1t}, \varepsilon_{2t}$  are finite-order moving averages. Thus changes in the variables  $x_t, y_t$  are partly driven by the previous value of  $z_t$ ... A consequence of the error correction model is that either  $\Delta x_t$  or  $\Delta y_t$  (or both) must be caused by  $z_{t-1}$  which is itself a function of  $x_{t-1}, y_{t-1}$  ... It should be noted that in the error correction-model there are two possible sources of causation of  $x_t$  by  $y_{t-j}$ , either through the  $z_{t-1}$  term, if  $\gamma_1 \neq 0$ , or through the lagged  $\Delta y_t$  terms, if they are present in equation". Granger (1988, p.204) proceeds to say that "without  $z_t$  being explicitly used, the model will be mis-specified and the possible value of lagged  $y_t$  in forecasting  $x_t$  will be missed. Thus, many papers discussing causality tests

based on the traditional time-series modelling techniques could have missed some of the forecastability and hence reach incorrect conclusions about non-causality in mean. On some occasions, causation could be present but would not be detected by the testing procedures used". In other words, it clearly is the case that failure to include the error correction term in cointegrated I(1) processes inevitably results in mis-specified models which can lead to erroneous conclusions in so far as causality is concerned.

To sum-up, the main advantages of the two-step Engle and Granger cointegration approach described above include: (a) its inherent simplicity, due to which it has received most attention in the recent applied literature; (b) its ability to account for long-run equilibrium and short-run dynamics; (c) its ability to provide valid causality tests as suggested by Granger (1988); and (d) the so-called superconsistency property of the least-square estimators of the parameters included in the cointegrating vector. Stock (1987) has shown that an OLS regression involving two cointegrated I(1) variables like (15) above yields a consistent estimate of  $\beta$  which converge to the true value of  $\beta$  at a rate equal to  $1/T$  (where  $T$  is the sample size), as opposed to a rate of convergence  $1/T^{1/2}$  when the variables are stationary. As a result, the OLS estimator is superconsistent and a smaller sample size is needed in order to reach the true value of  $\beta$ <sup>27</sup>.

### 2.3.3. The Johansen cointegration methodology

We end this section with a brief presentation of the cointegration methodology developed by Johansen (1988) and Johansen and Juselius (1990) in the context of multivariate systems. This is based on the estimation of a vector autoregressive model (VAR) like (21) below :

$$z_t = A_1 z_{t-1} + \dots + A_k z_{t-k} + u_t \quad (21)$$

In (21),  $z_t$  is an (nx1) vector, including  $n$  potentially endogenous variables, possibly linked by a maximum of  $n-1$  long-run equilibrium relationships,  $A_i$  is an (nxn) matrix of parameters and  $u_t$  is an (nx1) matrix of Gaussian errors i.e.

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<sup>27</sup> However, it should be kept in mind that as Banerjee *et al* (1986) have shown, the static OLS cointegrating vectors may include substantial bias in small samples.

$u_t \sim IN(0, \Sigma)$ . Equation (21) represents a system of reduced form equations where each variable in  $z_t$  is regressed on its own lagged values and the lagged values of the other variables in the system. It can then be reformulated as in equation (22) below which is a vector error-correction mechanism (VECM) formulation.

$$\Delta z_t = \Gamma_1 z_{t-1} + \dots + \Gamma_{k-1} z_{t-k+1} + \Pi z_{t-k} + u_t \quad (22)$$

where  $\Gamma_i = - (I - A_1 - \dots - A_i)$  and  $\Pi = - (I - A_1 - \dots - A_k)$ , with  $I$  being the identity matrix,  $i=1, \dots, k-1$ <sup>28</sup>. Now, if  $z_t$  is a vector of  $I(1)$  variables so that  $\Delta z_t$  is  $I(0)$ , then, for (22) to be balanced,  $\Pi z_{t-k}$  must also be  $I(0)$ . It can be shown that this is true in case one of the following conditions hold: (a)  $\Pi$  has full rank, i.e. it involves  $n$  linear independent columns; (b) the rank of  $\Pi$  is zero; and (c) if  $\Pi$  includes  $r$  linearly independent columns, with  $r < n$ . In terms of cointegration analysis, only case (c) is interesting as it can be shown that the number of linearly independent vectors in  $\Pi$  corresponds to the number of cointegrating relationships (i.e. cointegrating vectors) among the variables. In this case, it can be shown that  $\Pi = \alpha \beta'$ , with  $\alpha$  representing the speed of adjustment to disequilibrium and  $\beta$  the matrix of long-run equilibrium coefficients. The term  $\beta z_{t-k}$  which is embedded in (22) represents up to  $(n-1)$  cointegration relationships which ensure that  $z_t$  converge to their long-run steady-state solutions. In this case, (22) can be written as (23) below<sup>29</sup>.

$$\Delta z_t = \Gamma_1 z_{t-1} + \dots + \Gamma_{k-1} z_{t-k+1} + \alpha (\beta' z_{t-k}) + u_t \quad (23)$$

Hence, in Johansen's approach, testing for cointegration is equivalent to testing for the number of linearly independent columns in  $\Pi$ . The procedure to determine this number has as follows. First, system (22) is estimated. However, as  $\alpha$  and  $\beta$  cannot be estimated directly using standard estimation methods, Johansen

<sup>28</sup> Equation (22) may also include a vector of constant terms. Trend terms may also be included if the series involved in the analysis included deterministic trend terms.

<sup>29</sup> If  $r = 0$ , this corresponds to case (b) above and the implication is that there are no cointegrating relationships in the system. If, on the other hand,  $\Pi$  has full rank, the implication is that the variables in  $z_t$  are stationary.

(1988) develops a Maximum Likelihood procedure to estimate them. This yields  $n$  estimated eigenvalues  $(\lambda_1^{\wedge}, \lambda_2^{\wedge}, \dots, \lambda_n^{\wedge})$  and  $n$  corresponding estimated eigenvectors  $(v_1^{\wedge}, v_2^{\wedge}, \dots, v_n^{\wedge})$ . The rank of matrix  $\Pi$  is then tested by means of the following tests:

(i) The *Trace Statistic*:  $\lambda_{\text{trace}} = -T \sum_{i=r+1}^n \log(1 - \lambda_i^{\wedge})$

(ii) The *Maximal-Eigenvalue ( $\lambda$ -max) Statistic*:  $\lambda_{\text{max}} = -T \log(1 - \lambda_{r+1}^{\wedge})$

In (i) and (ii) above,  $r = 0, 1, \dots, n-1, n$ , and  $T$  is the sample size. In test (i), the null hypothesis is that there are at most  $r$  cointegrating vectors against a general alternative. In test (ii), the null hypothesis is that  $r$  cointegration vectors exist against the alternative that  $r + 1$  exist. The  $r$  cointegrating vectors are then given by the  $r$  most significant eigenvectors, i.e.  $\beta = (v_1^{\wedge}, v_2^{\wedge}, \dots, v_r^{\wedge})$ . The estimate of  $\alpha$  is then obtained directly from  $\Pi = \alpha\beta'$ . This can then be used for purposes of causality analysis as suggested by Toda and Phillips (1993) and Hall and Milne (1994), i.e. by imposing zero restrictions on individual elements of  $\alpha$ . Such causality analysis is in position to cope with the problem discussed above as it accounts for both sources of causation discussed by Granger (1988) and focuses primarily on the long-run causality patterns between the variables.

In recent years, the Johansen cointegration approach has gained considerable popularity among researchers. This reflects the fact that in the context of multivariate analysis, it displays considerable advantages over the two-step Engle and Granger approach. It is beyond our scope to provide a detailed theoretical comparison between the two methodologies<sup>30</sup>. Perhaps, the main advantage of Johansen's approach over the one by Engle and Granger is that as Muscatelli (1992, p. 27) argues, the Engle-Granger static regression will not yield consistent estimates of any one of the significant cointegrating vectors if  $r \geq 1$ . However, in the context of pair-wise analysis, where the maximum number of cointegrating vectors is equal to 1, the importance of this advantage is not relevant. As Muscatelli (1992, p.27) argues, "The ML method and the static regression will yield identical results in the special case where  $r = 1$  and where the

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<sup>30</sup> For such a comparison, see Harris, 1995.

error-correction term only enters the equation for the variable of interest". So, if the analysis involves only two variables, the Engle and Granger method is a perfectly valid way to proceed, particularly in view of the super-consistency property of the OLS estimates of the cointegrating vector.

## CHAPTER 3

### Greek macroeconomic policies, 1960-97: an evaluation

#### 3.1. The period 1960-73

The situation established in Greece immediately after the end of the civil war was a regime of limited political freedom with the authorities largely in control of many aspect of social life. This kind of political administration was in many respects repressive but, on the other hand, one cannot deny that it managed to create an environment of stability which, combined with conditions of international prosperity, reduced uncertainty and maintained a good business climate.

More specifically, the primary purpose of economic policy during those years was the industrial development of the country. To that end, the high prevailing rates of return encouraged domestic and foreign investors to undertake projects in Greece. As profitability increased more investment followed, industrial production expanded and the economy was developed further. The reason was that, from an investor's point of view, there were three explicit and convincing guarantees which safeguarded the promised high rates of return on investment. *First*, a sound fiscal situation with an almost balanced public budget and quite small public debt. These excluded the probability of excess taxation or surprise inflation in the foreseeable future. The small budget deficits were created by the public investment budget and as long as the latter contributed to the economic development of the country (mainly through the creation of new infrastructure), the increased tax revenues created by higher incomes were enough to repay the interest on the loans. *Second*, the commitment of the authorities to maintain a fixed exchange rate against the US dollar. This was regarded as a credible pre-commitment mechanism on the part of monetary authorities which eliminated exchange rate risk and was an extra guarantee against inflation. *Third*, the institutional framework which on the one hand guaranteed the property rights of the investors and on the other ruled out any questioning, let alone overthrowing, of the *status quo*. As a result of the regrettable repression of union activities, production was not disturbed by conflicts between employers and employees or by

any strikes. This kept wage inflation and labour costs at very moderate levels by European standards<sup>1</sup>. This fact, combined with the Association Agreement Greece had signed with the EEC in 1961 (an agreement which provided a number of competitive advantages against competing non-EEC countries), made Greece a very attractive country for direct foreign investment. Finally, the political situation was such the role of the political and partisan cycles was limited, an element which promoted further the industrial development of Greece.

On the other hand, the pre-1973 picture of the Greek economy was not completely rosy. Apart from the moral issues which the repressive political administration unavoidably (and justifiably) raised, and despite the economic development achieved, the production base of the Greek manufacturing sector remained narrow. Foreign and domestic investment were mainly directed to traditional, low-value added, low technology, heavily protected sectors of manufacturing where Greek firms acquired a specialization (see Kintis, 1985 and Giannitsis 1988). As a result, the Greek labour force was not sufficiently trained in modern production methods, a fact whose significance was to appear in subsequent years<sup>2</sup>. In addition, the Greek industrial sector was built around firms of small size, something which continues to be the case even today<sup>3</sup>. This was a serious setback because small firms are disadvantaged in the following two respects: first, their small turnover does not allow the funding of large R&D projects and, as models of endogenous growth highlight, in an environment of imperfect competition, this undermined their competitiveness; second, they face limited access to the credit market and cannot undertake easily to major investment spending. On the other hand, the agricultural sector which, in spite of its gradual decline in terms of percentage in Greek GDP, remained much more important in Greece than in other OECD countries, faced similar problems: the

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<sup>1</sup> According to Papanitiou (1979, p.40), during the 1958-69 period, the average rates of growth of nominal unit labour costs for the most vital Greek industrial sectors were as follows: food, drink and tobacco industries: Greece 1.1%, Western Europe 4.6%; textiles, clothing, wood, furniture, paper, printing and leather industries: Greece 0.9%, Western Europe 3.7%.

<sup>2</sup> Lianos (1976) found that during the period 1958-69 the increase in labour efficiency in Greek industry was only half the efficiency increase achieved by capital.

<sup>3</sup> In 1993 the average number of employees in Greek manufacturing units was 4.7. The corresponding figures were in Portugal 5.2, in Sweden 8, in Spain 14, in Germany 17, in Belgium 29, in the United Kingdom 34, in Denmark 34, in Austria 68 and in the Netherlands 86 (see OECD, 1993).



size of cultivated farms remained small and production methods outmoded. Finally, the intervention of the state in all fields of economic life created distortions in the allocation of economic resources which, according to endogenous growth theory were not growth-inducing, but whose significance was not apprehended at the time because international prosperity and domestic institutional stability compensated for their existence. As a result, the development of the Greek economy involved significant structural problems, such as a structural trade deficit, with Greece importing medium and high-technology goods and exporting traditional products to face potentially intense international competition.

### **3.2. The period 1975-81**

Like other Western European countries, Greece was negatively affected by the first oil shock in 1973. Inflation soared, profitability fell and uncertainty about the future prevailed. Between 1975 and 1979 Greece managed to recover partially but the second oil shock confirmed the fundamental change in the international economic environment and created a new situation in which the challenge for all governments was to moderate the negative impact of the recession on the welfare of their citizens while, at the same time, creating conditions for the return to high growth rates. In the early 1980s many European governments attempted to achieve this goal by reducing inflation and its distortionary effects (see Oxley and Martin 1991, Alesina and Perotti 1995, 1996). This was mainly attempted by means of greater fiscal discipline and lower rates of growth of money supply.

In the particular case of Greece, maintaining a small budget deficit (which had started increasing after 1975) would have left some room for the reduction in overall liquidity without necessitating the strict limits on business credit which were later imposed. Such limits would represent an impediment to the realization of the investment which was necessary to put the economy back on the track of growth. But disinflation and resumption of investment also pre-supposed a reduction in consumption and an increase in national savings, something to which the administratively-set low levels of deposit rates were not contributing. However, the authorities had to be cautious when increasing interest rates because

it was necessary to avoid hindering the recovery of business investment. That was so because, after all, the main target of economic policy was to adapt to the new, less prosperous international environment through the realization of structural reforms and investment, especially in the fields of industry and public infrastructure. To that end, in view of the declining rate of profitability and the forthcoming accession of the country to the EU, competitiveness could be supported by measures aiming at wage moderation, greater flexibility in the labour market and reduction in real unit costs. Finally, it was imperative to modernize the supply side of the economy through new public infrastructure and the development of new specializations and products in areas of higher value-added and more advanced technology.

Greece, however, did not respond actively to challenges mentioned above. In contrast, Greek governments in the late 1970s took some measures in the opposite direction, including nationalizations, increasing public spending, the introduction of a crawling peg exchange rate policy and the initiation of an expansionary monetary policy involving an acceleration of credit and money supply. Also, the authorities conceded high nominal and real wage increases, all of which fuelled inflation further after the initial external inflation shock in 1973-74 (see Alogoskoufis, 1986). Furthermore, they proceeded to increase taxation on firms' profits and made changes in the institutional framework which were not popular with the business community. Finally, the authorities failed to replace the social stability imposed by political repression through a modern, democratic institutional framework which could preserve order and law-abiding behaviour. As a result, the increasingly politicised labour unions adopted an aggressive behaviour (see Alogoskoufis, 1995).

All in all, one could say that during the period between the two oil shocks, Greece displayed a rather hesitant approach to the new international economic environment and did not make the best possible policy choices. The transition from a repressive political regime to democracy was not accompanied by the necessary institutional modernization and, instead of correcting the economic shortcomings of the previous period (whose significance could not be realized in a period of international prosperity and internal social stability) continued and even

aggravated them. It is, of course, true that with the exception of 1980-81, as a result of the increase in public revenues the first post-dictatorship governments managed to maintain relatively small budget deficits; and also that in terms of output growth, the economic performance of Greece was still satisfactory compared with most OECD countries. However, this recovery was accompanied by increased inflation. Finally, despite the fact that the crawling peg policy operated temporarily as a rescuing mechanism which averted the loss of competitiveness of Greek products abroad, it fuelled inflation and operated as a counter-motive for the realization of necessary adjustments in the microeconomic level (see below).

### **3.3. The period 1981-90**

#### **3.3.1. Fiscal policy: causal relationships between public expenditure and Gross Domestic Product**

In the late 1970s and the 1980s Greek governments employed a traditional Keynesian approach to economic policy involving a significant increase in public expenditure accompanied by a similar increase in public borrowing (see Figure 1.5 in chapter 1) and a less pronounced increase in public receipts (see Figure 3.1). The additional public expenditure was mainly directed to public consumption purposes: Figure 3.2 reveals that in the post-1975 period the percentage of public expenditure devoted to investment purposes has been on a declining path.

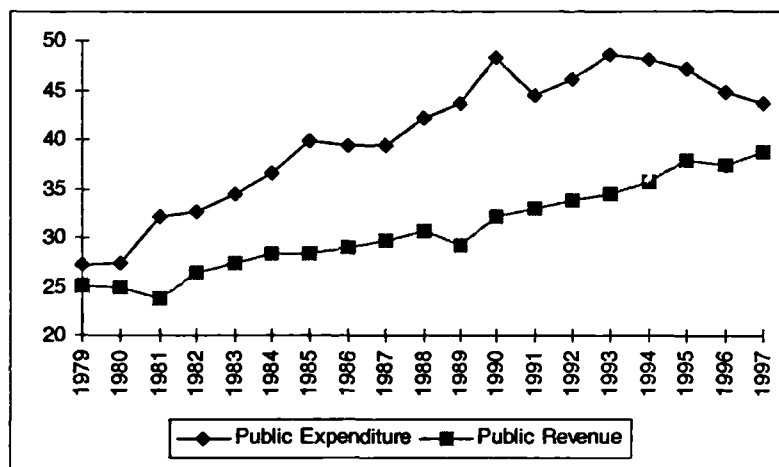
The aim of the above mentioned increase in public consumption was twofold: (a) to achieve a fairer distribution of income in favour of the lower-income classes (b) to achieve an increase in aggregate demand which, in turn, would give rise to new investment projects and a higher level of national income<sup>4</sup>. Regarding the first objective, there is no doubt that prior to 1980 the Greek society was characterised by some obvious social inequalities, therefore the pursuit of a more fair distribution of income was understandable from the moral point of view. However, whether the policy followed was in position to reduce these inequalities and, perhaps more importantly, whether it finally managed to reduce them, are

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<sup>4</sup> The electoral business cycle has also played an important role (see Alogoskoufis, 1995).

Figure 3.1

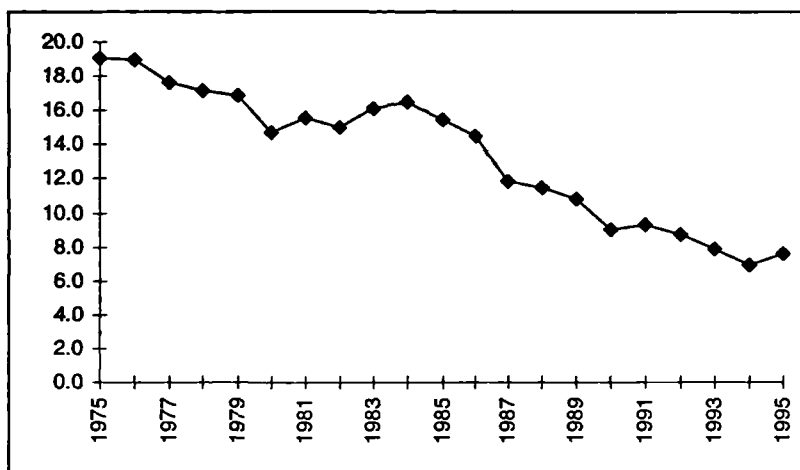
## Total expenditure and receipts of general government (% of GDP)



Source: *European Economy No 64, Statistical Appendix*

Figure 3.2

## Public investment as % of total budget outlays



Source: *Bank of Greece, Monthly Statistical Bulletin, various editions.*

debatable points which will not be discussed here<sup>5</sup>. On the other hand, as far as the second objective is concerned, is there any evidence suggesting that fiscal expansion contributed to a higher level of national income? This sub-section investigates this topic.

The causal relationship between public expenditure and national income has been the subject of vivid academic (and political) discussion. A number of

<sup>5</sup> Income inequalities in Greece have been discussed by Sarris and Zografakis (1993). The main result of their study is that income inequality did decline between 1974-81 but did not decline during the rest of the 1980s.

public finance studies have adopted the well-known Wagner's law approach which states that an increase in national income causes an increase in public expenditure, mainly through an increase in demand for public services. Within this framework, public expenditure is treated as a behavioural variable, similar to private consumption expenditure. On the other hand, a number of macroeconomic models have adopted a point of view closer to the Keynesian doctrine, postulating that public expenditure is an exogenous policy instrument, to be used to influence the level of national income, especially under conditions of economic recessions (see section 2.2.3 in chapter 2). Knowledge of the true causal relationship is a matter of great importance. As Singh and Sahni (1984 p. 630) argue, "purely a priori judgements for choosing between the two competing postulates are rendered difficult because of the possibility of feedback in macro relations which tend to obscure both the direction and the nature of causality. However, knowledge of the precise causative process has important policy implications. For example, if the causality were Wagnerian, public expenditure is relegated to a passive role, if Keynesian it acquires the status of an important policy variable. The determination of causative process is generally an empirical question. The empirical results could clarify whether the growth in public expenditure has contributed to growth in national income or the other way around". The above imply that if the causal relationship between Greek public expenditure and national income were of the Wagnerian type, the conclusion would be that the post-1975 increase in Greek public expenditure did not have the growth-inducing properties which the post-1975 Greek policy makers had attributed to it. A similar conclusion would be reached if no causal relationship were identified at all. Finally, evidence of bi-directional causality would complicate the results for inference purposes.

The first step towards identifying any causal relationship between public expenditure and national income would be to investigate the existence of any long-run relationship between the two variables. The reason is that if in reality such a long-run relationship does not exist, i.e. if in the long-run the movements of the two variables are irrelevant to each other, further discussion on causality is obviously pointless. However, one important point emerging from the above quotation from the paper by Singh and Sahni is the one referring to the existence

of feedback effects between public expenditure and national income. One could possibly argue that in the long run, some parts of total public outlays are bound to cause income growth (e.g. public infrastructure spending) whereas other parts would be more responsive to short-run income fluctuations (for example, transfer and other payments are usually sensitive to the stage of the business cycle). Such feedback effects may be of great importance as far as the results of our analysis are concerned: in view of the reduction in the share of public investment in total budget outlays, one could argue that in the case of Greece we would expect less or no evidence of a causality pattern running from total public expenditure to national income. Under the circumstances, the analysis may not be in position to detect any causality pattern of this kind (G→GDP). However, due to the reason explained above, that would not necessarily imply that *all* categories of public expenditure are not income-inducing. Therefore, our analysis, which investigates the causal relationship between public expenditure and national income, considers three categories of budget outlays: total public expenditure (G), public investment expenditure (GI) and public consumption expenditure (GC). This approach could probably give us a better picture regarding the effect of the Greek fiscal policy followed in the late 1970s and the 1980s whose main characteristic, we repeat once again, was a significant increase in public consumption. Data for all variables has been taken from the IMF publication “International Financial Statistics” publication, (CD version 09-97). The sample period covers the years between 1951 and 1995, a total of 46 annual observations<sup>6</sup>. Annual data has been used for two reasons: first, in the case of Greece quarterly series for the series examined are either non-existent or incomplete; second, it has been suggested (Singh and Sahni, p. 633) that in studies like the present one “reference period of less than a year may not be sufficient to register the response between the variables”. The analysis is in terms of real values, i.e. nominal values divided by the GDP deflator.

Table 3.1 presents the appropriate (A)DF tests (with and without a trend term) for the logarithms of the real values of GDP, G, GC and GI respectively as

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<sup>6</sup> The IMF definition for public expenditure includes public consumption, public investment and all transfer and interest payments. It does not include amortization.

Table 3.1

## ADF tests: GDP, Public Expenditure and Public Receipts

Gross Domestic Product (GDP)	Public Expenditure (G)	Public Consumption (GC)	Public Investment (GI)	Public Receipts (R)
<b>Without trend</b>				
log (GDP) ADF(1) = 3.261	log (G) ADF(0) = 5.149	log (GC) ADF(0) = 4.817	log (GI) ADF(0) = 2.281	log (R) ADF(0) = 4.862
$\Delta$ log (GDP) ADF(1) = -3.377**	$\Delta$ log (G) ADF(1) = -2.441*	$\Delta$ log (GC) ADF(1) = -2.822**	$\Delta$ log (GI) ADF(1) = -2.656**	$\Delta$ log (R) ADF(0) = -2.460*
<b>With trend</b>				
log (GDP) ADF(0) = 0.332	log (G) ADF(0) = -1.268	log (GC) ADF(0) = -1.754	log (GI) ADF(0) = -1.738	log (R) ADF(0) = -1.454
$\Delta$ log (GDP) ADF(0) = -6.317**	$\Delta$ log (G) ADF(0) = -8.169**	$\Delta$ log (GC) ADF(0) = -7.299**	$\Delta$ log (GI) ADF(0) = -6.549**	$\Delta$ log (R) ADF(0) = -6.522**
<p>1 : Calculated incorporating two dummy variables<sup>7</sup>  * indicates statistical significance at the 5% level, ** indicates statistical significance at the 1% level.</p>				

<sup>7</sup> Without these dummies, the hypothesis of stationarity is rejected for  $\Delta \log(\text{GDP})$ . However, this series represents nothing less than the real rate of growth of the Greek economy. The existence of a unit root (a long-run negative trend) in such a series is highly unlikely as it would imply that at some stage in the future Greece would end as a completely impoverished country, a rather impossible eventuality. A careful look at Figure 1.1 suggests that the stationarity hypothesis is most probably rejected not because of the existence of a negative trend in the series but because of a step-fashion reduction in the mean of the series which took place in mid-1970s. This implies that  $\Delta \log(\text{GDP})$  may in fact be a stationary variable and the stationarity hypothesis would not have been rejected if this structural break had not taken place. This hypothesis can be easily tested: As Harris (1995, p. 40) argues, "if the break(s) in the series are known [as they are in our case], then it is relatively simple to adjust the ADF test by including composite dummy variables, i.e. dummy variables that take on a value of (0,1) to allow for shifts in the intercept". Following Harris, we estimated the ADF equation for  $\Delta \log(\text{GDP})$  including two dummy variables: the first one, which takes the value of 1 for 1974 and 0 otherwise, aims to neutralise the impact of the exceptionally low rate; the second, which takes the value of 0 for the pre-1980 period and 1 for the post-1980 period, aims to account for the aforementioned structural break. The resulting ADF(1) statistic is statistically significant at the 1% level of statistical significance and confirms our assumption that the rate of growth of the Greek economy is an I(1) process.

Table 3.2

## Estimation of Cointegrating Regression: GDP and Public Expenditure

$$\log(Y_t) = \alpha + \beta \log(X_t) + \gamma t + \varepsilon_t$$

$Y_t / X_t$	$\hat{\alpha}$	$\hat{\beta}$	$\hat{\gamma}$	ADF test on estimated $\varepsilon_t$
GDP / G	0.9072	0.9849	-0.0099	
Sample: 1951-95	<i>3.472</i>	<i>9.457</i>	-3.101	ADF(0) = -2.2819
GDP / GC	1.2019	0.9099	-0.0089	
Sample: 1953-95	<i>3.101</i>	<i>5.663</i>	-1.776	ADF(0) = -2.7672
GDP / GI	2.6868	0.3801	0.0101	
Sample: 1953-95	<i>43.487</i>	<i>11.635</i>	<i>11.369</i>	ADF(2) = -3.8300

ADF Critical values at the 5% level of statistical significance  
(obtained by Microfit 4, Windows version):  
Sample 1951-95: -4.0137  
Sample 1953-95: -4.0258  
*t-statistics in italics.*

Table 3.3

## Johansen-Juselius cointegration tests: GDP and Public Expenditure

Null	Alternative	LR statistic	95% CV	Trace statistic	95% CV
<b>Variables examined: log (GDP) and log (G)</b>					
$r = 0$	$r = 1$	11.37	16.90	11.44	18.20
$r \leq 1$	$r = 2$	0.069	3.70	0.069	3.70
<b>Variables examined: log (GDP) and log (GC)</b>					
$r = 0$	$r = 1$	10.93	16.90	10.93	18.20
$r \leq 1$	$r = 2$	0.002	3.70	0.002	3.70
<b>Variables examined: log (GDP) and log (GI)</b>					
$r = 0$	$r = 1$	8.63	16.90	8.63	18.20
$r \leq 1$	$r = 2$	0.000	3.70	0.000	3.70



well total real public receipts (R) to which we refer later in this chapter<sup>8</sup>. It is, of course, true that as the ADF is an asymptotic statistic, 46 observations is not an ideal number and a larger sample would be more preferable. However, given the aforementioned limitations regarding quarterly data, one has no other choice than to work in the context of the existing data limitations<sup>9</sup>. Table 3.1 suggests that all series are integrated of order 1.

Table 3.2 presents the results of the estimation of three cointegrating regressions which test for the existence of long-run relationship between real GDP and the three categories of public expenditure. The trend term in the cointegration regression is justified on the grounds that it is rather rational to assume that in the steady-state equilibrium, the level of real GDP, and other national accounts variables, display a positive rate of growth (see above)<sup>10</sup>. Furthermore, we must emphasize that the results do not change if we remove the trend term. On the other hand, Table 3.3 presents the results obtained by the application of the Johansen cointegration methodology<sup>11</sup>. Tables 3.2 and 3.3 reveal that both methodologies reject the hypothesis of cointegration between GDP and total public expenditure<sup>12</sup>, public consumption expenditure and public investment. As the hypothesis of cointegration is rejected, we do not proceed to any kind of causality analysis because in the absence of a long-run relationship between the variables, that would be meaningless.

The absence of cointegration between GDP and public investment may sound surprising given the growth-inducing properties attributed to public infrastructure by many researchers (see section 2.2.1). However, the results obtained may be a reflection of the fact that the main effect of public investment

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<sup>8</sup> The structure of each ADF test in this chapter has been determined in such a way as to ensure that the residuals of the ADF equation are white noise at the 5% level of statistical significance.

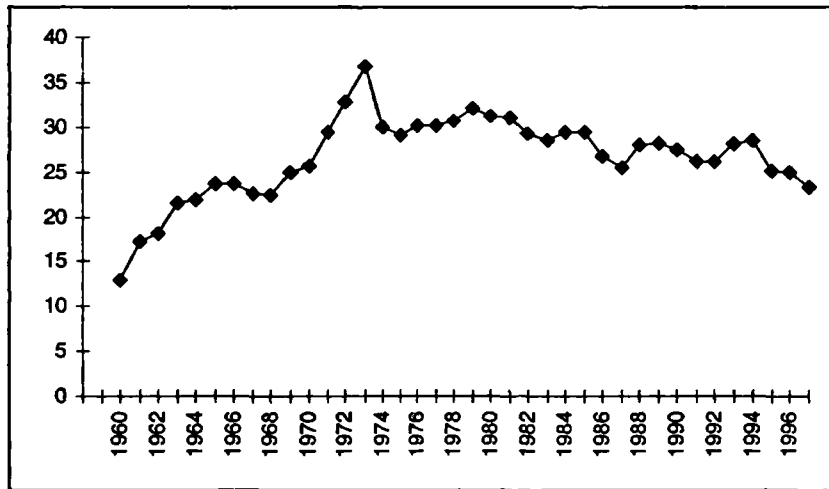
<sup>9</sup> Other researchers faced similar data limitations. For example, the study by Provopoulos and Zambaras is based on 28 annual observations; the one by Singh and Sahni on 31; the one by Anderson, Wallace and Warner on 38; and the one by Manage and Marlow on 53.

<sup>10</sup> The formal test which we have performed provides further evidence in favour of this view. More specifically, the F-statistic testing the joint hypothesis  $c_2 = \rho = 0$  in equation (13) of chapter 2 for real GDP takes a value equal to 9.3314. The corresponding critical  $\Phi_3$  value at the 5% level of statistical significance is around 6.73 (see Harris, p. 156).

<sup>11</sup> The underlying VAR includes two lagged values for each variable, an unrestricted constant and an unrestricted trend term.

<sup>12</sup> From that point of view, our results are consistent with those obtained by Courakis *et al.* (1993), Georgakopoulos and Loizidis (1994) and Chletos and Kollias (1997) who examined the validity of Wagner's law in the Greek case.

**Figure 3.3**  
**Gross saving of private sector (as % of GDP)**



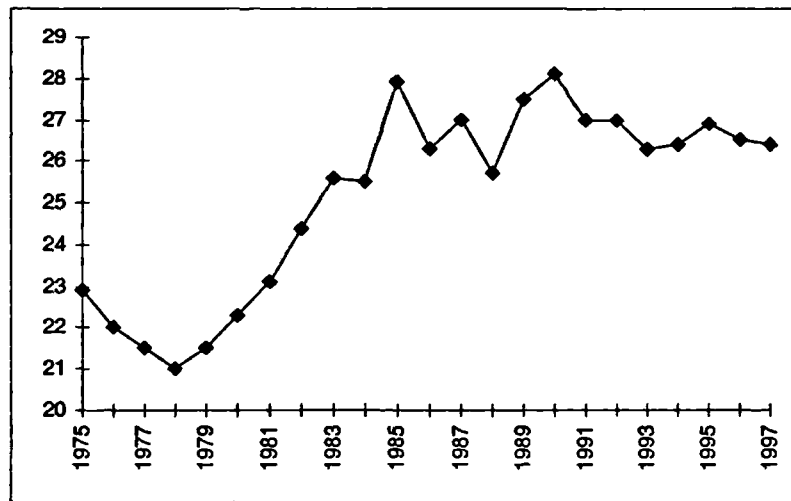
Source: *European Economy No 64, Statistical Appendix*

on national income is one of an indirect, long-run nature which can not be captured in the absence of the estimation of a structural model. A complementary explanation provided by Alogoskoufis and Prodromidis (1995) is that the funds classified as public investment in Greece after 1975 include spending on small-scale projects of secondary importance (largely financed by EU transfers) which did not help substantially the development of Greece as their small-scale nature and their equal distribution across the whole of the country meant that they were not in position to attract secondary private investment<sup>13</sup>. Hence, the reduction in public investment's share and the non-optimal allocation of investment funds meant that public infrastructure in important fields such as telecommunications, transport and energy became increasingly outmoded and undermined the economic performance of the country .

As far the main topic of our investigation in terms of policy assessment is concerned, the results in Tables 3.2 and 3.3 do not support the hypothesis that, in the long-run, an increase in Greek public consumption leads to an increase in national income. From that point of view, it would appear that in terms of output

<sup>13</sup> Krugman (1991) argued that developed areas tend to develop faster and spending on public projects in these areas can create externalities and positive spillovers more easily than less developed ones. It is quite interesting to mention that all large infrastructure projects which are currently under construction (including the Athens Metro, the new Athens Airport, the Rio-Antirio Bridge and many others) have been announced before 1980 but their construction did not start before the 1990s.

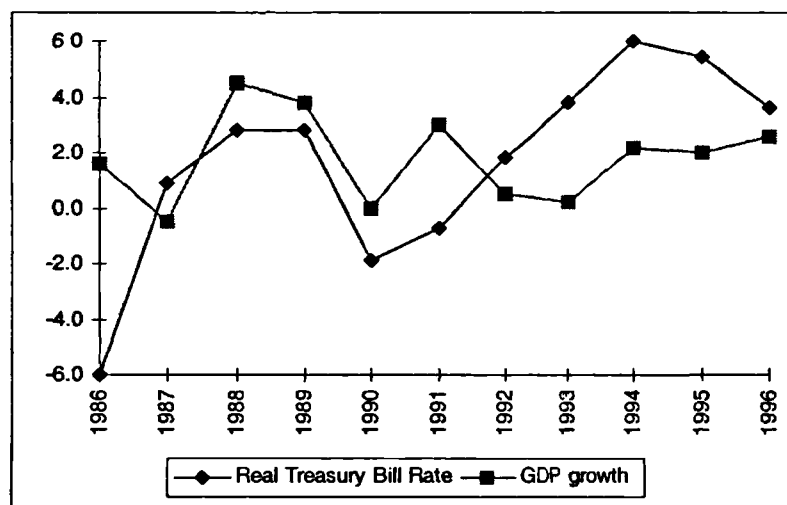
**Figure 3.4**  
**Greek Imports as % of GDP**



*Source: European Economy No 64, Statistical Appendix*

growth, the mainly debt-financed fiscal policy which was followed after 1975 has rather been ineffective. There appears to be rather little evidence in favour of a Ricardian Equivalence explanation of this observation. Private saving in Greece recorded a sharp decline in the late 1970s and did not increase substantially in the 1980s (see Figure 3.3). However, there are a number of other theoretical arguments mentioned in section 2.2.3 which may explained the limited expansionary impact of the post-1975 Greek fiscal policy. These include the following: firstly, as a result of the well-known “time to build” problem , i.e. lags in the investment process (see e.g. Kydland and Prescott, 1982), in the framework of a small, open economy like Greece where the industrial base is rather limited and the propensity to imports quite high, the increased demand caused by the fiscal expansion was mainly directed to imports. This argument appears to be particularly relevant during the early 1980s when fiscal expansion was quite pronounced and Greece had just joined the EU (see Figure 3.4). Secondly, it may be the case that the creation of fiscal imbalances gave rise to expectations about future inflation which, as endogenous growth theory suggests, combined with higher labour costs, increased intervention of the state in economic life and increased taxation, led to inefficient allocation of resources, increased markets distortions and reduced competitiveness. All these undermined the economic

Figure 3.5

**Ex-post real Treasury Bill Rate and GDP growth, 1986-96**

Source: Bank of Greece, *Economic Bulletin No. 10, Statistical Appendix*

prospects of the country and, by discouraging domestic and international investors from undertaking investment projects, led to low growth rates for the Greek economy.

The presence of a rising public debt affected and still affects the Greek economy in a number of different negative ways whose significance was not immediately understood by the public. The reason was that the initial improvement in welfare standards which accompanied the increase in public consumption created a feeling of euphoria among the population and, as in the early 1980s interest rates were kept low by administrative means, the cost of public debt service was not so expensive. One might argue that in the late 1970s and the early 1980s, financial regulation and capital controls averted the increase in interest rates which is predicted by the theory of debt-financed deficits (see section 2.2.3). Furthermore, increasing EU transfers allowed the government to carry out public consumption expenditure which could not have been financed to the same extent otherwise (see Alogoskoufis, 1995). But after 1985, and especially after 1987, when Treasury Bills were introduced and the process of financial liberalization was initiated, interest rates started increasing<sup>14</sup>, the debt entered an

<sup>14</sup> This increase can be also attributed to the initiation of the strong drachma policy and, even later, the discontinuation of the monetary accommodation of the budget deficit, in accordance to the provisions of the Maastricht Treaty.

explosive path which gradually acquired a self-propagating character as the real interest rate exceeded the growth rate of the economy (see Figure 3.5)<sup>15</sup>. It also obliged the authorities to dedicate to the debt's service a very significant percentage of public revenues which could otherwise have been utilized in other fields or subtracted from the tax burden imposed on citizens and firms<sup>16</sup>. Moreover, it obliged the authorities to increase tax rates on firms' profits, a fact which reduced profitability and contributed to an increase in the already big share of the shadow economy.

Finally, the 1980s (with the possible exception of the 1986-87 period) were characterised by a rather inappropriate incomes policy which involved nominal wage increases higher than productivity gains. In particular, it has been suggested (see Alogoskoufis, 1990) that the wage indexation system ATA had very distorting effects. Combined with deteriorating macroeconomic conditions, it contributed to the wage-price spiral because it obliged firms to increase prices in anticipation of future inflation. It also contributed to low productivity, especially in the public sector of the economy, thus reducing profitability and contributing to lower GDP growth<sup>17</sup>.

### 3.3.2. Monetary policy: Monetary targets in Greece, 1976-87

During the period 1976-87 the monetary policy of the BOG involved a money supply target which was typically missed: between 1976 and 1982, the BOG met its M0 target only on two out of seven occasions, whereas during the 1983-96 period the M3 target was met only on five out of fourteen occasions (see Figure 3.6). A similar picture appears in the case of total banking credit.

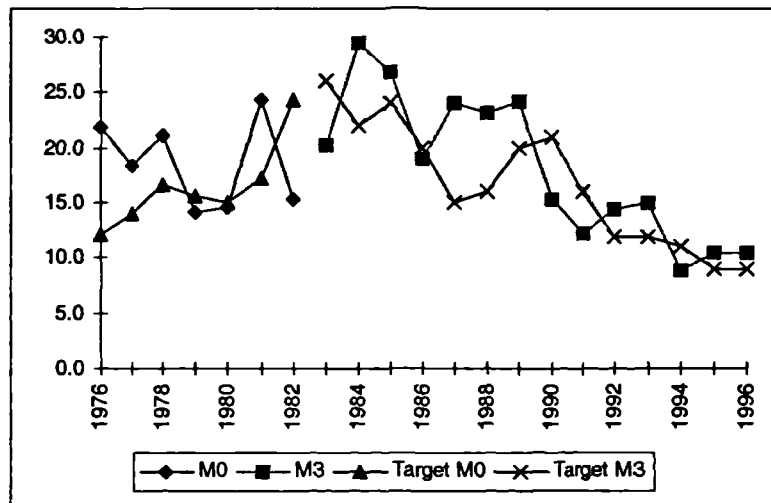
<sup>15</sup> Here we must mention that in the presence of high inflation rates, the difference between the growth rate of the economy and the *ex-post* real interest rate is only a "myopic" measure of public debt sustainability (see Budina and van Wijnbergen, 1997). However, it can still be useful in order to give *prima facie* evidence regarding the dynamics of the public debt.

<sup>16</sup> In 1995 interest payments only (excluding amortization) represented the biggest part of public expenditure, being equal to 37.7% of total public expenditure (3.331 billion drachmas). They were equal to 49.5% of total public revenues and 12.6% of Greek GDP. In 1980 interest payments were equal to 2.5% of Greek GDP, 10% of total public spending and 12% of total public revenue (Bank of Greece, Report of the Governor, 1996).

<sup>17</sup> Alogoskoufis developed a model examining the short-run effects caused by external shocks and wage adjustments in the case of a small, open, developing economy like Greece. The estimation of the model with Greek data showed that in the case of Greece, both an increase in public expenditure and an inadequate incomes policy reduced competitiveness, increased inflation and led to a deterioration of the current account.

Figure 3.6

## Rate of growth of money supply: Targets and outcomes



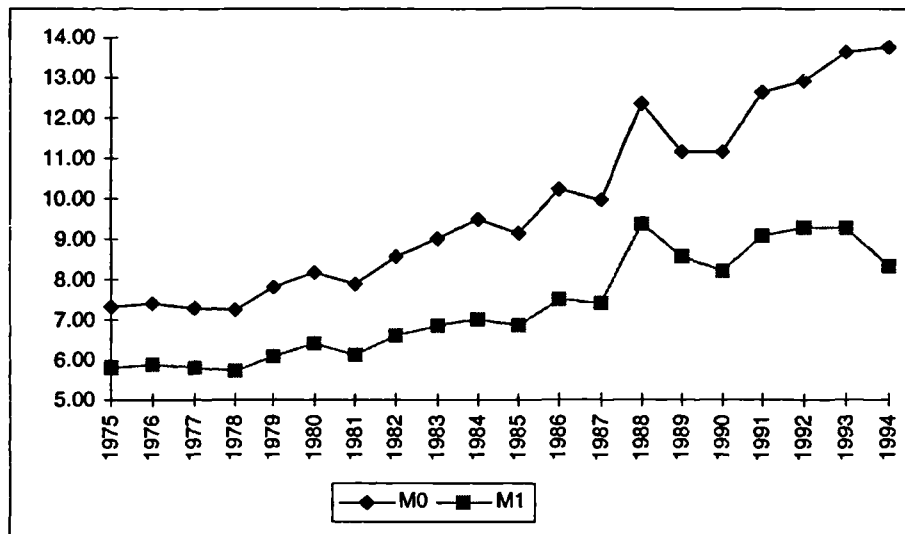
Source: Bank of Greece, Report of the Governor, various editions

Clearly, the missing of the monetary targets is related to the post-1975 expansionary fiscal policy. The BOG (though institutionally bound to pursue price stability as its primary objective) was obliged to accommodate the increasing public deficit and promote other aims as explained in chapter 1. This policy, which was particularly pronounced during pre-election periods, mainly took the form of increased credit to the public sector and contributed to a higher level of liquidity in the economy. During the 1979-89 period, the percentage change of credit to public sector was consistently well above the threshold of 20% and significantly higher than the percentage change of bank credit to the private sector. As a result of this privileged treatment, in the 1980s the public sector increased its share in total bank credit almost threefold from 12% in 1979 to 30% in 1989. Consequently, one could argue that prior to 1988, monetary policy in Greece was regarded as a rather passive exercise and announcements of the BOG about the target zones for money supply and credit growth were not very credible. This inconsistency between the objectives of fiscal and monetary policy did not promote the credibility of economic policy as a whole and contributed to the maintenance of the high inflation rates observed during the 1975-90 period<sup>18</sup>.

<sup>18</sup> In two papers incorporating different modeling assumptions, Alogoskoufis (1982, 1985) reached different results as far as the role of discretionary monetary policy is concerned. In line with the findings of the rules versus discretion literature, in his 1982 paper he provided econometric evidence showing that during the 1960-77 period, only unanticipated monetary growth mattered in

Figure 3.7

## Income velocity of narrow money supply in Greece, 1975-94



Source: Authors' calculations based on data taken from the Bank of Greece, *Monthly Statistical Bulletin*, various editions.

Therefore, the BOG was not able to maintain an anti-inflation reputation and, unlike other Central Banks (e.g. the Bundesbank) was not able to exploit the advantages predicted by the reputational models of monetary policy earlier examined.

A second reason explaining the missing of monetary targets refers to the instability of the income velocity of money. As argued in section 2.2.2, the effort of the Central Bank to meet an implicit target for the rate of growth of the price level by means of a target set for the rate of growth of money supply, is greatly facilitated in case one of two following condition holds: (a) The income velocity of money is constant or at least stationary; and (b) if velocity is not stationary, its percentage change is largely predictable.

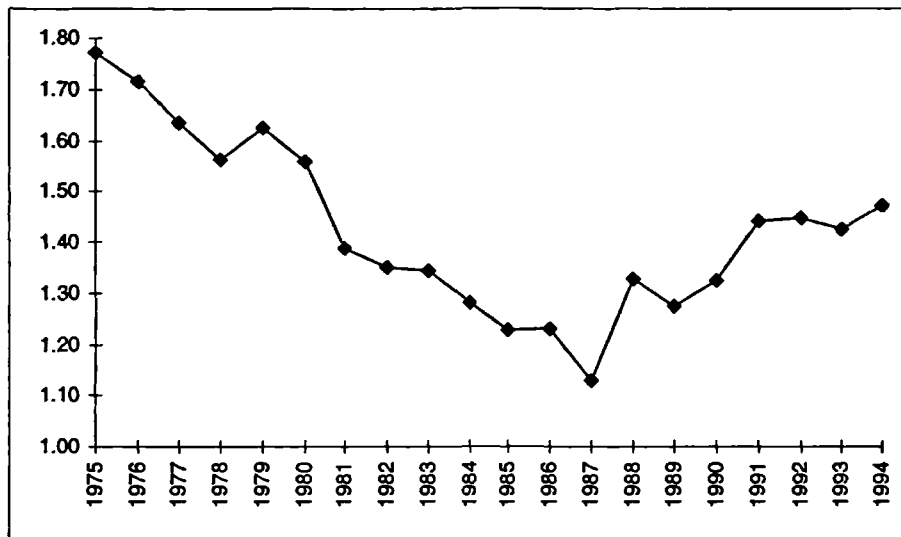
Figures 3.7 and 3.8 present the movements of velocity of monetary base M0, narrow money supply M1 and broad money supply M3. Clearly, in all cases velocity is not stationary, therefore condition (a) above does not hold. On the

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terms of output expansion whereas anticipated monetary expansions were translated into inflation (with a long-run elasticity of prices with respect to money equal to one). In contrast, in his 1985 paper he showed that during the 1951-80 period, anticipated increases in both government expenditure and the money stock were effective in leading to an increase in real GDP. However, he argued that if Greek governments of the 1970s had adopted a constant rule for the rate of growth of money supply (M1), the average growth of the Greek economy would have been higher than it was and the fluctuations of real GDP would have been milder.

Figure 3.8

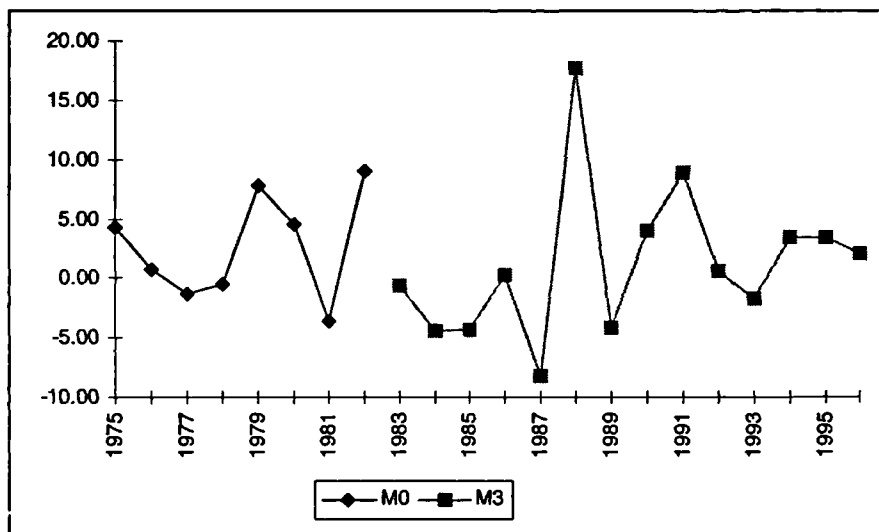
## Income velocity of broad money supply in Greece (M3), 1975-96



Source: Authors' calculations based on data taken from the Bank of Greece, *Monthly Statistical Bulletin*, various editions.

Figure 3.9

## Annual Percentage Change of Velocity (M0 and M3)



Source: Authors' calculations based on data taken from the Bank of Greece, *Monthly Statistical Bulletin* (various editions).

other hand, the condition regarding the predictability of the rate of growth of the velocity does not seem to hold either. During the period 1976-82, i.e. the years that the BOG targeted the rate of growth of M0, the percentage change of M0 velocity has fluctuated within the range of -3.6 to 9% in a non-systematic way. In



a similar fashion, during the period 1983-93, i.e. the years that the BOG adopted M3 targets, the percentage change of the M3 velocity fluctuated within the range of -8.3 to 17.6% in a non-systematic way (Figure 3.9). In the context of a policy involving annual monetary targets, where the time horizon is clearly a short-run one, such short-run fluctuations are vital as far as the success of the policy is concerned. In the case of Greece, velocity appears to be unstable and unpredictable, explaining, at least partly, the failure of the BOG to meet its monetary targets during the 1976-93 period.

A number of the factors identified by Stone and Thornton (1987), Goodhart (1989) and Leventakis and Brissimis (1991) discussed in section 2.2.2 may be relevant in explaining velocity instability and the missing of monetary targets in Greece. To begin with misspecification problems, as far the period 1976-82 is concerned, the use of M0 as the money variable in the quantity theory equation may have been inappropriate as narrow monetary aggregates may not be highly correlated with inflation<sup>19</sup>. However, misspecification problems may have also existed after 1983 (when M3 replaced M0 as the intermediate target of monetary policy). First of all, it should be kept in mind that in the late 1970s and the early 1980s Greek governments proceeded to an increase in taxation in order to finance part of the fiscal expansion. If, as suggested in section 3.2.2, money demand is a function of disposal income, increased taxation may have caused a reduction in money demand which may explain, at least partially, the reduction in M3 velocity observed in the 1970s and the 1980s.

To turn now to cyclical explanations of velocity instability, the decline of M3 velocity observed in the late 1970s and the 1980s may be due to the high inflation conditions which prevailed in Greece during those years as they may have reduced agents' demand for money. The reversion of the downwards trend which took place in the 1990s (a period of improved inflation performance) offers further support to this view<sup>20</sup>. Furthermore, as long as money supply growth in

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<sup>19</sup> Our calculations for the period 1975-96 produce a sample correlation coefficient between the rate of growth of M0 and CPI inflation in Greece equal to 0.18. The relevant figure for M3 is considerably higher, namely 0.46.

<sup>20</sup> Here we have to make a special reference to year 1988 when the definition of nominal GDP was revised to include more items. The revision implied an increase in the value of nominal GDP approximately equal to 15%-20%. The dramatic increase in velocity observed in 1988 is definitely related to this revision.

Greece was subject to large swings during the 1970s and the 1980s (see Figure 3.6), velocity instability may be attributed to the effect of long and variable lags present in the conduct of monetary policy. The argument here is that as the presence of these lags implied that high growth rates of money supply were not accompanied by instantaneous similar increases in nominal GDP, large increases in nominal money led to a reduction in velocity.

Finally, as in the case of other countries, velocity instability in Greece may be related to the structural changes caused by the process of financial liberalization introduced in 1987, the financial innovations which followed, the introduction of government bonds in 1986 and the wealth effects caused by increases in real interest rates between 1988 and 1994. The fact that financial liberalization did not take place in a “big-bang” fashion but in a gradual way, which meant continuous changes over a prolonged period of time, makes the assessment of its impact on velocity rather difficult. However, as far as the increase in M3 velocity which took place after 1988 is concerned, one might suggest that financial innovation and the introduction of government bonds offering investors attractive rates of return has led to a substantial shift of savings from time deposits to government securities and other forms of investment which are not included in M3. This fact, combined with the more tight monetary conditions imposed by the BOG in the 1990s, has contributed to a rate of growth of M3 lower than the one of nominal GDP, thus leading to an increase in M3 velocity.

To turn now to the exchange rate policy followed during the 1975-87 period, a number of studies, including those by Alogoskoufis (1986), Alogoskoufis and Philippopoulos (1992), Moschos and Stourmaras (1993) and Moschos (1995), accept that in the absence of fiscal discipline, the crawling-peg policy followed was not the answer to the declining competitiveness of the Greek economy and could not support economic activity in the long-term. As we shall see later in this chapter, the econometric evidence which we provide suggests that the long-run movements of the drachma exchange rates are consistent with the PPP hypothesis, i.e. they reflect the existing inflation differential between Greece and her main commercial partners. In turn, this finding is consistent with a state of

the world where rising prices threaten the competitiveness of domestic products and, as a result, the authorities use the exchange rate as a defensive mechanism in order to restore that competitiveness. However, as long as this policy was not accompanied by an effort to attack the problem at its source, i.e. to reduce the hard core of inflation (an achievement which presupposed a more disciplined fiscal policy and a higher degree of flexibility in the labour market), the depreciation of the drachma against the major foreign currencies was anticipated by agents, and as such, it fuelled inflationary expectations further. All in all, within the policy mix implemented, the crawling-peg exchange rate policy contributed to a vicious circle of external imbalances, devaluation, inflation, new external imbalances and new devaluation. In particular, Alogoskoufis and Philippopoulos (1992) have shown that irrespective of the party in power, inflation expectations and the actual average inflation rate during the period 1972-89 (the period when the crawling-peg policy was adopted) was higher than during the period 1958-71 (when Greece participated in the Bretton-Woods system). They have also shown that partisan effects exist in the field of inflation but not in that of unemployment. According to them, the unemployment-averse policy which was followed in 1982-89 led to an increase in average inflation expectations and actual wage inflation of 8 percentage points in comparison to the period 1974-81<sup>21</sup> when more inflation-averse governments held office without any visible employment gain. On the other hand, Moschos (1995) found that both an increase in the rate of growth of M3 and an acceleration of nominal depreciation against the major foreign currencies have an inflationary impact on the Greek economy.

### 3.3.3. Institutional framework

Economic performance in the 1980s (especially between 1981-85) was negatively affected by the frequent changes in economic legislation (tax legislation, investment incentives etc.) and political uncertainty caused by the rather unclear ideological and political position of the government on some important issues. This is shown by the movement of some time series which are particularly sensitive to political changes such as the foreign reserves of the BOG, direct investment in the country, emigrants' remittances and revenue from

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<sup>21</sup> Excluding 1986 and 1987 when the government applied a strict stabilization programme.

shipping (see the Trade Data Appendix). Equally negative was the role of the labour legislation passed in the early 1980s and, as a result of its abuse, the increased power of the labour unions. The latter exhibited behaviour which gave rise to rather exaggerated demands and a fanatic, if one may express oneself so bluntly, behaviour in the pursuit of wage and social security demands which were rather unjustified both from the economic and the social point of view. As a result, production was often disrupted by strikes<sup>22</sup> which, combined with social insurance increases and restrictions on dismissals, increased real wage costs, preserved rigidities in the labour market and led to increasing unemployment. Furthermore, as Halikias (1996) argues, the unions' militancy may have contributed to a further decline of productivity, especially in the public sector, and to the maintenance of inefficiency in the field of public administration. All in all, the unions' behaviour was a key factor in the increase in wage inflation, the reluctance of investors to proceed to new projects and the subsequent failure of the economy to achieve structural adjustments, all of which hindered the diffusion of badly needed new technology.

#### **3.3.4. Microeconomic policy and its macro implications**

In the late 1970s and the 1980s Greek governments obliged the state-owned commercial banks to finance small or medium-sized firms with loans on which a low or even negative real interest rate was charged. At the same time, the state guaranteed the repayment of many of these loans. In addition, after 1975 the Greek state took over the running of many heavily indebted private firms, because they were considered of "strategic importance" (a very unclear term both in terms of economics as well as politics) or simply because they did not want to close down the firms and provoke an increase in unemployment.

There is little doubt that from the moral and social point of view, there was a good case for supporting financially both groups of firms mentioned above. The reason is that these firms represent the biggest part of the Greek industrial sector

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<sup>22</sup> According to the OECD (1993), during the period 1987-91 Greece lost 940 working days per 1000 workers compared with an unweighted average of 150 in the EU. Also, according to data from the International Bureau of Employment, between 1983 and 1993 Greece was the second country among EU members with regard to the number of strikes. The average number of strikes per 1000 workers was 195.2. The contrast to Germany (7.6) is impressive and its implications self-explanatory.

and by not supporting them the authorities would have turned a blind eye to the very important social problems which would have been created if unemployment were allowed to increase. However, it is also fair to say that the policy followed created a number of economic problems which in the long-run harmed, rather than improved, the competitiveness of these firms. First of all, the policy followed prevented the expansion of established big firms and the realization of mergers. From that point of view, in the new international economic environment characterised by increased competition, it aggravated the distortions which had been developed on the supply side of the economy during the 1960-73 period (see above). Combined with traditional protectionism against imports and the various incentive-providing development laws, it prevented the manufacturing sector from developing to specialization in high technology sectors and intensified its specialization in low value-added ones. Also, combined with increasing real labour costs and restrictions of layoffs, the policy followed contributed to a rather disappointing exporting performance, and as we shall shortly see, the creation of serious problems in the banking sector. In addition, apart from the fact that most of the nationalized firms had been running operating losses (which were subsequently covered by the public budget), the Greek state used to guarantee loans to these firms and, when the loans could not be repaid, as was usually the case, the public debt was deteriorating by the amount of these guarantees. Such policies had negative effects both on public borrowing and on inflation because the BOG had to accommodate the fiscal support of these firms. Moreover, the policy followed prevented many nationalized firms from applying financial discipline and adjusting to the new, more competitive, environment. As a result, state-controlled companies suffered from ineffective management and produced services of doubtful quality at rather high cost. Finally, the policy followed damaged the state-owned commercial banks which were obliged to provide such firms with low-interest rate loans. A part of this cost was paid by the customers of the banks in the form of higher lending rates and a part by the share-holders of the banks in the form of smaller dividend payments<sup>23</sup>.

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<sup>23</sup> To give an indication of the problem, according to OECD (1993), in 1992 the non-performing loans in the portfolio of the Agricultural Bank alone were equal to 2.5% of GDP.

### 3.3.5. The stabilization programmes in the 1980s

In the 1980s the Greek governments attempted to correct the macroeconomic imbalances, by means of the Arsenis (1983) and Simitis (1986-87) stabilization programmes. Both of them involved a depreciation of the drachma against the US dollar and were primarily designed in order to cope with current account crises. The Arsenis programme achieved limited results as it was too brief to have any significant impact. In addition, it did not include any specific measures for restraining public consumption (on the contrary, it coexisted with the continued expansion of the welfare system) and did not include any institutional initiative aimed at increasing investment profitability by reducing labour market rigidities or improving the tax environment. Furthermore, having in mind that one of the main objectives of the 1983 devaluation was to support the competitiveness of the Greek products, the shadowing of the US Dollar during the January 1983-August 1983 period was a rather mistaken decision, as the appreciation of the American currency offset any competitiveness gains caused by the devaluation.

On the other hand, the Simitis programme, whose main pillars were the 1985 devaluation and a strict incomes policy, was much more effective and succeeded in improving macroeconomic conditions so that its abandonment in 1988 proved very costly. However, its emergency character and the methods which it employed prevented it from being optimal. This is so because, as Papademos (1990) points out, stabilization was mainly attempted through the exchange rate and incomes policies while no effort was made to reduce public consumption. To a large extent, the significant reduction in the PSBR during the 1986-87 period was the result of freezing public investment (a further blow to the already deteriorating public infrastructure of the country) and of declining international oil prices which allowed the government to increase its indirect tax revenue from oil without increasing its final price. Furthermore, the methods employed by the programme aggravated some already existing problems, especially in the microeconomic field. For example, Papademos (1990) argues that the compulsory wage freeze in both the public and private sectors created additional distortions in the wage setting process and proved to be an obstacle to productivity growth.

### 3.3.6. Summing-up

The conclusion of our discussion is that the economic policy followed by Greek governments in the 1980s and the absence of institutional stability during the same period affected the Greek economy in a variety of negative ways. This opinion is shared by the world's leading economic organizations<sup>24</sup> and by other economists who have dealt with the subject [see e.g. Papademos (1990), Larre and Torres (1991), Tsoukalis (1993), Stone (1994), Alogoskoufis (1995), Halikias (1993, 96)]. To that end, the role of the political business cycle has to be emphasized: in the 1980s general elections were accompanied by fiscal and monetary expansions which, in turn, gave rise to restrictive economic policies, i.e. sub-optimal business and partisan cycles whose theory was discussed in section 2.2.4. In addition, as Alogoskoufis (1995) argues, the economic policy followed after 1975 and in particular after 1980 reduced the social return on the investment projects which were actually implemented. It also reduced the savings rate of the economy by sustaining a high level of public and private consumption which, partly because of the underground economy and partly because of the lack of determination to proceed to unpopular but necessary correction policies, responded very slowly to the stabilization efforts.

Overall, one might say that the Greek experience during the period 1975-98 is rather consistent with the view expressed by those authors who have highlighted the importance of macroeconomic and political stability in promoting economic growth. Table 3.4 seems to confirm that the negative correlation between inflation, budget deficits on the one hand; and profitability, investment and economic growth on the other, suggested by Fisher (1993) exists in the case of Greece. To the extent that inflation and budget deficits are, to a great extent, determined by discretionary domestic policy actions, Table 3.4 suggests that the

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<sup>24</sup> See OECD Economic Surveys of Greece 1993, 1995, 1996, OECD Economic Outlook (various years) and European Economy, Annual Report (various years).

Table 3.4

## Macroeconomic performance and economic growth: Greece 1960-97

Period	Inflation	Primary Budget Deficit	Profitability <sup>1</sup> (1961-93=100)	Gross fixed capital formation <sup>2</sup>	GDP growth
1960-73	3.5	N/A	100	27.6	7.5
1975-80	14.9	0.4	80.6	28.5	4.7
1981-90	18.3	5.2	45.0	23.4	1.6
1991-97	11.8	-1.6	64.3	21.3	1.9

1: Net operating surplus per unit of working capital, total economy  
2: as % of GDP

Source: *European Economy No 64, Statistical Appendix*

post-1975 economic slowdown in Greece is largely explained by a rather sub-optimal course of economic policy on the part of the Greek authorities and it is not due to external factors only.

### 3.4. The period 1991-97: the Greek convergence programmes

At the dawn of the 1990s the Greek economy found itself in an extremely dangerous position. As Alogoskoufis and Christodoulakis (1991) argue, in 1990 Greece was on the brink of insolvency and if action had not been taken a major debt crisis would have erupted in 1991. Since then, in the light of the Maastricht criteria and under pressure from other EU countries, Greek governments have initiated an effort to achieve EMU participation. This has taken the form of three stabilization programmes: the three-year Medium Term Adjustment Programme (MTAP) 1991-93, the Convergence Programme (CP) 1993-98 and the Revised Convergence Programme (RCP) 1994-99. All three programmes, and in particular the currently applied RCP, placed emphasis on reducing budget deficits and public debt.

The stabilization effort introduced in 1991 has resulted in some undeniably positive developments which have been recognized by all international economic



organizations. However, with regard to the present RCP 1994-99, the government did not manage to meet its target for the accession of the drachma to the ERM in 1996. It is also now known that, in contrast to what was claimed in 1994 when the RCP was passed, Greece will not be one of the countries which will form the first wave of EMU participants in 1999.

### **3.4.1. Fiscal policy: causal relationships between public expenditure and public receipts**

As it is accepted by all major economic organizations, the two most important and interrelated problems of the Greek economy in the 1990s are (a) the fiscal situation and in particular the existing high levels of public deficit and debt (b) the over-expansion of the public sector in all fields of economic life. The presence of a high stock of public debt obliges the authorities to dedicate to its service a very significant amount of funds and to maintain interest rates on public securities at high levels. Also, it promotes inflationary expectations and creates doubts about the sustainability of the parity of drachma. On the other hand, the state over-expansion and in particular the existence of such a big number of loss-making state-owned firms, has resulted to production inefficiency and a bureaucratic, ineffective system of public administration. Therefore, in the 1990s consensus emerged that public deficit must be reduced, public debt must be reduced substantially and further expansion of the public sector must be avoided. However, achieving these targets is not an easy task. It is now estimated that in order to stabilize public debt at the level of 110% of GDP before 2000, Greece should achieve a primary surpluses of the order of 3.5%-4% of GDP over the period 1996-1999<sup>25</sup>.

Excluding monetization as a solution (because it would lead to high inflation rates, incompatible with the Maastricht criteria of nominal convergence), the stabilization of public debt can be achieved either through an increase in the growth rate of the economy or through the creation of primary surpluses. In the

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<sup>25</sup> This is the figure suggested by OECD (1996). The estimation was made on the assumption of an annual real interest rate equal to 5% and an annual growth rate equal to 2%. It compares unfavourably with the estimations of Alogoskoufis and Christodoulakis (1991) who estimated that under the assumption of an inflation rate equal to 5%, annual GDP growth rate equal to 2% and real interest rate equal to 3%, as from 1991 Greece should have been producing primary surpluses equal to 0.6% of GDP. The difference between the two estimations reflects the limited progress which Greek governments achieved in the field of public debt during the first half of the 1990s.

early 1990s some economists (such as Katseli 1990, Vaitos 1993) argued that the authorities should pursue primary surpluses through increased public revenues and, more specifically, by means of curbing tax-evasion and imposing higher taxation on personal incomes and firms' profits. At first sight, it would appear that Greek governments in the first part of the 1990s adopted this strategy while a reduction in public consumption was not pursued very actively. It is now time to see whether this policy was optimal.

The existence of such fiscal problems in a number of countries has encouraged the development of a growing empirical literature on the issue of public debt stabilization (among others see Manage and Marlow 1986, Anderson *et al* 1986, Ram 1986, 1988a, 1988b, von Furstenberg *et al*, 1991, Hoover and Sheffrin, 1992). It is generally accepted that the selection of an appropriate fiscal strategy aiming to cope with fiscal problems crucially depends on the knowledge of the true causal relationship between public expenditure and public receipts. As Anderson, Wallace and Warner (1986, pp. 630-31) argue: "some economists, including Milton Friedman, have argued that raising taxes will simply lead to more spending. Others, including James Buchanan and Richard Wagner, have said that high deficits themselves have been responsible for the growth of spending and that if spending had to be financed completely by direct taxes, people would demand that the government spend less<sup>26</sup>. A third group, led by Robert Barro (1974), says that increased taxes and borrowing are results of increased government spending. Thus, we have three different views of the relationship between government revenues and expenditures. Friedman argues that higher taxes lead to higher spending. Buchanan and Wagner argue that "deceptive" governments financing leads to a higher level of spending than would be preferred if the true costs of government were known. Finally, Barro argues that more government spending leads to more taxes".

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<sup>26</sup> Anderson *et al* (p.631) argue that "in the Buchanan-Wagner (1977) framework, government grows because when spending is financed by other than direct taxes, people falsely perceive its price to be less than what it really is. In the meantime, citizens are paying "indirect" taxes through a higher rate of interest (by crowding out) and through inflation. The economic instability caused by higher interest rates and inflation gives politicians an excuse to further increase the size of the government. In an inherently unstable economy government intervention becomes a moral imperative".

Therefore, the existing literature identifies three possible causality patterns through which changes on one side of the public budget may coexist or be followed by changes on the other. Manage and Marlow (1986, p. 618) argue that evidence of one-way causality running from tax receipts to government spending would suggest that tax increases result in higher spending levels. Such a pattern would provide support to the opinion that the level of government spending is primarily determined by means of a softer budget constraint mechanism. An increase in tax receipts would reduce the limitations imposed by such a constraint, it would lead to higher levels of public expenditure and possibly to larger deficits<sup>27</sup>. Evidence of one way causality running from public spending to public revenue would reveal the existence of one (or both) of the following possibilities: (a) a crisis situation (e.g. a war) or a major turn in public preferences, changes the public conceptions regarding the proper size of government spending. The implied increase in public expenditure is then followed by tax increases, originally justified by the presence of the emergency situation. By the time the emergency is over, the public has developed a higher degree of tolerance regarding tax levels, therefore tax increases acquire a permanent character which give rise to a permanent higher level of public expenditure (this argument is also known as the Displacement Hypothesis<sup>28</sup> initially made by Peacock and Wiseman, 1979); (b) fiscal developments are characterised by the presence of a kind of political system which somehow determines how much to spend and then looks for revenue sources to finance the level of spending (Anderson, Wallace, Warner, 1986, p.630). Finally, evidence of a bi-directional (inter-dependency) would imply that both mechanisms described above are in operation and would reveal a pattern of causality equivalent “to the textbook case in public finance in which voters jointly decide on the desired expenditure and taxes, weighing costs and benefits of any marginally balanced budget change, thereby deciding on the optimal level of government services and finances” (von Furstenberg *et al*, p. 179).

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<sup>27</sup> Milton Friedman (1982) has summarized this view in the following few words: “You cannot reduce the deficit by raising taxes. Increasing taxes only results in more spending, leaving the deficit at the highest level conceivably accepted by the public. Political Rule Number One is government spends what government receives plus as much more as it can get away with”.

<sup>28</sup> Displacement in the sense that emergency situations create conditions which displace the level and the growth pattern of public expenditure.

As von Furstenber *et al* (1991, p. 179) argue, “which of the three causality patterns may be expected to dominate depends on the characteristics of the fiscal system and on the way expenditure demands, tax aversion and redistributive objectives of the voting public are articulated through the political process”. Therefore, the identification of the true causality pattern and the determination of the appropriate fiscal strategy is largely an empirical matter and this is the reason why different empirical studies have reached different results regarding the direction of causality. Manage and Marlow (1986, p. 618) argue that evidence of one-way causality from tax receipts to spending would suggest that tax increases result in higher spending levels and possibly to larger deficits. Evidence of no significant causal relation would suggest that tax increases do not lead to higher spending or deficit growth, therefore the government can safely proceed to the imposition of new taxation. Evidence of two-way causality would suggest that one could not reject the hypothesis that higher spending levels result from higher revenue levels and would complicate the results for inference purposes. Finally, evidence of one-way causality from public expenditure to tax receipts would imply that the dual aim to control the deficit and limit the role of the state in economic life should primarily be pursued by means of reducing public expenditure.

We now proceed to investigate the causality pattern between the levels of real total public expenditure (G) and real public receipts (R) in Greece. First, the order of integration of the variables has to be examined. Table 3.1 reveals that both G and R are integrated of order 1. Second, cointegration analysis is performed. Both the Engle and Granger and the Johansen-Juselius methods do not reject the hypothesis of a long-run relationship between the two variables (see Tables 3.5 and 3.6)<sup>29</sup>. The results do not change if the trend term is not included in the analysis. The estimated elasticities for the response of public expenditure to changes in public revenue suggested by the two methodologies are quite similar to

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<sup>29</sup> The underlying VAR in Table 3.6 includes two lags for each variable, one unrestricted constant and one unrestricted trend term.

**Table 3.5**  
**Estimation of Cointegrating Regression:**  
**Public Expenditure and Public Receipts**

$$\log(Y_t) = \alpha + \beta \log(X_t) + \varepsilon_t$$

$Y_t / X_t$	$\hat{\alpha}$	$\hat{\beta}$	$\hat{\gamma}$	ADF test on $\varepsilon_t$
G / R Sample: 1951-55	0.880 6.638**	0.645 12.278**	0.013 9.734**	ADF(0) = -5.1198*
ADF Critical values at the 5% level of statistical significance (obtained by Microfit 4, Windows version) = -4.0137 Sample 1953-95: -4.0258 * indicates statistical significance at the 5% level, ** indicates statistical significance at the 1% level, <i>t</i> -statistics in italics.				

**Table 3.6**  
**Johansen - Juselius cointegration tests**  
**Public Expenditure and Public Receipts**

Null	Alternative	LR statistic	95% CV	Trace statistic	95% CV
$r = 0$	$r = 1$	20.45*	16.90	21.24*	18.20
$r \leq 1$	$r = 2$	0.788	3.70	0.715	3.70
<b>Variables examined: log (G) and log (R)</b> Reduced form $\beta'$ log (R) log (G)       0.776 * indicates statistical significance at the 5% level					

each other (0.645 and 0.776 respectively).

Given that the hypothesis of cointegration is not rejected, we can now proceed to causality analysis. As both log(G) and log(R) are I(1) variables, it is necessary to conduct the causality analysis within the framework of an ECM specification as suggested by Granger (1988). The presence of the ECM term

ensures that misleading results like those which could be obtained by the conventional Granger tests will be avoided. Table 3.7 presents the results of the estimation of four such equations, two for  $\Delta \log(G)_t$  and two for  $\Delta \log(R)_t$ . We start from a general specification, and we reduce the models so that only the statistically significant terms are maintained in the equations and the null hypothesis is not rejected in the misspecification tests which are reported. There is only one ARCH test for which this was not possible. In all equations, the error correction term is statistically significant, suggesting that lagged values of  $\log(G)$  are correlated with  $\Delta \log(R)_t$  and lagged values of  $\log(R)$  are correlated with  $\Delta \log(G)_t$ . In other words, Table 3.7 suggests the existence of two-way causality.

The two-way causality pattern identified is consistent with a state of the world where both mechanisms mentioned above, i.e. a softer public budget constraint leading to higher spending and a kind of political system who decides on certain levels of expenditure and then looks for revenue sources to finance it, are in operation. However, what is very important in terms of evaluation of the fiscal policy followed in the first part of the 1990s is that the hypothesis of cointegration was not rejected. As argued earlier, if that was the case, the implication would be that an increase in taxation would *definitely* lead to a reduction in deficit because public expenditure increases would not follow. *Only then* the policy of increasing tax revenues would be *unquestionably* effective. However, the existence of cointegration and a two-way causality pattern implies that increases in tax revenues are followed in time by increases in expenditure<sup>30</sup>. Now, whether the deficit as *percentage of GDP* will decline as a result of an increase in taxation depends on three factors:

(a) the elasticity of the response of public expenditure to changes in taxation revenue.

(b) the initial level of the two variables.

(c) the rate of growth of GDP (as suggested by the theory of public debt stabilization discussed in section 2.2.3).

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<sup>30</sup> The analysis which follows would still be valid in the event of an one-way causality pattern running from public revenue to public expenditure.

**Table 3.7**  
**Estimation of the Error Correction Regressions**

**ECM equations type (17)**

$$\Delta \log (R)_t = 0.270 \Delta \log (R)_{t-1} + 0.637 \Delta \log (G)_t + 0.700 z_{t-1} + u_t$$

*2.672*
*6.328*
*4.118*

$R^2 = 0.629 \quad DW = 1.99$

AR test for serial correlation:  $F(2, 38) = 0.620$ ARCH test for Autoregressive Conditional Heteroscedasticity:  $F(1,38) = 0.209$  $X_i^2$  White test for Unconditional Heteroscedasticity  $F(6,33) = 0.946$ RESET test for Functional Form  $F(1,39) = 2.154$ 

$$\Delta \log (G)_t = 0.773 \Delta \log (R)_t - 0.795 z_{t-1} + u_t$$

*7.330*
*-4.764*

$R^2 = 0.60 \quad DW = 1.64$

AR test for serial correlation:  $F(2, 40) = 2.593$ ARCH test for Autoregressive Conditional Heteroscedasticity:  $F(1,40) = 0.080$  $X_i^2$  White test for Unconditional Heteroscedasticity  $F(4,37) = 0.590$ RESET test for Functional Form  $F(1,41) = 1.27$ **ECM equations type (18)**

$$\Delta \log (R)_t = 0.361 \Delta \log (R)_{t-1} + 0.282 \Delta \log (R)_{t-2} + 0.445 z_{t-1} + u_t$$

*2.404*
*1.814*
*1.913*

$R^2 = 0.308 \quad DW = 1.90$

AR test for serial correlation:  $F(2, 37) = 2.77$ ARCH test for Autoregressive Conditional Heteroscedasticity:  $F(1,32) = 0.95$  $X_i^2$  White test for Unconditional Heteroscedasticity  $F(6,32) = 0.743$ RESET test for Functional Form  $F(1,38) = 0.538$ 

$$\Delta \log (G)_t = 0.569 \Delta \log (G)_{t-1} + 0.282 \Delta \log (G)_{t-2} + 0.400 \Delta \log (G)_{t-3} -$$

*2.703*
*2.617*
*2.179*

$$- 0.537 \Delta \log (R)_{t-1} - 0.369 \Delta \log (R)_{t-2} - 1.289 z_{t-1}$$

*-2.392*
*-1.545*
*-4.276*

$R^2 = 0.55 \quad DW = 1.94$

AR test for serial correlation:  $F(2, 33) = 1.72$ ARCH test for Autoregressive Conditional Heteroscedasticity:  $F(1,33) = 10.36^*$  $X_i^2$  White test for Unconditional Heteroscedasticity  $F(1,34) = 1.33$ RESET test for Functional Form  $F(1,34) = 2.68$ Note:  $z_{t-1}$  is the lagged cointegrating vector estimated in Table 3.5*t*-statistics in italics

\*statistically significant at the 5% level

With regard to (a), if the estimated long-run elasticity of expenditure in changes of revenue were greater than one, the implication would be clear-cut: the deficit (both in terms of levels and percentage in GDP) would increase. Here, this is not the case: Tables 3.5 and 3.6 suggest a long-run elasticity equal to 0.645 and 0.776 respectively. However, this is not enough to guarantee a reduction in deficit in the event of an increase in public receipts: if the initial level of expenditure is significantly higher than the one of receipts, a 10% increase in receipts accompanied by a 7% (say) increase in expenditure may still give rise to an increase in the *level* of deficit. In that case, the deficit as a percentage of GDP could only decline if the rate of growth of GDP is sufficiently high. If it is not, the deficit could continue to increase *both in terms of levels and in terms of percentage in GDP* and, as a result, public debt will not be declining<sup>31</sup>. The case of Greece seems to be consistent with this scenario. The country entered the 1990s with a level of public receipts considerably lower than the one of public expenditure, while GDP growth in the early 1990s was very modest, in the range of 1.5-2.0%. As a result, despite increasing revenues, public debt continued to increase. Therefore, it would appear that it would now be preferable for fiscal policy to place emphasis on the expenditure side. The development of public debt provides further evidence in favour of this view. In the early 1990s, the latter continued to increase. After 1995, when a more determined effort to control public expenditure was undertaken (see Figure 3.1), public debt stopped increasing and even displayed a modest decline (see Figure 1.5 in chapter 1).

In addition to the above, there is a number of further arguments in favour of a reconsideration of the currently applied fiscal policy which places emphasis on increasing revenue. These include the following:

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<sup>31</sup> Perhaps a numerical example could make this point more clear. In 1995, total public expenditure in Greece was equal to 12.633 trillion drachmas. Total public revenue was equal to 6.753 tr. drachmas. The deficit was equal to 5.883 tr. drachmas (see Bank of Greece, Monthly Statistical Bulletin, December 1997, p. 55). Without loss of generality, let us assume that 1995 is the base year of our analysis, therefore these figures represent both nominal and real values. Let us now assume a 10% increase in revenue, followed by a 6.5% increase in expenditure as suggested by Table 3.5. That would result in expenditure equal to 13.475 tr., revenue equal to 7.428 tr. and deficit equal to 6.047. The *level* of the deficit would then increase by 2.8%. If the rate of growth of GDP is less than 2.8%, this implies that the deficit *as a percentage of GDP* will also increase. It might be of interesting to mention that in 1995 the rate of growth of GDP in Greece was 2%.



(a) if Greece is to achieve real convergence to the rest of the EU countries by means of higher growth rates, the primary target of economic policy should be the stabilization of the economy along with the creation of conditions for the attraction of foreign direct investment and for a higher amount of domestic sources to be directed to investment purposes. Increasing corporate taxes is not the best way to achieve this goal. Recent empirical evidence provides further support to this view. Alesina and Perotti, (1995, 1996) suggest that successful fiscal consolidation programmes are characterised by public expenditure cuts and not by tax increases. The latter policy appears not only to be ineffective in reducing the deficit but also contractionary with regard to GDP growth.

(b) in view of the announced intention of the Greek government to reduce the share of external debt in total debt, there are theoretical reasons to believe that public debt stabilization through an increase in public revenue would be a second best solution: Alogoskoufis and Christodoulakis (1991) have formally shown that stabilization through an increase in public revenues would result in the stabilization of the external debt at a level higher than the one which would be achieved if primary surpluses were pursued through expenditure cuts.

(c) If Greece is to join the EMU in the foreseeable future, she should observe the rather strict provisions of the recently signed Budget Stability Pact (see chapter 4). That would imply that in the absence of exceptional, temporary circumstances, she should be able to run a small budget deficit, less than 3% of GDP. Obviously, this will not be possible only by means of increasing existing taxes and imposing new ones, many of which (according to Greece's own government) are of temporary nature (such as the system of objective taxation criteria).

(d) Finally, one should not underestimate the practical difficulties associated with an increase in public revenue: Greece is a country characterised by widespread tax evasion and in spite of all past efforts to reduce it, it seems that so far, the problem has not been tackled in an effective way<sup>32</sup>.

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<sup>32</sup> The underground economy is currently estimated to represent a figure above 30% of Greek GDP. Pavlopoulos (1987) estimated that in 1984 it was equal to 28.6% of GDP whereas Kanellopoulos (1992) finds that in 1988 it was equal to 34.6%.

To sum up, one could say that the fiscal targets set by the three stabilization programmes in the 1990s were quite optimistic and their fulfilment presupposed a disciplined fiscal policy and the implementation of structural reforms including privatizations (see chapter 3). However, in spite of the fact that the situation stopped deteriorating in many fields, it is now accepted that the programmes, and in particular the MTAP<sup>33</sup>, were not as drastic as the urgency of the situation required and that the improvement was not as great as expected. The reason was the absence of a well organized plan to promote the promised reforms and, more importantly, the lack of political will to implement them in the face of a strong social reaction against the stabilization policy<sup>34</sup>. All governments which ruled the country after 1990 have rather attempted to balance economic and political aims and did not promote as actively as they could the strict corrective measures they had promised to implement. Of course, the first two programmes (the MTAP and the CP 1993-98) coincided with external events, such as the Gulf war, the war in ex-Yugoslavia and the EMS crisis of 1992-93, all of which brought turmoil in international financial markets and contributed to a recession in Europe. However, these facts alone cannot stand as convincing explanations for the over-cautious attitude which governments displayed in advancing the promised reforms and especially the planned privatizations<sup>35</sup>. But in other fields too, developments were not optimal: during the last four years (1994-97) real wage increases have been in excess of real productivity gains. Despite the impression which is currently prevailing in Greece, austerity is not the appropriate word to describe the present Greek economic policy as real public consumption has not declined and real compensation per employee in total economy has actually increased over the last four years (1994-97)<sup>36</sup>. This may increase the already high rate of unemployment and, as argued below, within the framework of

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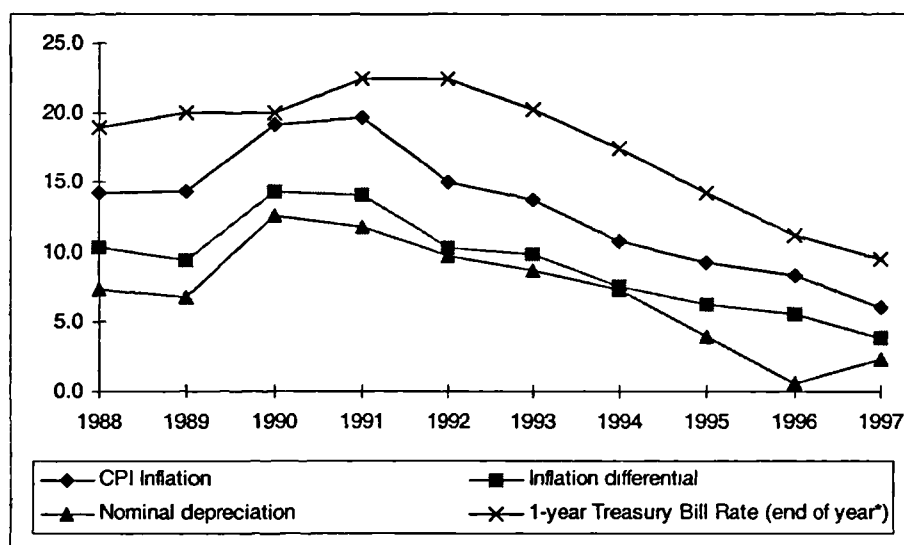
<sup>33</sup> For a critic discussion of the MTAP see Alogoskoufis, Gatsios and Kollintzas (1992).

<sup>34</sup> According to data from the International Bureau of Employment, in 1993 the number of strikers reached 1.5 million workers which cost 20 million lost working hours. That has definitely contributed to the contraction of real GDP which took place that year.

<sup>35</sup> Halikias (1993,1996) seems to have views similar to the above. He argues that the policy of fiscal consolidation currently followed is inefficient and does not guarantee a permanent improvement of the debt problem. All in all, he believes that as a whole, the economic policy which has been applied in Greece since 1991 was not bold enough and that it cannot lead to the stabilization and development of the Greek economy.

<sup>36</sup> See the Appendix in chapter 1.

**Figure 3.10**  
**Annual CPI inflation, Inflation Differential against the EU and**  
**Nominal Depreciation against the ECU**



\* Note: 1-year Treasury Bill Rate in September 1997

Source: *European Economy No 64, Statistical Appendix and Bank of Greece, Economic Bulletin, various editions*

the strong drachma policy, undermined the competitiveness of Greek products. All in all, our conclusion is that unless the authorities change their strategy and exhibit the necessary political will to achieve the modernization of the public sector, the stabilization effort will continue to be characterised by a lack of credibility.

### 3.4.2. The *strong drachma* policy: an assessment

#### (i) *The case for a "strong drachma" policy*

The strong drachma policy (introduced in 1988) involved a rate of nominal depreciation of the drachma against the ECU smaller than the existing inflation between Greece and the EU average. The rate of nominal depreciation against the ECU had been declining all along the 1988-97 period and in fact, over the period 1995-97 the strong drachma policy effectively created an almost fixed exchange rate regime against the ECU. Actually, over the last three years the drachma appreciated against some European currencies, including the DM in 1996 and 1997.

There are a number of reasons which led to the BOG to the adoption of the strong drachma policy. The first was the failure of the BOG to meet its money

supply targets during the 1976-87 period and provide a credible pre-commitment mechanism for the stabilization of inflation expectations (see above). The second was the process of financial liberalization which was introduced in 1987 and raised doubts regarding the future long-run stability of the money demand function. Such instability would render the manipulation of money supply even more difficult than it was in the past. Finally, a third reason is related to the intention of Greece to participate in the EMU. More specifically authorities believed that the participation of the drachma in the ERM-II (which will precede EMU participation) would facilitate the country's accession to the EMU<sup>37</sup>. The prospect of such participation reduces significantly the margin available for the application of an autonomous monetary policy.

The main purpose of a strong currency policy is to reduce inflation by means of the following three channels: (a) by reducing the prices of imported and domestic final goods made of imported raw materials (b) by reducing the prices of the products of the traded sector of the economy: firms exposed to international competition cannot rely any more on a crawling-peg policy in order to increase (or maintain) their competitiveness: they are expected to restraint their own costs and prices and increase their production efficiency (c) by operating as a *nominal anchor* for the economy and, as a result, reducing inflationary expectations, as suggested by Giavazzi and Pagano (1988).

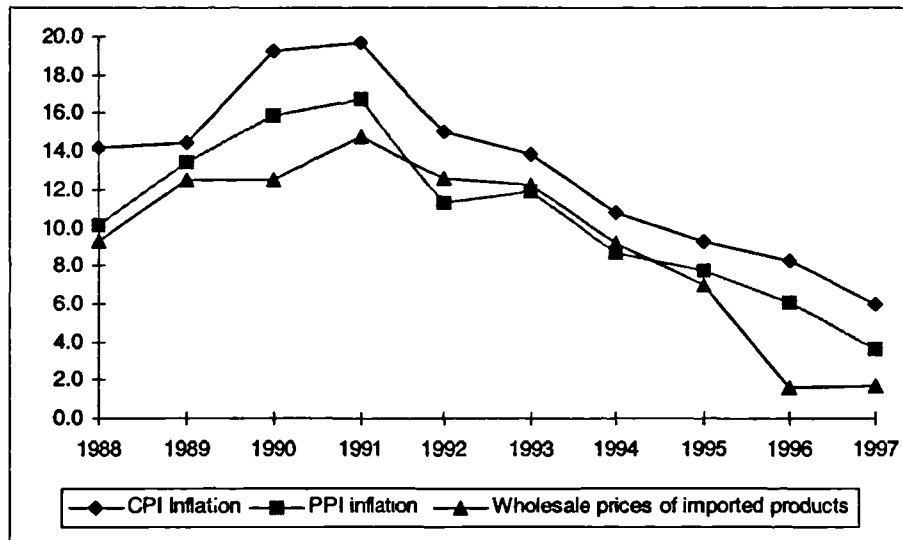
*(ii) The positive results achieved by the strong-drachma policy*

The introduction of the strong drachma policy back in 1988 was not accompanied by the best possible economic circumstances. 1988-89 was a period of particularly strong fiscal expansion which aggravated the already mounting imbalances of the Greek economy and led to a substantial increase in inflation in 1990-91. As a result, during the early days of its implementation, private agents were rather sceptical about the sustainability of the new policy and fears were expressed that it would not be possible to avoid a new, major devaluation of the drachma, similar to the ones of 1983 and 1985. However, in spite of all the

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<sup>37</sup> A detailed discussion of the ERM-II can be found in chapter 4.

**Figure 3.11**  
**Domestic and Imported Inflation**



Source: Bank of Greece, *Economic Bulletin, Statistical Appendix, various editions.*

difficulties, these fears were not confirmed. In contrast, the BOG managed to beat the speculators by not devaluing the currency on four occasions of exchange rate crisis<sup>38</sup>. These achievements, combined with the introduction of stabilization effort in 1990, succeeded in convincing the private sector that the BOG was indeed determined to defend the parity of the drachma, a fact which increased the credibility of the national currency and allowed the monetary authority to continue on the same path by reducing further the rate of depreciation.

During the last five years, the results of the application of the strong drachma policy became obvious as the average CPI inflation rate in 1997 went down to 6% compared with 14.2% in 1988 and 19.7% in 1991 (see Figures 3.10 and 3.11). This reduction allowed fiscal authorities to reduce the Treasury Bill rate and, as a result, reduce interest payments on public debt. From this point of view, the strong drachma policy has undoubtedly served the purpose of its introduction.

### *(iii) The limitations of the strong drachma policy*

The recent reduction in inflation represents, of course, a most welcome development. However, such an improvement has come at a cost and this is an

<sup>38</sup> Namely, the two EMS crises of 1992-93, the crisis of May 1994 (see Flood and Kramer, 1996), and the European monetary upheaval of 1995. The BOG also managed to beat speculators during the crisis of November 1997 but, as we will argue below, the implications of that crisis were more serious compared to the previous crises.

issue which, until recently, had not been adequately addressed in Greece. The point is that as economic theory suggests (see section 2.2.2) by its very nature, a strong currency policy has certain limits which in the case of Greece had become increasingly evident and were indicating that eventually, it would not be possible to avoid a devaluation of the drachma.

*A competitiveness loss : testing for an overvalued drachma*

The first limitation of a strong currency policy is that in the absence of a tight fiscal and incomes policy it can lead the national currency off its long-run equilibrium, i.e. it can cause currency overvaluation. This, in turn, implies competitiveness problems which are reflected in an increasing current account deficit. For a small open economy like Greece, the current account constraint is undoubtedly of particular importance. For this reason, it is necessary to analyse this point in some detail.

One influential approach for the determination of long-run equilibrium exchange rates<sup>39</sup> is to define the latter as the one which achieves internal and external balance simultaneously (see e.g. Williamson, 1983 and Bayoumi *et al*, 1994). The crux of this approach is that the long-run equilibrium exchange rate is the one which produces an external position (a current account balance) consistent with various definitions of internal balance. Capital flows inconsistent with the latter are unsustainable and give rise to exchange rate adjustments. The long-run equilibrium exchange rate is derived as follows: first, the internal equilibrium is defined; second, the current account balance consistent with internal equilibrium is defined; third, the capital flows consistent with this current account are determined; and finally, the exchange rate which produces these inflows is selected.

However, despite its intuitive appeal, the approach described above has a number of major disadvantages. First, there is no consensus regarding the definition of internal and external balance<sup>40</sup>. Second, it assumes a one-way

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<sup>39</sup> Before proceeding further, it might be useful to mention here that our analysis below is concerned only with the *long-run* behaviour of nominal exchange rates. It is not our aim to address questions relating to the short-run behaviour of the drachma. For a thorough survey of the models aiming to address short-run and medium-term currency fluctuations, see Isard (1994).

<sup>40</sup> Current account definitions consistent with internal balance include the following: the average current account balance over the business cycle; the current account balance consistent with the

causality pattern from the current account to the real exchange rate, something which is by no means certain to be the case. Finally, the number of assumptions which have to be made in the four steps mentioned above, mean that the empirical estimates of long-run equilibrium exchange rates are rather unreliable, as they are subject to a wide margin of error. As a result, an alternative way to address questions regarding the position of a national currency vis-à-vis its long run equilibrium is the standard textbook, long-run relative Purchasing Power Parity (PPP) hypothesis.

The PPP hypothesis states that in the *long-run*, the real exchange rate is mean reverting, i.e. nominal exchange rates move in such a way as to maintain the terms of trade constant (see Hallwood and MacDonald, 1994). In other words, the long-run movements of nominal exchange rates reflect differences in inflation rates. From that point of view, a high inflation country should have a depreciating (in nominal terms) national currency. Moreover, the rate of depreciation should be equal to the inflation differential existing between the country under examination and its main commercial partners.

Clearly, the PPP hypothesis is *not* a model of long-run exchange rate determination. It only describes a relationship between two endogenous variables, i.e. the nominal exchange rate and the price level and, from that point of view, it is consistent with a two-way causality pattern between the two. Furthermore, the PPP hypothesis should not be expected to hold always as a number of pre-conditions for it to be valid are not met in the short and medium-term. However, they may do so in the long-run<sup>41</sup>. As a result, it is by no means the case that the

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natural rate of unemployment; and the current account balance which maintains a constant ratio of net foreign assets to full employment output.

<sup>41</sup> These conditions include the following: (i) tradeable goods are subject to the law of one price; (ii) factor equalization and identical production functions equate the prices of services and non-tradeable goods and services internationally; (iii) the definition of price indexes is identical in the countries under examination, i.e. the same goods enter the indexes with the same weight. In the short-run, condition (i) is not valid due to the existence of price-stickiness. In other words, prices are not adjusted instantly to exchange rate changes. In the long-run however, prices adjust to the new conditions. In the short-run again, condition (ii) is not expected to be valid due to differences between national production factors. As a result, there will be a tendency for consumers in each country to consume commodities with lower relative prices in larger quantities. Therefore, condition (iii) is not expected to hold either. In the long-run however, capital mobility and technology diffusion could reduce differences between national production functions. Finally, in relation to condition (ii) again, the prices of non-traded goods in less developed countries (denominated in terms of a common currency) are usually lower compared to more advanced economies due to two reasons: firstly, lower productivity in these countries implies lower labour

adjustment of exchange rates to price variations takes place instantly. In a *short-run or medium-term context*, spot exchange rates can deviate substantially from the rates implied by the PPP condition. From that point of view, a nominal exchange rate shock may be able to produce medium-term substantial competitiveness gains (see Krugman, 1990). On the other hand however, a number of empirical econometric studies which adopt a long-run perspective [see e.g. Edison (1987), Abuaf and Jorion (1990), Mark (1990), Grilli and Kaminsky (1991), Glen (1992), and for a survey Boucher Breuer (1994)], have provided econometric evidence in favour of the long-run PPP hypothesis. This evidence implies that international competitiveness cannot be sustained only through nominal depreciation as the forces of international competition are strong enough to force slow but significant price and wage adjustments.

The conclusion emerging from the above, is that the PPP hypothesis is usually not valid in the short-run; and that as it is not a model of exchange rate determination, it cannot suggest a specific level for the long-run equilibrium exchange rate. However, if the PPP hypothesis is shown to be valid in the long-run, it can be used to diagnose substantial deviations from the (largely unknown) equilibrium rate. More specifically, if the PPP hypothesis is not rejected, the implication is that a high inflation country cannot have an appreciating currency for too long, as Greece did over the last four years (1994-1997).

The PPP hypothesis would be rejected if no cointegration existed between the logarithms of the nominal exchange rate [ $\log(E)$ ] and the ratio of domestic to foreign price levels [ $\log(P/P^*)$ ]. If, on the other hand, the null hypothesis of non-cointegration were rejected, the conclusion would be that  $\log(E)$  and  $\log(P/P^*)$  are linked with a long-run relationship. In that case, the cointegration regression would represent an approximation of the long-run equilibrium. We test the hypothesis of cointegration between  $\log(E)$  and  $\log(P/P^*)$  for six bilateral drachma exchange rates, namely those against the US Dollar, (USD), the Deutsch Mark (DM), the Pound Sterling (GBP), the French Franc (FFR), the Italian Lira (ITL) and the Japanese Yen (YEN). Price levels are approximated by the level of the

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costs; secondly, due to a lower level of income in these countries, demand for such services is weaker than in industrialized countries. This observation is often quoted in the literature as the "Samuelson-Balassa" effect, named after the work by Samuelson (1964) and Balassa (1964). In the long-run however, economic convergence among countries could eliminate this effect.



producer price index (1990=100). Our analysis is in terms of monthly data and covers the period 1975(1)-1996(12)<sup>42</sup>, a number of years significantly greater than the one considered by Karfakis and Moschos (1989) who have performed a similar analysis for the period 1975-87.

Table 3.8 presents the appropriate unit root tests for all  $\log(E)$  and  $\log(P/P^*)$  series which show that all series are integrated of order 1 so that their first differences  $\Delta \log(E)$  and  $\Delta \log(P/P^*)$  are stationary. As there is no theoretical reason to suggest that relative prices and nominal exchange rates include deterministic trends, we test for their existence by means of the procedure explained in section 2.3.1. These are the tests which are commonly used by researchers who perform cointegration analysis (see e.g. Yates, 1995 and Papapetrou and Hondroyiannis, 1997). The results of the tests appear in Table 3.9 and reject the hypothesis of the existence of deterministic trends. Therefore the cointegrating regressions in Table 3.10 and the underlying VAR equations in Table 3.11 below do not include a trend term<sup>43</sup>. However, we have to mention that the results do not change if a trend term is included.

The first part of Table 3.10 presents the results of the estimation of six cointegration regressions for the period 1975(1)-1976(12), unless otherwise stated, and reports the ADF statistics testing for the stationarity of the respective residuals. The results show that as far as the 1975-96 period is concerned, the hypothesis of cointegration cannot be rejected in four out of six cases (USD, DM, GBP and FFR). The same conclusion emerges from the Johansen-Juselius cointegration tests (see Table 3.11)<sup>44</sup>. These results are in contrast with the ones obtained by Karfakis and Moschos who found no evidence of cointegration.

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<sup>42</sup> Data for nominal exchange rates is taken from the Monthly Statistical Bulletin of the Bank of Greece. Data for producer prices is taken from the monthly edition of the OECD publication "Main Economic Indicators". In the case of France, the OECD does not provide a monthly index for the producer price index for the whole of the period under consideration. As a result, the analysis for that country is in terms of consumer price indexes. Also, for Italy and Japan the analysis covers the period 1981(1)-96(12). The reason is that monthly data for the Drachma/Yen exchange rate and the Italian Producer Price Index exists for the post-1981 period only.

<sup>43</sup> In Table 3.11 the underlying VAR includes 8 lags (for FFR 6 lags) and an unrestricted constant.

<sup>44</sup> In fact, the results emerging from the Johansen-Juselius tests for YEN are inconclusive.

Table 3.8

## ADF tests - Nominal exchange rates (E) and ratio of price levels (P/P\*)

ADF tests without trend		ADF tests with trend	
<b>Exchange Rates (E)</b>		<b>Exchange Rates (E)</b>	
USD log(E)	ADF(1) = 3.359	USD log(E)	ADF(1) = -1.069
DM log(E)	ADF(1) = 4.727	DM log(E)	ADF(1) = -0.778
GBP log(E)	ADF(2) = 3.989	GBP log(E)	ADF(2) = -1.440
FFR log(E)	ADF(1) = 4.058	FFR log(E)	ADF(1) = -2.521
ITL log(E)	ADF(2) = 3.356	ITL log(E)	ADF(2) = -1.093
YEN log(E)	ADF(2) = 3.275	YEN log(E)	ADF(2) = -1.118
USD $\Delta$ log(E)	ADF(5) = -5.362**	USD $\Delta$ log(E)	ADF(5) = -6.486**
DM $\Delta$ log(E)	ADF(6) = -3.169**	DM $\Delta$ log(E)	ADF(6) = -5.148**
GBP $\Delta$ log(E)	ADF(5) = -4.275**	GBP $\Delta$ log(E)	ADF(5) = -5.351**
FFR $\Delta$ log(E)	ADF(3) = -3.169**	FFR $\Delta$ log(E)	ADF(3) = -7.373**
ITL $\Delta$ log(E)	ADF(0) = -10.079**	ITL $\Delta$ log(E)	ADF(0) = -10.698**
YEN $\Delta$ log(E)	ADF(6) = -3.031**	YEN $\Delta$ log(E)	ADF(6) = -4.554**
<b>Ratio of price levels (P/P*)</b>		<b>Ratio of price levels (P/P*)</b>	
USA log(P/P*)	ADF(12) = -1.655	USA log(P/P*)	ADF(12) = -1.401
Germany log(P/P*)	ADF(12) = -1.737	Germany log(P/P*)	ADF(12) = -0.126
UK log(P/P*)	ADF(10) = -1.746	UK log(P/P*)	ADF(10) = -1.181
France log(P/P*)	ADF(12) = -1.519	France log(P/P*)	ADF(12) = -2.790
Italy log(P/P*)	ADF(11) = -1.697	Italy log(P/P*)	ADF(11) = -0.823
Japan log(P/P*)	ADF(12) = -1.732	Japan log(P/P*)	ADF(12) = -0.362
USA $\Delta$ log(P/P*)	ADF(5) = -3.319**	USA $\Delta$ log(P/P*)	ADF(5) = -6.165**
Germany $\Delta$ log(P/P*)	ADF(5) = -3.018**	Germany $\Delta$ log(P/P*)	ADF(5) = -7.240**
UK $\Delta$ log(P/P*)	ADF(7) = -2.661**	UK $\Delta$ log(P/P*)	ADF(7) = -4.308**
France $\Delta$ log(P/P*)	ADF(7) = -2.661**	France $\Delta$ log(P/P*)	ADF(7) = 6.426**
Italy $\Delta$ log(P/P*)	ADF(5) = -2.881**	Italy $\Delta$ log(P/P*)	ADF(5) = -5.460**
Japan $\Delta$ log(P/P*)	ADF(5) = -2.845**	Japan $\Delta$ log(P/P*)	ADF(5) = -6.856**
* indicates statistical significance at the 5% level, ** indicates statistical significance at the 1% level.			

**Table 3.9**  
**F-tests for the existence of deterministic trends:**  
**Nominal exchange rates (E) and ratio of price levels (P/P\*)**

Exchange Rates		Ratio of price levels	
USD log(E)	0 lags, F=1.643	USA log(P/P*)	3 lags, F=0.438
DM log(E)	1 lag, F=0.888	Germany log(P/P*)	4 lags, F=2.49
GBP log(E)	2 lags, F=1.635	UK log(P/P*)	4 lags, F=1.546
FFR log(E)	1 lag, F=2.224	France log(P/P*)	12 lags, F=4.579
ITL log(E)	1 lag, F=1.003	Italy log(P/P*)	1 lag, F=0.707
YEN log(E)	1 lag, F=1.574	Japan log(P/P*)	4 lags, F=0.94

Number of lags denotes the structure of the ADF equation  
**Test form (see Perman, p. 27)**  
Estimate the regression  $\Delta Y_t = c_1 + c_2 + \rho Y_{t-1} + \sum \beta_i \Delta Y_{t-i} + \varepsilon_t$  and test the restriction  $c_2 = \rho = 0$   
Null hypothesis:  $c_2 = \rho = 0$  (i.e. series is random walk with drift)  
Alternative hypothesis: Series contains a deterministic trend.  
**Test statistic:**  $\Phi_3$ , Dickey and Fuller 1981, Table VI, p. 1063. (Reprinted in Harris, 1995 p. 156)  
95% critical value for sample size 250: 6.34  
95% critical value for sample size 100: 6.49  
**Decision criterion:** Reject the null if F the value testing for the restriction is lower than  $\Phi$  critical value

However, one should note that the long-run (1975-96) estimated  $\beta$  elasticities suggested by Table 3.10 approach but are not exactly equal to unity<sup>45</sup>.

The results obtained suggest that in the presence of a continued (albeit diminishing) inflation differential with the rest of the European countries, the

<sup>45</sup> The hypothesis  $\beta=1$  has been tested for each of the four equations for which the hypothesis of cointegration was not rejected. In all cases the hypothesis  $\beta=1$  was rejected. For this rejection, a number of explanations earlier mentioned can be suggested including the following: first, there could be measurement errors in P and P\* as suggested by Moulton, 1996; second, the definition of P and P\* (PPI or CPI index) may not be the ideal one; and finally, P and P\* may not be fully compatible, as the indexes are calculated in different countries including different items, or with different weights attached to the same items.

**Table 3.10**  
**Estimation of the Cointegrating Regressions:**  
**Nominal exchange rates (E) and ratio of price levels (P/P\*)**

$$\log (E)_t = \alpha + \beta \log (P/P*)_t + u_t$$

Currency	$\hat{\alpha}$	$\hat{\beta}$	R <sup>2</sup>	ADF test on u <sub>t</sub>
<b>Sample period: 1975-96<sup>1</sup></b>				
USD	2.225 <i>582.4**</i>	0.946 <i>98.0**</i>	0.97	ADF(1) = -2.013*
DM	1.981 <i>847.9**</i>	1.032 <i>196.7**</i>	0.99	ADF(1) = -2.134*
GBP	2.439 <i>973.6**</i>	1.107 <i>135.4**</i>	0.99	ADF (2) = -2.638**
FFR	1.451 <i>728.6**</i>	0.961 <i>174.4**</i>	0.99	ADF(2) = -2.363*
ITL 1981-96	1.070 <i>326.5**</i>	1.017 <i>56.7**</i>	0.94	ADF (2) = -1.530
YEN 1981-96	2.096 <i>619.1**</i>	1.139 <i>99.5**</i>	0.98	ADF (2) = -1.488
<b>Sample period: 1988-96</b>				
USD	2.219 <i>731.2**</i>	0.796 <i>35.0**</i>	0.92	ADF(1) = -2.856**
DM	1.994 <i>2e+003</i>	0.975 <i>104.5**</i>	0.99	ADF(1) = -2.084*
GBP	2.461 <i>1e+0.003</i>	0.736 <i>41.2**</i>	0.94	ADF(1) = -3.176**
FFR	1.462 <i>1e+0.003</i>	0.857 <i>126.9**</i>	0.99	ADF(0) = -2.573*
ITL	1.105 <i>373.2**</i>	0.547 <i>19.8**</i>	0.79	ADF(1) = - 2.132*
YEN	2.105 <i>361.8**</i>	1.024 <i>29.0**</i>	0.89	ADF(1) = -1.597
* indicates statistical significance at the 5% level, ** indicates statistical significance at the 1% level, <i>t</i> -statistics in italics.				
<sup>1</sup> Unless otherwise indicated				

**Table 3.11**  
**Johansen -Juselius cointegration tests**  
**Variables examined: log(E) and log(P/P\*)**

Null	Alternative	LR statistic	95% CV	Trace statistic	95% CV
<b>Currency examined: USD</b>					
$r = 0$	$r = 1$	22.41**	14.1	24.17**	15.4
$r \leq 1$	$r = 2$	1.76	3.80	1.75	3.80
<b>Currency examined: DM</b>					
$r = 0$	$r = 1$	14.96*	14.1	17.36*	15.4
$r \leq 1$	$r = 2$	2.40	3.80	2.40	3.80
<b>Currency examined: GDP</b>					
$r = 0$	$r = 1$	18.45*	14.1	18.5*	15.4
$r \leq 1$	$r = 2$	0.10	3.80	0.10	3.80
<b>Currency examined: FFR</b>					
$r = 0$	$r = 1$	15.78*	14.1	16.66*	15.4
$r \leq 1$	$r = 2$	0.87	3.80	0.87	3.80
<b>Currency examined: ITL (Sample period 1981-96)</b>					
$r = 0$	$r = 1$	5.72	14.1	9.28	15.4
$r \leq 1$	$r = 2$	3.56	3.80	3.56	3.80
<b>Currency examined: YEN (Sample period 1981-96)</b>					
$r = 0$	$r = 1$	14.08*	14.1	18.11*	15.4
$r \leq 1$	$r = 2$	4.031*	3.80	4.03*	3.80

strong currency policy led to an overvaluation of the Greek national currency. This point is straightforward: given that the long-run PPP hypothesis was not rejected in most of the cases examined, the maintenance of long-run equilibrium conditions necessitates a depreciation rate which should not be systematically unequal to the inflation differential existing between Greece and its trade partners. But as we can see in Figure 3.10, since 1988 the nominal drachma depreciation against the ECU has been *systematically smaller* than the inflation differential

Table 3.12

## Estimation of the Error Correction Regressions

$$\Delta \log (E)_t = \sum_{i=1}^3 \hat{\phi}_i \Delta \log (E)_{t-i} + \sum_{i=0}^3 \hat{\omega}_i \Delta \log (P/P^*)_{t-i} + \gamma(Y_{t-1} - \beta X_{t-1}) + u_t$$

Currency	$\hat{\phi}_1$	$\hat{\phi}_2$	$\hat{\phi}_3$	$\hat{\omega}_0$	$\hat{\omega}_1$	$\hat{\omega}_2$	$\hat{\omega}_3$	$\hat{\gamma}$
<b>Sample period: 1975-96</b>								
USD	0.169 <i>2.699</i>	-0.155 <i>-0.246</i>	-0.143 <i>-0.691</i>	0.850 <i>5.143</i>	-0.126 <i>-0.727</i>	0.108 <i>0.623</i>	0.103 <i>0.641</i>	-0.032 <i>-2.165</i>
DM	0.276 <i>4.301</i>	-0.104 <i>-1.577</i>	-0.060 <i>-0.940</i>	0.720 <i>7.245</i>	-0.065 <i>-0.571</i>	0.291 <i>2.522</i>	-0.156 <i>-1.521</i>	-0.2026 <i>-1.952</i>
GBP	0.384 <i>6.058</i>	-0.169 <i>-2.548</i>	0.075 <i>1.166</i>	0.519 <i>4.308</i>	-0.114 <i>-0.882</i>	0.097 <i>0.757</i>	0.226 <i>1.907</i>	-0.042 <i>-2.365</i>
FFR	0.317 <i>5.099</i>	-0.070 <i>-1.061</i>	0.044 <i>0.702</i>	0.259 <i>3.432</i>	0.153 <i>1.998</i>	0.107 <i>1.421</i>	0.045 <i>0.606</i>	-0.045 <i>-2.397</i>
<b>Sample period: 1988-96</b>								
USD	0.457 <i>4.697</i>	-0.134 <i>-1.291</i>	0.133 <i>1.367</i>	0.648 <i>2.684</i>	-0.290 <i>-1.042</i>	0.342 <i>1.225</i>	-0.088 <i>-0.355</i>	-0.121 <i>-3.115</i>
DM	0.407 <i>4.018</i>	-0.058 <i>-0.548</i>	0.059 <i>0.577</i>	0.364 <i>3.031</i>	-0.053 <i>-0.387</i>	0.251 <i>1.840</i>	-0.133 <i>-1.109</i>	-0.071 <i>-2.025</i>
GBP	0.479 <i>5.037</i>	-0.163 <i>-1.571</i>	0.286 <i>2.728</i>	-0.094 <i>-0.456</i>	-0.029 <i>-0.136</i>	0.075 <i>0.352</i>	0.315 <i>1.644</i>	-0.142 <i>-3.308</i>
FFR	0.452 <i>4.962</i>	-0.156 <i>-1.545</i>	0.378 <i>4.148</i>	0.201 <i>4.060</i>	0.010 <i>0.184</i>	-0.005 <i>-0.105</i>	-0.008 <i>-0.159</i>	-0.120 <i>-3.052</i>
<i>t-statistics in italics</i>								

existing between Greece and the EU average. Given that ten years is a rather long period of time, the conclusion is that the strong drachma policy led to currency overvaluation. Further support to this view is provided by the second parts of Tables 3.10 and 3.12. The latter present the results of the estimations of the cointegration regressions and the ECM equations respectively for the period 1988-96. The results suggest a substantial reduction in the responsiveness of the exchange rate to the movements of the ratio of domestic to foreign price levels (as indicated by the reduction in the estimates of  $\beta$  in Table 3.12 and those of  $\omega_0$  in

Table 3.14) during the 1988-96 period, i.e. during the application of the strong drachma policy. This implies the following:

(a) As the real exchange rate is a measure of relative prices and, as such, and indicator of international competitiveness<sup>46</sup>, the recent reduction in Greek inflation (caused by the application of the strong drachma policy) has come at the cost of a competitiveness loss. The recent developments in the field of the current account indicate that this loss has put pressure on the external sector of the economy.

(b) As long as the currently applied strong currency policy had driven the drachma off its long-run equilibrium, the probability of a forced devaluation could not be ruled out. Such an eventuality was even more probable in the light of the recent developments in the fields of fiscal and incomes policy as well as the latest movements of the current account. The point is that during the adjustment period (i.e. the time needed in order to eliminate the inflation differential against the EU average) the existence of an overvalued currency implies that the maintenance of competitiveness of Greek products could be achieved by means of the following two ways:

(a) Through a reduction in the profit margins of domestic firms. However, this option would only be of temporary nature, as a number of firms operating already at a marginal level will not be in position to afford this reduction, therefore it would have negative welfare implications; and (b) Through a reduction in the rate of change of the nominal unit labour costs in the traded sector of the economy, i.e. through a restraint in nominal wage increases or/ and the realization of productivity gains. This option is preferable in comparison to the former one as it maintains a high profitability level but presupposes (i) a certain degree of flexibility in the labour market; and (ii) an adequate fiscal and incomes policy.

Table 3.13 presents the movements of the real exchange rate ( $EP^*/P$ ) over the last ten years. When  $P$  and  $P^*$  are approximated by CPI inflation rates, it

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<sup>46</sup> As such, it is even more appropriate in the case of Greece, a country whose exporting products do not possess a high degree of monopolistic power (as they belong to the traditional, low-technology sectors of the economy) and compete with products of other similar countries on a more or less perfect competition basis.

Table 3.13

## Real Appreciation (-) / Depreciation (+) of the Drachma against the ECU

Year	Nominal Depreciation against the ECU (1)	Inflation Differential (EU average) (2)	NULC growth differential (EU average) (3)	Real Appreciation (1) - (2)	Real Appreciation (1) - (3)
1988	7.2	10.3	12.4	-3.1	-5.2
1989	6.7	9.5	14.7	-2.8	-8.0
1990	12.6	14.4	14.1	-1.8	-1.5
1991	11.8	14.1	2.3	-2.3	9.6
1992	9.7	10.3	6.9	-0.6	2.8
1993	8.7	9.6	8.5	-0.9	0.2
1994	7.2	7.6	12.2	-0.4	-5.0
1995	4.0	6.3	8.7	-2.3	-4.7
1996	0.5	5.7	8.0	-5.2	-7.5
1997	2.3	3.8	6.1	-1.5	-3.8

*Data source: European Economy No. 64, Statistical Appendix.*  
NULC stands for Nominal Unit Labour Cost

seems that the drachma had appreciated all along the post-1988 period with the appreciation being more pronounced in 1988-89 and 1995-96. When nominal unit labour costs are employed, it appears that the drachma had depreciated during the 1991-93 period but appreciated significantly thereafter. Furthermore, the 1988-89 and 1995-97 competitiveness losses indicated by the movements of nominal unit labour costs exceed by far those indicated by the alternative definition for P\* and P.

The above mentioned reduction in competitiveness influenced both the profitability level and the external sector of the economy. Tables 3.13 and 3.14 suggest that over the last five years (1993-97), in the absence of a restrictive incomes policy, Greek firms attempted to retain the market shares by means of reducing their profit margins. This stands in contrast to the period 1991-93 when restrained increases in nominal wages gave rise to an increase in profitability.



**Table 3.14**  
**Inflation, Labour Cost, Profitability and Current Account, 1988-96**

Year	CPI Inflation*	Wage Inflation*	% change in NULC*	Profitability (1961-73=100)	Current account (% in GDP)
1988	14.2	18.6	15.2	52.9	-1.8
1989	14.4	24.0	19.9	48.8	-4.3
1990	19.2	23.1	24.6	49.9	-4.7
1991	19.7	14.3	9.1	57.5	-3.8
1992	15.0	10.7	11.7	62.0	-3.2
1993	13.7	8.1	8.7	66.5	-1.7
1994	10.8	12.2	11.9	66.4	-1.0
1995	9.3	12.5	11.3	65.4	-2.7
1996	8.3	11.7	10.1	65.6	-3.5
1997	6.0	9.4	7.3	66.5	-3.7

*Data source: European Economy No 64, Statistical Appendix.*

\* annual percentage change

NULC stands for Nominal Unit Labour Cost

Productivity gains, which were made possible by the discontinuation of the operation of a number of non-efficient marginal firms and the reductions in personnel to which the remaining firms proceeded, also helped. But over the last five years (1993-97), a rather loose incomes policy highlighted the limitations of strong drachma policy as it has led both to a profitability reduction and increasing difficulties in the external sector of the economy, giving rise to a widening current account deficit (see Table 3.13). This deterioration has come as a result of a near-stagnation of exports and significant increases in imports of goods<sup>47</sup>. Of course,

<sup>47</sup> It is quite striking that while the 1988 figure for exports of goods was 5613.6 million US Dollars, in 1995 the same figure was just 5774.2 (in market values). As far as imports are concerned, the 1995 figure (22854 million USD) is nearly twice as much when compared with the 1988 figure (12556 million). However, part of the stagnation in exports is explained by the adoption of the EU directive referring to the technical procedures of measuring imports. More specifically, capital inflows originating from exports receipts which are not converted into drachmas are not classified as exports but as invisible receipts or capital inflows. The BOG is now working on this point in

these developments were not determined exclusively by the strong drachma policy. For example, the European recession in the early 1990s and the only modest recovery which followed during the 1994-96 period must have played a role. However, it is straightforward that in the absence of labour cost restraint, the strong drachma policy increased the relative price of Greek products and services against foreign competitive products<sup>48</sup>.

All in all, the implications of the policy mix followed (high increases in labour cost and strong drachma policy) are quite serious. In addition to creating problems in the external sector of the economy, the policy mix had a strong anti-development character because by squeezing the profit margins of the firms operating in the traded sector of the economy, it discouraged private investment and increased the scope for further development of the already big share of the black economy. The conclusion is that, as the scope for further productivity and efficiency gains must now be rather limited, in the sense that during a period of nine years (1988-97) Greek firms must have nearly exhausted their limits for improvements of this kind. The viability of a number of Greek firms given the continuation of the strong drachma policy was, at least, questionable.

#### *Problems caused by increasing liquidity*

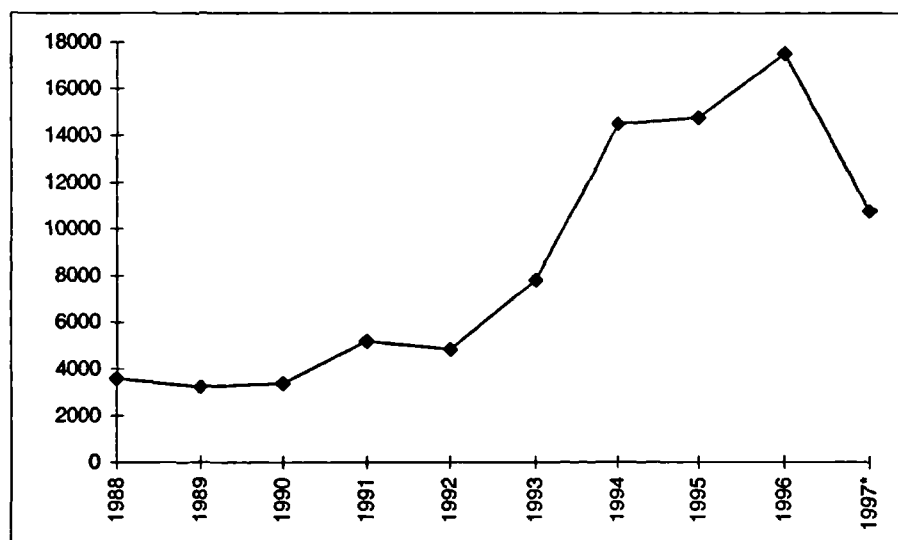
A second limitation of the strong drachma policy refers to the increasing *liquidity problems* which it had been creating. As the implications of excess liquidity for inflation are quite serious, it is necessary to discuss this point in some detail. The strong drachma policy implied that the domestic nominal interest rate should be higher than the sum of the average foreign interest rate and the expected rate of the nominal drachma depreciation. The difference reflects a risk premium which private agents demand in order to invest in drachma denominated assets. This premium reflects the risk of an unexpected drachma devaluation and the risk of a public debt default. The remarkable determination which the BOG displayed in defending the drachma and the resulting exchange rate stability which prevailed over the period 1994-97 convinced agents that (at least until recently)

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order to eliminate this source of export underestimation (see Bank of Greece, Economic Bulletin No. 8, page 71).

<sup>48</sup> Competitiveness developments are also examined in chapter 5 where we show that after 1989 a number of relevant indexes present a significant deterioration.

**Figure 3.12**  
**Foreign Exchange Reserves minus gold**  
**(end of year, millions of US Dollars)**



\* October 1997

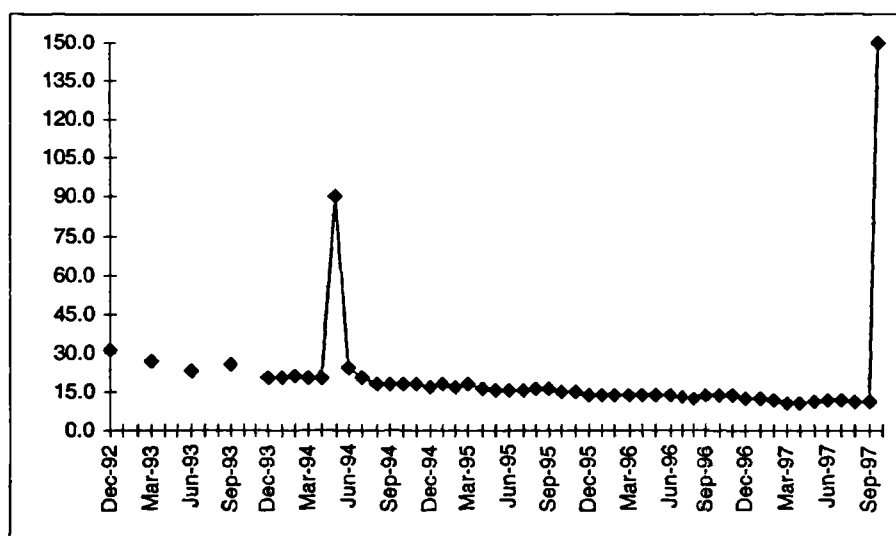
Source: IMF International Financial Statistics, CD 09-97

the above risks were small. This resulted in capital inflows of unprecedented levels (see Figure 3.12)<sup>49</sup> which are primarily due to: (a) foreign portfolio investment, mainly of short and medium-term nature, attracted by the real interest rate differential existing between Greece and the rest of the world; (b) increasing borrowing of Greek (private and public) firms in foreign currency.

The problem with the above mentioned capital inflows is that they tend to increase the money supply (M3 and M4) and, as a result, they jeopardize the anti-inflationary stance of monetary policy. Under these circumstances, the BOG had three options: (i) to create conditions which would allow a reduction in interest rates; (ii) to follow a less tight exchange rate policy which would increase the exchange rate risk associated with for short-run, speculative capital inflows; and (iii) to intervene in the money market (by means of manipulating the interbank bank interest rate and through open-market operations) and the foreign exchange market. Up to March 1998, the BOG had been mainly employing the third solution above. It is only fair to say that in this effort the Bank has been successful

<sup>49</sup> In January 1997 the foreign exchange reserves of the Bank of Greece stood at 19600 million US Dollars compared with 4800 million in December 1992 and 7800 million in December 1993.

**Figure 3.13**  
**Intervention Rate of the Bank of Greece (monthly average)**



Source: Bank of Greece, *Economic Bulletin*, various editions

but has faced increasing difficulties (see Brissimis and Gibson, 1997)<sup>50</sup>. The problem is that the monetary authority had been pursuing two parallel targets (a stable exchange rate and limited liquidity) using one policy instrument (interest rate) only. Of course, it is true that after 1993, when the secondary market for public bonds was created, the BOG has also been employing open market operations in the form of repurchasing agreements but the main instrument of controlling liquidity has been the manipulation of the interbank interest rate. Since the end of 1990 the BOG has been pursuing a gradual reduction in its intervention interest rates which is reflected in the movement of the interbank interest rate and the BOG rates (see Figure 3.13). However, it has been very cautious in doing that because a big reduction could have negative consequences in the form of (i) undermining the very basis on which the strong drachma policy was based (i.e. a positive difference between domestic interest and foreign real interest rates); (ii) increasing liquidity by means of a higher demand for drachma denominated loans; and (iii) increasing liquidity by means of reducing the savings ratio of the economy and promoting a higher level of consumption, mainly for durable goods. Therefore, on the one hand the BOG would like to see its intervention rates

<sup>50</sup> Brissimis and Gibson (1997) have estimated that over the period 1991-95 the BOG managed to sterilize 65% of total capital inflows.

declining (in order to control capital inflows and support the external sector of the economy), but on the other hand it would like this reduction happening not too fast (in order to avoid exchange rate pressures and a domestically driven increase in liquidity). In the 1990s, this cautious, well balanced attitude of the BOG has been disturbed by three factors: the occasional European exchange rate upheavals, the process of financial liberalization and the fiscal situation of the country.

With regard to the first factor, the four exchange rate crises which have taken place in autumn 1992, autumn 1993, May 1994 and March 1995 obliged the BOG to increase its intervention rates significantly, especially during the 1994 crisis. However, these increases were of temporary nature only and did not have any major impact in the market lending and borrowing rates. As far as the process of financial liberalization is concerned, this has put pressure on the liquidity of the economy by means of consumption credit and the development of new financial products. With regard to the third factor, the point is that the Treasury would like to see interest rates on public bonds declining as soon as possible in order to lighten the burden of interest payments on public debt. This created conflicts between monetary and fiscal policy, especially over the period 1994-97 because there have been some incidents of rather premature reductions in the interest rates of Treasury Bills. The importance of these premature reductions was clearly shown during the recent crisis of November 1997 (see below). As long as these reductions lead to a positive difference between the inter-bank and the Treasury Bill interest rates, they contribute to inflationary pressures by means of (i) an increase in liquidity through an increase in M3; and (ii) an increase in consumption. In addition, liquidity problems were aggravated by the increasing borrowing of public firms in foreign currency. Such borrowing is equivalent to direct financing from the BOG, it was in direct conflict with the anti-inflationary stance of monetary policy and put pressure on the prospects of the public debt and in particular external debt, whose cost of servicing has now reached an unprecedented point by historical standards.

To sum up, the strong drachma policy contributed to a significant increase in liquidity whose implications were quite serious. The enormous cash injection (mainly caused by short and medium-term portfolio investment) put pressure upon

the BOG to reduce its interest rates (in an effort to avoid overshooting its monetary targets) but, on the other hand, a non-cautious reduction would deprive the policy of strong drachma its *raison d'être* and would jeopardize the anti-inflationary stance of exchange rate policy. In other words, after a certain point, in the absence of progress in the fiscal front, the strong drachma policy could become *self-defeating*, in the sense that it contributed to the creation of the same conditions it attempts to avoid (on this point, see Giavazzi and Spaventa, 1990)

***(iv) Credibility and sustainability problems leading to the March 1998 devaluation***

The main message emerging from our discussion is that in spite of the fact that the strong drachma policy has indeed worked in lowering inflation, its limitations along with the rather limited progress achieved in the fields of fiscal consolidation and structural adjustments undermined its future credibility and sustainability and finally led to its continuation in March 1998. Historic experience (e.g. the EMS crisis of 1992-93, exchange rate crises in Spain, Portugal and Mexico in 1995 and, more recently, the South-East Asia crisis in 1997) has shown that in an environment of high capital mobility, the short-run portfolio investment attracted by the existing interest rate differential can fly out of the country at any moment. A negative domestic economic or political event, an international crisis, an increase in foreign interest rates could create such conditions that a forced devaluation would be inevitable. The experience from these countries provided, in principle, some useful lessons regarding the policy of strong drachma and its sustainability. It was quite clear that one could not exclude the possibility that history might repeat itself in the case of Greece, especially in view of the rather loose (under the circumstances) stance of fiscal policy, the widening current account deficit, the high stock of public debt, the prospect of the accession of the drachma to the ERM-II (see below) and the unwillingness of the Greek government to issue long-term public bonds (i.e. bonds of maturity longer than a ten-year period)<sup>51</sup>. In addition, the starting point of the crisis in Mexico, a country whose pre-crisis policy mix presented a number of interesting similarities

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<sup>51</sup> By issuing such bonds the government would send a strong signal that the hard core of inflation has been put under control and will continue to be so in the future. The absence of such bonds was simply a signal to the opposite direction.

with the policy mix applied by Greece before March 1998, was a political crisis and such events in Greece are not really rare. Only during the twenty months which preceded the crisis of November 1997 there had been a number of upsets of this sort<sup>52</sup> confirming how quickly capital can fly out of the country<sup>53</sup>.

The conclusion emerging from the above is that within the present state of affairs (i.e. a widening current account deficit, a relatively loose fiscal policy and the presence of a large amount of short and medium-term speculative funds) it was rather clear that the future sustainability of the strong drachma policy was doubtful and that it would be difficult to avoid a devaluation of the Greek national currency. This is a view which had been expressed explicitly in due course, i.e. well before the events of March 1998, (see Mourmouras and Arghyrou 1997 pp. 35-36, Arghyrou 1997 p.32 and Arghyrou, 1998 p. 24) but was also inferred by some statements of the Governor of the BOG. A careful reading of the latter clearly reveals that the monetary authority was aware of the limitations of the strong drachma policy and was convinced that, in the absence of substantial progress in the fields of fiscal and structural adjustment, it would be difficult to sustain it<sup>54</sup>.

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<sup>52</sup> These events include (i) the leadership crisis in the ruling party (PASOK) in December 1995 when the late Prime Minister Andreas Papandreou got seriously ill and as a result he resigned (ii) the governmental crisis of spring 1996 when the forthcoming Congress of PASOK created uncertainty about the future course of economic policy (iii) the extreme tension in the relations between Greece and Turkey in January 1996 which almost led to a war between the two countries and (iv) the extreme tension in Cyprus in August 1996 which momentarily created the suspicion that the formation of a new major crisis between Greece and Turkey was well under way.

<sup>53</sup> At the beginning of the second leadership PASOK crisis the foreign exchange reserves of the BOG were equal to 16.5 billion USD. The party Congress was then set for the 28<sup>th</sup> of June 1996 and the odds were that the "orthodox" PASOK wing (considered as the advocates of a tax-and-spend policy) would prevail over the "modernization" wing led by the Prime Minister Mr. Kostas Simitis who is thought to be an advocate of a more disciplined economic policy. As a result, in March 1995 the reserves fell to 15.2 billion, in April to 15.1 billion, and in May to 11.9 billion. However, the "modernization" wing emerged victorious from the Congress and the reserves started increasing again thereafter.

<sup>54</sup> See the article of the Governor L.Papademos (1996), where he states that "... the rigidities observed in the field of inflation, given the tight stance of monetary policy and the stability (or even appreciation) of the drachma, pose serious questions with regard to the efficiency of the policy followed (p.67)... and that.. we should try to achieve the main targets of economic policy, that is to reduce inflation and public deficits to levels in line with the convergence criteria and we should proceed to the necessary structural adjustments in order to increase the productivity and competitiveness of the economy. If we do not manage to face these fundamental challenges, it would not be wise to participate in the ERM, based on the assumption that this participation itself is enough in order to promote decisively the reduction in inflation and the fiscal correction (pp. 74-75)". Mr. Papademos expressed views similar to the above in his Annual Report for 1997 in an unusually direct (compared with past reports) way which made a great impression to the Greek financial press (in particular, see pages 29 and 66).

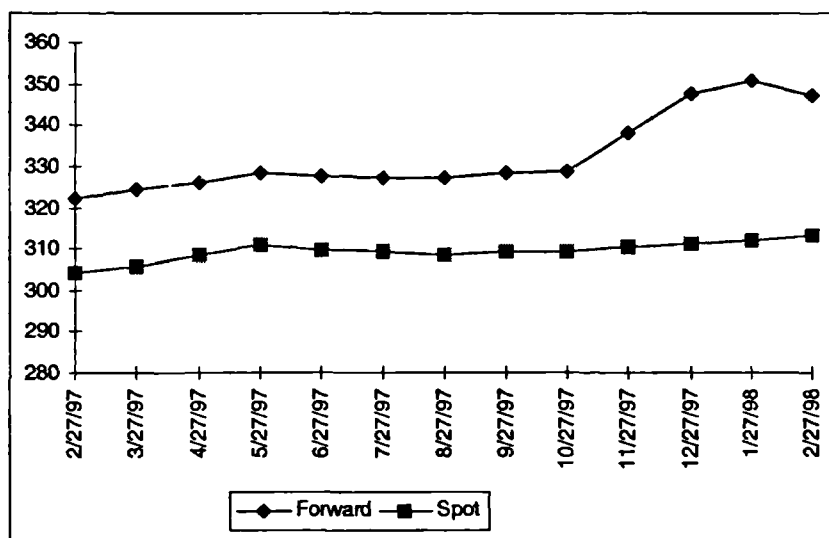
The validity of the views expressed above were largely confirmed during the exchange rate crisis of November 1997 which followed the Hong-Kong Stock Exchange crisis as the drachma was the only currency in the EU which was put under so strong pressure. Once again, the BOG defended the Greek national currency successfully by means of intervening in the spot foreign exchange market and increasing dramatically the Bank's intervention rate in the interbank money market. The latter reached the level of 150% in October 1997 compared to an 11.3% in September 1997 (see Figure 3.13) However, this victory was a pyrrhic one. On 7/11/97, i.e. at the end of the crisis, the foreign exchange reserves of the Bank were down to approximately 10.5 billion US dollars compared to 19.5 billion US dollars on 30/1/97 (see Figure 3.12). In addition, the Treasury was obliged to increase the interest rates on public securities by almost two percentage points (from 9.5% in September 1997 to 11.3% in October 1997), something which implies that in 1998 interest payments on public debt will be significantly higher than previously anticipated.

All in all, the November 1997 clearly showed that as a result of the limitations of the strong drachma policy earlier discussed in this chapter, and also in view of the limited progress in the field of fiscal and structural adjustment achieved by Greece in the 1990s, the markets had lost confidence in the pre-March 1998 exchange rate of the drachma vis-à-vis the ECU. Further evidence in favour of this view is provided by Figure 3.14 which presents the movements of the spot and 1-year forward drachma/ECU exchange rate. Even before the crisis, the 1-year forward rate was in the range of 320 drachmas per ECU, as opposed to an approximately 300 drachmas per ECU spot rate. This 6.5% difference can be interpreted as a risk premium demanded by market participants to commit to future drachma holdings, suggesting that even before October 1997 the future stability of the drachma against the ECU was not unquestionable. However, after the crisis of October 1997, the 1-year forward rate increased substantially, reaching the level of 347 drachmas per ECU in February 1997, i.e. 15% higher than the corresponding spot rate. This shows that after the crisis of October 1997



Figure 3.14

## Drachmas per ECU: spot and 1-year forward exchange rates



Source: Datastream

the markets lost completely confidence to the commitment of the Greek authorities to maintain an exchange rate against the ECU in the range of 300 drachmas per ECU. Clearly, under such circumstances the maintenance of the latter would most probably necessitate further increases in interest rates which would harm the economy by means of increasing interest payments on public debt and suppressing investment expenditure without guaranteeing that a forced devaluation would be avoided in the event of a new exchange rate crisis.

Therefore, it would appear that the realization of these rather unfavourable markets' perceptions prompted (or perhaps obliged) the Greek authorities to proceed to a drachma devaluation and ERM accession in March 1998. Both choices do not seem to have been part of the authorities' immediate intentions. This view is based on a number of government official statements which took place before and after the November 1997 crisis<sup>55</sup> but also on the argument that if

<sup>55</sup> In October 1997, during the first days of the crisis, the Prime Minister stated that "the stability of the drachma remains a reference point for the economic policy of the government and will continue to determine the government's actions". On 24<sup>th</sup> February 1998, he added that "the government will insist on defending the parity of the drachma and will not succumb to any pressures which might develop in the following months". On 9 January 1998 the Minister of National Economy Mr. Papantoniou went a step further by stating "the stability of the drachma represents the cornerstone of the government's economic policy. The government is determined to take all necessary measures in order to support the current parity of the drachma". He repeated the statement on 3 March 1998 when he stated that "the government wants drachma stability and will continue to support effectively the current parity of the drachma". Finally, on 25 February 1998 the deputy Minister of National Economy Mr. Dris stated that "the government will maintain the current parity

the authorities had indeed decided to proceed to a devaluation of the drachma long ago, there was no reason to defend the national currency in such a determined way as they did in November 1997. If that was the case indeed, there is little doubt that the BOG would have let the drachma to float during the crisis. The reason is that the cost of defending the national currency at that particular point in time, expressed by higher interest payments on public debt and a partial loss of the authorities credibility (caused by the discontinuation of the strong drachma policy after so many official statements expressing the authorities' commitment to it) seems to be much higher compared to the benefits resulting from four additional months of exchange rate stability.

This having been said, one has to admit that the timing of the March 1998 devaluation was well-chosen. Obviously, no government pre-announces its intention to devalue its national currency because if it does so, the markets will react and force a devaluation at an earlier stage<sup>56</sup>. However, assuming that entry of the drachma in the ERM-II will occur in 1999, there are good reasons to believe that as the date of the establishment of the EMU would get closer, the drachma would be put under new pressure which could result in a forced devaluation. This view is based on the argument made by Begg *et al.*, (1991) who suggested that the announcement of the establishment of the EMU on a specific date defines a finite time-horizon to the game played between the government and the private sector. National Central Banks would have an incentive to inflate in the last year prior to the EMU in order to extinguish part of the national debt. The reason is that as long as national currencies will not exist the subsequent year, Central Banks are not afraid of the expectations' reaction of the private sector. Thus, they would most probably

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of the drachma against the ECU both now and between 1999 and 2001, i.e. the date when Greece will join the EMU" (see the Athens weekly *The Vima*, 15/3/98, p. A7). An extra argument in favour of the view that the devaluation of the drachma was not part of the authorities' intentions is the fact that only ten days before its realization (i.e. on 4/3/1998) the Greek Deputy Minister of Finance Mr. N. Christodoulakis signed on behalf of Greece a 1.25 billion USD external loan. The subsequent devaluation increased the cost of servicing of this loan by 10%. As far as ERM participation is concerned, in December 1997 the Minister of National Economy Mr. I. Papantoniou had stated that "Greece does not intend to join the ERM in the near future". He added that the strong drachma would remain the basic pillar of Greek macroeconomic policy and declared that the authorities will continue to defend its parity "by all means, including increases in interest rates".

<sup>56</sup> This is an argument which can also be used as an objection against our view that the March 1998 was not part of the authorities' immediate intentions. However, such an objection does not seem to be very convincing in the light the cost/benefits balance between immediate floating and four additional months of exchange rate stability which was discussed above.

go ahead with a devaluation. Rational agents understand this devaluation incentive and as the 1999 deadline defines a clear time-horizon, they would (i) incorporate the anticipated devaluation in their future contracts (something which might partly or fully offset the competitive gains of the planned devaluation) and (ii) proceed to a speculative attack in due course which could produce the forced devaluation<sup>57</sup>. By devaluing the drachma in March 1998, it would appear that the BOG took an unavoidable decision in due course, i.e. before speculators moved first. However, as we will argue later in chapter 4, it remains to be seen whether the 14% devaluation will be enough to guarantee that the participation of the drachma in the ERM-II will be made with a realistic exchange rate, i.e. whether it has restored the drachma to its long-run equilibrium.

### **3.4.3 The significance and limitations of financial liberalization**

The rationale behind the introduction of the process of financial liberalization in 1987 was to improve the general economic environment in Greece by means of reducing the numerous distortions caused by the previously existing regulation. The case for abolishing financial regulation was first made by McKinnon (1973) and Shaw (1973) who claimed that interest rate ceilings, high reserve ratios and credit rationing result in interest rates, lower than the ones which would have been determined by market forces. Low rates of interest lead to low rates of saving and low rates of investment which, in turn, result to low growth rates for the economy. Furthermore, McKinnon and Shaw argued that by keeping interest rates at low level by administrative means, authorities discourage savings and contribute to the realization of "bad quality" investment by rendering low-yielding projects profitable. Under such circumstances, deregulation should lead to an increase in real interest rates which, in turn, should lead to an increase in the supply of credit and the elimination of low-yielding investment.

If the above statements are valid, financial liberalization in Greece should have a number of positive consequences (see Papadakis, 1995). It should limit the oligopolistic structure of the Greek financial market and, by increasing the forces of competition it could cause: a greater availability of loans to firms and consumers; the introduction of new banking services; a reduction in nominal and

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<sup>57</sup> According to the same argument, the narrower the allowed band of exchange rate fluctuation prior to the establishment of the EMU, the earlier the date of the speculative attack will be.

real interest rates; an increase in the efficiency of banks; and, consequently, a better allocation of resources. Financial liberalization should also facilitate foreign direct investment as well as the sale of public bonds, a fact which should improve the terms of public borrowing and offer more options with regard to the service of public debt. Furthermore, it could impose on the government a higher degree of fiscal discipline because, as compulsory investment in public securities has now been abolished, private investors should treat all borrowers, including the public sector, on equal terms.

Speaking now in *practical* terms, it is not always the case that the process of financial liberalization leads to the desired developments mentioned above. Academic discussion on the subject has been very vivid<sup>58</sup>. A detailed coverage of the issue would necessitate a detailed discussion which is out of the scope of this chapter. However, we have to say that it is by no means clear that in other countries where like Greece, the financial system is dominated by commercial banks, deregulation programmes have produced the positive results envisaged. In fact, the experience of a number of countries (including some Latin American ones) has been extremely disappointing whereas econometric evidence regarding the impact of deregulation on economic growth is far from being conclusive. This is consistent with the analysis by Stiglitz (1994) who argues that under conditions of imperfect information, financial liberalization may actually increase problems of moral hazard and adverse selection. Furthermore, Arestis and Demetriades (1997) suggest that there is not enough evidence to suggest that financial liberalization leads to a higher rate of savings. As far as investment spending is concerned, the same authors suggest that a higher level of interest rate increases the cost of capital, a fact which may outweigh the enhanced supply of credit. Nevertheless, the proponents of financial liberalization attribute the existence of such unsuccessful deregulation incidents not to the process of deregulation itself but to other factors such as the existence of general macroeconomic instability, a high level of inflation, an unsound fiscal situation, inadequate banking supervision mechanisms (to ensure that commercial banks maintain an adequate loan portfolio

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<sup>58</sup> A recent and very interesting collection of papers written by Fry, Singh and Arestis and Demetriades investigating (both theoretically and empirically) the relation between financial liberalization and economic growth can be found in the *Economic Journal*, vol. 107, May 1997, pp. 752-799.

diversification) and a low degree of financial markets development<sup>59</sup>. In fact, despite the existence of unsuccessful deregulation programmes, a number of models which have been developed within the endogenous growth theory framework, still advance the suggestion that “financial repression in the form of discriminatory taxes on financial intermediation reduces the growth rate of the economy”<sup>60</sup>.

In the particular case of Greece, although there are no reasons to believe that financial liberalization has been a disappointing failure, one cannot say that the country has managed to reap all the benefits expected. The reason is that a number of the prerequisites for a growth-inducing financial liberalization are still not present. For example, secondary markets for public securities are not yet fully developed whereas the importance of the Athens Stock Exchange (ASE) as a mechanism directing savings to investment remains limited, irrespective of the fact that the ASE is currently considered as one of the promising emerging markets. In addition, during the 1988-94 period, financial liberalization coincided with a significant increase in both nominal and real interest rates whereas the subsequent reduction was not as big as some economists expected. Interest rate increases may have had some positive consequences, in the sense that they improved the quality of investment by discouraging low-yielding projects (as suggested by McKinnon and Shaw), but, on the other hand, they represent a factor suppressing economic activity because they reduce the quantity of investment. The present Greek government has repeatedly announced that its policy aims at a reduction in interest rates which would set in motion the development process

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<sup>59</sup> Fry (1997, p. 759) claims that a successful financial liberalization programme presupposes the existence of the following conditions “(1) Adequate prudential regulation and supervision of commercial banks, implying some minimal levels of accounting and legal infrastructure. (2) A reasonable degree of price stability. (3) Fiscal discipline taking the form of sustainable government borrowing requirement that avoids inflationary expansion of reserve money either through the indirect effect of government borrowing that produces surges of capital inflows requiring large purchases of foreign exchange by the central bank to prevent exchange rate appreciation. (4) Profit-maximizing, competitive behaviour by the commercial banks (5) A tax system that does not impose discriminatory explicit or implicit taxes on financial intermediation”. In the absence of these prerequisites, financial deregulation could be accompanied by “pathologically high positive real interest rates” which would enable public borrowing, crowding-out effects, economic instability and lower economic growth. Fry’s conclusion is that in the absence of fiscal reform and sound prudential supervision, financial liberalization can cause an explosion of the public debt (“goodbye financial repression, hello financial crush” is the verdict) and, under such circumstances, financial regulation might be the lesser of the two evils.

<sup>60</sup> See Fry (1997) and the references therein.

through a surge in investment. To that direction, financial liberalization (by means of the increased competition between financial institutions which it implies) is one of the channels through which this reduction is expected. However, there are a number of reasons which have prevented the big state-owned, most-influential banks from reducing substantially their interest rates. First, their past obligation to provide loss-making, small size and public firms with privileged credit, has left them with a portfolio largely made up of non-performing or low-yield loans. Second, due to their former obligation to invest money in public securities, another part of their assets is constituted by public bonds whose interest rate is effectively set by the government at will. These two factors exercise a negative impact on banks' revenues and as a result, oblige them to retain high lending interest rates and continue an unofficial policy of credit rationing<sup>61</sup>. Market borrowing and lending rates are also influenced by the high stock of public debt and the application of the strong drachma policy which oblige the government to keep the interest rates of public securities at a high levels. Indeed, the increase in nominal and real interest rates which followed the initiation of financial liberalization are perfectly consistent with the theory of debt-financing of budget deficits (see section 2.2.3). Furthermore, state-owned banks face problems of over-staffing, production inefficiency etc. All these contribute to the maintenance of high costs and oblige state-owned banks to retain high interest rates. All in all, the conclusion is that financial liberalization itself, though necessary and beneficial in principle, cannot guarantee the efficient operation of the financial system and a more efficient allocation of the sources of the economy, unless it is accompanied by an improvement in macroeconomic conditions and the

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<sup>61</sup> Provopoulos and Papadimitriou (1995) have shown that during 1989-92, a period characterised by high interest rates, profitable Greek industrial firms reduced significantly their bank borrowing. Their econometric study shows that borrowing is negatively related to interest rates but positively related to the realization of new investment. In addition, they show that high inflation rates make firms reluctant to borrow on long-term basis, something which affects negatively industrial production, because the industrial sector requires long-term investment. Finally, they show that the high lending interest rates charged by the banks have contributed to the creation of a black credit market. Their conclusion is that high interest rates are a discouraging factor for the realization of new investment and the modernization of Greek industry. However, they show that out of 3800 firms represented in their sample, there are 400 state-owned firms which are constantly loss making and influence negatively the overall performance of industrial sector. The others are healthy and profitable firms and their new investment projects are financed by own funds. Their views coincide with the ones expressed by OECD (1993) which point out the "dualism" characterising Greek industry, with dynamic profitable private firms on the one hand and loss making unproductive state-controlled firms on the other.

development of an appropriate legislation and institutional framework (secondary markets for public securities, adequate monitoring mechanisms etc.).

### **3.5. Concluding remarks**

This chapter has discussed aspects of the Greek macroeconomic policy followed during the 1960-96 period based on the theoretical background and econometric methodology presented in chapter 2. It has placed emphasis on the post 1980-era and has examined a number of issues related to the fiscal, monetary and exchange rate policies followed by successive Greek governments. More specifically, we have argued that Greek governments in the 1960s and the early 1970s, assisted by good international conditions, managed to create conditions of high growth rates and low inflation which resulted in high levels of employment and real convergence towards European economic standards. In addition to the favourable external conditions created by international prosperity, the key to that success was the credibility established in the prudent conduct of economic policy and the long-run stability of the economic system. However, the picture was not completely rosy. Apart from the moral issues which the repressive political administration unavoidably (and justifiably) raised, heavy state intervention in all fields of the economy created important distortions whose significance was to appear later, when international conditions were not so favourable.

Between 1975 and 1980 Greece performed better than most OECD countries in terms of GDP growth but made some policy choices which turned out to be sub-optimal. These choices include the introduction of an independent monetary policy, (involving a crawling-peg exchange rate policy against the major foreign currencies), an increase in corporate taxation and an expansion of the public sector. Furthermore, Greece failed to replace the repressive mechanisms of the pre-1974 era with modern institutions which would guarantee the maintenance of policy credibility.

In the 1980s, Greek governments continued and intensified the fiscal expansion initiated in the late 1970s. This expansion took the form of a significant increase in public consumption. Our analysis showed that there is no econometric evidence suggesting that the increased public consumption expenditure has led to

an increase in national income. Instead, we argued that the fiscal expansion has led to a huge increase in public debt which, combined with an accommodating monetary policy and increasing union militancy, contributed to the missing of the monetary targets set by the BOG, created inflationary expectations, undermined the competitiveness of Greek products and maintained the rate of inflation at high levels without any visible employment gain. Our conclusion was that the economic policy followed in the 1980s intensified the already existing distortions and created a number of further complications. The two stabilization programmes of the 1980s failed to correct the mounting imbalances as the first of them (1983) was too brief to have any significant impact and the second (1986-87) was not allowed to build on its initial positive contribution. As a result, the Greek economy entered the 1990s with a number of serious problems, out of which the explosive character of the public debt was the most serious one.

The stabilization effort initiated in 1991 has produced some positive results. In addition, a number of most-welcome institutional reforms have taken place, with the one of financial liberalization being the most prominent. However, Greece failed to secure a place in the first wave of EMU participants in 1999 and considerable macroeconomic imbalances still remain. So far, fiscal correction has been mainly pursued through an increase in public revenue. Our econometric analysis suggests that it is not clear that this strategy is an optimal choice. We argue that fiscal correction would have been served in a better way if Greek governments in the 1990s had placed emphasis on reducing public consumption.

Furthermore, we saw that much of the recent progress achieved in the field of inflation is due to the strong drachma policy introduced in 1988. However, it would appear that this policy had certain limitations. Firstly, our econometric analysis suggests that the strong drachma policy led to an overvaluation of the Greek drachma which has influenced the profitability of Greek firms and has also put pressure on the current account of the economy. In addition, the strong drachma policy created liquidity problems caused by the existing positive interest rate differential between Greece and the rest of the EU countries and gave rise to significant capital inflows (primarily of short and medium-term nature) and increasing borrowing of Greek firms in foreign currencies. Increased liquidity puts



pressure on the money supply and jeopardizes the anti-inflationary character of monetary policy. The conclusion is that in the absence of structural adjustments and within the framework of the currently followed policy mix which involves loose (under the circumstances) fiscal and incomes policies, the credibility and sustainability of the strong drachma policy was questionable. These resulted in a rather forced devaluation in March 1998.

Our overall verdict is that during the post-1975 period, Greece failed to maintain a self-propagating, sustainable economic development, because it did not follow policies able to sustain high investment and export growth. In the context of a rapidly changing and competitive international environment, such aims are achieved by those countries who are in a position to offer modern infrastructures, a skilled workforce, a stable institutional framework and sound economic policies aimed at creating conditions of high profitability. In the post-1974 era Greece possessed none of the above advantages. However, it is now time to find ways of transforming the Greek economy into a modern, dynamic one. In the next chapter we will discuss how Greece can achieve such targets in the context of her effort to participate in the proposed European Monetary Union.

## CHAPTER 4

# The EMU and Greek macroeconomic policy on the road to the single currency: current issues and future prospects

### 4.1. Introduction

On the 1st of January 1981, following a long period of association (1962-80), Greece became the tenth full member of the European Economic Community (EEC). Greece pursued and achieved EEC participation motivated primarily by political rather than economic considerations as her desire to join the Community mainly reflected foreign policy considerations<sup>1</sup>. In addition, Greece did not want to feel isolated, playing a secondary role in the periphery of the continent while at the same time the rest of the Western European nations were building a European Union. Consequently, and as a result of her good economic performance during the association period, she managed to get on board.

Many things, home and abroad, have changed since then. On the one hand Greece did not do well in the field of economic performance during the 1980s. Instead of converging with her European partners she has rather diverged<sup>2</sup>. On the other, the EEC has now become the European Union (EU) incorporating fifteen countries and planning to expand even more in the future. More importantly, the EU has now proceeded to the formation of a full European Economic and Monetary Union (EMU) incorporating eleven countries, to be officially launched on the 1<sup>st</sup> January 1999. Greece was the only EU member which did not manage to meet any of the nominal convergence criteria set by the Maastricht Treaty (MT) by the end of 1997 and, consequently, was left out of the first wave of EMU participants<sup>3</sup>. Under these circumstances the country is now faced with a new dilemma which, at the same time, represents a new challenge. The question is simple but fundamental:

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<sup>1</sup> Namely the traditionally bad relations with her Eastern neighbour, Turkey.

<sup>2</sup> In 1980 the Greek GDP at current market prices per head of population was equal to 64.2%% of the EU15 average. In 1990, it fell to 58.4%% whereas in 1996 it was up to 65.9% (*Source: European Economy No 64, Statistical Appendix, Table 9*).

<sup>3</sup> The United Kingdom and Denmark have both met the Maastricht criteria but exercised the "opt-out" option which they had secured at Maastricht. Sweden was also unwilling to join the first wave of EMU participants.

*Should Greece be willing to participate in the EMU at a later stage? If yes, what should she do in order to participate?*

This chapter addresses these issues. Its remainder is organized as follows: in section 4.2 we briefly present the main academic arguments against and in favour of EMU participation. Section 4.3 discusses the *present* European economic framework and the *future* fiscal and monetary environment to follow the official introduction of the EMU in 1999 whose knowledge and understanding will be vital factors for the final success of Greece's convergence effort. Section 4.4 advances a number of proposals regarding Greek economic policy on the road to EMU participation. Section 4.5 concludes the chapter.

## **4.2 Costs and benefits of EMU participation**

### **4.2.1. The potential costs of EMU participation**

The obvious disadvantage of EMU participation is the loss of national monetary independence. That was one of the points emphasized by the Theory of Optimum Currency Areas (TOCA) which was pioneered by the paper of Mundell in 1961 and the contributions of McKinnon (1963) and Kenen (1969). This loss implies the abandonment of certain options to cope with unexpected adverse economic events. For example, in the event of an adverse demand shock or a current account crisis, a devaluation of the national currency, will no longer be feasible<sup>4</sup>.

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<sup>4</sup> Assuming a demand shift from the products of country A to the products of another country B, Mundell (1961) claimed that country A will experience a decline of output, a decline of employment and an increase in the current account deficit. In contrast, in country B the opposite phenomena will be observed. If labour market rigidities exists and/or labour mobility is limited, equilibrium in the two economies could be restored through four channels: (a) country B could allow inflationary pressures created by the boom of economic activity to develop in a higher level of prices in her domestic market; (b) country A could employ certain deflation policies which would restore the competitiveness of her products; (c) country B could increase taxation and finance the deficit of country A by transferring the proceeds to the latter's government; and (d) country A could proceed to a devaluation of her national currency. If a monetary union between the two countries exists, the last option, which would be the last painful in terms of immediate welfare cost, is non-existent. Mundell's argument can also apply in other circumstances such as fast-growing economies whose production structure does not favour immediate import substitution. As such countries tend to exhibit trade deficits, they could pursue a decline of their terms of trade through a depreciation of their national currency. If this option is eliminated, the only way to improve trade balance is the application of deflationary policies. However, this is a long process which would involve a welfare cost and could also decelerate the growth process.

A second argument against EMU participation is that it can be costly for participating countries with different preferences about the short-run inflation-unemployment trade-off (see De Grauwe, 1994a). Assuming that a trade-off between the two variables exists and the Purchasing Power Parity (PPP) holds, the rate of depreciation or appreciation of the one national currency against another is determined by the inflation differential between the two countries. In the absence of exchange rate fluctuations, the products of the inflation-averse member of the union will become increasingly more competitive against the products of an unemployment-averse country. The existence of a monetary union between the two would not allow any “competitive depreciation” of the currency of the latter country, therefore neither will end on its preferred point of its corresponding Phillips curve.

A third and quite important argument against EMU membership refers to the loss of seignorage as a means of financing public deficits and servicing public debt (see Giavazzi, 1989). Within the framework of EMU, in the steady-state equilibrium inflation rates across different countries should be equalized. This implies that countries like Greece, which in the past have used seignorage as a means of financing public deficits, will have to resort to higher taxation or a reduction in government expenditure. Such policies might imply negative welfare consequences for various categories of the population<sup>5</sup>.

A fourth argument against EMU participation is that it can create competitiveness problems in the event of the existence of different degrees of centralization of the labour unions among the various participating countries. It has been suggested (see Bruno and Sachs, 1985, and Calmfors and Driffil, 1988) that in countries where workers are organized in few centralized labour unions or many small labour unions, the effect of an adverse supply shock is milder in comparison to countries like Greece, where workers are organized in strong sectoral unions. In the event of a common supply shock, workers in the former group would most likely exhibit restrained wage demands and inflation will not

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<sup>5</sup> The loss of the seignorage option could also lead to an increase in inflation in a monetary union as a whole. This would be the result of a “free-rider” incentive: by convincing (or obliging) the union’s Central Bank to follow a loose monetary policy, individual countries could reduce their national debts by obliging (through their fiscal policies) the Central Bank to impose the inflation tax on the citizens of the whole of the Union.

rise. The opposite will happen in the latter group<sup>6</sup>. The decline in competitiveness which then follow will lead to the macroeconomic imbalances such as those described by Mundell. His argument then applies.

Finally, two more arguments against the participation of a country in the EMU (which however, are not very relevant in the case of Greece) are the following: first, the fear that, at least theoretically, such a union could be inflation biased. The reason is that under conditions of full capital mobility and flexible exchange rates, a certain degree of competition exists in the market of public bonds. Individual countries have an incentive to avoid high inflation rates in order to attract savings of risk-averse agents who, trying to avoid a wealth loss caused by currency depreciations, prefer bonds denominated in stable currencies. This is the so-called "deflationary bias" of flexible exchange rates. Since an EMU eliminates the probability of devaluations, it could also reduce the degree of competition among governments to keep inflation rates low. As a result, higher price levels could emerge.

Second, the political cost accompanying the EMU project. For citizens of countries with a long national history as well as economic and political tradition, the loss of monetary independence maybe be considered as a blow to the national sovereignty of the countries involved. Without any doubt, governments which ignore such feelings and go ahead with EMU plans undertake a significant political risk and cost.

The above mentioned arguments against EMU participation are quite plausible and based on rather firm grounds. However, recent developments in the field of macroeconomic literature and certain events observed in the real world have put them in question. For example, it has been argued that if the countries of a monetary union present similar supply structures, they tend to engage in intra-industry trade stemming from product differentiation and the realization of economies of scale. Such trade results in similar demands for the products of these

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<sup>6</sup> Centralized unions realize that the wage-inflation spiral which follows high nominal wage increases will eliminate any initial real wage gains. As a result, they present restrained wage demands. In contrast, in countries with strong sectoral unions, each union attempts to increase the nominal sectoral wage, either because they believe that such an increase is too insignificant to cause a higher inflation rate or, in case other unions have achieved a nominal increase and inflation is certain to rise, the real income of the union's members will fall unless a nominal increase is secured in their own sector too.

countries (see Bofinger, 1994). As a result, demand shocks are bound to shift the national aggregate demand curves towards the same and not the opposite direction as suggested by Mundell<sup>7</sup>.

Although the above objection may not be very applicable in the case of Greece (because its economy is subject to asymmetric shocks compared to the rest of the EU), the major objective to Mundell's argument is that in the long-run, depreciation might not be an effective means in coping with an adverse shock because it does not necessarily lead to a real depreciation and an increase in competitiveness: as time passes and agents adjust their contracts to the new prices, the positive effects of devaluation lose their significance and the abolition of this option does not entail any significant economic cost. This is particularly true for small open economies where the effect of devaluation on the domestic price level are significant and appear soon after the devaluation (see McKinnon, 1963).

The argument that EMU might entail economic costs for fast growing members<sup>8</sup> has not escaped criticism either. Firstly, as Krugman (1991) points out, under conditions of imperfect competition such countries can continue to increase their exports along with their imports as long as they maintain a high degree of product differentiation either through innovations or through the improvement of the quality of already existing products. Secondly, a fast-growing country usually attracts foreign investment. Within the framework of an EMU, this tendency will be reinforced due to the elimination of the capital movement restrictions. As a result, the trade balance deterioration caused by the elimination of the depreciation option might be compensated by the improvement of the capital account. Finally, the argument that differences in the structure of national labour markets may lead to an economic cost for the participating countries has also been challenged. It is currently believed that the establishment of EMU may result in changes in the

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<sup>7</sup> This argument is valid provided that countries who present supply structure similarities will maintain these similarities after integration has taken place. However, the traditional customs union theory suggests that under perfect competition conditions, integration leads to regional production specialization according to the law of comparative advantage and, consequently, to concentration of different economic activities in different areas of the Union. This possibility exists even under conditions of imperfect competition (see Krugman, 1991) where regional specialization may appear due to the existence of economies of scale. In the event of such a development, sectoral recessions could become national recessions.

<sup>8</sup> See footnote 4.

behavior of labour unions in such a way that present differences might be reduced or even disappear (see De Grauwe, 1994a)<sup>9</sup>.

#### 4.2.2. The potential benefits of EMU participation

The first direct advantage of the EMU is the elimination of all transaction costs involved in converting one national currency into another. At the macroeconomic level these costs are not expected to be very high<sup>10</sup>. At the microeconomic level however, they might represent a non-negligible amount for agents who enter transactions involving currency conversions.

The proponents of EMU have also emphasized the potential gains to follow the reduction in uncertainty caused by the elimination of exchange rate risk. This can be displayed within the framework of moral hazard and adverse selection literature<sup>11</sup>. With regard to the former, Stiglitz and Weiss (1981) have shown that if the market interest rate exceeds a certain level, borrowers have an incentive to invest in riskier projects. This obliges risk-averse lenders to establish a credit-ceiling which leads to credit rationing. With regard to the latter, a high interest rate obliges low-risk investors not to proceed to the realization of their plans. In both cases, the selected investment projects are riskier in comparison to those which would have been selected under conditions of full information. The reduction in uncertainty accompanying the adoption of a single currency will lower the real interest rate in the economy because agents will discount future cash flows using a lower rate. As a result, the negative consequences of imperfect information will be moderated. It follows that the benefits of an EMU are larger in the case of small, open economies in comparison to big, closed ones. This is so because as the degree of openness of a country increases, the importance of

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<sup>9</sup> Such a result can be derived by using the model developed by McDonald and Solow (1981). De Grauwe (1994a) provides a simple illustration of their argument within a Stackelberg game framework where national trade unions have the leading role and national authorities are the followers. Due to the expected coordination of the national governments' strategies following the formation of the EMU, the equilibrium reached in the different national labour markets may acquire a certain degree of similarity.

<sup>10</sup> The European Commission (1990) suggests a figure approximately equal to 0.3%-0.4% of the Union's GDP. On the other hand, Gross and Thygesen (1990) suggest a figure between 0.25% and 0.5% of the Union's GDP.

<sup>11</sup> The moral hazard problem describes situations where a better informed agent has an incentive not to commit his best effort in order to achieve the outcome desired by a less informed principal. The adverse selection problem describes situations where agents with characteristics approved by principals drop out of the market and the latter have to deal with the remaining, less desired agents.

transaction costs and adjustment costs caused by the negative impact of exchange rate risk increase.

The above mentioned reduction in real interest rate could also exercise a positive impact on the rate of growth of the economies of the participating countries (see De Grawe, 1994b). Within the framework of exogenous growth models (e.g. Solow, 1956), a reduction in real interest rates would lead to a temporary increase in the rate of output growth during the transition from the old steady-state equilibrium to the new one and a permanent increase in the level of real per capita output. On the other hand, within the framework of endogenous growth models (e.g. Romer 1986, Lucas 1988), a reduction in real interest rates would lead to a higher level of capital stock. This could result to the positive consequences described by the Solow model but also to an upwards shifting of the production function. This, in turn, would result to an even higher growth rate.

Finally, another important argument in favour of EMU membership is associated with the credibility gains for countries like Greece which are prone to inflationary policies. This result is theoretically based on the "rules versus discretion" literature and can be justified within the framework of the Barro-Gordon model (1983). In countries where governments attach a higher weight on low inflation, the equilibrium inflation rate is lower in comparison to countries where governments are more unemployment-averse. As long as the difference in the preferences of the two governments is recognized, agents expect that the latter group of governments will proceed to a devaluation of their currency in order to restore competitiveness. Thus, they adjust their expectations and set contracts accordingly. Therefore neither the devaluation nor the subsequent increase in the price level comes as a surprise. As a result, competitiveness is not restored and the reduction in unemployment may not be substantial unless the government proceeds to unexpected rates of devaluation. If a government decides to change its priorities by attaching greater importance to a lower level of inflation, the announcement of the new policy will meet disbelief on the part of agents because of the history of the government as a "wet" one. This issue of credibility is reinforced by the fact that a deflationary policy will create a recession in the economy whose negative welfare impact represents a strong temptation for the



government to abandon the “hard-nosed” stance. In other words, given the fact that a government has created an inflationary reputation, it takes a long time to change it. As a result, progress on the inflation front will be slow even if the announced change of priorities of the economic policy is genuine. Under these circumstances, forming a monetary union with an inflation-averse country with identical rate of natural unemployment could be the solution as it could convince agents that inflation will be the same in both countries. The new situation represents a Pareto improvement in comparison to the old one: the equilibrium in the unemployment-averse country is represented by the same natural unemployment rate accompanied by a lower inflation rate whereas the equilibrium of the inflation-averse country remains unaltered<sup>12</sup>. The long-run implication of this improvement is a higher degree of production efficiency in the high-inflation country. This is so because as the price system is a guide to the efficient allocation of sources, inflation erodes this operation by creating difficulties in recognizing the relative prices of commodities and services. As a result, agents proceed to wrong production, investment and consumption decisions<sup>13</sup>.

We conclude our discussion on the benefits of EMU participation with two caveats. First, it has been argued (see De Grauwe, 1994b) that uncertainty reduction may lead to a reduction in the expected profits of firms or the expected consumer surplus. As a result, in order to assess the impact of EMU membership on national welfare, one has to compare cost and benefits originating from the reduction in uncertainty. Second, evidence from the countries participating in the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) does not confirm the existence of a positive impact of monetary integration on the growth rate of real GDP. In addition, if the argument were correct, one would expect that big countries with a large internal market (where a common currency exists) would present a higher growth rate in comparison to small countries. In reality, however, this does not seem to be the case<sup>14</sup>.

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<sup>12</sup> See however De Grauwe (1994a, p. 185-87) who suggests that if the natural rate of unemployment is different in the two countries, the Union could end with an inflation rate higher than the pre-integration rate in the low inflation country.

<sup>13</sup> The situation is further complicated when exchange rate fluctuations do not reflect real inflation differentials are used as means of economic policy.

<sup>14</sup> An explanation provided by Poole (1970) is that the reduction in exchange rate uncertainty may increase the systematic risk in other areas of the economy. In addition, the fact that the ERM does

### 4.3 The European Monetary Union

#### 4.3.1 Nominal convergence

According to the Maastricht Treaty (MT), EMU participation is conditional on the fulfillment of the following criteria: (a) the inflation rate should not exceed the average rate of the three lowest inflation countries of the Union by more than 1.5%;<sup>15</sup> (b) the long-term interest on public bonds should not exceed the average interest rate of the three countries with the lowest inflation rate by 2%; (c) The national currency should not depreciate by a percentage greater than the one allowed by the “normal band of fluctuation” as defined by the ERM mechanism for two years prior to the introduction of the EMU;<sup>16</sup> (d) the public deficit should not be higher than 3% of the country's GDP or, in case it is higher, its deviation from the reference value should be declining or be of temporary nature only and, at any rate, not too high; and (e) the national public debt should be less than 60% of the country's GDP or, in case it is higher, it should have followed a constant declining pattern over a series of years. Finally, the countries which are to qualify for the EMU should adjust their Central Bank legislation in a way that it is compatible with the provisions of the MT referring to the operation of the European System of Central Banks (ESCB) and the European Central Bank (ECB).

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not seem to have increased growth rates in the EU may be due to the fact that the EMS is an incomplete form of monetary union where exchange rate risk existed due to the possibility of a realignment. From that point of view, a full EMU could be more growth-inducing.

<sup>15</sup> Although the common feeling is that the reference value is the average of the three best performers of the EU, there are voices who put this feeling into question. For example, the National Institute Economic Review (October 1996, p. 42), states that “the English language version of the Treaty states that inflation must not exceed that of *at most* the three best performing states by more than 1.5 percentage points, implying that only the performance of the third best performer is in fact relevant”. Also, Artis (1996, p. 1008) believes that the above wording is ambiguous and “other pieces of arithmetic would satisfy the words of the protocol”.

<sup>16</sup> The MT states that member-countries should maintain the exchange rates of their currencies within the “normal fluctuation margins”, without, however, specifying which is the reference band. As a result, some officials in countries such as UK and Sweden have suggested that even without formal participation in the ERM, a country could be considered to have met the currency stability criterion if it has achieved small fluctuations of its currency for two years prior to the introduction of the EMU. In view of the confusion regarding the ERM participation criterion, some economists have suggested a new definition of currency stability, such as the coefficient of variation against the DM (see National Institute Economic Review, October 1996, p. 68 and p. 76). It has been suggested that such an arrangement would reduce the scope of speculation and will allow the governments of the OUT countries to adjust their policies towards EMU participation without the constraint of currency volatility danger.

The aim of the Maastricht criteria is to achieve what is defined as *nominal convergence* in Europe. A number of different views have been expressed with regard to the logic behind them (see e.g. Eichengreen, 1993, Winkler, 1996, Grahl, 1997). Inflation convergence is considered necessary for reasons relevant to market rigidities: wages, contracts and other costs do not adjust instantly to changes in market conditions. Unless inflation convergence has taken place prior to the establishment of the EMU, the producers of high-inflation countries will face competitiveness problems during the early stages of the EMU which may give rise to deflationary policies. The welfare cost which would be caused by such adjustments would be much higher in comparison to the cost caused under a flexible exchange rate regime.

The exchange rate stability criterion can be justified on the grounds of credibility gains: a stable exchange rate is easily observed by the public and operates as a signaling mechanism for agents: it signals the commitment of authorities to low inflation and it contributes to a downwards adjustment of inflation expectations. The criterion relevant to interest rates addresses the issue of national default risk and expectations about future inflation, exchange rate fluctuations and fiscal policy: within the EMU, interest rate differentials will reflect different probabilities of national default which have to be minimized by all countries of the Union prior to the inauguration of Stage Three<sup>17</sup>. Progress in this field is demonstrated by the level of the long-term interest rate. In addition, a low long-term interest rate accompanied by a low rate of inflation and exchange rate stability reflects market expectations for low inflation in the medium-term future. Such expectations reflect the fact that agents are convinced that the exchange rate of the currency is sustainable whilst nominal depreciations as well as expansionary fiscal policies are not to be expected.

This is closely linked to the criteria of small budget deficits and a reasonable national debt. The presence of countries with fiscal problems may oblige the ECB to deviate from its inflation-averse policy. More precisely, admitting into the EMU a country with a high public debt might have inflationary consequences for the whole

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<sup>17</sup> However, recent empirical evidence suggests that the markets' conviction that a country will be able to join the EMU leads to a convergence of its interest rates with the German interest rates. The introduction of the EMU is expected to reinforce this tendency and lead to further convergence of interest rates. We return to this point later in this chapter.

Union<sup>18</sup>. If, for example, investors feel that there is a default risk, they may suddenly want to sell securities issued by the Treasury of that country. If this is to result in a significant drop in the prices of these securities, and the ECB feels obliged to buy them in order to prevent a crisis in the bonds market, the exchange of bonds for money may eventually engineer inflation in the Union as a whole.

The question is whether these criteria are likely to lead to the achievement of their targets and promote the success of the EMU project. Academic discussion on the subject has been quite vivid as a number of economists, based on sound economic arguments, have called the whole Maastricht approach into question. First of all, it has been suggested that the Maastricht rules simply represent policy guidelines which were not derived using specific theoretical arguments (see Buiter *et al*, 1993). The rather arbitrary selection of the reference values is the reason behind the interpretation clause incorporated in the MT according to which at the end of Stage Two the European Council had to *decide* which of the candidate countries for EMU participation meet the criteria<sup>19</sup>. Allsopp and Vines (1996) argue that the fiscal consolidation which is implied by the MT creates the necessity for an increase in private sector investment which does not seem very probable given the current monetary policy of the EU countries. According to them, the combination of tight fiscal and monetary policies implied by the strict arithmetic values of the Maastricht criteria have contributed to a suppression of economic activity and, from that point of view, to the creation of unnecessary economic fluctuations and an increase in European unemployment. In relation to this, Eichengreen (1997 p. 92), argues that by creating a structure that constraints both the monetary and the fiscal independence of EMU member states, the Maastricht Treaty threatens to create an exceedingly rigid and fragile European economy. He concludes that with the advent of monetary union the participating states will lose all recourse to independent monetary policies to offset disturbances affecting them asymmetrically.

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<sup>18</sup> We return to this point later in this chapter.

<sup>19</sup> See, however, Arrowsmith (1995) who argues that the selection of the reference numbers is not arbitrary: they represent the average performance of the EEC members in the 1970s and 1980s. For example, 60% is the level at which national debt will be stabilized if a country runs a 3% deficit with an annual GDP growth of 5%. Furthermore, as Buiter *et al* (1993) have argued, the 3% deficit criterion may reflect the view that public investment expenditure is not inflation-inducing (in the sense that public investment generates higher income and tax revenue which render it self-financing) and that 3% of GDP is the average level of public investment undertaken by European governments between 1974 and 1991.

Furthermore, although it is true that the stability of the future single currency could be threatened by the presence of fiscal problems in some of the members of the Union, it is also true that the stability of the single currency could be threatened by factors relating to the private sector: one cannot possibly guarantee that the prices of the private sector securities will never come under pressure after 1999. If this is to result in a significant drop in the stock prices, the ECB may feel obliged to intervene in order to prevent a major crisis in the stock exchange markets. This is equivalent to the argument referring to the price of public bonds mentioned above. However, the MT is very vague on this issue, as it only mentions that the ECB should contribute to the stability of the financial system (see Grahl, 1997). Moreover, De Grauwe (1994b) suggested that as long as the fundamentals of European economies present significant differences and European governments pursue different economic policy aims, economic agents will not be fully convinced that the Central Banks of countries with a high inflation tradition would stick to their newly-acquired anti-inflation stance through thick and thin. The result is that expected inflation rates would not be equalized unless a long period of time passes during which all national Central Banks stick to their anti-inflationary policies no matter what the state of the world was. It follows that during the transition period, equilibrium inflation rates could converge but would most probably not become identical. National price levels would continue to diverge and, as a result, it would be difficult to avert the depreciation of some currencies. This was, after all what happened during the EMS crisis in 1992-93 and the repetition of such a development would be a striking blow to the convergence process<sup>20</sup>.

All in all, the proponents of the MT have argued that the latter has set five convergence criteria which serve a three-fold purpose: first, to operate as self-discipline mechanisms for individual countries and help authorities promote unpopular economic reforms with as little social reaction as possible; second, to operate as a screening mechanism which at the beginning of the third stage will

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<sup>20</sup> One might argue that the fears expressed by De Grauwe did not materialize as all EU members (with the exception of Greece) met the inflation criterion set by the MT. However, De Grauwe's argument is still relevant in the context of our analysis for two reasons. First, there has been one incident which was consistent with his views, namely the monetary upheavals of March 1995 which led to the devaluation of the peseta and the escudo. Second, the country on which we focus our attention in this thesis, i.e. Greece, did not manage to gain EMU qualification, therefore, as far as this country is concerned, the scenario described by De Grauwe remains a possibility.

separate low risk countries (for the stability of the EMU) to be admitted in the Union from the high-risk countries who will have to try harder; third, to ensure that the economic structure of countries which will participate in the EMU will be similar in order to avoid asymmetric shocks. In other words, the logic behind the Maastricht criteria is to make the EMU a low-risk affair for low-inflation countries, speed up necessary structural adjustments in countries which, for the one reason or another, seem reluctant to proceed to such adjustments by themselves and to promote structural homogeneity among European economies. From this point of view, the Maastricht criteria could be helpful in building a “stability culture” among European countries (Winkler, 1996) and boost confidence with regard to the success of the EMU project. On the other hand, some economists, based on sound arguments, have criticized them and alternatively, proposed a direct, one-step EMU, similar to the monetary reunification of Germany in 1990, which they consider to be more advantageous and able to lead to the establishment of a stable EMU easier and in a shorter period of time (De Grauwe 1994b). But beyond these disagreements, consensus has emerged that nominal convergence may be a necessary but not a sufficient condition for the long-term success of EMU since a reasonable degree of real convergence will also be required.

#### 4.3.2. Real Convergence

Real convergence is defined as the equalization of real per-capita income and productivity rates across different countries. The MT has not set any specific criterion relevant to real convergence but its importance for the long-term success of the EMU is undeniable<sup>21</sup>. Within the context of the EU, a country is considered to have achieved it when the per-capita income of her citizens is equal to the 80% of the Union’s average<sup>22</sup>. Experience from various countries suggests that important regional development differences may lead to significant public transfers to the problem regions<sup>23</sup>. Despite the arguments against such a policy, transfers are often

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<sup>21</sup> The MT states that among other factors to be taken into consideration for the selection of the first wave of EMU participants are also “the results of the integration of markets, the situation and development of the balances of payments on current account and an examination of the development of unit labour costs and other price indices” (Article 109j.1). There is no explicit reference to unemployment and international competitiveness.

<sup>22</sup> EU countries whose per capita income is less than 80% of the Union’s average are defined as Cohesion Countries.

<sup>23</sup> The development gap between North and South Italy is a typical example.

justified on the grounds of national solidarity: people in richer regions can be convinced that helping some of their less prosperous compatriots is a good cause and can accept fiscal and tax discrimination in favour of the less developed regions. However, a lower degree of solidarity should be expected within the EU which incorporates many national states. Therefore, as long as differences in income and productivity rates do not vanish, the issue of helping poorer countries remains and the stability of the Union will be threatened. This being so, the important question is how achievable is real convergence in Europe today. According to traditional, exogenous growth theory, convergence between countries is (almost) unavoidable due to the existence of diminishing marginal profitability of capital (see chapter 2). However, this optimistic view has not been fully confirmed in reality. Endogenous growth theory suggests that as long as different countries follow different economic policies, different profitability rates and different investment shares in GDP will appear. As a result, permanent differences in growth rates and per-capita incomes can persist.

The EU has based its convergence policy on two pillars: first, the direct financial transfers which it provides to its members and in particular the less developed ones; second, the MT which is expected to re-orientate national economic policies towards structural adjustments. Although there are arguments supporting the view that both these choices are in the correct direction, real convergence cannot be guaranteed just by their existence. With regard to the former, the experience of the Delors Package I is illustrative (see Figure 2.1 in chapter 2): some of the recipient countries improved their economic performance (Spain and Ireland being the most successful), some others did not (Greece being the least successful). The reason is that although EU transfers increase the government's disposal income for a certain period of time, they do not increase production by themselves. If they are allocated to private and public consumption purposes only, they could lead to higher external and public deficits which could raise welfare temporarily but would promote the long-run economic prospects of the country (see Alogoskoufis and Prodromidis, 1995): rational agents will most probably foresee that the increase in demand will not last for long and they will not invest in a country whose prospects do not appear bright. Only if the financial support of the EU is directed to

investment purposes will the result be towards the correct direction but even then, it will not be enough. As endogenous growth theory demonstrates, countries who want to accelerate their economic development should create the conditions for a higher share of their own GDP to be devoted to investment.

Regarding now the Maastricht criteria, the idea was that the less developed EU countries which would re-arrange their policies in an attempt to comply with the Maastricht rules would most probably reduce obstacles for economic growth by means of improving the business climate through a reduction in inflation and public debt. From that point of view, the policy guidelines implied by the rules direction (and not by the arithmetic value of the rules themselves) could be beneficial for the process of real convergence. However, when implementing such kind of corrective policies, it should be kept in mind that results do not appear instantly. It takes some time for the stabilization policies to create a substantial improvement. This might imply an adjustment cost which, in the absence of structural adjustments, can take the form of an unnecessary national recession.

#### 4.3.3. The EMU INS

In the Brussels European Summit in May 1998, the heads of governments of the EU countries adopted the March 1998 Convergence Reports of the European Commission and the European Monetary Institute (the forerunner of the ECB) along with their recommendations regarding the countries which should form the first wave of EMU participants on 1 January 1999. The founding members of EMU, which were selected on the basis of 1997 (actual) figures, include all current EU members with the exception of *Greece*, which did not meet the Maastricht criteria, and the three countries which stayed out on their own will, i.e. *Denmark*, *Sweden* and the *United Kingdom*. According to the existing time schedule, on the 1<sup>st</sup> of January 1999 bilateral exchange rates will be irrevocably fixed and the single currency, the euro, will be introduced<sup>24</sup>. In relation to this, it was decided in Brussels that the conversion rates to be used for the transition to the euro will be the ERM

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<sup>24</sup> The rate of conversion between the ECU and the euro was selected to be one ECU for one euro. However, it is interesting to notice that the ECU includes three currencies which will not be initially included in the euro in 1999 (i.e. the sterling pound, the Danish krone and the Greek drachma).



central rates which prevailed on the 1<sup>st</sup> May 1998<sup>25</sup>. On the 1<sup>st</sup> January 1999 the ECB will start conducting (common) monetary and foreign exchange policy in euros. On the 1<sup>st</sup> January 2002, the ECB will start issuing euros notes and coins. National currencies will remain in place until July 1st 2002, the date when national bank notes and coins will lose legal tender status<sup>26</sup>.

The selection of the founding members of the EMU was a subject of intense economic (and political) controversy. One opinion, which was mainly based on the Theory of Optimum Currency Areas (TOCA) and had many supporters in Britain<sup>27</sup> and some other North European countries, was that the first wave of EMU participants should have included a relatively small number of countries. According to this opinion, in view of the limited degree of labour mobility which is currently observed in Europe, the EU heads of state should have insisted on a strict interpretation of the Maastricht criteria (especially the fiscal ones) so that the possibility of asymmetric real shocks within the EMU would be minimized; and the

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<sup>25</sup> The final selection of the conversion rates was not a trivial decision. It was the outcome of a long series of discussions where three solutions had been proposed (see De Grauwe, 1996a, De Grauwe and Spaventa, 1997, Argyrou and Mourmouras, 1997). The first was to make no announcement at all and leave the markets decide on the issue. In that case, the conversion rates would be the market rates prevailing on 31/12/98. This solution would ensure full credibility and would guarantee that speculative attacks during the transition period between May 1998 and January 1999 would be avoided as the national Central Banks of the EMU INS would not be obliged to defend any particular parity. However, under such an arrangement, serious misalignments could occur if for one reason or another market rates deviated substantially from their equilibrium values during the transition period. The second solution was the one preferred, i.e. the announcement of the conversion rates along with the announcement of the first wave of EMU participants. The advantage of this solution is that, provided that the markets regard the announced rates as credible, exchange rate stability will prevail during the transition period. The disadvantage is that if the markets do not perceive the rates as being credible, they could subsequently challenge them by means of speculative attacks. However, at the moment this seems to be rather unlikely because the markets did not put any currency under pressure when in March 1998 the European Commission and the EMI proposed the formation of a large EMU (see however, Obstfeld, 1997 who argues that the solution preferred can only reduce, but not eliminate, the risk of speculative attacks in the run-up to the EMU). Finally, a third solution which had been proposed was the so-called Lamfalussy rule, named after the first President of the EMI who has suggested its adoption. According to this proposal an announcement could be made prior to 1999 stating that the conversion rates will be equal to a weighted average of the market exchange rates observed in 1996, 1997 and 1998. According to Lamfalussy, such an announcement could be made any time before 1999 and can then be applied retroactively. The rationale behind Lamfalussy's rule was to achieve a compromise between credibility (necessary to avoid serious misalignments during the determination of the conversion rates) and stability (necessary to avoid exchange rate turbulence during the transition period between the announcement of the INS and the introduction of the euro on 1/1/1999 (see De Grauwe, 1996a).

<sup>26</sup> During the transitional period 1999-2002 new public debt issues will be denominated in euros, something that would aim at enhancing the liquidity and depth of the euro financial market. During the same period, the ECB will support efforts to ensure the smooth functioning of a money market in euros, and monitor changeover developments in the banking and finance industry.

<sup>27</sup> For example, see the editorial comment of the National Institute Economic Review, October 1990, pp. 3-4.

Table 4.1

## Nominal convergence among EU Member States

	Inflation	Fiscal position of General Government (% of GDP in 1997)	Public Debt	Long term interest rates	ERM participation	EMU founding member
<i>Reference Value</i>	Jan-98	Budget Deficit (+) or Surplus (-)	Jan-98	Jan-98	May-98	
Austria	1.1	2.5	66.1	5.6	yes	yes
Belgium	1.4	2.1	122.2	5.7	yes	yes
Denmark	1.9	-0.7	65.1	6.2	yes	no
Finland	1.3	0.9	55.8	5.9	yes	yes
France	1.2	3.0	58.0	5.5	yes	yes
Germany	1.4	2.7	61.3	5.6	yes	yes
Greece	5.2	4.0	108.7	9.8	yes	no
Ireland	1.2	-0.9	66.3	6.2	yes	yes
Italy	1.8	2.7	121.6	6.7	yes	yes
Luxembourg	1.4	-1.7	6.7	5.6	yes	yes
Netherlands	1.8	1.4	72.1	5.5	yes	yes
Portugal	1.8	2.5	62.0	6.2	yes	yes
Spain	1.8	2.6	68.8	6.3	yes	yes
Sweden	1.9	0.8	76.6	6.5	no	no
UK	1.8	1.9	53.4	7	no	no
EU15	1.6	2.4	72.1	6.1		

Source: European Commission

commitment of the ECB to a low inflation rate would not be jeopardised<sup>28</sup>. However, the large EMU scenario finally prevailed, not least because of the following reasons: (a) a number of EU countries, which were initially regarded as favourites to be among the OUT group, engaged during the 1990s in an all-out effort to gain EMU qualification in 1999. Despite the criticism referring to some of the methods which they employed, these countries managed to achieve a certain degree of convergence progress (see Table 4.1)<sup>29</sup>. As the wording of the Maastricht Treaty allowed more than one interpretations, these countries had strong economic, legal and political arguments during the subsequent negotiations; (b) the crucial decision of the ECOFIN as to which countries should qualify for the EMU was taken by means of a qualified majority. It would be difficult to obtain such a majority without a political compromise supported by countries like Italy or Spain; (c) perhaps more importantly, prior to the selection of the EMU founding members, there were doubts whether Germany itself would be in position to meet the 3.0% deficit target. In view of the late 1998 German general elections, this fact, along with the political capital which the present German government had invested in the creation of EMU, obliged Germany to ascent to a flexible interpretation of the deficit criterion. However, this came at a cost for some of the rest EU members. More specifically, Germany insisted on, and finally secured, a fiscal arrangement (i.e. the Budget Stability Pact) which aims to guarantee that the euro will be as strong as the DM.

#### 4.3.4. Fiscal policy within the EMU: the Budget Stability Pact

Countries which will remain outside the EMU in 1999 will be expected to continue a policy of fiscal consolidation in an effort to meet the Maastricht criteria and join the EMU at a later stage. But for the first EMU participants, some important issues are raised: in view of the loss of monetary independence as a means of fighting recessions and the small degree of labour mobility which is

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<sup>28</sup> This opinion suggests that the first wave of EMU participants should include those countries which are believed to form a European Optimum Currency Area i.e. *Germany, Belgium, the Netherlands, Austria, Luxembourg, and France*, plus *Ireland* (who has displayed a remarkable convergence performance) and possibly *Finland*. Studies which address the issue of a European Optimum Currency Area include those by Eichengreen (1990), Newmann and von Hagen (1991), Bayoumi and Eichengreen (1993), De Grauwe and Vanhaverbeke (1994), Canzoneri and Rogers (1990), Bofinger (1994).

<sup>29</sup> See however Mason (1996) who does not restrict criticism to South European countries only. He argues that the majority of the EU countries attempt to meet the Maastricht criteria the wrong way, i.e. through an increase in public revenue and not a reduction in expenditure which, according to him, is "too generous".

currently observed in Europe, the proposed EMU is threatened by a possible conflict between monetary and fiscal policy if these are to be conducted independently. The point is that if national fiscal policies are not subject to any control, they could probably be used in order to moderate (perhaps asymmetric) national recessions. In view of the explicit mandate of the ECB to maintain conditions of price stability, fears have been expressed that this might lead to a fiscal relaxation which could either lead to an unbalanced policy mix resulting in real economic costs (similar to the ones which appeared in the United States during the early 1980s); or an accommodating monetary policy which could jeopardize price stability and endanger the stability of the *euro*. That could be done either through a direct monetization of governments' debt (an option which is explicitly ruled out by the ECB statutes) or through a reduction in interest rates aiming to lighten the debt service burden.

There are some important points related to the issue raised above. The TOCA argues that if market rigidities exist, a solution could be the delegation of fiscal policy to an independent Union body which could face shocks by transferring funds from the Union's budget to the members hit by a recession<sup>30</sup>. It has been argued (see Masson, 1996) that such a solution would achieve the highest possible degree of coordination between fiscal and monetary policy and could reduce welfare cost and social tensions, elements which could endanger the stability of the Union. Recent empirical research provides further support in favour of this view<sup>31</sup>. However, as we have already mentioned, fiscal centralization may be an obstacle to structural adjustment: evidence from various countries where specific regions are considered handicapped and are heavily supported by the public budget suggests that transfers to the supported areas tend to acquire a permanent character without resulting in the expected improvement. Also, in the context of Europe, contradictory national interests could lead to conflicts which could put the unity of the EMU in danger. Finally, political

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<sup>30</sup> Such as view was adopted by the MacDougall Report (1977) which estimated that the EU budget should be equal to 5% of the European GDP in order to be able to cope with national asymmetric shocks. Similar views are also expressed by Begg and Wyplosz (1987).

<sup>31</sup> For example, Bayoumi and Masson (1995) have estimated that fiscal federalism in the USA and Canada has played an important role in stabilising output fluctuations as the federal budget in these countries is able to offset approximately 20% of unexpected income shocks. Sala-i-Martin and Sachs (1992) suggest an even higher figure, namely 35%.

reactions to complete centralization would most probably be quite strong, to the extent that this option should be regarded (at least for the foreseeable future) as highly unrealistic (see Masson, 1996).

Therefore, excluding complete centralization as a solution, two important issues which arise are the sustainability of the discretionary character of national fiscal policies; and the prospects of fiscal policy coordination which is expected to follow the introduction of the EMU. As far as the first issue is concerned, clearly, there are limitations regarding the effectiveness of national fiscal policies as persistent, large public deficits could lead to an explosive path for the level of public debt (see chapter 2). This implies that national authorities cannot use fiscal policy independently without taking into account the existing constraints. The important question that arises then is the following: What will be the impact of EMU on national fiscal policies? If higher deficits are to follow the EMU may be unstable unless an efficient mechanism of cooperation can be devised. The issue has been the subject of controversy among economists (see e.g. Wyplosz, 1991). There are two opinions on this point.

The first opinion suggests that the EMU will lead to higher deficits. Given an anti-inflationary policy on the part of the ECB, interest rates on national bonds may not reflect the true default risk. Agents will believe that even if a member country is on the brink of bankruptcy the others will bail it out because a debt crisis of a single member could become a major financial crisis for the whole of the Union. A moral hazard problem will then be created: individual countries will have an incentive to relax their fiscal policy and proceed to fiscal expansion. This, may oblige the ECB to finance the expansion through open market operations which will steadily lead to higher inflation rates. In this case, the reputation of the ECB as an inflation-averse institution could be damaged<sup>32</sup>. If the ECB refuses

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<sup>32</sup> There are two objections to this argument. Firstly, it is assumed that national governments are too short-sighted whereas this might not be the case. Secondly, it is assumed that capital markets are not efficient (see Buiter and Kletzer, 1990). However, if the markets operate efficiently, agents will understand that the default risk exists only for the countries who run excessive deficits. Consequently, we should end with different interest rates for public bonds of different countries exactly as we have different interest rates for bonds of different firms in any stock exchange. Bayoumi *et al* (1995) provide empirical evidence from the USA in favour of this view. However, his argument has been challenged by Eichengreen and von Hagen (1996), who have argued that as long as national governments retain sufficient taxing powers, national default probabilities cannot become large enough to operate as an effective deterrent against excessive public deficits.

refuses to finance the expansion, interest rates in the Union may increase, depressing, at the same time, investment expenditure and reducing Europe's international competitiveness through a real exchange rate appreciation. When the situation becomes dangerous, it may not be possible to save all the heavily indebted countries.

In contrast to the above, there also are two arguments which suggest that the EMU will lead to smaller public deficits. The first suggests that as long as a source of public revenue (i.e. seignorage) is liquidated, public expenditure will also fall. The second (Eichengreen, 1993) argues that the ability of governments to borrow at present is influenced by their ability to raise taxes in the future. Under conditions of reasonable capital and labour mobility, governments which realize that an increase in borrowing today may eliminate the tax base tomorrow will follow a more disciplined fiscal policy.

There is no theoretical reason to believe that one of the two effects presented above is stronger than the other. Empirical evidence suggests that countries which participated in the EMS display a higher degree of fiscal discipline<sup>33</sup>. Nevertheless, in view of the high stakes involved in the EMU project, it has been suggested that one has to be concerned about this matter. Therefore, if a cooperation mechanism which eliminates the moral hazard problem could be devised, it might be wise to implement it<sup>34</sup>. A solution could be an explicit institutional arrangement which would prohibit the "bailing-out" of indebted members of the Union, like the one which is incorporated in the MT. However, due to the reasons explained earlier, the credibility of such arrangements is rather doubtful. A second solution is the creation of rules which will not allow national debts to exceed certain limits. However, the use of such rules has been criticized by many economists who have claimed that there is no evidence that fiscal rules lead to smaller deficits<sup>35</sup>. Consequently, a third solution could be the combination

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<sup>33</sup> Lamfalussy (1989) argues that countries who participate in schemes of monetary integration tend to display small budget deficits.

<sup>34</sup> This, however, is not an opinion shared by all economists. For example, Buiters and Kletzer (1990) have argued that the rise of interest rates in a monetary union following the fiscal expansion of some countries may create a distribution-based but not an efficiency-based argument for intervention and fiscal co-operation.

<sup>35</sup> See Buiters and Kletzer (1990), Begg *et al* (1991), van der Ploeg (1991), von Hagen (1991), Wyplosz (1991), Buiters, Corsetti, and Roubini (1993), Allsopp and Vines (1996). See also

of fiscal rules and the existence of a sanction mechanism against those countries who violate them. Such a solution was initially proposed by Germany in the context of the Waigel proposal in December 1995 for the signing of a new *Budget Stability Pact* (BSP) along with the creation of a Stability Council whose aim would be to coordinate the fiscal policies of EMU members and which would also be able to impose fines on countries who run public deficits in excess of 3% of GDP.

In essence, the German proposal reflected the fear of the German government that as some of the “soft currency”, heavily indebted EU countries would be admitted in the Union in 1999, the moral hazard problem described by the first scenario above would prevail, therefore, in the absence of a straightforward sanction mechanism, the fiscal rules set by the MT would not be enough to eliminate the domestic deficit bias inherent in the conduct of fiscal policy (see Beetsma and Uhlig, 1997, Artis and Winkler, 1998)<sup>36</sup>. In a sense, one might say that as far as Germany was concerned, the BSP represented an insurance policy aiming to guarantee that the euro will be as strong as the DM and, from that point of view, an attempt to acquire public support for the EMU project from a German public which had become increasingly sceptical towards the prospect of abolishing the DM. The primary task of the BSP would be to achieve an interaction between (common) monetary and (national) fiscal policies which would be able “to safeguard the credibility of monetary policy, both in the long term by preventing excessive public debt build-up) and in the short run by keeping deficits in check and thereby reducing the risk of imbalances in the macroeconomic policy mix” (Artis and Winkler, 1998, p. 93). From a game-theory perspective, the proposal for the signing of a BSP can be seen as an attempt to establish (through the fiscal rules) the strategic leadership of the ECB over national fiscal authorities, i.e. pre-commit the latter to a “monetary dominance” (as opposed to “a fiscal dominance”) regime (see Canzoneri and Diba,

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von Hagen and Eichengreen (1996) who claim that fiscal restrictions are not only unnecessary but will aggravate the very problem they are designed to avert.

<sup>36</sup> The deficit bias hypothesis is based on the argument that unlike taxpayers (who pay the price of fiscal imbalances), special interest groups pushing for increases in public expenditure are well organized and politically influential. This obliges governments to proceed to fiscal expansions which create excessive deficits and harm long-run growth via the crowding out of productive private investment.

1996)<sup>37</sup>; and (through the sanctions mechanism), prevent any leadership battle between national governments and the ECB during the early stages of the EMU. Such a battle could be the result of the effort of the ECB to establish its leadership in the conduct of macroeconomic management over national governments and could lead to an unbalanced policy mix, involving tight monetary and lax fiscal policy.

The German views acquired many supporters in other low-inflation, low-debt countries and were accepted in principal by the ECOFIN meeting at Dublin in September 1996. However, the majority of the other EU members, led by France (but also the UK and Spain), were opposed to the rigid rules proposed by Germany. These countries argued, based on sound academic arguments (see below), that restricting national fiscal policies to such an extent would result in an inappropriate uniform treatment of countries with different levels of economic development, demographic prospects and structural problems. Furthermore, it was argued that sanctions should not be imposed on countries which run excessive deficits under “temporary and exceptional circumstances”. Eventually, a compromise which was achieved in the Dublin summit of December 1996. However, the definition of “temporary and exceptional circumstances” was closer to the German rather than the French views. More specifically, at Dublin it was decided that countries with a budget deficit in excess of 3% of GDP will be automatically exempted from sanctions if they have experienced an annual fall of their GDP of at least 2%. In cases where GDP has contracted between 0.75% and 2%, the ECOFIN will have to decide whether the fall was due to exceptional circumstances or not. The abruptness of the contraction will be taken into consideration during the decision process. Sanctions will be imposed on countries who violate the 3% threshold in years when GDP has contracted by less than 0.75%. The fine which will be paid moves on a sliding scale from 0.2% of GDP to a maximum 0.5%<sup>38</sup>.

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<sup>37</sup> In a fiscal dominance regime national fiscal authorities have the strategic advantage of announcing their policy first. In that case, they pre-commit to a path of deficits which forces the Central Bank to accommodate the deficit in order to avoid national default. On the other hand, in a regime of monetary dominance, the Central Bank pre-commits a low inflation rate, thus obliging national fiscal authorities to adjust the path of deficits in a way compatible with a disciplined monetary policy.

<sup>38</sup> Finally, in the European Summit of Amsterdam (June 1997) it was decided to sign a “jobs and growth” pact which will put the creation of jobs and the fight against unemployment “at the top of the agenda” of EU policies. This development satisfied the sensitivities of the French and other governments which shared the French views. In reality however, it did not bring any dramatic change



The question which naturally arises is whether the decisions reached in Dublin were the appropriate ones in order to ensure sustainable national fiscal policies, promote the stability of the single currency and help avoid pronounced cyclical output fluctuations in Europe. To begin with the first issue, one may notice that the provisions of the BSP regarding the definition of exceptional circumstances have left considerable room for political discretion<sup>39</sup>. The problem is by no means trivial, if one takes into consideration that although the imposition of fines is conditional upon a qualified majority vote among the EMU INS only (excluding the country under examination), the decision as to whether an excessive deficit exists has to be taken by means of a qualified majority of *all* EU members, including the country under examination *and* the EMU OUTS. This implies that a coalition involving, say, Italy, Spain, Portugal and Greece, is in position to block a decision defining a deficit as excessive (see Artis and Winkler, 1998). Moreover, the considerable time lags involved between the announcement of the decision that a country has registered an excessive deficit and the actual payment of the financial penalty may have left room further room for political interventions.

However, the main source of controversy between the proponents and critics of the BSP refers to the balance of arguments between the benefits of reducing the domestic deficit bias on the one hand; and the cost of restricting the ability of fiscal policies to cope with adverse output shocks on the other (i.e. a credibility versus flexibility trade-off in the conduct of fiscal policy). Those economists which view the BSP with scepticism (see e.g. Eichengreen, 1997, Eichengreen and Wyplosz, 1998) argue that the provisions of the BSP, if applied strictly, will affect the operation of the governments' automatic stabilizers in a negative way and will increase output variability in the EMU, especially during the early stages of the EMU<sup>40</sup>. This argument acquires additional importance in the light of the abolition of

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of the scenery as the new initiative does not involve any new spending initiative on job creation on the part of the EU.

<sup>39</sup> In fact, it will most probably be the case that violations of the 3% deficit rule will be accompanied by GDP reductions in the order of 0.75% to 2%, therefore an essentially political decision as to whether an excessive deficit exists will be needed for the sanctions mechanism to be applied. As Eichengreen (1997) argues, over the last 30 years, national recessions exceeding the threshold of 2% have taken place only on thirteen occasions in the 15 EU countries.

<sup>40</sup> An alternative solution advanced by Eichengreen is to implement the rules of the BSP on the constant-employment, corresponding to the non-accelerating inflation rate of unemployment, (NAIRU) budget deficit, rather than the current (actual) deficit. However, despite the sound logic behind Eichengreen's proposal, there are a number of practical difficulties which weaken his

monetary independence as a tool of short-run macroeconomic management and the fact that the budget deficit of most EMU participants is currently very close to the 3% reference value. Bayoumi and Eichengreen (1995) provide empirical evidence from the USA suggesting that states operating strict restrictions on deficits and debt issue have a rather unsatisfactory output stabilization record whereas the simulation results emerging in the study by McAdam and Hughes-Hallet (1996) provide empirical support in favour of this view. Finally, it has been argued that the BSP may result in further “destabilizing effects that could arise from the interaction of the sanctions and the reaction of financial markets to the imposition of fines. The financial penalties that could be exacted by the bond market in the form of higher interest payments may easily be larger than those arising from the Pact itself<sup>41</sup>”.

On the other hand, economists which take a more favourable view towards the BSP (see e.g. Masson, 1996, Artis and Winkler, 1998) have argued that given the current unsound fiscal position of a number of EMU members, an increase in fiscal responsibility in Europe was essential any way, irrespective of the EMU project and especially in view of the demographic trends which are currently observed in the continent. The crux of this argument is that there is no long-run trade-off between credibility and flexibility in the field of fiscal policy, as some of the EMU members would have to reverse their negative public debt dynamics one way or another in order to avoid insolvency. According to these economists, the BSP will operate as an effective pre-commitment technology to serve this purpose and, by reducing fiscal imbalances, it can be conducive to long-run growth along the lines suggested by Giavazzi and Pagano (1991). Moreover, the argument continues, by imposing a higher degree of fiscal discipline upon national governments, in the long-run, the BSP will rather facilitate, instead of harming, the operation of automatic stabilizers as the improvement of fiscal indicators will increase the scope for manoeuvre in the event of an adverse output shock<sup>42</sup>. In this context, the issue of

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argument. For example, the empirical measurement of the NAIRU and the constant-employment deficit is not a straightforward task, something which, as Eichengreen himself admits, may give rise to “interpretations of convenience” on the part of national governments.

<sup>41</sup> See Artis and Winkler (1998, p. 88). However, the same authors suggest that the counter-argument challenging the view mentioned above is that the prospect of such destabilizing effects reinforces the importance of the BSP as a valuable external commitment technology which provides a superior structure of incentives to national governments to maintain fiscal responsibility.

<sup>42</sup> Eichengreen (1997, p.94) agrees on this point. He admits that growing consciousness of Europe’s demographic problem (rising dependency ratios and pension liabilities after the year

restricted flexibility, although important, is only relevant during the transition period necessary for some European governments to reverse their current debt dynamics, and even in that case, its importance may be exaggerated if agents are partially Ricardian<sup>43</sup>. However, given that empirical evidence in favour of the Ricardian Hypothesis is at best mixed (see chapter 2), and also having in mind that monetary policy will not be available for national stabilization purposes after the inauguration of the EMU, the limited flexibility implied by fiscal restrictions imposed by the BSP make the case for increased wage/price flexibility and enhanced labour mobility even stronger.

To sum up, one might suggest that the two different views on the BSP reflect two different fears. The economists which take a favourable view towards it are essentially concerned with the possibility of high inflation episodes in the EMU. They believe that by limiting the scope for national discretion in the conduct of fiscal policy, the BSP provides a credible external policy constraint, which would be able to establish fiscal responsibility within the EMU so that (i) a combination of tight common monetary policy and lax fiscal national policies will be avoided; and (ii) price stability conditions (which will also enhance the stability of the euro in international financial markets) will be promoted.

On the other hand, the economists who take a critical view towards the BSP are particularly concerned with the prospect of short and medium term contractionary risks, both in terms of individual countries and the EMU as a whole. In the domestic level, it is argued that by limiting the ability of national authorities to respond to income shocks, the provisions of the BSP involve some considerable welfare risks for a number of heavily indebted countries, especially during the first stages of the EMU. In the EMU level, the provisions of the BSP, combined with the explicit mandate of the ECB to maintain price stability, provide the basis for a combination of tight fiscal and monetary policies which may result to conditions of an unnecessary economic slowdown. Furthermore, to the extent that in a system like the EMU (including open and highly integrated economies) negative demand shocks

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2020, which create a strong case for government saving now), creates a strong incentive for governments to pursue budget surpluses which will allow some flexibility in fiscal policy in order to moderate the impact of a future recession.

<sup>43</sup> Under such circumstances, an increase in public expenditure may lead to an increase in private saving and a reduction in private consumption in anticipation of future taxation (see chapter 2).

will have an impact on both domestic and foreign output, the strict provisions of the BSP leave room for considerable negative spillover effects between member countries. It would appear to us that these contractionary risks seem to be too important to be neglected and this is particularly relevant during the current period of social unrest caused by the prolonged, determined effort of most of EU countries to be included in the first wave of EMU participants. Given the very low inflation rates currently observed in the EU, at the moment, there seems to be little reason to believe that a substantial increase in European inflation in the foreseeable future is possible. In contrast, the possibility of contractionary outcomes to follow the implementation of tight fiscal and monetary policies seems much more realistic. Furthermore, one should not forget that due to the sensitive issues which they raise, market reforms of the kind suggested by the proponents of the BSP, though necessary, are neither easy nor speedy affairs. Moreover, their impact on economic performance can only appear with a considerable time lag. In fact, Eichengreen and Wyplosz (1998) argue that the BSP will actually hinder the promotion of such reforms as governments will find it difficult to promote them in the face of social discontent which may follow negative output effects caused by adherence to the letter of the BSP. As a result, it might be the case that a number of EU countries were not quite ready yet to face the harsh economic realities accompanying EMU participation. From that point of view, it might have been preferable to proceed to the establishment of relatively small EMU in 1999, and the rest of the countries to join later, provided that they would have made the necessary progress in the fields of nominal and real convergence.

#### **4.3.5. Monetary policy within the EMU**

Monetary policy in the EMU will be conducted by the European System of Central Banks (ESCB), a federal organization constituted by the ECB<sup>44</sup> and the member' national Central Banks<sup>45</sup>. The former will be responsible for the

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<sup>44</sup> A collection of papers dealing with the operation of the ECB can be found in Beber and Kinsella, 1998.

<sup>45</sup> The governing bodies of the new system will be the Governing Council of the ECB and the Executive Board. The Governing Council will incorporate the members of the Executive Board and the Governors of national Central Banks. In most of the cases, it will take decisions according to the principle of simple majority. The Executive Board will be made up by its President, the vice-president and four independent members. The latter is to implement monetary policy in accordance with the decisions of the former.

definition of the monetary policy and the latter will implement it according to the former's guidelines and instructions. *The primary target of the ESCB is clearly defined by the MT to be the maintenance of price stability.* The ESCB is also to promote a smooth operation of the payments system and contribute to the prudential supervision of credit institutions and the stability of the financial system. Without prejudice to these targets, the ESCB is to provide support to the rest of the general policies of the Union<sup>46</sup>. There is no reference to lender of last resort facilities. The ECB is empowered with the conduct of the EU-wide monetary policy but the responsibility for banking supervision is left with the national authorities. In order to pursue these objectives, the ECB will have the exclusive right to issue currency, manage the exchange reserves of the members' Central Banks, formulate discount policy, set reserve requirements and conduct day-to-day foreign exchange intervention through open market operations. Finally, the formal participation of the EU in international monetary arrangements is left to the European Council which, after consulting the officials of the ECB, will reach final decisions.

Monticelli and Vinals (1993) suggest that all the above define a general institutional framework but leave a number of important issues unsettled. To a certain extent, that was unavoidable because although in 1991 the principles of the ESCB had to be made clear in order to send the appropriate signals to economic agents, a certain degree of flexibility had to be maintained in order to approach the establishment of the EMU in the most efficient way. However, as time passes the issues which were not addressed in 1991 are now calling for clarification. Considering the primary objective of the ESCB, the question is what could be done in order to create and maintain an inflation-averse reputation for the new organization. Two factors are now introduced into the discussion: the first is the success of the national Central Banks in reducing inflation prior to the establishment of the EMU. This was largely achieved and there is little doubt that it could help convince agents that as national monetary authorities have become

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<sup>46</sup> According to the MT, these policies aim at the promotion of a harmonious and balanced development of economic activities; sustainable and non-inflationary growth respecting the environment; a high degree of convergence of economic performance; a high level of employment and of social protection; the raising of the standard and the quality of living; and economic and social cohesion and solidarity among member states.

inflation-averse, their successor in the conduct of economic policy, the ECB, will also be so.

The second factor refers to the political and economic independence of the ECB<sup>47</sup>. It is true that the MT has institutionally ensured both forms of independence for the new system<sup>48</sup>. But are these institutional arrangements enough to achieve price stability? Recent empirical evidence (see section 4.4.4.4 below) suggests that Central Bank institutional independence is indeed negatively correlated with inflation. However, as Giovannini (1992) claims, even two of the most independent Central Banks, the German Bundesbank and the Federal Reserve System in the USA, are not entirely isolated from external political pressures. Thus, although the institutional foundations of ESCB independence are indeed very strong, it is very difficult for the ECB to maintain price stability based on its constitutional characteristics only. The ECB will have to establish its anti-inflation reputation by employing a suitable monetary policy strategy.

What kind of strategy could that be? Generally speaking, there are two alternatives. The first one is to target inflation directly whereas the second is to pursue intermediate monetary targets. The MT does not specify which of the two strategies is to be followed by the ECB. However, taking into consideration current practices in the EU and having in mind the position advocated by the most influential of the European Central Banks, the German Bundesbank, most probably the ESCB will employ the strategy of intermediate targets and in particular the targeting of the rate of growth of money supply. In addition to its general advantages, there are some specific arguments in favour of the adoption of

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<sup>47</sup> The degree of correlation between inflation and central bank independence is thoroughly discussed later in this chapter.

<sup>48</sup> The MT prohibits officials of the ESCB to receive instructions from officials of the Union, national governments or other agents; prohibits national governments and the governing bodies of the EU to pursue intervention in the decisions of the ESCB; establishes the secrecy of the proceedings of the meetings of the Governing Council; defines an eight year non-renewable term office for the members of the Executive Board and a five year term office for the Governors of the national Central Banks; prohibits the arbitrary discontinuation of the services of the officials of the ECB and the Governors of the Central Banks on the part of national governments and the European Commission; prohibits privileged treatment of the Union or member states or local governments in credit and overdraft facilities; prohibits the ECB or national Central Banks to bail out national debts; prohibits the ESCB to participate in issues of debt of any kind of national governments, local governments public enterprises of any country and in general any body controlled by the EU or its member-states. However, in order to establish the ability of the ECB to perform open market operations the MT does not prohibit transactions involving such securities in the financial markets.

this approach by the ECB. Issing (1994) provides a guide to them. The first is the success of the approach so far. It is argued that there is no reason to change a strategy which has proved successful in the past<sup>49</sup>. Second, it should be kept in mind that the establishment of the EMU is currently regarded by many Europeans with fear and uncertainty. The ECB will need to inherit as much credibility by its predecessors as possible i.e. it has to convince agents that it will be as inflation averse as the Bundesbank which sets money supply targets<sup>50</sup>. Finally, as long as many other important decisions relevant to economic policy will continue to be decided by national governments in a decentralized level, a clear money supply target will allow governments to adjust their policies accordingly and promote coordination of actions. However, the efficiency of a common monetary policy involving money supply targets depends on a number of prerequisites such the maintenance of money demand stability. A number of influential economists (including Dewatripont *et al*, 1995, Persson and Tabelini, 1996), arguing in favour of a generalised inflation targeting strategy for the ECB, have suggested that one particular problem with monetary targeting at the European level is that the concept of Europe-wide money targets is not clear enough to be credible. More specifically, it has been suggested (see De Grauwe 1994c, Kenen 1995) that the introduction of the EMU is likely to produce unexpected changes in the demand for money. As a result, the ECB may face difficulties in delivering price stability or, perhaps more likely, it may achieve this target at a greater output and employment cost.

In addition to the above, due to the systematic risk present in contemporary economies, a non-distortionary regulation of the European financial is considered necessary in order to guarantee the existence of financial stability (see Giovannini

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<sup>49</sup> Evidence from various countries (see Cukierman, 1994) suggests inflation is generally lower in countries where the authorities officially announce such targets and even lower in those where the targets are achieved.

<sup>50</sup> However, some observers (see e.g. Bernanke and Mishkin, 1997) have suggested that even Germany's monetary policy framework includes important elements of inflation targeting. Bernanke and Mihov (1997) go one step further and claim that the Bundesbank is much better described as an inflation targeter than as a money supply targeter. According to this view, the policy of the Bundesbank is determined by a non-formally announced inflation target and the German Central Bank does not hesitate to deviate from its money supply targets if developments render the latter incompatible with the implicit inflation target (see also Filc, 1994). Similar views are also expressed by Leiderman and Svensson (1995). On the other hand, Issing (1997), is not in agreement with these views. He argues that for more than two decades the Bundesbank has followed a consistent and effective strategy of pre-announcing targets for the rate of growth of broad money supply.

1992). There are two points related to this issue: first, the organisation of an efficient payments system within the Union; and second, the supervision of commercial banking<sup>51</sup>. The MT defines the promotion of the former as one of the objectives of the ESCB. Towards that direction, the integration of the interbank payment systems is considered necessary and it is already under way. With regard to the latter, whether the ESCB should undertake sole responsibility for banking supervision is a debatable subject. There are two points here to be addressed. One has to do with the divorcing of banking supervision from central banking. The other with the decentralising nature of banking supervision and regulation.

Starting with the first issue, there is the view (see e.g. Roll *et al*, 1993) that, at least in the long-run, the pursuit of price stability strengthens financial stability as financial crises are usually linked to large swings in inflation and interest rates which induce large changes in the asset values of banks. On the other hand, it has been suggested (see Cukierman, 1994) that as far as the short-run is concerned, there might be a trade-off between price and financial stability<sup>52</sup>. In this context, combination of the two functions may lead to a central bank facing the temptation to compromise the primary objective of price stability, either by injecting high powered reserves into a troubled banking system or by setting lower interest rates with the same more or less objective. On the other hand, the major argument against separation has to do with the traditional role of a central bank as a lender of last resort: by separating the two operations (monetary policy and banking supervision/regulation) and ignoring the effect of unanticipated changes of interest rates on the liquidity of financial institutions, the MT may have increased the chances for the creation of conditions of financial instability. In relation to this, the ECB could be more efficient in providing banking supervision due to the economies of scale developed by the gathering of information about banks necessary for the

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<sup>51</sup> A collection of paper dealing extensively with the issue of financial integration in Europe can be found in Giovannini and Mayer, 1991.

<sup>52</sup> The reason is that as financial institutions lend funds for longer periods of time than the periods for which the borrow, their profits and liquidity are inversely affected by increases in interest rates that were unanticipated when they committed funds to fixed rate contracts. If, in the context of the pursuit of price stability the Central Bank raises interest rates, this might imply that marginal banks (which will have to increase their deposit rates in order to avoid a drain of funds), may face liquidity problems which could force them out of business. This in turn could cause a financial crisis. As a result, the Central Bank may decide to de-emphasize the objective of price stability in order to perform its lender of last resort function (see Cukierman 1994, p. 1445).



implementation of monetary policy. Finally, the co-ordination of national authorities which is necessary to achieve the task of supervision in the European-wide level may practically difficult and prone to external influences.

We now turn to the second issue raised above. There are two problems with decentralising the responsibility for banking supervision and regulation. Firstly, a single market will blur the borders between national systems to the extent that it will be less clear which national authority is responsible for bank operating at a European-wide scale. It may be the case that the rapid growth in foreign branching may lead to a lack of supervisory authority for these branches. Secondly, there is the risk of competitive deregulation: competing among banks and other financial intermediaries would ultimately drive some banks out of business which in turn may give rise to financial instability. Although in theory capital requirements and liquidity ratios will be uniform across the board in the EU, with decentralising banking regulation, enforcement will take place at the national level and this might leave the door open to different regulatory standards. Centralisation of banking regulation would, in principle, avoid such problems and this is basically the rationale behind the desirability of a single supervisory institution, although not necessarily the ECB: in another paper (see Arghyrou and Mourmouras, 1997), we have suggested that one possible solution could be the separation of monetary policy from banking supervision/regulation along with the creation of a new, single supervisory institution that would work closely with the ECB in a European-wide level. Such an arrangement could possibly prevent the above mentioned possible conflict of interest and, at the same time, be efficient in dealing with bank rescues and securing general financial stability.

Finally, another important issue relevant to the operation of the ESCB (and the impact of its action on the monetary policy of the OSTS) is the question of its accountability. Delegating monetary policy to the ESCB is subject to the criticism of leaving such an important matter in the hands of some appointed technocrats<sup>53</sup>. From that point of view, accountability could ensure the consistency of its policies with the aims of the Union and the wishes of the public, especially during periods of major unexpected shocks. However, that would perhaps increase the scope for

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<sup>53</sup> We return to the issue of Central Bank accountability later in this chapter.

external interventions and the probability of following non-optimal policies<sup>54</sup>. The MT does not specify to whom the ESCB is accountable. Also, there are no articles referring to explicit procedures through which the performance of the ESCB will be assessed<sup>55</sup>.

#### 4.3.6. The ERM-II

The relation between the two groups of countries, the EMU INS and the EMU OUTS, is currently one of the major economic (and political) issues in the EU, as it is far from clear that all the OUTS will be able (or willing) to join the EMU by 2001, and hence this relationship might be enduring. Furthermore, this relation will certainly affect those countries which will be included in the next EU enlargement, i.e. *Cyprus* and some of the transition economies (i.e. *the Czech Republic, Estonia, Hungary, Lithuania, Poland and Slovenia*)<sup>56</sup>. These countries will most probably be regarded (and asked to behave) as being members of the OUTS group, therefore the relation under consideration acquires an extra element of importance<sup>57</sup>.

At the centre of the discussion is the question of exchange rate movements of the currencies of the OUTS (see De Grauwe, 1997b). On the one hand, as Arrowsmith (1995) points out, abandoning restrictions altogether would deprive these countries from any say in the monetary policy of the EMU and could be interpreted by the markets as an admission that these economies are not robust enough for EMU participation, thus leading to credibility problems. On the other hand, imposing restrictions without securing ECB intervention during exchange rate crises could lead to an increase in interest rates in these countries. Such a development could lead to an increase in interest payments on public debt, a decline in economic activity and an upwards adjustment of inflationary expectations, leading ultimately to higher inflation rates. The European Council of

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<sup>54</sup>The importance of the issues of accountability and political interventions was recently confirmed as a result of the controversy which followed the appointment of the first governor of the ECB.

<sup>55</sup> The MT states that the ECB is obliged to publish a quarterly report on the activities of the ESCB and an annual report on the developments of monetary policy and issues relevant to it; the President of the Council of Ministers and a member of the Commission have the right to attend the meetings of the Governing Council without being eligible to vote during decision taking; and the European Parliament may invite the President or the Executive Board to be heard by some of its committees.

<sup>56</sup> For an overview and assessment of monetary and fiscal policy in Central and Eastern Europe during the period 1990-96, see Begg (1997) and Budina and Van Wijnbergen (1997) respectively.

<sup>57</sup> The MT refers vaguely to the matter implying that a system similar to the EMS will continue to operate for the EMU OUTS after 1999 but it does not make any specific reference.

Dublin in December 1996 reached an initial agreement on the subject. The basic aim of the plan is to achieve greater convergence between the INS and OOTS and to ensure monetary and economic stability in both groups. The two major provisions of the plan are the following:

(a) Countries outside the single currency should pursue certain domestic policies towards meeting the convergence criteria (*reinforced convergence*). Their economic performance will be monitored closely by the INS. If the OOTS persist in running excessive budget deficits, then they could lose some structural funds and the Council can make, when necessary, "non-binding recommendations". The Central Banks of the OOTS will not be subject to the ECB's jurisdiction and they will retain their powers in the area of (national) monetary policy. However, they will be in close cooperation with the ECB.

(b) The OOTS are expected to enter into a "new ERM" (an ERM-II) with the *euro*. The idea here is that by doing so, competitive devaluations will be avoided. One of the novel features of the proposed system is that the ECB will play a prominent role in the functioning of the mechanism. In particular, central rates against the *euro* will be determined jointly by the national Banks of the OOTS and the ECB. The latter will also have the right to intervene in foreign exchange markets to support the currencies of the OOTS in the event of exchange rate pressures. The ECB will also be able to suspend intervention unilaterally if this were to be in conflict with the primary goal of maintaining price stability. This is going to be quite an important change which would enhance the independence of the ECB beyond that foreseen in the MT. In the old ERM, parity changes were often delayed for too long for political reasons which involved national pride. In the new ERM the ECB will have the freedom to intervene and change the parities "in a timely fashion" in order to avoid significant misalignments. By giving the ECB such a key (and less politicized) role in changing the parities of non-EMU countries, the new arrangements would help in enhancing the efficiency of the system. On British insistence, participation in the new ERM will most probably be optional (*non-coercion*) but countries outside the EMU will be "expected" to join. However, it has not been yet specified whether an OOT country should have participated in the ERM-II for a specific period prior to admission in the EMU.

With regard to the band of fluctuation, there existed two scenarios. According to the first one, wide bands (up to 15% or even more) would be used. On the other hand, a system with narrower bands (up to 2.5% or even less) had been proposed along with an optional membership. A final decision has not been taken but the European Council seems to have opted for the first option (*flexibility*). Although the actual band was not officially announced, the Dublin communiqué states that the band will be “relatively wide, like the present one”. However, countries outside the euro displaying a good convergence record will be allowed to strengthen their links with the euro by moving into a narrower band.

It is quite plausible to assume that a narrow band could have advantages for some of the OSTS as the effective peg of national currencies to the euro could enhance the anti-inflationary credibility of national monetary policies. In addition, it is rational to assume that the OSTS aiming to participate in the EMU would like to exhibit some exchange rate stability in an effort to increase the probabilities of their admission into the Union. But on the other hand, for some of the countries such as the South European ones, including Greece, an exchange rate arrangement with differing and broad bands could work better, because it could correspond better to the economic fundamentals of these countries. As we will argue later in this chapter (see also Arghyrou and Mourmouras, 1997), for countries like Greece, a new ERM with narrow bands could bear significant risks<sup>58</sup>. Here we restrict ourselves to saying that as Gross and Thygesen (1992) have suggested, a narrow-banded ERM-II may well not be in the interests of the INS as well: to the extent that the OSTS include a large number of countries or a single influential one, a narrow band might require frequent and extensive intervention (in euros) to support the parities of the soft currencies of some OSTS. In an effort to defend such currencies, the Central Banks of the OSTS and the ECB might increase liquidity in the whole EMU. This could interfere with the objective of price stability pursued by the latter on behalf of the INS.

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<sup>58</sup> Artis (1996) has also suggested a similar opinion.

#### **4.4. Greek macroeconomic policy on the road to the single currency**

##### **4.4.1. The background**

It is now widely accepted that the Greek economy possesses the least favourable position among the EU economies. Unfortunately, none of the studies mentioned above classify her as a member of a European Optimum Currency Area; nor does the Maastricht numerology look favourable. As Table 4.1 suggests, in spite of the more disciplined policies which were undertaken after 1991, in 1997 Greece did not manage to satisfy any of the Maastricht criteria and, as it was widely expected (see e.g. Halikias, 1996), she was not in position to be among the founding members of EMU. On the other hand, in the field of real convergence, under the most optimistic scenario, it is now estimated that for the real convergence of the Greek economy (defined as the Greek per capita GDP reaching the 80% of the average European level) a period of more than 15 years will be needed<sup>59</sup>.

As Greece did not manage to join the EMU on its starting date, the consensus among the overwhelming majority of Greek citizens and political parties is that the country should now prepare herself for participation at a later stage. However, such a preparation will certainly imply tough policies. Therefore, if Greece is to join the Union by the year 2001 or, shall we say, 2003, she should not repeat the policy choices of the late 1970s and the 1980s. A substantial transformation and the modernization of the Greek economy will be needed but that will require a long period of time and, certainly, it is not going to be without difficulties and painful measures as all income groups will have to carry on, one way or another, paying the costs of the adjustment. To go one step further, even at the early years of EMU participation, some of the policies of the ECB may be considered unpopular by the Greek public, and this last point is something that Greek politicians have failed, so far, to address adequately. In any event, EMU participation should not be seen as a panacea for all existing problems: it will definitely come with a significant adjustment cost (see below). However, for Greece, at the core of the argument is an assessment of this cost compared with the long-run economic benefits and, perhaps more importantly, the political costs of standing alone. Given the negative implications of the current economic imbalances, if the

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<sup>59</sup> This calculation is based on the rather optimistic assumption that over the following 15 years the annual EU average growth rate will be 2% whereas the Greek growth rate will be equal to 4%.

prospect of EMU participation implies progress in the field of structural adjustment, fiscal correction and lower inflation with the minimum possible social reaction, then, the former (long-run economic benefits) seem to be of paramount importance. But also the latter (political costs of standing alone) are far greater from any short-term economic costs of adjustment. The truth of the matter is that Greece is a small country that needs friends as she was never fortunate enough in having the best of relations with her neighbours. The danger for the country is obvious: if she were to be excluded for a long time from the EMU, that would imply that she would be isolated from the subsequent economic and political evolution of Europe. That could have far-reaching consequences for the long-term future of the country, both from the economic and the national security point of view. Therefore, we are convinced that Greece should be willing to join the EMU because such a participation will serve her national interests in the best possible and feasible way. In the rest of this chapter we present the main points of what we believe should be the appropriate macroeconomic strategy so that Greece will be able to join the EMU within a reasonable period of time. More precisely, our proposed strategy consists of two parts: The first one is the well-known and widely debated structural reforms. The second concerns the macroeconomic policies to be followed, i.e. the future fiscal and monetary policies.

#### **4.4.2. Structural reforms**

Regarding the first part of our proposed strategy, namely the long overdue structural adjustments very much needed in making the Greek economy more flexible, we have nothing really new to propose to the existing debate in Greece except, perhaps, to emphasize once more the need for their immediate implementation. Above all, it should be kept in mind that Greece is in need of structural reforms in the supply side of its economy and these reforms cannot be achieved just by raising taxes or resorting to "creative accounting". What Greece is in need of is a higher degree of competition in the goods, labour and financial markets. As time is running out for Greece, such reforms are not really any more a choice, but rather a one-way road.

The fact that the majority of Greek political parties accept the validity of this statement is very encouraging. On the other hand, it is true that in areas where

measures of structural adjustment have been introduced, an unjustified delay in the full implementation is observed and changes are not made with the necessary speed. The reasons behind these delays are mainly the feared political cost of such reforms and the existing inefficiencies of the Greek public administration. Therefore, as long as most political parties and economic institutions recognize that structural reforms in Greece are absolutely necessary, they should be promoted with a greater political determination and a less compromising spirit. To that end, the recent announcements referring to the acceleration of the structural reforms which accompanied the accession of the drachma to the ERM in March 1998 are most encouraging. One can only hope that these commitments will materialize without any further delay.

Structural reforms in the labour market should be given a priority so that a number of rigidities in the process of wage formation and employment policies are relaxed. Although in the case of Greece a reform of the labour market will certainly be a complicated process, due to the socially sensitive issues which will be justifiably raised by any attempt of this kind, we still believe that this is an area where much can be done. To that direction, the recently introduced statute of *Social Dialogue* between the government, the employers and the trade unions is to the correct direction. The aim of this dialogue should be to achieve a gradual reform of the labour market while, at the same time, making sure that unbearable social tension will not follow. The dialogue has to address a number of issues, including: a reconsideration of the legislation which has established a high degree of job security for the “insiders” (and, implicitly, a rather unfair treatment of the “outsiders”); the necessity of allowing to employers a higher degree of flexibility as far as the number of their employees is concerned; the issue of part-time occupation, etc.<sup>60</sup> Experience from countries such as the USA and the UK, where the wage-setting system is less

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<sup>60</sup> The first encouraging result emerging from the introduction of the statute of the Social Dialogue was the “Confidence Pact for the period 1998-99” signed by the government and the representatives of the employers and the trade unions on 10 November 1997. The main point of the Pact is the acknowledgment by all three parties that “a low inflation rate is vital for the creation of conditions leading to an environment of healthy and viable economic development which promotes employment and protects the income of employees and pensioners”. To that end, it was agreed that future nominal wage increases should protect the real income of the employees and increase it gradually. According to the Pact, this presupposes an increase in productivity and competitiveness which can be achieved by means of reducing market distortions and promoting competition conditions. For further details, see Bank of Greece, Economic Bulletin No 10, p. 28.

centralized and employers are given a higher degree of freedom to decide on the number of their employees, has shown that a flexible labour market is indeed in position to contribute to an increase in productivity and a reduction in unemployment<sup>61</sup>. On the other hand, the recent reforms in the banking and financial sectors are mostly welcome but, as was argued in chapter 3, these reforms themselves cannot guarantee the existence of an efficient financial system. They should definitely be accompanied by (a) the creation of a credible and effective monitoring system, in order to prevent crises such as those of Bank of Crete in 1989 and, more recently, the Athens Stock Exchange in November 1996; (b) an improvement of the fiscal situation to which we will refer below; and (c) the development of secondary markets for all sorts of securities.

Another important issue relevant to the structural adjustment of the Greek economy is the proposed full or partial privatization of the ailing state-owned firms, public utilities, and companies owned by state-owned commercial banks. At present, the Greek government, the Bank of Greece<sup>62</sup> and most of the political parties accept the necessity of privatization. However, in spite of the experience from other European countries, Greece seems to be moving rather slowly in this field. Theoretically, it is difficult to show that privatization always leads to an increase in a firm's efficiency or that market forces always lead to a better social outcome. However, in the case of Greece, the authorities have already applied a number of rescuing programmes for a large number of loss-making state-owned ailing firms. Most (if not all) of these programmes have failed at a great economic cost and these firms continue to accumulate losses and debts. Having such an experience, privatization now appears to be a reasonable solution<sup>63</sup>. This also applies to the case of the big state-owned commercial banks. The privatization of

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<sup>61</sup> However, when discussing the introduction of reforms like those implemented in other countries, one has to keep in mind that the Greek labour market has some idiosyncratic characteristics, such as a high degree of self-employed population, the relatively big size of the shadow economy etc. These elements cannot be ignored when the Greek labour market is discussed.

<sup>62</sup> See the Report of the Governor Mr. L. Papademos for the year 1996, p. 69.

<sup>63</sup> There exist many reasons behind the failure of the numerous rescue plans, a lot of which refer to the idiosyncrasies of each firm. Two of the most common ones are the following: first, the governors of these firms are appointed by the government and it is very difficult for them to ignore ministerial guidelines, even if these guidelines are not to the optimal direction; second, the presence of strong trade unions and some influential private agents whose interests do not comply with the modernization of these firms, create many practical difficulties for the realization of privatizations.



these banks could help break the oligopolistic structure of the credit market and, by promoting competition, could allow Greece to reap the full benefits of financial liberalization. The major benefits of privatization are not expected to come from the proceeds raised by selling these firms but (a) from the reduced wage bill for the public budget and (b) the subsequent substantial transformation of the productive structure of the Greek economy which is expected to lead to efficiency gains. Therefore, it is now hoped that the authorities will stick to the commitments which accompanied the accession of the drachma in the ERM in March 1998 and will promote privatizations in a more active way.

Finally, a more direct impact in terms of improving the infrastructure of the Greek economy, increasing the productivity of the public sector and hence contributing to the real convergence of the Greek economy towards European standards could take place through the allocation of a large amount of EU funds, best known to Greece as Delors Package I (during the 1980s) and Delors Package II (during the 1990s). Delors Package II provides Greece with another chance to finance part of the long overdue reconstruction of her supply side. During the period 1994-99, Greece will receive a sum of more than 17 billion ECU, which (on an annual basis) is translated as 5% of Greek GDP and represents an enormous cash injection, unprecedented in Greek economic history. The majority of these funds will go towards improving the basic infrastructure of the economy (new airports, motorways, railways, etc.) as well as in improving human capital through training and educational projects. This investment in physical and human capital should have positive long-term effects upon the growth rate of the economy but in order to avoid the mistakes made in the case of Delors Package I, Greek governments should pursue more actively the participation of the private sector in the projects selected and should also hire private managers for the realization and monitoring of the projects. In addition, the authorities should not repeat the mistake of attempting to divide the funds equally in a geographic sense but should undertake investment projects in areas with potential to attract complementary investment and develop economic externalities as suggested by Krugman (1991).

Above all, it should be kept in mind that the structural reforms discussed in this section are much needed anyway and should be introduced without any

reference to the EMU question. The latter can only have a positive effect on their implementation in the following sense: inevitably, structural reforms like those described above will be unpopular since they will imply a reduction in real incomes, a certain unemployment cost, an increase in job insecurity, etc., things that are bound to give rise to social unrest and opposition. By convincing Greek public that these policy reforms are part of the country's obligations towards meeting the Maastricht criteria and EMU participation, Greek governments could succeed better than otherwise. However this will happen only if labour unions change their past tactics and assume a more moderate stance in their negotiations with employers and the government.

#### **4.4.3. Fiscal strategy**

It is currently accepted that one of the most serious problems the Greek economy faces at present is the huge stock of public debt whose presence continues to jeopardize the whole convergence process and, in the worst-case scenario, might even lead to national default or hyperinflation if, for one reason or another, it resumes its 1980s dynamics. Going one step further, fiscal correction is even more imperative in the light of the recent decisions regarding the BSP. The point is that even if Greece manages to achieve EMU participation at some stage, she should be able to maintain long-lasting sound fiscal conditions as the Budget Stability Pact has placed the foundations for a disciplined fiscal policy within the EMU as a top priority for national governments. If Greece is to live in such an environment, she should *now* take the appropriate measures in order to be able to do so in the future.

Although the three stabilization programmes implemented since the beginning of the 1990s have achieved a certain degree of success on the fiscal front, progress was rather slower than it should (and could) be and the fragile achievements could probably be easily reversed. Our discussion in chapter 3 has highlighted the fact that the present strategy of pursuing primary surpluses through an increase in tax revenue only is probably a second best strategy, therefore our conclusion was that public expenditure has to be reduced. This is now the consensus of all political parties in Greece, including most of those who were strenuously opposed to such proposals only a few years ago. Given the absolute

necessity of improving public infrastructure, which prohibits any cut in the public investment budget, it follows that public consumption should be reduced. But what can be done towards this direction ?

As we have seen in chapters 1 and 3, the Greek state has undertaken the financial support of many firms and individuals using criteria whose rationality is rather doubtful from the economic point of view. It is high time all those sources of expenditure which have taken the form of unjustified pension rights, subsidies, grants etc. were eliminated. Furthermore, as it was argued above, a salient feature of any genuine attempt towards correcting fiscal imbalances should be the implementation of a large scale privatization of public enterprises, together with a stabilization (if not reduction) in the number of public employees. An equal emphasis should be given to the “ailing” pensions and social security systems of the country. To that end, the demographic prospects should be seriously taken into consideration as in the next two decades the percentage of pensioners in total population is expected to increase quite significantly<sup>64</sup>.

On the revenue side, Greece should not repeat mistakes such as frequent changes of the tax-system and the imposition of surprise taxation such as the so-called “once and for all contributions” which have been imposed in the past. Recently, there have been proposals to proceed to measures of this kind but it seems to us that if there is going to be any change in the tax system, that should be towards the direction of making it less complicated and more attractive to domestic and foreign investors. This could be made by lowering corporate tax rates or, if that is not feasible due to the increased financial needs of the public sector, at least by a strong commitment not to increase them. Of course, it goes without saying that the battle against tax evasion has to be intensified and towards that direction a more efficient operation of the tax-collecting mechanism will be required. The recent introduction of the special *SDOE* (Service of Detection of

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<sup>64</sup>According to data taken from the IMF International Financial Statistics publications, during the period 1981-95 the average annual rate of growth of the Greek population was equal to 0.59%, compared with an average growth rate 0.75% during the period 1960-80. This reduction implies that the composition of Greek population has been changing at the expense of the younger age groups: according to data taken from the national Statistical Service of Greece, in 1961 the percentage of the age group 0-14 in total population was equal to 27%; in 1991 it was down to 19%. The relevant figures for the age group 15-64 were 65% and 67% respectively ; and for the age group 65 plus, 8% and 14% respectively.

Economic Crimes) force and the announcement of the government that in the future strict fines will be imposed on those who continue to evade taxation, are both to the correct direction but more remains to be done: for example, the computerization of the files of the Income Tax Office should be accelerated.

#### 4.4.4. Monetary strategy

Turning now to monetary policy in connection with the prospects for Greece after 1999, it has now been announced that Greece will join the ERM-II and will continue to pursue exchange rate stability around the newly established (post-devaluation) ERM central rate against the ECU. The obvious rationale behind the proposed participation in the ERM-II is to reduce inflation further and by promoting the credibility of monetary policy (as suggested by Giavazzi and Pagano, 1988), increase the chances of EMU participation in the near future. However, although few people would argue that the target of reducing inflation is not a correct one, it is not quite clear that within the context of the policy mix which has been implemented in the 1990s, and also in the light of the anticipated European monetary environment, the proposed close shadowing of the euro will work. Of course, it is not yet clear what the exact form of the ERM-II will be but, in any case, the shadowing of the euro is a commitment to continued low inflation through the implied link to the euro. However, there are a number of problems at both the theoretical and the practical level associated with this strategy.

First of all, speaking in general terms, any new ERM arrangement (especially one with relatively narrow bands) could suffer from all the drawbacks characterizing a near fixed exchange rate regime, namely that there are limits regarding the efficiency of such a regime in a world of increased international capital movements, fiscal imbalances and asymmetric real shocks. It is, of course, true that some of the soft European currencies did survive within the present ERM for a number of years but what people often tend to forget is the fact that this has been achieved under two special conditions: capital controls and compulsory central bank intervention. Neither of the two conditions is any longer met today, making any proposal for the participation of countries with fiscal imbalances in a new ERM not unquestionably credible. Having said that, it seems to us that as far as Greece is concerned, there are two types of argument against membership of the ERM-II

under the present state of affairs. The first one concerns the feasibility and sustainability of such membership, given the fiscal, and general macroeconomic, imbalances of the Greek economy. The second is that the membership of a new ERM, especially of one involving (effectively) relatively narrow bands of fluctuation, in connection with the anti-inflationary monetary policy which the ECB is expected to follow, may lead to the creation of a number of dangers which may finally lead to a forced exit from the system.

#### **4.4.4.1. ERM-II participation in the light of the strong-drachma policy**

To start with the first argument, as macroeconomic theory itself suggests (see e.g. De Grauwe 1996b, Persson and Tabellini 1996), a strong currency policy, if held for too long, leads to currency overvaluation (which sooner or later damages the international competitiveness of the economy) and gives rise to speculative capital inflows which jeopardise the anti-inflationary character of monetary policy and render the country under examination vulnerable to speculative attacks (see chapter 3).

As far as Greece is concerned, the existence of these dangers had been suggested in due course (see Mourmouras and Argyrou 1997, p. 36) and was later confirmed during the exchange rate crisis of October 1997 which highlighted the limits of the strong drachma policy thoroughly discussed in chapter 3. These limits were probably the main factor which was taken into consideration by the Greek authorities when they decided to proceed to the recent devaluation. If Greek authorities had not proceeded to this step, given the inflation and productivity differentials existing between Greece and the rest of its European partners, they would have locked the drachma into an overvalued, disequilibrium parity and this, in turn, would imply higher and higher interest rates to support the parity; this state of affairs could then imply low growth rates and high unemployment without making sure that it would be possible to avoid a forced devaluation in the event of a serious exchange rate crisis. In fact, there are good reasons to believe that the realization that the drachma was overvalued would finally lead to a speculative attack before the accession of Greece to the ERM-II<sup>65</sup> as, in the absence of devaluation, the Greek national currency would be found in the same position in

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<sup>65</sup> See our analysis of the argument made by Begg *et al.*, 1991 (chapter 3, section 3.4.2)

which the Spanish peseta, the Italian lira and the pound sterling were all found just before the 1992 EMS crisis (see Boyer, 1994 and Gilbert, 1994).

However, given the prolonged character of the strong drachma policy and the uncertainty regarding the drachma overvaluation it had caused (i.e. the uncertainty regarding the exact level of the equilibrium exchange rate), it is very difficult to suggest with certainty that the recent realignment, i.e. the 14% devaluation, was enough to restore long-run equilibrium conditions regarding the position of the Greek national currency vis-à-vis the ECU. In contrast, what is clear is the following:

(a) there were economic (and political) constraints regarding the order of the devaluation. A realignment of an order higher than 14% could have serious inflation implications. A strong inflation shock could derail the whole process of nominal convergence.

(b) Greek nominal and real interest rates still remain the highest among the EU countries. As there is little doubt that the recent devaluation has reduced substantially the *short-run* exchange rate risk associated with the movements of the drachma (in the sense that a decision on the part of the Greek authorities to proceed voluntarily to a second drachma devaluation immediately after the first one seems highly unlikely), this makes drachma denominated bonds very attractive to international investors. To a certain extent, the substantial capital inflows which followed the accession of the drachma in the ERM seem to confirm this view<sup>66</sup>.

(c) even if the recently announced package of measures aiming to accelerate the process of structural reforms is fully implemented without any delay, its effect on core inflation, productivity and competitiveness will most probably appear with a significant time lag as structural adjustments do not take place instantly.

(d) Greek inflation remains three times higher than the EU average, and may even increase temporarily due to the impact of the devaluation on the prices of imports. This fact, combined with (c) above, implies that in the foreseeable future, Greek and European *price levels* will continue to diverge. This, in turn, implies that

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<sup>66</sup> An alternative (or perhaps complementary) explanation for these inflows is that the inflation risks of the devaluation have increased the government's motivation to proceed to a full and speedy implementation of the set of measures announced along with the accession of the drachma to the ERM. According to this view, the capital inflows which followed March 1998 reflect an increased degree of confidence regarding the long-run prospects of Greek macroeconomic performance.

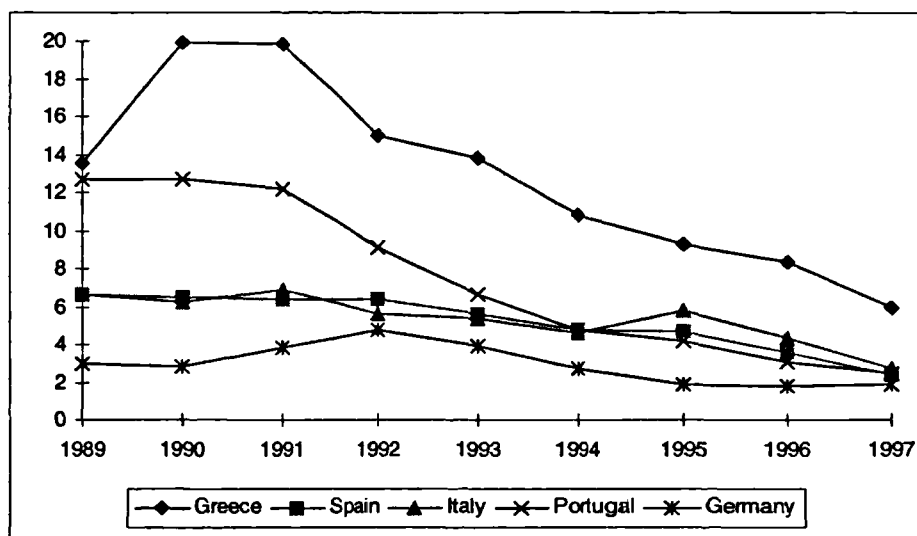
if the BOG sticks to its recent commitment to pursue exchange rate stability against the new central rate against the ECU (i.e. restrict exchange rate fluctuation within a  $\pm 2.5\%$  range), the relative price of the output of the Greek traded sector vis-à-vis foreign products will continue to increase, therefore any competitiveness gains emerging from the devaluation will be reduced (on this point, see also De Grauwe, 1994a, p. 122). This, in relation with the possibility of a J-curve effect which might follow the March 1998 devaluation, suggests that the current account constraint may continue to exercise pressure on the external sector of the economy.

(e) last, but not least, there is little doubt that the accession of Greece to the ERM has increased the degree of international exposure of the drachma. This implies that the probability of speculative attacks against the Greek national currency will be higher compared to the past, especially if the drachma enters the ERM-II with an overvalued central rate against the euro. In other words, experience has shown that in an environment of high capital mobility, investors appear to be extremely sensitive to movements of the fundamentals of the economies which participate in formal exchange rate arrangements and they stand ready to “punish” countries which appear unwilling to improve their macroeconomic imbalances (see Eichengreen *et al*, 1995).

The emerging conclusion is that if the March 1998 devaluation did not restore the drachma to its long-run equilibrium (and given the prolonged character of the strong drachma policy and the practical difficulties associated with the definition of this equilibrium, this is not an irrational hypothesis), then, the problems caused by the overvaluation of the drachma have not been eliminated and the dangers discussed in the first two paragraphs of this sub-section are still present. In other words, the participation of the drachma in the ERM-II may not be immune to exchange rate turbulence. Here, the experience from the rest of the countries of the *club-Med*, i.e. Italy, Portugal and Spain, might be illustrative.

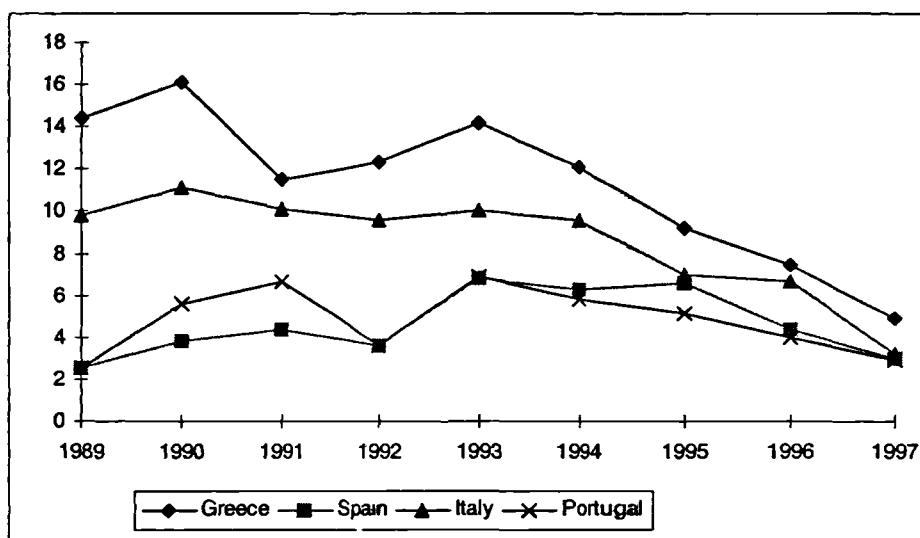
Like Greece in 1997-98, Italy, Portugal and Spain had achieved a certain degree of inflation convergence with Germany before 1992 (see Figure 4.1). However, all three countries experienced *forced* devaluations *within* the ERM in 1992-93. Furthermore, Spain and Portugal, despite three discrete devaluations in

**Figure 4.1**  
**The club-Med: inflation convergence with Germany**



Data source: *European Economy No 64, Statistical Appendix*

**Figure 4.2**  
**Budget deficits in the club-Med**  
 (net lending of general government as % of GDP)



Data source: *European Economy No 64, Statistical Appendix*

1992-93 (of a cumulative order of 19% and 12% respectively)<sup>67</sup>, had to proceed to a further 7% (forced) devaluation two years later, i.e. in 1995. Having such an experience, we cannot see why one should exclude completely the possibility that

<sup>67</sup> On 17 September 1992 the peseta was devalued by 5 percent. On 22 November 1992 the peseta and the escudo were devalued by 6 percent. Finally, on 13 May 1993 the peseta and the escudo were devalued by 8 and 6.5 percent respectively (for a chronology of the 1992-93 EMS crisis, see Kenen 1995, pp. 152-155)



history will repeat itself in the case of Greece, a country where, after all, despite the progress achieved in the 1990s, fiscal imbalances are more pronounced (see Figure 4.2) and structural adjustments in the 1990s have been pursued in a more gradual way than in Portugal and Spain.

#### 4.4.4.2. Potential limitations to follow the introduction of the euro

A second factor which renders the smooth participation of the drachma in the ERM-II questionable has to do with the possibility that the euro will be appreciating during the early stages of its introduction. Of course, it is not yet clear whether the euro will be as strong as the DM or a softer currency<sup>68</sup>. There are certain arguments for both scenarios. The arguments behind the latter view (a euro softer than the DM) include the following: (i) it will take some time for the euro to establish itself in international financial markets, especially with all the uncertainties regarding the political context in which it will operate; (ii) in the same spirit, because of the surrounding uncertainty of anything “newly born”, risk averse investors may prefer the safe and tested old dollar from the new euro; and (iii) as some of the countries which may be in the first wave of EMU participants have historically displayed a higher degree of tolerance against inflation than Germany did, the monetary policy of the ECB could well represent an average of these preferences (see Kenen 1995, pp. 178-79). As a result, the euro as a currency that will be created from the amalgamation of the strong DM with less stable currencies, could be a *priori* a currency less strong than the DM.

On the other hand, there are some plausible arguments which can make a case for the existence of a strong, overvalued euro. These arguments (endorsed by a number of influential analysts, including the Governor of the Bank of England)<sup>69</sup> include the following: (i) the ECB will be anxious to establish quickly its anti-inflationary credentials with a tight monetary policy in order to be able to meet its explicit mandate to preserve conditions of low inflation within the EMU. Moreover, the loss of monetary policy for European governments may lead to expansionary

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<sup>68</sup>On the prospects of the euro as a major international currency, see Cohen, 1997 and Portes and Rey, 1998.

<sup>69</sup> On the 24<sup>th</sup> of June 1997, in a public lecture at City University (London), the Governor of the Bank of England Eddie George warned that the introduction of the euro on the 1<sup>st</sup> of January 1999 will probably lead to an increase in European interest rates and a subsequent increase in unemployment.

“fine tuning” national fiscal policies. The combination of these two (tight monetary and loose fiscal policies) would lead to an increase in euro interest rates (as it happened in the case of the US Dollar in the early 1980s) and finally lead to an overvalued euro; (ii) the creation of a homogeneous single economic area including more than 300 million consumers, combined with a low inflation rate (less than 2-3%), may be attractive to foreign investors, leading to a surge in the demand for euros. In addition, the EU as a whole has had over the years significant current account surpluses which may further put some upward pressure to the euro; (iii) finally, and perhaps more importantly, there is little doubt that the euro should become soon an important international reserve and vehicle currency<sup>70</sup>. This prediction is based on the fact that, in the final analysis, two key influences on a currency are the relative size of the underlying economy and the economy’s share of global trade. Given the major importance of the EU as a whole in the world’s economy<sup>71</sup>, the immediate implication of such a big portfolio shift would be a significant increase in the demand for euros which would result in an appreciation of the euro above its long-run equilibrium value. If this scenario (a strong euro) is finally confirmed, the drachma, through its official link the euro will be shadowing an appreciating currency (as it did during in 1983 when it was shadowing the then appreciating US Dollar with the well-known consequences). In that case, the problems discussed above would be even more pronounced. Given the existing macroeconomic imbalances, the combination of ERM-II participation and a strong euro would imply further increase in Greek interest rates, further overvaluation of the drachma (with all the resulting negative fiscal and growth implications) and, probably, a forced exit from the system in the event of a serious speculative attack, as it happened in the case of the pound sterling in 1992.

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<sup>70</sup> According to Fred Bergsten (Director of the Washington-based Institute for International Economics) after 1999 between 30% and 40% of the world’s financial assets will be denominated in euros, between 40% and 50% in dollars and the rest in yen and a few other currencies (see the Economist, 29 March 1997). This would mean a shift of between 500 billion and 1 trillion dollars into euros, primarily out of dollars. Bergsten’s opinion is further reinforced by the fact that despite the dollar’s major importance in international financial markets, its role has been declining over the last years. In 1973 it constituted 76% of official international reserves whereas its current share is 65%.

<sup>71</sup> In 1995 figures, the EU’s share of world output was 30%, followed by USA (27%) and Japan (15%). In 1995 figures again, the EU’s share of world trade (excluding intra-EU trade) was 20%, followed by USA (18%) and Japan (11%).

Finally, an extra element which has to be taken into consideration when the future of the strong drachma policy is discussed, has to do with the possible reduction in EU transfers after 1999. It should be kept in mind that in the context of the currently debated "Sanders Package", after 1999 Greece will continue receiving a certain amount of EU transfers but, probably, they will not be on the same scale of the funds currently received within the framework of Delors Package II. As these transfers have been significant in keeping the current account in a sustainable position over the recent years, a possible reduction will represent an extra constraint for the successful continuation of the strong drachma policy.

#### **4.4.4.3. The band of fluctuation**

Considering the main points of our discussion so far, it seems to us that if Greece wants to participate in the ERM-II (and there is a powerful argument for doing so, namely that if Greece's ultimate objective is to become a full member of the EMU it has to display a pro-European face and joining the ERM is a good opportunity to achieve this target), it is necessary to take the following two steps:

(a) to make sure that the accession to the ERM-II will involve a sustainable exchange rate.

(b) to adopt wide bands of fluctuation, i.e.  $\pm 15\%$ .

The first point above, regarding the re-adjustment of the parity of the drachma, is straightforward and has already been discussed. Our second point about the adoption of wide bands, has really to do with two issues: firstly, with the degree of flexibility for divergent monetary policies: a 15% band would allow the drachma to crawl, if necessary, at the rate of the inflation differential against the EMU average, thus supporting the international competitiveness of the economy and domestic activity in a period of fiscal discipline; secondly with the raising of the riskiness of speculation which would make speculative attacks less probable. This is so because speculative gains are possible in case speculators manage to create a major jump of the spot market exchange rate by forcing the monetary authority to proceed to a major realignment of the central parity of the currency under consideration. A wide band of fluctuation might be more suitable in preventing pressures of this kind. This might be so for the following reasons:

(i) a wide band will allow the drachma to crawl at the rate of the inflation differential between Greece and the EU average. This means that the competitiveness problems of the Greek economy will be less pronounced in comparison to those which would appear if a narrow-band was selected. As a result, the expectations regarding a future devaluation and the subsequent pressures on the drachma will be less strong.

(ii) if, however, such expectations are finally formed and pressures against the drachma do appear, a wide band will allow the BOG to proceed to a realignment in due course which will involve a new central exchange rate falling *between* the old upper and lower limits. This implies that a major jump of the market spot exchange rate (on which speculators count in order to make money) will be less likely to happen. In contrast, the adoption of a narrow band makes such a jump more likely for two reasons: first, the narrower the band of allowed fluctuation, the bigger is the probability that the new central rate will not fall within the old limits; second, given a positive inflation differential between Greece and the rest of Europe, a narrow band would create bigger competitiveness problems than the wide one.

(iii) if the possibility of a major jump of the market exchange rate exists anyway, a wide band discourages a speculative attack because it increases the probability of significant capital losses for speculators. Let us suppose that the drachma enters the ERM-II with an overvalued parity and as a result of competitiveness problems it experiences pressure and approaches the upper limit of the band. Speculators, in anticipation of a devaluation of the drachma, would then sell drachmas and buy euros. There are now two possibilities. The first possibility is that the devaluation which speculators anticipate does not take place and the drachma recovers by moving towards the lower limit of the band (i.e. it starts appreciating against the euro). For those speculators who would have sold drachma and bought euros, this would imply a capital loss<sup>72</sup>. However, if the band

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<sup>72</sup> Another cost for speculators, which always exists (i.e. irrespective of whether a major devaluation takes place or not), is the interest payments foregone by the selling of drachmas and the buying of euro: it is reasonable to assume that after 1999 nominal (and real) Greek interest rates will continue to be higher than the European ones, therefore any transaction which involves switching drachmas to euros would imply a cost. However, as speculative transactions are of very short-term nature, the importance of these costs is expected to be limited.

is a narrow one, this loss would be smaller as there is a certain limit (the lower limit of the band) with regard to the potential recovery of the drachma. From that point of view, speculating against the drachma represents a sort of one-way bet: speculators cannot lose much but they can gain a lot if they force the BOG to a major devaluation. In contrast, if the band is a wide one, an impressive drachma recovery might imply significant capital losses for speculators.

The second possibility is that the significant devaluation which speculators expect does indeed take place. In this case the magnitude of capital gains made by speculators would depend on the subsequent movement of the exchange rate within the *new* band. On some occasions, the following interesting phenomenon has been observed (see Kenen, 1995, p.173): as speculators receive their gains immediately after the devaluation, the demand for the devalued currency increases and its market exchange rate starts moving towards the lower limit of the new band (i.e. it starts appreciating). Such a development implies a reduction in the speculators' capital gains. If the band is a narrow one, this reduction would not be very big. If however the band is a wide one, the reduction in capital gains might represent a significant percentage of the initial gains and, in the limit, the former can fully offset the latter.

As far as Greece is concerned, it is not yet quite clear what *formal* band of fluctuation will be adopted after the accession of the drachma to the ERM-II. This might be the present  $\pm 15\%$  band of the existing ERM. However, as far as the *effective* band is concerned, the BOG has already announced that exchange rate movements against the ECU will be restricted to a  $\pm 2.5\%$  range around the present central rate<sup>73</sup>. In our view, this could mitigate the advantages of the formal wide band discussed above. In other words, under certain circumstances (e.g. in the absence of swift progress in the fields of fiscal consolidation and structural adjustments or in the event of a new international exchange rate crisis), the adoption of a narrow effective band could create problems similar to those created during the implementation of the strong drachma policy. Under such circumstances, international financial markets and especially speculators, who are expected to follow the developments of the Greek economy very carefully, may sooner or later

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<sup>73</sup> See Bank of Greece, Monetary programme for 1998.

start having doubts about the sustainability of the parity of the drachma, and they may form expectations about a new realignment of the drachma's central rate. This, in turn, could provide incentives for a new speculative attack the drachma. All in all, given the policy mix which was followed during the 1991-97 period and the productivity gap which continues to exist between Greece and most of the EU countries, it is not absolutely certain that the participation of the drachma in the ERM-II involving an exchange rate similar to the current one and an effectively narrow band of fluctuation will be free of exchange rate turbulence. From that point of view, it is not clear to us that the provisions of the Monetary Programme of the BOG for 1998 which precommit exchange rate stability against the ECU (and the euro after 1/1/1999) as *the* target of monetary policy in the run-up to EMU participation and the explicit statements made by the Governor of the BOG that there will be no further realignment in the parity of the drachma before the accession of Greece to the EMU<sup>74</sup>, are to the correct direction.

#### **4.4.4.4. The new monetary framework: the significance and limitations of Central Bank Independence**

Two powerful objections against our views expressed above, which argue in favour of the adoption of effective wide bands of fluctuation against the ECU and do not exclude a new re-adjustment of the parity of the drachma in the near future, are the following:

(a) our proposal diminishes the prospect of EMU participation for Greece as the Maastricht Treaty refers to exchange rate stability as one of the nominal convergence criteria.

(b) a new realignment could generate expectations about a resumption of a crawling peg policy, similar to the one employed during the 1974-87 period (when monetary policy in Greece was a rather passive exercise meant to accommodate increasing public deficits); and the adoption of a wide band of fluctuation might intensify such expectations because it would deprive the economy of its exchange rate nominal anchor.

However, it is not clear to us that such criticism would be valid. As far as the first point above is concerned, one should not forget that there is still some

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<sup>74</sup> See the interview of the Governor of the BOG to the Athens weekly *Kyriakatiki Kathimerini* on 10 May 1998.

confusion with regard to the interpretation of the exchange rate criterion, which may, after all, not be taken into consideration. But even if the criterion is to be taken into consideration, it makes reference to exchange rate stability for a period of two years. Greece however, according to its own government, will not join the EMU before 2001.

With regard to the second point, indeed, given the “inflation culture” which has been developed in Greece during the last twenty years, one cannot ignore the dangers described by point (b) above. However, there are two important differences between the policy mix which was employed between 1974 and 1987 and the policy mix which is proposed here. The first one, already mentioned, is that during the 1974-87 period fiscal policy was expansionary whereas in the policy framework suggested here it should not be so. The second refers to the new monetary framework which has been established in Greece after the announcement of a specific inflation objective for 1999 set by the Monetary Programme of the Bank of Greece for 1998; and the upgrading of the role of the Bank of Greece, i.e. the granting of independence to the monetary authority, in December 1997.

More specifically, the announcement of a 2% specific quantitative inflation objective for 1999 sends a clear signal with regard to the policy intentions of the monetary authority. As a result, in the face of its introduction, the abolition of the formal commitment to a narrow band of fluctuation will not deprive the economy of a nominal anchor. Furthermore, it might be the case that inflation objectives are a superior nominal anchor to intermediate monetary targets as they are unambiguous and better understood by the public. However, for the recently introduced inflation objective to operate as such, it must be both politically and operationally credible<sup>75</sup>. This is where Central Bank Independence (CBI) may operate as a useful, credibility-inducing, external policy constraint as suggested, in the context of Greece, by Alogoskoufis (1993), Mourmouras (1994, 97) and Arghyrou and Mourmouras

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<sup>75</sup> Andersson and Berg (1995, p. 214) define operational credibility as the ability of the central bank to fulfill the announced target of monetary policy. Operational credibility, which is directly linked to the feasibility of the targets set, is influenced by the conduct of monetary policy but also by fiscal and structural policy. On the other hand, political credibility reflects the agents' assessment about the probability of a policy regime shift, i.e. an abandonment of the inflation objective. According to the authors, political credibility depends on the political support for the price-stability target, the degree of central bank independence, the record of anti-inflationary policy and, to a lesser extent, on the conduct of monetary policy. Furthermore, political credibility is negatively correlated with a large and increasing public debt.

(1997). Nevertheless, to foreshadow what follows in this section, although we endorse the proposal arguing in favour of CBI, our endorsement is a cautious one. We view CBI as part of a wider economic policy framework aiming to improve Greek macroeconomic performance. In the absence of other important elements of this framework, the potential of CBI is rather limited.

From a theoretical perspective, the case for CBI is widely perceived as one of the most influential approaches in the search for a solution to the time-inconsistency (inflation bias) problem inherent in monetary policy. The basic underlying assumption is that inflation is costly and discretionary monetary policy leads to an inflation rate higher than the socially desired one (see Kydland and Prescott, 1977, and Barro and Gordon, 1983)<sup>76</sup>. In this context, precommitting monetary policy to a pre-announced course may be a helpful device for reducing inflationary expectations and the rate of increase in wages and prices (Cukierman 1994, p. 1440)<sup>77</sup>.

The literature distinguishes between two forms of CBI (see e.g. Grilli, Masciandaro and Tabellini, 1991): political (or goal) independence, which is the ability of the Central Bank to define, without interventions from the government, the goals of monetary policy; and economic (or instrument) independence, which is the ability of the Central Bank to choose the instruments of monetary policy to achieve the targets of monetary policy. The prototype model of CBI is attributed to Rogoff (1985) who, based on a Barro-Gordon set-up, developed a model where the delegation of monetary policy to a mildly “conservative” central banker, placing a lower weight on output stabilization than society, results in a lower rate of average inflation without affecting the average level of output. However, in Rogoff’s model the cost paid by society for this reduction is increased output variability.

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<sup>76</sup> For further discussion on the costs of inflation and the “rules versus discretion” literature see chapter 2.

<sup>77</sup> In this spirit, over the last ten years or so, a number of countries in Europe and elsewhere (e.g. New Zealand, Chile, Mexico, Argentina, Spain, France, the United Kingdom etc.) have introduced institutional reforms aiming to increase the degree of independence of their Central Banks. Furthermore, the MT has made EMU participation conditional upon the adoption of Central Bank legislation compatible with the statutes of the ESCB which establishes a high degree of independence for the ECB.



Rogoff's paper pioneered an extensive academic debate on the subject of CBI. Among the vast number of papers arguing in favour of CBI, refining Rogoff's results and offering solutions to some of the problems identified in his approach, one may distinguish four prominent contributions<sup>78</sup>: (a) the one by Lohmann (1992) who introduced important elements of realism into Rogoff's model by means of considering an escape mechanism allowing the government to override the Central Bank and regain (at a cost) control of monetary policy in the event of serious disturbances, like an oil shock or a severe financial crisis; (b) the one by Alesina and Gati (1995), who introduce political uncertainty in the framework of a two-party electoral system, and argue that the appointment of an independent central banker reduces politically induced output variability. This reduction may even offset the increased variability caused by the higher degree of aversion towards inflation characterizing an independent central bank; (c) the one by Walsh (1995) who, within a principal-agent framework, argues in favour of introducing an incentive scheme for the central banker, making the latter's financial reward dependent upon the delivered inflation rate. This approach is based on the fear that in the absence of accountability, an independent Central Bank might behave in an opportunistic way, pursuing the objectives set by its own agenda which are not necessarily identical to the those of society. According to Walsh, such an arrangement (an optimal contract) would eliminate the inflation bias inherent in discretionary monetary policy, and would result in an inflation rate equal to the socially desired one. At the same time, it would maintain the ability of monetary policy to respond optimally to supply shocks intact; and (d) the one by Svensson (1997a and 1997b) where the government instructs the central bank to target a particular inflation rate lower than the socially desired one<sup>79</sup>. The solution of the optimization problem yields an average inflation rate equal to the

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<sup>78</sup> For a survey of the models developed in the area of CBI, see Mourmouras, 1997.

<sup>79</sup> Here it might be interesting to make a comment of semantic nature. More specifically, it is not quite clear to us that the contributions of Walsh and Svensson are models of CBI in the sense suggested by Rogoff. Rather, in our view, the approaches of optimal contracts and inflation targeting are different proposition in the search of a solution to the time inconsistency problem in their own right. The reason is that within the models by Walsh and Svensson, the central bank does not enjoy political independence, in the sense that it cannot define the ultimate objective of monetary policy. In both approaches the inflation objective to be pursued by the central bank is set by the government. However, in both models the Central Bank does enjoy instrument independence. From that point of view, they fall within the CBI literature.

socially desired one whereas the mean and variance of output remain identical with those of a discretionary regime<sup>80</sup>.

As far as the literature offering empirical support in favour of CBI is concerned, the most prominent paper is the one by Alesina and Summers (1993) who examine the correlation between an index of CBI and a number of macroeconomic variables on the other in 16 industrialised countries<sup>81</sup>. The main results emerging from their analysis is the existence of almost perfect negative correlation between the index of CBI and the level of inflation; and strong negative correlation between the index of CBI and the variability of inflation. No correlation emerges between the index of CBI and the level *and* the variability of growth. The same applies for the correlation between the index of CBI and the first two moments of unemployment. The conclusion of Alesina and Summers (p. 159) is that “central bank independence reduces the level of inflation but does not have either large benefits or costs in terms of real macroeconomic performance”<sup>82</sup>. Similar results can be found in Alesina (1988); Cukierman (1992) and Grilli *et al* (1991), who provide econometric evidence from OECD countries suggesting that the institutional independence of Central Bank is negatively correlated with inflation and does not lead to lower rates of GDP growth.

To turn now our attention to the main objections against the theoretical arguments and empirical evidence in favour of CBI (and other associated institutional arrangements), Waller (1992) criticises Rogoff’s implicit assumption that all agents are homogenous. Waller’s model introduces agents with

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<sup>80</sup> Other notable contributions in the literature of CBI include those by Canzoneri (1985), Cukierman and Meltzer (1986), Flood and Isard (1989), Chari et al. (1989) and Cukierman (1992).

<sup>81</sup> Alesina and Summers base their analysis on the indices of independence proposed by Alesina (1988) and Grilli *et al* (1993). The index of Alesina refers to political independence and takes into consideration the institutional relationship between the central bank and the executive; the procedure to nominate and dismiss the head of the central bank; the role of government officials on the central bank board and the frequency of contacts between the executive and the bank. On the other hand, the index of independence proposed by Grilli *et al* takes into consideration aspects of both political and economic independence. The former is based on factors such as whether or not its governor of the Central Bank and the board are appointed by the government; the length of their appointments; whether government approval for monetary policy decisions is required; and whether the price stability objective is explicitly and prominently part of the central bank statute. The latter primarily depends on the extent to which the bank is required to finance the public deficit; and the institution responsible for the setting of interest rates.

<sup>82</sup> This result, which is inconsistent with the model by Rogoff (1985) but consistent with the model by Alesina and Gati (1995), is defined by Cuckierman (1994) as a “free lunch” effect, in the sense that CBI provides obvious advantages without presenting obvious disadvantages.

heterogeneous interests in the form of two different economic sectors, one competitive and one noncompetitive, characterized by nominal wage rigidities. The upshot of Waller's argument is that under such circumstances, the appointment of a central banker whose loss function represents a weighted average of the two sectors earlier mentioned, may result in a course of monetary policy which may be regarded as sub-optimal by both sectors and may be subject to partisan effects.

McCallum (1995, 1997) challenges the view that in a discretionary framework monetary authorities will definitely adopt a short-sighted policy and argues (1995, p. 209) that "it seems inappropriate to presume that central banks never behave in a sensible fashion but instead repeatedly engage in fruitless attempts to exploit predetermined but endogenous expectations". Furthermore, McCallum argues that a contract arrangement such as the one suggested by Walsh does not actually eliminate the motivation for dynamic inconsistency, it merely relocates it in a different place. The reason is that a government which favours a temporary monetary expansion, inconsistent with price stability, has the ability not to enforce the provisions of the contract if the Central Bank does not deliver conditions of price stability or even to change the provisions of the contract by devising extra *ad hoc* rewards for the Central Bank if it accommodates a fiscal expansion (McCallum 1997, p. 108). A similar problem of reallocation of the credibility problem may also exist in the inflation-targeting regime proposed by Svensson. De Grauwe (1996) formally shows that in the model developed by Svensson, the Central Bank, overshoots *systematically* its inflation target. The question which then arises is how credible such a monetary strategy may be.

Finally, other theoretical arguments against CBI independence include the following (see Alesina, 1989): (a) it is very difficult to eliminate external (informal) interventions over the Central Bank, no matter how strong is the institutional framework establishing CBI; (b) CBI may create difficulties in coordinating monetary and fiscal policy. As Fisher (1995) argues, there are potential benefits from the coordination of monetary and fiscal policy that may be foregone when the central bank is independent (on this point see also the report by Lord Roll *et al*, 1993). For example, a possible conflict between fiscal and monetary

authorities may cause uncertainty as to how and when the conflict will be resolved (see e.g. Alesina and Tabellini, 1987); and (c) the delegation of authority to an independent central bank produces a “democratic deficit”, in the sense that the responsibility of designing and conducting monetary is entrusted to unelected technocrats who may be too inflation-averse, and too insensitive to the possibilities of stabilising output. In this context, the issue of accountability of monetary authorities is important for two reasons: first, to set incentives for the Central Bank to meet its goals and explain its actions; second, to provide democratic oversight of powerful political institutions (Fisher, 1995, p. 202).

As far as the empirical arguments arguing in favour of CBI are concerned, Posen (1993) raises the issue of causality which, according to him is not addressed adequately by most existing studies. He argues that it is not quite clear that CBI causes low inflation; in contrast, it would rather be the case that in countries where society is inflation-averse, politicians tend to develop institutions to support this aversion. Cukierman (1992) presents empirical evidence from 72 developing countries which shows that the negative correlation between inflation and CBI which exists in industrialised countries is absent. In fact, in the sample of the developing countries the correlation appears to be positive!<sup>83</sup> Finally, the results present by Grilli *et al* reject the hypothesis that CBI results in lower budget deficits, although in the relevant regression the variable referring to CBI enters the equation with a negative sign.

The emerging conclusion is that the case for CBI is based on firm theoretical arguments which are further strengthened by considerable empirical evidence. However, one cannot ignore the sound logic underlying the objections raised against the theoretical and empirical case for CBI. In particular, the argument made by McCallum (1995, 97), i.e. that there is no reason to believe that central banks are *bound* to behave in an irrational way, is very appealing indeed. In practice however, the pre-1990 inflation record of Greece (and other Southern European countries like Italy, Portugal and Spain) has shown that Greek authorities are prone to short-sightedness in the field of monetary policy,

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<sup>83</sup> Two explanations are provided for this finding: first, the law is not observed in many of the countries examined by Cukierman; second, key aspects of independence (e.g. the ability of the Central Bank to refuse budget deficit financing) are absent.

particularly in the face of an accumulating stock of public debt and the effect of political/partisan cycles over the economy. That was the main reason behind the decision of Greece and the rest of the *Club-Med* countries to seek an external precommitment device in the form of exchange rate pegging in the fashion suggested by Giavazzi and Pagano (1988). Furthermore, given the long-standing, slowly-changing political and social traditions existing in these countries, it is doubtful that the principal reason for the existence of such a pre-commitment device has now been removed. After all, the view that in contemporary economies in general, agents need a mechanism signalling the intentions of authorities regarding the future course of monetary policy, revealing to market participants the systematic factors guiding the use of policy instruments and reducing the uncertainty associated with the future effect of current economic decisions, is widely endorsed (see e.g. Crockett, 1994). Therefore, our endorsement of the recent decision of the Greek government to grant independence to the BOG and the decision of the latter to announce an inflation objective for 1999, reflects the following:

(a) given the existing macroeconomic imbalances in Greece, an exchange rate pegging regime lacks credibility and may involve serious risks for the Greek economy (see our analysis in chapter 3 and earlier in this section).

(b) on the delicate position in which the Greek economy currently finds itself, a nominal anchor is necessary for the reasons mentioned above.

(c) the unequivocal quantitative inflation objective recently announced by the BOG can operate as such, provided that it is regarded to be credible.

(d) granting independence to the BOG, together with an explicit mandate to focus upon the pursuit of price stability, can be useful in terms of promoting the desired credibility of the inflation objective. The reason is that independence places the Bank at the centre of public attention, increases its importance as a major player in the economic system and, from that point of view, increases its motivation to deliver price stability. As Roll *et al* (1993) have argued, "the clearer the objective [of monetary policy], the simpler it is to monitor performance. Knowing that monetary weakness will be detected for what it is, the Bank is more easily able to maintain sound money despite pressures from the government of the

day for just a little more stimulus for whatever reason". But even if we accept the view suggested by McCallum (1997, p.109), who argues that CBI "is not principally to constrain the central bank to act in accordance with the government's objectives but rather to constraint the government by increasing the difficulty of its bringing pressure to inflate upon the central bank", we can argue that if the myopic approach displayed by Greek monetary authorities in the past was primarily due to the government's intervention in the field of monetary policy, this is the whole point of arguing in favour of CBI in the context of Greece.

(e) the timing of the decision to introduce CBI legislation in Greece was the right one. As Cukierman (1994) has argued, experience shows that CBI is more efficient as a safeguard against the onset of high inflation rather than as a remedial device against existing high inflation rates. Therefore, given that Greek inflation has now returned to single-digit levels, the conditions for the introduction of CBI were ideal.

Having said the above, it is now important to say that for all its merits, like an exchange rate pegging regime, CBI has limited potential and, in the absence of other necessary elements, it will not be enough by itself to reduce the imbalances currently observed in the Greek economy. More specifically, one might argue the following:

(a) as the empirical evidence provided by Cukierman (1992) suggests, institutional arrangements regarding CBI are insufficient to contribute to further reduction in inflation as long as the Central Bank has no real capacity to act according to different preferences, i.e. has no power base to remain uninfluenced by government. Of course, there is little doubt that the government (or the Parliament) *must* have at its disposal escape mechanisms allowing them to override the targets set by the Central Bank in the event of serious, unexpected economic disturbances. Indeed, in most of the countries which have actively promoted CBI over the last years (e.g. New Zealand) such clauses exist in the relevant Central Bank statutes. However, the same clauses oblige the government to explain publicly the reasons which prompted the overriding and restore the

*status quo ante* as soon as the emergency is over<sup>84</sup>, so that the credibility of the Central Bank as an independent, inflation-averse institution will remain unaffected.

(b) CBI may actually imply *long-run* inflationary dangers for the Greek economy if it is not accompanied by fiscal responsibility. As Sargent and Wallace (1981) have argued in their very influential paper, monetary control over inflation is difficult and perhaps counterproductive if it is not backed up by adequate fiscal policy reduction. If within the framework of a lax fiscal policy, the Central Bank has the right to set high interest rates independently in order to control inflation at the expense of raising the stock of government debt in an unsustainable manner, the economy may end up both with a recession and with larger debt and interest payments. This may create the necessity for higher future seignorage revenue (i.e. excessive money creation) which could result in a higher, rather than lower inflation rate (see Budina and Wijnbergen, 1997) and could also give rise to a forced devaluation (see Eichengreen *et al*, 1995).

(c) Having said the above, one has to admit that CBI combined with fiscal consolidation may lead to significant *short and medium-term* welfare losses<sup>85</sup> during the run-up to EMU accession in 2001, especially if the BOG sticks to its commitment to pursue exchange stability against the euro and structural reforms in the supply side of the economy are not actively promoted. As was argued earlier in this chapter, in the absence of such reforms, the competitiveness and productivity gap which currently exists between Greece and the EU will largely remain unaffected; and, perhaps more importantly, expectations about the long-run performance of the Greek economy will not improve substantially. As a result, the devaluation risk premium currently embodied in Greek interest rates will not be declining; and high interest rates will prevent economic recovery from gathering momentum. Without nominal exchange rate adjustments, the only way available to address problems of the real exchange rate will be a reduction in

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<sup>84</sup> For further discussion on the institutional arrangements in a number of countries which have introduced CBI legislation, see Leiderman and Svensson, (1995).

<sup>85</sup> For a number of references offering theoretical support to this argument, see our discussion on the welfare implications of the Budget Stability Pact (section 4.4.4)

domestic prices, a fact which might even imply wage *disinflation*<sup>86</sup>. Such policies, combined with fiscal retrenchment, are bound to give rise to social unrest in which case, to put it in Winkler (1996, p. 16) words, “the Central Bank will make an ideal, because “independent”, scapegoat”.

(d) In relation to the above, as Role *et al* (1993, p. 9) have argued, “macroeconomic policy has many objectives including supply-side issues that necessarily involve microeconomic considerations. Monetary policy, however, essentially affects demand” and, from that point of view, CBI has little to do with structural adjustments. The latter are mainly conditional upon the ability of the Greek political system to convince society about the necessity of such reforms so that a “stability culture” will be created; and the resolve of the government to proceed with the reforms even in the face of reactions from those groups whose narrow, sectional interests stand in the government’s way towards modernization.

(e) Last, but not least, one cannot possibly ignore the issue regarding democratic control over the actions of an independent central bank. Unfortunately, space limitations do not allow an extended reference to the vast literature dealing with the subject (see e.g. King, 1997 and Mourmouras 1997). However, two point on which consensus seems to prevail are the following: (i) accountability is positively related to the degree of transparency and openness in the design and conduct of monetary policy; and (ii) the inflation performance of an independent Central Bank is positively influenced by the degree of its accountability. In this context, transparency can be promoted by narrowing the objectives pursued by the Central Bank (see above); and encouraging public discussion on monetary policy, i.e. improving the existing channels of communication between the Central Bank and the general public. One has to admit that the Bill granting independence to the BOG is rather silent on these issues<sup>87</sup> whereas the existing channels of

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<sup>86</sup> This argument is also very relevant in the case of some countries (e.g. Italy and Spain) which gained EMU qualification without, however, having achieved a substantial degree of real convergence with the “hard-core” of the EMU. This, combined with the argument concerning the limitations implied by their fiscal position (see section 4.4.4 above), forms the basis of our view that it would have been better both for the stability of the EMU and the economies of these countries to defer their accession for a couple of years (if not more).

<sup>87</sup> The Bill mentions that the Governor of the BOG is accountable to the Parliament. In addition, the Governor has to address the Parliament once per year in order to justify the Bank’s course of action in the past; present the Bank’s assessment regarding the general economic situation; and outline the main points of the Bank’s Monetary Programme.



communication between the BOG and the public are far from being impressive<sup>88</sup>. Therefore, there may be scope for further improvement in this particular field. Towards that direction, the Greek authorities could consider the introduction of some of the practices recently adopted by the United Kingdom as part of the monetary arrangements which took place in that country after the exit of the sterling pound from the ERM in September 1992 (see Bowen 1995, King 1997 and Bean 1998). Perhaps the most notable innovation is the quarterly published Inflation Report of the Bank of England, which presents the Bank's own independent assessment for the past movements of inflation and its future prospects (in the form of a probability distribution regarding the level of future inflation on the assumption of no changes in interest rates). The Report, whose text is not available to governmental ministers before its publication, aims to increase Central Bank accountability because, by obliging the Bank to explain its past actions and justify its projections, it puts the professional reputation of the institution under public scrutiny (see Bank of England, 1996)<sup>89</sup>.

All in all, the conclusion emerging from the above is that in principle, Central Bank Independence may be useful in terms of promoting the credibility of the inflation objective recently announced by the BOG as an effective nominal anchor. In any event, Greece had no choice on the matter as CBI is set by the Maastricht Treaty as one of the conditions necessary required for EMU entry. However, CBI itself is not in position to offer solutions to a number of serious problems characterising the Greek economy. We view CBI only as an integral part of a wider macroeconomic strategy towards EMU participation. In the absence of progress in the field of fiscal adjustment and structural reforms, CBI can even be harmful to the Greek economy. After all, if Greece is to join the EMU by 2001, as indented by its government, the independent BOG will remain in charge of Greek monetary policy only for a relatively short period of time.

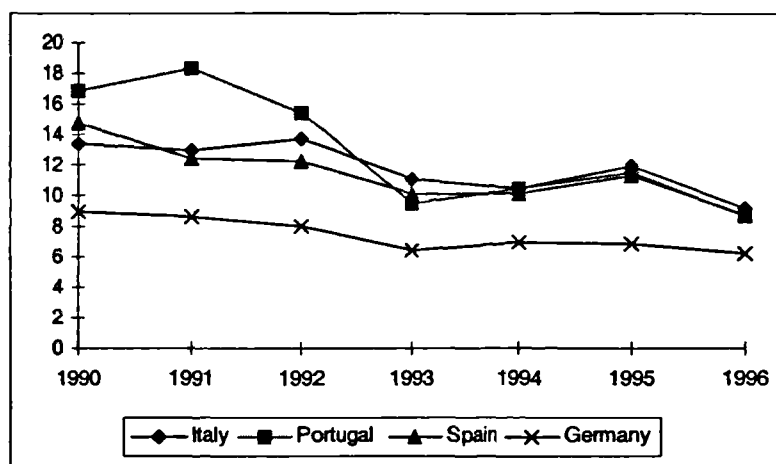
*In short, Central Bank Independence is not panacea.*

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<sup>88</sup> At present, the only regular publications of the Bank of Greece presenting the Bank's views on monetary policy and the economy in general are the Annual Report of the Governor; and the semi-annually published Economic Bulletin.

<sup>89</sup> Other measures aiming to enhance accountability of the Bank of England and promote coordination between fiscal and monetary policy include the introduction of regular (monthly) meetings between the Governor of the Bank of England and the Chancellor of the Exchequer; and the publication of the minutes of these meetings six weeks after their realisation.

**Figure 4.3**  
**Nominal long-term interest rates in the club-Med:**  
**convergence with Germany**



*Data source: European Economy No 64, Statistical Appendix*

If, however, Greece adopts all three points of the strategy described above and manages to maintain price stability over the period 1997-2001, she faces the prospect of a positive “snow-ball” effect as the resultant reduction in inflation and inflationary expectations would contribute to the meeting of the fiscal criteria and the criterion referring to the long-term interest rate. This is so because there is now evidence suggesting that nominal convergence crucially depends on market expectations with regard to the participation of a country in the EMU at some stage in the medium-term future, i.e. nominal convergence is partly endogenous. More specifically, in 1996-97 it was observed (see Figure 4.3) that markets’ conviction that a country will finally participate in the EMU leads to a faster decline of the long-term interest rates and consequently lightens the burden of interest payments on public budgets, hence making the achievement of the final target easier.

#### 4.5. Concluding remarks

During a period of rapid developments in the European continent, most of the Greek political parties and the overwhelming majority of Greek people have warmly embraced, mainly for political rather than economic reasons, the prospect of the participation of Greece in the European Economic and Monetary Union (EMU).

However, in spite of its whole-hearted support for the EMU project, Greece was not able to secure a place among the first wave of EMU participants and should now adopt a macroeconomic strategy which will allow her to join the Union at a later stage in the foreseeable future. According to our opinion, the participation of Greece in the EMU will serve her national interests in the best possible and feasible way but it presupposes three policy choices:

*First*, a more effective fiscal consolidation which is even more imperative in the light of the future limitations created by the signing of the Budget Stability Pact. Such a consolidation should be achieved primarily by means of a bolder reduction in public consumption. *Second*, the a more active promotion of the restructuring of the supply side of the economy through the promotion of a higher degree of flexibility in the goods, labour, and financial markets. *Third*, while promoting structural adjustments, the Greek authorities should try to achieve the maximum possible degree of social consensus in order to avoid major social conflicts. In the absence of these three elements, a substantial improvement in the Greek macroeconomic performance will be difficult to achieve; and the recently introduced monetary framework, establishing the independence of the Bank of Greece may prove counter-productive, exposing the Greek economy to real dangers and the Greek society to pointless welfare losses.

More specifically, if Greece is to achieve a satisfactory degree of nominal and real convergence by 2001 (the year that she plans to join the EMU) and reduce the level of unemployment, she should achieve significant growth rates rather sooner than later. This necessitates the fall of interest rate and a good export performance which presupposes a higher competitiveness of Greek products. The latter can only be achieved by means of a higher level of productivity, reduced labour cost and a more competitive exchange rate than the current one. But given the experience of the 1980s, the Greek government have to make sure that the inflation gains achieved in the 1990s will not be jeopardized. As a result, it seems that in the near future Greece will have to change its policy mix from the current combination of tight monetary policy and less tight fiscal policy to a combination involving a less tight monetary and more tight fiscal one. Then, within a new economic framework characterized by fiscal correction and the existence of a

credible, inflation-averse independent BOG, the drachma could be then left to find a more favourable value without any fear of refuelling inflation. If Greece adopts these appropriate policies, its bid for EMU participation will acquire a higher degree of credibility and, by sending the appropriate signals to international markets, she will greatly enhance her EMU prospects.

After all, and this is our final argument, it should be kept in mind that irrespective of the EMU project, the Greek economy faces a number of serious problems which, in any case, should be dealt with, one way or another. Having in mind that the overwhelming majority of Greek political parties support the participation of Greece in the EMU, we believe that the latter represents a first class opportunity to promote essential reforms and apply necessary policies with the minimum possible social reaction.

## CHAPTER 5

# EU participation and the external trade of Greece: an appraisal of the evidence

### 5.1. Introduction

This chapter investigates the trade effects caused by the accession of Greece to the EU. To the author's knowledge, these effects have been examined in the past within the framework of three other studies. The first is by Hassid (1986) and covers the first three years of EU participation (1981-83). The second is by Giannitsis (1988) and covers the period 1981-86. The third is by Hassid and Katsos (1992) and covers the period 1981-88.

The studies by Giannitsis and Hassid and Katsos represent major undertakings and constitute substantial contributions to the study of the Greek economy as a whole on the part of the two Institutes for which they have been carried out. Both are mainly concerned with issues related to the Greek industrial sector and cover (in great detail) a vast number of subjects of which the trade effects caused by EU participation is just one.

Clearly, the scope of this chapter is much more limited compared to the two studies mentioned above: it would be impossible to go into the same degree of detailed analysis within the framework of one single chapter, to say nothing about the lack of the data which we would need in order to update those studies<sup>1</sup>. However, we believe that we have something new to offer as our analysis differs from theirs in the following four respects: first, it covers a longer period extending to 1992-93; second, it makes use of entirely different (and original) data. Specifically, we have used the time-series constructed by the author himself and present Greek trade flows disaggregated according to the 21 categories of the Greek Tariff Schedule (GTS) (see the Trade Data Appendix); third, we have attempted to enrich the analysis by investigating trade effects by individual countries, something which both studies mentioned above have avoided. Finally,

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<sup>1</sup> Both the Giannitsis and the Hassid-Katsos studies are based on the authors' (and their associates') own collection, categorization and making of data sets. Given the detailed nature of their analysis (down to three digit individual industry levels), the data collection and the calculations which were carried out (especially the ones in the study by Giannitsis) represent extraordinary feats themselves.

the methodology which we have employed is similar but not identical to the methodology used by those studies.

Before proceeding, it is useful to remind the reader that the task in hand (i.e. the empirical investigation of trade effects) is a very complex one, characterized by major practical difficulties and, as a result, recent years have seen no major developments in the field. The point is that economic integration is just one of the factors affecting an economy and the *complete* separation of its impact from that of the rest of the factors is probably impossible. Therefore, it is generally accepted that studies of this kind provide, at best, indications about the *direction* of the changes and not exact, indisputable figures (see section 4.2 below). This is particularly relevant in the case of Greece, a country whose economy was subject to a number of changes in the 1980s, many of which were irrelevant to the integration process. In addition, in the case of Greece one faces substantial limitations caused by the lack of official data sets referring to variables of crucial importance to the study of the subject (for example, information regarding tariffs and other forms of protection against imports is very limited). Therefore, we should emphasize that this chapter aims to present indications of a qualitative nature and that any quantitative result emerging from the analysis should be treated with the highest degree of caution.

This having been said, the remainder of this chapter is organized as follows: section 5.2 reviews the literature on the quantitative measurement of trade effects caused by economic integration. In section 5.3 we discuss the Association and the Accession Agreements which Greece signed with the EU before 1981<sup>2</sup>. In section 5.4 we present the two main pre-integration lines of thought concerning the trade effects to follow the accession of Greece to the EU. In section 5.5 we present the *prima-facie* evidence regarding the impact of EU participation on industrial production, the trade balance and the trade flows in general. Section 5.6 examines the developments relating to competitiveness as they are implied by the post-1981 movements of the share of total Greek exports in foreign markets, the Balassa Index and the Adjusted Grubel-Lloyd Index. Section 5.7 investigates the trade-creating and trade-diverting effects caused by

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<sup>2</sup> As the EEC has now been renamed, this chapter uses the term EU.

the accession of Greece to the U. In section 5.8 we present the estimates of a number of export-demand functions. Finally, section 5.9 summarizes and concludes the chapter.

## 5.2. Measuring the impact of economic integration on trade flows

### Methodology

Economic Integration (EI) causes short-run *static* and long-run *dynamic effects*. These affect many fields of an economy including its rate of growth; the level of employment; the composition of trade flows; the terms of trade; the level of domestic and foreign investment; and the development of economies of scale; (see Krugman 1989, El-Agraa 1989,1994, and Moore 1994).

*Static effects* are mainly associated with trade flows, they have a once-and-for-all character and appear immediately after the abolition of tariffs and other trade barriers. For example, the elimination of tariffs against the products of partners and the adoption of a Common External Tariff Schedule (CET) for the products of non-partners cause a number of changes in relative prices which, in turn, affect the composition and pattern of trade. Such price effects can set in motion a series of *dynamic effects* through a higher level of production efficiency, new investment, technological progress and exploitation of economies of scale<sup>3</sup>.

Although at the theoretical level researchers have examined the above issues in a thorough way, in practice, it is quite difficult to measure the above mentioned effects (especially the dynamic ones), and even more difficult to divide them into various sub-categories. The reason is that economies are dynamic organisms subject to the simultaneous influence of many factors, many of which are irrelevant to the integration process. As a result, the *complete* isolation and the accurate measurement of the effects caused by EI are tasks which the existing

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<sup>3</sup> According to an optimistic scenario, if the market prices of final goods include a mark-up on production costs, then the reduction in tariffs could contribute to a lower level of inflation. This, in turn, could reduce the rate of growth of wages and, through the inflation-wage spiral, the price of exports. This could cause a higher demand for exports, and a higher rate of GDP growth, either through an increased rate of investment or through increased productivity growth at a given investment ratio.

**Table 5.1**  
**Use of three alternative methodologies**  
**in measuring trade effects caused by Economic Integration**

	<i>Ex - ante</i> Prediction	<i>Ex - post</i> Estimation
1. Survey-type models	+	+
2. Residual models	-	+
3. Analytical models	+	+
(+) indicates use of the method in the relevant application, (-) indicates that the method is inappropriate for the specific application. <i>Source: Verdoorn and Van Bochove (1972), p. 337</i>		

literature regards as practically impossible<sup>4</sup>. Therefore, empirical research has mainly concentrated on the trade effects caused by EI as some of the latter appear immediately after its realization and do not mingle with the influence of other factors.

The existing empirical studies investigating trade effects caused by EI can be classified according to their time perspective, the framework they assume and the methodology they employ (see Table 5.1)<sup>5</sup>. With regard to the first classification, the distinction is between *ex-ante models*, which aim to predict the effects of integration *prior* to its realization, and *ex-post models*, which aim to estimate the effects of EI *after* its realization has taken place. It is generally accepted that *ex-ante* models are more difficult to construct, mainly because such models have to adopt assumptions regarding the future values of exogenous variables. This partly explains why in practice *ex-post* models have been more

<sup>4</sup> Mayes (1988, p.57) argues, "as soon as the analysis is extended to include changes in economic growth, efficiency and the movement of factors, the problems of quantification become immense. There is no well developed theory of the interrelated movements of trade, payments, income and factors, let alone one which can be clearly applied and estimated to calculate the effects of integration"

<sup>5</sup> For a survey of the studies developed in this area, see Verdoorn and Van Bochove 1972, Mayes 1978, Winters 1987 and El-Agraa 1989, 94.



popular. However, the latter are not without their problems. The most significant one, to be discussed below, is the construction of a plausible *anti-monde* scenario.

As far as the second classification is concerned, the distinction is between residual and analytical models. *Residual models*, which can be used only for *ex-post* research, determine the effects of EI by means of comparing the situation observed in reality and the situation which would have prevailed in the “*anti-monde*”, i.e. the situation which would have prevailed if EI had not taken place<sup>6</sup>. On the other hand, *analytical models*, which can be used both for *ex-ante* and *ex-post* analysis, aim to explain the movements of trade flows by means of estimating econometric models and providing an economic explanation for the movements of the variables considered<sup>7</sup>. Finally, *survey-type models* are those which predict or assess the effects of EI by asking the opinion or studying the behavior of a selected group of persons or institutions whose views and actions are considered credible or important.

Mayes (1978) argues that the model selected should be able to take into consideration the following sets of variables: (a) economic variables explaining behavior in the importing country or group (economic activity, population, prices, pressure of demand etc.); (b) economic variables explaining behavior in the exporting country or group; (c) economic variables explaining specific characteristics of trade between countries or groups (distance, trading preferences etc.); (d) economic variables explaining behavior in third countries (imports, exports, income, prices, economic activity etc.). If some of these variables are omitted, the estimation of integration effects will be biased. Nevertheless, Mayes argues that even with generous simplifications (mainly associated with residual models), it is still possible to get results where biases are unimportant.

The main problem would then be how to develop a plausible “*anti-monde*” scenario as the results obtained would depend on the plausibility of the anti-monde assumptions. As Ohly (1993, p.29) suggests, one does not only have to make assumptions about trade flows but to construct a complete base-line scenario for the economic, monetary and exchange rate regime that would prevail in the

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<sup>6</sup> Residual models include those by Balassa (1974), Truman (1972), Williamson and Bottrill (1971), EFTA (1972), Kreinin (1969, 72), Aitken (1973), Fetherstone *et al* (1979).

<sup>7</sup> Analytical models include those by Balassa and Kreinin (1967), Resnick and Truman (1973, 74), Prewo (1974), Winters (1984, 85), Viaene (1982), Smith and Venables (1988).

absence of integration, as well about the economic policies pursued in the framework of this regime. Moreover, suppositions have to be made about a number of variables such as the behavior of economic agents, institutions and economic development in third countries. All these raise the probability of errors and unrealistic assumptions. In addition, any difference between the real and projected values would be exclusively attributed to the integration process. Furthermore, the partial equilibrium framework which the residual approach adopts would not allow the consideration of feedback effects and, consequently, would not be able to capture any of the dynamic effects.

El-Agraa (1994) argues that the model employed should be in position to avoid mixing integration effects with other effects, take dynamic effects into account, be capable of being applied at an appropriate level of disaggregation, provide an economic explanation for the fluctuations of imports and exports and be able to distinguish between the various types of trade effects. Viaene (1982) seems to agree with these views. He argues that the ideal approach would be an analytical one, modeling trade flows in a way deriving from first principles, taking into consideration variables such as national income, and relative prices between the products of all competing suppliers. But unfortunately, Viaene claimed, such models cannot be estimated efficiently because they include too many parameters and because of the collinearity which would be observed between the relative price terms. Mayes (1988) agrees on that point. He believes that the correct econometric procedure would be to estimate a model large enough to reflect all influences in the economy but this would be rather difficult due to problems created by the size of the model and the non-constancy of parameters. With regard to the size of the model, the ideal procedure would be to estimate a model which was large enough to reflect all the influences (static and dynamic) in the economy. However, the estimation of a large number of relations involves considerable data requirements as well as the development of highly sophisticated models. This explains why in practice most of the researchers who have adopted the analytical approach have estimated relatively simple models and made further assumptions about changes in the parameters<sup>8</sup>. With regard to the constancy of

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<sup>8</sup> Mayes (1988) justifies this selection on the grounds that "even with a more sophisticated model we can only get an idea of an order of magnitude, not an accurate single number, hence if it is

parameters, difficulties cannot be avoided even if we employ a model involving a large number of relations as EI and other exogenous factors may change the values of the model's parameters. To complicate matters even more, EI may affect indirectly all these factors, therefore the feedback effects may lead to a large number of, often non-deductible, changes.

All in all, the conclusion is that analytical, general-equilibrium models have a conceptual advantage over residual, partial equilibrium ones, in the sense that they can take into account the full range of effects of EI and their results can be tested against actual data. The models of the latter category do not allow either for full consideration of all integration effects or for verification of their results, as one cannot be certain about what would exactly have happened in case EI had not taken place. On the other hand, residual models have the advantage of being more easy to construct and less demanding in data requirements. For these reasons, they represent the majority of the models developed.

#### The tools of analysis

The main tools of analysis in studies investigating trade effects caused by EI are the concepts of *trade creation (TC)* and *trade diversion (TD)* which were proposed by Viner (1950). TC is observed when EI leads to replacement of expensive domestic production by cheaper imports, originating either from a partner (internal TC) or from a third country (external TC). TD is observed when EI leads to the substitution of cheap imports from a third country by expensive imports from a partner. Viner argued that TC leads to more efficient allocation of the productive resources, therefore it increases world' efficiency and consumer' welfare. TD causes the opposite effects<sup>9</sup>.

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possible to use only a relatively limited amount of readily available information to estimate that magnitude we can make much more efficient use of our resources by adopting a simple model". However, he also adds that "given the simplicity of the models and the assumptions about changes in parameters, this can result in substantial biases". The problems of aggregation (usually involved in simple models) are also important. Income and price elasticities vary considerably among commodities and countries and, as a result, aggregated results (which are easier to obtain by means of a small model) may be misleading. On the other hand, aggregate relations may be more stable.

<sup>9</sup> The magnitude of TC and TD depend on a number of factors including: (a) the initial level of tariff protection and the level of tariff protection imposed by the CET: the higher the level of initial tariffs imposed on imports from partners, the higher the possibility of TC; and the higher the CET tariffs, the higher the probability of TD; (b) the transition period involved: the shorter it is, the grater the effects; (c) the price elasticities for demand for imports from various sources of supply: the higher the price elasticity of imports from partners, the higher the level of TC; (d) the price elasticity of demand for domestic production: the higher it is, the higher the level of TC; (e) the

However, the concepts of TC and TD proposed by Viner were considered incomplete by Meade (1956) and Lipsey (1960). Their criticism referred to Viner's implicit assumption that goods are consumed in constant proportions, irrespective of alterations in their relative prices. But as long as EI causes price effects, the commodities whose relative prices decrease will face a higher demand. Thus, EI not only affects the geographical distribution of import supply but also the structure and the scale of demand. In order to capture such effects, Meade introduced the term *trade expansion* which describes the increase in the volume of total imports caused by EI<sup>10</sup>. Some additional terms include the following: *gross trade creation*, which is observed when intra-union trade increases, irrespective of whether this is caused by the substitution of domestic production or the switching of imports from third countries to partners; *gross trade diversion*, which is the reduction in imports from non-partners caused by an increase in imports from partners; *trade erosion* (also known as *trade destruction*), which is a reduction in imports and an increase in domestic production; and *supply-side diversion* which is the replacement of exports to third countries by exports to partners<sup>11</sup>.

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price elasticity of domestic and foreign supply: if, for example, the price elasticity of supply in the partner or home countries is equal to zero, EI will cause no trade effects at all; (f) the initial level of imports: the lower it is, the lower the level of TD; and (g) supply conditions in foreign countries: if a partner country cannot meet the higher demand for its products, the level of TD will be small.

<sup>10</sup> If, for example, the creation of a Customs Union causes a reduction in the price of a commodity produced in a partner country relative to the price of the same commodity produced in a non-partner country *and* the other commodities consumed in the importing country, then, apart from TD, the substitution effects between commodities can also cause an increase in the volume of total imports for the particular commodity. That increase would be the result of trade expansion. In a similar fashion, trade expansion can coexist with TC.

<sup>11</sup> Dayal and Dayal (1977) have also criticized Viner's approach to TC and TD on the grounds that it is not correct to judge the welfare consequences of a shifting of imports from one supplier to another based only on the relative price differences caused by EI. There are some additional factors which also play a significant role with regard to the volume and the structure of imports, including the degree of product differentiation, credit facilities, delivery terms and others. Furthermore, Dayal and Dayal argued that TC is not always beneficial as it could lead to a deterioration of the current account, higher unemployment and higher inflation rates resulting from the depreciation of the national currency. Therefore, they argued that in order to assess the impact of EI on trade flows, what is required is to develop concepts which are primarily relevant to the problems of the trade balance but can also be adjusted to suit the criterion of global welfare. Subsequently, they produced their own definitions for TC and TD, taking into account the income and substitution effects caused by EI. More specifically, Dayal and Dayal argued that if EI causes a reduction in the domestic price of a particular good, then the total demand for that good would increase. This may lead to an increase in imports from both partners and non-partners but also an increase in domestic production. *All these increases* are defined by Dayal and Dayal as TC. In contrast, the abolition of tariffs against partners could cause a shift of demand in favour of the partner and against the importing country and the non-partner countries. *Both these effects* (reduction in domestic production and imports from non-partners) are defined by Dayal and Dayal as TD. Despite the

### 5.3. The Association and Accession Agreements

For many years after the end of the Second World War, Greek trade policy served the general purpose of macroeconomic policy, namely the acceleration of the industrialization of the Greek economy. As a result, the most prominent characteristic of the institutional regime characterizing external transactions was the state support given to Greek exporters and the strong protection enjoyed by domestic producers against imports. This protectionism was expressed through various trade barriers against imports (tariffs, quotas, discriminatory taxation, import licenses, imposition of foreign exchange restrictions, discriminative regulations, advances and deposits, administrative and customs delays etc.) and state aid in favour of domestic producers and exporters (subsidies, tax allowances etc.)

The first step towards the opening of the Greek economy to international competition took place in 1953 when the Greek government of the time decided to abolish a number of import restrictions, reduce subsidies given to Greek exporters and devalue the Greek drachma by 50% in order to avoid excess pressure on the trade balance. In addition, the GTS was restructured in such a way that low tariffs were imposed on imports of capital goods. However, an equally important step was realized in 1961 when Greece signed an Association Agreement with the EU, effective from January the 1st, 1962. That Agreement [also known as the Athens Agreement (ATHA)] set a specific time plan for the full participation of Greece in the EU following a period of 22 years of Association. Its main points were the following:

(a) EU countries undertook to eliminate tariffs and all other trade barriers imposed on Greek industrial exports by the end of 1968; (b) Greece agreed to eliminate tariffs, quotas and other trade barriers of equivalent effect imposed on imports from the EU for those products for which industrial production did not exist by the end of 1974; (c) for those products for which domestic production existed, Greece agreed to eliminate tariffs, quotas and measures of equivalent effect by the end of 1984; however, she retained the right to exclude from the

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sound logic underlying the objections by Dayal and Dayal, Viner's concepts remained the basic tools of research in the area. Following this convention, our analysis will make use of the Vinerian definitions.

process sectors in which infant industries were developing; and (d) Greece agreed to adjust gradually her trade policy to the EU trade policy by implementing the Common External Tariff Schedule (CET) and adopting all regulations relevant to non-tariff barriers as far as imports from third countries were concerned. The agreed transition period for industrial goods for which domestic production existed was to be 1962-68; for the rest, it was to be 1962-84.

In general, we cannot say that the provisions of the ATHA were fully respected. On the part of EU, by the end of 1967 80% of the trade barriers against Greek industrial exports were indeed abolished. However, in 1968 the EU froze the time plan of the ATHA as a gesture of disapproval of the military dictatorship which had seized power in Greece in 1967. The remaining 20% was abolished in 1974 after the restoration of democracy. On the part of Greece, the annual reduction in tariffs and trade barriers was usually smaller than the one provided for in ATHA. The deviation was usually justified on the grounds of protecting infant industries and enhancing the industrialization of the country. At any rate, in the middle of the 1970s tariffs had almost been abolished for almost two thirds of the Greek industrial imports and for the remaining one third, where Greek industrial production was concentrated, they had been reduced in a rather moderate way. Tariff changes on competitive manufactures had not gone very far while non-tariff barriers, which were quite important for certain parts of home production, were not significantly affected<sup>12</sup>. In contrast, many of the non-tariff barriers remained in force and in some cases they were even strengthened. In the meantime, Greece signed a number of bilateral trade agreements with individual third countries which contributed to the opening of the Greek market to imports but their significance was rather limited. Finally, during the association period, Greek governments increased the state support given to Greek exporters. This support took the form of subsidies (which in some sectors such as prepared

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<sup>12</sup> By the end of 1973, tariff rates on non-competitive imports had been reduced to 10% of their level in 1957 but on competitive imports they had only been reduced to 72% of their 1957 level. All in all, Papantoniou (1979) claims that in terms of taxed value, effective protection in favour of domestic production was reduced from 31% in 1961 to 26% in 1973, a reduction which was not particularly significant.

foodstuffs, textiles and basic metals, reached the level of 25% of the exports' value)<sup>13</sup>, tax allowances, low interest rate loans etc.

Trade liberalization gained some momentum between 1975 and 1980 when in line with the provisions of the ATHA, Greece abolished some of the trade barriers imposed on imports of industrial products where domestic production existed. However, the decisive step towards the opening of the Greek market was the signing of the Agreement for the Accession (AA) of Greece in the EU in May 1979, effective since the 1st of January 1981. According to the provisions of the AA, free bilateral trade between Greece and the EU was extended to the field of agricultural products. With regard to industrial products, Greece, by joining the EU, undertook the following obligations:

(a) to abolish tariffs, discriminatory taxes and all other trade barriers imposed on EU imports for which (in violation of the ATHA) trade impediments had not been abolished. The transition period given to Greece for the conclusion of this process was agreed to end on the 1<sup>st</sup> of January 1986. The abolition of quotas was also extended to industrial imports from third countries; (b) to complete the adoption of the CET where tariff rates for most categories of goods were smaller than those of the GTS; (c) to abolish all bilateral trade agreements Greece had signed with third countries and adopt the relevant agreements which the EU had signed with third countries and trading blocs; (d) to abolish the preferential regime enjoyed by Greek firms in tenders of the Greek public sector; and (e) to abolish all kinds of export subsidies for all kinds of goods for all destinations with the exception of those allowed by EU Trade Policy.

As far as point (a) is concerned, all tariffs, direct taxes and other trade barriers imposed on imports of EU industrial products were indeed abolished by the 1<sup>st</sup> of January 1986. With regard to the numerous indirect (excise) taxes imposed on imports prior to 1981, the European Commission agreed with the Greek proposal to unify them in a single tax, the so-called regulatory tax, and to extend the transition period for its abolition up to 1989. Greece respected this time schedule as well as the time schedules referring to points (b) and (c). In contrast,

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<sup>13</sup> See Hassid and Katsos, p. 201

the provisions of the AA relating to point (d) were not satisfactorily respected whereas the abolition of export subsidies was concluded only in 1992.

#### 5.4. Pre-accession predictions

Prior to 1981, there were two opinions regarding the events to follow 1981 (see Hassid 1986, Giannitsis 1986 and the references therein). The first, call it “pessimistic”, was adopted by authors like Papantoniou (1979) and claimed that full EU membership will affect Greek industry and trade balance in a negative way; it would open the highly protected Greek market to foreign competition in a premature way without taking into consideration the fact that the majority of Greek firms were not yet ready for such a step, especially those which belonged to the newly established infant industries. According to this pessimistic scenario, EU participation would lead to significant import penetration (both from EU partners and third countries as in many cases the adoption of the CET would involve lower protection than the one provided by the GTS) and further concentration of domestic production on the traditional, labour intensive, low value-added sectors of the economy. These eventualities would result in negative consequences for domestic production and employment. On the other hand, EU participation would not bring a significant tariff-induced increase in exports because, (a) within the framework of the ATHA the EU had effectively liberalized trade with Greece as early as 1968; and (b) the EU had also opened its market to imports from other countries, competitive with Greece, a fact which would neutralize, to a large extent, the exporting benefits to be obtained by the accession<sup>14</sup>.

The second opinion, call it “optimistic”, was mainly supported by the government of the time and part of the business community. It argued that an import penetration of such a dangerous extent was not really possible as the duration of the ATHA was long enough to prepare Greek firms for the shock of the forthcoming opening to foreign competition. In addition, during the association period, although effective protection against imports had been declining, the Greek industrial sector managed to improve its performance *vis-à-*

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<sup>14</sup> For a more detailed discussion of these agreements and their implications on Greek exports see Papantoniou (1979), pp. 41-44.



vis the rest of the world (see below)<sup>15</sup>. There was no reason to suggest that that would change after 1981. Besides, during the accession negotiations, Greece had managed to secure a relatively long transition period, a fact which was expected to mitigate the intensity of the accession shock. Furthermore, the reduction in tariffs and other trade impediments would not only affect the prices of imported final goods but also those of the intermediate products which served as inputs to domestic production. This would lead to an improvement in cost conditions for Greek firms and, consequently, to a competitiveness improvement compensating, at least partly, for the forthcoming increased foreign competition. All in all, this line of thought concluded, it would rather be the case that the impact of EU accession would be concentrated on the exports side. Economies of scale were expected to be achieved by Greek producers as a result of the export opportunities offered by a large market of high-income consumers. Greek firms were also expected to proceed to further product specialization, product differentiation and improvement of their entrepreneurial and commercial practices. Finally, the elimination of Greek marginal firms was expected to improve the allocation of sources and raise the comparative advantage of Greek industry as a whole. As a result, Greek firms were expected to retain their place in the home market and improve their export performance in the Europe ones.

## **5.5. Prima-facie evidence**

### **5.5.1. Industrial production**

The question which naturally arises, is which of the two predictions presented above is now justified by the post-1981 evidence. Table 5.2 presents the development of industrial production in Greece in the post-1970 period. Although by its very nature Table 5.2 provides limited information<sup>16</sup>, it is still indicative. The data suggests that after 1980 total Greek industrial production stagnated and

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<sup>15</sup> Further support for this argument was provided by the fact that when Greece submitted officially its application for full EU membership (12 June 1975), all tariffs on 66% of imports of manufactures originating from the EU had been abolished. For the remaining 34%, tariffs had been lowered by a percentage equal to 44% compared with their height in 1961 (see Hassid, 1986). However, it should be kept in mind that this remaining 34% represented imports of those commodities on which Greek industrial production was concentrated.

<sup>16</sup>The Tables of ESYE presenting data on industrial production are based on the information provided by approximately 3600 industrial units whereas the total number of industrial units is estimated to be around 129000 (see Hassid and Katsos, pp.220-222).

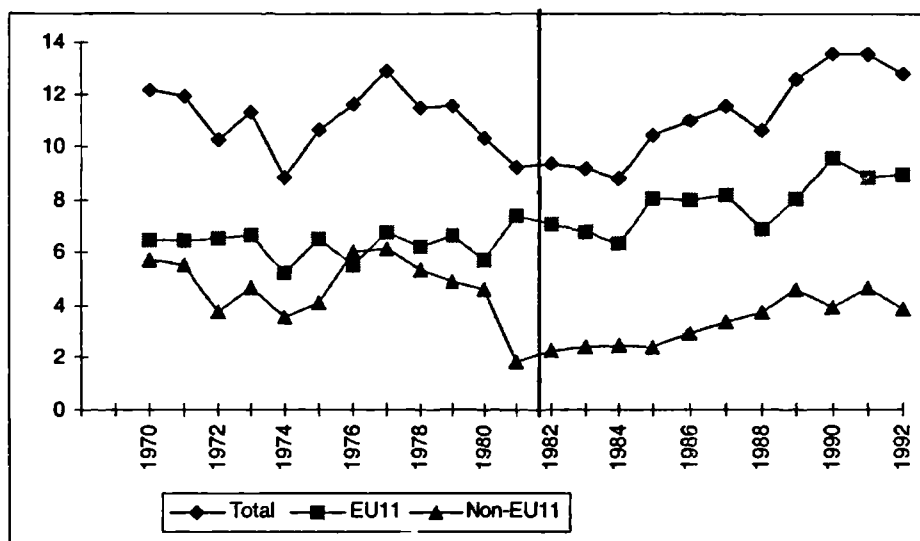
that in some sectors it has even declined. The stagnation is evident immediately after the accession. It is particularly pronounced in the case of capital goods (but also durable goods) and involves a number of the traditional sectors of the Greek economy, which are quite important in terms of GDP and employment contribution, such as textiles, footwear, leather products, wood and cork industries, furniture industries, and basic metal industries. On the other hand, some traditional sectors such as the food manufacturing, beverages and tobacco industries managed to expand their production after 1981. The same applies for paper products (after 1983), rubber and plastic products, chemicals, petroleum and coal products (after 1985), printing and publishing products and, until 1990, miscellaneous manufacturing industries. However, the progress in these sectors was not enough to offset the general tendency to stagnation.

From this point of view, it seems that as far as industrial production is concerned, after 1981 events took the turn predicted by the authors adopting the pessimistic opinion presented above. Of course, it would not be correct to attribute this development to EU participation exclusively. A number of other factors, including the course of Greek macroeconomic policy followed in the 1980s and the smaller, compared to the past, international growth rates have definitely played a role which, perhaps, was even more significant than EU participation. In addition, accession to the EU does not seem to have been the primary reason behind the stagnation which appeared in those sectors where the infant industries were concentrated (i.e. capital goods, manufactures of machinery, electrical and other appliances and transport equipment), at least not during the first years after 1981. There is evidence indicating that in those sectors effective protection actually increased rather than declined during the first years of EU participation (see Giannitsis, 1988 p. 79). However, the fact that total industrial production stagnated immediately after 1981 is an indication that the accession to the EU and the reduction in effective protection which accompanied it were indeed a major



Figure 5.1

## Trade Deficit as % of GDP (excluding mineral products)



Source: Author's calculations based on data taken from the publication of the National Statistical Service of Greece ESYE "The external trade of Greece" (various editions).

shock which affected many sectors in a negative way<sup>17</sup>. Further evidence of this is provided by the fact that after 1989, the year that the excise tax and a certain number of export subsidies were abolished, industrial production in vital sectors (such as textiles, footwear, furniture and leather products) fell further.

### 5.5.2 Trade balance

Since 1981 the non-mineral trade balance of Greece with the EU11 countries<sup>18</sup> has followed a deteriorating trend both in terms of percentage in GDP and absolute values. This phenomenon is more evident after 1984 and characterizes the commercial transactions of Greece with all EU11 countries (except the UK) and especially those with Germany, Italy and the Netherlands<sup>19</sup>.

<sup>17</sup> This is one of the main conclusions emerging from the Giannitsis study. In fact, according to him, EU participation has been the main reason behind the negative industrial developments of the 1980s. We are not entirely convinced about the validity of this opinion and we have explained the reasons for not being so in chapter 3. Hassid and Katsos (p.242) also acknowledge that the reduction in effective protection affected Greek industry in a negative way but they share our opinion that EU participation was not the main factor behind that deterioration.

<sup>18</sup> The term EU or EU11 countries refers to the 11 countries which, together with Greece, constituted the EU before its last enlargement. Eastern European countries include Poland, Hungary, Bulgaria, the ex-USSR, ex-Czechoslovakia, ex-East Germany and Romania. EFTA5 includes Sweden, Finland, Austria, Norway and Switzerland.

<sup>19</sup> At present, two thirds of the Greek trade deficit arises in transactions with her EU partners and half the deficit against the EU arises in transactions with Germany and Italy (see the Guide to the Trade Data Appendix at the end of this thesis).

In contrast, after 1981 the non-mineral deficit against non-EU partners took values below its pre-integration levels. However, after the marked improvement which took place in 1981 (see Figure 5.1), the deficit has been increasing throughout the post-integration period. All in all, after 1981 the non-mineral deficit against both the EU and the third countries has been on an ascending path.

### 5.5.3. Other trade developments

One simple (but quite popular) method to obtain *qualitative indications* (not quantitative estimates) concerning the trade effects caused by integration would be to define a base period among the years which preceded integration (years considered as representative of the prevailing pre-integration conditions) and proceed by comparing the observed level of transactions with the values which would be observed if the pre-integration trend had been maintained. An alternative approach would be to make a similar comparison between the actual and projected shares of the most important suppliers and buyers in total imports and exports respectively. This implies that one should select an appropriate base period and unfortunately, such a selection always involves a certain element of arbitrariness<sup>20</sup>. At any rate, the shortcomings of this simple trend-projection approach are many and obvious but, having in mind that the subject under consideration is a very complex one and, as a result, even the use of more sophisticated techniques is bound to produce results incorporating biases, it has been employed in the past by a number of authors who carried studies similar to the present one (see for example Mayes, 1983). The reason is that despite its simplistic character, it can identify, although crudely, any existing clear-cut changes.

Tables 5.3 and 5.4 suggest that on average, during the 1981-92 period both total real non-mineral imports and exports<sup>21</sup> grew at rates lower than in the pre-

<sup>20</sup> The problem is that by using a small base period covering two or three years immediately before integration, one cannot really speak about established trends. On the other hand, as Mayes (1980) argues, trends going too far into the past cannot be reasonably extrapolated into the post-integration period because domestic and international economic conditions are bound to change anyway, irrespective of the integration process (the more we move into the post-integration period the more this statement applies).

<sup>21</sup> Real imports and exports are defined as nominal imports and exports (denominated in billions of current drachmas) divided by the Greek GDP deflator. The data source for imports and exports is the ESYE publication "*The external commerce of Greece, Εξωτερικόν Εμποριόν της Ελλάδος*" (various editions). The Greek GDP deflator series has been taken from the IMF "*International Financial Statistics Yearbook, 1996*" edition.

**Table 5.3**  
**Rate of growth of real non-mineral imports**

Period	GDP growth	Total imports	EU11	EFTA5	Eastern Europe	USA	Japan	ROW
1970-74	4.9	4.9	6.4	0.8	6.6	24.4	-10.2	5.6
1975-80	4.7	7.2	5.9	8.3	15.3	-4.5	25.8	9.1
1981-84	0.9	1.7	7.1	-3.3	-3.8	-8.9	3.7	-3.4
1985-89	2.5	6.2	6.9	8.1	2.7	4.0	-0.2	12.2
1990-92	0.8	0.1	1.9	-3.8	1.1	4.5	1.0	-8.1
1970-80	4.8	6.3	6.1	5.3	11.8	7.1	11.4	7.7
1981-92	1.6	3.2	5.7	1.3	0.1	-0.2	1.4	1.9

*Source: Author's calculations based on data taken from ESYE*

**Table 5.4**  
**Rate of growth of real non-mineral imports**

Period	GDP growth	Total imports	EU11	EFTA5	Eastern Europe	USA	Japan	ROW
1975-80	4.7	6.8	5.5	-6.6	6.3	-1.8	-2.8	15.4
1981-84	0.9	6.3	11.4	20.2	-10.8	24.7	32.8	0.0
1985-89	2.5	3.4	7.2	14.8	1.3	1.8	7.8	-6.8
1990-92	0.8	-1.3	-1.0	-2.5	6.2	-11.6	-6.4	-0.8
1970-80	4.8	10.8	9.8	4.7	8.8	5.2	7.5	19.1
1981-92	1.6	3.2	6.6	12.2	-1.5	6.1	12.6	-3.0

*Source: Author's calculations based on data taken from ESYE*

integration era. This, however, does not apply in the case of the EU countries. In fact, as far as imports from the EU are concerned (Table 5.3), the average growth rate accelerated during the 1980s whereas for the whole post-1981 period it remained almost unaltered (this is the result of the slowdown which appeared in the early 1990s). The post-1981 reduction in the rate of growth of total imports is mainly due to the reduction in the rate of growth from Japan, the Eastern

European countries and the Rest of the World (ROW)<sup>22</sup>. A similar picture appears in the case of exports (Table 5.4). The rate of growth of exports to the EU countries accelerated during the first years of EU membership but declined thereafter. The reduction in the rate of growth of total exports which was observed after 1981 is basically the result of smaller rates of growth for exports to the ROW and (up to 1989) the Eastern European countries. The above elements indicate that a change in the geographical distribution of Greek trade in favour of the EU countries must have taken place and indeed, a glance at Tables 5.5 and 5.6 confirms this fact. As far as exports are concerned, this change is more evident after 1985 whereas in the case of imports it has been evident from the beginning of the post-integration period. In both cases, the increase in the EU share is very significant and leaves little doubt that this is a development which should largely be attributed to the accession of Greece to the EU.

Table 5.7 presents the movement of the share of the EU11 countries in the imports and exports of each of the categories of the GTS<sup>23</sup>. As far as imports are concerned, after 1981 there was a dramatic increase in the EU share in all four agricultural and food categories (C1 live animals and animal products, C2 vegetable products, C3 animal and vegetable fats, C4 prepared foodstuffs, beverages, spirits, vinegar and tobacco), leather and associated products (C8) and textiles (C11). Other categories in which the EU experienced significant increases are wood products etc. (C9), paper products (C10), footwear etc. (C12) and base metals (C15). In the case of transport equipment (C17), the EU share increased but not to an impressive extent whereas in the case of machinery, electrical and increased in all four agricultural and food categories (C1,C2,C3,C4), leather and associated products (C8) and textiles (C11).

In order to examine trend developments in a more detailed way, Figures 5.2 and 5.3 present a comparison between the actual (observed) values of real

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<sup>22</sup> The term ROW denotes all countries excluding the EU and EFTA countries, the Eastern European countries, the USA and Japan.

<sup>23</sup> Categories C19 and C21 have been omitted because their participation in total trade transactions (imports and exports) had always been negligible.

**Table 5.5**  
**Geographical composition of total non-mineral Greek imports**  
 (% in total non-mineral imports)

Period	EU11	EFTA5	Eastern Europe	USA	Japan	ROW
1975-80	53.6	8.5	5.0	6.9	14.6	11.4
1981-84	65.0	6.5	4.3	5.1	8.8	10.4
1985-89	67.6	6.3	3.4	3.5	6.9	12.3
1990-92	68.2	6.1	3.5	4.1	7.0	11.2
1970-80	54.9	8.3	4.7	7.5	12.4	12.2
1981-92	66.9	6.3	3.7	4.2	7.5	11.4
<b>Difference</b> base period: 1970-80	12.0	-2.0	-0.9	-3.3	-4.9	-0.8
<b>Difference</b> base period: 1975-80	13.3	-2.2	-1.3	-2.7	-7.1	-0.1

*Source: Author's calculations based on data taken from ESYE*

**Table 5.6**  
**Geographical composition of total non-mineral Greek exports**  
 (% in total non-mineral exports)

Period	EU11	EFTA5	Eastern Europe	USA	Japan	ROW
1970-74	54.8	4.3	14.5	7.4	1.6	17.4
1975-80	52.3	2.8	12.7	4.3	1.1	26.7
1981-84	55.2	2.8	7.6	4.5	0.8	29.0
1985-89	65.9	5.0	5.1	5.1	1.0	17.9
1990-92	67.4	6.0	4.9	4.1	1.0	16.6
1970-80	53.5	3.5	13.5	5.7	1.4	22.4
1981-92	62.7	4.5	5.9	4.7	0.9	21.3
<b>Difference</b> base period: 1970-80	9.2	1.0	-7.7	-1.0	-0.5	-1.1
<b>Difference</b> base period: 1975-80	10.4	1.7	-6.9	0.4	-0.2	-5.4

*Source: Author's calculations based on data taken from ESYE*



**Table 5.7**  
**Percentage of the EU11 countries in Greek trade transactions**

	IMPORTS				EXPORTS			
			Difference with base period				Difference with base period	
	1970-80	1981-92	1970-80	1975-80	1970-80	1981-92	1970-80	1975-80
<b>Total<sup>1</sup></b>	45.3	57.3	12.1	13.4	53.5	62.7	9.2	10.4
<b>C1</b>	34.4	83.6	49.2	48.0	52.7	69.3	16.6	17.4
<b>C2</b>	10.3	49.2	38.9	41.1	54.4	74.5	20.1	20.4
<b>C3</b>	69.9	87.7	17.8	8.0	59.6	77.9	18.3	17.0
<b>C4</b>	57.4	78.5	21.2	22.6	46.5	52.2	5.7	11.3
<b>C5</b>	11.8	6.3	-5.4	-0.9	45.8	34.8	-11.0	-4.8
<b>C6</b>	74.3	75.6	1.3	0.4	51.7	43.1	-8.6	-7.5
<b>C7</b>	80.0	79.6	-0.5	-1.6	33.7	41.4	7.6	11.7
<b>C8</b>	53.7	78.6	24.9	24.6	55.2	66.5	11.3	6.6
<b>C9</b>	5.5	13.3	7.8	9.0	37.4	31.0	-6.4	-13.9
<b>C10</b>	34.5	43.4	8.9	6.4	14.5	18.6	4.1	5.5
<b>C11</b>	53.4	72.2	18.7	18.6	72.0	80.2	8.2	0.4
<b>C12</b>	45.5	54.4	8.9	1.8	40.3	44.4	4.1	2.0
<b>C13</b>	78.4	80.4	1.9	0.0	16.5	23.9	7.4	6.1
<b>C14</b>	71.3	40.6	-30.7	-31.7	47.0	41.1	-5.9	-7.0
<b>C15</b>	60.1	65.4	5.3	7.2	50.9	48.1	-2.8	1.2
<b>C16</b>	75.2	72.5	-2.7	-0.4	37.3	47.8	10.5	23.9
<b>C17</b>	45.1	48.6	3.5	2.7	19.7	25.6	5.9	11.0
<b>C18</b>	59.1	60.0	0.9	0.8	9.8	40.1	30.4	30.0
<b>C20</b>	69.9	72.2	2.3	3.8	48.5	41.0	-7.5	0.9

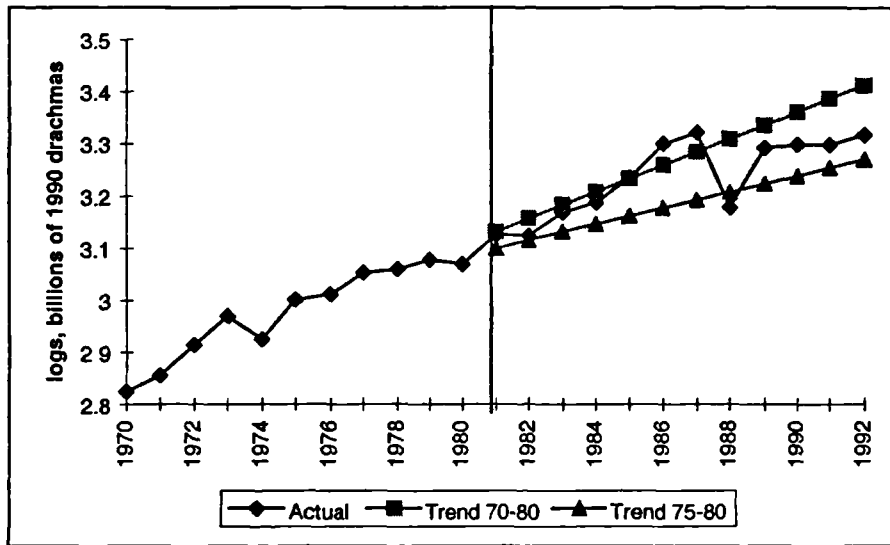
1: Excluding mineral products (C5)

Source: Author's calculations based on ESYE data

The definitions of the categories can be found in the Appendix.

Figure 5.2

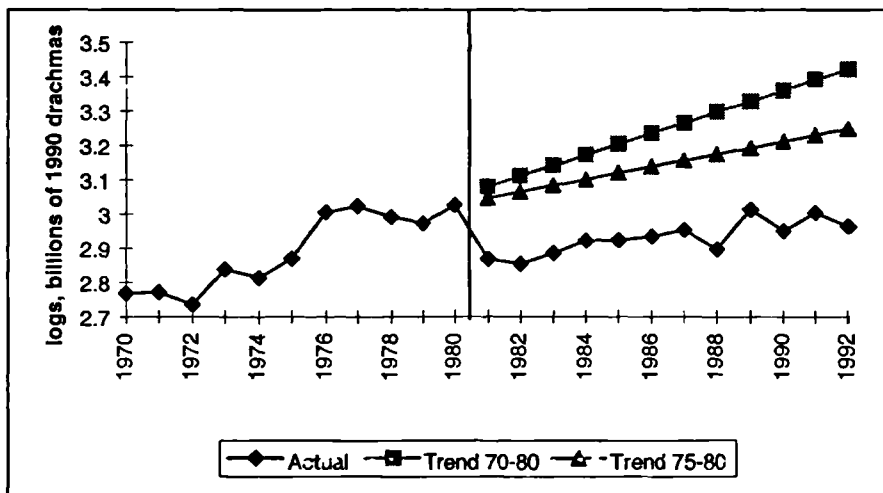
Real non-mineral imports from the EU: actual and projected values



Source: Author's calculations based on data taken from ESYE

Figure 5.3

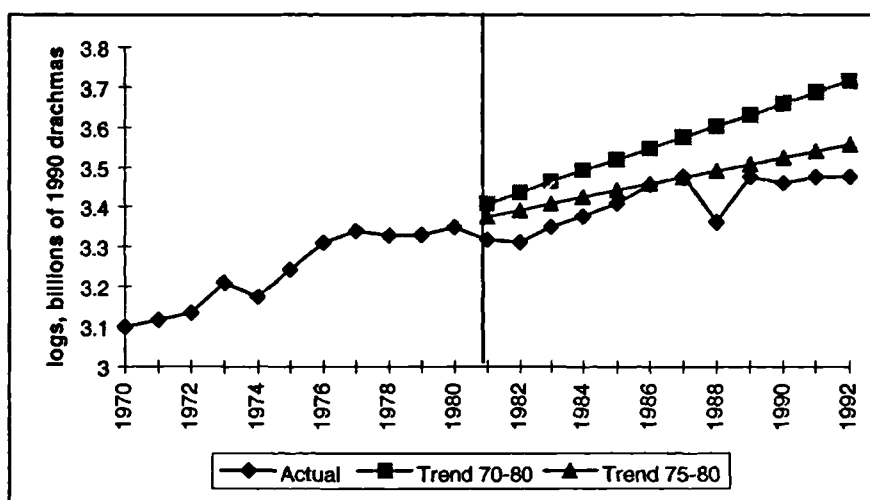
Real non-mineral imports from non-EU countries:  
actual and projected values



Source: Author's calculations based on data taken from ESYE

Figure 5.4

## Total real non-mineral imports: actual and projected values



Source: Author's calculations based on data taken from ESYE

imports from the EU and the non-EU countries as well as their trend-projected values. The two selected base periods are 1970-80 and 1975-80<sup>24</sup>. For the non-EU11 countries, actual imports have been smaller than their projected values throughout the period under consideration. Of course, this fact *per se* is not entirely surprising given the slowdown of the rate of growth of the Greek economy and the slow-down of world trade which took place in the 1980s (see also Figure 5.4 which presents the movements of total non-mineral Greek imports). However, taking into consideration the corresponding developments in imports from the EU, for which imports have taken values significantly greater than their 1975-80 projections, as well as the magnitude of the deviation from the trend line, it is plausible to argue that Figure 5.3 indicates that EU participation is related to this deviation, at least during the first years after 1981.

The developments described above may be better displayed in terms of movements of the shares of the various suppliers in total Greek imports (see Figure 5.5)<sup>25</sup>. The last graph in Figure 5.5 reveals that using both base periods, the

<sup>24</sup> The information available at the ESYE headquarters allowed the author to construct data sets for trade flows classified according to the GTS classification for the period 1970-92 only.

<sup>25</sup> The categories presented in Figure 5.5 account for more than 75% of total Greek imports and more than 90% of total non-mineral Greek imports.

Figure 5.5  
Imports: Actual and projected shares of EU countries

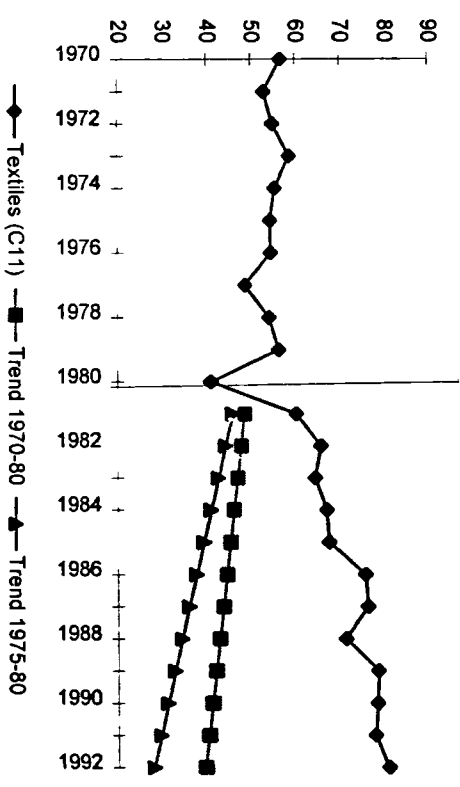
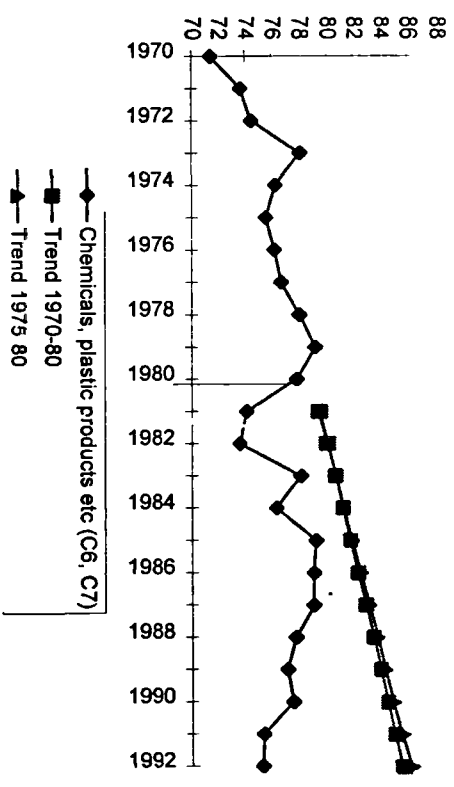
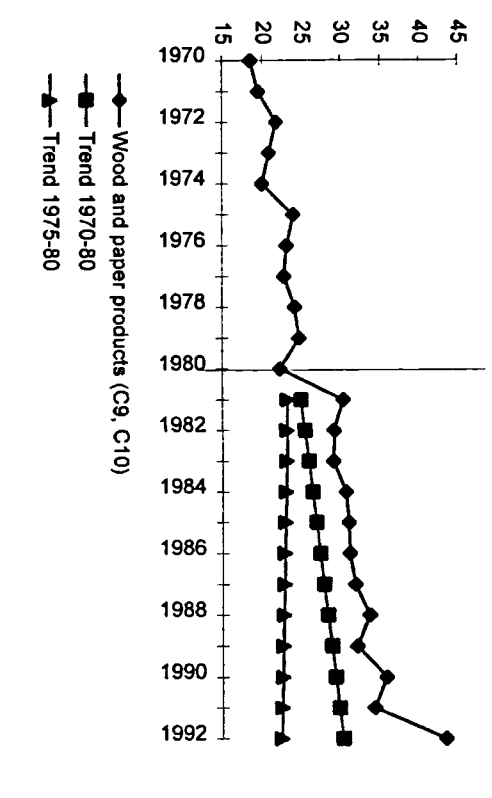
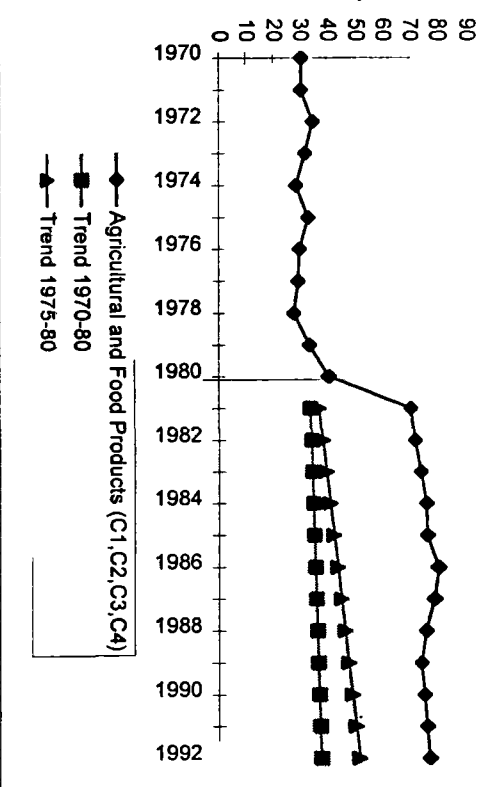


Figure 5.5  
Imports: Actual and projected shares of EU countries

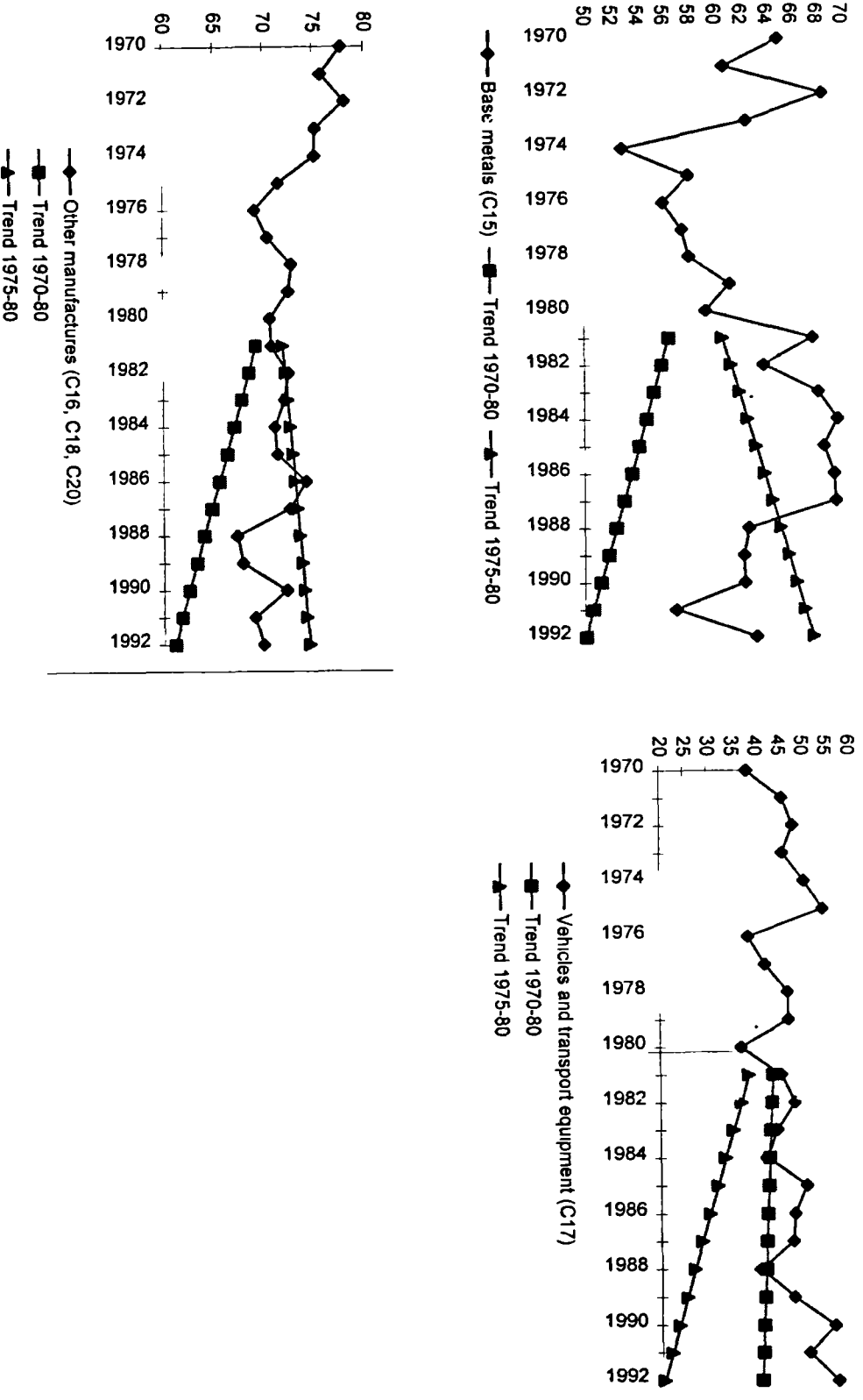
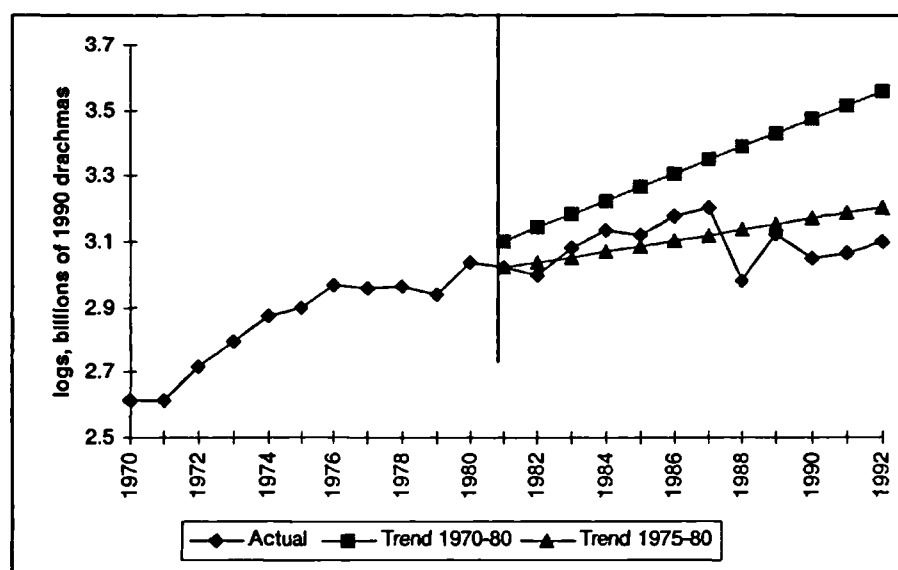


Figure 5.6

## Total real non-mineral exports: actual and projected values



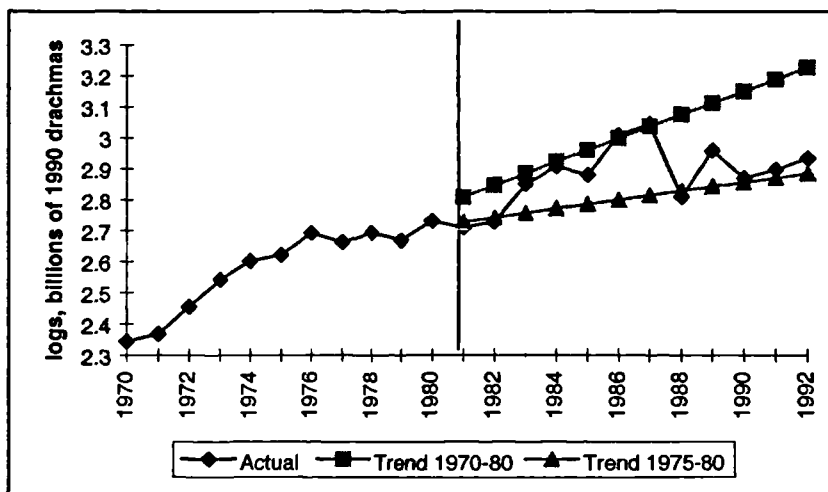
Source: Author's calculations based on data taken from ESYE

actual share of the EU countries in total Greek imports is much greater than its projected values throughout the post-1981 period. Figure 5.5 also reveals that actual EU shares are impressively higher than their projections in the case of prepared foodstuffs and agricultural products, wood and paper products, textiles, vehicles and transport equipment and, up to 1986, base metals. Actual EU shares have been consistently smaller than projected ones only in the case of chemicals and plastic products.

To turn now to exports, Figure 5.6 reveals that after 1981 actual total exports have been consistently below their 1970-80 projections but in 1983-87 they were equal or even slightly higher than their 1975-80 ones. During those years, real exports to the EU countries took values above their 1975-80 projections (see Figure 5.7). The opposite phenomenon is observed in the case of exports to non-EU countries (see Figure 5.8). However, in contrast to the case of imports, Figure 5.7 *per se* does not indicate that EU participation has necessarily contributed to an increase in exports to the European countries. The point is that during the late 1970s and the early 1980s the EU members faced a recession from which they started recovering in 1983. Therefore, the positive difference between

Figure 5.7

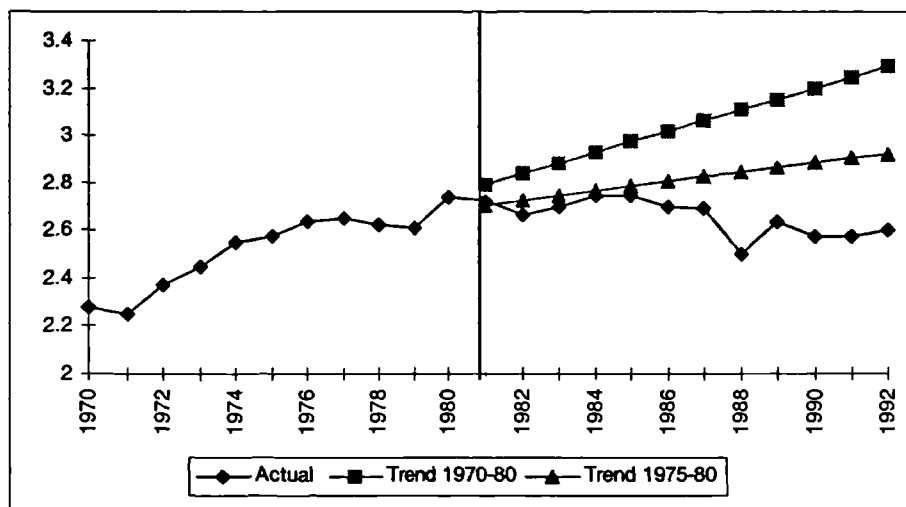
Real non-mineral exports to the EU: actual and projected values



Source: Author's calculations based on data taken from ESYE

Figure 5.8

Real non-mineral exports to non EU-11 countries:  
actual and projected values



Source: Author's calculations based on data taken from ESYE

actual and projected exports may reflect, at least partly, an improvement in demand conditions in the main exporting markets of Greece. Further evidence for this view is provided by the negative export developments which took place in the early 1990s which coincided with a European recession (but also with the abolition of export subsidies and the strong drachma policy). Finally, the last

Figure 5.9  
Exports: Actual and projected shares of EU countries

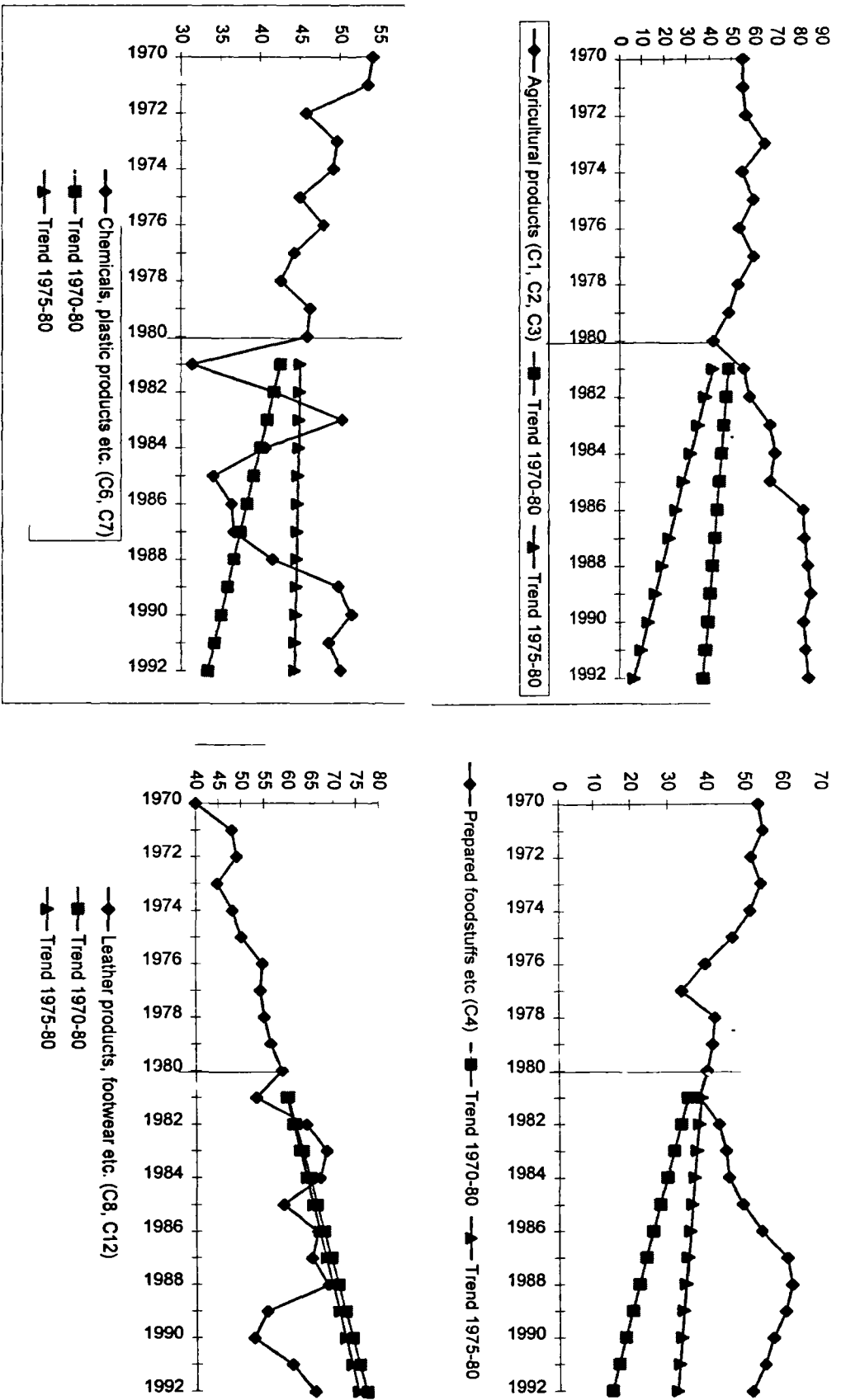
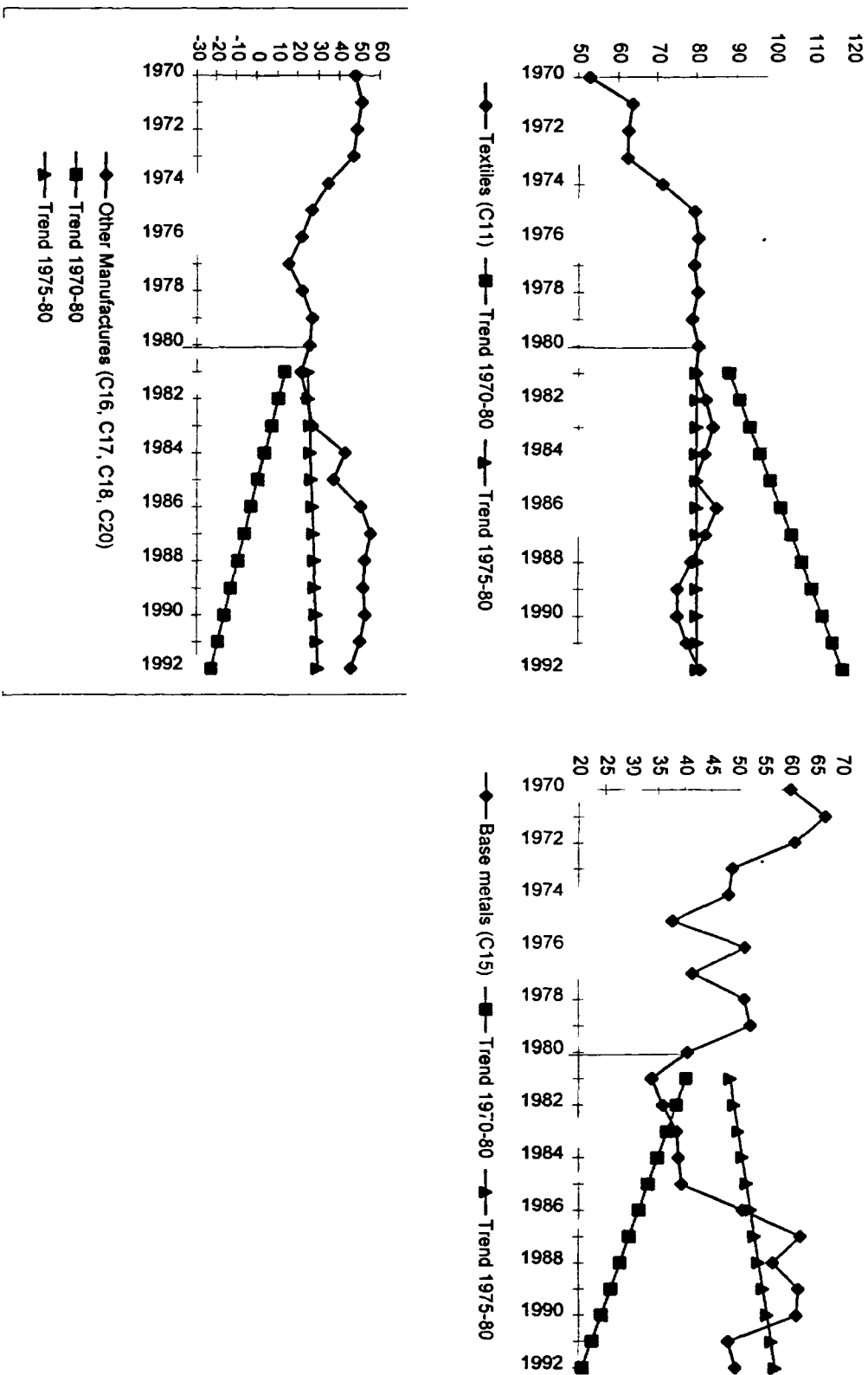




Figure 5.9  
Exports: Actual and projected shares of EU countries



graph in Figure 5.9 shows that since 1981 the actual share of the EU in total Greek exports has been significantly higher than its projections. Figure 5.9 also shows that the share of EU countries has moved along its 1975-80 trend in the case of textiles, footwear and leather products (up to 1988); has been typically smaller than its 1975-80 projections in the cases of chemicals, plastic products and base metals; and significantly higher in the cases of C4 (agricultural products, prepared foodstuffs, tobacco and vinegar)<sup>26</sup>, and the category defined as "other manufactures"<sup>27</sup>.

All in all, this sub-section has provided indications that EU participation has caused some trade effects among which the main ones are the following: first, the geographic distribution of Greek trade has been reoriented towards the European partner countries; For some categories, such as agricultural products, this reorientation assumed dramatic dimensions; second, EU participation must have led to an increase in the level of real imports from the EU countries. This is so because despite the stagnation which characterized the Greek economy in the 1980s and the world trade slowdown, actual imports from the EU have been considerably greater than those predicted by the trend established in the high-growth pre-integration era. Finally, it is not certain that EU participation has contributed to an increase in Greek exports to the EU as the positive difference between the actual and projected values which is observed during the 1983-87 period (only) may just be reflecting the improvement of demand conditions in European markets.

#### **5.6. Competitiveness, revealed comparative advantage, intra and inter-industry trade specialization**

It will be remembered from section 5.4 that the proponents of EU participation had placed high hopes on the export potential offered by the large, high-income EU market. More specifically, it was expected that the Greek

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<sup>26</sup> C4 represents approximately 15% of total Greek exports but only 4% of total Greek imports. As a result, in the case of exports it is examined separately.

<sup>27</sup> C17 (i.e. vehicles, aircraft, vessels and certain associated transport equipment) represents less than 1% of total Greek exports but around 15% of Greek imports. As a result, in the case of exports we have included C17 along with C16, C18 and C20 in the category defined as "other manufactures". In the case of imports however, it is examined separately.

participation in the EU would provide better export opportunities, it would lead to an increase in competitiveness and it would contribute to the realization of economies of scale. In this section we investigate whether there are indications that these expectations have been fulfilled. To this purpose we examine the movements of the share which the Greek products occupied in the European markets as well as the movements of two indices, namely the Balassa Index and the Adjusted Grubel-Lloyd Index.

### **5.6.1. Shares of Greek exports in foreign markets**

One obvious way to examine competitiveness developments would be to examine the market shares obtained by Greek exports in European countries. Table 5.8 presents the development of these shares in a number of countries which cover more than 70% of total Greek exports<sup>28</sup>. The main message is that after 1981, in most cases, average Greek shares have increased but this increase is not particularly spectacular and it was discontinued in 1988-89. Furthermore, Table 5.8 suggests that the most substantial market gains in EU markets took place during the second half of the 1980s (excluding 1988). In contrast, with the exception of Italy, the early 1990s (which coincide with the application of the strong drachma policy) are characterized by substantial losses in all EU markets. In addition, Table 5.8 suggests that after 1981 Greece managed to improve its share performance in the markets of all EFTA5 countries and this improvement is a continued one, taking place throughout the post-integration period. However, it should be remembered that the importance of these countries in total Greek exports is rather limited.

All in all, Table 5.8 provides some modest evidence in favour of the optimistic predictions. The point is that despite the overall slowdown which the Greek economy experienced in the 1980s, Greek firms managed (at least until 1988) to retain and increase slightly their market shares in most European markets. This has happened because during the first years of EU participation (1981-87) the rate of growth of Greek exports remained higher than the rate of

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<sup>28</sup>Data for international imports has been taken from the International Financial Statistics Yearbook 1996 (IMF publication). Data for Greek exports in dollar values has been taken from the Monthly Statistical Bulletin of the BOG (various editions). Both variables are expressed in millions of current US Dollars. Due to the lack of appropriate disaggregated data sets for international imports, the analysis which follows is in terms of total exports only.

**Table 5.8**  
**Greek share in total imports of European countries**

	1970-74	1975-79	1980-84	1985-89	1990-93	1970-80	1981-93
<b>France</b>	0.25	0.27	0.30	0.35	0.30	0.26	0.32
<b>Belgium-Lux.</b>	0.20	0.14	0.13	0.19	0.17	0.17	0.16
<b>Netherlands</b>	0.27	0.29	0.25	0.26	0.22	0.29	0.24
<b>Germany</b>	0.49	0.58	0.54	0.63	0.54	0.53	0.58
<b>Italy</b>	0.43	0.51	0.55	0.77	0.83	0.48	0.72
<b>UK</b>	0.18	0.20	0.22	0.29	0.29	0.19	0.27
<b>Ireland</b>	0.03	0.05	0.09	0.12	0.07	0.04	0.10
<b>Denmark</b>	0.06	0.14	0.21	0.23	0.21	0.11	0.22
<b>Portugal</b>	0.11	0.11	0.11	0.11	0.10	0.12	0.10
<b>Spain</b>	0.25	0.14	0.09	0.14	0.18	0.19	0.13
<b>Norway</b>	0.05	0.05	0.03	0.10	0.15	0.05	0.09
<b>Sweden</b>	0.18	0.14	0.08	0.18	0.24	0.15	0.16
<b>Finland</b>	0.08	0.06	0.09	0.18	0.26	0.07	0.17
<b>Switzerland</b>	0.12	0.11	0.11	0.16	0.19	0.11	0.15
<b>Austria</b>	0.23	0.19	0.18	0.24	0.26	0.20	0.23
<b>Cyprus</b>	5.33	8.50	5.77	7.12	9.03	6.90	7.07
<b>USA</b>	0.12	0.10	0.12	0.10	0.08	0.11	0.10

*Source: Author's calculations based on IMF and Bank of Greece data*

growth of European markets. Given the developments which took place in the Greek economy during that period and the slowdown of exports to the ROW, it is plausible to argue that EU participation is probably the main explanation for this fact.

### 5.6.2. Competitiveness developments (Balassa Index)

Another way to acquire indications regarding the competitiveness gains or losses caused by the accession of Greece to the EU is to examine movements of the trade index proposed by Balassa (1965). The latter is defined as follows:

$$B = (X_{kt} - M_{kt}) / (X_{kt} + M_{kt}). \quad (1)$$

where  $X_{kt}$  is exports of commodity  $k$  in time  $t$  and  $M_{kt}$  represents imports of commodity  $k$  in time  $t$ . The use of this index is particularly appropriate in cases like the Greek one where data referring to domestic production are either non-existent or provide limited information<sup>29</sup>. An increase in  $B$  indicates that the rate of growth of exports is greater than the rate of growth of imports, therefore the country under consideration has improved its competitive position against its competitors. A continuous rise in  $B$ , leading to a positive value for the index, would indicate the development of comparative advantage in the production of the group of commodities under consideration. Tables 5.9 and 5.10 present the movements of the Balassa index for total trade transactions and transactions with the EU11 countries for the period 1970-92. As far as total transactions are concerned, the Balassa index was negative for 13 out of the 19 categories of the GTS. According to Table 5.9 Greece has revealed a comparative advantage in the production of vegetable products (C2), animal and vegetable fats (C3), prepared foodstuffs, beverages, spirits, vinegar and tobacco (C4), leather products (C8), textiles (C11) and footwear (C12).

During the period between 1970 and 1980, for most of the categories under consideration the Balassa Index was on an ascending path, a fact which indicates that during those years an improvement in the competitiveness of domestic production was taking place. During the first four years of EU participation (1981-84) this trend was maintained only for 9 out of the 19 categories. In contrast, since 1985 a general tendency for deterioration has appeared. In some sectors, the competitiveness losses are particularly pronounced after 1989. With regard to the

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<sup>29</sup> Both the Giannitsis and the Hassid-Katsos studies have made use of this index. However, it has been applied on different data sets and for shorter time periods (see above). Nevertheless, the results of this section can be seen as a confirmation and an update of their own.

Table 5.9

## Balassa Index (total transactions)

Period	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C20
1970-74	-0.81	0.27	0.09	0.51	-0.46	-0.54	-0.75	0.15	-0.88	-0.85	0.02	0.78	-0.83	-0.36	-0.26	-0.94	-0.97	-0.94	-0.49
1975-80	-0.85	0.32	0.25	0.54	-0.45	-0.53	-0.65	0.21	-0.74	-0.78	0.23	0.82	-0.69	-0.55	-0.13	-0.84	-0.96	-0.87	-0.46
1981-84	-0.91	0.44	0.59	0.39	-0.52	-0.55	-0.63	-0.20	-0.76	-0.69	0.24	0.45	-0.55	-0.25	-0.16	-0.80	-0.94	-0.87	-0.67
1985-89	-0.88	0.25	0.49	0.23	-0.35	-0.65	-0.72	0.02	-0.80	-0.74	0.23	0.06	-0.63	-0.37	-0.22	-0.84	-0.96	-0.92	-0.79
1990-92	-0.81	0.23	0.45	0.12	-0.35	-0.68	-0.73	0.03	-0.74	-0.79	0.10	-0.54	-0.58	-0.72	-0.25	-0.83	-0.96	-0.91	-0.80
1970-80	-0.83	0.30	0.18	0.53	-0.45	-0.53	-0.69	0.19	-0.80	-0.81	0.14	0.80	-0.76	-0.46	-0.19	-0.89	-0.97	-0.90	-0.47
1981-92	-0.87	0.31	0.51	0.25	-0.41	-0.62	-0.69	-0.05	-0.77	-0.74	0.20	0.04	-0.59	-0.41	-0.21	-0.83	-0.95	-0.90	-0.75
Difference																			
base period: 1970-80	-0.04	0.01	0.33	-0.28	0.05	-0.09	0.00	-0.24	0.03	0.08	0.06	-0.76	0.17	0.05	-0.02	0.06	0.02	0.00	-0.28
Difference																			
base period: 1975-80	-0.03	-0.01	0.26	-0.29	0.04	-0.09	-0.04	-0.26	-0.03	0.04	-0.03	-0.78	0.10	0.14	-0.08	0.02	0.01	-0.03	-0.29

Table 5.10

## Balassa Index (transactions with the EU11 countries)

Period	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C20
1970-74	-0.70	0.81	0.10	0.49	0.06	-0.64	-0.87	0.11	-0.52	-0.92	0.08	0.78	-0.72	-0.55	-0.30	-0.96	-0.98	-0.99	-0.54
1975-80	-0.79	0.84	0.07	0.41	0.39	-0.66	-0.85	0.26	0.14	-0.92	0.42	0.80	-0.46	-0.65	-0.25	-0.94	-0.99	-0.97	-0.65
1981-84	-0.94	0.63	0.47	0.13	0.18	-0.69	-0.86	-0.26	-0.53	-0.94	0.35	0.52	-0.78	-0.30	-0.44	-0.90	-0.99	-0.93	-0.84
1985-89	-0.89	0.41	0.42	0.08	0.50	-0.81	-0.84	-0.06	-0.56	-0.86	0.27	0.01	-0.80	-0.34	-0.32	-0.88	-0.97	-0.95	-0.88
1990-92	-0.81	0.41	0.46	-0.07	0.44	-0.79	-0.80	-0.08	-0.50	-0.87	0.09	-0.62	-0.71	-0.71	-0.32	-0.87	-0.97	-0.92	-0.84
1970-80	-0.75	0.82	0.08	0.45	0.24	-0.65	-0.86	0.20	-0.16	-0.92	0.27	0.79	-0.58	-0.61	-0.27	-0.95	-0.98	-0.98	-0.60
1981-92	-0.89	0.48	0.45	0.06	0.38	-0.76	-0.83	-0.13	-0.54	-0.89	0.25	-0.05	-0.77	-0.42	-0.36	-0.88	-0.98	-0.93	-0.86
Difference																			
base period: 1970-80	-0.14	-0.34	0.36	-0.39	0.14	-0.11	0.03	-0.33	-0.37	0.03	-0.02	-0.84	-0.19	0.19	-0.09	0.07	0.01	0.05	-0.26
Difference																			
base period: 1975-80	-0.10	-0.36	0.37	-0.36	-0.01	-0.11	0.02	-0.40	-0.67	0.03	-0.18	-0.84	-0.31	0.24	-0.11	0.06	0.01	0.04	-0.21

Source: Author's calculations based on ESYE data

agricultural categories, after 1981 Greece has suffered substantial competitiveness losses against the EU11 countries in three out of four categories, namely C1 (live animals and animal products), C2 (vegetable products, especially after 1989) and C4 (prepared foodstuffs, beverages, spirits, vinegar and tobacco). Favourable developments have taken place only in the case of C3 (animal and vegetable fats). In terms of total transactions, Greece appears to have experienced significant losses only in the case of C2 which, however, is the second most important non-mineral exporting category after textiles. As far as the industrial categories are concerned, the movements of the indices referring to transactions with the EU11 countries suggest that after 1981 Greece has suffered significant competitiveness losses in those sectors where she had traditionally displayed the possession of comparative advantage, that is to say leather and associated products (C8), footwear etc. (C12) and textiles (C11). In the latter two cases, the deterioration is very impressive during the 1989-92 period. In addition, it appears that the position of Greece against its European partners has deteriorated in four categories where domestic production existed but Greece had not possessed a comparative advantage. These categories are chemicals (C6), wood products etc. (C9), base metals and miscellaneous manufactured articles (C20). On the other hand, some modest gains against EU competitors have taken place in the cases of machinery, mechanical and electrical appliances (C16) and C18 (various products). No change appears in the case of transport equipment. Speaking in terms of total transactions, Greece has lost ground in the fields of chemicals (C6), base metals (C15) and miscellaneous articles (C20); and that there have been some modest gains in the case of machinery, mechanical and electrical appliances (C16) but not in the case of C18 (various manufactures)

To sum up, the information presented in this sub-section provides evidence in favour of the pessimistic scenario. It appears that Greece has experienced competitiveness losses in the case of its main exporting agricultural category (prepared foodstuffs, beverages, spirits, tobacco) as well as in those industrial categories in which it possesses a comparative advantage. This implies that after 1981 Greece has lost part of its comparative advantages whereas her position in most of the other categories has deteriorated. These results are almost in perfect

accordance with the ones obtained by Giannitsis and Hassid and Katsos. However, a new element which has emerged from our analysis is that in most of the sectors (including some traditional ones like footwear and the two main exporting ones, i.e. vegetable products and textiles) the competitiveness losses are very pronounced after 1989, i.e. after the abolition of export subsidies and the introduction of the strong-drachma policy. From that point of view, events took a different course to that predicted by Hassid and Katsos who had claimed that “by no means should we consider that it [the decline in competitiveness] will be continued in the future and that the Greek industrial sector will continue to be in a disadvantageous position” (p.233).

### 5.6.3. Intra and inter-industry specialization

One of the most interesting aspects of international trade data is the distinction between inter- and intra-industry transactions. The former originates from the ability of countries to exploit comparative advantages in producing certain products as well as from the availability of certain production factors. The latter stems from product differentiation and the realization of economies of scale.

It will be remembered that one of the basic arguments in favour of the participation of Greece in the EU was that such a participation would (a) lead to a better exploitation of any comparative advantage in sectors in which Greece possessed such advantage and (b) would lead to the realization of economies of scale and the improvement of product differentiation in Greek industry. That would lead to an expansion of the supply side and further improvement in competitiveness. This implies that in those sectors in which Greece possesses a comparative advantage, the inter-industry character of trade flows would be intensified; and in those sectors in which Greece had a disadvantage a higher degree of intra-industry trade would take place. It would now be interesting to see whether such developments have indeed occurred. This can be done by means of examining the movements of the Adjusted Grubel-Lloyd Index (see Balassa and Bauwens 1988, Neven, 1990). The latter, which presents a certain degree of similarity with the Balassa index presented above, is defined as follows:

$$AGL_{ijk} = 1 - \left\{ \left| (X_{ijk} / X_{ij}) - (M_{ijk} / M_{ij}) \right| / \left[ (X_{ijk} / X_{ij}) + (M_{ijk} / M_{ij}) \right] \right\} \quad (2)$$



where  $X_{ijk}$  = Exports of country  $i$  to country  $j$  for commodity  $k$ ,  $M_{ijk}$  = Imports of country  $i$  from country  $j$  for commodity  $k$ ,  $X_{ij}$  = Total exports of country  $i$  to country  $j$ ,  $M_{ij}$  = Total imports of country  $i$  from country  $j$ . When the AGL index is equal to unity, exports and imports of country  $i$  from country  $j$  for commodity  $k$  (as percentage of total exports and imports of each country) are equal. This means that trade between the two countries is entirely intra-industry. In contrast, in case  $GLI_{ijk}$  is equal to zero it follows that either imports or exports are equal to zero therefore trade between the two countries is purely inter-industry .

Tables 5.11 and 5.12 present the value of the AGL index for total transactions and transactions with the EU11 countries respectively for the period 1971-92. The main messages emerging are the following: first, the external trade of Greece had always been (and continues to be) predominantly inter-industry: during the period 1981-92, the AGL index referring to total transactions was higher than 0.5 only in 10 out of 19 cases. Excluding C5 (mineral products), these categories represented, on average, 27.1% of total Greek imports and 27% of total Greek exports. In the case of transactions with the EU, there were only 7 out of 19 categories with an AGL index higher than 0.5.

Second, after 1981 there has not been any significant turn to a higher degree of intra-industry trade. It is, of course, true that in terms of total transactions, 10 out of the 19 indices moved in the direction of unity. The same holds true in the case of the EU11 countries where only five categories (namely C1, C3, C5, C6 and C20) did not follow the general rule and instead of moving towards unity moved towards zero. However, speaking in terms of overall transactions, the categories which moved towards unity represent on average 50.5% of total exports and 51.7% of total imports.

In addition, developments regarding the AGL index should be examined taking into consideration the deficit or surplus contribution of each category. The point is that if an AGL index referring to a surplus-creating category moves towards zero, this implies that the partner country has achieved penetration in the domestic market for that particular commodity which, in percentage terms, is higher than the penetration the home country has achieved in the market of the

Table 5.11

## Adjusted Grubel-Lloyd Index - Total Transactions

Year	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C20
1970	0.42	0.24	0.95	0.16	0.98	1.00	0.60	0.42	0.11	0.38	0.55	0.15	0.55	0.80	0.64	0.10	0.03	0.14	0.83
1971	0.50	0.33	0.65	0.17	0.98	0.96	0.63	0.38	0.20	0.40	0.50	0.09	0.73	0.77	0.80	0.14	0.03	0.13	0.76
1972	0.55	0.25	0.18	0.22	0.85	0.93	0.51	0.42	0.25	0.38	0.54	0.07	0.69	0.80	0.86	0.16	0.04	0.14	0.79
1973	0.25	0.36	0.42	0.29	0.82	0.82	0.41	0.51	0.34	0.29	0.51	0.07	0.68	0.96	0.86	0.15	0.07	0.15	0.85
1974	0.42	0.68	0.37	0.27	0.84	0.74	0.63	0.42	0.45	0.33	0.54	0.04	0.83	0.89	0.76	0.20	0.13	0.16	0.87
1975	0.51	0.44	0.35	0.30	0.91	0.86	0.63	0.37	0.49	0.26	0.53	0.03	0.80	0.86	0.70	0.28	0.13	0.29	1.00
1976	0.31	0.37	0.45	0.18	0.83	0.79	0.66	0.41	0.70	0.30	0.40	0.04	0.76	0.86	0.63	0.37	0.13	0.29	1.00
1977	0.36	0.31	0.63	0.19	0.92	0.88	0.70	0.40	0.58	0.39	0.45	0.05	0.81	0.84	0.72	0.35	0.14	0.35	0.97
1978	0.24	0.40	0.15	0.21	1.00	0.79	0.70	0.44	0.46	0.31	0.40	0.10	0.96	0.59	0.74	0.33	0.04	0.34	0.88
1979	0.28	0.38	0.31	0.22	0.98	0.72	0.62	0.48	0.46	0.68	0.38	0.12	0.89	0.65	0.71	0.36	0.04	0.18	0.81
1980	0.24	0.30	0.65	0.24	0.99	0.94	0.65	0.50	0.42	0.67	0.40	0.16	0.99	0.98	0.80	0.31	0.06	0.26	0.81
1981	0.20	0.30	0.47	0.39	0.92	0.70	0.72	0.98	0.42	0.70	0.50	0.19	0.95	1.00	0.77	0.42	0.16	0.25	0.65
1982	0.17	0.35	0.18	0.31	0.81	0.85	0.74	0.80	0.48	0.66	0.43	0.32	0.84	0.76	0.82	0.44	0.16	0.33	0.50
1983	0.15	0.30	0.09	0.31	0.73	0.78	0.61	0.80	0.48	0.45	0.42	0.33	0.83	0.89	0.85	0.34	0.15	0.27	0.62
1984	0.18	0.27	0.17	0.36	0.77	0.74	0.54	0.67	0.43	0.45	0.44	0.37	0.87	0.85	0.73	0.31	0.07	0.21	0.62
1985	0.19	0.32	0.30	0.38	0.78	0.76	0.55	0.70	0.40	0.52	0.42	0.37	0.84	0.82	0.75	0.35	0.53	0.53	0.53
1986	0.18	0.45	0.17	0.39	0.82	0.54	0.49	0.63	0.35	0.46	0.46	0.33	0.91	0.85	0.79	0.85	0.09	0.18	0.44
1987	0.23	0.52	0.30	0.42	0.87	0.53	0.54	0.62	0.33	0.43	0.44	0.49	0.97	0.89	0.91	0.29	0.11	0.15	0.37
1988	0.32	0.61	0.53	0.56	0.69	0.59	0.48	0.58	0.48	0.43	0.47	0.89	0.97	0.94	0.82	0.29	0.06	0.15	0.33
1989	0.30	0.34	0.13	0.56	0.81	0.66	0.48	0.59	0.36	0.53	0.51	0.96	0.97	0.83	0.89	0.30	0.05	0.13	0.33
1990	0.36	0.45	0.21	0.48	0.83	0.67	0.50	0.59	0.45	0.44	0.51	0.96	0.97	0.65	0.91	0.36	0.07	0.19	0.40
1991	0.44	0.38	0.53	0.49	0.88	0.67	0.52	0.55	0.52	0.46	0.49	0.74	1.00	0.70	0.82	0.38	0.09	0.22	0.45
1992	0.42	0.39	0.12	0.49	0.97	0.58	0.63	0.53	0.65	0.45	0.49	0.75	0.99	0.36	0.71	0.40	0.14	0.21	0.44
1970-74	0.43	0.37	0.51	0.22	0.89	0.89	0.56	0.43	0.27	0.36	0.53	0.08	0.69	0.85	0.78	0.15	0.06	0.14	0.82
1975-80	0.32	0.37	0.42	0.23	0.94	0.83	0.66	0.44	0.52	0.43	0.42	0.08	0.87	0.80	0.72	0.33	0.09	0.28	0.91
1981-84	0.17	0.31	0.23	0.17	0.81	0.77	0.65	0.82	0.45	0.57	0.45	0.30	0.87	0.87	0.79	0.38	0.13	0.27	0.60
1985-89	0.25	0.45	0.29	0.46	0.79	0.62	0.51	0.62	0.39	0.47	0.46	0.61	0.92	0.84	0.85	0.31	0.08	0.17	0.40
1990-92	0.41	0.40	0.29	0.49	0.89	0.64	0.55	0.56	0.54	0.45	0.50	0.82	0.95	0.57	0.82	0.38	0.10	0.21	0.43
Difference (1970-80 base period)	-0.11	0.02	-0.20	0.20	-0.09	-0.19	-0.05	0.24	0.04	0.10	-0.01	0.48	0.14	-0.03	0.08	0.10	0.03	-0.01	-0.40
Difference (1975-80 base period)	-0.06	0.02	-0.16	0.20	-0.11	-0.16	-0.09	0.24	-0.07	0.06	0.04	0.48	0.06	-0.01	0.11	0.02	0.01	-0.07	-0.44

Source: Author's calculations based on ESYE data

Table 5.12

## Adjusted Grubel-Lloyd Index - Transactions with the EU11 countries

Year	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C20
1970	0.66	0.06	0.82	0.17	0.67	0.85	0.46	0.53	0.26	0.30	0.60	0.13	0.07	0.94	0.69	0.08	0.02	0.01	0.60
1971	0.65	0.08	0.71	0.19	0.67	0.79	0.39	0.43	0.42	0.20	0.46	0.11	0.07	0.86	0.80	0.10	0.02	0.01	0.59
1972	0.88	0.09	0.12	0.24	0.74	0.76	0.21	0.40	0.90	0.25	0.48	0.08	0.14	0.81	0.91	0.12	0.02	0.01	0.70
1973	0.49	0.11	0.25	0.32	0.27	0.61	0.17	0.57	0.91	0.15	0.52	0.08	0.27	0.75	0.98	0.08	0.04	0.04	0.85
1974	0.36	0.07	0.62	0.33	0.36	0.53	0.27	0.50	0.75	0.08	0.51	0.06	0.57	0.66	0.89	0.07	0.08	0.03	0.98
1975	0.41	0.05	0.35	0.37	0.29	0.62	0.23	0.38	0.42	0.13	0.44	0.06	0.64	0.70	0.98	0.07	0.08	0.08	0.72
1976	0.40	0.08	0.58	0.28	0.47	0.57	0.25	0.46	0.31	0.09	0.34	0.05	0.34	0.59	0.77	0.10	0.06	0.06	0.70
1977	0.50	0.05	0.72	0.31	0.49	0.65	0.30	0.41	0.43	0.09	0.32	0.06	0.35	0.54	0.92	0.11	0.02	0.04	0.72
1978	0.41	0.10	0.20	0.32	0.37	0.52	0.32	0.45	0.56	0.12	0.32	0.14	0.27	0.34	0.87	0.11	0.00	0.04	0.51
1979	0.34	0.09	0.41	0.34	0.34	0.51	0.27	0.46	0.63	0.23	0.31	0.15	0.31	0.47	0.83	0.15	0.00	0.02	0.50
1980	0.25	0.11	0.89	0.41	0.17	0.65	0.28	0.53	0.97	0.21	0.26	0.17	0.30	0.84	0.92	0.13	0.01	0.06	0.45
1981	0.18	0.11	0.68	0.60	0.39	0.50	0.28	0.93	0.99	0.17	0.36	0.23	0.46	0.67	0.96	0.38	0.02	0.12	0.38
1982	0.11	0.27	0.22	0.48	0.53	0.68	0.28	0.92	0.86	0.12	0.36	0.39	0.34	0.89	0.90	0.19	0.04	0.22	0.36
1983	0.09	0.20	0.10	0.50	0.58	0.61	0.28	0.87	0.66	0.08	0.36	0.50	0.29	0.71	0.83	0.16	0.02	0.14	0.31
1984	0.11	0.21	0.23	0.58	0.49	0.46	0.25	0.76	0.63	0.11	0.42	0.49	0.33	0.93	0.93	0.32	0.03	0.08	0.32
1985	0.13	0.26	0.50	0.58	0.26	0.38	0.26	0.84	0.57	0.16	0.41	0.50	0.36	0.89	0.92	0.22	0.02	0.11	0.28
1986	0.14	0.43	0.26	0.56	0.43	0.26	0.26	0.71	0.65	0.17	0.45	0.41	0.44	0.76	0.92	0.23	0.05	0.11	0.20
1987	0.19	0.48	0.36	0.54	0.33	0.23	0.33	0.75	0.69	0.28	0.45	0.54	0.49	0.62	0.98	0.22	0.10	0.11	0.21
1988	0.29	0.44	0.58	0.68	0.20	0.47	0.32	0.63	0.92	0.37	0.44	0.84	0.60	0.92	0.89	0.24	0.06	0.11	0.21
1989	0.28	0.20	0.12	0.69	0.25	0.47	0.31	0.73	0.70	0.31	0.55	0.79	0.55	0.80	0.92	0.24	0.03	0.08	0.19
1990	0.35	0.32	0.20	0.60	0.26	0.50	0.36	0.72	0.78	0.31	0.53	0.79	0.62	0.65	0.92	0.28	0.05	0.14	0.32
1991	0.42	0.29	0.59	0.65	0.26	0.45	0.40	0.66	0.86	0.31	0.51	0.70	0.61	0.66	0.93	0.28	0.07	0.20	0.41
1992	0.40	0.29	0.10	0.71	0.32	0.38	0.51	0.60	0.99	0.24	0.51	0.64	0.58	0.43	0.85	0.29	0.06	0.22	0.32
1970-74	0.61	0.08	0.50	0.25	0.54	0.71	0.30	0.49	0.65	0.20	0.51	0.09	0.22	0.81	0.85	0.09	0.03	0.02	0.75
1975-80	0.38	0.08	0.53	0.34	0.36	0.59	0.27	0.45	0.55	0.15	0.33	0.11	0.37	0.58	0.88	0.11	0.03	0.05	0.60
1981-84	0.12	0.20	0.31	0.54	0.50	0.56	0.27	0.87	0.79	0.12	0.37	0.40	0.36	0.80	0.90	0.19	0.03	0.14	0.32
1985-89	0.21	0.36	0.35	0.61	0.30	0.34	0.30	0.73	0.71	0.26	0.46	0.61	0.49	0.80	0.92	0.23	0.05	0.10	0.22
1990-92	0.39	0.30	0.29	0.65	0.28	0.45	0.42	0.66	0.88	0.29	0.52	0.71	0.60	0.58	0.90	0.28	0.06	0.19	0.35
1970-80	0.49	0.08	0.51	0.30	0.44	0.64	0.29	0.47	0.60	0.17	0.42	0.10	0.30	0.68	0.87	0.10	0.03	0.04	0.67
1981-92	0.22	0.29	0.32	0.60	0.36	0.44	0.32	0.76	0.77	0.22	0.44	0.57	0.47	0.75	0.91	0.23	0.05	0.14	0.28
Difference (1970-80 base period)	-0.26	0.21	-0.19	0.30	-0.08	-0.20	0.03	0.29	0.18	0.05	0.03	0.47	0.17	0.06	0.04	0.13	0.01	0.10	-0.38
Difference (1975-80 base period)	-0.16	0.21	-0.20	0.26	0.00	-0.15	0.05	0.31	0.22	0.07	0.11	0.46	0.10	0.17	0.03	0.12	0.02	0.08	-0.32

Source: Author's calculations based on ESYE data

partner. In contrast, if the AGL index of a deficit-creating category moves towards unity, that would imply that the country under consideration has indeed managed to expand its production and has reduced its comparative disadvantage in that sector.

In the case of Greece, 13 out of the 21 categories of the GTS had always been in deficit (see the Trade Data Appendix). Excluding C5, (i.e. mineral products), 95% of this deficit arises from the deficit in four categories, one agricultural and three industrial ones, namely C1 (live animals and animal products), C6 (products of the chemical and allied industries), C16 (machinery, mechanical appliances and electrical equipment) and C17 (vehicles and other transport equipment). Both in terms of total transactions and transactions with the EU11 countries, after 1981 C1 and C6 moved towards zero, C16 moved towards unity (but remained well below 0.5) whereas C17 remained almost stable at very low levels.

On the other hand, Greece has usually achieved trade surpluses in two agricultural categories (i.e. C2-vegetable products and C3- animal and vegetable fats and waxes) and four industrial ones (i.e. C4-prepared foodstuffs, beverages, spirits and tobacco, C8 - leather and associated products, C11 - textiles and C12-footwear etc.). Out of these categories, the most important are C4 (prepared foodstuffs etc.) and C11 (textiles) which, together, represent almost 40% of total Greek exports. In terms of total transactions, the index of the first agricultural category (C2) remained almost stable whereas the one of the second (C3) moved towards zero. As far as the two main categories are concerned, the share of C4 moved towards unity whereas the one of C11 remained stable. Finally, the AGL index for C8 and C12 moved towards unity. A similar picture is observed when we examine the transactions with the EU.

Overall, it seems that the evidence provided by the findings of this subsection are rather closer to the views expressed by the pessimistic pre-integration scenario. The Greek economy (and in particular the Greek industrial sector) failed to develop intra-industry trade in those sectors where Greece had always been in external deficit. This implies that in those sectors Greece did not manage to expand its production or improve its existing one by means of further product

specialization or differentiation. On the other hand, trade flows seem to have acquired a more intra-industry character in those sectors where Greece had usually been in trade surplus. In other words, there are indications that not only Greece did not develop specialization in new sectors but it also lost part of its comparative advantages in sectors where its position had traditionally been strong. These findings confirm the view expressed by Hassid (1986, p.91) who had claimed that during the first three years of EU participation (1981-83) "...there were signs that [EU participation] allowed EU industry to obtain non-negligible benefits of a more permanent nature even in areas in which Greek industry allegedly possesses a comparative advantage".

### 5.7. Greek imports and ex-post income elasticities

Continuing our investigation of the trade effects caused by the accession of Greece to the EU, in this section we apply the method proposed by Balassa (1974) to Greek import data. This method is considered to be one of the main contributions in the area of quantitative measurement of trade effects caused by EI (see El-Agraa 1989, 94) and it is based on the movements of the *ex-post* income elasticity of demand for imports. The latter ( $\eta$ ) is defined as the ratio of the annual rate of change of real imports over the annual rate of change of national income :

$$\eta = (\Delta M/M) / (\Delta Y/Y) \quad (3)$$

The method of Balassa is based on the calculation of  $\eta$  for the pre- and post-integration period. The anti-monde hypothesis is that in the absence of integration the value of  $\eta$  would have not changed. An increase in  $\eta$  for imports from partners (non-partners) would indicate the existence of gross internal (external) trade creation. A reduction in  $\eta$  for imports from non-partners would suggest external trade-diversion. Finally, an increase in  $\eta$  for imports from all sources of supply (including partners and non-partners) would indicate the existence of trade creation proper.

The method by Balassa is equivalent to the use of a simple regression of the form

$$\log(M_t) = \alpha + \beta \log(Y_t) + \alpha^*D + \beta^* \log(Y_t) D + u_t \quad (4)$$

where  $M$  and  $Y$  are respectively imports and income in the importing country,  $D$  is a dummy variable taking the value of 0 for the pre-integration years and unity for the post-integration years and  $u$  is an error term. In this function,  $\alpha$  represents the average level of imports in the pre-integration period whereas  $\alpha^*$  expresses the differential over  $\alpha$  for the post-integration period. On the other hand,  $\beta$  is the income elasticity of demand for imports during the pre-integration period and  $\beta^*$  the elasticity differential for the post-integration period<sup>31</sup>. The common market effect for any post-integration year  $t$  is then given by  $\alpha^* + \beta^* \log(Y_t)$ . This variant of Balassa's method has been used by Sellekaerts (1973) in order to measure trade effects caused by the establishment of the EU.

The logic behind Balassa's suggestions is that in the absence of other changes, the reduction in or the abolition of tariffs, quotas and other trade impediments against imports from partner countries will lead to a reduction in the relative price of the partners products. As a result, the demand for imports from partners should rise by a percentage higher than the one implied by the percentage increase due to income expansion. This should be reflected in a higher value for  $\eta$  (or a positive value for  $\beta^*$  in the regression equivalent of the method) for imports from partners or even non-partners if integration implies a general reduction in protection against imports. Balassa (1974, p.94) claims that in the absence of reliable price data for individual categories of commodities, "one particular attraction of the method is its ability to deal with disaggregated data". It is also particularly appropriate in the absence of data sets referring to domestic

<sup>30</sup> See Dayal and Dayal 197, p. 133.

<sup>31</sup> The above imply that both coefficients ( $\alpha$  and  $\beta$ ) may change as a result of integration and in fact this is one of the sources of criticism against Balassa's methodology in its original form (see the Annex Survey). The point is that Balassa has never explained why integration is bound to increase the *sensitivity* of imports in changes of income. This is one possibility but there is also another, namely that integration will just increase the levels of imports associated with each level of income only in a *step fashion*. Of course, there is a third possibility, namely that both the intercept and the slope will be affected. This might even imply an increase in the slope and a reduction in the intercept (see Winters, 1984, Figures A1 and A2, page 116, and Sellekaerts (1973), p. 542)

production. Both conditions apply in our case and that is the reason that Balassa's method has been preferred for the analysis of this section.

Table 5.13 presents the values of  $\eta$  for the main trading partners of Greece, for the period 1971-92. Before proceeding to further comments, there are two elements which should be highlighted. First, 1981 has indeed been a "shock" year for Greek trade. Real imports from the EU increased significantly and imports from the rest of the partners (with the exception of USA) contracted significantly. As GDP stagnated, these resulted in extreme positive values for  $\eta$  for the EU as a whole (and some individual countries) and extreme negative values for the rest of the partners. As a result, 1981 has been excluded from the analysis as it would lead to exceptionally high average  $\eta$  values for European countries and exceptionally low values for the ROW and the Eastern European countries.

Second, the values of  $\eta$  have been much more volatile during the post-integration period compared to prior to 1981 and this makes any inference rather difficult. Possibly, the increased volatility has to do with the fact that during the 1980s the Greek economy experienced a number of demand-inducing and demand-contracting shocks (such as those created by the expansionary economic policies of the early 1980s or the stabilization programmes in 1986-87 and the 1990s), events which were not so common in the 1970s. Given the limitations characterizing the Greek industrial sector and having in mind that in the 1980s Greek consumers displayed a shift of preferences towards consumer goods and durable goods for which domestic production is either limited or non-existent, it has been argued that demand shocks affect the external sector of the economy (and specifically imports) in a more direct (and quicker) way than it affects other fields of the economy<sup>32</sup>. This, combined with the fact that Greece secured a long transition and the lifting of trade barriers did not take place in one stage but in a sequence of phases (which can be seen as small shocks themselves)<sup>33</sup>, may be considered plausible explanations for the fact that the volatility of  $\eta$  has been

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<sup>32</sup> For further discussion of this point, see OECD Survey of Greece, 1993.

<sup>33</sup> To give one example, in line with the provisions of the Accession Agreement and the modifications which the Greek government negotiated with the European Commission after 1981, a large number of tariffs and other trade impediments were abolished on the 1<sup>st</sup> of January 1986. It seems that this had an impact on the rate of growth of imports from the EU which is also reflected in the value of  $\eta$ .

Table S.13

## Income elasticities of demand for non-mineral imports

Year	Total Imports	France	Belgium-Lux.	Netherlands	Germany	Italy	UK	Norway	Sweden	Finland	Switzerland	Austria	EU6	EU11	Non-EU11	EFTA5	East Europe	USA	Japan	ROW
1971	0.6	0.9	2.1	1.5	1.8	1.3	-1.5	-7.0	-6.8	8.4	4.1	1.5	1.5	1.0	0.1	-2.2	-1.8	2.2	-1.9	3.8
1972	0.5	2.3	2.7	1.5	1.7	2.7	0.1	2.0	-3.1	-4.3	1.0	0.3	2.0	1.6	-0.9	-1.1	2.8	0.1	-2.6	-0.9
1973	2.6	1.8	3.5	2.9	2.0	1.0	-0.3	-5.1	2.1	-0.9	3.2	5.9	1.9	1.9	3.7	1.8	5.7	9.2	1.7	2.4
1974	2.1	0.5	6.2	-0.1	3.4	0.6	3.2	-2.5	-18.8	-1.9	3.0	-3.6	2.3	2.6	1.4	-4.1	7.5	-3.8	4.7	3.8
1975	2.8	-0.3	2.8	5.9	2.3	2.6	2.9	2.79	6.2	-1.2	2.0	-1.0	2.2	3.1	2.3	4.0	1.3	-1.7	12.6	-0.8
1976	2.7	0.8	0.9	-0.4	0.5	1.5	0.7	0.3	20.8	10.7	-0.1	-1.9	0.7	0.4	5.7	7.0	3.9	0.5	10.1	5.3
1977	2.0	2.4	1.2	-0.3	1.4	3.7	7.6	22.0	-13.4	-8.9	0.5	4.7	1.9	7.0	1.1	-4.4	5.7	-6.5	8.4	0.4
1978	-0.4	0.5	-1.1	-0.4	0.3	1.2	-1.7	-10.3	-4.3	0.2	-0.5	0.0	0.4	0.2	-1.0	-3.9	4.8	0.5	-2.4	0.4
1979	0.1	0.9	0.2	1.5	0.7	0.8	6.4	17.3	2.0	18.8	3.8	-6.6	0.8	1.1	-1.1	3.6	-0.1	0.0	-6.3	2.4
1980	2.7	6.0	-7.4	13.5	0.0	-1.8	-8.7	5.7	4.1	11.4	-2.5	11.2	1.3	-1.0	7.3	4.9	4.0	-0.7	14.4	7.5
1981	-110.5	-85.7	360.2	288.5	445.3	91.6	-16.7	-1130.6	-603.1	-239.7	133.7	-204.4	243.2	218.8	-474.7	-388.2	-454.5	28.6	-943.6	-240.1
1982	-3.8	31.6	-1.7	44.8	-15.1	8.8	-59.6	-38.5	-10.6	-40.1	-34.0	192.9	4.6	-1.3	-8.4	16.2	-21.9	-37.7	102.7	-58.3
1983	23.5	18.3	111.7	71.2	19.9	-1.7	70.2	198.1	9.6	4.3	6.2	-11.0	26.9	26.3	18.4	9.1	-10.2	-20.3	35.4	45.0
1984	2.2	3.2	-6.9	0.2	0.8	4.8	-1.6	2.2	13.5	6.8	1.7	-13.9	1.3	1.7	3.2	0.6	9.7	-5.2	7.1	2.6
1985	2.5	1.0	8.0	1.6	4.3	4.5	3.9	-4.6	-5.7	-1.1	7.9	-0.4	10.6	3.6	0.2	1.4	-10.9	-7.6	-2.3	3.1
1986	7.1	12.2	9.1	5.9	11.6	11.2	3.3	28.0	19.9	-3.2	15.8	8.2	8.2	9.8	1.5	10.9	10.9	9.7	-7.6	9.7
1987	-10.8	2.4	-7.2	-15.0	-10.1	-18.2	-32.5	-6.7	21.2	-37.0	5.4	-66.9	-10.4	-11.3	-9.5	-10.7	-94.4	-2.5	68.1	-44.2
1988	-5.2	-6.4	-5.6	-7.1	-8.1	-3.8	-6.1	-6.7	-4.9	-4.6	-4.3	-7.7	-6.6	-6.3	-2.7	-5.5	-1.9	0.2	-0.7	-3.0
1989	7.5	3.1	9.3	7.8	7.0	8.3	13.0	4.4	16.1	9.6	3.7	12.3	7.0	7.4	7.6	9.4	3.6	3.8	12.4	6.9
1990	-18.4	4.3	-18.4	3.8	-3.0	-1.6	11.7	-13.1	25.3	22.5	-2.5	6.3	-3.1	-2.0	16.2	10.5	18.9	-6.5	13.6	25.4
1991	1.1	0.6	-0.8	-1.8	-0.1	-0.5	2.2	-2.0	6.6	-0.5	-1.2	-0.5	-0.4	-0.1	3.7	0.9	5.5	6.4	5.4	2.8
1992	0.0	2.2	5.7	39.1	12.1	1.1	5.4	-90.6	-59.6	-40.3	26.5	29.2	10.3	11.0	-21.5	-14.6	-0.1	-35.6	-11.4	-32.5
1970-74	1.4	1.4	3.6	1.4	2.2	1.4	0.4	-3.2	-6.6	0.3	2.8	1.0	2.0	1.8	1.1	-1.4	3.5	1.9	0.5	2.3
1975-80	1.6	1.7	-0.6	3.3	0.9	1.3	1.2	10.5	2.6	5.2	0.5	1.1	1.2	1.1	2.4	1.9	3.3	-1.3	6.1	2.5
1982-84	7.3	17.7	34.4	38.7	1.9	3.9	3.0	54.0	4.9	-9.7	-8.7	56.0	10.9	8.9	4.4	8.6	-7.5	-21.0	48.4	-3.6
1985-89	0.2	2.4	2.7	-1.4	0.9	0.4	-3.7	2.9	9.3	-7.2	5.7	-10.9	0.9	0.7	-0.6	1.1	-21.9	-0.3	14.4	-5.5
1990-92	1.8	-5.2	3.4	13.7	3.0	-0.3	6.4	-35.3	-9.3	-6.1	7.6	11.7	2.3	3.0	-0.5	-1.1	8.1	-11.9	2.5	-1.4
1970-80	1.6	1.6	1.1	2.5	1.4	1.4	0.9	5.0	-1.1	3.2	1.5	1.0	1.5	1.4	1.9	0.6	3.4	0.6	3.4	2.4
1982-92	2.6	4.5	11.3	13.7	1.8	1.2	0.9	6.4	3.0	-7.6	2.3	13.5	4.0	3.5	0.8	2.6	-9.8	-9.8	-9.8	-3.9
Difference (1970-80 base period)	1.0	2.9	10.4	11.1	0.3	-0.2	0.0	1.4	4.2	-10.8	0.8	12.4	2.5	2.1	-1.1	2.0	-13.2	2.0	-13.2	-6.3
Difference (1975-80 base period)	0.9	2.8	12.1	10.4	0.9	-0.2	-0.3	-4.1	0.5	-12.8	1.7	12.4	2.8	2.4	-1.6	0.7	-13.1	0.7	-13.1	-6.4

Note: In the case of Japan and the USA the difference has not been calculated (see text for further discussion)

Source: Author's calculations based on ESYE data



much higher during the post-1981 period.

This having been said, Table 5.13 seems to confirm, to a large extent, the indications obtained in the previous sections. All in all, the values of  $\eta$  indicate that during the post-integration period Greece experienced trade creation proper. In the case of the EU11 as a whole, it seems that gross trade creation has taken place irrespective of the base period chosen. On the other hand, EU participation has led to gross trade diversion for the whole of the non-partner (non-EU11) countries. As far as individual countries are concerned, gross trade creation appears to have taken place in the case of Germany, the Netherlands, Belgium-Luxembourg, and France. On the other hand, an almost neutral effect appears in the case of Italy and the UK. With regard to the rest of the commercial partners, the results show that Greece has experienced external trade creation in the case of the EFTA5 area and external trade diversion in the cases of the ROW, the Eastern European countries and Japan<sup>34</sup>. However, it is interesting to notice that on many occasions, after 1985 the average elasticity of demand for imports from the ROW assumed values similar or even higher than its pre-1981 levels. The same holds true for the Eastern European countries in the 1990s.

Turning now to the regression equivalent of Balassa's method, Table 5.14 presents the results obtained by the estimation of the relevant equations for the main commercial partners of Greece. The functional form employed is the following:

$$\log(M_t) = \alpha + \beta_1 \log(M)_{t-1} + \beta_2 \log(Y)_{t-1} + \gamma_1 D + \gamma_2 D \log(Y_t) + u_t \quad (6)$$

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<sup>34</sup> In the case of Japan (but also the USA) some rather inconclusive results appear when we calculate the average value for  $\eta$  for the 1982-92 period. It will be remembered that imports from these two countries present many shocks and this is a fact which influences the average value of  $\eta$ . For example, in the case of Japan, in 1981 there was a dramatic step (producing an extreme negative value for  $\eta$ ) and substantial recoveries in 1982-83 and 1987 (producing very high values for  $\eta$ ) which, however, were not enough to put imports from Japan on their pre-integration trend. As a result of the existence of the high  $\eta$  values in 1982-83 and 1987, without 1981 the average post-integration (1982-92) average  $\eta$  value is equal to 20, indicating external trade creation. On the other hand, the inclusion of 1981 in the post integration period produces an average  $\eta$  value equal to -57.3, a figure which is too low to be accepted. Excluding all four values from the post-integration period, we get an  $\eta$  figure equal to 2.3, which seems quite reasonable given the information presented in section 5.5.

The equations were estimated including the first lag of the dependent variable as in most of the cases this term was statistically significant. The income variable used is the logarithm of the level of real GDP lagged for one year<sup>35</sup>. In addition, in some equations we have allowed for one or two intercept dummies aiming to neutralize the impact of unusual observations. The choice of these dummies has been left as an empirical matter but in most of the cases they refer to 1988. The analysis is in terms of real total imports expressed in billions of 1990 drachmas. The equations have been estimated for the period 1961-93<sup>36</sup>. Table 5.14 shows that there are cases where the two integration dummies,  $D$  and  $D \log(\text{GDP})$ , are jointly significant but individually insignificant. The way to interpret this is that EU participation has indeed influenced imports from the country under consideration but it is not clear whether this is due to a change in the sensitivity of demand for imports to changes of income or simply due to a change in the intercept of the import demand function. In such cases we present the results for three equations, namely the one including both integration dummies (equation a), the one including  $D \cdot \log(Y)$  only (equation b) and the one including  $D$  only (equation c). For these three equations we also present the results of the Schwarz criterion in order to acquire an indication as to which is the most appropriate equation<sup>37</sup>.

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<sup>35</sup> We have preferred the lagged rather than the current value of  $\log(\text{GDP})$  in order to avoid the simultaneity problem existing between the current values of imports and GDP.

<sup>36</sup> This implies that a larger base period than the one of the analysis presented above has been used. The extension of the base period was necessary as the shortness of the original time series (1970-93) and the variability of the data sets did not allow satisfactory results. In addition, the extension of the base period implied that we had to work with total imports (including minerals). This can have made no great difference in the case of the EU11 countries (where imports of C5 are only a small percentage of total imports) but it must have made a difference in the case of the third countries, especially in the case of the ROW. Specifically, it must have led to an overestimation of trade diversion (see below).

<sup>37</sup> Here we are obliged to open an extended parenthesis to say that we have also estimated alternative import demand functions involving as a predetermined variable the real exchange rate (RER) of the drachma against the foreign currencies and its lagged value. Estimating such logarithmic functions is one of the standard approaches proposed in the literature (see for example Kreinin 1969, Verdorn and van Bochove 1972, Resnick and Truman 1973, Viaene 1982, Mayes, 1988 and El-Agraa 1994). However, the literature also acknowledges that in practice, the inclusion of relative price terms has had limited success (see, among others, Balassa 1974, Sellekaerts 1973, Dayal and Dayal 1977 and Mayes, 1988). Similar problems appeared in our case as well. Most of the signs referring to the RER terms were either positive or statistically insignificant. In addition, in some cases the inclusion of the RER term gave rise to autocorrelation or heteroscedasticity. We have tried to overcome the problem by replacing RER terms with variables reflecting absolute cost values, in the lines suggested by Dayal and Dayal (1977). However, the results did not improve.

One explanation for the existence of a positive coefficient for the RER term is the existence of a J-curve effect. As in some of the estimated equations the lagged RER term had a negative sign, we

The misspecification tests reported in Table 5.14 are the following: the AR F-statistic, which tests the null hypothesis of no autocorrelation (that is to say that the estimated residuals are white noise) against the alternative of autocorrelated residuals; the ARCH (AutoRegressive Conditional Heteroscedasticity) F-statistic, which tests the null hypothesis of no autocorrelated squared residuals against the alternative of autocorrelated squared residuals; the Bera-Jarque  $\chi^2$  statistic, which tests the null hypothesis of normally distributed estimated residuals against the alternative of non-normality; the White  $\chi^2$  statistic, testing the null hypothesis of unconditional homoscedasticity against the alternative of heteroscedastic estimated residuals; and the RESET test (Regression Specification Test), testing the null of correct specification of the model against the alternative that powers of the endogenous variable have been omitted<sup>38</sup>. The values of the tests reported in Table 5.14 reveal that at the 5% level of statistical significance, the equations referring to the main commercial partners of Greece (i.e. EU11, East Europe, EFTA5, Japan, USA, ROW, non-EU11 countries as a whole and total imports) are well specified, presenting no autocorrelation, heteroscedasticity or non-normal estimated residuals. This is also the case for the vast majority of the equations referring to individual European countries and in particular to the most important ones, i.e. Germany, Italy, Netherlands (equations b and c), Belgium-Luxembourg, the United Kingdom and Denmark. The only major individual European commercial partner for which the null hypothesis of for one misspecification test is rejected is France, where the Bera-Jarque statistic indicates non-normally distributed residuals. Some misspecification problems are also present in the case

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have reasons to believe that in the case of Greece such a J-curve exists. However, the fact that the value of the current RER term was greater (in terms of absolute value) than the one of the lagged term, does not allow us to rely entirely on this effect. A second explanation is that the above described econometric specification implicitly assumes that the only determinants of import demand are income and prices. In reality however, trade takes place in an environment of imperfect competition where relative price is just one of the determinants of competitiveness. Therefore, it could be the case that the sign and magnitude of the RER reflects the relatively inelastic demand for some categories of imports and the influence of other factors related to the competitiveness of a country's products, such as a higher degree of product differentiation etc. In addition, one should also take into consideration the problems stemming from aggregation (see Mayes, 1988). All in all, the conclusion is that our attempt to incorporate the real exchange rate term into the analysis was not successful. Consequently, we have followed Sellekaerts solution and we present the results of the above mentioned simpler import demand equations, which however, still provide helpful insights.

<sup>38</sup> For a more detailed discussion on these tests, see Doornik and Hendry (1992), pp. 43-45.

of the equations referring to Spain (unconditional heteroscedasticity), Portugal (unconditional heteroscedasticity and functional form problems), Sweden (Autoregressive Conditional Heteroscedasticity) and Austria (unconditional heteroscedasticity). However, in view of the small share of these countries in total Greek imports, the above should not constitute a particularly big cause of concern for the validity of our analysis.

Having said that, the estimated equations in Table 5.14 indicate that EU participation has indeed contributed to an increase in imports from the EU11 countries. Although in terms of increase in the  $\beta_2$  coefficient this impact appears rather modest, it should be kept in mind that the extension of the sample period may have led to underestimation of the EU effect. On the other hand, accession to the EU has reduced the sensitivity of  $\beta_2$  for the non-EU11 countries as a whole. The same applies in the case of the ROW<sup>39</sup>, the Eastern European countries and Japan. In the first three cases, the results indicate an increase in the intercept term, something which may be attributed to the fact that for many commodities the adoption of the CET involved lower rates than the pre-1981 national Greek Tariff Schedule. However, taking into consideration the reduction in  $\beta_2$  and the post-1981 trade developments which were examined in section 5.5, the overall EU effect on imports from these partners appears to be negative. Overall, the equation referring to total imports suggests that EU participation did not have any significant impact on the level of total imports.

As far as the most important individual European countries are concerned, EU participation seems to have led to gross trade creation in the case of Germany, Belgium-Luxembourg, Denmark and the Netherlands and, after 1984, the UK (in the latter case the results indicate a reduction in the intercept term and an increase in the sensitivity of imports to changes in income). The integration dummies are not significant in the case of France and Italy nor in the case of EFTA5 as a whole and four out of five individual EFTA partners (namely Switzerland, Sweden, Austria and Finland). The same applies for the equation referring to the USA.

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<sup>39</sup> However, we remind that as we have used data for total imports (including C5), the results obtained must have led to an overestimation of trade diversion from the ROW. The reason is that in the 1980s the price of oil declined significantly.

Table S.14

## Import demand functions (Regression equivalent of Balassa's methodology)

	constant	log(M) <sub>t</sub>	log(GDP) <sub>t-1</sub>	D	D*log(GDP) <sub>t-1</sub>	D1988	Other D	R <sup>2</sup>	Joint F-test for D and D*log(GDP) <sub>t-1</sub>	AR F	ARCH F	Normality	X <sub>1</sub> <sup>2</sup>	RESET	Schwarz criterion
EU11-eq.a	-0.629	0.523	0.524	-0.521	0.140	-0.124		0.99	3.512*	0.33	0.00	0.97	0.59	0.17	-6.7070
	-1.814	3.022	2.455	-0.420	0.459	-3.574									
EU11-eq.b	-0.569	0.561	0.481		0.012	-0.129		0.99		0.27	0.00	1.44	0.54	0.00	-6.8065
	-1.812	3.823	2.608		2.600	-3.934									
EU11-eq.c	-0.563	0.565	0.476	0.048		-0.129		0.99		0.27	0.01	1.51	0.51	0.00	-6.8052
	-1.809	3.872	2.591	2.672		-3.948									
Non-EU11	-2.293	0.361	1.080	7.465	-1.854	-0.199		0.97		0.00	1.09	0.54	0.42	1.79	
	-4.271	2.633	4.676	2.616	-2.881	-3.831									
ROW	-3.403	0.391	1.286	11.099	-2.741	-0.290		0.97		1.12	0.48	1.08	1.23	4.10	
	-1.394	2.928	4.608	3.102	-3.122	-1.389									
East Europe	-1.067	0.483	0.549	7.158	-1.757	-0.162		0.86		0.66	0.57	3.39	0.46	0.08	
	-1.960	3.017	2.740	1.932	-1.955	-1.832									
Japan-eq.a	-3.812	0.310	1.882	4.661	-1.215			0.87	3.753*	3.27	1.25	2.23	0.57	0.27	-3.6739
	-2.540	1.593	2.746	0.819	-0.864										
Japan-eq.b	-4.883	0.385	1.602		-0.064			0.86		1.62	1.33	1.39	0.77	0.33	-3.7608
	-2.473	2.233	2.713		-2.611										
Japan-eq.c	-4.805	0.391	1.579	-0.258				0.86		1.55	1.32	1.33	0.95	0.36	-3.7578
	-2.451	2.299	2.693	-2.613											
Germany-eq.a	-0.835	0.537	0.513	0.048	0.001	-0.171	-0.113	0.99	3.534*	0.06	0.27	0.30	0.70	1.08	-6.3703
	-2.031	3.340	2.531	0.035	0.003	-1.289	-3.028								
Germany-eq.b	-0.836	0.536	0.513		0.013	-0.171	-0.114	0.98		0.06	0.31	0.29	0.84	0.70	-6.4762
	-2.072	3.416	2.588		2.709	-1.443									
Germany-eq.c	-0.835	0.537	0.513	0.052		-0.171	-0.113	0.99		0.06	0.28	0.30	1.01	0.65	-6.4762
	-2.071	3.423	2.586	2.710		-1.475	-3.426								
Italy	-1.286	0.581	0.573	-2.007	0.501	-0.078		0.99		1.64	1.24	2.03	4.52	1.46	1.36
	-1.553	2.866	1.772	-1.000	-1.016	-1.802									
France	-1.877	0.282	0.869	0.162	-0.030	-0.107		0.98		1.67	0.57	0.07	10.58**	0.45	0.09
	-3.481	1.804	3.993	0.114	-0.008	-2.339									

Note  
1 Other D = 1993

t-values in italics

AR = Lagrange Multiplier F-test for autocorrelation  
Normality = Chi<sup>2</sup> test for the normal distribution of the residuals  
RESET = RESET F-test for functional form

ARCH = LM F-test for Autoregressive Conditional Heteroscedasticity  
X<sub>1</sub><sup>2</sup> = White test for heteroscedasticity

\* indicates significance at the 5% level, \*\* indicates significance at the 1% level

Table S.14 - continued

Import demand functions (Regression equivalent of Balassa's methodology)

	constant	log(N) <sub>t</sub>	log(GDP) <sub>t</sub>	D	D*log(GDP) <sub>t</sub>	D1988	R <sup>2</sup>	Joint F-test for D and D*log(GDP) <sub>t</sub>	AR-F	√RCH-F	Normality	X <sub>t</sub> <sup>2</sup>	RESET	Schwarz criteron
Netherlands-eq.a	-1.182	0.620	0.485	1.732	-0.401	-0.159	0.98	3.610*	1.95	0.24	7.50*	1.84	5.68*	-5.6430
	-2.345	4.6**	2.635	0.945	-0.889	-3.035								
Netherlands-eq.b	-1.207	0.601	0.500	2.729	0.025	-2.987	0.98		1.16	0.05	5.62	1.94	0.39	-5.7100
	-2.404	4.598	2.729	2.320	2.320	-2.987								
Netherlands-eq.c	-1.210	0.600	0.501	0.104	0.933	-0.156	0.98		1.19	0.06	5.77	2.10	0.44	-5.7207
	-2.416	4.611	2.744	2.545	1.574	-2.989								
Belgium-Lux-eq.a	-1.775	0.089	0.859	-3.722	0.933		0.94	4.011*	0.77	1.55	1.59	1.14	1.21	-5.4033
	-3.951	0.536	4.826	-1.544	1.574									
Belgium-Lux-eq.b	-1.586	0.213	0.757	0.073	0.018		0.94		0.23	2.90	1.70	1.86	0.29	-5.4276
	-3.585	1.412	4.475	2.297	2.320									
Belgium-Lux-eq.c	-1.584	0.216	0.755	0.073	0.018		0.94		0.23	2.87	1.72	1.04	0.33	-5.4244
	-3.572	1.437	4.456	2.297	2.320									
United Kingdom	-0.001	-0.046	0.551	-7.581	1.864	-0.091	0.91		1.47	0.11	5.41	0.57	0.06	
	-0.004	-0.259	4.794	-4.095	4.105	-2.064								
Denmark - eq.a	-1.719	0.229	0.661	-0.902	0.279		0.93	7.124**	0.11	0.03	0.64	0.70	0.00	-4.5192
	-2.726	1.436	3.371	-0.268	0.338									
Denmark - eq.b	-1.715	0.238	0.658		0.057		0.93		0.07	0.04	0.74	0.65	0.02	-4.6225
	-2.765	1.541	3.416		3.827									
Denmark - eq.c	-1.713	0.240	0.657	0.234			0.93		0.06	0.04	0.77	0.98	0.03	-4.6210
	-2.760	1.563	3.408	3.818										
Spain - eq.a	-9.845	0.205	2.786	-6.119	1.451		0.92	3.29*	0.41	0.24	1.95	2.75*	6.43*	-3.4831
	-5.329	1.963	5.433	-1.077	1.042									
Spain - eq.b	-9.677	0.240	2.432		-0.048		0.92		1.03	0.41	2.07	2.97*	2.59*	-3.5511
	-5.241	1.752	5.337		-2.810									
Spain - eq.c	-9.701	0.238	2.793	-0.195			0.92		0.99	0.42	2.09	3.24*	1.39	-3.5539
	-5.237	1.739	5.333	-2.329										

*t-values in italics*

AR = Ljung-Box Multipliciter F-test for autocorrelation

Normality = Chi<sup>2</sup> test for the normal distribution of the residuals

RESET = RESET F-test for functional form

ARCH = LM F-test for Autoregressive Conditional Heteroscedasticity

X<sub>t</sub><sup>2</sup> = White test for heteroscedasticity

\* indicates significance at the 5% level; \*\* indicates significance at the 1% level

Table S.14 - continued

## Import demand functions (Regression equivalent of Balassa's methodology)

	constant	log(M) <sub>t</sub>	log(GDP) <sub>t-1</sub>	D	D*log(GDP) <sub>t-1</sub>	D1988	Other D	R <sup>2</sup>	D and D*log(GDP) <sub>t-1</sub>	AR-F	ARCH-F	Normality	X <sup>2</sup>	RESET	Schwarz criterion
Portugal <sup>1</sup>	-2.064	0.117	0.637	-19.812	4.897		0.209	0.83		0.17	0.00	4.68	12.28**	9.95**	
	-2.503	0.66*	2.809	-3.208	3.224		2.203								
Sweden <sup>1</sup>	-0.591	0.266	0.444	-3.537	0.855		0.442	0.70		0.85	6.32*	2.20	1.57	1.62	
	-0.963	1.89*	2.340	-0.899	0.886		4.071								
Switzerland	-1.360	0.527	0.529	-2.476	0.610		-0.090	0.98		0.70	0.13	1.00	0.94	0.56	
	-1.722	2.548	1.913	-1.365	1.373		-1.683								
Austria <sup>2</sup>	-1.679	0.140	0.743	-1.676	0.417		-0.137	0.89		0.01	3.32	0.47	2.78*	0.00	
	-3.308	0.791	4.056	-0.615	0.625		-1.943								
Norway - eq.a	-4.875	0.071	1.537	0.010	-0.111			0.67	8.074**	0.71	0.51	0.26	0.84	1.10	-3.327
	-3.645	0.420	3.975	0.002	-0.075										
Norway - eq.b	-4.874	0.071	1.537		-0.106			0.67		0.66	0.53	0.26	1.05	1.14	-3.4329
	-3.796	0.433	4.141		-1.090										
Norway - eq.c	-4.852	0.073	1.531	-0.442				0.67		0.66	0.51	0.25	1.25	1.14	-3.4327
	-3.793	0.44*	4.138	-1.089											
Finland	-1.832	0.067	0.752	3.721	-0.902			0.82	0.545	1.00	0.07	3.50	1.84	1.17	
	-3.193	0.320	3.872	1.166	-1.155										
EFTAS	-1.424	0.219	0.789	-1.281	0.296			0.89	2.26*	1.02	0.02	4.67	0.60	0.01	
	-2.806	1.219	3.692	-0.551	0.521										
USA <sup>4</sup>	-0.270	0.520	0.325	-0.387	0.076		0.162	0.75	1.815	1.33	0.01	0.27	1.18	1.62	
	-0.770	3.472	2.379	-0.160	0.128		2.405								
Total Imports	-1.004	0.530	0.655	2.006	-0.495		-0.156	0.99	1.690	0.15	1.74	0.54	0.32	0.48	
	-3.458	4.428	3.935	1.612	-1.624		-1.809								

## Note

Other D 1 1975, 2 1976, 3 1993, 4 1973

## t-values in italics

AR = Lagrange Multiplier F-test for autocorrelation  
Normality: Chi<sup>2</sup> test for the normal distribution of the residuals  
RESET = RESET F-test for functional formARCH = LM F-test for Autoregressive Conditional Heteroscedasticity  
X<sup>2</sup> White test for heteroscedasticity

\* indicates significance at the 5% level, \*\* indicates significance at the 1% level

We end this section with the presentation of the results referring to the main commodity groups of Greek imports. Data limitations did not allow us to proceed to a regression analysis similar to the above<sup>40</sup>. Therefore, we restrict ourselves to the calculation of the *ex-post* income elasticities for seven groups of GTS categories covering more than 90% of total non-mineral Greek imports. Here we have considered only two trade partners, namely the EU countries and all the third countries<sup>41</sup>. The results appear in Table 5.15. Again, one can notice that during the 1981-92 period the value of  $\eta$  has been much more volatile compared to the 1970-80 period and there is a certain number of extreme  $\eta$  values. In addition, in some cases the results change significantly if one omits the 1987-88 and the 1990-92 periods. As such, the results are not very satisfactory and it is quite difficult to draw any conclusions. Having said that, Table 5.15 indicates the existence of gross trade creation from the EU11 in the field of agricultural products (C1,C2,C3,C4), textiles (C11), paper and wood products (C9,C10), base metals, chemicals and plastic products (C6,C7) and the combined category C16,C18 and C20. In most cases the main trade creating effects took place during the first years of EU participation (1981-86). On the other hand, during the 1980s trade creation proper appears in the case of agricultural products, base metals, textiles, wood and paper products and the combined category C16,C18 and C20.

All in all, the results of this section indicate that in aggregate terms, after 1981 gross trade creation has taken place in the case of the EU countries and gross trade diversion has taken place in the case of the third countries. From that point of view, our results are almost identical with the ones obtained by Hassid and Katsos (who have used the method of shares in Apparent Consumption developed by Truman, 1969)<sup>42</sup> as well as those obtained by Giannitsis (who used both the

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<sup>40</sup> Disaggregated import data exists only for the 1970-92 therefore we could not extend the base period as in the case of aggregate imports.

<sup>41</sup> The reason was that the values of  $\eta$  for many individual countries were very volatile, a fact which rendered any inference almost impossible.

<sup>42</sup> See pp. 228-229.



Table S.15

Main importing categories- *Ex-post* income elasticities of demand for imports

Year	Agricultural and food products (C1,C2,C3,C4)			Base metals (C15)			Textiles (C11)			Paper and Wood products (C9,C10)			Various manufactures (C16,C18,C20)			Chemicals and plastic products (C6,C7)			Transport equipment (C17)			
	EU11	Non-EU11	Total	EU11	Non-EU11	Total	EU11	Non-EU11	Total	EU11	Non-EU11	Total	EU11	Non-EU11	Total	EU11	Non-EU11	Total	EU11	Non-EU11	Total	
1971	2.0	2.1	2.0	-0.9	1.4	-0.1	0.7	2.8	1.6	1.6	0.7	0.9	0.4	1.9	0.7	1.9	1.9	0.4	1.5	1.9	-1.9	-0.5
1972	1.2	-1.0	-0.4	4.4	0.1	2.7	1.7	0.8	1.3	2.7	0.9	1.2	3.6	1.9	3.2	1.8	1.8	1.3	1.7	2.8	-3.5	-3.1
1973	3.8	6.3	5.4	3.1	8.3	4.7	5.2	2.6	4.0	2.0	2.9	2.7	0.4	2.8	0.9	2.9	2.9	-0.2	2.1	1.0	2.4	1.8
1974	2.9	-0.6	0.5	1.7	-8.7	-2.2	1.5	-1.6	0.2	0.3	-0.9	-0.7	1.0	1.0	1.0	-0.1	-0.1	-2.7	-0.7	7.7	10.4	9.1
1975	2.1	-1.4	-0.4	-2.8	5.2	-3.9	0.2	0.8	0.5	3.9	-0.2	0.6	-1.1	1.9	-0.3	2.0	2.0	2.6	2.1	2.7	21.4	24.6
1976	-1.0	1.3	0.5	-0.8	0.3	-0.4	0.1	0.0	0.1	-0.2	0.5	0.3	-0.7	0.9	-0.3	1.3	1.3	0.8	1.2	1.6	16.0	8.1
1977	-1.7	-1.2	-1.3	4.7	2.7	3.8	2.0	9.9	5.6	-1.5	-1.1	-1.2	1.1	-0.7	0.6	-0.2	-0.2	-1.0	-0.4	7.4	2.5	4.4
1978	2.6	4.0	3.6	1.5	1.1	1.3	-1.1	-4.1	-2.6	-0.2	0.7	0.9	0.4	2.2	2.4	0.2	0.2	-3.1	-0.1	-0.4	-3.1	-1.9
1979	5.9	-2.6	-0.2	1.3	-2.5	-0.3	-0.1	-2.6	-1.3	1.6	-1.3	0.9	2.2	2.7	2.4	4.1	4.1	1.8	3.6	-2.3	-2.5	-2.4
1980	8.7	-7.4	-1.9	12.5	1.7	14.5	-9.4	28.6	7.2	1.7	9.6	7.6	1.8	7.2	3.3	3.8	3.8	8.6	4.8	-12.2	9.2	-0.9
1981	360.3	-149.9	58.2	0.3	-107.1	-43.3	375.0	-20.7	141.2	87.5	-63.6	-29.9	-19.7	-21.8	-20.3	-0.4	-0.4	79.6	17.3	-12.2	-174.8	-147.1
1982	50.4	30.3	44.5	-29.1	6.2	-17.8	-10.2	-54.5	-27.8	5.5	18.5	14.6	-0.1	-17.3	-5.1	-30.4	-25.5	-25.5	-29.2	15.4	-10.4	1.3
1983	39.4	6.6	30.3	8.1	2.50	63.3	15.5	32.1	21.1	14.7	16.4	15.9	16.6	21.2	17.9	53.3	-14.3	35.5	2.0	-20.3	18.7	-0.2
1984	1.6	-2.6	0.6	-1.2	-3.7	-2.0	6.9	1.9	5.1	5.2	1.9	2.9	-0.2	1.7	0.3	1.1	8.5	8.5	5.0	4.7	9.0	7.1
1985	4.4	3.8	4.2	3.0	4.8	3.5	3.4	2.7	3.2	2.5	1.9	2.1	2.3	1.9	2.2	3.3	-2.0	-2.0	2.0	6.3	-4.7	-0.1
1986	17.0	0.6	13.2	4.2	1.8	3.4	20.9	-6.5	12.0	3.5	3.0	3.2	13.7	3.6	10.8	9.3	1.0	10.0	9.5	-7.6	-1.8	-4.8
1987	-23.9	-43.5	-27.7	-1.5	0.0	-1.0	-15.9	-8.8	-14.2	-37.6	-29.7	-32.2	-1.6	-20.1	-6.4	-15.7	-15.7	-15.7	-15.7	24.1	21.2	22.6
1988	-8.0	-5.3	-7.4	-7.6	-2.2	-6.0	-6.6	-2.0	-5.5	-4.8	-6.2	-5.8	-4.1	1.3	-2.7	-5.8	-5.8	-4.5	-5.5	-6.8	-1.5	-4.1
1989	4.0	7.1	4.7	10.6	11.2	10.8	11.0	-0.7	7.6	7.4	9.8	9.0	8.5	7.6	8.2	4.4	4.4	4.4	4.6	15.4	5.2	9.3
1990	5.9	13.6	7.8	8.9	9.4	9.1	-7.5	-8.7	-7.8	-10.1	10.8	4.1	-8.7	17.9	-0.1	1.2	1.2	4.1	1.9	-24.4	21.5	-0.6
1991	-0.5	-2.0	-0.8	-0.9	5.9	1.7	-1.2	-0.4	-1.0	-1.3	0.5	-0.2	-1.9	2.6	-0.7	0.3	0.3	4.0	1.1	6.0	14.9	9.9
1992	20.3	3.7	16.5	-35.5	-89.7	-58.8	19.4	-29.6	8.7	34.4	-64.6	-30.5	21.5	10.6	18.1	6.0	7.3	7.3	6.4	47.0	-24.4	12.2
1970-74	2.5	1.7	1.9	2.1	0.2	1.3	2.3	1.1	1.8	1.6	0.9	1.0	1.4	1.9	1.5	1.6	1.6	-0.3	1.2	2.0	1.8	1.8
1975-80	2.8	-1.2	0.0	2.7	2.4	2.5	-1.4	5.4	1.6	0.9	1.4	1.2	0.6	1.8	0.9	1.9	1.9	2.0	1.9	3.6	7.2	5.3
1982-84	30.5	11.5	25.1	18.3	9.1	14.5	4.1	-6.9	-0.5	8.5	12.3	11.1	5.4	1.9	4.4	9.0	9.0	-10.4	3.8	0.0	5.8	2.7
1985-89	-1.3	-7.5	-2.6	1.7	3.1	2.2	2.6	-3.1	0.6	-5.8	-4.2	-4.7	3.7	-1.1	2.4	-0.9	-0.9	-1.4	-1.0	6.3	3.7	4.6
1990-92	8.6	5.1	7.8	-9.2	-24.8	-16.0	3.6	-12.9	0.0	7.6	-17.7	-8.9	3.6	10.3	5.8	2.5	2.5	5.1	3.1	9.5	4.0	7.1
1970-80	2.7	-0.1	0.8	2.5	1.5	2.0	0.1	3.7	1.7	1.2	1.2	1.1	0.9	1.8	1.1	1.8	1.8	1.1	1.6	3.0	5.1	3.9
1982-89*	19.5	7.6	16.3	12.1	7.5	10.2	7.9	-4.2	3.6	6.5	8.6	7.9	6.8	3.1	5.7	7.3	7.3	-3.0	4.6	2.3	2.7	2.1
1982-92	10.1	1.1	7.8	3.3	-2.9	0.6	3.2	-6.8	0.1	1.8	-3.4	-1.5	4.2	2.8	3.9	2.7	2.7	-2.1	1.4	5.4	4.3	4.8

\*excluding 1987-88

Source: Author's calculations based on ESSVE data

Truman and the EFTA Secretariat (1972) methods)<sup>43</sup>. Both the method used by Truman and the one used by the EFTA Secretariat are conceptually similar to the one which we have employed<sup>44</sup>.

### 5.8. Export demand functions

We end our analysis by presenting the results from the estimation of a number of export demand functions. The aim is to see whether there is any indication that EU participation has given a boost to Greek exports as was expected by the optimistic pre-integration scenario. The equations which we estimated refer to the eight most important destinations for Greek exports, namely Germany, France, Italy, Belgium-Luxembourg, the Netherlands, the UK, Denmark and the USA. These countries account for approximately 65% of total Greek exports.

The functional form which has been selected is a standard one<sup>45</sup> and has the following form:

$$\log(X)_t = \alpha + \beta_1 \log(X)_{t-1} + \beta_2 \log(Y^*)_t + \beta_3 \log(\text{RER})_t + \beta_4 D + \beta_5 SD + u_t \quad (7)$$

The dependent variable is the logarithm of the value index of real Greek exports expressed in 1990 prices,  $\log(X)_t$ . The predetermined variables are the lagged value of the dependent variable,  $\log(X)_{t-1}$ ; the logarithm of the value index of real GDP (expressed in constant 1990 prices) in the importing country  $\log(Y^*)_t$ ; the logarithm of the real exchange rate of the Greek drachma against the currency

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<sup>43</sup> See pp. 219-222, 237-238, 240 and 242. Here we should mention that in Giannitsis' study, both methods indicated gross trade creation in the case of the EU, but there was a contradiction in the case of the third countries. More specifically, the application of Truman's methodology showed gross trade diversion (p. 219) whereas the application of the EFTA methodology showed (for one of the two base periods considered) the existence of external trade creation (see p. 237). In addition, the absolute values of the trade effects vary considerably according to the base year/period selected. Giannitsis comments on this fact verify what we have already mentioned, namely that any investigation of trade effects caused by integration should be considered only indicative of direction changes.

<sup>44</sup> Dayal and Dayal (1977) claim that "conceptually, the EFTA study is similar to the study by Balassa. It uses consumption whereas Balassa uses income as the domestic variable" (p.136).

<sup>45</sup> See for example, Kreinin (1969) and Resnick and Truman (1973). In the case of Greek exports this form has been used by Lianos, Dogas and Gaglia (1990) However, their analysis (which covers the period from 1953 to 1985) did not investigate the existence of any EU participation effect.

Table 5.16

## Export demand functions

	constant	$\log(N)_{t-1}$	$\log(Y^*)$	$\log(RER)$	D	D1988	STDR	Other dummy (ies)	R <sup>2</sup>	AR	ARCH	Normality	$\chi^2$	RESET
Germany	-1.498 -3.772	0.625 6.660	0.583 1.988	0.540 3.219	0.075 2.368	-0.223 -5.584	-0.092 -2.990		0.98	0.95	0.14	3.40	0.69	0.18
France	-3.161 -3.554	0.297 1.966	1.847 4.332	0.461 1.117	0.066 1.135	-0.240 -3.224	-0.219 -4.238	0.229 3.143	0.97	1.65	0.04	0.38	0.18	0.12
Italy	-5.649 -5.611	-0.137 -0.769	3.386 5.462	0.668 1.462	-0.001 0.010	-0.244 -2.130	-0.202 -3.023		0.95	1.78	0.94	0.59	2.17	0.00
Belgium <sup>1</sup>	-1.548 -1.448	0.516 2.870	1.674 1.979	-0.289 -0.457	-0.086 -0.624	-0.242 -1.715	-0.186 -2.015		0.89	0.93	1.80	1.79	0.68	1.26
Netherlands	-1.853 -2.510	0.540 3.408	1.351 2.762	0.146 0.340	-0.051 -0.701	-0.312 -4.353	-0.238 -3.694	-0.168 -2.215	0.97	1.38	0.39	3.14	0.63	0.42
UK	-0.461 -0.594	0.758 6.286	0.816 2.071	0.324 0.948	0.077 1.798	-0.296 -4.003	-0.137 -3.039	-0.175 -2.367	0.96	4.32*	0.35	3.03	0.21	0.40
Denmark	-2.485 -2.911	0.726 6.651	1.169 1.662	0.388 0.768	0.017 0.157	-0.289 -2.877	-0.151 -2.371		0.97	1.31	0.03	2.22	1.15	2.30
USA	-1.125 -1.240	0.335 1.836	1.139 3.732	0.133 0.386	0.114 1.586	-0.317 -3.277	-0.264 -3.456	0.328 3.021	0.87	3.11	0.19	0.43	1.15	0.27

<sup>1</sup> including exports to Luxembourg  
Definition of other dummy: France 1967, Netherlands 1981, UK 1968 and 1973, USA 1963

*t-values in italics*

AR = Lagrange Multiplier F-test for autocorrelation

Normality =  $\chi^2$  test for the normal distribution of the residuals

RESET = Reset F-test for functional form

ARCH = LM F-test for Autoregressive Conditional Heteroscedasticity

$\chi^2$  = White test for heteroscedasticity

\* indicates significance at the 5% level, \*\* indicates significance at the 1% level

of the importing country  $\log(\text{RER})_t$ <sup>46</sup>; an intercept dummy (D), taking the value of 0 for the pre-1981 years and unity for the post-integration period<sup>47</sup>; and an intercept dummy variable, STDR, aiming to capture the negative effect which the policy of strong drachma appears to have exercised on exports. STDR takes the value of unity for the 1990-93 period and 0 otherwise<sup>48</sup>. Finally, we have allowed for one or two additional intercept dummies aiming to neutralize the effect of some unusual observations. The definition of such dummies was treated as an empirical matter, although in most cases, it refers to 1988<sup>49</sup>.

Table 5.16 presents the results of the estimation of the export-demand equations. As far as the misspecification tests are concerned, the relevant statistics reveal that with the possible exception of the UK, where the hypothesis of no autocorrelation is marginally rejected at the 5% level (but not at the 1% level), the equations do not present autocorrelation, heteroscedasticity and functional form misspecification. On the other hand, despite the fact that this time the RER term has the expected positive sign<sup>50</sup> (with the exception of Belgium-Luxembourg), in most cases it remains insignificant<sup>51</sup>. It is however statistically significant in the case of Germany which is the main destination of Greek exports, absorbing approximately 25% of the total amount. As far as EU participation is concerned, this appears to have had a positive impact on exports only in the case of Germany and probably the UK. For the other commercial partners, the impact appears to have been statistically insignificant. Finally, an interesting element which emerges from Table 5.16 is the fact that for all commercial partners the dummy variable

<sup>46</sup> The RER is defined as  $R = E (\text{NULC}^*/\text{NULC})$  where  $E$  = nominal exchange rate,  $\text{NULC}^*$  the nominal unit labour cost in the foreign country (1990=100) and  $\text{NULC}$  nominal unit labour cost in Greece (1990=100).

<sup>47</sup> We also tried to incorporate slope dummy variables for  $\log(Y^*)$  and  $\log(\text{RER})$  without getting any improvement in the results.

<sup>48</sup> Here we need to clarify two points. First, one could argue that the strong drachma effect should have been captured by the RER term. However, the latter, as we shall shortly see, was insignificant in most of the equations. Second, the strong drachma policy was introduced in 1988 but its effect on exports only became evident after 1990 when the policy acquired a more restrictive character. Hence, the SD term is considered for the 1990-93 period only.

<sup>49</sup> The data sets for international GDP values have been taken from the *International Financial Statistics Yearbook 1996*. The sample period of our analysis covers the years between 1961 and 1993.

<sup>50</sup> The way we have defined it, an increase in RER indicates a real depreciation which is expected to give a boost to Greek exports.

<sup>51</sup> We have also estimated export demand functions involving as predetermined variables the nominal exchange rate and levels of the real labour cost in Greece in Greece and the importing country. However, the results did not improve.

referring to the post-1990 period, i.e. the period of the application of the strong-drachma policy and the abolition of all remaining exports subsidies<sup>52</sup>, has a statistically significant negative sign.

All in all, the results presented in Table 5.16 provide mixed evidence. Indeed, one cannot say that they are fully in accordance with either of the two pre-integration scenarios. It is, of course, true that out of the eight commercial partners which we have examined (seven of which are EU countries), EU participation appears to have promoted Greek exports only in one or at the maximum, two markets. This is far below the progress envisaged (and expected) by the optimistic pre-integration scenario. On the other hand, one of these two countries is Germany, the country which had always been, by far, the main destination for Greek products. This explains partly why on some occasions during the post-1981 period, exports to the EU countries as a whole have taken values above their 1975-80 projections. All in all, one might suggest that overall, EU participation contributed, to a modest extent, to an increase in Greek exports but this increase was not the one envisaged by the pro-EU authors.

### **5.9. Summary and concluding remarks**

This chapter has investigated the trade effects caused by the accession of Greece to the EU. Prior to 1981 there were two main lines of thought concerning the effects to follow the accession. The first one (the pessimistic scenario) suggested that Greece was not ready for EU participation and that would lead to de-industrialization and a deterioration in the trade balance. The second opinion (the optimistic one) suggested that accession would increase the competitiveness of the Greek economy and would result in an increase in exports rather than imports. The main findings in this chapter have provided evidence closer to the former than the latter scenario.

More specifically, our analysis indicates that after 1981 the competitiveness of the Greek economy in a number of commodity categories where Greece had

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<sup>52</sup> In 1988 the subsidies given to Greek industrial exports were still quite significant. Hassid and Katsos, (1992, pp. 208-120) report that industrial export subsidies were, on average, equal to 15.7% of export value. On the 1<sup>st</sup> of January 1990 all subsidies given to exports whose destination is the EU were abolished and the subsidies to exports to third countries declined to 3-4% of their FOB value.

historically displayed a comparative advantage declined. In addition, Greece did not manage to develop product differentiation and new specializations in sectors where the domestic production has been narrow. The results obtained also indicate the existence of gross trade creation in imports from the EU partners and gross trade diversion in imports from non-EU countries. The overall effect of EU participation on total imports appears neutral. As far as exports are concerned, it would appear that, with the exception of Germany and possibly the UK, EU participation did not coincide with a substantial increase in Greek exports to the markets of the EU countries.

We end this chapter with two remarks. The first is that recent developments in the field of competitiveness have shown that three out of the four most important export categories of Greece (i.e. textiles, vegetable products, base metals and articles of base metals) represent products of declining, non-dynamic, low income elasticity and low value-added industries whose future prospects do not appear very promising. This implies that in order to avoid further competitiveness losses and deterioration of the trade balance, Greece should pursue a substantial change in the composition of her exports, a higher level of productivity and better marketing and commercial strategies on the part of Greek exporters.

Second, and most important, despite the fact that this chapter has provided indications in favour of the pessimistic rather than the optimistic pre-integration scenario, the negative developments which took place in the 1980s should not be exclusively attributed to EU participation. The truth of the matter is that in the 1980s a number of important domestic developments and international economic events took place, all of which had a certain direct (static) and indirect (dynamic) negative impact on Greek economic performance. We argue that the role of these developments, which were largely unrelated to EU participation, should not be underestimated when one assesses the impact of EU participation.

## CHAPTER 6

### Summary and concluding remarks

The motivation for the writing of this thesis was the observation that over the last four decades, Greece has displayed an impressive contrast in the field of macroeconomic performance. The fundamental questions which were addressed by the analysis were the following:

*Why did Greece, the best-performing European economy during the 1960-73 period, achieve less satisfactory performance thereafter?*

and

*How can Greece correct the existing macroeconomic imbalances and return to conditions of economic prosperity?*

The thesis attempted to provide some answers to the questions mentioned above by means of (i) assessing a number of macroeconomic policies adopted by successive Greek governments; (ii) assessing the present effort of Greece to join the proposed EMU; and (iii) evaluating the trade effects caused by the accession of Greece to the European Union (EU).

As far as the first question is concerned, the reference point of our analysis was the opinion adopted by a number of economists who argued that the post-1974 Greek economic slowdown is primarily due to external factors. This argument runs as follows: the post-war economic development of Greece was based on strong protectionism against imports, a high degree of state intervention in all fields of the economy and a favourable external economic environment. The first two factors resulted in a distortion of the forces of competition and isolated domestic producers from international developments. On the other hand, the international economic slowdown which followed the first oil shock resulted in a fundamental change in external environment which affected the Greek economy in a negative way. All in all, in the new, competitive environment which was created after the accession of the country to the EU in 1981, the highly protected Greek economy, and in particular its industrial sector, had neither the means nor the

ability to compete efficiently in the home and international markets. These factors led to an increase in imports, to de-industrialization and to the destabilization of the development process.

The validity of this view, and in particular the nature of the trade effects caused by the accession of Greece to the EU, were analytically investigated in chapter 5. Prior to 1981 there were two main opinions concerning these effects. The first one (the pessimistic scenario) argued that Greece was not ready for EU participation which would only lead to de-industrialization and a deterioration of the trade balance. The second opinion (the optimistic one) argued that EU participation would increase the competitiveness of the Greek economy and would result in an increase in exports rather than imports. The main findings in chapter 5 provide evidence closer to the former than the latter scenario.

One important aspect of the analysis in chapter 5 is the fact that it makes use of some original time-series which have been constructed by the author himself to be presented in this thesis for the first time. These series, which present Greek trade flows disaggregated according to the twenty one categories of the Greek Tariff Schedule (GTS), are presented in the Trade Data Appendix. The results of our analysis suggest the following: (a) after 1981 industrial production stagnated; the trade balance against EU partners deteriorated and the non-mineral balance against third countries entered a deterioration path after the marked improvement which took place in 1981; (b) EU participation has led to a reorientation of Greek trade flows towards the European countries. This reorientation is particularly spectacular in a number of commodity categories such as agricultural products and textiles; (c) after 1981 the competitiveness of Greek products declined in a number of commodity categories where Greece had historically displayed comparative advantage; and (d) after 1981, the external trade of Greece acquired a more intra-industry character in most of the categories where Greece had possessed a trade surplus. In contrast, for the other categories, the degree of intra-industry trade remained either stable or declined. These findings indicate that after 1981 Greece failed to exploit further her comparative advantages and did not manage to develop product differentiation and new specializations in sectors where domestic production was narrow.



Trade creating and trade diverting effects were examined by means of the *ex-post* income elasticities of demand for imports method developed by Balassa. Although after 1981 the volatility of these elasticities has greatly increased, our analysis indicated the existence of gross trade creation in trade transactions with the EU partners and gross trade diversion in trade transactions with the third countries. Further support for this finding is provided by the estimation of a number of import-demand equations. As far as exports are concerned, the export-demand equations which we estimated suggest that EU participation has led to a modest increase in Greek exports to Germany (which is the main destination of Greek exports) and possibly the UK. On the other hand, EU participation does not appear to have contributed to an increase in exports to the other EU countries.

To summarize the results obtained in chapter 5, these are rather consistent with the pessimistic pre-integration scenario. From that point of view, it would appear that the arguments put forward by those economists who highlight the role of the external economic environment in explaining the post-1975 economic slowdown are quite relevant. *However*, there are reasons to believe that these arguments are rather unconvincing as a *full* explanation of the recession experienced by Greece after 1975. Firstly, the post oil-shock recession in Greece lasted much longer than the corresponding recession in Europe. Secondly, there are countries such as Portugal and Spain whose economies present a number of similarities with the Greek one, and were also admitted in the EU in the 1980s, but, in contrast to Greece, managed to achieve very satisfactory growth rates during the 1980s and the early 1990s. Finally, as shown in chapter 5, the accession to the EU did not abolish completely state protection in favor of domestic firms immediately, as Greece secured a long transition period, extending up to 1989.

Therefore, it would appear that the causes of the economic stagnation which hit Greece after 1980 should also be sought within the country and not in external factors only. The validity of this statement was examined in the first three chapters of the thesis. More specifically, chapter 1 provided a detailed review of the main macroeconomic policies adopted by Greece during the period 1960-97, placing emphasis on the post-1980 period. We argued that the post-1975 period may be further divided in two sub-periods. First, the period of expansion 1975-

1990, when Greek governments implemented expansionary fiscal and monetary policies which were accompanied by deteriorating macroeconomic performance and quite low, compared to the pre-1975 years, growth rates. Second, the period of stabilization 1991-97, when Greek governments attempted to correct the macroeconomic imbalances which appeared after 1975 and sought the participation of Greece in the first wave of EMU participants. However, despite the undeniable progress which has now been achieved, this target was not met and considerable macroeconomic imbalances still remain.

The post-1975 policy shift and the deterioration of the Greek economic performance which followed pose a number of important questions. More specifically, is there any evidence suggesting that fiscal expansion contributed to a higher level of national income? Has the increase in public consumption led to a higher rate of growth for the Greek economy? What has been the effect of the post-1975 fiscal policy on the dynamics of public debt? Why did the BOG miss most of the monetary targets set between 1975 and 1990? What has been the impact of the exchange rate policy followed after 1975? Furthermore, the persistence of macroeconomic imbalances and the failure of Greece to gain EMU qualification in 1999 pose a second set of important questions. Why did the convergence programmes of the 1990s fail to secure an EMU place for Greece in 1999? Does the effort to achieve an increase in public revenue constitute an optimal fiscal strategy or should Greek authorities attach a higher weight to reduction in public consumption? What were the advantages and disadvantages of the strong drachma policy and why did Greek authorities decide (or, perhaps, were obliged) to proceed to the recent devaluation? Chapter 3 aimed at providing some answers based on the theoretical framework and econometric methodology presented in chapter 2.

The first section of chapter 2 was dedicated to a brief overview of the theory of economic growth; intermediate monetary targets; deficit financing and public debt stabilization; and the political and partisan business cycles which represents the theoretical framework of our analysis. It also referred to the main points of the econometric methodologies applied in this chapter. The literature on economic growth was reviewed because, although our subsequent analysis does

not fall directly in its context, it can provide useful insights in order to assess the wider impact of the macroeconomic policies examined. The theory of intermediate monetary targets was discussed because this was the monetary strategy adopted by Greece during the post-1975 years. The theory of budget deficits and public debt stabilization was presented for two reasons: first, in the 1980s Greek governments pursued a higher level of aggregate demand (and output) through discretionary budget deficits; second, in the first half of the 1990s, the primary objective of fiscal policy was the stabilization of public debt. Finally, the theory of political and partisan business cycles was reviewed in order to acquire insights regarding the influence of politics over the Greek economy.

In chapter 3 we argued that, as both the exogenous and endogenous models of economic growth suggest, the high growth rates achieved by Greece during the period 1960-73 may be explained by the then existing high levels of domestic and foreign investment. The key to that success was the credibility established in the prudent conduct of economic policy and the long-run stability of the economic system. From an investor's point of view, there were three explicit and convincing guarantees which safeguarded high rates of return. *First*, a sound fiscal situation with an almost balanced public budget and quite small public debt. These excluded the probability of excess taxation or surprise inflation in the foreseeable future. *Second*, the commitment of the authorities to maintain a fixed exchange rate against the US dollar. This eliminated exchange rate risk and was an extra guarantee against inflation. *Third*, the stability of the institutional framework which on the one hand guaranteed the property rights of the investors and, on the other, ruled out any questioning, let alone overthrowing, of the *status quo*. All the above kept wage inflation and labour costs at very moderate levels by European standards, a fact which combined with the Association Agreement Greece had signed with the EEC in 1961 (an agreement which provided a number of competitive advantages against competing non-EEC countries) made Greece a very attractive country for investment purposes.

On the other hand, it is quite clear that the pre-1973 picture of the Greek economy was not completely rosy. Apart from the moral issues unavoidably and justifiably caused by the then repressive political administration, the production

base of the Greek manufacturing sector remained narrow: foreign and domestic investment were mainly directed to traditional, low-value added, heavily protected sectors of manufacturing where Greek firms acquired a specialization. As a result, the development of the Greek economy involved significant structural problems, such as a structural trade deficit, with Greece importing medium and high-technology goods and exporting traditional products, to face potentially intense international competition.

The above mentioned limitations became more obvious after 1974 when, as a result of the two oil shocks, the international economic environment changed fundamentally. It is, of course, true that in terms of output growth, during the 1975-80 period Greece performed better than most OECD countries. However, it would appear that after 1974 Greek governments introduced some policies which turned out to be sub-optimal. These policies, which were continued and intensified during the 1980s, include the introduction of an independent monetary policy, (involving a crawling-peg exchange rate policy against the major foreign currencies), a number of measures which were unpopular with the business community (such as an increase in corporate taxation) and, perhaps more importantly, a significant expansion of the public sector, mainly characterized by a remarkable increase in public consumption. In the institutional field, it would appear that Greece failed to replace the repressive political mechanisms of the pre-1974 era with modern, democratic institutions able to guarantee conditions of economic stability and policy credibility. Trade unions acquired significant power and, in view of the obvious wealth inequalities characterizing the Greek society, adopted rather aggressive behaviour. As a result, industrial relations became increasingly strained.

The above mentioned policy choices had a number of negative consequences which prevented Greece from recovering from the external shock caused by the two oil crises. To begin with fiscal policy, it has been suggested that the aim of the significant increase in public expenditure which took place in the late 1970s and the early 1980s was twofold: (a) to achieve a fairer distribution of income in favour of the lower-income classes ; and (b) to achieve a higher rate of growth for the economy through a higher level of investment which was expected

to follow the increased aggregate demand. Whether the objective described by (a) above has been achieved or not is a debatable subject, but in any case, the answer is out of the scope of our analysis. As far as (b) is concerned, the econometric analysis which we performed in chapter 3 using the Engle and Granger and the Johansen-Juselius cointegration methodologies, suggested that there is no statistical evidence indicating the existence of a long-run relationship between public consumption and national income. From that point of view, it would appear that in terms of long-term output growth, the fiscal expansion of the late 1970s and the 1980s has rather been ineffective.

In contrast, and in accordance with existing evidence from other countries provided by other researchers, it would appear that the resulting high levels of public deficit and public debt, combined with an accommodating monetary policy and the aforementioned deterioration in industrial relations, created inflationary expectations, undermined the competitiveness of Greek products, discouraged new investment and maintained the rate of inflation at high levels without any visible employment gains. Furthermore, as the theory of debt-financed deficits predicts, the initiation of the process of financial deregulation and the abolition of capital controls coincided with a significant increase in nominal and real interest rates which put further pressure on public debt (through higher interest payments) and put the latter on an unsustainable increasing path.

As far as monetary policy is concerned, the late 1970s and the 1980s were characterized by high inflation rates and the missing of most of the targets set by the BOG with regard to the rate of growth of money supply. We suggest two reasons explaining this missing. Firstly, the BOG (which at the time enjoyed a very limited degree of independence from governmental interventions) was actually obliged to accommodate the fiscal expansion, mainly by means of providing substantial amounts of credit to the public sector. Secondly, the BOG had to cope with a non-stationary income velocity of money whose rate of growth was rather unpredictable. A number of explanations, consistent with the theory of money supply targeting, are offered for this instability. These include the impact of high inflation on money demand, the long and variable lags involved in the conduct of monetary policy and structural shifts caused by the process of financial

liberalization. In any event, there is little doubt that the high inflation rates observed in Greece after 1975 contributed to the creation of an “inflation psychology” among agents, which kept inflation expectations high and prevented the BOG from taking advantage of the benefits suggested by the reputational models of monetary policy.

All in all, it seems that after 1975, the Greek economy entered a slow, inflationary growth pattern which could not produce the necessary structural changes and could not avert the deterioration of the current account every time economic activity was allowed to increase even modestly. In the absence of fiscal discipline, the high rates of inflation, combined with a crawling peg exchange rate policy, led to the creation of a vicious circle involving high prices, external imbalances, currency depreciation and further increases in prices. As a result, the Greek economy entered the 1990s with a number of serious problems, of which the explosive character of the public debt was the most serious.

During the first half of the 1990s, in the light of the Maastricht criteria and under pressure from other EU countries, Greek governments initiated a stabilization effort with the aim of putting the country back on the track of sustainable, non-inflationary growth and achieving the participation of Greece in the proposed European Monetary Union. So far, the stabilization effort has taken the form of three convergence programmes: the three-year Medium Term Adjustment Programme (MTAP) 1991-93, the Convergence Programme (CP) 1993-98 and the Revised Convergence Programme (RCP) 1994-99.

All three programmes, and in particular the RCP, placed emphasis on reducing fiscal imbalances. The theory of public debt stabilization suggests that the latter (as a percentage of GDP) can be stabilized either through an increase in the growth rate of the economy or through the creation of primary surpluses. In general, it is not quite clear whether primary surpluses should be pursued through an increase in taxation revenue or a reduction in public expenditure. The existing literature suggests that the choice is conditional upon country-specific conditions. In other words, it depends on the existence of a long-run relationship between the two variables and, if such a relationship exists, the nature of the existing causality

pattern(s), the initial levels of public spending and revenue and the rate of growth of total output.

As far as Greece is concerned, in the early 1990s a number of economists argued that the authorities should pursue primary surpluses through an increase in public revenues and, more specifically, by means of curbing tax-evasion and imposing higher taxation on personal incomes and firms' profits. At first sight, it would appear that in the first half of the 1990s Greek governments have adopted this strategy while a reduction in public consumption has not been pursued very actively. However, an increase in the *level* of public receipts is bound to lead to a reduction in deficit and debt (both in terms of levels and as percentage of GDP) only if an increase in expenditure will *not* follow the initial increase in receipts (i.e. in the absence of cointegration between the two variables). In other words, a fiscal strategy involving an increase in tax revenue will be unquestionably effective if the hypothesis of cointegration between public expenditure and public receipts is rejected. Our econometric analysis in chapter 3 did not reject the hypothesis of cointegration between the levels of Greek public expenditure and Greek public receipts. Furthermore, the causality tests which were carried within an Error Correction Mechanism (ECM) specification, to avoid the problem of misleading results which could exist if the conventional Granger tests were used, indicated a two-way causality pattern between the two variables. Under such circumstances, whether the deficit as *percentage of GDP* will decline as a result of an increase in taxation revenue depends on three factors: (a) the elasticity of the response of public expenditure to changes in taxation revenue; (b) the initial level of the two variables; and (c), as suggested by the theory of public debt stabilization, the rate of growth of GDP

With regard to (a), if the estimated long-run elasticity of expenditure in changes of revenue were greater than one, the implication would be clear-cut: in the event of an increase in public receipts, the deficit (both in terms of levels and percentage in GDP) would increase. This, however, does not appear to be the case in Greece, as the long-run elasticity of the level expenditure with regard to changes in the level of revenue was estimated to be less than one. Nevertheless, this is not enough to guarantee a reduction in deficit in the event of an increase in

public receipts: if the initial level of expenditure is significantly higher than the one of receipts, a 10% increase in receipts accompanied by an e.g. 7% increase in expenditure may still give rise to an increase in the *level* of deficit. In that case, the deficit *as a percentage of GDP* could only decline if the rate of growth of GDP is sufficiently high. If it is not, the deficit could continue to increase *both in terms of levels and in terms of percentage in GDP* and public debt will not be declining.

The experience of Greece in the early 1990s seems to be consistent with the scenario just described. The country entered the 1990s with a level of public receipts considerably lower than the one of public expenditure, while GDP growth was very modest, in the range of 1.5-2.0%. As a result, despite increasing revenues, public debt continued to increase. Therefore, it would appear that it would now be preferable for fiscal policy to shift emphasis to the expenditure side. Recent developments in the field of public debt provide further evidence in favour of this view. In the early 1990s, when revenue was increasing and no initiatives were taken with regard to expenditure, the debt continued to increase. In contrast, since 1995, when a more determined effort to control public expenditure was undertaken, public debt stopped increasing and has even displayed a modest decline.

In addition to the above, there is a number of further arguments in favour of a reconsideration of the currently applied fiscal policy. These include the following: (a) increasing corporate taxes may not be best way to achieve higher amounts of domestic and foreign investment and promote long-run economic growth. Recent empirical research suggests that successful fiscal consolidation programmes are characterized by public expenditure cuts and not by tax increases. The latter policy appears not only to be ineffective in reducing the deficit but also contractionary with regard to GDP growth; (b) if Greece is to join the EMU in the foreseeable future, she should observe the rather strict provisions of the recently signed Budget Stability Pact (see below). Obviously, this will not be possible only by means of increasing existing taxes and imposing new ones, many of which (according to Greece's own government) are of temporary nature.

To turn now to monetary policy, in chapter 3 we argued that much of the recent progress achieved in the field of inflation is due to the strong drachma



policy which was implemented between 1988 and 1997 and involved a nominal depreciation of the drachma against the ECU smaller than the inflation differential which exists between Greece and the European average. Without any doubt, the strong-drachma policy has contributed to the reduction in inflation which has been observed since 1991. However, this policy had certain limitations, which finally prompted (or perhaps obliged) the BOG to devalue the drachma against the ECU by 14% in March 1998.

Firstly, it is now evident that the strong currency policy had led to an overvaluation of the Greek drachma: our cointegration analysis in chapter 3 provided evidence in favour of the long-run PPP hypothesis. The latter states that the long-run movements of exchange rates reflect the differences which exist between the domestic and foreign inflation rates. Our analysis also indicated that the responsiveness of the exchange rate to the movements of the ratio of domestic to foreign price levels has experienced a remarkable reduction since 1988. This implies that the strong-drachma policy had driven the drachma off its long-run equilibrium and, consequently, had led to an overvaluation of the national currency. This overvaluation has put pressure on the external sector of the economy and has affected the profitability of Greek firms in a negative way.

The strong drachma policy also created liquidity problems through the existing positive interest rate differential between Greece and the other EU countries. This differential gave rise to significant capital inflows (primarily of short and medium-term nature) and increasing borrowing of Greek firms in foreign currencies. Increased liquidity put pressure on the money supply and jeopardized the anti-inflationary character of monetary policy. Furthermore, the short-run nature of a large part of the capital inflows meant that in the event of an exchange rate crisis, the drachma would be vulnerable to speculative attacks. The validity of these views was clearly confirmed during the October-November 1997 exchange rate crisis which showed that the markets had lost confidence in the parity of the drachma. Under such circumstances, the maintenance an exchange rate like the one which prevailed before the March 1998 devaluation would most probably necessitate further increases in interest rates which would harm the economy by means of increasing interest payments on public debt and suppressing

investment expenditure, without guaranteeing that a forced devaluation would be avoided in the event of a new exchange rate crisis.

All in all, we concluded in chapter 3 that despite the progress which has taken place in some fields of the economy during the 1990s, the macroeconomic imbalances which were created after 1974 have not yet been corrected and Greece has not yet managed to reap the full benefits of a number of institutional reforms which have taken place (primarily in the field of financial liberalization) or the potential benefits of the increasing EU transfers. The reason is that the applied Convergence Programmes were characterized by a deficit of credibility as Greek governments have rather attempted to balance economic with political aims and seemed hesitant in promoting many of the announced policies in the face of strong social reaction. Our conclusion was that in the absence of further structural adjustments, the continuation of the currently implemented policy mix which involves loose (under the circumstances) fiscal and incomes policies and a tight monetary/exchange rate policy is questionable.

This having been said, we proceeded to chapter 4 which examined the future prospects of Greek macroeconomic policy in the light of the pursuit of EMU participation and the wider European environment which is now taking shape. The overwhelming majority of Greek people have warmly embraced the prospect of EMU participation but it should be kept in mind that in principle, this might involve economic gains and costs. The obvious cost is, among others, the loss of national independence in the conduct of monetary policy. Potential benefits can result from many sources, including the reduction in economic uncertainty and credibility gains.

EMU participation is conditional on meeting the Maastricht criteria whose aim is to achieve nominal convergence among the European economies and enhance necessary structural adjustments in public finance. They were also set in order to exclude from the Union countries whose economic problems could endanger its stability and its commitment to non-inflationary growth. Monetary policy within the EMU will be conducted by the European Central Bank (ECB) whose primary objective will be to maintain price stability. Whether the Maastricht approach to the EMU is the correct one is a debatable subject as a

number of economists, based on plausible arguments, have criticized some of the provisions of the Maastricht Treaty. Furthermore, a number of economists have argued, on sound arguments, that the decision to launch a large EMU in 1999 incorporating a big number of countries, was taken with political rather than economic considerations in mind. Fears have been expressed that the inclusion of some of the so-called soft-currency, highly-indebted countries in the first wave of EMU participants could jeopardize price stability within the EMU and could weaken the euro vis-à-vis the major foreign currencies in international markets. These fears were the main motivation behind the German insistence on the signing of the Budget Stability Pact (BSP) which imposes fiscal restrictions on EMU participants.

However, a number of economists have argued that the BSP involves serious short and medium term contractionary risks, both in terms of individual countries and the EMU as a whole. In the domestic level, it is argued that by limiting the ability of national authorities to respond to income shocks, the provisions of the BSP involve some considerable welfare risks for a number of heavily indebted countries like Greece, especially during the first stages of EMU participation. In the EMU level, the provisions of the BSP, combined with the explicit mandate of the ECB to maintain price stability, provide the basis for a combination of tight fiscal and monetary policies which may result to conditions of an unnecessary economic slowdown. Furthermore, to the extent that in an economic system like the EMU (including open and highly integrated economies) negative demand shocks will have an impact on both domestic and foreign output, the strict provisions of the BSP leave room for considerable negative spillover effects between countries. It would appear that these contractionary risks seem to be too important to be neglected and this is particularly relevant during the current period of social unrest caused by the prolonged, determined effort of most of EU countries to be included in the first wave of EMU participants. Given the very low inflation rates currently observed in the EU, at the moment, there seems to be little reason to believe that a substantial increase in European inflation (which is feared by the proponents of a strict application of the provisions of the BSP) is possible in the foreseeable future. In contrast, the possibility of contractionary outcomes to follow the implementation of

tight fiscal and monetary policies seems much more realistic. As a result, if the provisions of the BSP are to be strictly applied, it might have been preferable to proceed to the establishment of relatively small EMU in 1999, and the rest of the countries to join later, provided that they would have made the necessary progress in the fields of nominal and real convergence.

To turn now to the prospects of Greek macroeconomic policy on the road to the single currency, the Greek authorities have now announced that as the country was not included in the first wave of EMU participants, they will attempt to achieve EMU participation by 2001. In chapter 4 we argued that the accession of Greece to the EMU in the foreseeable future presupposes three policy choices:

*First*, a more effective fiscal consolidation which is even more imperative in the light of the future fiscal limitations created by the signing of the Budget Stability Pact. Given the results obtained in chapter 3, it might be better to pursue such consolidation by means of a bolder reduction in public consumption rather than an increase in tax revenue.

*Second*, the restructuring of the supply side of the economy through the promotion of a higher degree of flexibility in the goods, labour, and financial markets. To that end, Greece could follow the example of other European countries and pursue a full or partial, according to the case, privatization programme for the ailing state-owned companies and public monopolies. In the field of labour market, Greece should reduce the existing rigidities in the wage setting procedures and consider alterations in the legislation which restrict the discretion of private firms as far as the number of their employees is concerned. In the field of financial markets, Greece should establish secondary markets for the trading of bonds, derivative securities and public securities and, at the same time, develop effective monitoring mechanisms in order to avoid the repetition of crises such the one which erupted in the Athens Stock Exchange in November 1996.

*Third*, the promotion of all those procedures which are necessary in order to ensure that the above proposed adjustments will not create major social conflicts but will take place with the maximum possible degree of social consensus. This is an absolutely essential element of our proposed strategy as the transformation of the

Greek economy will certainly raise a number of important socially sensitive issues which cannot possibly be ignored.

In the monetary field, we argued that given the prolonged character of the strong drachma policy and the uncertainty regarding the drachma overvaluation it had caused, it is very difficult to suggest with certainty that the recent realignment, i.e. the 14% devaluation which accompanied the accession of the drachma to the ERM in March 1998 was enough to restore long-run equilibrium conditions regarding the position of the Greek national currency vis-à-vis the ECU. If this is not the case, then, the problems caused by the overvaluation of the drachma have not been eliminated and the problems discussed in chapter 3 may still exist. In other words, the participation of the drachma in the ERM-II may not be immune to exchange rate turbulence. Under the existing fiscal circumstances and the anticipated anti-inflationary policy of the ECB (which could lead to an appreciating euro), in the absence of a significant improvement in the fundamentals of the economy the proposed ERM-II participation might put extra pressure on the external sector of the economy and increase the probability of speculative attacks against the drachma. From that point of view, it is not clear to us that the provisions of the Monetary Programme of the BOG for 1998 which precommit exchange rate stability against the ECU as *the* target of monetary policy in the run-up to EMU participation (through a commitment to an effective  $\pm 2.5\%$  band of fluctuation against the central ERM rate) are to the correct direction.

A powerful objection against our views expressed above is that by not excluding a new realignment of the drachma against the ECU in the near future, the BOG would abolish the nominal anchor provided by the exchange rate peg and could generate expectations about a resumption of a crawling peg policy, similar to the one employed during the 1974-87 period. However, this criticism may not be valid in view of the recent announcement of a specific 2% quantitative inflation objective for 1999. Provided that this commitment is regarded by market participants as credible, one may notice that the inflation objective can operate as an effective nominal anchor for the stabilization of inflation expectations, so that the BOG can enjoy wider margin for discretion in the conduct of monetary policy.

However, in order to be able to operate as an effective nominal anchor, the inflation objective must be both politically and operationally credible. This is where the recent granting of political and economic independence to the BOG may operate as a useful, credibility-inducing, external policy constraint as suggested by the recent literature on Central Bank Independence (CBI). However, what we *categorically* stated in chapter 4 was that CBI itself is not in position to offer solutions to a number of serious problems characterizing the Greek economy. *In short, Central Bank Independence is not panacea.* We view it only as an integral part of a wider macroeconomic strategy towards EMU participation. In the absence of progress in the field of fiscal adjustment and structural reforms, we argued that CBI can even be *harmful* to the Greek economy.

Chapter 4 concluded with the argument that irrespective of the EMU project, the Greek economy faces a number of problems which, in any case, should be dealt with. In this context, we believe that the popular prospect of EMU participation represents a first class opportunity to promote essential reforms and apply necessary policies with the maximum possible social consensus. Moreover, if Greece adopts the appropriate policies, its bid for EMU participation will acquire a higher degree of credibility and, by sending the appropriate signals to international markets, it will greatly enhance its EMU prospects. This is so because there is now evidence suggesting that nominal convergence crucially depends on market expectations respecting the participation of a country in the EMU at some stage in the medium-term future. It has been observed that the markets' conviction that a country will finally participate in the EMU leads to a decline in long-term interest rates and consequently lightens the burden of interest payments on public budgets, hence making the achievement of the final target easier.

We would now like to end this thesis by summarizing the objectives set and the fundamental conclusions reached by the work presented in the previous four chapters.

**The first question which motivated this thesis was:**

*Why did Greece, the best-performing European economy during the 1960-73 period, achieve less satisfactory performance thereafter?*

The answer emerging from our analysis is that Greece failed to sustain high growth rates over the last twenty years because:

(a) the pre-1975 Greek economic development was not built on a healthy basis;

(b) the Greek macroeconomic performance was negatively affected by the fundamental change in the international economic environment in the mid-1970s; and

(c) over the last twenty years Greek governments implemented sub-optimal domestic economic policies which, combined with the influence of political and partisan business cycle affected Greek macroeconomic performance in a negative way.

**The second question which motivated this thesis was:**

*How can Greece correct the existing macroeconomic imbalances and return to conditions of economic prosperity?*

The answer emerging from our analysis is that a substantial improvement in Greek macroeconomic performance is conditional upon:

(a) The promotion of a number of structural adjustments

(b) The implementation of a policy mix involving a more disciplined fiscal policy, placing emphasis on reducing public consumption and promoting public investment; and a less tight monetary policy which, combined with a number of credibility-inducing institutional reforms will be able to stabilize inflation expectations and deliver price stability.

Finally, we argued that the effort to modernize the Greek economy and achieve EMU participation should be accompanied by the pursuit of the highest

possible degree of social consensus on the necessary reforms and the promotion of all those procedures which will guarantee that the modernization of the Greek economy will take place in an environment of social stability and solidarity; and that all Greek citizens will be benefited by the higher degree of economic efficiency.



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## *Trade Data Appendix*

## Greek Imports by country of origin (millions of drachmas)

Year	Total	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1960	21060	958	929	626	3351	1215	2149	n.a.	142	48	n.a.	69	470	227	459	391	26	n.a.	2	593	53
1961	21422	1316	684	918	3858	1387	2272	n.a.	146	53	106	115	608	235	311	431	29	n.a.	3	588	40
1962	21037	1668	1001	850	3986	1609	2511	n.a.	247	47	72	136	709	260	345	450	32	n.a.	4	312	102
1963	24129	1498	871	1033	4403	1800	2517	n.a.	269	60	441	106	763	317	390	488	24	n.a.	10	603	101
1964	26546	1869	1006	947	5259	2153	2841	10	280	90	100	167	817	282	513	477	32	1	4	434	95
1965	34012	2885	1236	995	5866	3094	3106	41	316	99	88	308	1129	412	638	614	29	3	7	720	233
1966	36685	2581	1306	1216	6335	3680	3601	n.a.	406	96	98	325	1220	375	566	688	n.a.	n.a.	5	733	182
1967	35589	2836	1271	1299	6732	3683	3266	n.a.	460	90	131	259	1081	367	650	643	n.a.	n.a.	5	907	122
1968	41830	3161	1624	1415	7708	4307	4299	n.a.	306	81	158	488	1220	473	771	713	n.a.	n.a.	11	1272	100
1969	47824	3265	1598	1688	9216	4299	4267	n.a.	362	81	400	488	1007	473	822	762	n.a.	n.a.	15	879	271
1970	58750	4274	1692	1962	10901	4916	5064	29	445	81	533	1005	2130	574	584	838	26	12	24	938	181
1971	62942	4640	1987	2225	12264	5781	4617	114	385	73	708	516	1119	938	1172	949	52	9	54	1062	167
1972	70373	5751	2575	2553	14688	7703	4912	90	415	87	556	635	848	605	1356	1020	31	2	74	1661	360
1973	102978	7771	3850	3788	20061	9379	5794	202	645	166	1230	477	1175	674	1571	1747	102	200	101	1419	666
1974	132181	9354	3706	4628	21418	11282	6248	85	574	195	1132	635	2407	878	2142	2402	79	1363	88	1187	746
1975	172941	10323	4833	6933	27265	14171	8290	150	1204	768	3659	1917	3707	910	2690	2541	174	n.a.	121	837	23
1976	223159	12338	5855	7733	32184	18347	9925	269	1405	259	3138	2247	9872	1751	3065	2559	38	n.a.	197	2911	54
1977	252150	15285	6816	8487	38110	22668	13913	404	1389	350	5502	4450	5996	1370	3513	3342	36	25	192	4791	67
1978	287729	17824	7185	9420	43953	28402	13904	1082	2442	394	5957	1575	4857	1575	3850	3769	0	249	154	5523	234
1979	356820	22747	8611	11904	53605	33540	20493	1786	2963	525	5000	3083	6213	3185	5231	3395	0	351	351	5680	739
1980	452881	28042	8890	17505	63120	37081	20696	1648	2735	710	4080	3977	7827	4490	4884	4734	0	120	227	6832	509
1981	497764	32199	12890	24458	96802	47828	24251	1567	6913	703	4060	1326	827	5759	4557	7625	573	4	669	2004	1166
1982	665920	47066	15940	36149	113839	61510	24341	2100	6892	750	7647	1410	6891	4779	8234	10878	659	15	366	5073	1214
1983	848294	57746	27293	54799	146390	75379	34946	2238	8189	1054	5842	2997	8543	5778	10053	12387	705	76	509	6454	2531
1984	1083880	74607	26845	66475	180337	104443	3954	10060	10660	1805	14628	3849	14630	8327	12655	10095	890	143	975	509	3282
1985	1412797	90925	39533	82409	240360	131963	53411	5464	15324	1930	17929	3868	14149	9384	18601	14864	1316	85	735	14712	3457
1986	1582298	127885	53799	106010	335592	182787	65735	7200	21639	4018	20042	6680	22068	10481	27359	15986	1493	n.a.	1397	19251	3977
1987	1867353	143747	62282	127411	401335	182787	87775	8799	22443	3094	25555	7800	22068	14050	33200	24182	2229	76	3556	29302	6156
1988	1756998	140809	64503	120037	355065	225208	86876	10576	24588	3629	37084	7607	24642	15513	34244	21823	1999	1017	4572	21246	7271
1989	2652714	181035	101557	179958	521702	391296	152650	15034	33141	9493	47804	10195	46515	24655	44295	37320	2544	1216	8620	19661	22893
1990	3137524	253805	117273	211168	646052	483049	165142	19099	40096	13022	63272	13677	44405	24500	56363	42958	2903	794	820	43827	22893
1991	3921522	304570	134729	234190	760219	557111	209902	22537	42495	12287	84534	16369	64409	28180	67377	49757	2632	388	8149	41243	30580
1992	4494059	353746	158136	308712	914530	641204	247051	27343	61031	16884	99663	10940	56272	31706	78888	63842	3156	499	8404	15733	27840
1993	5050531	398504	168390	334920	854475	707466	307081	37310	68726	15768	135508	17928	63868	31706	96372	53347	3020	24725	39302	14494	31772

Greek imports by country of origin (millions of drachmas)

Year	USSR	DDR	Poland	Czech/Sla	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA3	East Eur	USA	Japan	ROW
1960	850	49	139	313	157	101	55	n a	2844	353	n a	7079	9370	9418	1426	1664	2844	n a	n a
1961	596	81	147	308	155	120	101	n a	2431	324	1647	8163	10581	10740	1720	1508	2431	n a	3376
1962	609	119	165	272	175	178	123	n a	2016	162	594	9114	11872	11991	1900	1641	2016	594	2895
1963	852	142	192	262	243	190	167	n a	2538	207	415	9605	12391	12892	2064	2048	2538	415	4172
1964	822	183	182	327	243	161	271	9	3028	239	811	11234	14365	14555	2256	2198	3028	811	3698
1965	1095	252	297	325	288	266	539	6	3381	226	1172	14076	17339	17726	3101	3068	3381	1172	5564
1966	1142	275	237	461	280	226	400	n a	3935	291	1419	15118	19125	19319	3194	3021	3935	1419	5797
1967	1125	311	222	404	256	157	244	n a	3003	215	957	15821	19547	19768	3000	32719	3003	957	6142
1968	814	305	516	412	260	469	601	n a	3203	292	1983	18215	22568	22807	3646	3377	3203	1983	6814
1969	910	211	382	406	271	380	325	n a	4557	410	3321	20066	24695	25176	3552	2885	4557	3321	8333
1970	1087	197	260	391	278	534	292	1	3479	533	7489	23745	29283	29897	5431	3040	5431	7489	9414
1971	937	213	345	552	334	435	389	12	4172	1963	6631	26897	32013	32794	4694	3114	4172	6631	11337
1972	1271	191	465	660	354	497	383	47	4367	566	5358	33270	38687	39330	4444	3848	4367	5358	13026
1973	1320	533	991	775	353	1054	482	93	8619	575	7203	44849	51490	52886	6044	5601	8619	7203	22625
1974	1798	777	954	840	298	944	418	88	12102	1532	7268	50388	57295	58622	8464	6117	12102	7268	39608
1975	3328	1253	1241	998	394	933	692	148	12689	1488	14346	65325	73169	77596	11765	9007	12689	14346	46638
1976	6411	1312	1351	1167	861	2391	147	147	15085	1174	26971	76457	88056	91453	19494	15371	15085	26971	54785
1977	4235	1718	1451	1376	1641	1964	1943	167	12881	1025	39205	91366	107072	112924	18671	14495	12881	39205	53974
1978	9678	3695	2540	1734	2129	2740	1951	160	14886	1237	37364	106764	124192	130543	15626	24627	14886	37364	64683
1979	7610	2442	2414	2132	2606	1817	2946	322	17464	1312	34066	130407	155649	161174	21107	22289	17464	34066	100720
1980	6443	3367	3157	3079	2947	3047	4000	456	20827	2627	50070	154638	179717	184507	26912	26496	20827	50070	144069
1981	18342	2920	1454	3071	2484	2717	1840	288	25264	2164	23839	214177	246908	251671	24189	33116	25264	23839	135685
1982	14753	2596	3671	2539	2436	3478	5764	928	28151	3011	42076	274504	307837	316234	32192	36165	28151	42076	211102
1983	21729	4131	1691	2976	3273	2938	5818	1654	31038	3560	57202	361607	406980	413876	39758	44210	31038	57202	262210
1984	57259	10316	3615	4784	3512	6512	5537	1139	31755	3220	82351	452707	509532	525965	49556	92674	31755	82351	301579
1985	73545	8857	2179	6882	4314	7796	4571	351	44437	4245	89734	585190	659389	679248	60866	108695	44437	89734	429817
1986	39823	6542	3490	7920	4822	7531	4784	2937	47911	5339	96416	806073	900647	924707	82568	77619	47911	96416	333077
1987	52010	6188	6357	9122	6970	9923	10649	1407	49381	6024	75122	966065	1078882	1107831	102368	102656	49381	75122	430025
1988	37490	6559	15619	12216	6970	8215	6677	575	67510	8030	100891	935622	1037662	1098375	103829	93111	67510	100891	293282
1989	39890	9119	12145	16775	11258	12888	11375	1217	89442	12479	173310	137548	1576373	1634806	163700	114667	89442	173310	476788
1990	56864	6414	10324	17839	9688	11412	17299	1946	115542	10425	185817	1711347	1935594	2011888	181703	131786	115542	185817	510788
1991	72589	n a	16990	21497	19199	16797	28396	2165	169323	12632	260651	1990819	2265753	2362574	222492	177633	169323	260651	729449
1992	83000	n a	9962	26346	13316	12960	30704	3449	161888	10633	285509	2376328	2711753	2828300	238008	179937	161888	285509	800417
1993	125987	n a	10675	22586	10951	15069	45453	3538	188092	14211	343756	2463755	2877072	3028348	263221	234259	188092	343756	992855

Greek exports by country of destination (millions of drachmas)

Year	Total	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1960	6096	290	49	155	1128	377	576	n.a.	19	19	n.a.	18	65	89	84	150	0	n.a.	78	271	11
1961	6700	338	57	155	1262	226	522	n.a.	13	21	53	31	83	109	158	135	0	n.a.	62	360	27
1962	7503	396	110	196	1365	636	725	n.a.	24	96	11	39	84	100	224	141	0	n.a.	74	495	48
1963	8703	316	163	241	1680	447	679	n.a.	27	42	29	38	92	92	175	124	0	n.a.	92	303	43
1964	9214	495	107	338	1976	548	678	17	33	114	21	32	102	81	155	109	0	10	70	329	14
1965	9833	514	103	303	2238	501	760	15	29	46	77	36	102	75	112	145	0	11	116	400	6
1966	12180	723	253	327	2415	603	707	n.a.	38	205	145	36	97	62	80	135	0	n.a.	153	631	5
1967	14856	1367	436	375	2343	1476	743	n.a.	34	88	153	42	130	61	172	136	0	n.a.	161	809	5
1968	14047	1011	460	584	2750	1872	583	n.a.	31	122	198	42	225	41	142	173	0	n.a.	134	674	13
1969	16608	1118	574	896	3296	1610	765	n.a.	46	57	271	50	271	46	104	195	0	n.a.	200	1156	36
1970	19276	1086	749	1184	3887	1933	1147	16	62	48	197	66	257	61	193	286	0	20	293	1273	19
1971	19874	1864	757	1245	4008	1710	851	13	65	59	573	50	144	68	202	236	1	44	370	899	21
1972	26125	2125	668	1672	5639	2635	862	19	104	64	362	60	306	83	305	317	0	46	473	877	145
1973	42811	2837	1352	2854	9245	4064	2998	40	140	172	472	52	1094	122	574	444	0	64	750	1767	496
1974	60890	3633	2113	2879	12861	5201	3501	39	268	98	1876	183	1109	90	460	704	0	87	876	2584	421
1975	74441	5396	1433	4174	15881	6130	3626	33	448	53	1334	215	1169	79	535	787	0	115	1136	2281	98
1976	93811	6292	2442	4965	20026	8619	3883	94	566	285	685	239	1123	87	819	809	0	162	1626	1594	240
1977	101330	7007	1838	4743	25747	13443	5379	106	817	131	659	180	736	83	735	1003	0	203	1892	2920	475
1978	123727	8276	2479	6698	25747	14101	7456	131	739	196	1035	153	985	250	895	906	0	176	1684	2219	292
1979	144238	8801	2462	9045	27783	14101	7456	203	955	372	680	231	957	414	747	970	1	616	2396	2669	1170
1980	221108	16342	4009	12564	39576	21464	9137	219	1949	804	1214	272	994	576	1127	1311	25	345	3444	4060	870
1981	237928	15979	3978	8634	43234	16925	11932	378	1895	192	1394	233	1102	577	1127	1477	3	245	3887	4159	750
1982	286281	19893	4949	11667	54301	25156	13707	567	2431	764	2498	221	1314	591	2242	2671	6	500	4402	7995	639
1983	392652	29232	7079	15032	78810	53050	19010	940	2917	217	1815	405	1673	1235	3271	3497	8	744	6078	5634	1331
1984	542676	46829	9555	18355	106600	73258	34062	1317	3781	1593	3244	465	3498	1886	4512	5454	17	559	7809	7177	6356
1985	629035	50227	11792	25534	126293	71196	43603	2602	4340	824	4644	1293	5048	2490	6773	7774	29	1439	11650	10304	7555
1986	789995	74872	22018	39188	186295	106528	53712	2620	7570	1276	7194	2753	7022	3304	10346	8473	178	1771	11938	10313	6335
1987	955069	80365	27546	53117	223962	155584	53712	2192	9229	3086	12976	3372	11104	6192	12069	11012	85	2244	14221	9607	15342
1988	776434	66907	19679	26511	195202	109839	59839	834	7427	2376	10434	3121	11228	5514	10084	10902	46	2522	19972	8751	8150
1989	1230942	108026	25254	40005	256171	248869	90556	1971	11325	4030	16022	5500	18606	8306	15981	16448	59	5103	27818	17784	13943
1990	1267507	121942	25870	43954	277690	211087	92661	2025	10599	3157	18279	5893	20460	9510	17334	18432	49	6210	31934	28338	18195
1991	1579967	118781	35966	53783	376936	263435	107829	2090	13160	4534	26993	6591	21445	11883	21848	24649	109	9895	46031	29149	19195
1992	1880763	135999	47729	52107	445305	346600	132228	4196	13124	6461	46532	8599	23631	10997	25863	28266	171	11431	61624	17255	25430
1993	1933422	119616	29517	48353	459984	255982	110300	4006	14525	8003	32174	6751	18823	10154	27352	27917	199	22347	60410	39791	34029

Greek exports by country of destination (millions of drachmas)

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1960	565	65	189	213	153	75	84	n.a	818	52	87	1999	2394	2613	406	1344	818	n.a	n.a
1961	562	196	223	273	185	72	53	n.a	971	19	87	2038	2579	2647	516	1564	971	87	915
1962	576	137	168	249	192	86	100	n.a	575	34	89	2703	3452	3559	598	1508	575	89	1174
1963	672	146	259	235	182	96	139	n.a	1645	44	105	2847	3553	3624	521	1729	1645	105	1079
1964	725	196	300	191	241	122	163	0	1345	37	85	3464	4192	4327	479	1978	1345	85	1040
1965	806	285	374	232	200	97	228	0	936	46	232	3659	4463	4586	470	2242	936	232	1367
1966	849	270	345	288	258	219	556	n.a	1279	50	70	4321	5066	5416	410	2785	1279	70	2220
1967	915	276	333	348	364	172	278	n.a	1933	83	275	5997	6774	7015	541	2686	1933	275	2386
1968	743	239	176	262	232	178	326	n.a	1428	66	206	6677	7291	7611	623	2156	1428	206	2023
1969	901	227	435	368	216	178	366	n.a	1623	100	157	7494	8305	8633	666	2691	1623	157	2838
1970	1035	370	323	400	361	269	437	n.a	1448	122	247	8839	10064	10309	863	3195	1448	247	3214
1971	611	404	284	439	272	305	261	8	1783	162	328	9584	10513	11145	700	2574	1783	328	3344
1972	1072	449	493	536	337	394	242	11	2550	212	557	12739	13724	14150	1071	3534	2550	557	4263
1973	1310	522	711	520	527	890	408	78	3687	585	930	20352	23530	24174	2286	4966	2757	497	8131
1974	2429	763	1007	885	541	989	575	143	3687	585	930	26687	3049	32469	2546	7332	3687	930	13926
1975	2824	782	1128	974	380	1342	1072	137	3767	493	1198	33014	37121	38508	2785	8639	3767	1198	19544
1976	3062	1046	1627	1040	640	1910	1243	236	5361	1046	844	42344	46887	47857	3077	10804	5361	844	25868
1977	3792	1354	1396	1622	1008	1690	1551	350	4 05	894	805	42367	48364	49154	2737	12763	4705	805	31166
1978	3493	1395	1844	2104	1244	2269	1895	414	5421	1025	1222	56643	62892	64123	3189	14658	5421	1222	35114
1979	2037	1662	2254	1784	1417	1993	2225	485	8025	745	1544	62192	70800	71858	3329	13657	8025	1544	45625
1980	3875	2155	3861	3272	2503	3990	2703	1228	12485	974	1066	93953	105260	107278	4280	23587	12485	1066	72412
1981	4099	1547	2163	2266	1940	4229	2932	671	20728	995	1327	88770	102974	104561	5181	19847	20728	1327	86284
1982	9449	1068	664	2465	1171	4476	2859	821	25430	924	1721	115946	132651	135913	7039	22973	25430	1721	93205
1983	12551	1625	762	1783	3149	4581	3838	723	24640	1370	2310	183203	206670	208102	10081	29012	24640	2310	118507
1984	13663	1606	1539	2544	2720	4277	4638	790	45093	3206	6073	254597	293757	298594	15813	31777	45093	6073	145324
1985	19528	4831	1700	4581	2141	5419	6092	1180	51268	4389	5891	285042	335587	341055	23378	45472	51268	5891	161971
1986	10874	4557	1000	4332	2581	6645	8229	836	56102	5284	5843	428904	492863	501333	31898	39074	56102	5843	155745
1987	12623	4673	2634	5730	2827	6546	6827	622	69912	6230	8520	522574	611994	628036	43749	42282	69912	8520	162500
1988	12801	3830	1677	4094	1508	4509	4802	704	48734	4074	11174	418138	486238	499048	40849	33925	48734	11174	142704
1989	22707	7325	4645	5011	2797	6870	11136	3050	69887	8025	14574	678325	782177	802229	64841	64202	69887	14574	215309
1990	20065	5022	4993	5011	3593	9396	8396	2825	71268	7463	12327	880543	785828	807264	71629	59301	71268	12327	245718
1991	16041	n.a	13653	8396	6663	15459	16001	2226	90225	7587	15618	848901	971980	1003107	86416	78439	90225	15618	306162
1992	23775	n.a	13569	11907	6786	20479	31880	7869	72958	9748	17147	1027140	1176688	1229681	97356	116265	72958	17147	347356
1993	52736	n.a	12559	11634	8359	20472	69531	28958	86467	9220	17178	912452	1041287	1081460	91177	204249	86467	17178	452891



Greek imports (millions of drachmas, SITC classification)

Year	Total	SITC-0	SITC-1	SITC-2	SITC-3	SITC-4	SITC-5	SITC-6	SITC-7	SITC-8	SITC-9
1960	21060	2253	11	1965	1574	27	1627	3722	9363	513	2
1961	21422	2646	11	1938	1545	217	1810	4002	8689	557	3
1962	21037	2366	14	2014	1534	89	2094	4328	7942	648	3
1963	24129	3169	19	2524	2110	107	2532	4461	8439	760	5
1964	26552	3749	23	2641	1847	32	2674	5284	9366	930	4
1965	34012	4784	31	3419	2864	323	3074	6482	11953	1073	6
1966	36685	4908	40	4018	2709	66	3458	6727	13524	1223	12
1967	35589	5059	42	3582	2824	90	3618	6629	12427	1301	14
1968	41830	5041	54	3990	3014	55	3761	6868	17654	1372	17
1969	47824	5464	56	4669	3558	135	4295	7946	20267	1424	6
1970	58750	5671	75	4941	4039	400	4758	9199	27937	1720	9
1971	62942	7033	105	5226	4603	257	5583	9755	28498	1864	17
1972	70373	7029	145	6112	6935	101	6861	12062	28824	2282	21
1973	102978	11643	339	9940	12631	315	9447	18080	37517	3047	16
1974	132181	14395	283	12445	29231	417	11719	23380	37007	3285	15
1975	172041	15285	212	13436	38080	652	14914	23812	61399	4181	68
1976	223159	18158	380	15346	45262	507	18266	27528	91902	5649	157
1977	252150	19412	516	17999	38353	465	19996	33092	115023	7044	245
1978	287729	27162	817	17772	52381	476	22302	39206	118167	9342	99
1979	356820	31653	1207	22089	75787	702	29886	46597	136610	12056	228
1980	452881	35128	1576	30459	106059	1533	38736	61735	162839	14464	347
1981	493764	50041	2511	30955	108630	1223	48571	92977	137827	19232	1793
1982	665920	76083	4480	39843	190883	1117	52153	104095	169950	23340	3970
1983	848294	99778	6381	52182	232439	1165	70829	140615	210444	29775	4682
1984	1083880	124613	7997	63189	295916	1161	96998	171054	278064	42409	2473
1985	1412797	161844	11004	80708	416522	2318	121036	224365	333852	56555	4592
1986	1582298	235147	14189	97838	275687	4961	165071	301976	409816	71752	5041
1987	1867353	298674	19620	112066	297949	10121	203078	372671	448863	98676	5633
1988	1756998	268263	22362	109337	88032	8457	208561	382433	530426	134660	5462
1989	2652714	363756	39594	141072	167202	8369	279932	586030	809356	221799	8599
1990	3137524	399161	51462	156125	241412	12967	330689	676735	973745	286464	8764
1991	3921522	431018	66300	175584	377250	34560	406993	768498	1289560	362585	9174
1992	4484059	529057	88792	143546	437812	14083	475580	804422	1525707	445011	20045
1993	5050531	567058	109303	146889	535679	12267	557661	834445	1775985	495764	15480

Greek Exports (millions of drachmas, SITC classification)

Year	Total	SITC-0	SITC-1	SITC-2	SITC-3	SITC-4	SITC-5	SITC-6	SITC-7	SITC-8	SITC-9
1960	6096	1560	2262	1537	1	129	249	247	53	54	0
1961	6700	1631	2579	1761	0	6	269	293	95	63	0
1962	7503	1992	2254	2232	17	177	185	421	147	76	0
1963	8703	2088	3673	1980	19	105	120	502	124	90	0
1964	9256	2320	3716	2135	15	15	178	582	172	121	0
1965	9833	2823	3585	1943	4	118	211	814	193	140	0
1966	12180	3867	3562	2276	104	186	220	1517	210	237	0
1967	14856	3996	4347	2586	143	721	477	2124	169	292	0
1968	14047	3411	3263	2664	181	790	949	2322	108	354	0
1969	16608	3866	3442	2783	165	321	940	4337	190	560	0
1970	19276	4418	3370	3258	192	148	1384	5507	287	710	0
1971	19874	5031	3187	3734	182	170	1453	4787	367	961	0
1972	26125	6517	4168	3678	327	391	1926	6898	610	1609	0
1973	42811	9092	3483	5769	5990	495	2350	11599	925	3102	1
1974	60890	11759	5939	6456	5477	884	3036	21059	1624	4652	0
1975	74441	16540	6049	6506	8188	1369	4341	21257	2891	7290	8
1976	93811	21062	7952	9425	5483	768	3798	29664	4634	10989	31
1977	101330	25547	7010	9049	4901	426	4885	32174	5323	11972	37
1978	123727	28103	9488	10394	11753	2617	5292	39055	3768	13094	158
1979	144238	32260	9078	12986	17076	1616	4876	45566	4913	15762	100
1980	221108	44523	10893	17125	34382	1500	15581	67180	6744	22882	294
1981	237928	49222	11928	16921	22618	1840	10859	80747	11317	30931	1482
1982	286281	63274	15182	19079	30804	5497	13957	85796	13138	38322	1227
1983	392652	86417	21088	26286	27191	22461	16779	118443	13585	57008	3390
1984	542676	119445	25115	38998	54909	20477	21544	161472	13760	83109	3843
1985	629035	134142	28754	46666	75780	13039	25469	180989	18351	104473	1523
1986	789995	174471	40109	46367	51833	28843	26022	216488	23100	173372	9390
1987	955069	203528	52830	61977	74433	30177	31294	244793	26513	224349	5174
1988	776434	137559	42514	47447	40251	10827	30376	217714	24888	203916	20938
1989	1230942	255885	60169	85386	66948	58035	48990	312073	40601	269288	33564
1990	1267507	257248	70103	72193	92900	47816	49814	298335	53338	296857	28903
1991	1579967	350632	89956	83178	141045	40532	61692	355542	67939	354085	33366
1992	1880763	398554	124367	81305	99069	105245	71448	413767	90265	452454	44289
1993	1933422	382713	121235	111558	151654	69239	89614	387563	121215	472172	26459

Greek Imports (millions of drachmas, CTS classification)

Year	Total	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21
1960	21060	1115	757	32	565	1677	1488	621	233	547	519	1661	13	239	7	1948	2424	6852	260	15	77	1
1961	21422	1376	891	221	545	1658	1619	682	223	560	579	1612	14	270	16	2156	3230	5392	280	19	66	3
1962	21037	1306	632	100	547	1673	1868	742	226	659	594	1647	18	324	14	2383	4009	3848	335	22	9	1
1963	24129	1551	1013	113	786	2343	2264	827	272	770	737	1995	25	301	13	2260	4322	3993	418	29	86	1
1964	26552	1820	1082	36	1010	2048	2359	936	244	839	838	2214	24	362	18	2838	5388	3869	459	37	118	3
1965	34012	2864	1310	328	838	3258	2708	1068	312	1114	995	2636	30	456	23	3498	6673	5163	538	46	143	1
1966	36685	2780	1403	70	982	3198	3011	1162	398	1370	1051	3030	31	501	34	3457	6382	6988	613	46	165	4
1967	35588	2907	1324	92	1051	3267	3067	1317	287	1254	1124	2849	32	493	38	3598	7092	5150	731	30	174	2
1968	41830	3171	1111	58	1064	3712	3451	1319	354	1395	1176	2761	38	489	35	3501	7981	9406	767	39	199	3
1969	47824	3058	1803	136	1118	4403	3570	1497	624	1347	1252	3129	39	532	51	4171	9132	10948	768	27	206	4
1970	58750	3774	1916	405	1206	4857	3879	1679	811	1427	1552	3038	43	806	51	5036	11161	16592	945	38	220	4
1971	62942	4246	1916	263	1432	5456	4513	1854	827	1465	1795	3513	45	707	80	5109	11924	16346	1138	49	249	4
1972	70373	4274	1339	106	2217	7743	5394	2213	1048	1804	1999	4119	50	800	119	6710	16463	12054	1381	76	289	6
1973	102978	7189	7788	438	2962	13953	7062	3537	1764	2780	2655	6356	68	1142	305	10736	20799	16241	1893	92	377	6
1974	132181	3990	7788	332	3510	21243	9150	4129	1723	3385	4031	7666	51	1158	381	11741	24398	11961	2085	84	388	8
1975	172041	4916	6810	663	4811	41143	11570	5328	1672	2525	5405	8844	70	1578	470	12030	26198	34550	2627	185	591	45
1976	223159	9159	6901	532	3866	47766	14044	6931	2674	3385	5900	10181	106	1882	628	13451	29094	62274	3290	303	726	56
1977	253230	10244	6426	502	4818	40451	15570	7768	3076	4175	5864	13767	122	2507	913	17242	33094	81276	4018	367	989	21
1978	287729	14468	10130	506	5455	53986	17897	8403	3479	4674	5947	13033	223	3444	978	21182	36526	80905	4946	233	1295	99
1979	356820	17384	11433	747	6546	77521	23096	11956	5024	6061	6977	14872	433	4650	982	24961	47018	102524	6190	388	1698	158
1980	452881	21999	9869	1591	7453	109112	30483	14438	4908	7460	10063	19846	558	5377	646	37309	59208	125524	7548	596	1764	151
1981	493764	29494	10056	1323	16062	111954	36094	19372	18428	6406	12759	33191	1176	6179	1500	39117	65008	71490	9163	1099	2990	53
1982	665919	49283	19155	1305	16236	195989	41268	19526	20368	8320	17266	36897	1637	7665	1341	44838	80184	89923	9790	1553	4181	84
1983	848294	6783	19783	2289	18783	235857	55269	27660	27372	12050	20337	46580	2018	8805	2766	66729	103323	107045	12846	1407	3886	90
1984	1083880	82771	23056	82771	23056	76443	36100	19372	29963	14676	27274	13191	1576	8805	3529	76208	121794	152852	18456	1026	5503	109
1985	1412797	104980	34825	5212	42097	422326	95506	45334	39033	18772	33808	82504	4345	14037	5689	99770	146899	179410	29684	1506	6933	117
1986	1582298	145674	64421	64421	51246	284785	130611	60167	56549	25049	39932	115791	4232	18337	6996	123738	198980	194663	44888	1337	9293	166
1987	1867353	1855426	77473	10481	70035	310272	76325	76325	69666	30089	55106	140891	7021	24581	7021	142047	237144	199325	47507	926	13035	2710
1988	1756997	153750	65915	8905	90833	96669	158558	86275	55691	28174	59249	147436	12108	29134	7408	144945	303487	226619	39479	941	21486	19423
1989	2625713	232764	63253	8862	130048	179760	211522	120634	62087	48813	88535	220393	21356	44795	10897	227805	453128	356627	60782	1587	38435	32020
1990	3137524	246446	88280	13920	144515	257746	253407	141780	53682	59958	100062	282334	22534	57547	15349	266697	545688	432701	73120	2303	51441	28015
1991	3921522	240407	110930	36063	177710	395806	316337	167812	60524	70274	117518	320913	27961	66280	15489	333328	608175	687863	94219	3707	69703	493
1992	4354921	324641	117400	16120	228793	450831	380399	187631	69607	63160	128142	379656	34740	83356	17129	300077	739466	823836	119849	4582	84660	836

Greek Exports (millions of drachmas, CTS classification)

Year	Total	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21
1960	6096	113	1402	129	2429	565	237	4	330	8	22	695	1	5	1	42	42	10	4	0	8	0
1961	6700	113	1453	6	2770	562	276	7	420	13	24	875	2	7	1	55	59	35	7	0	7	0
1962	7503	125	1768	177	2505	554	195	9	417	8	30	1474	1	15	1	55	59	35	7	0	9	0
1963	8703	105	1801	104	3974	578	105	33	528	10	36	1184	2	13	1	70	71	52	8	0	10	0
1964	9256	171	1972	15	4046	652	142	56	557	8	47	1255	7	13	1	96	87	85	15	0	16	0
1965	9833	199	2340	118	4029	812	188	51	571	4	64	934	19	11	2	239	106	86	18	0	33	0
1966	12179	204	3435	185	3956	1006	183	89	650	8	69	1387	34	12	8	674	138	70	24	0	33	0
1967	14856	181	3429	720	4887	1004	399	122	584	9	73	1894	34	14	7	1223	107	60	20	0	38	0
1968	14047	206	2776	790	3863	1263	844	138	771	13	72	1700	41	17	16	1356	75	32	21	0	42	0
1969	16608	270	2959	321	4239	1500	858	146	1041	18	108	1884	115	35	26	2404	141	48	26	0	41	0
1970	19276	327	2950	148	4686	1672	1284	236	988	27	119	2627	177	101	25	3537	195	91	23	2	41	2
1971	19874	447	3083	174	4864	1795	1116	267	1107	51	142	3110	204	127	40	2199	279	86	24	0	48	1
1972	20125	608	1482	193	6808	2111	1746	295	1484	96	175	4152	323	155	66	3282	515	93	40	0	70	1
1973	42811	421	5167	501	7285	8383	2050	383	2128	239	186	7752	750	244	137	5968	687	237	65	1	217	1
1974	60890	482	6982	886	10552	10631	2460	880	2950	373	361	9532	1102	757	142	10856	1247	379	82	1	226	0
1975	74441	733	10466	1374	11691	14177	3794	1066	3153	357	354	10676	1812	1028	137	12406	1810	1078	191	8	235	1
1976	93811	710	12630	771	16087	14104	3884	1446	4328	760	432	17368	2196	1285	200	17368	2743	1885	231	29	304	2
1977	101310	885	14050	433	18124	13745	5044	1658	4927	690	564	19167	2037	1478	264	2247	2831	2487	337	34	424	2
1978	123727	1134	19538	1652	21143	30262	5260	1948	5246	607	470	22709	2832	1356	174	15434	3129	634	437	155	438	2
1979	144238	1134	19538	1652	21143	30262	5260	1948	5246	607	470	22709	2832	1356	174	15434	3129	634	437	155	465	2
1980	221108	1435	27789	1610	28672	54206	13222	3379	7110	819	2478	38813	3153	2683	303	27099	5239	1510	539	283	589	2
1981	237928	1570	27797	2087	32228	45501	13119	5211	8587	819	3336	47731	5282	3319	721	30064	8344	2961	642	1510	689	7
1982	286281	1938	39095	5591	38157	57082	13119	4891	12062	1123	3687	56921	3662	4461	946	27890	9664	3469	834	3904	598	11
1983	392652	2700	51183	22555	54592	62506	16273	5517	19070	1760	2770	81032	4758	5738	1599	41921	9698	3904	941	3599	810	15
1984	542676	4025	72963	20528	80626	94973	22316	6683	29748	1996	3926	111991	7262	7163	2406	66969	11170	2629	1080	4328	1239	15
1985	629084	4982	80263	13052	80626	120080	26162	7576	32399	1996	5304	138538	8563	8623	3677	74519	11908	2629	1583	1599	1102	21
1986	789994	7327	110531	28876	105204	98000	24056	9643	61422	2695	5931	109099	10620	10909	4733	78284	18315	4443	1583	9690	1102	16
1987	955069	12544	112985	30266	135785	122860	29315	14367	78922	3022	7667	258225	11201	13234	3307	86235	20395	5941	2021	117	1523	5166
1988	776433	12713	66922	10848	102093	80701	29187	12151	59922	3927	7333	214408	6649	13754	2876	91445	22471	3309	1421	259	1881	31953
1989	1230941	19390	144617	58077	157035	123205	49348	17700	69180	5055	14875	300660	9334	22267	3659	138673	37234	4260	2042	152	3591	50456
1990	1267407	22205	122008	47864	186043	146873	51397	19199	51833	7033	11448	331531	9851	24561	2996	128195	47648	6400	3101	43	5221	42057
1991	1579967	27530	193499	40663	223215	202518	64151	24047	64013	9905	14153	402500	6628	26744	3327	192516	58038	12835	4631	834	8101	79
1992	1880763	36057	203181	105416	289673	174502	64685	35623	80671	12689	15178	477373	8607	33948	1576	223536	76704	24807	5824	1353	9836	429

C1 - Live animals and animal products

Imports (millions of francs)

Year	Total	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	3774	232	46	476	76	24	21	13	81	1	15	62	0	9	1	14	0	0	0	199	16
1971	4246	313	82	908	89	37	57	10	92	0	14	81	0	0	0	19	0	0	4	627	9
1972	4374	298	82	539	101	33	40	0	62	2	14	98	4	33	0	32	0	0	4	683	23
1973	7189	322	127	816	299	34	134	8	288	2	17	98	5	23	17	98	64	1	3	543	7
1974	3990	423	111	1082	134	28	62	17	117	2	7	108	2	23	6	44	0	0	0	133	5
1975	4916	469	91	1335	316	63	53	0	89	2	10	158	2	7	7	42	0	0	1	157	1
1976	9159	641	204	1539	493	71	29	40	97	0	25	134	2	10	9	156	0	0	3	1831	8
1977	10244	183	103	1735	444	189	57	5	111	6	37	118	19	37	11	289	30	0	4	2831	11
1978	14468	290	166	2144	728	333	158	41	169	7	21	83	63	49	17	215	0	0	9	3697	8
1979	17384	726	103	2868	1551	432	84	19	416	6	17	21	11	97	25	245	0	0	9	2650	8
1980	21999	621	165	2627	2627	471	247	122	500	6	17	99	26	143	30	222	0	0	6	4332	24
1981	29494	1934	932	9640	7638	1112	366	389	1243	5	30	133	0	18	36	126	559	0	7	3129	184
1982	40383	4977	1152	17124	11556	1647	506	607	3221	14	84	173	0	9	45	70	623	0	5	1780	432
1983	52771	5624	1442	27581	18872	1648	440	382	3863	14	150	170	0	14	45	79	686	0	10	3361	526
1984	82771	7191	1893	29189	23557	2220	464	670	4044	28	261	170	0	25	46	79	686	0	10	3361	507
1985	104980	8956	2887	33932	33166	2682	470	811	4823	26	489	374	14	46	70	264	264	0	26	3009	863
1986	145674	9717	4936	42933	43079	7046	738	1382	8028	24	437	403	19	11	75	237	237	14	59	3963	1073
1987	183426	10913	7813	54433	61821	9231	1211	2636	8716	31	751	329	29	33	63	428	2014	2	100	9193	1201
1988	153750	9154	7114	47174	49800	10405	10405	1856	6870	40	814	167	40	43	14	449	1980	5	276	4748	504
1989	212764	16194	10523	72080	59782	11714	1856	3491	11962	144	1680	420	6	24	107	1019	7430	0	498	10000	1440
1990	266446	17853	10381	81132	59470	11546	1719	2622	13692	117	1853	413	6	58	94	1736	2893	0	724	9988	2221
1991	240407	17300	10390	84347	50683	9340	2722	4558	13302	159	2207	348	85	35	121	3798	2607	0	188	10788	731
1992	324641	21000	13432	130980	63370	12459	4104	4080	19137	30	2862	375	86	42	129	3928	3105	0	246	10788	486

Exports (millions of francs)

1970	377	45	2	1	14	79	7	0	0	0	2	0	1	1	1	1	0	0	2	2	1	0
1971	447	54	1	2	20	95	10	0	0	0	12	0	2	0	0	2	0	0	4	5	7	0
1972	608	73	1	11	59	136	12	0	0	0	23	0	2	0	0	2	0	0	4	7	0	0
1973	421	66	2	6	53	143	10	0	4	0	9	0	1	0	0	2	0	0	1	3	2	0
1974	482	85	2	5	55	70	5	0	7	0	12	0	2	1	1	2	0	0	1	1	2	0
1975	733	121	5	13	57	91	9	0	9	0	13	0	2	1	1	3	0	0	1	5	41	0
1976	710	128	4	14	96	124	7	0	3	0	8	0	4	0	0	6	0	0	1	3	42	0
1977	885	127	2	31	82	104	13	0	9	4	1	0	4	0	0	7	0	0	1	3	22	0
1978	855	157	4	40	90	175	13	0	21	0	6	1	5	0	0	8	0	0	1	1	23	0
1979	1134	170	3	24	124	217	19	0	22	0	14	0	3	0	0	9	0	0	0	2	1	0
1980	1435	177	3	28	177	306	20	0	34	0	12	0	5	0	0	12	0	0	11	2	0	0
1981	1570	236	7	37	264	327	18	0	9	0	70	0	9	0	0	15	0	0	1	4	18	0
1982	1918	256	6	46	259	327	18	0	21	0	112	0	10	0	0	15	0	0	2	2	2	0
1983	2700	246	8	85	461	333	32	2	42	0	212	0	8	0	0	25	0	0	2	4	2	0
1984	4033	400	13	100	686	622	114	149	42	0	274	0	18	2	2	28	0	0	3	23	0	0
1985	4982	493	12	79	835	753	202	47	50	4	481	0	43	3	3	99	0	0	4	35	0	0
1986	7327	707	42	166	1123	1689	484	19	58	46	680	0	37	0	0	143	0	0	6	51	0	0
1987	12344	806	105	300	1821	2933	874	0	105	233	1473	0	56	2	2	28	0	0	7	73	0	0
1988	12713	856	86	240	2133	2933	1232	0	106	16	709	0	37	0	0	50	0	0	4	51	0	0
1989	19390	856	133	188	2436	4231	1232	0	12	18	709	0	56	19	0	143	0	0	85	276	0	0
1990	22205	1230	190	222	2436	4231	1232	0	22	48	709	0	86	27	0	143	0	0	85	333	0	0
1991	27350	1999	365	274	3607	6028	1668	0	23	15	338	0	90	34	0	149	0	0	147	548	0	0
1992	36057	2213	500	210	8396	13829	1772	0	23	134	708	0	71	31	12	135	0	0	178	625	0	0

C1 - Live animals and animal products

Exports (billions of dollars)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	3	0	78	11	48	1	101	1	63	7	17	764	879	895	87	253	63	17	2459
1971	8	1	33	19	16	1	72	0	33	1	11	1029	1188	1206	118	150	33	11	2708
1972	8	0	33	22	2	0	142	0	39	20	13	983	1118	1129	162	227	39	13	2704
1973	6	12	287	43	9	284	243	0	94	38	21	1608	2038	2059	241	884	94	21	3890
1974	7	0	39	93	15	120	32	0	42	13	27	1790	1986	1995	183	326	42	27	1417
1975	11	0	37	73	21	67	40	0	34	12	37	2394	2493	2505	216	249	34	37	1875
1976	47	2	228	68	84	133	292	0	18	16	64	2948	3114	3139	311	824	18	64	4772
1977	28	6	459	110	516	210	521	2	35	16	31	2674	2847	2890	474	1810	18	31	5004
1978	38	19	698	110	819	603	559	0	59	36	17	3661	3933	3961	427	2641	59	17	7563
1979	15	27	698	105	1279	292	927	0	71	41	25	3800	6475	6502	622	3343	59	25	8821
1980	17	26	741	195	1382	240	874	0	178	103	8	8602	9471	9494	530	3475	178	8	8324
1981	45	32	140	40	519	51	603	0	217	135	44	21266	24164	24199	313	1430	117	44	3391
1982	68	67	139	46	697	87	938	0	81	113	56	34546	40790	40875	29	2042	81	56	3932
1983	12	18	311	53	523	34	390	0	101	113	39	34546	39952	404116	108	1417	101	19	9146
1984	20	34	467	218	758	113	691	0	87	211	109	65090	70268	70557	258	2301	87	109	9459
1985	51	87	248	107	1379	127	785	0	165	210	35	8332	89429	89944	76	2684	165	35	11786
1986	291	379	228	240	1852	74	638	0	147	253	80	113735	122883	123244	76	3703	147	80	16635
1987	70	186	417	350	2309	474	1005	36	476	281	30	144235	156798	157280	686	4877	476	30	21877
1988	59	34	235	388	1328	687	587	26	1452	330	4	117947	128505	129359	713	3185	1452	4	19017
1989	59	763	1778	753	2279	434	1717	87	1275	515	70	167815	187144	188888	1596	9315	1275	70	31680
1990	60	369	698	927	4920	57	1610	107	793	566	10	182562	201595	203565	2333	6107	793	10	33618
1991	81	0	872	986	4920	123	2123	66	661	561	6	172060	192642	195108	4387	9171	661	6	31074
1992	32	0	443	1000	3986	351	2801	3454	1373	565	33	241441	268762	271654	1560	12067	1333	33	34994
1970	2	1	4	11	1	0	1	0	73	17	38	143	150	152	4	20	73	38	40
1971	3	1	2	8	0	0	3	0	90	17	59	174	184	196	9	19	90	59	74
1972	4	1	2	10	0	0	2	0	128	20	31	271	283	318	7	19	128	31	105
1973	4	0	0	7	0	0	2	0	32	3	11	274	288	304	8	15	32	11	11
1974	4	0	1	6	0	0	2	3	75	22	32	218	230	242	11	16	75	32	106
1975	4	0	1	6	0	0	1	0	90	22	47	287	305	318	12	12	90	47	144
1976	4	1	2	6	0	0	3	0	97	28	28	287	308	306	25	16	97	28	138
1977	3	2	2	1	1	0	6	0	101	22	104	391	413	418	23	14	101	104	225
1978	6	1	2	2	0	0	6	0	87	25	60	466	500	506	21	10	87	60	171
1979	5	0	0	2	0	0	0	0	110	16	25	538	579	593	24	15	110	25	167
1980	8	6	0	3	0	34	3	0	116	16	225	538	579	593	24	15	110	225	167
1981	6	0	5	4	1	103	2	0	123	42	39	731	785	797	76	66	123	39	276
1982	12	6	0	9	1	63	0	0	216	60	92	871	898	968	45	119	123	94	339
1983	23	0	0	5	0	21	0	0	341	94	17	1123	1219	1431	68	49	341	17	447
1984	17	4	0	8	1	7	0	0	465	104	25	1821	2126	2400	149	37	465	25	949
1985	19	3	3	3	6	3	32	1	733	180	82	2162	2261	3046	133	63	733	82	998
1986	26	3	3	4	3	4	1	0	990	180	113	2727	3284	3010	157	43	990	113	1045
1987	2	3	1	8	3	4	1	0	1070	139	113	6965	7944	8630	170	198	1070	113	1382
1988	12	11	1	12	0	33	28	0	596	166	139	7936	9286	10011	267	398	596	166	1602
1989	66	4	2	26	1	6	11	0	12558	226	369	12558	14049	14824	133	135	12558	226	2603
1990	59	4	2	26	1	6	11	0	1465	286	359	13342	16981	17267	483	720	1465	286	2603
1991	44	0	3	1	1	4	7	34	1644	61	202	19740	21431	22002	720	129	1644	61	2617
1992	10	0	1	1	9	76	33	77	1828	55	288	27150	28945	29787	1039	209	1828	288	2906

Exports (billions of dollars)

C2. Vegetable products

Imports (millions of drachmas)

Year	Total	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Vigodina	Turkey
1970	1215	44	3	47	28	10	13	4	2	0	1	0	0	1	5	3	0	0	2	13	13
1971	1916	14	8	50	36	77	11	4	2	0	11	0	0	0	5	3	0	0	6	9	4
1972	1319	27	4	90	40	68	12	4	2	0	5	1	0	0	4	2	0	0	9	22	16
1973	2723	27	16	87	56	95	123	2	1	0	8	1	0	0	7	4	0	0	17	7	120
1974	2728	91	14	123	39	77	34	1	4	0	5	0	25	0	6	3	0	0	3	10	48
1975	6810	44	21	123	61	41	19	1	6	0	7	0	3	0	7	1	0	0	5	10	48
1976	6901	144	7	220	77	46	22	7	17	0	3	0	3	0	14	0	0	0	1	9	6
1977	6426	68	10	210	90	64	44	0	5	0	3	0	2	0	11	0	0	0	0	1	12
1978	10130	138	23	381	226	93	78	0	6	0	12	0	2	0	24	1	0	0	2	2	18
1979	11435	150	64	474	185	55	42	0	8	0	12	0	3	0	20	0	0	0	2	2	29
1980	9667	195	63	403	324	89	58	4	28	0	12	0	6	0	38	0	0	0	3	3	29
1981	10056	320	186	571	554	680	52	7	21	1	26	0	0	0	35	13	0	0	10	12	51
1982	19155	1410	490	868	506	4069	994	5	135	2	27	0	0	0	27	5	0	0	3	26	119
1983	19783	3315	669	1166	585	387	129	4	328	1	68	0	13	0	20	24	4	0	3	26	153
1984	23056	5993	815	1778	605	663	380	6	43	3	119	12	9	0	68	23	14	0	3	35	154
1985	34823	10046	1576	2434	1006	839	415	95	57	21	173	1	27	128	53	143	0	0	14	43	218
1986	64421	31078	1754	2799	1206	6485	242	77	120	1	115	1	6	22	44	22	4	2	18	68	728
1987	77473	31987	2051	5737	2488	1823	4231	36	146	9	4019	3	44	17	76	79	28	0	31	1599	1112
1988	65915	20262	1993	4067	1802	1546	729	48	506	6	2389	1	14	7	79	128	128	0	127	826	1416
1989	63253	9973	2943	6468	2008	2008	692	72	326	6	2386	1	4	3	167	123	100	0	144	960	2863
1990	88280	23201	3876	8133	2728	3032	1540	89	369	16	2821	3	12	5	112	112	100	0	144	813	3319
1991	110920	19649	4076	11903	10801	4687	7681	24	1028	16	3919	4	8	8	128	128	111	0	106	1065	4095
1992	117400	24905	6818	12193	6879	7080	5762	17	1486	25	1402	1	13	8	62	99	0	0	106	1621	4413

Exports (millions of drachmas)

1970	2950	125	17	76	862	177	390	10	8	0	2	5	4	8	4	101	0	1	7	223	0
1971	3083	453	27	107	843	235	351	8	8	0	31	6	3	4	6	93	0	1	7	172	0
1972	3482	130	23	164	923	156	424	13	19	0	24	5	9	6	14	110	0	1	5	239	0
1973	5167	153	54	173	1731	202	842	33	14	1	5	4	9	6	19	142	0	3	23	401	0
1974	6982	196	59	215	2209	221	994	25	21	0	10	5	20	7	18	233	0	4	15	570	0
1975	10466	658	74	298	3679	406	1081	21	31	0	8	3	15	2	49	387	0	7	113	397	0
1976	12620	389	144	357	5378	686	1221	19	39	1	26	4	2	2	59	418	0	28	52	316	2
1977	13020	796	116	360	5158	800	1852	33	45	2	28	5	86	21	114	620	0	18	36	408	0
1978	17811	451	45	500	5158	591	1778	53	39	2	26	5	86	21	114	620	0	18	36	394	0
1979	19538	315	86	516	4950	628	2818	65	20	1	42	6	76	42	48	539	0	17	40	681	0
1980	27789	327	86	542	6411	1614	4544	59	51	1	10	10	79	54	114	433	0	87	71	681	0
1981	27797	549	157	1495	6831	1614	4544	143	99	4	40	10	43	57	213	631	0	19	48	611	0
1982	39095	1185	218	3133	10294	1667	4488	128	204	10	694	10	81	53	339	1086	0	32	116	392	27
1983	51183	1579	493	3256	11407	7671	5991	186	198	7	51	19	110	60	213	1315	0	39	95	647	131
1984	72863	2736	1481	4990	16448	16194	8002	410	336	6	69	3	147	60	288	1646	0	37	212	477	988
1985	80263	2488	2636	6126	19210	13897	10169	970	473	2	67	3	271	57	510	2760	0	48	38	1089	988
1986	110531	5232	3859	17335	32013	21957	15349	667	504	5	231	5	209	17	416	2175	0	79	72	1583	412
1987	117085	4225	10114	11626	20847	21657	23577	667	504	11	289	5	242	16	667	2483	0	175	72	1099	40
1988	66822	1664	9677	6603	15577	18332	8383	70	319	55	966	8	171	16	296	2033	0	60	136	948	3
1989	144617	5577	4794	12086	29549	51725	16421	181	624	83	192	8	197	25	296	2201	0	60	477	1488	263
1990	122008	2878	1896	14953	30627	51010	16212	256	669	116	192	12	255	25	681	2548	0	143	472	4272	224
1991	193499	3949	8151	16534	42303	64356	24097	87	1205	319	1056	32	283	82	875	3393	0	187	638	4272	796
1992	203182	6466	12034	13310	34980	66642	29827	91	1048	703	1578	101	312	30	620	3109	0	357	1082	4319	297





CE - Animal and vegetable fats, oils and their clean age products. Prepared edible fats. Animal and vegetable waxes.

Imports (million of drachmas)

Year	Total CE	France	Bel-Lux	Netherlands	Germany	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norman	Sweden	Finland	Australia	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	405	2	1	19	27	1	1	5	0	0	0	227	14	1	0	0	1	0	0	0	0	0
1971	263	15	3	17	20	1	1	4	0	0	0	76	7	2	0	0	1	3	1	5	0	0
1972	106	5	2	21	21	1	1	8	0	0	0	1	6	4	0	0	0	0	0	1	3	0
1973	325	11	7	34	33	24	24	9	0	0	0	19	10	3	0	0	0	0	2	1	1	77
1974	438	23	6	41	98	4	4	9	0	0	0	124	10	3	0	2	0	0	0	1	1	6
1975	663	58	16	211	69	5	5	10	0	0	0	32	6	0	0	1	0	0	0	0	0	55
1976	532	77	30	168	96	13	13	13	0	0	0	0	3	0	0	2	0	0	0	1	0	3
1977	502	129	42	52	120	17	17	26	0	0	0	9	1	0	0	2	0	0	0	0	0	0
1978	506	106	18	115	142	18	18	17	0	0	0	9	4	0	0	1	0	0	0	0	0	0
1979	747	79	26	149	315	18	18	15	4	31	0	3	5	0	0	5	1	0	0	0	0	0
1980	1591	235	31	277	539	28	28	22	0	40	0	18	2	0	1	4	0	0	0	0	0	0
1981	1333	54	47	271	996	139	139	76	0	16	0	10	1	0	0	4	0	0	0	0	0	0
1982	1705	156	46	256	805	46	46	40	25	28	0	8	1	0	0	2	0	0	0	0	0	0
1983	2289	138	53	306	1339	162	162	46	9	72	0	14	1	0	0	3	0	0	0	0	0	0
1984	2872	386	123	514	2287	189	189	52	1	75	0	9	1	0	0	4	0	0	0	0	0	0
1985	3212	129	121	828	3024	726	726	67	18	80	0	23	2	0	0	6	0	0	0	0	0	0
1986	5414	326	416	1224	2504	287	287	87	0	164	0	40	2	17	11	5	0	0	0	0	0	0
1987	10481	1415	421	1915	1254	4494	129	129	0	164	1	49	2	7	8	19	7	0	0	4	5	0
1988	8945	955	991	1617	1034	1226	76	76	0	216	7	131	2	14	7	1	0	0	0	9	2	72
1989	8962	117	1286	1881	1362	1717	133	133	0	266	0	55	6	14	13	8	0	0	0	0	0	0
1990	13920	815	1207	1783	1331	1717	157	157	1	483	2	1280	5	14	9	3	0	0	0	326	66	42
1991	36063	794	2625	1783	1534	13508	225	225	0	634	0	11465	3	2	7	4	0	0	0	271	20	329
1992	16120	1144	1456	1946	1605	3859	160	160	0	747	0	327	1	17	12	4	0	0	0	803	0	46

Exports (million of drachmas)

Year	Total CE	France	Bel-Lux	Netherlands	Germany	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norman	Sweden	Finland	Australia	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	148	0	2	0	0	3	62	1	0	0	0	0	0	1	0	1	0	0	0	7	2	0
1971	174	0	0	0	0	5	80	2	0	0	0	0	0	1	0	0	0	0	0	3	0	0
1972	393	0	0	0	0	3	335	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
1973	501	0	0	0	0	3	447	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
1974	886	15	0	0	0	4	363	3	0	0	0	0	0	0	0	0	0	0	0	24	0	0
1975	1374	7	1	11	0	922	9	9	0	0	0	13	0	0	0	37	0	0	0	32	43	0
1976	1976	23	1	1	0	496	7	7	0	0	0	0	0	1	0	0	0	0	0	26	0	0
1977	433	12	0	15	2	66	0	0	0	0	0	0	0	2	0	0	0	0	0	49	0	0
1978	2640	42	0	0	4	1924	33	33	0	0	0	0	0	0	0	0	0	0	0	7	0	0
1979	1652	60	0	0	9	960	69	69	0	1	0	0	0	3	0	0	0	0	0	31	0	0
1980	1610	1	0	0	7	505	42	42	0	1	0	0	0	7	0	1	1	0	0	17	0	0
1981	2087	156	0	0	28	653	65	65	0	1	513	0	0	8	0	1	1	0	0	277	0	18
1982	5591	1666	1	6	16	1588	57	57	0	1	0	0	0	7	0	1	1	0	0	206	0	31
1983	22353	4292	6	6	21	13060	109	109	0	1	0	0	0	0	0	4	0	0	10	535	81	224
1984	20528	1867	2	2	76	13110	106	106	0	3	0	0	1	0	0	4	0	0	2	124	3	404
1985	15052	851	3	53	42	6781	113	113	0	0	0	0	0	9	1	3	0	0	4	1191	239	588
1986	28876	86	6	7	59	23098	363	363	280	6	0	0	2	14	0	8	0	0	115	895	470	588
1987	30256	51	17	6	90	24783	182	182	560	6	0	0	5	14	0	14	0	0	34	498	441	588
1988	10648	229	4	61	65	7613	121	121	0	6	0	214	1	18	1	9	0	0	34	803	2	273
1989	58077	2357	11	48	105	50167	1028	1028	0	0	0	554	0	25	7	5	0	0	16	356	538	404
1990	47864	2995	13	7	188	39358	483	483	0	19	0	0	2	52	4	10	0	0	159	964	507	604
1991	40693	51	10	2	212	32565	358	358	0	26	9	0	8	74	8	27	0	0	61	1704	296	278
1992	105416	139	342	10	382	84466	888	888	0	67	274	8660	20	109	21	14	0	0	58	1104	193	0

CS - Animal and vegetable fats, oils and their cleavage products; Prepared edible fat, animal and vegetable waxes.

Imports (million of drachmas)

Year	USSR	DOR	Poland	Czech/Slo	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	0	0	0	26	0	0	50	58	285	34	0	26	0	62
1971	1	0	0	0	0	0	0	0	21	0	0	56	64	140	13	1	21	0	84
1972	0	0	0	0	0	0	0	0	16	0	0	50	60	61	10	0	16	0	19
1973	0	0	0	0	0	0	0	0	27	0	0	109	122	141	11	0	27	0	146
1974	0	0	0	0	0	0	0	0	6	0	2	172	186	710	15	0	6	2	105
1975	0	0	0	0	0	0	0	0	70	0	0	359	377	409	7	0	70	0	177
1976	0	0	0	0	0	0	0	0	13	0	0	386	410	417	5	0	13	0	97
1977	1	0	0	0	0	0	0	0	23	0	0	560	410	419	5	1	23	0	52
1978	0	0	0	0	0	0	0	0	8	0	0	799	443	432	7	3	8	0	56
1979	0	0	0	0	0	0	0	0	6	0	0	587	617	640	11	8	6	0	82
1980	0	0	0	0	0	0	0	0	232	0	0	1100	617	640	7	8	232	0	128
1981	0	0	0	0	0	0	0	0	72	0	0	1097	1169	1179	5	3	72	0	64
1982	0	0	0	0	0	0	0	0	10	0	0	1009	1102	1110	3	2	10	0	180
1983	0	0	0	0	0	0	0	0	25	0	0	1988	2	2139	12	2	25	0	112
1984	0	0	0	0	0	0	0	0	19	0	0	3501	3629	3638	5	66	19	0	144
1985	0	0	0	0	0	0	0	0	8	0	1	4858	5023	5046	18	30	8	0	109
1986	0	0	0	0	0	0	0	0	11	0	0	4757	5008	5048	35	15	11	0	305
1987	0	0	0	0	0	0	0	0	8	0	0	9499	9794	9846	28	9	8	0	589
1988	0	0	0	0	0	0	0	0	21	0	0	5843	6135	7283	13	7	21	0	1285
1989	0	0	0	0	0	0	0	0	180	0	4	6363	6762	6817	41	59	180	0	1861
1990	0	0	0	0	0	0	0	0	130	0	4	9875	10316	11798	31	59	130	0	1912
1991	0	0	0	0	0	0	0	0	222	0	0	20932	21791	31256	31	149	222	0	2396
1992	0	0	0	0	0	0	0	0	2096	0	0	10010	10917	11244	18	363	2096	0	1314

Exports (million of drachmas)

Year	USSR	DOR	Poland	Czech/Slo	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	43	0	0	0	0	0	0	0	9	9	0	67	68	68	2	43	9	0	26
1971	44	0	0	0	0	0	0	0	17	10	0	85	87	87	1	44	17	0	25
1972	0	0	0	0	0	1	0	0	18	10	0	340	341	341	1	1	18	0	32
1973	14	0	0	0	0	0	0	0	10	6	0	450	451	451	1	14	10	0	25
1974	190	0	106	40	51	0	0	0	17	11	0	382	385	385	37	387	17	0	60
1975	92	0	92	21	0	0	7	0	39	22	2	941	950	963	1	212	39	2	157
1976	46	0	0	0	0	6	0	0	27	13	0	521	520	520	1	52	27	0	161
1977	43	0	0	0	0	0	0	0	18	8	0	55	102	102	3	56	18	0	254
1978	32	0	0	0	0	0	0	0	40	26	0	1971	2004	2004	2	40	0	0	541
1979	0	0	0	0	0	0	0	0	42	25	0	1029	1099	1099	7	0	42	0	504
1980	0	0	0	0	0	0	0	0	42	25	0	315	358	358	9	18	42	0	899
1981	0	0	0	0	0	0	0	0	71	42	1	837	903	953	14	23	71	1	1023
1982	0	0	108	0	0	1	0	0	99	32	1	3277	3335	3848	12	141	99	1	1490
1983	540	0	70	0	0	0	0	0	86	44	1	19410	19520	19520	14	610	86	0	2234
1984	183	0	0	0	0	0	0	0	147	65	0	15408	15517	15517	21	226	147	0	1617
1985	1584	0	0	0	0	0	0	0	140	57	0	7118	7314	7314	23	1584	140	0	3791
1986	482	0	0	0	0	0	0	0	248	107	0	23256	24385	24385	153	482	248	0	3608
1987	1597	0	0	0	0	0	0	0	462	118	0	24947	25138	25138	69	1597	462	0	2909
1988	0	0	0	0	0	0	0	0	230	79	8	7972	8099	8313	110	230	0	0	2186
1989	1	0	0	0	0	0	0	0	316	88	11	42561	43063	43063	70	61	316	11	3312
1990	12	0	0	0	0	0	0	0	48	160	8	32840	33224	33284	184	117	770	800	5613
1991	109	0	0	4	2	14	0	0	600	362	25	83359	86294	95228	167	196	800	23	7454
1992	325	0	3	4	180	70	0	0	1622	270	39	83359	86294	95228	237	836	1622	59	7454

C4 - Prepared foodstuffs, Beverages, spirits and liquor, Tobacco.

Imports (millions of drachmas)

Year	Total C4	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	1206	103	87	231	11	50	134	0	32	16	27	21	1	2	17	12	0	0	0	6	31
1971	1432	115	81	294	27	62	151	0	46	16	49	41	0	1	22	13	0	1	1	3	0
1972	2217	337	168	397	80	82	162	0	38	15	63	47	0	31	31	60	3	0	4	5	0
1973	2062	377	173	481	52	87	338	1	43	15	73	52	0	2	27	30	9	7	11	8	9
1974	3510	282	146	587	94	153	555	0	89	20	24	10	3	0	24	17	0	0	1	3	4
1975	4811	220	165	478	185	197	597	2	59	604	32	27	2	0	34	6	16	0	1	0	0
1976	2866	234	180	578	183	218	397	21	133	12	77	30	5	0	27	4	0	0	2	0	0
1977	4818	320	199	767	233	279	435	60	200	3	72	39	3	1	66	6	4	0	1	3	3
1978	5455	339	236	995	426	201	490	201	215	14	94	70	4	4	45	10	0	0	6	24	6
1979	6546	409	283	1357	504	233	715	211	231	5	107	6	4	12	51	10	0	0	6	34	2
1980	7453	449	286	1627	644	313	807	216	325	5	150	19	4	4	45	9	0	0	2	45	0
1981	16082	868	544	3794	3804	1727	1727	333	1349	6	430	103	17	55	63	1	1	0	18	41	0
1982	16236	868	744	3870	1927	1134	1542	511	1117	15	430	169	7	73	70	13	0	0	36	48	9
1983	21243	1136	992	5953	2426	1177	1960	674	1411	9	547	147	11	68	78	15	1	0	72	58	38
1984	30447	1443	1306	7969	3541	2109	2607	1107	2286	8	487	120	20	102	87	80	18	0	8	101	108
1985	42097	2024	3717	8463	5269	2856	4536	1297	2771	36	626	117	28	79	149	149	0	0	83	78	185
1986	51246	2176	7143	9739	7071	3610	5864	1915	3474	134	364	25	37	76	167	32	0	0	143	126	206
1987	70033	7709	3463	12907	9416	9815	12786	1282	4863	303	619	27	67	86	143	121	9	0	149	198	214
1988	90871	7929	3056	17336	11375	14881	18481	3057	9004	4061	6491	38	94	208	354	249	0	0	201	314	401
1989	170048	9146	5492	19210	18150	14464	23776	4061	6491	455	1254	19	564	303	541	760	1	0	908	326	619
1990	144515	9294	5814	23773	24156	13026	23146	5926	7769	771	1142	59	1073	355	601	437	0	0	908	326	619
1991	177710	12449	7169	29818	28666	16032	30254	6808	8631	1023	2492	62	609	401	980	480	2	0	591	776	1133
1992	228791	16871	9519	39424	37963	20048	41702	8757	10190	1213	3271	60	651	487	979	758	0	0	803	156	1096

Exports (millions of drachmas)

1970	4086	382	375	281	1225	376	66	0	5	6	6	7	34	15	80	42	0	3	7	47	0
1971	4864	381	222	248	1266	367	168	0	7	11	8	3	70	22	30	40	0	21	17	41	0
1972	6808	386	196	442	1682	637	166	0	7	11	9	4	32	24	89	59	0	20	24	91	0
1973	7285	487	391	487	1601	672	186	0	8	10	130	4	17	42	128	44	0	24	37	74	0
1974	10532	470	386	526	2620	934	186	4	15	16	46	5	38	19	159	53	0	37	46	89	0
1975	11691	600	382	643	2873	730	284	0	9	6	2	7	60	28	163	8	0	47	33	38	0
1976	16087	811	382	784	2017	715	516	0	107	49	5	8	55	28	206	70	0	57	84	103	0
1977	18124	919	451	2417	2417	1090	739	0	25	43	21	6	28	19	148	110	0	47	84	103	0
1978	19613	1223	484	815	3967	918	739	7	61	38	23	5	60	15	187	74	0	46	81	140	2
1979	21143	1212	513	1005	3642	1008	1046	37	70	271	0	4	69	15	187	86	1	41	130	165	0
1980	26672	1454	497	1509	3642	1008	1046	48	80	54	38	4	74	58	120	69	0	51	177	168	0
1981	32238	1710	500	1420	5099	1482	1787	111	218	1	22	9	77	82	149	128	2	14	213	156	0
1982	38157	2297	1424	1519	6647	2424	2719	137	225	128	0	7	119	74	260	157	1	66	162	311	0
1983	54393	4039	1244	2446	8355	3882	3859	331	428	77	50	24	124	133	371	329	0	123	404	387	158
1984	69256	5799	1797	2928	9927	4810	5648	226	428	155	0	24	310	223	439	387	1	135	639	860	1603
1985	80626	7103	1349	2928	9927	4810	5648	459	428	47	194	113	234	242	617	657	1	283	703	617	572
1986	105024	10205	2759	3441	12391	7822	6567	459	641	77	280	113	662	242	617	657	1	283	703	617	572
1987	157343	12288	2867	5722	24946	11527	12916	281	1004	300	418	124	823	242	617	657	1	283	703	617	572
1988	102293	8757	2065	4149	19258	17790	9909	335	723	300	224	224	662	242	617	657	1	283	703	617	572
1989	157055	13140	2788	7081	30668	15405	19409	517	1235	1433	726	139	999	242	617	657	1	283	703	617	572
1990	14154	14819	5651	7785	9909	30153	26366	356	1479	582	1269	261	1145	987	1924	1538	1	501	1382	1747	4000
1991	223213	14819	5651	7785	9909	30153	26366	356	1479	582	1269	261	1145	987	1924	1538	1	501	1382	1747	4000
1992	289673	19673	7667	11273	52917	28849	22443	1191	2122	1491	3148	330	1319	1014	2340	2911	0	605	2180	299	514

C4 - Prepared feedstuffs, Beverages, spirits and Vapeur, Tobacco

Imports (millions of francs)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EEFAS	East Eur	USA	Japan	ROW
1970	12	0	13	6	6	0	13	0	108	2	30	482	648	691	53	50	108	30	274
1971	13	0	10	12	5	0	10	0	136	3	34	579	776	841	77	52	136	34	292
1972	14	0	15	11	7	2	14	0	209	4	34	1064	1264	1342	169	63	209	34	400
1973	16	0	28	8	13	31	40	0	430	4	53	1170	1542	1630	111	136	430	53	382
1974	12	0	32	3	7	65	33	0	530	47	47	1262	1906	1950	54	132	530	47	777
1975	19	1	41	8	8	25	39	0	798	84	363	1245	1831	2487	69	142	798	363	1372
1976	28	1	21	13	8	42	33	0	791	10	67	1393	1944	2033	86	172	791	67	1145
1977	49	0	16	20	5	46	37	0	678	13	107	1818	2533	2608	115	195	490	107	1325
1978	55	0	40	26	23	72	46	0	430	10	77	2197	3103	3211	95	267	430	77	1560
1979	51	1	26	23	29	83	20	1	571	11	37	2786	3963	4075	69	334	571	37	2043
1980	52	2	47	12	18	87	41	0	186	86	34	3319	4667	4822	109	339	186	34	2643
1981	107	0	7	3	14	111	57	0	746	3	168	9732	12311	12674	320	295	746	168	1939
1982	81	0	4	3	27	58	63	0	845	3	149	8503	11673	12118	372	339	845	149	2332
1983	107	8	13	2	6	38	92	0	441	42	132	11884	15929	16485	319	361	107	132	3486
1984	102	3	9	8	9	53	74	0	441	20	132	16428	22428	22923	344	361	102	132	6344
1985	44	3	7	5	15	48	58	2	1192	95	217	23311	31915	32377	447	179	44	217	7481
1986	67	7	11	5	72	119	117	0	1402	54	217	29739	40992	41490	337	346	67	217	7534
1987	108	0	37	5	72	119	117	6	2766	60	183	39310	53102	54024	644	464	108	183	11934
1988	220	0	63	17	40	177	135	3	1195	73	135	50777	71124	72420	933	633	220	135	15495
1989	713	26	119	114	81	235	416	7	3220	126	327	66462	100790	102499	2206	1713	713	327	20083
1990	690	2	185	47	95	48	169	0	4325	99	302	75063	112104	114017	2345	1916	690	302	21410
1991	603	2	190	49	295	130	799	46	4305	668	304	94154	139847	143362	2 32	2112	603	304	24995
1992	279	0	223	188	102	184	246	284	6135	183	297	123825	184414	188898	2935	1516	279	297	28992

Exports (millions of francs)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EEFAS	East Eur	USA	Japan	ROW
1970	404	162	59	123	85	9	22	0	658	42	182	2419	2511	2523	178	864	461	182	478
1971	253	151	50	107	102	30	22	0	638	42	94	2484	2659	2678	125	715	253	94	594
1972	430	135	127	133	131	38	22	0	833	50	429	3343	3516	3536	202	1066	430	429	752
1973	463	162	168	129	115	72	31	0	855	43	405	3638	3832	3972	232	1147	463	405	944
1974	597	267	348	163	173	121	51	0	998	81	579	4936	5372	5414	76	1720	597	579	1343
1975	811	427	355	215	132	132	214	0	1053	74	791	5709	5492	5500	286	209	811	791	1872
1976	1102	628	628	187	156	192	168	0	1919	132	424	4927	6032	6406	465	287	1102	424	3918
1977	1175	428	464	315	155	199	32	0	1804	163	432	5709	6492	6406	465	287	1175	432	3918
1978	1344	578	670	677	132	266	245	0	1489	193	705	7427	8234	8295	334	312	1344	705	4878
1979	980	634	784	486	88	375	282	0	1122	162	704	7380	8533	8804	363	3447	980	704	6703
1980	1116	788	1532	534	339	272	288	0	2066	184	623	9343	10633	10745	325	4889	1116	623	8024
1981	929	662	983	260	645	757	1242	0	3089	223	864	10211	12327	12330	641	5480	929	864	9814
1982	1913	442	211	780	284	593	1029	0	3689	281	1347	16412	16412	16540	177	5332	1913	1347	10092
1983	2266	439	430	433	933	537	888	1	4919	400	2064	19976	24379	24656	976	6967	2266	2064	15910
1984	2673	916	470	912	649	649	1082	0	6837	887	1940	25291	31293	31798	1413	7487	2673	1940	18794
1985	2916	1898	401	1105	439	1552	949	0	7507	1114	1969	32106	39773	40014	1898	9340	2916	1969	19877
1986	734	1682	210	1585	703	1894	1024	1	12433	1102	3627	46331	57077	57444	330	7833	734	3627	20311
1987	90	1567	488	2376	650	1319	990	14	12633	1023	4302	67900	82494	82312	3844	7538	90	4302	26316
1988	25	2267	284	900	315	706	982	75	9431	1223	3304	82919	92709	93907	2327	4042	25	3304	18887
1989	205	1780	573	1298	450	277	1883	509	14634	2936	4833	78822	93009	95473	2081	7282	205	4833	18887
1990	647	205	4175	1253	649	2518	1280	313	18249	3013	7266	85487	105304	107355	3855	9544	647	7266	37774
1991	5319	0	3911	3953	1503	2081	2081	313	21897	2837	7689	98991	1271842	1231939	7814	17078	5319	7689	44804
1992	5319	0	3911	4564	1691	9209	6970	1745	23287	5138	11533	120409	146163	150804	8377	33409	5319	23287	60043



CS - Mineral products

Imports (billions of drachmas)

Year	USSR	DOR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	512	0	13	15	0	179	2	0	62	73	6	1110	1187	1220	8	754	62	2807	
1971	560	3	52	33	0	271	59	12	13	46	0	1208	1275	1325	17	898	135	3115	
1972	647	0	52	49	0	271	0	46	93	32	0	1540	1660	1683	18	1065	93	4184	
1973	523	2	103	29	1	207	2	86	79	51	0	1518	1699	1713	36	963	79	11164	
1974	1073	2	273	86	3	152	36	75	250	169	7	1987	2201	2245	43	1082	250	27887	
1975	2367	1	283	99	2	163	51	137	772	177	3	2056	2405	2345	63	1307	772	34586	
1976	5207	2	409	110	6	1043	392	157	980	190	1	2845	3271	3284	75	7110	980	36116	
1977	2901	1	120	123	2	1155	278	160	536	154	1	2962	3358	3361	98	4454	536	32011	
1978	8183	0	283	79	2	869	42	64	397	100	2	4000	4334	4500	65	10008	397	38934	
1979	4080	0	393	86	3	22	420	219	205	102	0	4410	4938	5010	93	5223	205	66990	
1980	3082	24	346	81	10	91	573	273	774	124	1	3143	3935	3979	90	4480	774	66990	
1981	13395	7	481	82	8	94	87	223	867	142	0	5113	5812	5879	73	14277	867	99792	
1982	9447	2	1228	72	8	19	1812	856	2360	86	7	8404	10375	10587	89	13484	2360	169562	
1983	13451	5	214	113	22	38	2799	1618	2691	53	1	10515	11358	11538	118	18280	3691	207309	
1984	46648	2	916	128	67	2989	2706	1026	2450	153	1	14725	18306	18910	1056	54683	2450	222633	
1985	63992	0	563	145	143	4034	505	270	4951	100	2	12022	13298	13848	1125	69932	4951	333138	
1986	21995	10	1400	183	112	664	579	2740	7211	2	379	16492	18038	18511	1235	57283	7211	220974	
1987	17960	56	1767	126	177	2438	2869	1202	2140	15	282	14132	17119	17592	2829	46195	2140	240034	
1988	19481	2	1056	71	175	1115	764	165	1939	57	121	6758	8015	8211	470	37011	1529	61705	
1989	16267	2	1268	100	606	2887	649	438	2328	62	4	10261	11507	14761	509	23417	2328	15741	
1990	23382	5	969	190	431	4976	4392	910	4639	127	122	19606	21846	22561	1790	35155	4639	192470	
1991	26085	0	2020	198	561	7773	2987	1343	8425	13	10	19857	22657	24323	3311	40929	8425	318906	
1992	22725	0	157	166	231	983	690	2147	4612	547	281	23749	28464	29697	1776	27121	4612	387854	

Exports (billions of drachmas)

Year	USSR	DOR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	139	0	0	5	0	17	2	0	276	22	8	664	780	827	86	163	376	312	
1971	121	0	0	4	0	8	2	0	227	30	7	703	874	881	109	135	227	436	
1972	112	0	0	2	5	14	6	0	275	45	10	848	977	1031	103	139	275	575	
1973	162	0	1	6	10	67	22	3	592	58	20	1433	4928	5058	482	271	592	1960	
1974	100	0	3	5	14	137	11	6	694	111	208	4088	5456	5683	355	302	694	3380	
1975	304	0	10	19	219	46	54	6	816	169	39	4972	6883	7086	467	613	816	6160	
1976	305	28	12	6	20	379	54	6	1049	256	27	4539	5304	5324	531	811	1049	6286	
1977	472	29	122	13	28	323	78	2	1466	74	26	3461	4369	4355	328	1093	1466	60639	
1978	382	11	20	16	62	479	164	2	1220	80	26	8622	9978	9786	520	1145	1220	14381	
1979	408	11	22	19	94	494	280	2	3282	147	76	8833	10533	10833	415	1325	2282	19239	
1980	660	75	22	20	155	948	506	124	2033	203	27	20453	23257	24481	966	2408	7035	34982	
1981	1385	7	28	69	28	1160	384	124	10667	227	42	8472	9719	10234	533	3383	10667	42	
1982	2191	13	28	11	30	1267	168	0	15412	135	87	10519	11832	12739	727	3686	15412	87	
1983	1871	1	9	42	64	1626	612	3	13118	138	98	12315	13692	14182	1244	4227	12318	98	
1984	2097	19	4	19	43	1885	857	12	21948	442	556	23143	32083	32767	1234	4925	21948	556	
1985	3223	42	4	14	28	1814	1549	12	22120	1415	3101	36355	45619	46293	12718	6673	22120	3101	
1986	2465	0	49	14	32	1553	3079	5	19090	859	400	41057	53528	56374	1190	7304	19090	400	
1987	3023	157	12	22	18	1774	3042	5	28034	432	1012	41057	45840	50173	1784	8080	28034	32727	
1988	2761	19	49	22	19	1513	290	5	15103	649	1012	27384	31382	32980	1095	4678	15103	1917	
1989	6121	19	55	139	39	5799	735	224	16101	953	1373	41701	48089	50630	1628	11205	16101	23930	
1990	2785	35	69	82	51	3427	743	133	16460	898	1200	53108	60144	64316	1787	7327	16460	1573	
1991	6877	0	195	120	127	6028	3045	148	34510	898	2866	55600	67836	68827	2617	16540	34510	37748	
1992	5147	0	99	189	134	3351	9691	895	13183	306	638	52956	60738	67123	1981	19506	13183	17871	

CS - Products of the chemical and allied industries

Imports (billions of dollars)

Year	USSR	DOR	Poland	Czech/	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East/Eur	USA	Japan	ROW
1970	14	26	4	6	14	32	60	0	440	12	18	2327	2711	2733	432	156	440	18	100
1971	12	31	7	7	15	52	63	0	460	8	31	2770	3227	3264	475	187	460	11	96
1972	10	28	6	9	8	37	54	0	619	8	37	3110	3863	3911	538	152	619	37	137
1973	9	28	12	11	7	15	19	1	705	11	48	4421	5329	5337	695	102	705	48	175
1974	28	37	28	18	14	47	41	8	965	7	60	5903	6646	6790	800	221	965	60	314
1975	15	52	53	25	29	57	133	3	1034	14	90	7678	8386	8722	1061	367	1034	90	296
1976	28	44	35	28	98	136	314	3	1305	20	155	8963	10170	10365	1194	606	1305	155	329
1977	28	55	58	29	58	117	307	0	1302	30	168	9861	11365	11623	1467	642	1302	168	328
1978	40	36	55	32	33	134	219	2	1181	36	206	11113	13315	13406	1993	532	1181	206	469
1979	87	61	58	38	24	374	234	14	1310	63	241	13129	17397	17714	2158	800	1310	241	763
1980	269	68	68	21	28	442	446	27	1767	470	293	19823	22964	23349	3002	800	1767	293	707
1981	589	80	58	54	58	571	295	6	3031	96	394	21729	28678	29706	3436	1365	3031	394	2386
1982	1476	55	46	65	127	972	623	13	2352	125	483	24092	28399	28656	3436	1365	2352	483	3119
1983	1296	71	94	52	232	667	768	1	2875	75	623	35194	41141	41651	4811	2781	35194	623	2528
1984	3297	126	94	88	235	912	511	48	5382	111	939	46425	55144	55894	6604	3311	46425	939	3128
1985	1022	268	159	173	145	669	572	26	5418	118	1102	63309	73306	74603	7761	2994	63309	1102	3553
1986	707	184	365	133	174	978	747	62	5093	132	1687	81291	99432	101474	12659	3390	81291	132	6144
1987	1225	156	123	206	236	821	1550	23	5360	131	2083	103318	121035	123308	14182	4360	103318	131	8735
1988	1105	157	112	181	226	758	458	90	6964	132	2083	100742	119886	122832	14837	3087	100742	132	8317
1989	780	231	133	458	259	769	1401	230	9811	143	2263	117280	160228	164490	19034	4371	117280	143	2263
1990	1132	208	441	449	258	407	2119	233	11941	174	2317	159125	192847	198439	23988	5457	159125	174	11635
1991	3126	0	611	423	694	671	3263	269	13970	158	2502	198304	236578	241680	30740	11259	198304	158	18279
1992	2189	0	293	483	423	678	3602	224	13970	200	2913	227683	277291	287300	43295	8096	11877	2913	24623

Exports (billions of dollars)

Year	USSR	DOR	Poland	Czech/	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East/Eur	USA	Japan	ROW
1970	0	0	80	23	14	62	62	0	123	4	1	666	674	695	13	241	123	1	191
1971	0	1	13	34	5	69	17	0	211	4	1	713	729	711	19	141	211	1	213
1972	15	1	38	81	17	106	35	0	416	4	0	820	848	856	29	293	216	0	343
1973	0	1	9	57	5	104	28	0	29	2	0	1026	1071	1078	27	203	49	0	691
1974	30	2	0	140	5	241	76	0	35	2	0	1150	1203	1353	33	431	35	0	698
1975	225	3	12	140	51	159	52	6	4	1	0	1663	1715	1931	51	810	4	0	598
1976	15	4	36	70	13	148	222	23	5	1	0	2027	2091	2136	18	531	5	0	1194
1977	109	4	36	117	19	76	94	59	8	1	0	2231	2374	2429	24	490	8	0	1976
1978	70	7	32	73	7	65	270	57	60	1	1	2136	2297	2330	9	592	60	0	2052
1979	113	5	31	13	7	76	157	92	168	15	1	2477	2645	2716	47	483	168	1	1843
1980	152	6	32	545	64	201	655	117	141	15	1	6205	6437	6518	107	1879	141	5	4376
1981	101	0	13	49	28	301	335	58	125	44	5	3185	3462	3615	50	3172	58	3	5362
1982	80	0	74	95	26	282	437	123	194	36	2	6186	6706	6798	65	1097	194	6	5617
1983	13	0	43	163	117	331	522	59	469	63	2	8838	9088	9106	127	1248	169	2	10551
1984	191	0	43	163	117	331	522	59	469	63	2	8648	9324	9346	260	1399	438	2	14034
1985	2	0	136	147	52	453	745	48	613	92	19	7818	7958	8222	520	2213	264	145	12833
1986	298	0	25	144	291	453	528	64	264	16	154	6065	6655	6763	661	1879	264	145	15557
1987	184	15	470	10	130	1283	642	55	237	8	68	5127	5050	5180	398	2789	272	154	16377
1988	277	0	21	40	88	375	821	32	572	66	68	8053	11307	11402	193	358	572	68	15597
1989	225	2	61	50	50	86	446	74	878	239	239	19359	24733	24946	761	1096	878	239	21408
1990	298	2	75	73	102	241	446	130	373	408	51	21244	26426	26708	991	1183	533	51	21931
1991	336	0	27	74	38	497	473	119	1119	552	12	22968	29218	29936	1791	1564	1119	12	29729
1992	336	0	154	228	60	692	1208	302	686	637	12	26045	29012	29331	2256	2990	686	12	29729

CS - Products of the chemicals and allied industries

Imports (billions of drachmas)

Year	Total C6	France	Bel Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norma	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey	
1970	3879	477	189	354	995	398	316	6	46	5	17	8	9	4	374	37	0	0	1	27	2	
1971	4412	587	201	326	1158	498	397	5	53	12	25	10	8	4	410	42	0	0	1	28	2	
1972	5194	671	201	349	1345	644	434	41	78	14	34	14	12	6	458	48	0	0	1	27	2	
1973	7062	819	432	364	1711	875	518	165	105	54	54	24	11	4	592	64	0	0	1	36	2	
1974	9150	1178	687	944	1958	1136	601	47	95	86	58	28	18	8	657	89	0	0	1	56	3	
1975	11570	1514	751	1081	2814	1496	750	31	127	76	100	31	23	5	898	104	0	0	1	97	3	
1976	14034	1674	846	1235	3730	1820	874	140	193	104	183	37	45	7	1019	99	0	0	1	44	4	
1977	15570	1942	1049	1375	5124	1875	1145	131	238	100	158	57	57	12	1251	122	0	0	1	44	4	
1978	17897	2002	1165	1603	6231	2211	1321	169	212	24	227	31	104	19	1716	123	0	0	1	50	6	
1979	22096	2681	1525	2274	5476	3173	1803	211	254	57	280	49	72	21	1839	177	0	0	1	50	6	
1980	30483	3478	1860	3539	7068	3879	2490	280	370	51	334	46	153	38	2419	146	0	0	1	66	6	
1981	36914	4248	2372	3695	6975	4438	2895	365	689	3	295	72	173	65	2745	181	0	0	1	79	24	
1982	41268	4586	2810	3741	8423	4732	3175	411	701	2	255	79	169	72	2245	291	0	0	1	144	34	
1983	55509	6627	3965	4656	12674	7272	4572	678	897	3	307	144	207	104	3725	831	0	0	1	149	75	
1984	76443	8700	5318	5218	16167	11432	6030	1336	1333	7	743	116	313	214	3725	831	0	0	1	149	75	
1985	95506	11005	5945	7817	21560	14964	8327	2046	1642	32	1265	221	289	282	4138	1156	0	0	1	149	154	
1986	130611	16291	7726	11226	28428	18538	11219	2271	2633	37	2005	1289	596	601	8772	1536	0	0	1	156	202	
1987	157312	17336	11214	15945	37567	21256	13477	2721	3231	159	1996	677	708	723	10639	1425	0	0	1	180	162	
1988	158538	17983	11998	15909	36506	20144	14982	2448	2714	197	2855	270	1096	781	11882	1436	0	0	1	202	182	
1989	18654	2280	16654	16801	48508	28787	20515	1904	2909	97	4165	471	1252	485	14942	1884	0	0	1	202	182	
1990	231407	31273	28001	20268	57493	29990	23535	4606	3581	152	3050	493	1894	449	19047	1925	0	0	1	215	174	
1991	316327	40121	26302	22323	67030	42448	28326	4606	3581	152	3050	4892	2872	883	23468	2708	0	0	1	215	174	
1992	380399	44154	32241	26260	76702	48345	35668	8077	3864	178	478	9731	1570	5928	1026	31272	3489	0	0	1	215	174

Exports (billions of drachmas)

Year	Total C6	France	Bel Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norma	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	1284	46	4	333	53	230	4	0	4	0	21	17	1	11	1	3	0	0	18	41	0
1971	1316	142	12	405	27	127	10	0	6	0	2	0	0	11	6	2	0	0	33	8	10
1972	1746	62	18	505	47	188	22	3	7	0	8	16	0	14	8	4	0	0	41	18	28
1973	2030	8	83	664	79	172	36	2	7	4	3	0	0	14	7	6	0	0	104	4	76
1974	2460	45	125	777	89	114	31	5	11	8	142	0	0	0	7	46	0	0	84	10	19
1975	3794	14	78	1115	228	228	38	3	17	12	204	0	0	0	7	43	0	0	73	20	6
1976	3884	40	103	1592	73	417	47	7	14	44	1	0	0	1	14	1	0	0	110	22	100
1977	4827	49	208	1340	130	513	101	7	35	45	0	0	0	1	16	4	0	0	91	44	100
1978	5644	39	159	1509	114	513	112	4	45	65	6	0	0	0	8	4	0	0	78	33	120
1979	5620	81	137	1743	190	306	123	7	44	65	6	0	0	0	44	2	0	0	91	35	120
1980	13222	150	269	3123	190	2203	174	1	58	81	0	0	0	0	93	0	0	0	205	216	488
1981	9635	63	313	2374	131	504	134	0	43	45	8	0	0	4	40	1	0	0	205	216	488
1982	11119	149	348	3507	833	1329	139	2	69	0	13	0	0	2	40	1	0	0	205	216	488
1983	16273	189	579	4933	833	2152	167	0	85	15	15	0	12	4	42	7	0	0	205	216	488
1984	22316	341	1056	4432	833	1968	519	2	133	8	14	0	0	0	112	1	0	0	205	216	488
1985	26162	340	902	4902	424	1250	771	3	155	3	34	0	0	0	289	1	0	0	205	216	488
1986	24056	797	1696	2877	60	635	1650	19	234	68	196	346	3	8	267	7	0	0	205	216	488
1987	29315	3235	1509	748	1121	554	3388	201	134	100	100	5	79	42	361	6	0	0	205	216	488
1988	29187	3239	765	1054	1214	1491	3096	44	114	10	83	29	74	28	40	7	0	0	183	275	950
1989	49348	13171	993	1125	3019	1031	5248	34	112	16	187	151	366	108	74	17	0	0	332	287	1052
1990	51397	12793	1406	1385	3019	1236	4971	101	110	40	242	208	432	65	151	52	0	0	332	287	1052
1991	64151	12063	2159	2371	3286	2079	5882	76	292	27	242	208	432	65	151	52	0	0	332	287	1052
1992	64683	10250	1940	3184	5609	4782	2565	90	312	175	344	393	582	12	991	27	0	0	664	417	2595



CT - Artificial fibres and plastic materials, cellulose esters and ethers and articles thereof, Rubber, synthetic rubber, factice and articles thereof.

Imports (million of francs)

Year	Total CT	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	1679	192	71	78	386	347	146	0	2	3	14	9	7	1	12	42	0	0	1	1	0
1971	1854	251	76	84	467	370	159	1	4	2	14	8	8	1	12	55	0	0	1	0	2
1972	2113	304	136	97	560	511	191	0	3	3	18	8	9	2	15	63	0	0	0	0	3
1973	3517	463	179	169	1030	819	247	1	7	4	25	8	9	3	26	79	0	0	0	0	1
1974	4129	507	275	219	1158	835	294	2	8	4	37	11	19	0	40	67	0	0	0	0	4
1975	5128	670	486	303	1227	953	362	9	10	4	45	11	19	0	41	103	0	0	0	0	4
1976	6931	947	441	416	1629	1712	417	14	20	3	25	12	25	0	60	93	0	0	0	0	0
1977	7164	1225	561	349	1661	1902	532	19	20	0	20	8	34	0	69	117	0	0	0	0	0
1978	8403	1196	721	497	1956	2060	533	25	25	1	19	7	38	4	87	82	0	0	0	0	0
1979	11956	1817	1183	684	2698	2806	747	18	27	2	58	21	48	3	115	90	0	0	2	40	0
1980	14418	2018	1428	899	3207	3077	793	19	33	2	77	10	79	1	314	108	0	0	0	0	0
1981	19172	2629	1633	1137	4771	3722	1653	34	31	1	160	7	135	6	533	152	0	0	4	60	0
1982	19526	2730	1789	1137	4697	4424	1014	24	42	4	245	41	155	11	449	192	0	0	6	54	3
1983	27260	3741	2483	1898	6367	6395	1339	57	36	12	535	58	351	22	264	383	0	0	2	87	11
1984	36100	4521	3221	2378	8462	8484	1908	53	100	21	920	56	635	23	397	566	0	0	4	220	77
1985	45314	4976	3953	2866	10254	10472	2240	49	101	28	1057	89	923	99	445	858	5	0	6	632	219
1986	60167	6723	5091	3188	13930	13479	2915	52	179	79	1760	53	1014	92	617	1139	4	1	9	1048	254
1987	76325	7675	6195	5782	16595	17955	4338	82	226	342	2002	81	1823	139	790	1689	0	0	23	1780	350
1988	86275	8763	7155	6317	17970	18485	5143	87	249	91	2439	65	1717	160	658	2445	0	0	44	979	384
1989	120824	12114	10907	7842	23484	27328	6107	121	331	187	4460	165	1566	479	939	3441	0	3	86	2594	289
1990	141780	13603	12817	9601	27739	31039	8281	209	405	782	6571	314	2105	687	963	3501	0	7	44	3983	285
1991	167812	14888	12817	9601	33821	37356	10227	223	561	860	6503	478	2647	687	1799	3596	0	18	127	4065	285
1992	187631	17819	12849	10833	39882	38333	11080	134	622	1045	7592	701	2911	671	1387	3661	0	1	183	4065	2384

Exports (million of francs)

Year	Total CT	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	236	19	13	3	11	68	1	0	12	1	0	0	2	0	3	1	0	0	8	20	3
1971	267	23	32	5	14	29	1	0	10	1	0	0	3	1	2	1	0	0	13	21	6
1972	295	26	12	7	19	9	2	0	3	0	0	0	2	0	2	1	0	0	19	16	10
1973	383	54	8	9	34	13	57	0	5	0	0	0	7	1	3	8	0	0	27	23	5
1974	880	68	13	33	91	57	25	0	9	2	0	0	12	2	5	13	0	1	20	52	21
1975	1066	51	13	10	90	63	15	0	11	2	0	0	12	1	4	22	0	0	45	109	14
1976	1446	178	72	24	112	121	22	0	16	2	0	0	18	2	6	10	0	0	45	85	9
1977	1868	101	42	22	124	133	41	0	28	4	0	0	19	3	0	5	0	0	61	47	1
1978	1848	142	48	22	129	129	57	0	28	4	0	0	5	4	0	4	0	0	61	17	4
1979	2155	181	55	28	162	184	61	0	30	11	1	0	13	6	6	8	0	2	87	24	11
1980	3379	202	107	39	190	218	61	0	30	11	1	0	13	6	6	8	0	2	87	24	11
1981	5211	343	146	62	329	426	70	0	43	13	7	6	49	11	18	6	0	9	96	31	15
1982	4891	573	207	92	319	436	70	0	43	13	7	6	49	11	18	6	0	9	125	42	33
1983	5517	620	282	116	544	422	390	0	48	15	10	0	64	12	19	8	0	6	186	98	46
1984	6683	620	282	116	544	422	390	0	48	15	10	0	64	12	19	8	0	5	240	97	48
1985	7576	549	231	200	619	518	470	0	47	11	23	26	70	21	36	16	0	7	440	318	112
1986	9643	781	371	264	1029	808	526	12	66	18	88	61	105	40	104	47	4	9	616	112	209
1987	14367	1153	765	388	1391	1573	918	9	112	450	99	81	105	78	119	48	15	806	180	540	409
1988	17100	1533	1135	486	186	2010	954	10	112	450	99	81	105	78	119	48	18	806	180	540	409
1989	17700	1633	1295	287	1421	2010	1054	11	85	431	54	52	100	72	138	91	22	883	201	632	623
1990	19199	1633	1295	287	1421	2010	1054	11	85	431	54	52	100	72	138	91	22	883	201	632	623
1991	24047	2130	1531	457	2021	2773	1672	8	387	546	277	59	143	71	210	94	22	883	201	632	623
1992	35623	3005	2408	902	2807	3644	2439	18	514	533	396	65	294	90	138	157	89	1095	352	1469	1185

C7-Articles resin and plastic materials, cellulose cases and others and articles thereof, Rubber, synthetic rubber, faulter and articles thereof.

Imports (million of drachmas)

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	0	4	1	12	0	5	7	0	108	11	110	1074	1222	1239	71	28	108	110	122
1971	0	5	2	8	1	9	3	0	96	5	117	1248	1412	1428	84	29	96	110	101
1972	0	6	2	11	3	10	10	0	109	6	110	1618	1812	1833	97	42	109	117	122
1973	0	4	3	18	5	20	6	0	115	8	119	2660	2915	2944	125	38	115	119	176
1974	0	3	3	20	10	26	3	0	167	4	139	2994	3298	3339	137	65	167	139	282
1975	0	8	5	16	14	26	11	0	206	16	202	3619	4000	4049	176	80	206	202	615
1976	0	9	10	22	48	41	14	0	232	26	303	5145	5596	5624	176	144	232	303	412
1977	0	11	8	22	72	62	18	0	273	35	301	5698	6268	6288	232	222	273	301	481
1978	3	15	19	35	36	31	23	0	320	22	214	6432	7015	7035	222	162	320	214	650
1979	10	22	24	73	53	75	31	0	358	31	265	9178	9970	10030	777	288	358	265	738
1980	19	39	17	165	62	72	68	0	362	55	407	10703	11548	11627	512	442	562	407	888
1981	13	37	22	130	110	150	54	0	528	68	544	11777	12809	12770	833	516	528	523	1160
1982	1	36	17	116	55	136	73	0	453	71	523	13777	15469	15770	848	436	453	523	1508
1983	1	31	15	179	136	29	298	0	479	103	635	20884	22108	22853	1078	707	479	635	2127
1984	16	38	19	213	154	35	278	0	562	94	857	27076	29157	30078	1677	799	562	857	3160
1985	58	23	21	333	61	130	471	0	508	86	1159	33521	35911	36996	2414	1097	508	1159	4623
1986	1	14	53	600	104	279	533	0	632	112	1197	44411	47357	49396	2915	1404	632	1197	5023
1987	209	35	63	557	360	238	297	4	881	115	1268	54352	59198	61542	4524	1783	881	1268	6327
1988	72	23	164	679	735	296	26	0	1483	118	1566	58650	64129	67659	4745	2015	1483	1566	8807
1989	266	37	108	878	1231	386	563	0	1929	150	2330	80675	87234	91881	6590	3689	1929	2330	14215
1990	185	4	284	814	1182	293	485	0	2219	170	2829	92351	101240	108573	7310	3247	2219	2829	17602
1991	54	0	977	1448	3619	986	1176	4	2489	342	2665	104983	115994	123357	8607	7864	2489	2665	22870
1992	44	0	126	1693	2958	1963	1661	0	3403	315	3669	119816	131652	140289	9311	8443	3403	3669	22494

Exports (million of drachmas)

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	2	0	3	0	4	0	3	0	5	0	0	114	127	128	6	12	5	0	85
1971	0	0	53	1	0	0	2	0	11	0	0	105	116	117	7	58	11	0	74
1972	0	0	40	3	1	0	0	0	14	1	0	73	78	78	5	42	14	0	146
1973	1	0	8	1	0	0	0	0	25	1	1	118	128	128	19	16	25	1	194
1974	1	0	43	1	9	0	17	0	66	7	0	252	286	288	33	75	66	0	418
1975	13	0	40	2	20	0	8	0	21	13	0	227	253	255	54	86	21	0	650
1976	0	0	22	2	25	0	0	0	22	5	0	377	415	417	40	84	22	0	883
1977	0	0	23	2	25	19	0	5	16	3	0	412	481	488	35	120	16	0	1009
1978	0	0	6	0	31	49	10	2	22	1	0	553	638	648	21	111	22	0	1146
1979	0	0	2	0	52	6	35	6	46	1	8	608	699	711	40	101	46	8	1249
1980	0	0	18	0	19	13	42	6	57	2	30	994	1076	1091	60	113	53	30	2032
1981	0	0	0	2	58	4	26	16	137	9	0	949	1035	1050	88	108	133	0	2832
1982	0	0	6	5	72	0	26	16	119	6	0	962	1114	1133	93	119	119	0	3415
1983	0	0	2	1	95	1	48	6	184	16	0	1365	1830	1847	155	184	184	0	3178
1984	0	0	14	3	44	0	40	2	301	15	0	1939	2420	2447	162	103	301	0	3670
1985	0	0	11	7	42	0	92	2	406	16	0	2137	2696	2726	184	267	406	0	3883
1986	1	0	103	2	97	0	31	2	818	19	3	3253	3947	4063	347	289	818	3	4113
1987	5	0	58	13	49	0	54	38	883	31	132	5720	6599	6858	424	217	659	132	5853
1988	86	12	29	10	40	0	134	30	694	48	213	4099	5245	5772	533	415	694	213	6678
1989	9	1	79	1	84	2	176	53	626	52	49	6406	7656	8419	577	415	626	49	7614
1990	22	0	34	1	122	6	181	38	1032	43	57	6354	8021	9621	644	404	1032	57	7536
1991	3	0	202	11	88	29	169	79	800	38	64	9932	11969	12946	664	591	800	64	8989
1992	46	0	849	49	99	199	647	287	713	42	64	16766	19737	20686	933	2176	713	64	11033

CR - Raw hides and skins, furs, fur skins and articles thereof, Saddlery and harness, Trawls, goods, handbags and the like, Articles of gut

Imports (billions of French francs)

Year	Total C8	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Ireland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	811	62	1	13	306	24	16	0	1	0	1	1	1	6	1	1	0	0	1	0	30
1971	827	75	2	17	323	28	14	0	1	0	2	1	3	4	1	1	0	0	1	0	0
1972	1048	84	3	18	401	44	12	0	0	0	8	1	2	1	1	1	0	0	2	0	0
1973	1764	171	4	5	582	61	18	0	1	0	12	1	4	0	1	2	0	0	3	0	0
1974	1723	86	3	21	687	94	27	2	1	0	13	0	3	0	4	1	0	0	0	0	0
1975	1672	131	2	16	668	83	21	0	0	0	14	0	5	0	2	0	0	0	0	0	0
1976	2674	178	3	26	1099	205	22	0	0	2	29	0	9	1	4	0	0	0	6	0	0
1977	3076	236	7	15	1077	288	31	0	5	0	20	1	12	0	5	1	0	0	29	2	0
1978	4779	287	7	40	1059	308	59	0	8	0	15	2	13	6	1	3	0	0	46	1	0
1979	5024	345	14	50	1270	308	99	2	7	0	10	3	17	1	8	4	0	0	39	1	1
1980	4908	396	13	57	1585	453	148	0	9	0	19	0	11	1	11	5	0	0	1	1	0
1981	18428	1750	112	155	12401	632	711	4	126	0	13	0	151	29	119	14	0	0	17	0	0
1982	20368	2443	127	151	12787	648	619	9	150	0	10	3	279	109	334	37	0	0	4	0	0
1983	27372	2440	322	220	17671	1056	515	53	171	1	53	62	701	259	341	60	0	0	5	0	12
1984	29961	1967	709	423	17895	1904	582	233	399	1	57	120	188	237	213	118	0	0	11	17	0
1985	39033	2234	354	522	21369	2908	1020	58	548	1	86	260	444	318	428	208	0	0	37	7	34
1986	56549	3317	545	423	31651	3831	1657	233	614	34	295	406	672	355	1064	204	0	0	81	4	16
1987	69666	3448	518	342	40159	6498	2036	597	1025	37	441	555	579	875	912	183	5	0	80	6	118
1988	55691	3587	518	360	28091	5233	2540	535	1082	5	448	243	452	1142	783	350	0	0	192	36	36
1989	62807	5425	456	481	28635	8336	2335	504	1716	15	1310	174	393	1597	1059	413	10	0	164	89	63
1990	35882	5280	508	528	18012	10043	2476	887	1548	3	822	192	324	1371	458	250	0	0	220	62	4
1991	60534	7415	581	532	23539	9738	2807	467	1776	10	1709	296	374	2018	440	224	0	0	163	98	18
1992	68607	6507	524	384	29691	11170	2381	771	1922	18	1627	177	304	1741	427	204	5	0	244	14	26

Exports (billions of French francs)

Year	Total C8	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Ireland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	988	39	27	58	178	68	6	2	6	0	21	12	111	5	23	9	0	0	10	61	0
1971	1107	66	26	73	168	111	8	3	9	0	103	11	77	4	30	8	0	0	12	27	0
1972	1484	96	27	69	253	229	8	0	15	0	135	10	115	5	38	28	0	0	10	13	11
1973	2128	188	12	107	410	179	24	0	13	0	52	12	80	6	45	78	0	0	16	21	0
1974	2950	264	66	181	665	233	20	0	16	0	75	27	113	6	83	80	0	0	10	70	0
1975	3153	267	64	184	728	465	24	0	12	0	261	31	99	7	62	58	0	0	16	54	0
1976	4328	402	89	257	1070	589	30	0	30	0	262	39	144	12	62	58	0	0	16	54	0
1977	4927	414	96	363	1255	790	26	0	20	0	326	41	167	22	66	46	0	0	27	27	0
1978	5286	489	116	396	1037	980	26	0	23	0	633	40	179	22	57	46	0	0	26	113	0
1979	6346	783	140	360	1299	1300	26	0	20	0	225	87	172	30	56	64	0	0	26	92	0
1980	7110	924	196	234	1668	1608	24	0	23	0	449	51	196	35	60	88	0	0	60	239	2
1981	8387	986	85	187	2667	2025	60	0	50	0	673	10	266	53	81	88	0	0	60	404	2
1982	12062	1349	118	100	5123	839	156	1	93	0	742	42	201	53	212	142	0	0	102	404	3
1983	19070	1717	210	50	9989	1466	391	11	132	4	863	83	210	113	507	278	2	0	106	534	73
1984	29748	2845	214	70	13644	1886	515	3	303	8	1796	112	254	182	969	382	13	0	174	711	318
1985	33399	1554	201	70	12005	2807	515	299	368	3	2469	315	414	280	1299	361	5	0	270	1093	923
1986	61422	4330	337	148	28767	2917	815	75	1093	8	3332	786	920	689	2315	743	7	0	431	1148	241
1987	78922	5121	499	168	35312	4873	1283	28	1122	134	4227	750	1677	1496	3927	1261	11	0	790	411	2001
1988	59922	2582	234	58	22884	4933	514	1	1665	53	2640	440	740	839	3351	1187	0	0	689	378	578
1989	60180	3560	196	74	22884	4979	472	1	1665	42	5079	430	738	1181	5787	964	5	0	607	1442	824
1990	51833	3760	137	69	15700	5087	231	2	1296	11	3124	304	558	570	530	534	0	0	782	1894	717
1991	64013	4201	89	92	20604	6207	202	1	970	63	7067	305	559	1587	7068	614	0	0	668	1016	528
1992	86671	4527	106	57	28545	9305	354	3	509	138	11836	304	451	538	9959	567	0	0	1041	1029	1032

C3 - Raw hides and skins, leather, furskins and articles thereof; Saddlery and harness; Traps of goods, handbags and the like; Articles of fur

Imports (billions of dollars)

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	ECU6	LUX	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	0	0	0	195	18	2	406	423	424	12	0	195	2	178
1971	0	0	0	0	0	0	0	0	157	27	2	445	461	463	13	0	157	2	192
1972	0	0	0	0	0	0	0	0	164	33	1	550	562	570	8	0	164	1	305
1973	0	0	0	0	1	0	0	2	272	54	2	831	872	884	8	3	272	3	590
1974	0	0	0	0	0	0	0	1	292	88	6	891	921	934	8	1	292	6	482
1975	0	0	0	0	0	0	0	5	281	94	11	900	921	935	7	5	281	11	433
1976	0	0	0	0	0	0	0	0	404	107	10	1511	1535	1564	14	0	404	10	682
1977	0	0	0	0	1	0	0	0	545	142	14	1623	1659	1679	19	1	545	14	818
1978	0	1	0	0	0	0	0	3	709	171	14	1701	1768	1783	25	5	709	14	943
1979	2	0	0	0	1	0	4	4	939	258	20	2312	2489	2499	23	10	939	20	1337
1980	0	1	0	0	0	0	0	0	838	296	36	2471	2617	2636	29	3	838	36	1766
1981	9	0	0	0	1	0	1	0	950	318	41	15050	15891	15904	54	13	950	41	1766
1982	0	0	0	0	2	0	0	0	1012	413	53	16156	16914	16944	52	2	1012	53	1383
1983	0	0	2	2	0	0	10	0	1609	647	142	21709	22114	22388	625	14	1609	142	2194
1984	0	1	6	6	7	0	12	12	2356	823	168	22498	23109	23167	876	32	2356	168	3164
1985	0	5	26	13	3	0	15	0	3558	1327	281	27387	28039	29126	1658	69	3558	281	4341
1986	14	8	3	13	0	0	0	2	4992	1942	726	39787	42291	42620	2701	35	4992	726	5455
1987	61	15	16	47	6	72	0	0	6115	1782	217	51185	54833	55317	3504	219	6115	217	4494
1988	205	178	9	13	5	8	882	3	4893	1212	332	37727	41884	42337	2970	1302	4893	332	7857
1989	203	63	10	36	39	8	71	0	5975	889	134	41211	45766	47091	3636	432	5975	134	4819
1990	172	57	11	20	26	10	132	0	4105	955	101	35172	40083	40910	2596	432	4105	101	3540
1991	85	0	4	32	6	6	158	7	3705	627	95	41245	45495	46814	3115	202	3705	95	6393
1992	174	0	60	22	22	3	100	30	3586	490	161	48076	51352	54797	2853	428	3586	161	7810

Exports (billions of dollars)

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	ECU6	LUX	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	30	13	36	51	39	51	53	0	60	6	3	370	384	405	160	273	60	3	87
1971	12	12	0	48	46	46	67	0	63	7	3	444	464	467	137	226	65	3	116
1972	7	12	43	39	41	41	46	0	99	10	8	674	697	702	180	272	99	8	82
1973	48	32	83	59	43	329	56	0	158	21	8	916	933	1005	221	652	158	11	138
1974	173	62	62	70	55	329	43	3	151	33	29	1429	1465	1590	409	801	151	11	150
1975	89	28	66	79	26	273	34	2	144	35	25	1708	1744	2005	257	288	144	14	148
1976	63	70	138	138	91	91	104	2	174	62	34	2407	2449	2722	302	957	174	25	246
1977	102	89	111	146	179	121	126	0	286	62	34	2420	2480	2806	342	1213	286	34	246
1978	47	88	111	146	89	146	126	0	279	64	39	2318	2387	3020	337	1342	279	39	229
1979	43	131	100	162	136	465	126	0	350	116	162	3361	3461	3716	411	1038	350	162	642
1980	112	154	210	161	161	621	17	4	350	36	166	4702	3820	4269	730	1413	240	166	642
1981	81	159	93	164	164	340	194	2	302	58	61	4710	5054	5727	482	1135	302	61	880
1982	78	185	2	123	123	82	241	0	451	61	110	7549	7801	8545	995	932	451	110	1013
1983	148	21	22	37	37	296	296	0	940	152	117	13112	13642	14513	125	915	940	117	1470
1984	155	175	12	136	79	296	232	23	9018	294	131	18819	18642	21441	1969	930	3018	131	2239
1985	327	343	11	379	134	54	433	4	4335	568	379	16619	17738	20235	3667	1765	379	318	3602
1986	237	243	15	516	136	50	553	50	4335	568	379	16619	17738	20235	3667	1765	379	318	3602
1987	284	202	39	483	232	39	232	0	8549	1880	541	43973	48406	52727	9117	1522	8549	541	5784
1988	200	360	43	273	208	27	380	0	6273	786	1826	33571	39046	41739	6557	1498	6273	1826	3029
1989	247	316	89	160	182	47	383	0	12428	1752	826	24673	34811	39922	9100	1633	6273	826	5433
1990	288	59	163	207	207	40	524	29	7470	1406	1059	24863	32883	29227	296	1633	7470	1059	5180
1991	464	0	182	148	38	28	510	31	7076	1406	948	31706	32883	40013	10343	1401	7076	948	6393
1992	485	0	231	43	59	63	399	37	5881	791	745	42540	43406	53380	11819	1319	5881	745	5327

CP-Wood and articles of wood, Wood charcoal, Cork and articles of cork, Manufactures of straw, paper and other plaiting material, Basketwork and wickerwork

Imports (millions of dollars)

Year	Total CP	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Greece	Cyprus	Yugoslavia	Turkey
1970	1427	32	0	6	10	1	0	0	1	16	4	0	123	279	0	146	0	0	0	113	0
1971	1465	53	0	1	19	10	1	0	0	12	5	1	132	286	0	66	0	0	0	76	63
1972	1804	85	0	1	37	12	4	0	0	18	5	1	133	241	0	73	0	0	0	112	53
1973	2780	104	2	5	33	25	3	0	0	33	10	0	242	252	0	196	0	0	0	296	64
1974	2778	28	1	4	58	13	4	0	0	20	9	0	371	370	0	267	0	0	1	148	31
1975	2525	14	1	4	26	16	3	0	0	21	12	0	268	285	0	182	0	0	0	108	9
1976	3385	19	0	1	24	24	2	0	0	23	17	0	315	345	1	198	0	0	0	142	14
1977	4175	30	2	2	29	38	7	0	0	40	18	0	372	402	1	201	0	0	0	132	13
1978	4674	48	1	0	54	61	7	0	0	45	8	0	376	571	2	326	0	0	0	115	10
1979	6061	31	5	0	97	110	13	0	20	63	10	0	526	801	1	300	0	0	1	91	3
1980	7460	73	2	2	47	116	9	4	8	106	3	0	567	1232	2	264	0	0	2	129	10
1981	6408	66	7	0	71	200	6	0	15	132	3	0	0	1369	13	339	0	0	5	125	24
1982	8320	42	12	2	106	236	46	0	6	88	4	0	0	1426	39	384	19	0	8	143	88
1983	12050	60	20	20	250	324	236	0	36	147	20	21	1760	1659	28	483	0	12	2	359	159
1984	14676	99	32	21	447	530	91	31	6	185	47	3	2196	2322	15	482	0	0	1	613	107
1985	18772	128	133	13	504	685	76	66	9	261	127	1	3788	2678	22	508	0	0	1	723	26
1986	25049	199	86	15	714	1085	111	91	9	394	207	3	4324	3430	15	744	0	11	1	1594	78
1987	30019	343	80	33	1107	1325	106	296	22	510	178	6	4198	2821	8	1083	0	11	1	1227	7
1988	28174	331	138	31	1233	2332	86	306	19	385	77	0	7999	3729	17	884	1	4	8	2432	10
1989	48313	499	111	63	2056	2832	163	386	43	810	297	0	9284	5700	17	1510	0	6	2	3003	60
1990	59958	730	366	107	3487	4798	118	481	42	1359	824	18	9630	5700	17	2063	0	0	0	3341	60
1991	70274	780	438	107	3924	4920	235	271	94	1773	889	47	11846	6203	40	2337	0	0	0	3341	62
1992	63160	1369	744	201	4088	4477	177	193	122	2182	1357	6	10293	3884	12	2621	57	0	0	3316	113

Exports (millions of dollars)

Year	Total CP	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Greece	Cyprus	Yugoslavia	Turkey
1970	27	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0
1971	51	0	0	0	8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	18	3
1972	96	0	0	7	40	0	1	0	0	0	0	0	0	0	0	0	0	0	24	3	0
1973	239	0	0	13	95	1	7	0	0	0	0	0	0	0	0	0	0	0	46	4	0
1974	373	0	0	18	82	11	15	0	0	0	0	0	2	0	0	0	0	0	32	55	0
1975	357	1	0	69	91	2	10	0	0	0	0	0	0	0	0	0	0	0	16	36	22
1976	760	2	3	108	181	4	27	0	0	0	0	0	0	0	0	0	0	0	26	36	15
1977	690	2	4	96	125	2	35	1	0	0	0	0	0	0	0	0	0	0	35	25	3
1978	607	4	1	153	126	3	33	0	0	0	0	0	0	0	0	0	0	0	35	25	3
1979	738	8	12	190	99	19	20	0	0	0	0	0	0	1	0	0	0	0	36	79	1
1980	974	1	3	153	30	10	7	0	0	0	0	0	0	0	0	0	0	0	48	48	0
1981	819	0	3	101	59	9	31	0	0	0	0	0	0	0	0	0	0	0	79	79	0
1982	1123	6	15	74	79	1	1	0	1	0	0	0	0	0	0	0	0	0	27	131	0
1983	1760	5	11	123	115	6	21	0	0	0	0	0	0	50	0	0	0	0	20	130	0
1984	1965	3	8	222	96	31	25	0	0	0	0	0	0	10	0	0	0	0	17	162	0
1985	2113	9	14	180	112	67	2	0	11	5	0	0	0	0	0	0	0	0	12	158	0
1986	2695	5	22	503	99	135	7	0	0	0	0	0	0	0	0	0	0	0	81	209	0
1987	3022	5	16	452	189	320	102	0	1	0	4	0	11	1	6	16	0	0	135	343	0
1988	3927	2	16	432	320	663	44	2	0	0	4	0	0	0	44	23	0	0	243	381	0
1989	5035	3	16	461	283	1029	19	1	0	0	7	0	0	0	24	23	0	0	288	432	0
1990	7033	13	62	673	834	1513	81	1	8	4	3	0	10	0	41	24	0	0	394	277	0
1991	9905	8	54	613	1082	2254	46	0	7	0	19	0	4	0	108	41	0	0	459	337	0
1992	12689	61	87	932	1472	3633	80	21	22	15	22	0	5	0	414	0	0	0	505	388	0

C9 - Wood and articles of wood, Wood charcoal, Cork and articles of cork, Manufactures of straw, esparto and other plaiting materials, Basketware and wickerwork

Imports (millions of drachmas)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	157	1	27	40	66	56	55	0	70	1	16	54	56	76	548	402	70	16	315
1971	204	0	18	47	61	50	77	0	46	4	18	83	84	101	485	468	46	18	327
1972	283	0	18	57	119	53	64	0	53	9	13	135	139	162	448	594	55	13	332
1973	339	2	64	60	107	112	96	0	99	1	13	169	172	213	690	740	99	13	303
1974	207	0	47	44	27	151	52	0	101	3	4	104	108	137	1008	528	101	4	1000
1975	196	0	56	52	42	235	90	0	69	4	11	57	60	93	735	689	69	11	928
1976	409	0	41	77	154	213	138	0	134	4	26	71	73	113	866	1032	134	26	1224
1977	368	2	29	76	192	130	100	0	132	26	19	101	108	166	976	1068	132	19	1814
1978	425	1	46	96	157	192	116	0	141	31	24	164	183	238	1275	1204	141	24	1814
1979	549	1	39	119	229	446	97	3	273	44	15	243	276	349	1648	1269	273	15	2357
1980	551	2	38	182	29	451	73	7	325	82	22	240	261	370	2065	1333	325	22	3345
1981	522	6	19	129	21	432	66	5	337	47	15	344	365	500	1721	1200	337	15	2637
1982	615	7	14	192	175	554	26	0	702	11	34	398	450	542	1970	1588	485	26	3709
1983	598	2	15	260	368	600	65	0	932	13	42	674	966	1133	1908	792	34	4250	
1984	678	1	2	324	238	750	106	0	1212	19	30	1129	1257	1489	2016	2099	932	42	5078
1985	1063	12	3	540	294	1133	291	0	1212	19	30	1469	1614	2002	2790	3356	1221	30	6375
1986	1442	6	23	534	209	1498	349	1	1279	73	31	2099	2310	2911	3700	4082	1275	28	8021
1987	1835	24	32	832	277	2164	946	12	2383	166	28	2788	3212	3700	4082	4622	2385	28	8021
1988	1888	6	23	907	532	1725	973	4	2638	192	19	3171	3442	3904	4622	6028	2638	19	7488
1989	3023	17	59	1106	595	2907	1322	23	4654	420	17	5561	6075	7180	8057	9032	4654	17	12163
1990	3187	11	157	1648	613	2650	2221	29	5439	801	32	9708	10349	12332	17428	14036	5439	32	14031
1991	3635	0	358	2074	874	2122	3543	28	5699	1732	43	9489	10109	12771	20493	17634	5699	43	19064
1992	1413	0	232	3058	861	1422	3583	27	5100	1090	44	10879	11371	14910	16816	10616	5100	44	15674

Exports (millions of drachmas)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	0	5	0	5	0	0	0	0	2	0	0	3	4	4	1	11	2	0	9
1971	0	6	0	5	0	0	0	0	1	0	0	8	9	9	0	12	1	0	28
1972	0	7	0	0	0	0	0	0	1	0	0	47	48	48	0	11	1	0	36
1973	0	4	0	0	0	0	0	0	1	0	0	111	118	118	5	7	1	0	102
1974	0	4	0	0	0	0	0	0	3	0	0	111	126	126	11	12	1	0	227
1975	0	3	0	0	0	0	0	0	2	2	0	163	173	173	0	3	2	0	179
1976	0	4	0	0	0	0	0	0	2	2	0	298	323	323	0	4	2	0	429
1977	0	0	0	0	0	0	0	0	2	2	0	229	265	265	0	0	3	0	422
1978	0	0	0	0	0	0	0	0	3	2	0	287	300	300	0	6	2	0	299
1979	0	0	0	0	0	0	0	0	2	1	0	316	336	336	1	1	1	0	399
1980	0	0	0	0	0	0	0	0	2	1	0	197	204	204	0	1	2	0	579
1981	0	0	0	0	0	0	0	0	2	0	0	172	203	203	0	5	2	0	609
1982	0	0	0	0	0	0	0	0	4	0	0	175	177	177	0	0	4	0	942
1983	0	0	0	0	0	0	0	0	3	1	0	262	283	283	0	0	4	0	1417
1984	0	0	0	0	0	0	0	0	9	1	0	360	383	383	13	0	9	0	1589
1985	0	0	0	0	0	0	0	0	4	3	0	382	395	400	8	2	4	0	1699
1986	0	0	0	0	0	0	0	0	22	0	0	750	747	747	7	1	22	0	1908
1987	0	4	0	0	0	0	0	0	11	9	0	1003	1106	1106	34	4	11	0	1865
1988	0	28	0	0	0	0	0	0	15	12	0	1453	1508	1512	68	28	12	0	2304
1989	0	22	0	0	0	0	0	0	12	12	4	1863	1892	1895	44	22	12	0	2078
1990	0	78	0	0	0	0	0	0	12	2	0	2097	2187	2198	44	22	12	4	2671
1991	0	0	0	0	0	0	0	0	34	2	5	4011	4064	4083	130	7	34	5	3645
1992	4	0	0	0	0	0	0	0	113	12	1	6183	6308	6345	427	34	113	1	5760

C1a. Paper-making material, Paper and paperboard and articles thereof.

Imports (billions of drachmas)

Year	Total C10	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	1532	70	26	30	140	100	102	0	2	1	5	43	218	222	46	121	0	0	0	0	0
1971	1795	78	31	32	173	112	99	0	3	0	7	63	283	276	58	200	0	0	0	0	0
1972	1999	98	51	31	219	162	83	0	4	2	19	111	290	256	87	201	0	0	0	0	0
1973	2655	134	70	32	281	265	114	0	4	1	20	154	301	348	99	231	0	0	0	0	0
1974	4031	165	95	54	325	348	149	0	5	0	83	164	982	416	92	439	0	0	0	0	0
1975	5405	378	143	50	486	424	163	0	3	33	133	199	808	511	138	625	0	0	0	0	0
1976	5900	364	160	67	505	467	182	2	3	57	233	221	604	582	196	769	0	0	0	0	0
1977	5864	357	147	74	401	548	260	1	7	42	305	167	970	598	225	811	0	0	0	0	0
1978	5347	245	165	72	610	609	286	2	9	32	299	154	770	775	302	495	0	0	0	0	0
1979	6977	377	186	93	907	703	369	3	5	35	232	158	802	1121	329	513	0	0	0	0	0
1980	10063	518	184	112	1046	824	481	3	8	79	269	226	1019	1121	329	513	0	0	0	0	0
1981	12759	916	224	146	1691	1053	558	5	7	365	368	327	1651	1657	257	723	0	0	0	0	0
1982	17266	1315	198	218	2654	1213	641	10	6	266	417	536	2404	2198	181	959	0	0	0	0	0
1983	20337	1575	244	271	2967	1275	751	10	7	266	544	536	2404	2198	181	959	0	0	0	0	0
1984	27274	1754	271	316	4400	1831	975	3	26	666	682	940	4020	2883	195	1723	0	0	0	0	0
1985	33808	2178	324	855	6493	2427	1207	0	37	538	661	1542	3470	4345	498	2598	0	0	0	0	0
1986	39932	2438	438	1069	8589	3471	1398	9	40	1194	854	1933	4599	6338	371	4557	0	0	0	0	0
1987	55106	3589	557	2285	9589	4630	2456	19	51	584	901	2810	6338	8345	334	4557	0	0	0	0	0
1988	97749	3772	610	2696	9824	4630	2689	7	51	584	933	3283	7783	12651	1514	6635	0	0	0	0	0
1989	88335	4797	678	2820	7079	4630	3622	6	268	1568	1336	4192	8812	11835	1893	6916	0	0	0	0	0
1990	100062	5655	673	3713	16374	9559	5668	8	191	1688	1336	4939	8812	14136	1893	7865	0	0	0	0	0
1991	117518	7332	906	4211	16082	11262	7631	7	230	2113	1925	4939	10938	14136	1893	7865	0	0	0	0	0
1992	128142	7872	1262	5587	25012	14452	8802	4	463	1583	3389	4201	8717	13589	3267	9236	0	0	0	0	0

Exports (billions of drachmas)

1970	119	0	1	0	4	19	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0
1971	142	0	1	0	6	11	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	175	0	0	0	11	22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	186	2	0	0	11	14	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	361	6	0	0	11	7	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	354	10	1	1	11	34	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	412	11	0	1	12	23	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	564	0	0	0	18	23	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	470	0	0	0	11	61	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	1412	29	0	1	23	102	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	2478	49	1	2	23	133	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	3336	37	59	24	43	4	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	3887	46	4	2	111	3	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	5270	58	13	4	83	2	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	3926	63	15	1	83	13	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	5504	92	41	14	226	15	28	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	5931	137	41	14	340	14	28	4	20	0	0	0	0	0	0	0	0	0	0	0	0
1987	7667	330	140	29	447	60	127	0	18	0	2	0	0	0	0	0	0	0	0	0	0
1988	7133	1644	138	42	644	524	304	1	81	1	2	1	11	1	0	0	0	0	0	0	0
1989	14875	365	110	34	872	69	304	0	22	2	2	0	9	3	30	41	0	0	0	0	0
1990	11448	483	148	100	988	250	1204	23	16	7	26	0	18	3	30	64	0	0	0	0	0
1991	14153	312	82	72	1560	357	1457	114	24	0	5	1	15	23	39	28	0	0	0	0	0
1992	15178	457	55	52	809	505	1866	35	30	17	46	1	32	4	47	40	0	0	0	0	0

Clit. Paper-making material, Paper and paperboard and articles thereof.

Imports (billions of drachmas)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	0	1	1	1	1	0	0	0	249	143	11	366	470	476	790	3	249	11	163
1971	0	1	1	5	0	0	0	0	204	130	13	426	528	533	882	7	204	13	154
1972	0	3	0	3	0	0	1	0	234	109	13	561	648	669	945	7	234	13	141
1973	0	1	0	0	0	0	2	0	230	122	12	782	900	921	1333	4	230	12	135
1974	0	1	0	7	0	0	1	0	408	263	8	987	1141	1226	2073	9	408	8	307
1975	1	0	1	7	0	0	0	0	556	553	124	1481	1647	1813	2281	16	556	124	615
1976	1	0	0	8	0	0	0	0	791	461	37	1563	1750	2040	2402	47	791	37	583
1977	3	1	3	10	5	2	6	0	471	181	34	1517	1785	2132	2771	87	471	34	369
1978	14	2	1	5	2	6	12	0	405	376	32	1699	2006	2334	2494	112	405	32	570
1979	25	2	1	1	24	46	5	0	547	179	30	2236	2613	2880	2732	104	547	30	493
1980	51	1	1	6	71	71	5	0	1027	478	43	2704	3196	3544	4282	135	1027	43	1032
1981	61	1	2	15	54	238	11	0	1181	458	88	4032	4602	5353	4779	382	1181	88	994
1982	63	2	1	10	54	238	10	0	1172	937	90	4032	4602	5353	4779	382	1172	60	1620
1983	58	3	1	13	3	132	23	0	1341	1353	60	5398	6235	6938	8295	223	1341	60	2197
1984	43	3	1	70	2	43	38	0	1873	1048	148	6434	7230	8295	8386	143	1873	143	3150
1985	43	4	1	70	2	43	38	0	1873	1048	148	6434	7230	8295	8386	143	1873	148	3150
1986	217	9	14	935	4	100	101	0	2382	1107	120	8732	9736	11407	10978	303	2382	120	4588
1987	231	14	104	1331	4	100	54	0	2416	1107	143	11893	13137	14407	12883	967	2416	143	5353
1988	176	175	128	2681	3	208	173	0	2814	1641	224	13914	15361	17409	14238	2727	2814	224	7095
1989	399	4	20	2382	26	98	1217	0	3375	3105	294	21532	24270	25786	20457	3375	3105	294	9781
1990	484	4	24	2995	72	704	1217	0	6374	3105	365	36004	41871	44805	31648	2378	6374	365	12402
1991	363	0	230	1192	269	81	872	0	7186	3388	442	39883	47751	51789	35782	3007	7186	442	15312
1992	910	0	367	975	500	38	1234	0	6810	1818	513	51185	63454	68428	39270	4024	6810	513	9169

Exports (billions of drachmas)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	0	0	0	7	3	0	24	26	29	0	1	7	0	82
1971	0	0	0	0	0	0	0	0	8	4	0	18	20	20	0	1	8	0	113
1972	0	0	0	0	0	0	0	0	13	3	0	13	13	33	0	1	10	0	129
1973	0	0	0	0	0	0	0	0	27	7	0	27	33	33	0	2	15	0	136
1974	5	0	0	0	0	0	5	0	24	29	0	24	29	29	0	0	10	0	312
1975	1	0	0	0	0	0	1	0	57	62	0	57	62	62	2	4	12	0	274
1976	5	0	0	1	0	0	2	0	49	52	0	49	52	52	3	8	5	0	365
1977	3	0	0	1	0	0	2	0	41	46	0	41	46	46	3	9	10	0	496
1978	4	0	0	1	0	0	2	0	72	76	0	72	76	76	3	10	10	0	371
1979	2	0	0	0	0	0	6	0	155	169	0	155	169	169	6	8	14	0	1235
1980	0	0	0	0	0	0	19	0	208	236	1	208	236	236	6	25	1	0	2209
1981	0	0	0	0	0	0	11	0	167	183	0	167	183	184	44	9	20	0	2047
1982	0	0	0	0	0	0	38	2	167	167	0	167	169	169	44	52	26	0	2302
1983	1	0	0	0	0	0	11	0	160	169	0	160	169	169	20	34	15	0	2532
1984	2	0	0	0	0	0	10	0	306	365	0	306	365	365	20	34	15	0	2532
1985	0	0	0	0	0	0	10	0	501	613	1	501	613	613	53	14	82	1	3411
1986	1	1	0	1	4	2	30	0	82	14	1	82	90	90	48	36	52	1	4532
1987	1	9	0	3	0	1	33	0	48	12	1	743	888	890	80	57	48	1	4875
1988	1	1	1	3	2	1	39	0	124	10	1	1329	2135	2138	145	37	134	1	4875
1989	4	2	1	3	1	3	34	0	48	12	3	2299	2623	2629	106	38	48	4	4309
1990	183	8	1	10	0	4	3364	0	72	72	4	1531	3241	3274	115	3459	72	4	4309
1991	86	0	30	7	3	2	129	0	39	18	2	1969	3311	3316	106	370	61	0	7393
1992	36	0	60	4	3	23	389	0	78	18	0	2383	3905	3968	116	555	78	0	9436



C11 - Textiles and textile articles

Imports (millions of drachmas)

Year	Total C11	France	Eci-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	3038	370	175	94	431	276	432	2	1	8	14	11	10	3	93	4	0	9	0	10	82
1971	3513	317	172	131	473	325	407	1	1	8	28	8	21	2	67	4	0	2	1	28	68
1972	4119	445	218	128	583	383	448	1	3	14	43	8	33	9	95	93	0	0	2	49	115
1973	6356	695	357	154	1163	610	650	5	4	18	77	19	42	14	134	109	0	0	1	82	151
1974	7666	699	371	145	1504	706	676	2	5	35	101	8	42	17	115	121	0	0	1	50	549
1975	8844	926	361	142	1476	1054	639	2	3	41	163	7	34	20	127	95	0	0	1	56	549
1976	10181	988	425	136	1835	1096	866	7	10	50	136	2	31	6	131	117	0	0	1	56	0
1977	13767	1161	462	163	2227	1349	1058	7	3	50	221	1	31	25	171	130	0	0	1	54	6
1978	13033	1250	403	180	2448	2217	1258	10	7	47	204	5	31	54	194	126	0	0	3	60	163
1979	14872	1538	391	202	2448	2217	1258	10	11	42	225	5	43	54	133	166	0	0	3	73	408
1980	19846	1716	375	180	2506	1813	1199	13	6	27	284	3	47	150	133	133	0	0	3	73	408
1981	33191	2300	670	606	10488	4268	1293	42	55	26	252	1	87	118	140	140	0	0	20	88	753
1982	36097	2835	783	632	11434	6139	1468	45	205	34	434	2	135	105	555	256	4	0	37	378	1142
1983	46580	3233	1033	775	14066	8258	1865	48	142	64	551	6	87	114	723	537	0	0	44	220	142
1984	63647	5133	1455	1088	18856	12339	2728	62	165	64	741	8	103	168	1000	712	0	0	44	220	142
1985	82504	6302	2410	1353	23630	16744	3555	201	243	156	1289	19	280	195	1494	1190	46	52	55	549	667
1986	115791	8311	2867	2148	42938	24298	4048	243	416	184	2230	22	388	229	2071	1940	0	0	160	1961	867
1987	140891	10261	4193	2148	51638	31309	4979	321	544	337	1887	31	388	291	3276	2880	0	2	271	1997	574
1988	147436	10540	4161	2006	40601	37350	6091	390	541	568	2801	25	327	287	1757	2750	0	2	271	1997	574
1989	220393	18373	7503	3400	64587	63718	8219	292	928	1612	4652	23	502	305	2376	3904	0	1	644	1900	2677
1990	282334	220699	10858	4803	82831	79853	10832	696	1215	3039	6992	65	569	474	3932	5394	0	43	1122	1940	2074
1991	320913	22810	14336	5493	100571	81833	12775	625	1723	3421	6961	41	697	366	4474	6562	0	16	1189	1744	664
1992	379656	31011	15303	8424	121656	98969	16164	933	2212	4317	8591	48	681	389	5247	6785	7	33	1769	306	783

Exports (millions of drachmas)

1970	2627	83	46	150	756	251	30	0	17	20	37	15	16	20	62	5	0	0	40	255	0
1971	3319	122	58	197	967	212	135	0	17	41	366	13	14	16	96	4	0	0	65	213	0
1972	4132	336	116	232	1545	135	52	0	36	42	87	6	16	40	95	17	0	2	84	298	0
1973	7752	663	210	463	2786	286	131	0	64	122	116	13	30	41	287	12	0	12	94	322	3
1974	9532	952	374	630	3805	459	317	0	132	83	55	24	45	30	53	22	0	11	94	460	34
1975	10676	1394	423	465	5101	597	272	2	127	22	87	9	60	13	78	26	0	8	113	535	38
1976	17648	2036	605	1119	7866	1152	653	12	284	185	75	63	95	11	150	48	0	21	118	166	97
1977	19167	2265	662	1230	8479	1409	802	16	265	6	67	64	123	3	148	63	0	16	217	657	31
1978	22709	1873	733	1534	11696	1936	1038	10	469	101	21	24	135	1	330	86	0	26	209	458	8
1979	25969	2544	902	1524	11696	1936	1170	27	608	0	46	66	164	27	323	128	0	34	336	360	11
1980	38813	4743	1709	2231	16663	2927	1970	51	905	0	46	66	216	33	264	184	0	58	444	339	5
1981	47731	5862	1450	1879	19771	4661	3179	95	1680	11	14	83	624	105	332	790	2	70	473	476	2
1982	56921	6703	1809	2188	24105	6314	3619	111	111	0	20	72	745	123	392	531	0	66	501	1068	21
1983	81032	9857	2331	2632	35938	9993	5660	234	1783	31	73	73	745	133	505	816	2	96	496	1085	158
1984	111991	12057	2955	3996	47373	15930	7150	295	1855	10	262	145	728	79	1003	1644	0	45	701	1626	393
1985	138538	13740	2829	4630	60749	15660	10190	331	2172	22	330	101	922	242	1536	4893	2	61	910	2943	446
1986	195613	21177	4142	7698	84406	25345	14545	656	3724	267	330	1232	3607	345	2396	4370	17	51	910	3441	486
1987	238225	24902	5139	9777	118006	32889	21373	662	4873	700	865	2132	6571	973	4396	5409	26	100	1385	3441	1721
1988	314408	21091	2990	7369	93555	19048	18753	336	4186	518	985	3393	12017	2885	5588	5409	33	235	2038	5295	470
1989	300660	29502	4114	9211	123390	19048	23618	737	6050	658	1286	3426	14156	3901	6744	9413	38	304	2304	6894	3265
1990	402500	34033	4600	9071	198458	24744	24523	560	5493	624	1862	3650	14678	5901	6744	11164	90	402	2304	6894	3265
1991	477373	45308	5429	10493	245004	29532	37419	1224	6160	1863	3262	5085	14614	3267	8860	14287	120	361	3808	6894	3265
1992	477373	45308	5429	10493	245004	29532	37419	1224	6160	1863	3262	5085	14614	3267	8860	14287	120	361	3808	6894	3265

C11 - Textiles and textile articles

Imports (millions of drachmas)

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA3	East-Eur	USA	Japan	ROW
1970	5	30	24	34	34	13	4	4	80	8	104	1266	1701	1723	191	130	80	104	810
1971	6	30	34	34	34	20	3	0	123	9	232	1418	1827	1863	196	133	123	232	966
1972	6	27	41	35	35	17	2	0	135	7	195	1757	2209	2266	238	133	135	195	1132
1973	4	34	44	49	20	20	3	0	236	17	133	2979	3638	3733	318	133	236	133	1757
1974	2	38	64	56	22	22	6	0	446	21	129	3425	4108	4244	303	191	446	235	2353
1975	0	44	56	79	36	36	3	0	869	29	219	3939	4603	4807	283	229	869	219	2437
1976	0	39	67	83	61	61	6	0	610	30	98	4480	5363	5569	287	279	610	98	3358
1977	143	67	81	81	81	81	7	0	1287	25	106	5362	6430	6701	358	476	143	106	4839
1978	32	60	79	105	97	97	16	1	1060	21	80	5601	6705	7056	410	409	32	80	4018
1979	22	58	86	132	128	128	26	0	677	28	79	6828	8107	8374	492	486	677	79	4764
1980	53	87	94	146	149	149	31	0	3089	38	135	8314	9708	10119	583	598	3089	135	7502
1981	22	87	118	146	149	149	31	0	1731	41	449	29661	42016	42821	3187	3687	22	449	15950
1982	92	51	82	205	136	136	42	6	3230	16	105	21623	23341	23809	1667	1811	92	105	7268
1983	2	63	106	325	166	166	34	9	3771	58	425	27423	29480	30095	1467	749	3771	425	10073
1984	0	47	118	372	188	188	75	31	1731	41	449	39661	42016	42821	3187	3687	0	449	15950
1985	16	43	150	419	247	247	41	12	2390	69	576	50639	54438	55883	4182	4650	16	576	17862
1986	30	103	242	590	247	247	84	762	3814	84	762	80682	83389	87803	6650	1390	30	762	18796
1987	104	110	343	665	311	311	99	22	3065	242	921	99549	105393	107617	6866	1831	104	921	20391
1988	217	92	413	683	383	383	63	43	9496	360	966	94898	101920	105389	5128	2126	217	966	24433
1989	678	149	679	911	538	538	154	96	5452	520	1011	137783	167222	173488	7110	3605	678	1011	29727
1990	592	165	681	1161	445	445	87	64	8890	1062	1062	199044	211787	221818	10654	3687	592	1062	36423
1991	1194	0	1051	1376	926	926	131	105	11482	882	1916	225033	240156	250538	12140	5616	1194	1916	39221
1992	1563	0	797	1588	627	627	161	234	10219	909	2700	273443	294772	307680	13150	6939	1563	2700	38668

Exports (millions of drachmas)

1970	190	20	43	104	125	75	75	0	62	18	11	1286	1333	1390	118	628	62	11	418
1971	60	4	62	97	80	63	65	1	77	22	155	1556	1708	2115	143	432	77	155	397
1972	201	4	130	88	84	58	74	0	87	25	66	2384	2472	2601	174	639	87	66	585
1973	336	1	216	124	266	133	161	4	121	31	32	4408	4603	4841	383	1311	121	32	1064
1974	577	0	143	303	61	56	98	48	84	61	37	6220	6669	6787	174	1286	84	37	1164
1975	233	0	216	248	31	104	108	24	69	53	15	7982	8383	8402	186	984	69	15	930
1976	359	7	240	296	117	214	235	25	97	94	28	12778	13727	13987	367	1493	97	28	1396
1977	449	36	143	467	103	158	326	16	118	68	21	16065	15148	15321	401	1638	118	21	1748
1978	423	60	43	485	349	113	401	121	219	8	8	14654	18111	18239	576	1959	219	8	1708
1979	21	25	466	549	439	113	379	67	567	102	13	18602	20467	20488	676	2059	567	13	2122
1980	691	5	307	929	267	150	120	289	522	102	57	28275	31201	31247	783	2738	522	13	3490
1981	403	0	109	709	709	810	72	214	313	93	34	33623	38091	38100	1274	3071	313	34	4934
1982	395	0	160	616	286	345	114	376	272	87	41	41319	46729	46760	1800	2132	272	41	5916
1983	1802	8	160	729	1147	533	442	516	406	144	40	60841	67918	68022	2290	5137	406	40	6493
1984	6375	31	140	880	1069	60	644	398	1585	420	76	97628	110321	110474	6943	9657	2895	76	8057
1985	4323	280	140	997	880	60	465	547	2895	420	76	146668	165593	166190	11300	3971	4726	223	9203
1986	917	1115	76	1405	835	13	385	267	6262	817	223	183313	210121	211997	18813	5427	6262	223	13230
1987	1402	902	76	1637	1027	85	284	269	6812	817	478	140323	167328	168506	19928	7469	6812	478	10970
1988	2414	520	970	1637	359	284	996	266	11278	590	723	193939	224544	225982	33296	11101	11278	723	13970
1989	880	1518	2261	1819	600	359	1839	1419	12732	313	336	216744	247120	249030	39391	9220	12732	336	20822
1990	1193	689	2063	1487	1247	93	2496	819	12732	343	336	274039	308855	312092	45199	14304	12732	336	20822
1991	768	0	2063	2717	2572	681	4725	778	7915	513	514	333766	381289	386414	48619	14304	7915	514	22476
1992	652	0	1618	2654	1090	644	4774	1785	7621	396	595	333766	381289	386414	48619	14304	7621	595	20807

C12 - Furniture, bedsteads, umbrellas, sunshades, valises, trunks, suitcases and parts thereof; prepared fashions and articles made therein; Artificial flowers; Articles of human hair; Fans.

Imports (billions of deutschemarks)

Year	Total C12	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	43	1	0	0	6	5	1	0	0	0	0	0	0	0	1	7	0	0	0	0	0
1971	43	2	0	4	6	5	1	0	0	0	0	0	0	0	1	7	0	0	0	0	0
1972	50	2	0	0	6	8	1	0	0	0	0	0	0	0	1	9	0	0	0	0	0
1973	68	3	0	0	11	11	1	0	0	0	0	0	0	0	1	4	0	0	0	0	0
1974	51	3	0	0	13	6	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1975	70	3	0	1	13	13	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0
1976	106	4	0	1	22	15	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1977	122	6	0	0	28	26	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1978	223	18	0	0	46	53	21	0	0	0	3	0	0	0	1	0	0	0	0	0	0
1979	433	35	0	2	77	121	37	0	0	0	8	0	3	0	3	2	0	0	0	0	0
1980	538	41	0	3	83	106	39	0	0	0	15	0	0	0	4	3	0	0	0	0	0
1981	1176	81	1	9	124	237	77	0	0	0	8	0	0	0	11	5	0	0	0	0	0
1982	1637	103	4	14	107	561	32	0	0	3	27	0	1	0	11	5	0	0	3	2	0
1983	2018	145	5	22	126	765	62	0	0	2	49	0	1	0	16	16	0	0	2	4	0
1984	3203	207	10	34	267	1234	72	0	0	2	80	0	1	0	14	14	0	0	2	4	0
1985	4345	280	16	40	343	1818	83	0	0	4	80	0	1	0	18	19	0	0	6	28	0
1986	4232	270	3	49	252	2069	61	0	0	0	146	0	11	0	23	33	0	0	6	10	0
1987	7021	333	11	41	329	2977	106	0	2	14	107	0	0	0	40	30	0	0	19	15	0
1988	12108	428	19	94	279	5304	161	0	9	89	232	0	2	0	43	23	0	0	48	13	0
1989	21356	865	20	248	460	8641	295	0	5	178	660	0	1	0	40	30	0	0	96	87	24
1990	22334	782	58	263	641	9125	401	6	8	239	881	0	2	5	62	38	0	0	129	65	13
1991	27961	813	31	319	842	9146	928	1	9	318	720	0	8	8	107	53	0	0	183	60	46
1992	34740	1407	58	483	1032	10679	1457	9	28	406	1154	0	8	0	107	58	0	0	244	37	418

Exports (billions of deutschemarks)

Year	Total C12	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	177	10	0	9	39	0	2	0	0	0	2	0	0	0	0	0	0	0	1	1	0
1971	294	21	0	17	63	1	4	0	0	0	0	0	1	0	3	0	0	0	2	2	0
1972	523	27	0	22	95	2	7	0	0	0	0	0	0	0	6	0	0	0	4	1	0
1973	750	25	2	71	168	0	16	0	0	0	0	0	1	2	9	0	0	0	6	2	0
1974	1102	19	4	56	283	2	37	0	1	0	0	0	1	1	16	3	0	0	5	2	0
1975	1812	15	1	100	314	2	46	0	5	0	0	0	3	1	0	21	0	0	10	0	0
1976	2196	17	3	219	567	1	38	0	2	0	0	0	1	0	28	11	0	0	25	7	0
1977	2037	22	3	184	690	1	70	0	1	0	0	0	5	0	27	11	0	0	18	9	0
1978	1868	10	8	206	563	6	100	0	3	0	0	0	2	2	8	6	0	0	23	0	0
1979	2832	86	16	212	972	4	148	0	0	0	0	0	1	0	11	14	0	0	25	0	0
1980	5153	118	38	336	1101	6	167	0	3	0	0	0	0	0	21	16	0	0	31	0	0
1981	5282	111	60	164	1029	5	188	0	4	0	0	0	0	0	27	26	0	0	46	0	0
1982	3462	98	46	152	1027	3	208	0	7	0	0	0	3	0	37	26	0	0	69	2	0
1983	4758	137	21	132	1215	5	233	0	3	0	0	0	8	0	45	26	0	0	77	2	0
1984	7262	122	57	234	2496	10	219	1	70	0	0	0	23	2	68	47	0	0	130	3	3
1985	8563	113	58	505	2602	2	658	5	172	0	0	0	34	2	68	133	0	0	170	3	3
1986	10620	309	61	993	2602	35	980	0	45	0	0	0	34	5	56	159	0	0	161	22	1
1987	11201	160	20	419	4688	40	687	0	27	0	7	4	31	36	97	167	0	0	203	43	0
1988	8649	40	20	238	3246	38	368	0	14	0	14	12	41	6	138	90	0	0	222	60	0
1989	9534	114	16	258	2975	30	352	1	14	0	23	2	57	19	83	27	0	0	232	40	0
1990	9851	77	68	46	2512	121	329	0	14	0	6	6	70	34	34	34	0	0	232	109	0
1991	6628	48	33	8	2035	121	310	1	83	0	41	6	48	49	49	21	0	0	313	512	0
1992	8607	122	25	10	2621	132	310	0	154	17	42	4	51	17	10	119	0	0	397	383	10

C12 - Feathers, headgear, umbrellas, sunshades, whips, riding-crop and parts thereof, Prepared feathers and articles made therefrom, Artificial flowers, Articles of human hair, Furs.

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	0	0	0	0	0	12	12	13	13	3	0	0	12	10
1971	0	0	0	0	0	0	0	0	0	0	14	17	18	18	1	0	0	14	11
1972	0	0	0	0	0	0	0	0	0	0	15	16	17	17	0	0	0	15	11
1973	0	0	0	0	0	0	0	0	0	0	13	23	26	26	5	0	0	13	21
1974	0	0	0	0	0	0	0	0	0	0	5	22	23	23	1	0	0	5	17
1975	0	0	0	0	0	0	0	0	0	0	6	30	31	32	2	1	0	6	29
1976	0	0	0	0	0	0	0	0	0	0	0	42	44	44	1	1	0	0	53
1977	0	0	0	0	0	0	0	0	3	0	7	60	64	64	0	2	3	7	53
1978	0	0	0	0	0	0	0	0	9	0	5	117	138	141	1	1	0	5	47
1979	0	0	0	0	0	0	0	0	22	0	13	117	138	141	1	1	9	5	66
1980	0	0	0	0	0	0	0	0	35	0	12	235	262	267	8	4	22	13	139
1981	0	0	0	0	0	0	0	0	175	0	49	233	272	280	5	9	35	12	217
1982	0	0	0	0	0	0	0	0	108	0	13	472	505	520	9	9	175	49	414
1983	0	0	0	0	0	0	0	0	108	0	19	789	823	853	17	8	108	13	638
1984	3	0	0	0	0	0	0	0	102	0	14	1063	1130	1181	20	7	102	19	689
1985	0	0	0	0	0	0	0	0	122	0	14	1732	1829	1909	35	14	122	14	1209
1986	0	0	0	0	0	0	0	0	179	0	66	2397	2484	2621	64	10	179	66	1395
1987	0	0	0	0	0	0	0	0	157	0	31	2843	2704	2766	56	10	157	31	1236
1988	0	0	0	0	0	0	0	0	281	0	72	2843	2704	2766	56	22	281	72	2624
1989	3	4	4	21	2	0	0	0	400	0	27	3711	3803	3951	71	6	400	27	4988
1990	10	2	2	26	6	0	0	0	788	1	29	6034	6194	6335	68	30	788	29	8921
1991	17	1	1	39	3	6	7	0	1119	1	45	10849	11284	12424	107	68	1119	45	8771
1992	0	0	6	104	29	27	97	10	1249	1	118	11161	12099	13137	168	69	1249	118	13220
1970	0	0	0	0	0	0	0	0	104	2	0	58	60	62	0	0	104	0	11
1971	0	0	0	0	0	0	0	0	155	9	0	102	106	106	4	1	155	0	28
1972	14	0	0	0	0	0	0	0	309	9	1	146	153	153	6	14	309	1	40
1973	9	0	1	0	0	0	1	0	387	11	0	266	283	283	13	11	387	0	56
1974	47	0	0	0	0	0	0	0	561	15	1	364	408	408	21	47	561	1	64
1975	59	0	0	0	0	0	0	0	1122	52	0	432	483	483	29	59	1122	0	119
1976	43	0	0	0	0	0	0	0	1002	124	0	807	847	847	40	46	1002	0	261
1977	0	1	0	0	0	0	0	0	742	103	0	900	971	971	44	46	742	0	279
1978	0	0	0	0	0	0	0	0	712	72	0	791	893	893	18	2	712	0	343
1979	0	0	0	0	0	0	0	0	1062	103	0	1310	1464	1464	26	0	1062	0	280
1980	0	0	0	0	0	0	0	0	774	53	0	1599	1770	1770	27	16	774	0	566
1981	0	0	8	0	0	0	5	0	1802	29	0	1367	1661	1661	66	4	1802	0	1649
1982	0	0	0	0	0	0	0	0	850	9	0	1328	1528	1528	79	7	850	0	1198
1983	0	0	0	0	0	0	0	0	831	4	0	1535	1799	1799	143	34	831	0	1951
1984	0	0	0	0	0	0	0	0	761	30	0	2911	3337	3337	239	43	761	0	2882
1985	499	126	1	0	0	0	48	0	1116	75	0	3313	4016	4016	245	722	1116	25	2364
1986	474	5	0	0	0	0	48	0	1038	10	25	4879	5886	5886	338	555	1038	25	2769
1987	1367	95	0	0	0	0	46	0	744	29	12	3327	6032	6032	287	1633	744	12	2436
1988	1436	47	0	0	0	0	46	0	446	14	10	3382	4065	4079	196	688	446	10	2436
1989	3035	112	0	0	0	0	66	0	602	21	0	3382	4065	4079	196	688	602	0	1328
1990	3882	24	0	0	0	0	107	0	427	3	7	2824	3664	3687	233	3213	427	7	1599
1991	1033	0	0	4	10	0	66	0	205	15	7	2396	3268	3274	303	4066	205	7	1430
1992	590	0	51	127	156	90	1214	87	135	1	23	2910	3374	3433	291	2315	135	23	2496

Exports (million of drachmas)

CIJ - Articles of stoneware, of plaster, of cement, of asbestos, of mica and of similar materials. Ceramic products. Glass and glassware.

Imports (millions of francs)

Year	Total CIJ	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey	
1970	806	175	31	10	163	123	61	0	2	0	7	0	2	0	13	36	0	0	0	3	0
1971	707	106	35	14	190	108	63	0	2	0	11	0	1	1	14	36	0	0	0	3	0
1972	800	95	52	18	223	136	74	0	2	1	15	0	1	2	12	27	0	0	1	2	1
1973	1142	141	75	21	324	206	109	0	6	1	19	0	1	3	18	30	0	0	1	4	0
1974	1158	136	59	41	218	193	124	0	2	1	18	0	3	3	16	47	0	0	1	9	0
1975	1578	203	95	30	418	304	142	1	4	0	24	1	9	3	18	64	0	0	0	3	0
1976	1682	245	129	42	498	383	154	1	4	0	26	4	16	6	24	46	0	0	0	4	2
1977	2507	334	162	44	639	662	192	1	5	2	32	1	20	9	32	43	0	0	0	5	0
1978	3444	425	166	45	845	1071	225	3	5	2	32	2	25	14	37	62	0	0	0	14	0
1979	4650	563	209	51	994	1626	294	7	17	5	36	3	40	13	40	148	0	0	0	23	0
1980	5177	673	218	87	1244	1708	391	6	18	9	51	5	32	16	53	126	0	0	2	41	0
1981	6179	726	262	119	1265	2055	398	16	13	2	80	6	34	11	52	142	0	0	0	50	0
1982	7565	826	392	112	1433	2716	463	13	38	4	99	6	31	16	68	142	0	0	0	69	7
1983	8805	901	333	117	2005	3442	462	8	22	12	107	15	35	20	86	272	0	0	1	107	0
1984	11107	1190	642	168	2492	3442	472	11	56	49	174	8	51	16	129	200	0	0	0	206	266
1985	14037	1589	589	289	3110	4856	684	14	62	37	196	3	108	29	131	204	0	2	0	274	98
1986	18337	1815	763	431	3643	7791	712	13	89	23	231	11	139	42	230	248	0	0	0	344	262
1987	24581	2212	983	415	4322	10020	943	12	60	214	646	18	178	28	292	297	0	0	0	449	390
1988	29134	2272	1259	244	4254	11459	1094	13	47	460	1789	1	194	10	179	287	0	0	3	685	467
1989	44795	2918	2127	216	6488	18309	1361	4	102	425	4459	21	224	20	247	592	0	1	4	1056	785
1990	57547	3186	2100	273	7401	23285	1972	10	147	513	7000	16	455	29	248	936	0	0	18	1403	1191
1991	66280	4184	3604	823	7813	25229	2381	32	194	518	7873	39	709	61	562	962	0	0	18	1519	1325
1992	83356	5480	4077	918	9193	31819	3042	44	241	1319	9628	41	500	69	600	673	0	0	9	1835	1835

Exports (millions of francs)

Year	Total CIJ	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey	
1970	101	1	0	0	4	1	1	0	0	0	0	0	0	0	2	1	0	0	0	7	0
1971	127	0	1	1	3	2	8	0	0	0	0	0	0	0	1	0	0	0	0	39	0
1972	135	2	0	1	5	1	8	0	0	0	0	0	0	0	0	0	0	0	7	26	0
1973	244	25	0	2	30	2	6	0	0	0	0	0	0	0	0	0	0	0	14	21	0
1974	757	17	49	9	108	32	9	0	0	0	1	0	54	0	0	0	0	0	22	70	0
1975	1028	40	48	1	151	32	12	0	0	0	0	0	70	0	0	0	0	0	28	73	0
1976	1285	59	32	4	85	9	1	0	0	0	0	0	62	0	1	1	0	0	38	41	0
1977	1478	81	21	4	80	5	3	0	0	0	0	0	10	0	1	8	0	0	109	33	0
1978	1536	69	27	3	102	5	5	0	0	0	0	0	10	0	1	8	0	0	52	22	0
1979	1504	98	21	4	157	6	19	0	0	0	1	0	17	0	2	5	0	0	88	21	4
1980	2683	103	16	2	251	34	44	0	0	0	0	0	3	1	7	1	1	1	134	26	0
1981	3119	216	5	5	277	70	46	0	0	0	2	1	2	1	4	6	0	0	89	10	1
1982	4461	103	2	9	245	118	39	0	0	0	4	2	11	4	2	2	2	0	99	26	0
1983	5738	129	8	12	183	175	59	0	0	0	24	3	36	5	3	4	0	0	11	89	2
1984	7163	235	27	44	266	326	63	0	0	0	34	2	28	5	3	2	0	0	13	257	2
1985	8623	385	23	31	301	397	101	6	3	1	12	2	28	5	3	2	0	0	15	257	2
1986	10909	640	124	160	607	575	196	1	14	4	12	1	26	17	10	10	0	0	26	366	1
1987	13234	701	215	237	924	923	419	2	101	3	105	4	236	38	13	50	0	0	70	625	8
1988	13754	559	340	300	1317	1620	267	0	44	4	74	42	271	31	20	100	0	0	75	720	3
1989	22367	904	369	528	2212	2191	376	51	44	11	262	32	396	26	65	116	0	0	49	866	21
1990	24561	970	384	583	2889	2317	478	64	34	10	654	66	604	43	77	135	0	0	61	789	106
1991	28744	831	451	783	3678	2243	397	36	57	29	840	36	371	82	121	460	0	0	81	1183	190
1992	33948	832	438	984	4420	2873	665	20	157	34	840	38	371	83	121	460	0	0	89	1484	182

C13 - Articles of stone, of plaster, of cement, of asbestos, of mica and of similar material, Ceramic products, Glass and glassware

Imports (billions of dollars)

Year	USSR	DOR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	59	7	4	3	1	0	1	0	29	8	35	502	565	572	51	75	29	25	54
1971	0	7	6	30	1	0	1	0	24	9	32	433	518	529	2	45	24	32	24
1972	0	5	7	34	1	0	0	0	22	9	39	524	600	616	42	47	23	39	33
1973	0	3	13	43	0	1	1	0	28	6	47	777	892	912	52	61	28	47	32
1974	1	7	10	42	0	3	0	0	42	2	50	747	873	892	69	65	42	50	40
1975	0	6	13	76	0	4	7	0	63	8	42	1050	1196	1220	95	108	63	42	50
1976	0	8	10	92	7	8	14	0	54	4	41	1297	1456	1482	96	139	54	41	70
1977	8	12	11	70	5	18	24	0	67	1	53	1841	2039	2067	107	148	67	53	65
1978	2	18	17	127	7	30	37	0	78	6	66	2532	2785	2821	140	238	78	66	101
1979	10	39	12	204	14	36	17	0	83	13	62	3443	3753	3794	244	332	83	62	135
1980	32	58	24	247	13	38	13	0	95	9	98	3930	4305	4367	244	428	95	98	137
1981	5	93	18	314	17	50	16	1	107	27	172	4427	4854	4936	176	513	107	172	275
1982	4	72	15	309	21	29	24	0	118	21	251	5479	5995	6096	265	475	118	251	362
1983	19	103	18	332	16	37	36	0	105	10	404	6221	6713	6832	478	581	105	404	455
1984	42	97	30	376	29	179	36	0	107	10	357	7934	8473	8636	404	780	107	357	763
1985	8	68	26	490	24	190	100	0	105	5	341	10433	11193	11426	495	906	105	427	764
1986	5	136	30	540	204	97	117	0	101	8	427	14443	15200	15454	429	1129	101	427	617
1987	12	209	137	625	175	178	518	5	106	11	516	17983	18969	19829	794	1199	106	516	1437
1988	52	179	193	794	369	322	594	3	140	17	486	19588	20741	22990	794	2236	140	486	2433
1989	22	208	234	932	323	398	494	3	226	10	634	30328	31823	36709	1127	2724	226	634	3303
1990	15	216	437	1186	296	332	513	4	295	12	824	37857	39776	47289	1874	2951	295	824	4304
1991	10	0	627	1386	754	411	801	8	456	34	874	41734	44171	52932	1981	4197	456	874	5820
1992	5	0	537	2221	932	717	1954	7	594	108	1484	51447	54774	65721	1383	6393	594	1484	7281

Exports (billions of dollars)

Year	USSR	DOR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	ERTAS	East Eur	USA	Japan	ROW
1970	0	0	0	0	43	0	0	0	17	1	1	6	7	7	7	3	43	17	30
1971	0	0	0	0	20	0	0	0	24	1	1	7	7	7	7	1	20	24	74
1972	0	0	0	0	7	0	0	0	29	2	1	9	17	17	0	7	29	29	101
1973	0	0	0	0	3	0	0	0	20	2	1	39	65	65	5	8	20	20	145
1974	0	0	0	0	1	0	0	0	25	2	1	186	195	196	54	15	25	25	462
1975	20	0	6	2	30	16	0	0	14	3	1	272	284	284	70	77	14	1	482
1976	41	0	37	3	20	73	1	0	27	4	1	459	460	460	64	137	27	1	878
1977	88	0	33	3	0	24	1	2	20	4	1	619	600	600	19	152	20	1	1088
1978	0	0	22	0	0	89	0	0	36	2	3	206	194	194	14	162	36	3	929
1979	0	0	11	0	12	129	0	0	41	2	4	406	450	450	80	411	14	4	869
1980	1	0	8	0	0	283	83	0	51	1	3	571	619	621	12	410	26	3	1723
1981	1	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1982	1	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1983	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1984	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1985	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1986	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1987	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1988	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1989	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1990	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1991	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723
1992	0	0	8	0	0	353	34	14	14	2	3	619	619	621	12	410	26	3	1723

C14 Ferrous, precious and semi-precious stones, precious metals, rolled precious metals and articles thereof - Inhabitants per city, - Cedar.

Imports (billions of francs)

Year	Total C14	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	51	10	2	0	16	4	4	0	0	0	0	0	0	0	6	2	0	0	0	0	0
1971	80	20	4	1	23	5	5	0	0	0	1	0	0	0	6	8	0	0	0	0	0
1972	119	22	2	7	26	7	20	1	0	0	0	0	0	0	4	2	0	0	0	0	0
1973	305	67	2	15	82	10	82	8	0	0	0	0	0	0	15	3	0	0	0	0	0
1974	381	90	6	7	113	8	88	0	0	0	0	0	0	2	31	2	0	0	0	0	0
1975	470	174	8	4	171	8	69	0	0	0	0	0	0	0	24	2	0	0	0	0	0
1976	628	62	0	0	166	15	141	4	0	0	1	0	0	0	18	3	0	0	0	0	0
1977	913	123	0	0	265	14	205	7	2	0	2	0	0	0	50	4	0	0	0	0	0
1978	978	129	48	0	335	32	332	8	3	0	0	0	0	0	45	10	0	0	0	0	0
1979	982	288	47	0	177	25	236	11	16	0	2	0	0	0	107	8	0	0	0	0	0
1980	646	68	59	0	154	18	49	16	0	0	3	0	0	0	68	9	0	0	0	0	0
1981	1300	35	22	12	181	22	137	18	9	0	1	0	0	0	982	5	0	0	0	0	0
1982	1341	31	24	49	199	25	91	9	1	0	0	0	0	0	842	15	0	0	0	0	0
1983	2766	98	90	114	815	31	33	2	0	0	3	0	0	0	1432	9	0	0	0	0	0
1984	3239	73	150	149	964	113	38	20	2	0	0	0	0	0	2017	24	0	0	0	0	0
1985	3689	224	149	279	1064	167	40	20	0	0	7	0	1	0	2017	24	0	0	0	0	0
1986	6996	74	107	831	1187	185	60	33	6	0	13	0	0	0	4134	86	0	0	0	0	0
1987	9971	261	159	62	5156	345	176	13	0	0	18	0	4	20	1120	208	0	0	0	0	0
1988	7408	217	187	3	1021	754	461	3	0	0	10	0	0	1	4175	65	0	0	0	0	0
1989	10897	574	386	3	1678	1613	608	2	0	0	41	0	0	0	4864	138	0	0	0	0	0
1990	15349	702	500	21	2318	3176	464	7	0	0	90	0	26	0	6289	178	0	0	0	0	0
1991	15439	605	691	309	2180	2870	289	8	0	0	97	0	0	0	6289	178	0	0	0	0	0
1992	17129	575	649	158	1848	3477	197	2	1	0	88	0	1	0	5911	129	0	0	0	0	0

Exports (billions of francs)

Year	Total C14	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	25	9	1	1	2	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
1971	40	7	3	1	3	0	0	0	0	0	1	0	0	0	5	1	0	0	0	0	0
1972	66	14	1	1	3	0	1	0	0	0	1	0	0	0	9	1	0	0	0	0	0
1973	137	52	1	5	3	0	4	0	0	0	0	0	0	0	14	1	0	0	0	0	0
1974	142	63	2	0	6	0	4	0	0	0	0	0	1	0	12	1	0	0	0	0	0
1975	154	57	7	2	11	1	7	0	0	0	0	0	1	0	14	1	0	0	0	0	0
1976	200	50	3	2	15	4	9	0	1	0	0	0	1	0	14	1	0	0	0	0	0
1977	264	60	4	0	22	0	12	4	2	0	0	0	1	0	30	0	0	0	0	0	0
1978	174	33	10	0	18	6	6	6	1	0	1	0	1	0	26	0	0	0	0	0	0
1979	193	84	5	0	10	9	7	1	0	0	0	0	0	0	12	1	0	0	0	0	0
1980	303	124	11	1	9	7	1	0	0	0	0	0	2	0	65	2	0	0	0	0	0
1981	721	250	18	3	35	76	2	0	0	16	0	0	0	0	227	0	0	0	0	0	0
1982	946	177	6	3	33	8	2	0	0	0	0	0	0	0	481	0	0	0	0	0	0
1983	1599	84	1	1	177	36	21	0	0	0	1	0	1	0	761	2	0	0	0	0	0
1984	2406	378	4	4	236	36	8	0	0	0	0	0	0	0	876	5	0	0	0	0	0
1985	3677	532	446	3	202	46	202	0	0	0	0	0	1	7	1529	3	0	0	0	0	0
1986	4733	1064	399	15	411	86	206	1	0	0	3	0	1	0	1678	4	0	0	0	0	0
1987	3307	701	36	19	541	107	184	1	0	0	3	0	3	0	404	13	0	0	0	0	0
1988	2876	438	10	10	627	177	121	1	14	0	9	0	2	0	338	7	0	0	0	0	0
1989	3659	455	3	19	275	698	145	0	0	0	3	0	6	6	307	37	0	0	0	0	0
1990	2996	431	40	8	237	698	145	0	0	10	7	0	4	12	188	17	0	0	0	0	0
1991	3327	363	18	11	354	577	132	0	0	4	11	0	11	134	68	0	0	0	0	0	0
1992	1576	376	1	6	252	139	22	0	1	0	41	0	5	0	11	18	0	0	0	0	0

C14 - Pearls, precious and semi-precious stones, precious metals, rolled precious metals and articles thereof, imitation jewelry, China

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	0	0	0	1	0	1	32	36	36	8	1	1	1	4
1971	0	0	0	0	0	0	0	0	1	0	2	53	58	59	14	1	1	2	3
1972	0	0	0	0	0	0	0	0	10	0	2	64	83	83	6	1	10	2	15
1973	0	0	0	0	0	0	0	0	26	0	2	176	240	240	18	1	26	2	18
1974	0	0	0	0	0	0	0	0	18	0	1	184	272	272	35	1	18	1	54
1975	0	0	0	0	0	0	0	0	66	0	0	251	320	320	23	2	66	0	57
1976	0	0	0	0	0	0	0	0	137	0	1	243	388	389	21	1	137	1	79
1977	0	0	0	0	0	0	0	0	152	0	1	430	644	645	54	1	152	1	60
1978	0	0	0	0	0	0	0	0	94	0	2	444	787	789	55	1	94	2	37
1979	0	0	0	0	0	0	0	0	65	0	3	537	784	786	76	1	65	3	51
1980	1	0	0	0	0	0	0	0	87	0	4	299	364	367	76	2	87	4	70
1981	4	0	0	0	0	0	0	0	43	2	4	272	428	429	116	2	43	4	21
1982	1	0	0	0	0	0	0	0	10	2	5	328	429	429	897	6	10	5	37
1983	0	0	0	0	0	0	0	0	61	5	5	1148	1183	1186	857	3	61	5	72
1984	0	0	0	0	0	0	0	0	82	8	37	1233	1273	1278	2042	4	82	37	86
1985	1	0	0	0	0	0	0	0	65	6	25	1883	1944	1951	3337	7	65	25	104
1986	6	0	0	0	0	0	0	0	81	0	6	2384	2483	2496	4220	18	81	6	175
1987	5	0	0	0	0	0	0	0	89	27	8	6003	6192	6210	3352	16	89	8	396
1988	0	0	0	0	0	0	0	0	88	0	37	2182	2646	2656	4241	20	88	37	356
1989	16	0	0	0	0	0	0	0	213	1	26	4253	4863	4904	4992	40	213	26	722
1990	0	0	0	0	0	0	0	0	349	2	53	6717	7508	7598	6493	40	349	53	1135
1991	0	0	0	0	0	0	0	0	637	3	64	6655	6952	7053	5640	21	637	64	2078
1992	5	0	0	0	0	0	0	0	563	7	39	6707	6907	6997	7587	50	563	39	2113
Exports (million of dollars)																			
1970	0	0	0	0	0	0	0	0	8	1	0	14	14	14	2	0	8	0	1
1971	0	0	0	0	0	0	0	0	16	1	0	14	14	14	6	0	16	0	3
1972	0	0	0	0	0	0	0	0	26	2	0	19	20	21	9	0	26	0	10
1973	0	0	0	0	0	0	0	0	27	2	2	62	66	66	15	0	27	2	27
1974	0	0	0	0	0	0	0	0	37	2	0	71	73	73	14	0	37	0	16
1975	0	0	0	0	0	0	0	0	37	3	1	78	86	86	16	0	37	0	16
1976	0	0	0	0	0	0	0	0	46	7	2	74	85	85	16	0	46	2	26
1977	0	0	0	0	0	0	0	0	46	3	2	86	104	104	31	2	36	2	90
1978	0	0	0	0	0	0	0	0	36	3	1	67	79	80	27	2	35	2	28
1979	0	0	0	0	0	0	0	0	35	2	2	67	109	109	13	0	30	1	40
1980	0	0	0	0	0	0	0	0	30	1	1	108	152	153	67	0	30	1	27
1981	0	0	0	0	0	0	0	0	53	3	1	312	338	351	229	0	61	1	70
1982	0	0	0	0	0	0	0	0	61	2	10	227	229	229	181	0	72	10	79
1983	0	0	0	0	0	0	0	0	118	5	18	309	330	331	181	0	118	18	157
1984	7	0	0	0	0	0	0	0	280	7	12	309	330	331	181	8	280	12	360
1985	7	0	0	0	0	0	0	0	411	10	12	1029	1231	1231	1011	8	411	10	483
1986	0	0	0	0	0	0	0	0	496	12	9	1975	2182	2182	1691	4	496	9	266
1987	0	0	0	0	0	0	0	0	707	13	82	1404	1589	1595	431	0	707	82	492
1988	0	0	0	0	0	0	0	0	580	10	79	1262	1398	1407	350	4	580	79	456
1989	1	0	0	0	0	0	0	0	747	19	121	1450	1602	1605	358	39	747	121	789
1990	0	0	0	0	0	0	0	0	469	99	149	1247	1394	1401	228	51	469	149	696
1991	9	0	0	0	0	0	0	0	757	10	339	1333	1459	1471	213	54	757	339	463
1992	5	0	0	0	0	0	0	0	304	10	41	714	797	838	37	56	304	41	300



CIS - Base metals and articles of base metals

Imports (billions of dollars)

Year	Total CIS	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Greece	Cyprus	Yugoslavia	Turkey
1970	5026	728	518	111	1064	436	366	0	7	10	27	9	91	1	30	105	0	0	2	52	0
1971	5109	660	520	79	1042	397	336	1	10	11	33	19	44	15	36	149	0	0	2	57	1
1972	6710	977	742	130	1468	654	537	1	12	6	76	16	38	2	45	130	0	0	9	28	3
1973	10726	1201	1302	216	2116	942	771	3	12	16	139	57	58	2	84	184	0	0	3	101	12
1974	14341	1765	1125	323	2316	1018	668	2	18	7	232	48	75	2	64	239	0	0	3	217	10
1975	12020	1448	996	406	2218	1008	695	2	16	7	194	14	96	2	93	230	0	0	15	58	0
1976	13451	1399	1098	412	2192	1470	680	2	23	68	202	17	131	8	136	213	0	0	2	57	0
1977	12742	2114	1323	520	2892	1569	1165	5	28	48	235	10	169	9	116	244	0	23	2	58	2
1978	21182	3107	1008	379	3171	3295	835	6	23	92	375	26	153	7	136	253	0	2	8	167	5
1979	24861	3859	1423	524	4502	3124	1193	8	60	149	428	22	191	11	169	294	0	9	9	558	0
1980	37509	7452	1429	779	4940	4390	1117	18	48	237	557	55	644	18	167	432	0	15	9	216	0
1981	39117	6481	2201	1458	7858	5199	2408	25	82	298	617	30	266	47	249	777	0	0	22	224	5
1982	44838	5494	3107	1968	8631	5990	3441	14	70	202	995	119	266	119	223	633	0	0	22	224	5
1983	66729	8672	3964	3107	10117	7242	8683	8	80	203	995	119	266	119	223	633	0	0	22	224	5
1984	76208	13365	4297	3551	10376	8903	5715	36	119	343	1348	440	885	104	444	778	0	0	52	363	9
1985	99770	13350	7436	9077	14681	12173	8946	36	188	532	1191	431	885	347	653	536	8	0	111	1107	140
1986	123738	13921	7438	12275	19018	18213	11978	53	341	675	2030	532	1191	104	444	778	8	0	140	1505	102
1987	142047	20964	10237	10083	22658	20272	12819	13	360	288	2323	465	1198	467	797	1332	78	0	400	2954	1610
1988	144845	16009	9171	8908	22658	20272	8995	58	439	601	2721	564	1819	445	841	1671	0	1	577	2226	5881
1989	232905	18356	13705	15963	30334	31974	30141	66	879	383	3089	1040	2495	932	1146	2571	0	3	577	725	8852
1990	266697	23180	14927	19868	36909	42186	24813	159	1125	583	3003	832	2209	865	1424	3396	0	34	713	7967	5803
1991	333288	31615	99298	18484	41179	51538	32524	481	904	897	5955	997	2711	1221	1761	3375	0	0	1332	6797	5803
1992	300077	18208	9268	19193	41843	67347	22398	101	1330	1907	7979	602	2608	1325	1708	3667	2	0	691	1890	5313

Exports (billions of dollars)

Year	Total CIS	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Greece	Cyprus	Yugoslavia	Turkey
1970	3337	222	381	231	254	446	507	0	3	19	60	0	73	0	0	69	0	0	68	363	8
1971	2399	744	336	117	108	236	177	0	0	3	0	1	4	1	1	17	0	0	78	312	1
1972	3282	798	244	39	300	568	10	0	1	5	16	1	109	0	0	43	0	1	120	100	42
1973	3968	812	430	38	589	808	206	0	1	7	34	1	539	0	0	80	0	1	177	615	111
1974	10856	946	511	16	675	1588	192	0	2	3	1302	5	681	0	1	114	0	7	249	1084	18
1975	9654	1384	269	24	554	702	160	0	2	4	518	0	638	0	3	94	0	10	204	1084	0
1976	12406	1604	757	110	1423	2181	280	0	6	1	8	1	416	1	6	82	0	2	561	533	4
1977	91445	1645	1645	81	1171	1788	321	0	2	13	8	2	164	1	3	29	0	4	650	1211	4
1978	12417	1645	1645	56	1171	1788	321	0	2	13	8	2	164	1	3	29	0	4	650	1211	4
1979	15434	2281	200	97	1812	2860	511	14	14	6	35	0	251	148	3	57	0	4	663	1404	12
1980	18345	2440	94	101	2381	4337	4071	14	10	6	35	0	275	288	1	55	0	16	903	1404	12
1981	27099	2706	2706	69	151	3899	4071	14	14	6	35	0	275	288	1	55	0	16	903	1404	12
1982	30064	2738	2738	65	159	3337	2838	13	21	0	32	2	98	340	41	25	0	2	976	2136	240
1983	27890	3206	3206	117	169	2019	3842	13	43	10	32	1	235	3	26	225	0	1	976	2136	240
1984	41921	3181	3181	117	244	4699	606	13	21	10	32	1	235	3	26	225	0	2	976	2136	240
1985	66969	4363	4363	518	244	4699	606	13	21	10	32	1	235	3	26	225	0	1	976	2136	240
1986	74519	4697	4697	518	244	4699	606	13	21	10	32	1	235	3	26	225	0	1	976	2136	240
1987	86235	5474	5474	967	9491	8876	2811	76	179	9	72	1	79	253	81	452	0	3	1706	1887	1087
1988	86235	5474	5474	967	9491	8876	2811	76	179	9	72	1	79	253	81	452	0	3	1706	1887	1087
1989	86235	5474	5474	967	9491	8876	2811	76	179	9	72	1	79	253	81	452	0	3	1706	1887	1087
1990	138673	13872	8266	3046	9066	23108	5137	185	517	423	798	5	962	1260	1031	904	0	78	3109	319	3279
1991	128195	12823	8866	3046	8330	21108	6641	134	121	301	680	2	332	1848	705	402	0	98	3109	319	3279
1992	182116	13375	4994	2340	13825	38471	7868	248	286	858	2161	13	172	206	1372	776	0	452	5218	1556	2960
1993	221356	15603	4705	2932	17362	34043	7820	331	285	371	1138	52	228	166	1275	774	0	341	5093	1735	2847
1994	182116	15603	4705	2932	17362	34043	7820	331	285	371	1138	52	228	166	1275	774	0	341	5093	1735	2847
1995	221356	15603	4705	2932	17362	34043	7820	331	285	371	1138	52	228	166	1275	774	0	341	5093	1735	2847

CIS - Base metals and articles of base metals

Imports (billions of dollars)

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	64	10	19	103	96	10	32	0	377	39	200	2867	3240	3377	236	334	377	300	612
1971	24	16	33	127	75	45	75	0	115	44	652	2698	3065	3109	263	395	377	575	575
1972	22	18	37	198	135	9	52	0	174	90	516	3971	4521	4603	231	471	174	715	715
1973	48	35	35	186	103	36	48	2	455	114	1601	5777	6563	6718	395	493	455	1601	1074
1974	90	19	83	186	67	40	71	1	777	105	2415	6647	7335	7994	428	537	777	1570	1570
1975	70	33	56	193	120	28	228	0	444	101	2111	6076	6789	7994	435	728	444	2111	1322
1976	31	32	39	339	146	36	253	0	355	98	2508	6371	6789	6790	505	976	355	2508	1361
1977	28	45	332	362	185	67	466	0	550	153	3080	8428	9637	7546	548	976	355	3080	1361
1978	56	45	163	638	276	28	643	0	726	199	3080	10960	11854	12319	548	1515	350	3080	2374
1979	117	54	172	705	329	24	405	6	1285	290	2065	13450	14711	15388	647	1812	1385	2065	3724
1980	163	63	119	1228	363	27	591	1	1935	356	2818	20190	21373	22167	1296	2355	1935	2818	6338
1981	732	94	146	1169	537	154	450	20	1735	392	1741	23257	25772	28624	1369	3302	1735	1741	4460
1982	1435	188	79	864	884	167	690	14	2331	658	2176	25508	27733	28624	1370	4321	2331	2176	4460
1983	344	236	209	923	416	60	857	4	2110	645	3267	45596	44319	45517	2101	5849	2110	3267	7885
1984	2551	334	265	1475	400	52	589	1	1890	51	3710	45596	51466	53157	2800	5667	1890	400	8884
1985	2566	1195	463	1385	854	76	763	0	2299	265	4975	70867	66767	68510	2924	6236	2299	4975	14826
1986	8142	859	426	1811	1257	330	1788	36	844	209	2354	82041	86253	89864	3539	7087	844	2354	15564
1987	10992	1339	859	2360	1380	728	1718	196	1160	309	2354	11532	12530	14062	5340	18492	1160	2354	21118
1988	12366	2182	1675	4014	2765	2728	1489	196	1253	848	2354	14618	162767	180960	8184	37961	1160	2354	26119
1989	18613	1878	1663	5179	2445	1616	1881	232	2551	848	2308	149434	162767	166333	8726	33709	2551	2308	40906
1990	23404	0	2283	5380	3907	2688	3507	472	4371	488	2817	149434	183343	190195	10065	43061	4371	2817	50331
1991	10587	0	1351	3998	1014	3936	9079	112	4164	450	4280	156059	179888	189774	9510	30077	4164	4280	6112
1992	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Exports (billions of dollars)

Year	USSR	DDR	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	27	170	0	138	0	1	1356	2046	2125	142	197	138	0	934
1971	0	0	0	0	2	17	38	7	139	1	0	1581	1598	1601	24	64	139	0	571
1972	0	0	6	0	3	9	25	0	347	8	1	1969	1980	2001	153	43	347	1	737
1973	2	1	13	3	18	15	54	40	511	707	41	22247	2884	2925	611	146	511	1	1754
1974	1	5	28	1	66	9	185	69	716	190	41	3736	3920	5235	801	364	716	41	3697
1975	0	0	31	0	81	9	374	73	125	9	202	2933	3095	3637	725	566	125	202	4387
1976	0	7	8	0	14	33	316	167	438	346	201	6075	6364	6366	506	545	438	201	4350
1977	83	0	13	0	51	56	429	200	452	310	163	4741	9064	9085	198	833	452	163	5516
1978	0	0	0	1	71	89	315	173	823	333	312	7310	7823	7920	459	619	823	312	5211
1979	0	0	64	7	52	10	475	204	902	21	319	9233	9591	9632	619	810	902	219	6863
1980	5	0	0	21	264	195	499	660	993	249	319	10466	10950	10988	540	1644	993	319	12359
1981	280	0	0	45	62	10	544	221	3179	18	246	9907	10149	10162	575	1172	3179	246	14700
1982	1936	0	0	37	31	15	437	272	2287	7	8	9907	10149	10162	259	2728	2287	8	12862
1983	2555	286	0	0	13	49	540	110	2419	30	12	15014	16048	16129	683	3625	2419	12	19035
1984	1442	0	0	13	137	59	815	99	812	599	3904	22423	23823	26006	2303	2665	812	3904	24639
1985	1208	0	1	39	95	0	708	121	9130	123	195	25453	28617	29362	3279	2172	9130	195	30181
1986	2068	10	17	41	147	0	727	217	6114	509	543	33605	38631	39852	2961	3227	6114	543	23587
1987	1977	0	2	60	80	2	528	214	6110	466	868	47150	52519	53900	3289	2747	6110	868	19721
1988	4915	1135	3	80	281	2	278	245	5143	114	4385	47404	49710	51925	1661	6939	5143	21982	29768
1989	7880	293	273	117	629	20	527	599	4797	217	4670	74054	82456	85475	2556	12071	4797	4670	40768
1990	7880	293	273	117	629	20	527	599	4797	217	4670	81453	76983	78494	2505	10619	4797	4670	29768
1991	5676	0	151	60	961	165	652	881	5708	169	987	81453	90082	92863	2327	6714	5708	987	20136
1992	705	0	185	59	1020	152	781	406	7918	106	1117	97184	104306	110837	3434	3288	7918	1117	96942

C16 - Machinery and mechanical appliances, Electrical equipment, Parts thereof  
Imports (million of dollars)

Year	Total C16	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	1161	946	374	168	4277	1959	998	1	172	17	58	9	104	18	186	166	0	0	8	17	0
1971	11924	847	381	231	4241	2301	1019	1	90	3	108	18	109	27	381	216	0	0	0	13	0
1972	16463	1495	549	361	6185	2922	1312	1	174	4	140	30	116	7	440	220	0	0	4	64	5
1973	20799	2203	732	546	7362	3352	1420	2	98	10	208	35	164	11	704	408	0	25	6	187	1
1974	28198	2901	902	509	8634	4372	1416	1	190	12	179	57	174	21	835	408	0	0	1	114	1
1975	26198	2209	937	552	7963	4922	1725	8	185	0	356	64	294	27	1039	434	0	0	1	67	0
1976	29094	2270	1000	529	9189	5198	1745	13	185	0	398	84	835	12	1137	472	0	5	3	60	0
1977	33094	2449	1071	597	10001	6457	2191	71	236	17	343	84	835	11	1180	447	0	0	8	57	0
1978	36536	2622	1000	771	12280	7441	2464	40	264	23	454	29	398	21	1495	445	0	0	9	209	0
1979	47018	3416	1276	1014	14700	9878	3725	70	333	21	519	108	470	36	1779	746	0	4	29	449	0
1980	59208	4263	1262	1664	19221	12012	3421	75	309	31	553	144	787	128	1779	746	0	4	43	213	10
1981	65008	4876	1866	1703	20048	13350	3389	228	836	16	525	32	864	572	1340	2087	1342	1	40	343	30
1982	80184	9201	1813	2657	23727	16930	3685	261	813	21	625	85	1149	221	2087	2114	0	2	52	363	22
1983	103325	11874	2926	2833	30664	22366	4334	152	709	55	1108	307	1473	519	2604	1499	0	7	65	347	34
1984	121794	12322	3435	3833	35372	26275	5803	317	968	82	1108	515	2388	641	3819	2056	2	11	126	1012	154
1985	146899	12886	3435	5345	42031	31920	8008	983	1533	166	1735	515	2388	641	3819	2056	2	11	126	1012	154
1986	198980	12886	5221	6989	64130	45133	11978	555	1498	166	2416	599	3146	913	5094	2074	2	11	162	1012	154
1987	237144	16701	6670	7198	70992	54533	15368	688	1887	250	2416	457	3488	845	6078	2939	4	11	242	1383	195
1988	301487	21526	7836	9096	70671	62486	17320	830	2271	217	4217	563	3440	866	6978	3271	9	13	483	2099	410
1989	455128	29617	13722	16169	119019	97174	23785	1184	4394	405	6100	789	9804	1124	11107	6013	0	16	883	2935	927
1990	545688	48956	14984	16696	151793	123169	30972	1514	629	647	6100	789	9804	1124	11107	6013	0	17	1190	2414	1136
1991	608175	42335	18466	16696	164087	131280	36061	1514	5157	588	8793	1268	12802	1308	12796	7729	1	26	1035	2192	1482
1992	739466	48824	28209	198178	198178	154380	46169	1652	10980	1145	12067	1817	11762	3217	15546	9807	6	42	1130	270	2033

Exports (million of dollars)

1970	195	0	3	13	107	1	2	2	0	0	0	0	0	0	0	0	0	0	11	7	0
1971	279	3	3	12	130	14	4	1	0	1	1	0	0	2	1	0	0	1	17	7	0
1972	515	2	16	28	221	17	4	1	0	0	1	0	1	0	2	2	0	0	20	12	0
1973	687	5	13	27	213	44	3	2	0	0	3	2	2	0	22	10	8	0	34	7	0
1974	1247	12	12	36	262	72	6	0	0	1	1	4	24	0	19	8	0	1	28	14	3
1975	1810	32	9	53	223	45	0	1	0	0	1	5	7	0	3	3	0	4	43	21	0
1976	2743	70	10	77	344	60	0	1	0	0	1	9	5	2	3	6	0	2	77	18	0
1977	2831	31	26	90	357	47	16	1	0	0	3	7	4	0	3	5	0	2	113	24	4
1978	5129	46	61	83	516	63	18	1	2	2	17	6	3	0	19	8	0	16	170	25	1
1979	4120	43	30	78	488	147	61	6	3	0	9	8	1	0	8	8	0	9	146	57	5
1980	5239	210	20	168	808	102	50	20	0	15	9	8	1	0	18	10	21	10	153	14	12
1981	8144	233	48	39	1603	109	125	7	0	43	20	17	17	1	44	84	0	2	210	33	3
1982	9664	457	62	30	1837	159	146	14	3	66	20	16	15	0	59	112	0	42	332	79	13
1983	9698	463	121	59	2212	247	146	35	2	53	33	13	63	0	145	158	0	19	558	28	18
1984	11170	1330	207	105	2799	789	235	35	12	2	21	5	5	0	136	154	0	1	547	30	12
1985	13908	849	342	112	3943	531	721	7	7	36	6	5	9	4	144	79	0	27	643	39	33
1986	18315	1847	706	185	4993	960	1878	72	24	41	116	14	119	8	274	132	1	156	712	116	75
1987	20395	2395	525	419	5788	1539	2307	0	31	189	268	8	304	14	248	136	1	197	867	66	144
1988	22471	2486	302	384	4720	1680	2307	64	75	208	254	45	321	14	215	146	8	310	1851	92	154
1989	27234	3244	480	680	6896	1960	6161	148	221	268	889	248	309	78	413	168	0	648	3211	172	529
1990	47648	4299	656	605	9071	3459	6185	148	246	330	1076	440	374	139	363	359	0	960	4372	710	731
1991	58038	3370	1080	605	13816	2203	4399	186	275	305	822	390	618	247	478	358	0	1162	5754	752	1666
1992	76704	3547	931	1196	16315	5392	8963	809	293	303	832	393	1354	108	460	864	0	2428	6966	534	1370

C16 - Machinery and mechanical appliances, Electrical equipment, Parts thereof

Imports (millions of dollars)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFT 3	East Eur	USA	Japan	ROW
1970	175	79	51	72	10	10	13	0	882	104	270	7634	8795	8870	483	410	882	270	246
1971	51	90	90	146	20	18	20	0	1010	17	368	8011	9140	9251	151	435	1030	368	89
1972	77	73	166	106	23	54	23	0	1276	132	432	11622	13009	13133	8.3	524	1226	432	315
1973	116	377	266	133	46	61	45	0	1478	53	572	14205	14732	15950	1322	1056	1478	572	421
1974	105	509	246	178	69	31	36	2	1395	68	747	16918	18325	18716	1697	1176	1595	747	467
1975	107	463	433	231	94	43	58	0	2192	72	1256	16723	18741	18997	1838	1531	2192	1256	364
1976	274	514	188	151	114	112	97	0	2611	56	1537	18186	20775	20481	2340	1450	2611	1537	485
1977	156	850	149	261	151	103	93	0	2655	69	1821	20975	23473	23833	2148	1858	2655	1821	779
1978	149	961	136	176	151	126	103	0	2170	70	2209	24114	26882	27339	1782	1802	2170	2209	1204
1979	785	1183	209	219	597	90	129	0	2841	65	1957	34432	42237	42811	2619	2812	2841	1957	1795
1980	1084	1195	131	231	354	348	171	0	3649	271	3160	42422	47437	47437	3805	3188	3649	3160	2048
1981	313	1494	166	357	204	556	98	0	4766	155	3607	54328	59157	59896	4604	3765	4766	3607	2185
1982	279	1732	89	191	140	376	158	0	4347	184	6340	70793	76188	77034	5.54	5856	5840	6340	2032
1983	1328	3315	81	223	226	327	156	0	5840	100	6590	80737	87845	88008	6432	8410	7298	7687	3059
1984	2085	4801	90	340	418	559	117	0	7208	318	7687	95189	103313	107120	6432	8251	8217	7687	3059
1985	1836	4924	144	671	418	169	129	0	8317	144	8415	124739	148768	150683	12428	8283	8217	8415	4337
1986	570	3535	292	871	382	218	416	0	7632	270	14169	156114	179357	186683	15407	8464	8022	15276	12552
1987	443	3908	1355	952	756	656	598	12	8822	316	27427	179635	200256	204730	18495	10596	8822	27427	23493
1988	1587	3732	2268	1103	350	1083	376	0	15734	1784	27427	273701	300862	311567	29127	11456	22275	27427	34571
1989	1216	4732	1901	1282	506	782	1034	0	22739	1068	46132	334588	393183	401347	28114	9014	22275	46132	36505
1990	1139	3093	1847	1387	519	362	1141	0	27109	641	42399	375996	418811	428192	35603	8666	33996	42399	47007
1991	1112	0	2440	1119	1029	1291	1672	4	35998	1110	56770	458324	515125	528337	42119	8530	46865	52709	56805
1992	393	0	2242	1508	1273	1014	2086	4	46865	1347	56770	458324	515125	528337	42119	8530	46865	56770	56805

Exports (millions of dollars)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFT 3	East Eur	USA	Japan	ROW
1970	0	0	0	2	0	5	2	0	5	0	0	124	128	128	0	9	5	0	53
1971	0	1	0	0	0	5	3	0	7	0	0	162	163	165	3	9	7	0	95
1972	0	0	0	0	0	0	1	0	10	0	0	284	289	290	8	6	10	0	201
1973	0	0	33	0	0	8	0	0	20	0	0	302	307	310	36	41	20	0	280
1974	7	0	0	0	0	1	1	0	32	0	0	394	402	405	55	9	32	0	746
1975	7	0	1	0	0	17	2	4	42	0	0	362	363	364	24	31	42	0	1349
1976	75	0	0	5	77	27	21	2	41	0	0	561	562	563	25	209	41	0	1905
1977	83	0	0	2	59	45	69	2	36	0	0	551	571	602	21	262	36	0	1910
1978	0	0	0	2	54	18	40	2	20	0	0	771	792	811	29	115	40	0	2134
1979	0	0	0	1	19	1	18	1	20	2	0	1206	1276	1292	19	159	20	0	2630
1980	0	15	0	5	4	0	79	53	19	1	0	1588	1658	1682	49	156	19	0	3333
1981	0	2	0	68	89	1	48	16	126	1	0	2052	2183	2248	163	224	126	0	5383
1982	0	10	0	99	12	26	8	10	1002	1	0	2545	2671	2757	202	180	1002	0	5523
1983	6	6	2	2	3	7	8	8	202	5	3	3102	3285	3358	379	39	3102	0	4817
1984	13	68	3	4	8	41	69	11	120	3	2	3230	3612	3663	351	217	120	3	4877
1985	23	283	0	3	35	52	86	5	208	19	1	3777	4512	4554	322	775	208	1	6048
1986	83	523	11	0	120	8	136	6	363	30	4	4912	6512	6554	322	598	363	4	6110
1987	16	72	2	12	2	3	43	33	363	7	11	10912	11582	12064	739	183	363	11	2045
1988	271	9	4	20	36	4	43	33	579	20	20	9992	11582	12064	739	183	363	20	8471
1989	318	0	66	30	53	16	80	37	997	68	20	13160	14806	152431	541	799	579	20	15867
1990	205	38	181	17	53	33	313	37	1219	41	62	18090	20669	20905	1237	300	997	30	17326
1991	803	0	2411	124	53	16	624	149	1540	122	78	22889	27959	28086	1615	1091	1219	62	22491
1992	1781	0	497	186	72	847	1721	671	1038	30	796	27481	37546	38734	1179	5860	1038	796	27077

C17 - Vehicles, aircraft and parts thereof, vessels and certain associated transport equipment

Imports (billions of dollars)

Year	Total C17	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
19	16392	631	207	221	2371	6.8	2384	0	73	2	73	812	1554	26	8	43	0	0	5	270	0
1971	16346	855	297	187	3474	600	1675	95	50	1	289	255	504	308	6	48	0	0	13	169	0
1972	12054	461	164	135	2834	709	1428	2	9	1	77	296	108	8	5	27	0	0	7	409	0
1973	16241	567	233	182	4232	818	1900	2	27	1	515	18	115	7	9	235	0	0	8	127	0
1974	11961	390	126	172	3164	891	1160	0	4	1	160	186	487	10	19	389	0	0	8	366	0
1975	34550	1035	513	1651	8285	1785	2252	0	602	1	2490	1382	2114	40	14	562	0	0	9	40	0
1976	62274	2320	931	1767	9762	3216	2232	1	695	1	1727	1620	7817	763	23	285	0	0	66	574	0
1977	81276	3570	1200	2101	12789	3216	3612	1	89	1	2490	1620	7817	763	23	285	0	0	66	574	0
1978	80905	4411	1644	1682	14224	4822	5717	89	432	26	3964	1985	3821	244	17	811	0	0	71	1319	2
1979	86841	4411	1436	1298	15648	5722	4819	1095	1319	86	2918	2794	1731	11	14	1450	0	0	15	912	2
1980	102524	4257	998	2000	14255	4960	8076	749	926	135	1618	3316	3986	1012	36	1444	0	0	164	1319	2
1981	71400	2851	1057	761	13655	3704	5204	10	1319	11	1165	570	2270	575	575	649	0	0	312	377	2
1982	89927	4722	1982	1200	20055	5371	5204	8	40	5	1971	702	2370	48	48	4991	0	0	105	1611	5
1983	107045	4755	7908	818	20875	5109	7645	8	915	8	744	978	917	119	165	5012	0	0	58	81	617
1984	152852	7134	3187	1572	27242	8208	9639	39	217	20	7062	1547	4057	122	218	1558	0	0	52	357	36
1985	179410	10865	4680	2207	32312	11557	8609	14	2804	27	8287	141	2516	170	294	2083	0	0	34	156	1605
1986	194603	12391	6419	2697	40841	12877	8528	13	3328	1090	5981	1650	5757	289	294	1709	0	0	70	4427	27
1987	199423	6811	6025	3493	47789	11780	8258	541	1044	121	6772	2121	3764	473	401	4707	0	0	10	1146	35
1988	226619	7804	5569	1450	59966	17900	6678	8	478	101	7119	2428	4526	547	452	4707	0	0	970	4422	78
1989	146427	14121	10908	6281	17316	1242	19863	72	1019	2886	10831	7413	1431	375	1003	4171	0	0	2074	3824	131
1990	417201	14518	14518	8927	119199	40228	18865	88	1260	3050	12142	6008	7736	368	1006	5789	0	0	66	1348	223
1991	607863	28091	17177	12712	165470	58510	23841	216	1464	265	14159	5108	16094	220	1328	5789	0	0	2074	4992	375
1992	827836	81398	20051	16734	221820	65558	35877	339	1480	765	26580	5108	10594	560	1516	7424	0	0	265	508	479

Exports (billions of dollars)

Year	Total C17	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	91	3	0	0	4	14	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
1971	86	7	0	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	2	6	0
1972	93	0	0	0	8	2	2	0	0	0	0	0	0	0	0	0	0	0	3	1	0
1973	217	31	0	1	13	22	7	0	0	0	0	0	4	0	0	0	0	0	31	5	0
1974	379	21	0	1	27	13	47	0	6	0	0	0	0	0	0	0	0	0	22	7	0
1975	1078	53	5	40	246	16	16	0	5	0	0	65	0	0	0	5	0	0	20	4	0
1976	1885	9	9	1	83	11	297	0	0	0	0	0	2	0	0	18	0	0	19	6	0
1977	2487	6	0	0	150	2	0	0	0	0	0	0	0	0	0	2	0	0	31	6	0
1978	614	0	0	2	13	11	4	0	0	0	0	0	0	0	0	66	0	0	5	2	0
1979	790	5	0	6	12	1	1	0	0	0	0	0	16	0	0	43	0	0	4	6	0
1980	1510	1	3	7	39	6	1	0	0	1	0	0	0	0	0	37	0	0	1	0	0
1981	2461	5	0	4	53	52	23	0	0	0	0	0	0	0	0	57	0	0	22	0	0
1982	3469	86	2	7	12	90	17	0	0	0	0	0	2	0	8	61	0	0	22	0	0
1983	3904	80	0	12	51	123	9	0	0	0	0	0	2	0	24	17	0	0	26	31	0
1984	2629	56	0	40	356	123	13	33	0	0	0	0	5	0	8	21	0	0	13	18	0
1985	4443	70	3	6	108	149	16	8	0	0	18	0	2	0	14	49	0	0	33	23	0
1986	4816	280	2	30	728	159	56	40	2	0	0	0	1	10	46	4	0	0	63	36	14
1987	5941	372	45	58	1607	312	49	3	1	0	471	2	15	2	9	103	0	0	49	6	1
1988	3309	521	21	70	260	205	113	0	3	55	48	16	16	26	47	30	0	0	3	101	11
1989	4260	703	33	64	334	493	77	0	1	8	250	16	26	60	47	30	0	0	198	158	13
1990	6400	789	58	195	433	698	315	0	5	22	125	25	31	18	45	54	0	0	3	545	119
1991	12855	839	81	223	1077	1614	539	0	140	150	533	9	72	6	22	82	0	0	485	181	68
1992	24087	1533	129	377	1687	874	1422	0	13	7	533	9	23	5	74	119	0	0	202	216	68



C17 - Vehicles, aircraft and parts thereof, vessels and certain associated transport equipment

Imports (millions of dollars)

Year	USSR	DOR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	48	11	14	50	3	230	2	0	430	5	6477	3931	6307	6382	2443	348	430	4997	492
1971	35	9	41	66	6	62	2	0	526	1606	4909	5413	7231	7521	1119	221	526	4909	2060
1972	173	9	55	105	1	52	7	0	889	10	3712	4303	5739	5617	514	402	889	3712	700
1973	231	8	117	159	11	275	8	0	2932	8	4389	6032	6961	7477	764	809	2932	4389	320
1974	247	128	80	102	46	238	17	0	891	83	2313	4741	5907	6068	1291	838	891	2313	520
1975	303	300	184	103	10	236	13	0	396	17	9483	13269	16396	18887	4112	1371	396	9483	101
1976	283	595	289	140	112	287	16	0	267	12	21978	18016	22324	24052	10508	2002	2267	21978	1867
1977	435	601	131	222	168	308	30	0	967	34	32732	24085	30233	34313	8858	1795	967	32732	2611
1978	388	2443	167	262	490	116	94	0	511	13	31197	26963	34077	37992	5504	3960	511	31197	1741
1979	2097	901	663	370	69	468	601	0	1073	26	28360	27357	38789	41829	8546	4977	1073	28360	3896
1980	871	1468	1312	476	468	1126	1079	0	1440	7	41614	26470	36221	37974	9794	6800	1440	41614	4902
1981	2540	890	1926	414	513	698	247	18	2109	14	14621	22026	31364	32518	4114	5144	2109	14621	12864
1982	1092	290	1926	412	917	17	860	0	1603	50	29423	34188	39623	43999	7746	5840	1603	29423	1712
1983	1301	111	325	412	710	902	382	0	1639	16	41053	39483	47038	47901	7185	4660	1639	41053	4157
1984	1138	4641	1514	1087	577	682	42	0	2105	51	66012	47733	57628	64370	7702	10594	2105	66012	4311
1985	2143	2454	207	1395	219	3116	79	0	2390	37	66012	75423	82796	94197	5157	8303	2390	66012	3231
1986	2200	745	312	1395	319	3116	63	0	2390	74	63293	75423	82796	94197	9806	8303	2390	63293	17474
1987	1877	357	1402	1161	319	1914	63	0	2390	150	49382	72508	88822	95720	11259	7093	2390	49382	30808
1988	1697	470	10013	1573	146	861	74	0	2692	228	39337	74199	85443	92663	92663	70264	2692	39337	47828
1989	3444	247	3945	2272	207	863	216	0	5060	2927	110789	156570	157684	171451	19662	14833	2692	110789	58471
1990	6608	231	2419	2861	317	400	288	0	9121	966	134500	2112039	231432	246644	20899	13144	5060	110789	18394
1991	6457	521	4879	4783	254	521	514	0	43743	428	186315	311960	338181	332783	27661	22435	9121	134500	54924
1992	4421	0	3190	10351	225	1604	667	19	46863	1347	199838	403561	446137	473902	21216	20637	403561	199838	61378

Exports (millions of dollars)

Year	USSR	DOR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	8	0	0	2	0	0	21	21	21	0	8	2	0	60
1971	0	0	0	0	0	2	0	0	2	0	0	29	30	30	0	2	2	0	53
1972	0	0	0	0	0	0	0	0	9	0	0	17	19	19	1	0	9	0	64
1973	0	0	2	0	0	0	0	0	38	0	0	67	74	74	4	2	38	0	119
1974	0	0	4	0	0	0	0	0	19	0	1	62	115	115	5	4	19	1	235
1975	0	0	0	0	0	0	0	0	42	4	0	370	391	391	88	0	42	0	537
1976	0	0	0	0	0	0	0	0	13	0	0	113	410	410	39	0	13	0	1423
1977	0	0	0	0	0	0	0	0	18	0	0	138	165	165	35	0	18	0	2269
1978	0	0	0	0	2	0	0	0	9	0	0	27	31	31	2	2	9	0	526
1979	0	0	0	0	0	0	0	0	2	1	0	24	25	25	66	0	2	0	702
1980	0	6	0	0	0	0	0	1	1	4	0	56	57	58	42	7	1	0	1402
1981	0	0	0	0	0	0	0	0	38	1	0	117	140	140	6	1	38	0	1402
1982	0	0	0	0	0	0	0	0	121	13	0	319	336	336	71	0	121	0	2941
1983	0	36	0	0	0	0	0	0	28	1	0	342	251	251	43	36	28	0	3546
1984	0	18	0	0	0	0	8	0	21	5	0	575	621	621	34	21	18	0	1926
1985	0	0	0	0	0	0	0	0	21	0	0	336	360	378	63	25	0	0	3941
1986	0	8	0	0	0	0	0	0	48	24	0	1199	1297	1297	61	34	8	0	3941
1987	0	0	0	0	0	0	0	0	72	76	0	2394	2447	2918	131	241	48	0	3479
1988	4	0	0	0	2	0	0	0	232	24	7	1077	1193	1296	56	239	272	7	1419
1989	9	0	0	0	4	0	0	0	70	21	0	1027	1193	1363	179	83	70	0	2463
1990	24	11	1	3	4	32	89	0	209	28	0	2173	2493	2640	173	100	209	0	3278
1991	64	11	10	7	11	32	89	15	243	0	4	3834	4413	5176	191	228	243	4	6992
1992	100	0	11	13	21	18	353	292	315	7	1	4600	6035	6453	938	808	315	1	15873

C18 Optical photography, cinematography, measuring, checking, printing, medical and surgical instruments and apparatus, clocks and watches, musical instruments, sound recorders and reproducers, video, television and TV sets.

Year	Total C18	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Greece	Cyprus	Yugoslavia	Turkey	
1970	945	66	6	80	263	96	43	0	13	0	2	1	5	0	78	11	0	0	0	5	0	
1971	1138	93	10	64	304	103	66	0	13	1	3	2	2	0	07	10	0	0	0	15	0	
1972	1381	110	18	64	347	133	99	2	12	1	3	2	2	0	118	8	0	0	0	0	0	
1973	1893	172	21	117	476	182	135	8	21	3	6	0	5	0	225	10	0	0	11	0	0	
1974	2085	247	15	124	460	208	139	9	20	2	9	0	10	0	218	15	0	0	0	0	0	
1975	2627	218	28	142	618	368	171	11	78	6	14	1	12	0	222	20	0	0	0	0	0	
1976	3290	264	41	175	778	344	256	8	35	6	12	4	19	0	218	21	0	0	0	0	0	
1977	4018	308	54	218	893	474	305	10	49	7	16	2	28	0	284	26	0	0	0	0	0	
1978	4946	367	95	216	1155	587	345	14	69	8	23	5	33	0	331	52	0	0	1	6	0	
1979	6190	462	99	264	1435	794	429	15	83	13	24	8	40	0	331	54	0	0	1	9	0	
1980	7448	613	110	279	1816	947	440	42	78	16	25	8	50	0	331	66	0	0	1	12	0	
1981	9163	906	96	394	1838	1353	518	43	108	18	28	3	76	0	487	55	0	0	2	1	13	0
1982	9790	650	113	519	1932	1222	595	69	150	10	37	5	137	0	487	55	0	0	2	1	13	0
1983	12846	994	126	516	2440	1412	903	72	239	7	61	11	177	0	782	184	0	0	3	2	9	1
1984	18456	1143	244	803	4419	2027	1485	99	302	11	96	3	265	0	1054	221	0	0	3	19	8	1
1985	29664	1546	582	1322	8231	2941	3285	162	398	12	145	27	348	0	1545	237	0	0	3	20	9	86
1986	44888	1934	798	1943	15905	5801	4338	200	485	17	202	33	547	0	2009	704	0	0	116	134	131	131
1987	47507	2011	603	2194	16097	5792	4338	237	568	17	222	34	616	0	2319	662	70	2	112	144	131	131
1988	38479	2150	598	2201	14097	6068	3069	267	595	7	298	97	979	0	2789	330	0	1	112	170	170	170
1989	60782	3049	811	3700	15400	6930	4930	868	937	13	378	53	1251	0	4331	942	0	0	112	170	170	170
1990	71120	4530	948	5531	16222	11218	6238	728	1173	17	395	28	1361	0	6015	983	0	0	112	170	170	170
1991	94219	5314	1340	7575	22318	12440	8154	1246	1547	16	539	48	2088	0	7541	1000	0	0	192	348	348	348
1992	119449	7084	1898	9299	26181	17590	8153	1842	1547	18	1055	128	1441	0	10000	1202	6	1	192	348	348	348

Exports (billions of ECU)

1970	23	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	24	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	40	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	65	2	0	3	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	82	0	0	2	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	191	4	1	8	12	0	7	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
1976	231	5	2	5	12	0	6	0	0	0	0	0	1	0	5	0	0	0	0	0	0	0
1977	337	5	0	1	9	0	8	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1978	437	6	0	1	13	0	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
1979	286	5	1	2	8	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1980	359	24	2	8	13	0	3	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0
1981	590	16	8	6	40	1	15	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0
1982	642	16	11	8	36	12	12	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0
1983	834	82	11	8	40	12	12	0	0	0	0	0	1	0	5	0	0	0	0	0	0	0
1984	941	22	7	4	127	19	109	0	0	0	0	0	1	0	44	0	0	0	0	0	0	0
1985	1080	25	2	10	200	23	126	0	0	0	0	0	1	0	44	0	0	0	0	0	0	0
1986	1583	45	5	5	200	19	144	0	1	0	0	0	1	0	18	0	0	0	0	0	0	0
1987	2168	119	24	58	267	78	182	0	12	2	0	2	15	0	32	0	0	0	0	0	0	0
1988	2021	157	12	61	471	74	182	0	15	0	1	2	8	0	32	0	0	0	0	0	0	0
1989	1421	203	12	31	245	70	100	0	9	1	3	5	16	0	79	0	0	0	0	0	0	0
1990	2042	156	58	62	260	88	138	0	8	9	6	12	20	0	90	0	0	0	0	0	0	0
1991	3101	324	37	62	465	281	144	0	8	8	5	18	13	0	90	0	0	0	0	0	0	0
1992	4631	1086	34	167	549	596	217	0	20	8	5	18	13	0	90	0	0	0	0	0	0	0
1992	5824	658	192	230	926	1353	243	0	25	41	47	56	38	0	89	0	0	0	0	0	0	0



C18 - Optical, photographic, cinematographic, measuring, checking, production, medical and surgical instruments and apparatus, clocks and watches, musical instruments, sound receivers and reproducers, video, videorecorders and TV sets.

Imports (millions of dollars)

Year	US\$	DM	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	UK	FR	Italy	EEC	Latin	USA	Japan	MOW
1970	12	21	3	5	6	1	0	0	94	1	122	511	567	569	99	48	94	122	17
1971	18	14	3	8	7	1	0	0	101	2	170	574	653	657	120	51	101	170	39
1972	24	15	3	6	7	1	0	0	155	4	196	692	806	812	130	56	155	196	32
1973	15	17	6	7	7	0	0	0	176	8	231	968	1132	1141	140	59	176	231	52
1974	10	25	20	7	8	0	0	0	244	7	239	1034	1222	1233	243	70	244	239	36
1975	15	30	7	14	8	0	0	0	254	7	320	1374	1634	1634	235	74	254	320	70
1976	18	41	16	15	15	0	0	0	266	13	448	1602	1901	1919	290	98	266	448	139
1977	13	52	16	16	7	0	1	0	378	18	619	1947	2311	2334	342	103	378	619	189
1978	19	70	23	23	28	14	4	0	474	13	742	2422	2850	2881	420	162	474	742	242
1979	30	75	34	23	14	6	2	0	686	16	787	3034	3581	3618	491	186	686	787	287
1980	29	117	24	21	22	3	2	0	844	15	1201	3765	4325	4366	461	220	844	1201	420
1981	26	94	20	26	15	3	3	0	987	23	1644	4407	5076	5112	633	191	987	1644	556
1982	22	66	16	26	20	6	6	0	906	28	1860	4456	5270	5314	776	157	906	1860	577
1983	14	128	24	23	28	26	9	0	1002	30	2858	5488	6722	6790	1287	332	1002	2858	657
1984	45	162	10	29	21	3	1	0	1573	19	3575	8636	10532	10639	1582	271	1573	3575	836
1985	41	237	16	47	32	0	3	0	1848	190	4979	14632	18447	18604	2157	667	1848	4979	1429
1986	26	180	34	42	38	25	9	0	2244	19	6720	23581	2930	29943	3155	474	2244	6720	2132
1987	30	238	228	31	50	83	11	0	2718	68	7694	24699	29932	30191	3564	632	2718	7694	2910
1988	37	214	35	50	90	90	4	0	3607	132	4327	20187	24238	24544	4332	424	3607	4327	2385
1989	37	192	47	66	90	6	5	0	3788	114	5804	29890	35623	36015	8053	446	3788	5804	4676
1990	24	131	83	62	35	7	6	0	6853	120	6765	38449	44940	45352	8210	349	6853	8404	5991
1991	21	0	60	89	66	11	17	0	10201	123	7855	49187	57160	57735	10809	366	10201	7855	7353
1992	26	0	83	101	36	16	29	0	18025	1092	10410	62032	73594	74667	13211	291	18025	10410	3245

Exports (millions of dollars)

Year	US\$	DM	Poland	Czechia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	UK	FR	Italy	EEC	Latin	USA	Japan	MOW
1970	0	0	0	0	0	0	0	0	11	0	0	1	1	1	0	0	11	0	11
1971	0	0	0	0	0	0	0	0	10	0	0	2	2	2	1	0	10	0	12
1972	0	0	0	0	0	0	0	0	11	1	0	7	7	10	3	0	11	0	26
1973	0	0	0	0	0	0	0	0	12	1	0	10	10	10	5	0	12	0	41
1974	0	0	0	0	0	0	0	0	16	3	0	23	32	32	2	0	16	0	55
1975	0	0	0	0	0	0	0	0	22	1	0	15	23	23	6	0	22	0	141
1976	0	0	0	0	0	0	0	0	31	1	0	24	30	30	0	0	31	0	173
1977	0	0	0	0	0	0	0	0	15	0	0	23	27	27	72	1	0	282	282
1978	0	0	0	0	0	0	0	0	7	0	0	16	20	20	4	10	7	0	333
1979	0	0	0	0	0	0	0	0	16	3	0	50	85	85	4	22	16	0	306
1980	0	0	0	0	0	0	0	0	38	1	1	85	130	134	6	2	38	1	412
1981	0	0	0	0	0	0	0	0	37	2	4	169	278	278	1	3	37	4	496
1982	0	0	0	0	0	0	0	0	61	7	1	74	253	253	7	3	61	1	616
1983	0	0	0	0	0	0	0	0	74	6	0	115	241	241	48	1	74	0	716
1984	0	0	2	6	0	0	0	0	89	5	2	115	519	519	39	14	89	2	920
1985	0	0	0	0	0	0	0	0	101	5	3	546	912	913	62	15	101	3	1084
1986	0	1	0	0	0	0	0	0	102	3	4	775	962	964	86	7	102	4	858
1987	6	0	1	0	0	0	0	0	51	13	3	561	676	677	53	49	51	3	586
1988	34	5	0	5	0	0	0	0	69	24	8	634	771	775	35	56	69	8	1028
1989	37	0	0	2	12	0	0	0	112	3	27	1228	1380	1395	149	58	112	27	1360
1990	4	1	0	2	2	0	0	0	112	5	34	2432	2671	2684	147	121	112	27	1429
1991	76	0	8	0	0	0	0	0	226	0	50	3559	3827	3915	193	137	226	50	1411
1992	31	0	27	3	2	24	20	16	118	0	30	3559	3827	3915	193	137	118	30	1411



C19 - Arms and ammunition, Parts thereof

Imports (billions of dollars)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA3	EALE6	USA	Japan	ROW
1970	1	0	0	0	1	0	0	0	4	0	0	29	32	32	0	2	4	0	0
1971	1	0	0	0	1	0	0	0	6	0	0	34	35	38	2	3	6	0	0
1972	2	0	0	0	0	0	0	0	13	0	0	55	57	60	0	3	6	0	3
1973	6	0	0	0	3	0	0	0	13	0	0	48	50	55	1	9	13	0	6
1974	7	0	0	0	2	0	0	0	13	1	0	52	54	56	0	9	13	0	14
1975	8	0	0	0	5	0	0	0	24	2	0	87	94	104	0	17	17	0	9
1976	10	0	0	0	4	0	0	0	24	2	0	219	226	237	6	21	24	0	15
1977	10	0	0	0	6	0	0	0	27	3	0	219	228	237	0	17	24	0	15
1978	21	0	0	0	7	0	0	0	33	2	0	152	158	175	0	29	37	0	20
1979	29	0	0	0	11	0	0	0	63	4	1	269	277	284	1	37	53	1	12
1980	33	1	0	0	12	0	0	0	93	4	2	388	405	421	31	57	63	2	14
1981	19	1	0	0	1	0	0	0	83	3	1	751	776	791	71	21	21	1	30
1982	38	3	0	0	6	0	0	0	146	0	1	906	911	921	110	42	405	1	74
1983	42	5	0	0	6	0	0	0	146	0	3	937	977	1006	81	53	146	3	118
1984	90	3	0	0	5	0	0	0	70	0	4	1109	1141	1240	13	81	118	12	18
1985	56	0	0	0	21	0	0	0	118	13	12	783	806	823	13	98	70	4	24
1986	79	0	0	0	8	0	0	0	148	0	0	970	986	1000	70	78	148	7	39
1987	58	0	0	0	19	0	0	0	60	0	0	689	712	745	6	77	60	0	28
1988	115	1	0	0	9	0	0	0	98	0	4	592	605	646	20	134	98	0	29
1989	97	5	0	0	16	0	0	0	122	0	0	1199	1228	1300	6	120	122	0	38
1990	187	4	0	0	24	0	0	0	128	0	0	1735	1779	1807	8	254	128	1	51
1991	360	0	0	0	27	0	0	0	211	0	2	2020	2091	2199	11	311	231	1	93
1992	140	0	0	0	13	0	0	0	280	1	1	1917	1992	2051	7	159	280	1	2078

Arms and ammunition, Parts thereof

C20 - Miscellaneous manufactured articles

Imports (million of dollars)

Year	Total C20	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Greece	Cyprus	Yugoslavia	Turkey
1970	220	23	3	2	65	47	12	0	2	0	1	1	0	0	3	3	0	0	0	0	0
1971	249	27	4	2	74	50	20	0	7	0	2	2	0	1	3	5	0	0	1	0	0
1972	289	36	6	2	75	57	27	0	3	0	2	2	0	0	2	5	0	0	0	0	0
1973	388	47	7	7	112	67	27	0	13	0	2	2	1	0	3	8	0	0	0	0	0
1974	377	45	11	4	101	65	27	0	3	0	0	2	1	0	4	0	0	0	0	0	0
1975	591	84	12	7	127	107	51	0	5	0	5	4	3	0	14	11	0	0	0	0	0
1976	726	72	12	6	161	140	65	1	13	0	6	8	6	0	9	11	0	0	0	0	0
1977	989	101	17	7	225	191	106	1	10	0	8	5	6	0	9	9	0	0	0	0	0
1978	1295	136	20	10	304	262	144	1	12	0	12	6	7	0	27	17	0	0	0	0	0
1979	1698	203	36	16	361	346	189	14	31	0	14	8	12	1	15	22	0	0	0	0	0
1980	1764	203	41	12	374	382	167	16	21	0	17	13	8	2	20	22	0	0	0	0	0
1981	2990	293	74	40	756	997	215	5	48	0	22	8	15	2	40	31	0	0	0	0	0
1982	4181	385	95	40	1072	1027	231	9	59	0	45	13	17	2	43	69	0	0	0	0	0
1983	3886	355	121	72	991	987	160	17	49	6	52	21	25	4	50	45	0	0	0	0	0
1984	5303	522	187	111	1470	1590	160	13	77	6	83	28	41	8	67	90	0	0	0	0	0
1985	6033	681	224	173	2024	1980	318	20	82	0	169	49	86	14	102	99	0	0	0	0	0
1986	9293	661	183	184	3810	1849	331	35	84	0	120	43	38	17	128	132	0	0	0	0	0
1987	13035	1092	225	285	5894	3003	518	41	131	19	189	73	60	17	175	181	2	1	1	1	1
1988	21486	2332	232	670	4467	6321	883	64	226	18	405	90	115	64	235	184	0	0	0	0	0
1989	38435	2239	618	1376	7701	13760	1466	108	354	70	723	110	122	162	326	470	0	0	0	0	0
1990	51441	3090	737	1479	10172	18192	2086	113	479	10	1260	120	199	295	575	700	0	0	0	0	0
1991	69701	3967	1078	2140	12595	21642	2846	115	678	17	1725	161	216	161	551	680	0	0	0	0	0
1992	84661	5312	729	2810	15172	25191	3691	619	862	48	1945	148	261	151	765	1007	0	0	0	0	0

Exports (million of dollars)

1970	51	4	0	0	2	0	9	1	6	0	0	0	0	0	0	0	0	0	0	0	0
1971	48	6	1	0	4	4	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0
1972	70	16	0	0	15	110	6	0	7	0	0	0	0	0	0	0	0	0	0	0	0
1973	217	31	0	1	20	44	4	0	12	0	0	0	0	0	0	0	0	0	0	0	0
1974	226	46	0	1	11	23	11	0	15	0	0	0	0	0	0	0	0	0	0	0	0
1975	255	42	3	4	17	28	14	0	17	0	0	0	0	0	0	0	0	0	0	0	0
1976	304	37	4	8	17	38	19	0	17	0	0	0	0	0	0	0	0	0	0	0	0
1977	424	27	3	12	22	61	19	0	19	0	0	2	0	0	0	0	0	0	0	0	0
1978	438	21	5	11	35	42	22	1	18	0	0	2	2	0	0	0	0	0	0	0	0
1979	465	30	6	5	28	28	35	0	26	0	0	0	2	0	0	0	0	0	0	0	0
1980	589	18	8	11	33	73	41	0	26	0	0	0	0	0	1	3	0	0	0	0	0
1981	689	17	3	8	36	84	23	0	18	0	0	0	1	0	0	0	0	0	0	0	0
1982	598	32	5	4	36	64	23	0	12	0	0	0	0	0	5	1	0	0	0	0	0
1983	810	25	6	10	33	114	46	0	36	0	0	0	0	1	4	0	0	0	0	0	0
1984	1239	35	6	10	33	244	51	0	60	0	0	0	0	0	11	2	0	0	0	0	0
1985	1102	57	1	6	59	181	70	0	60	0	0	0	4	2	9	2	0	0	0	0	0
1986	1314	54	13	11	90	139	75	0	41	0	0	1	10	4	8	4	0	0	0	0	0
1987	1323	86	18	14	216	144	81	0	48	12	0	1	12	2	11	11	1	1	1	1	1
1988	1881	90	18	14	338	228	81	0	38	3	0	1	18	2	16	17	0	0	0	0	0
1989	3591	195	46	82	519	328	210	0	46	4	29	0	28	2	32	14	0	0	0	0	0
1990	684	64	60	37	759	779	391	14	48	20	64	0	43	15	18	32	0	0	0	0	0
1991	8101	1966	89	158	1176	1197	395	21	88	11	64	2	96	18	69	73	0	0	0	0	0
1992	9836	1021	117	199	1564	664	762	37	82	41	167	10	90	32	63	99	0	0	0	0	0

C28 - Miscellaneous manufactured articles

Imports (millions of dollars)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EEC	EEC9	EEC11	EFTA5	East Eur	USA	Japan	ROW
1970	0	2	0	0	3	3	1	0	10	0	17	140	154	135	7	9	10	17	22
1971	0	1	0	0	3	2	1	0	7	0	20	157	184	190	11	8	7	20	13
1972	0	2	1	1	4	2	2	0	15	1	23	176	199	201	9	11	15	33	30
1973	0	1	2	2	3	3	2	0	15	0	27	240	280	282	14	11	15	27	39
1974	0	1	2	3	3	1	1	0	24	1	38	226	256	256	11	8	24	38	40
1975	0	2	3	3	5	2	2	0	34	0	57	337	393	398	32	15	34	57	55
1976	0	3	3	3	6	0	2	0	29	0	89	391	470	478	74	14	29	89	84
1977	0	5	3	0	5	4	2	0	42	0	121	541	638	666	29	15	45	121	116
1978	0	5	0	0	5	2	1	0	45	0	86	591	698	742	911	57	13	86	183
1979	0	6	2	2	19	2	0	0	82	1	121	962	1196	1210	58	29	82	97	222
1980	0	6	8	7	12	1	0	0	78	1	156	1012	1216	1233	63	33	78	156	199
1981	0	12	7	16	13	1	0	3	133	4	236	1760	2028	2050	96	51	133	236	424
1982	0	17	6	13	17	5	0	19	106	3	293	2695	2994	3039	144	68	106	293	531
1983	0	15	0	0	17	5	0	2	110	2	302	2326	2740	2792	145	40	110	302	497
1984	0	10	0	0	42	1	0	4	45	2	371	3633	3971	4060	374	59	45	371	734
1985	1	35	14	61	57	3	0	3	93	0	359	4702	5092	5261	290	118	95	359	810
1986	0	19	7	22	84	2	0	6	90	4	461	6687	7137	7257	358	94	90	461	1033
1987	2	16	22	22	84	6	3	1	186	4	694	8409	9189	9397	504	156	186	694	2098
1988	2	101	9	128	128	6	9	21	717	7	717	14042	15212	15635	688	279	717	717	2849
1989	4	120	14	156	156	1	19	16	936	10	884	24374	27202	27993	1190	380	936	884	7450
1990	9	95	33	172	155	30	30	34	985	24	1041	33671	36349	37618	1887	412	985	1041	9497
1991	18	68	68	182	22	20	128	17	1618	60	1923	41582	45421	47183	1771	475	1618	1923	16733
1992	13	0	122	312	52	59	303	14	2301	44	2493	49134	54328	56321	2431	957	2301	2493	20134

Exports (millions of dollars)

Year	USSR	DDR	Poland	Czechoslovakia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EEC	EEC9	EEC11	EFTA5	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	0	0	0	11	0	1	8	23	23	0	2	11	1	14
1971	0	0	0	0	0	0	0	0	11	0	1	14	27	27	0	0	11	1	9
1972	0	0	0	0	0	0	0	0	14	1	0	26	39	39	0	0	14	0	17
1973	1	0	1	0	0	0	0	1	12	1	2	157	173	173	0	5	12	2	23
1974	10	0	0	0	0	0	0	3	22	2	6	111	137	137	0	13	22	6	48
1975	0	0	0	0	0	0	1	1	23	0	1	83	111	111	1	2	23	1	115
1976	2	0	0	0	0	0	0	0	39	0	2	104	135	135	8	3	39	2	117
1977	0	0	0	0	0	0	0	0	48	2	3	104	125	163	9	0	48	3	201
1978	0	0	0	0	0	0	0	0	32	2	2	114	143	155	5	3	32	2	239
1979	0	0	0	0	0	0	0	0	39	2	4	118	179	179	6	1	39	4	235
1980	0	0	0	0	0	0	0	0	57	1	3	143	210	210	23	2	57	3	284
1981	0	0	0	0	0	0	0	0	57	1	3	156	197	197	6	2	57	4	364
1982	0	0	0	0	0	0	0	0	12	3	4	141	196	196	6	2	112	4	321
1983	0	0	0	0	0	0	0	0	63	1	2	174	196	196	6	0	63	2	346
1984	0	0	0	0	0	0	0	0	63	5	7	204	256	256	6	0	63	7	476
1985	67	0	0	0	0	0	0	0	103	6	3	320	431	431	16	73	103	3	613
1986	0	0	0	0	0	0	0	0	100	10	0	298	428	428	17	2	100	0	555
1987	0	0	0	0	0	0	0	0	102	23	9	307	423	435	23	12	102	9	733
1988	8	1	1	0	0	0	0	0	108	9	3	470	621	634	33	22	108	3	733
1989	1	0	0	0	0	0	0	0	70	20	10	788	838	843	47	29	70	10	882
1990	9	0	0	0	0	0	0	0	239	21	13	1158	1417	1454	76	26	239	13	1739
1991	47	0	0	0	0	0	0	0	224	67	24	1566	2192	2872	110	126	224	24	1865
1992	128	0	0	0	0	0	0	0	269	110	130	3568	4449	4657	294	463	269	120	2779

C21 Works of art, collectors' pieces and antiques

(Imports (billions of drachmas))

Year	Total C21	France	Bel-Lux	Netherlands	Germany	Italy	UK	Ireland	Denmark	Portugal	Spain	Norway	Sweden	Finland	Switzerland	Austria	Iceland	Malta	Cyprus	Yugoslavia	Turkey
1970	4	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	4	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	6	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	6	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	8	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	45	1	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	56	1	0	0	0	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	21	1	0	0	0	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	99	3	0	0	0	12	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	138	23	0	0	5	18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	131	69	0	0	3	3	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	53	7	0	0	7	14	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1982	84	11	0	0	4	14	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	90	11	0	0	3	13	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	109	16	0	0	2	13	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	117	13	2	1	2	14	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	166	15	2	2	20	9	53	0	0	0	0	0	2	0	0	0	0	0	0	0	0
1987	2710	11	6	6	20	12	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	19423	6105	1338	1013	3043	2801	338	0	0	0	0	0	331	7	18	321	0	0	0	19	1
1989	32020	7642	2679	1355	7827	2783	604	0	1	44	1004	1	531	17	223	2603	0	0	0	30	19
1990	28015	7492	1877	809	4589	4580	83	96	0	1	305	0	267	308	45	1561	0	0	0	112	0
1991	n.a.	10754	1408	431	4621	6731	239	0	0	17	40	0	23	7	41	3062	0	0	0	72	0
1992	n.a.	4189	198	193	5061	1529	611	0	0	174	69	0	13	7	91	10148	0	0	0	0	208

(Exports (billions of drachmas))

1970	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	11	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
1984	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	21	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	16	1	2	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	5166	1	2	1	8	0	2618	0	40	163	0	42	396	2714	144	140	0	0	0	927	0
1989	31953	2647	1674	0	7864	1654	2647	0	511	154	804	319	2238	2957	113	267	0	0	0	1007	1064
1990	50456	3007	3199	5	14868	14335	2647	0	48	24	4528	112	1520	3133	54	88	0	0	0	342	1362
1991	42057	2369	3550	1	7754	11699	770	0	30	2	3866	0	1520	4278	44	28	0	0	0	0	421
1992	n.a.	2066	3924	2	10132	16761	2167	0	65	0	1378	0	2688	5163	93	5	0	0	0	9172	26

C21 - Works of art, collectors' pieces and antiques

Imports (billions of francs/m)

Year	USSR	DDR	Poland	Czech/Mia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	3	3	3	0	0	0	0	1
1972	0	0	0	0	0	0	0	0	0	0	0	4	4	4	1	0	0	0	1
1973	0	0	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	2
1974	0	0	0	0	0	0	0	0	0	0	1	4	4	4	0	0	0	0	3
1975	0	0	0	0	0	0	0	0	0	0	0	5	6	6	0	0	0	0	3.4
1976	0	1.4	0	0	0	1	0	0	1	0	0	7	10	10	0	15	0	0	3.1
1977	0	0	0	0	0	0	0	0	0	0	0	7	11	11	2	0	0	0	7
1978	4.4	0	0	0	0	0	0	0	5	20	0	16	21	21	2	4.4	5	0	27
1979	5.9	4	0	0	0	0	0	0	6	22	0	46	54	54	6	6.3	6	0	29
1980	2.7	0	0	0	0	0	0	0	7	3	0	75	89	89	2.7	2.7	6	0	20
1981	0	0	0	0	0	0	0	0	6	0	0	28	31	32	5	0	7	0	19
1982	0	0	0	0	0	0	0	0	6	0	0	29	49	49	0	0	6	0	19
1983	0	0	0	0	0	0	0	0	9	0	0	27	52	52	3	0	9	0	26
1984	0	0	0	0	0	0	0	0	13	0	0	31	75	75	7	3	13	0	11
1985	0	0	0	0	0	0	0	0	22	7	0	37	75	75	2	0	22	0	18
1986	0	0	0	0	0	0	0	0	22	11	0	52	105	105	13	0	19	0	28
1987	0	0	0	0	0	0	0	0	3	1	0	52	94	94	19	0	3	0	23.95
1988	4.1	0	1.2	6.02	9.2	0	0	0	6.17	1.9	0	143.00	148.78	138.86	10.16	7.52	6.17	4.81	6.71
1989	6.8	0	2.1	9.75	19.6	0	0	0	18.10	10	3	222.86	228.91	231.96	31.10	12.91	18.10	3	26.10
1990	2.26	0	1	8.56	4.0	0	0	0	11.02	9	0	193.47	195.27	197.93	9.34	11.07	11.02	0	40.79
1991	2.26	0	0	4.62	11.4	0	0	0	1.75	4	3	239.45	241.84	242.21	31.33	9.68	1.75	3	n.a.
1992	1.59	0	0	4.63	2.26	5.3	2.44	1	3.22	1.5	1	111.70	11.781	120.24	102.29	8.48	3.22	1	n.a.

Exports (billions of francs/m)

Year	USSR	DDR	Poland	Czech/Mia	Hungary	Romania	Bulgaria	Albania	USA	Canada	Japan	EU6	EU9	EU11	EFTA5	East Eur	USA	Japan	ROW
1970	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1971	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1973	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1974	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1977	0	0	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	1
1978	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1
1979	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1980	0	0	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0	0	5
1981	0	0	0	0	0	0	0	0	0	0	0	4	4	4	0	0	0	0	3
1982	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
1983	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5
1984	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4
1985	0	0	0	0	0	0	0	0	1	0	0	1.4	1.4	1.4	0	0	1	0	6
1986	0	0	0	0	0	0	0	0	0	0	0	8	8	8	8	0	0	0	8
1987	0	0	0	0	0	0	0	0	0	0	0	12	12	12	0	0	0	0	51.54
1988	7.82	0	0	0	0	0	0	0	7.3	2	3	138.39	164.97	166.60	14.36	8.83	7.3	3	108.88
1989	6.16	0	3.5	19	0	0	0	0	6.13	30	0	354.14	383.76	395.34	28.94	9.11	6.13	0	350.4
1990	19.63	7	0	0	0	0	0	0	6.25	34	5.4	253.73	261.91	307.43	50.37	20.60	6.25	5.4	355.8
1991	1.7	0	0	0	0	0	0	0	13.17	8.5	9.9	n.a.	n.a.	309.30	n.a.	n.a.	n.a.	n.a.	n.a.
1992	3.63	0	0	3	0	0	0	0	11.56	30.0	2.9	n.a.	n.a.	365.43	n.a.	n.a.	n.a.	n.a.	n.a.

Greek Invisible Receipts (thousands of US Dollars)

Source: Bank of Greece, Monthly Statistical Bulletin, various editions.

Year	Total	1. Travel	2. Transport	Shipowners' remittances		Seamen remittances		Contributions to seamen's pension funds		Freight	Supplies and repairs	Passenger fares	3. Unrequited transfers	Emigrants' remittances	Pensions	EU transfers
				remittances	remittances	remittances	seamen's	remittances								
1971	1295671	305299	369226	219489	99442	20275	19679	2266	4075	472814	455602	14062	0			
1972	1608600	392700	435581	237544	121202	35258	23073	10289	8215	577978	559632	15663	0			
1973	2197895	514872	600087	324676	169160	34166	37101	22337	12697	737847	714633	20734	0			
1974	2462509	435989	874410	524281	201698	41787	40376	48514	17754	648225	624409	20868	0			
1975	2852240	643557	844845	417075	239836	51842	55463	55315	25314	797122	757365	24189	0			
1976	3189797	823665	914149	515745	225199	88088	47252	30191	7674	814393	777208	25976	0			
1977	3700119	980597	1126626	636461	260646	98429	66677	60152	4261	925495	899185	25659	0			
1978	4422620	1326301	1177166	685802	262961	115563	72603	36874	3363	985438	951427	33014	0			
1979	5663002	1662308	1518892	862117	338656	170419	81989	58673	7038	1168979	1136915	31307	0			
1980	6159378	1733532	1815871	1067340	365515	204997	92201	83189	2629	1083815	1059427	23593	0			
1981	6482011	1880958	1826359	1113711	300868	228315	68931	111476	3058	1241289	1057094	23011	148104			
1982	6097559	1527248	1656607	989641	263134	222670	46099	131707	3356	1602937	1015599	27367	550000			
1983	5529191	1175727	1308680	727230	197090	258962	49009	73090	3299	1770051	911734	22929	834200			
1984	5288683	1312751	1094710	616316	173243	210806	57498	31994	4853	1636695	898066	23403	714900			
1985	5266513	1428030	1038527	551622	154256	198158	62642	63907	7942	1670278	774469	26279	869123			
1986	6511660	1834218	1000881	521882	158634	154948	80656	72806	11915	2377871	942300	40921	1392047			
1987	8566667	2268123	1193073	679095	167357	116889	115419	86720	27593	3045341	1333825	45015	166536			
1988	10099019	2396083	1379394	895464	172349	62735	137391	82347	28808	3663728	1675052	52126	1934657			
1989	10281220	1975984	1374819	880895	135489	119295	142947	80356	15837	4017437	1349668	44321	2601743			
1990	13040815	2586768	1761857	1185902	180351	82114	192271	91978	29241	4732527	1774218	53666	2901000			
1991	15353775	2567381	1774004	1144391	215842	100285	154317	114062	45107	6204826	2115085	50162	4034000			
1992	17265377	3271781	1993097	1329857	262650	112858	128060	67284	92388	6493724	2366426	65075	4058000			
1993	17023070	3335150	1919961	1324233	243417	89606	117987	77276	67442	6520629	2359830	71151	4085000			
1994	18767158	3904883	1957128	1407508	193738	88421	100386	118869	48206	6969016	2575980	81075	4307000			
1995	20770428	4135797	2189771	1650218	208043	101694	47773	135503	46540	8043397	2981700	88977	4968000			
1996	20444113	3723147	2263461	1691233	195135	129383	92564	119571	35575	8056462	2894478	101525	5057000			



Greek Invisible Receipts (thousands of US Dollars)

Year	Other	4. Interest	Official	Private	5. Dividends and profits	6. Official services	7. Withdrawals		8. Other receipts	Commissions	Labour income	Non-merchandise insurance	Communications	Other
							out of	drachma deposits						
1971	1179	8564	7800	764	515	33362	0	105891	11368	10855	3893	2220	77373	
1972	711	26061	24994	1064	365	41122	0	134793	12583	13802	3173	2413	102822	
1973	507	50856	48325	2531	1544	91691	0	200998	21218	13972	6047	1964	157797	
1974	974	85588	79941	5647	91	118147	96610	203449	24540	25596	6370	1956	144987	
1975	13593	95080	86741	8339	188	47550	111537	312361	27280	39885	7090	2105	236001	
1976	9233	87990	77047	10943	20502	63103	154816	311179	13815	28030	6215	4063	241056	
1977	651	68692	63687	5005	9327	69337	202138	317907	38238	39682	5054	12155	222778	
1978	997	109308	99010	10298	17328	81774	295022	430283	53130	38307	5248	8130	325468	
1979	757	196726	180739	15987	12695	95725	394786	612891	65510	44080	5963	8264	489074	
1980	795	193536	180097	13439	5186	90385	490809	746244	82712	53164	5654	4909	599805	
1981	13080	227600	196937	30663	6227	90820	438420	770338	64834	112139	11433	15493	566439	
1982	9971	134118	101168	32950	2852	58185	370716	744896	81261	124351	8779	17074	513431	
1983	1188	77850	57062	20788	2851	44898	411210	737924	49512	52008	4456	13107	618841	
1984	326	130219	90618	39601	5479	45124	372278	691427	61161	47025	5084	14638	563638	
1985	407	120513	79025	41488	810	32985	451012	518358	52392	31722	5376	4911	423957	
1986	2603	77721	58186	19535	4156	36694	596458	583661	41871	25725	10999	30443	474623	
1987	965	110271	83844	26427	1171	41593	1135364	771731	39362	73557	7756	28084	622972	
1988	1893	201002	171300	29702	4334	30263	1327319	1096696	42779	61761	7463	66970	917723	
1989	21705	243622	222574	21048	3009	61071	1493856	1111422	38040	36688	6761	45505	984428	
1990	3643	252741	198967	53774	18331	45690	2241967	1400934	57111	41625	7521	63998	1230679	
1991	5579	346698	271679	75019	15665	79968	2765000	1600233	69326	58168	11204	53891	1407644	
1992	4223	358031	279380	78651	31895	56191	3012000	2048658	51224	164552	10073	64360	1758449	
1993	4648	566452	477562	88886	65403	60849	2290000	2264626	53979	294935	13082	75465	1827165	
1994	4961	743936	650343	93593	44521	71023	2640000	2436651	54126	310246	17338	98712	1956229	
1995	4720	986697	928327	58370	22214	76553	2810000	2505999	71729	304413	23584	86952	2019321	
1996	3459	908976	770756	138220	62359	85322	3005670	2338680	59027	185156	28134	71037	1995326	

### Greek Invisible Payments (thousands of US Dollars)

Source: Bank of Greece, Monthly Statistical Bulletin, various editions.

Year	Total	1.Travel	Tourism	Education	Health care	2.Transportation	Shipping office expenses	Passenger fares	Supplies and repairs	3.Unrequited transfers	Pensions	Other
1971	317264	73655	52052	19393	2210	62797	17693	15855	29249	1847	1847	0
1972	402086	95798	65780	27238	2780	77693	23409	1,962	36322	3499	3499	0
1973	570276	113297	72536	37214	3574	141976	37564	29696	74716	3566	3566	0
1974	720365	130052	74067	52155	3830	154120	49408	31590	73122	3552	3552	0
1975	764744	154624	91867	56721	6036	172441	37634	50659	84148	2718	2718	0
1976	786804	150668	89698	55586	5384	144582	35677	34565	74340	2142	2142	0
1977	876873	164016	88977	69304	5735	155111	70933	42705	41473	2743	2743	0
1978	1037719	223844	142175	73923	7746	177585	83255	62126	32204	3414	3414	0
1979	1366682	302391	202184	88238	11969	206865	109379	48044	49442	3621	3621	0
1980	1566001	309111	190242	102635	16231	265741	127078	72329	66334	3594	3594	0
1981	2206135	361125	249024	96282	15819	371628	208401	91358	71929	3969	3969	0
1982	2055766	374233	231193	121008	22032	260641	143555	54067	63019	4151	4151	-0
1983	2,191,64	362176	224511	119470	18195	229986	107526	73178	49282	3609	3609	0
1984	1886152	338689	224086	98671	15932	170293	71652	74481	24160	3853	3853	0
1985	2268334	367542	250361	98851	18330	204894	87751	93452	23691	3728	3728	0
1986	2597980	494206	352404	117015	24787	195687	74717	96358	24612	8113	8113	0
1987	2843344	507536	348266	125794	33476	231010	82501	126200	22309	8182	8182	0
1988	3425020	732774	518175	162940	51659	238268	88611	113515	36142	13857	13857	0
1989	3733995	816310	591005	165983	59322	250725	112853	113945	23927	13182	13182	0
1990	4274788	1089472	827312	190646	71514	285799	117662	146640	21497	12287	12287	0
1991	4566677	1015191	738432	199774	76985	376755	194861	157993	23901	15613	15613	0
1992	5450642	1188259	843066	255482	89711	422510	233252	164164	25094	14288	14288	0
1993	5158231	1003365	692459	231274	79632	293798	175920	98997	18881	17350	17350	0
1994	5366048	1124784	828867	222839	73029	313763	161157	129649	22957	28325	28325	0
1995	6774980	1322863	990467	260411	71985	421605	199192	171402	51011	31161	31161	0
1996	6617709	1210084	909326	233298	67460	431181	209535	185906	35740	30654	30654	0



Greek Invisible Payments (thousands of US Dollars)

Year	4. Interest payments		5. Dividends and profits		6. Official services		7. Other payments		Non-merchandise			Other	
	Official	Private	Official	Private	Official	Private	Commissions	Labour income	Insurance	Communications	Royalties	Other	
1971	67113	32187	34926	5302	34724	71826	14732	18019	8493	3910	0	26672	
1972	76557	42484	34093	6091	47158	95290	18594	24619	11469	3549	7157	29902	
1973	90228	55728	34500	14083	60846	146280	26848	40594	20899	6987	9325	4162	
1974	169354	122264	47090	11420	88121	163746	31372	40185	21749	3823	12470	54147	
1975	182295	136358	45937	12813	67087	172766	30374	46261	21465	5212	12559	56895	
1976	179512	145738	33774	40111	67640	202149	34464	55478	16719	3395	13393	88928	
1977	187114	137952	49162	28650	98823	240416	47753	55069	16549	5738	15028	99870	
1978	235247	201963	33284	33471	115428	248730	58010	59353	19501	6167	15506	94477	
1979	327621	276389	51232	39656	119848	366680	94843	59353	22756	14767	17696	157265	
1980	437798	351972	85826	28020	151186	370551	102972	58488	19694	9457	19820	160120	
1981	802501	702406	100095	20609	169253	477050	117652	65390	16077	11528	18760	247733	
1982	768756	641262	127494	15646	150777	481562	87600	63541	9574	23065	11534	286248	
1983	840250	728248	112002	33748	106953	442442	79691	76900	11876	35150	13923	224902	
1984	1070088	922276	147812	174535	11896	116798	356510	71806	58336	17913	21338	12582	
1985	1221954	1083343	138611	15152	119888	335176	76939	45461	20111	11092	8136	173437	
1986	1329227	1216383	112844	24415	141549	404783	86589	59125	20316	21175	10044	207534	
1987	1496518	1371052	125466	40430	152066	407602	87872	76923	29108	19905	11220	182574	
1988	1627968	1528310	99658	55541	189229	567383	94089	95037	28020	21732	12954	315551	
1989	1726867	1648556	78311	67975	213374	645562	79235	118505	28257	37730	15204	366631	
1990	1824108	1732964	91144	78329	243133	741660	86090	120922	41334	29487	15412	448415	
1991	1936577	1812182	124395	77389	242956	902196	91062	118328	30033	62794	13172	586807	
1992	2261978	2158450	103528	107986	264805	1190816	90253	172990	36692	33854	19412	837615	
1993	1983753	1803265	180488	102352	334176	1423437	128454	250569	51379	76725	26745	889565	
1994	1985367	1856477	128890	116167	353655	1443987	121676	221510	44080	55719	46431	954571	
1995	2489942	2232659	257283	192719	365067	1651623	153983	300426	49723	95135	58030	994326	
1996	2818060	2516573	401487	185196	407912	1534622	117684	319684	61610	77910	56942	901100	