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Greece: Selected Issues

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INTERNATIONAL MONETARY FUND

GREECE

Selected Issues

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Approved by the European I Department

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Greece: Selected Economic Indicators
(Percentage changes, unless otherwise indicated)

	1994	1995	1996	1997	Est. 1998	Proj. 1999	Proj. 2000
Domestic economy							
GDP	2.0	2.1	2.4	3.2	3.7	3.3	3.6
Output gap	-1.2	-1.0	-0.9	-0.4	0.3	0.4	0.6
Domestic demand	1.0	4.4	3.0	3.5	3.3	3.4	3.2
Private consumption	2.0	2.7	1.9	2.5	1.8	2.1	2.1
Public consumption	-1.1	5.6	1.0	-0.4	0.4	0.0	0.0
Gross fixed capital formation	-1.0	7.8	11.1	10.7	9.8	8.4	6.8
Private	-0.1	5.8	12.4	11.7	8.4	7.5	6.0
Public	-4.0	14.3	7.4	7.5	13.7	11.0	9.0
Change in stocks (contribution)	-0.4	-0.1	-0.8	-1.3	-1.5	-1.5	-1.4
Foreign balance (contribution)	0.9	-2.8	-1.0	-0.8	-0.1	-0.3	0.1
Exports	6.6	0.5	3.0	5.3	9.2	5.5	8.8
Imports	1.3	9.2	4.9	5.4	5.7	4.7	5.4
Unemployment rate	9.6	10.0	10.3	10.3	10.1	10.3	10.2
Employment	1.9	0.9	1.3	-0.5	0.2	0.2	0.6
Average compensation of employees (economy wide)	10.8	12.9	11.8	11.0	6.3	4.3	4.0
Unit labor costs (economy wide)	10.7	11.6	10.5	7.0	2.8	1.2	1.0
Consumer prices, end of period	10.7	7.9	6.9	4.5	3.7	2.0	3.3
Consumer prices, period average	10.9	8.9	8.2	5.5	4.8	2.5	2.5
EU harmonized consumer inflation (HICP), period average	...	...	7.9	5.4	4.5	2.3	2.2
GDP deflator	11.2	9.8	7.9	6.9	5.0	2.3	1.6
External accounts (in percent of GDP)							
Trade balance (national accounts)	-11.9	-12.8	-12.6	-12.3	-12.7	-12.5	-12.9
Current account (national accounts)	-0.5	-2.4	-2.6	-2.6	-2.7	-2.3	-2.4
Current account (settlements)	-0.1	-2.5	-3.7	-4.0	-3.0	-2.9	-3.7
Foreign exchange reserves (US$ billions)	14.3	14.6	17.3	12.4	17.2	20.7 1/	...
Drachma/euro (period average) 2/	-6.6	-4.1	-0.5	-2.4	-6.9	0.0 3/	...
NEER	-5.2	-1.6	-0.4	-1.5	-4.6	-1.1 4/	...
REER (consumer prices)	1.1	3.3	4.3	0.9	-2.6	-1.0 4/	...
REER (manufacturing ULCs)	2.2	6.6	3.4	3.5	-4.1	-1.8 5/	...
Public finances (in percent of GDP)							
General government							
Current revenues	36.6	37.7	38.0	38.9	39.3	39.6	39.2
Current expenditures	43.7	44.9	43.0	40.6	40.0	39.4	38.8
Primary expenditures	29.6	31.9	31.0	31.0	30.9	30.7	31.1
Interest expenditures	14.1	12.9	12.0	9.6	9.1	8.7	7.7
Net capital spending	2.8	3.4	2.5	2.2	1.7	1.9	2.0
Balance	-7.1	-10.6	-7.5	-4.0	-2.4	-1.7	-1.5
Primary balance	4.1	2.3	4.5	5.7	6.7	7.0	6.1
Structural primary balance	4.5	2.7	4.8	5.8	6.6	6.9	5.9
Structural overall balance	-9.6	-10.2	-7.2	-3.8	-2.5	-1.9	-1.8
Debt	109.3	110.1	112.2	109.5	106.1	102.1	98.6
Financial variables							
M4N 6/	...	13.0	15.3	7.8	9.8	5.6 7/	...
Total credit	8.7	9.6	8.3	11.4	10.0	9.8 8/	...
3-month treasury bill rate (average)	18.2	14.3	11.9	10.1	11.9	9.8 9/	...
12-month treasury bill rate (average)	19.0	15.5	12.8	10.3	11.5	8.7 10/	...
Short-term bank lending rate (average)	26.4	21.1	20.2	19.1	17.6	14.8 11/	...

Sources: Data provided by the authorities; and Fund staff estimates and projections.

1/ End-September.
2/ Drachma/ECU before 1999.
3/ End-September compared with end-December.
4/ July compared with December.
5/ August compared with December.
6/ M4N is defined as M4 plus foreign currency deposits by residents and investments in money market mutual funds by investors. M4 is the sum of currency, private deposits, bank bonds, and repos (all of which constitute M3), plus private sector holdings of T-bills and government bonds of maturity of up to one year.
7/ 12-month change in August.
8/ 12-month change in June.
9/ Latest auction August 17, 1999.
10/ Latest auction September 28, 1999.
11/ June.

INTRODUCTION AND OVERVIEW

1. The government has set Greece's participation in EMU by January 2001 as its central economic goal. In the drive toward this goal—for which a positive outcome is now generally anticipated—the main remaining policy challenge is to achieve and sustain price stability.[1] The first three chapters of this selected issues paper examine various aspects affecting inflation prospects in Greece in both the near- and more medium-term horizons. In addition, Greece ranks among the few Fund member countries that have completed a self-assessment against the *IMF Code of Good Practices on Fiscal Transparency—Declaration on Principles.* Chapter IV presents an experimental report based on the self-assessment, along the lines of other such reports that have been prepared in the context of the Fund's recent initiatives on transparency, codes and standards. The final chapter outlines ways in which development of certain aspects of the fiscal information system could assist in addressing some of the medium and long-term issues of fiscal policy in Greece.

2. The strategy to bring inflation down to levels consistent with achieving the Maastricht criteria has involved a tight monetary policy stance, centered on high interest rates and a strong drachma within the ERM/ERM2 bands. While interest rate convergence at the long end of the spectrum has been substantial (with differentials against ten-year German-bond rates falling from more than 400 basis points in the third quarter of 1998 to less than 160 basis points at present), those at shorter maturities remain more than 700 basis points above equivalent euro rates. In addition, the drachma has been trading substantially above its central ERM2 parity rate. The prospect of EMU entry, with a complete convergence in short-term interest rates to euro-area levels and a depreciation of the drachma to its central parity, thus implies a significant easing of monetary conditions—in fact by an amount substantially larger than that experienced in a number of.other first-wave EMU entrants, some of which have subsequently recorded inflation rates appreciably above the euro average. Chapter I (by Phillip Swagel) attempts to econometrically determine the inflationary implications of the EMU-related easing of monetary conditions with a structural vector autoregression (VAR), and to estimate, as an illustrative exercise, the required fiscal offset in the absence of other anti-inflationary steps (notably wage moderation and structural reforms that enhance competition). It finds that the monetary easing would, ceteris paribus, impart an increase in inflation of almost 1½ percentage points by mid-2002, and twice this amount by 2003, with adverse implications for the sustainability of price stability. Absent other anti-inflationary steps, the cumulative fiscal contraction required to offset the easing of monetary conditions (based on a fiscal multiplier of 1.5) would be in excess of 3 percent of GDP over the next two years, with a further effort also required in the third year after the monetary easing. While recognizing that recent changes in the Greek economy suggest that the estimate of the inflationary impact

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[1] This topic has also been a focus of previous investigation by Fund staff. See "Post-devaluation Inflation Prospects: An Empirical Investigation," in *Greece: Selected Issues,* IMF Staff Country Report No. 98/100, September 1998.

of the monetary easing (and thus of the required fiscal offset) probably errs on the high side, the exercise is suggestive of the broad order of magnitude of the task at hand and indicative of the need to harness other policies (notably wage moderation and structural reforms) in securing price stability on a sustainable basis. In sum, a menu of instruments and reforms would best allow Greece to counter the inflationary consequences of the monetary easing implied by EMU convergence.

3.   In examining the influence of monetary easing on inflation and the needed offset to activity to maintain price stability, it could be questioned whether such an inherently simple model as employed in the previous chapter, utilizing variables pertaining to overall economic activity and estimated over a period during which financial markets have undergone fundamental change, can fully take into account all of the various factors that could potentially affect inflation. Specifically, it has been suggested that, owing to the large stocks of bank deposits and government paper held by Greek households, a decline in interest rates would entail a large reduction in household income that would depress consumption to such an extent that it might offset partially, or even fully, the expansionary impact of lower interest rates on other components of aggregate demand. Chapter II (by Ioannis Halikias) attempts to shed some light on this question by looking at the experience of, and model predictions for, three southern European economies in the euro area that, to varying degrees, bear some relevant similarities to Greece's situation, and that underwent a process of interest rate convergence in recent years.[2] While the results differ slightly depending on the model employed, the empirical findings suggest that policy formulation should not rely on the income effect on households to offset the expansionary impact of a reduction in interest rates. For all three countries considered, an interest rate cut boosts consumption (and overall economic activity), at least over a policy-relevant time horizon: there is a strong likelihood that this would hold for Greece as well.

4.   Looking beyond the short-run effects of monetary easing, it is also useful to examine factors that may have a more lasting influence on inflation in Greece. Chapter III (by Phillip Swagel) examines the "Balassa-Samuelson effect," which arises from the differential pace of convergence in the levels of productivity in Greece's tradable and nontradable sectors to those of trading partners. Economies that are experiencing higher productivity growth in the tradables sector than in nontradables will tend to have higher inflation rates for nontraded goods such as services, as nominal wage growth will tend to exceed productivity growth in the nontradables sector. This is especially relevant in economies such as Greece's in which a highly centralized system of wage setting ensures that wage growth in nontradables largely keeps pace with that in tradables, despite lower productivity growth. Overall inflation is a weighted average of inflation in the two sectors, so that the Balassa-Samuelson effects lead to higher inflation than would be the case were productivity growth even across sectors. In Greece, the Balassa-Samuelson effect is found to have contributed to an additional

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[2] A direct empirical investigation for Greece is severely hampered by data deficiencies.

1 percentage point to annual inflation on average over 1960–1996. This inflation differential leads to an appreciation of the real effective exchange rate based on relative consumer prices; however, as this appreciation reflects increased productivity in tradables, it would not represent a loss in external competitiveness. Looking forward, the Balassa-Samuelson effect can be expected to remain an influence on inflation, as the level of productivity in tradables in Greece remains substantially below that of its EU partners.

5.   The Greek authorities have completed a self-assessment against the *IMF Code of Good Practices on Fiscal Transparency—Declaration on Principles*. The assessment, which is reviewed in Chapter IV, indicates that significant steps have been taken toward improving fiscal transparency in recent years, while also acknowledging areas where further steps are to be taken. Some measures, consistent with the direction of current reforms, are suggested by the staff under each of the general principles of the transparency code. Emphasis is given to the need to extend the coverage of the information provided in the budget report to include all off-budget activities and extend the timeframe for budget analysis.

6.   Chapter V (by William Allan) examines three interrelated areas in which improvements in the fiscal information system could aid in policymaking: developing the accounting framework; assessing fiscal risks; and assessing the sustainability of fiscal policy. First, developing an accounting framework based on a general government balance sheet would provide an important basis for examination of long-term sustainability, help to impose discipline on year-to-year operational decisions in annual budgets, and facilitate the coordination of various decisions being made about the creation and disposal of public enterprise assets and government equity holdings. Second, a consolidated fiscal risk statement in each annual budget, incorporating information already provided (including the macroeconomic assumptions underlying the budget and information relating to the stock of outstanding government guarantees), as well as information relating to other contingent liabilities and the impact on the budget of variations in economic assumptions, would indicate to the public and financial markets how these risks have been taken into account in budget decisions. Third, the periodic preparation of long-term fiscal scenarios would provide a means to explore the impact of demographic and other structural changes that would affect the economy and fiscal position over an extended time period. This is especially relevant in the Greek context, in light of its presently high debt burden (although potentially mitigated through the privatization of a high stock of claims on state-owned enterprises), as well as by the anticipated pressures arising from rapid population aging early in the next century. Moreover, periodic assessments of fiscal sustainability could help resolve potential conflicts between the focus on short-term objectives and longer-term fiscal constraints.

I. Inflationary Implications of EMU-Related Monetary Easing: An Econometric Estimate[3]

7.   The gradual convergence of interest rates in Greece to those in EMU countries and the prospective depreciation of the drachma to its ERM2 central parity imply a substantial easing of monetary conditions, which, with the Greek economy operating fairly close to potential, is likely to have an appreciable inflationary impact. In this chapter, an econometric estimate of the influences on inflation in Greece is used to assess the likely magnitude of this impact. The chapter also provides, as an illustrative exercise, an estimate of the size of the required fiscal offset in the absence of other anti-inflationary steps (notably structural reforms that enhance competition).

8.   Inflation is assumed to depend on four quarterly lags of the following five variables: past inflation, the real short-term interest rate differential with Germany, and the growth rates of industrial production, nominal wages, and the nominal effective exchange rate. The estimation uses quarterly data from the beginning of 1987 to the end of 1998; the early part of the sample marks the beginning of financial liberalization in Greece, and also the period when the exchange rate became an increasingly important intermediate target for monetary policy.[4] Industrial production is used because GDP data are not available at a quarterly frequency, while the interest rate is the rate on bank deposits (which is linked to the short-term rate), since long-term rates and interbank rates are not available for Greece over the entire sample period. The real interest rate is computed by subtracting a measure of expected inflation from the nominal rate, where expected inflation is taken as the predicted values of a regression of inflation on eight quarterly lags of inflation. The real rate for Germany is obtained by subtracting actual inflation from the nominal short-term interest rate on three-month treasury bills.

9.   The model is a vector autoregression (VAR) with identifying restrictions on the contemporaneous interactions of the variables. This is a structural VAR of the type pioneered by Bernanke (1986) and Sims (1986), in which the interactions of the five variables are taken into account in determining the effect of shocks to any of the variables on the others. For example, increased activity affects inflation, wages, and the exchange rate within the quarter, and then these have second-round effects on other variables both within the quarter and in subsequent quarters. But activity is assumed to respond to the four other variables only with a one quarter lag, reflecting the relative fixity of production plans. Inflation in the current quarter is affected directly by activity, wages, and the exchange rate, with a one quarter delay before shocks to interest rates affect inflation, reflecting the lag in the transmission of monetary policy to the economy. Current quarter wage growth is affected only by activity—

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[3] Prepared by Phillip Swagel.

[4] See Detragiache and Hamann (1997).

this connection is strongly indicated in the estimation and presumably stems from the immediate effect of increased demand on overtime and thus on compensation (data on wages reflect total labor compensation). Reflecting the annualized system of wage bargaining in Greece, the other variables, including inflation, affect wages with a lag. In setting short-term interest rates, the monetary authorities of course have information on exchange rates at all times so that the real interest rate responds to exchange rates within the quarter, but is affected by the other variables only with a lag. Finally, although one would expect the nominal exchange rate to be directly affected by activity, inflation, and interest rates within the quarter, these effects are strongly rejected by the data (this possibly reflects use of the exchange rate as an intermediate target for policy); instead, nominal exchange rates are found to be affected only by activity within the quarter. Of course, allowing contemporaneous effects of activity, inflation, or interest rates on exchange rates hardly changes the results, since these coefficients are not statistically different from zero.

10.   The table below summarizes these restrictions and provides the estimated coefficients for the contemporaneous effect of a shock to a variable (columns) on each of the five variables (rows); these are the effects of changes that occur within the same quarter as a shock. The effect of a shock to a variable on itself is of course equal to 1, while the term "Lag" indicates that the contemporaneous effect is set to zero. Figure 1 shows the response of inflation over a 10-year horizon to one percentage point changes in the other variables; this is the dynamic impact of the effects in the table below worked out over time, allowing also for the consequences of changes in the lagged variables (the coefficients for which are not shown). For example, the table below shows that the direct effect of a shock to activity is to reduce inflation, presumably because productivity rises procyclically with activity. But higher activity raises wages and this feeds through to inflation, so that inflation rises by the third quarter following the shock to activity (as may be seen in Figure 1). Reflecting the effective indexation of wages through the play of catch-up clauses, Figure 1 shows a rapid passthrough of increased wages to inflation, with an essentially one-to-one relationship between wage growth and inflation about six quarters after an unexpected change in wages. However, recent disinflation in Greece has been aided by a notable moderation in wage settlements, so that it is possible that this effect will be attenuated in the future compared to the econometric results obtained from historical data. Since the wage-price link accounts for much of the persistence of higher inflation in response to shocks, this suggests that future shocks could lead to less inflation—this is a potentially significant development that cannot, however, yet be tested empirically.

Figure 1. Greece: Response of Inflation to Shocks
(Percentage points)
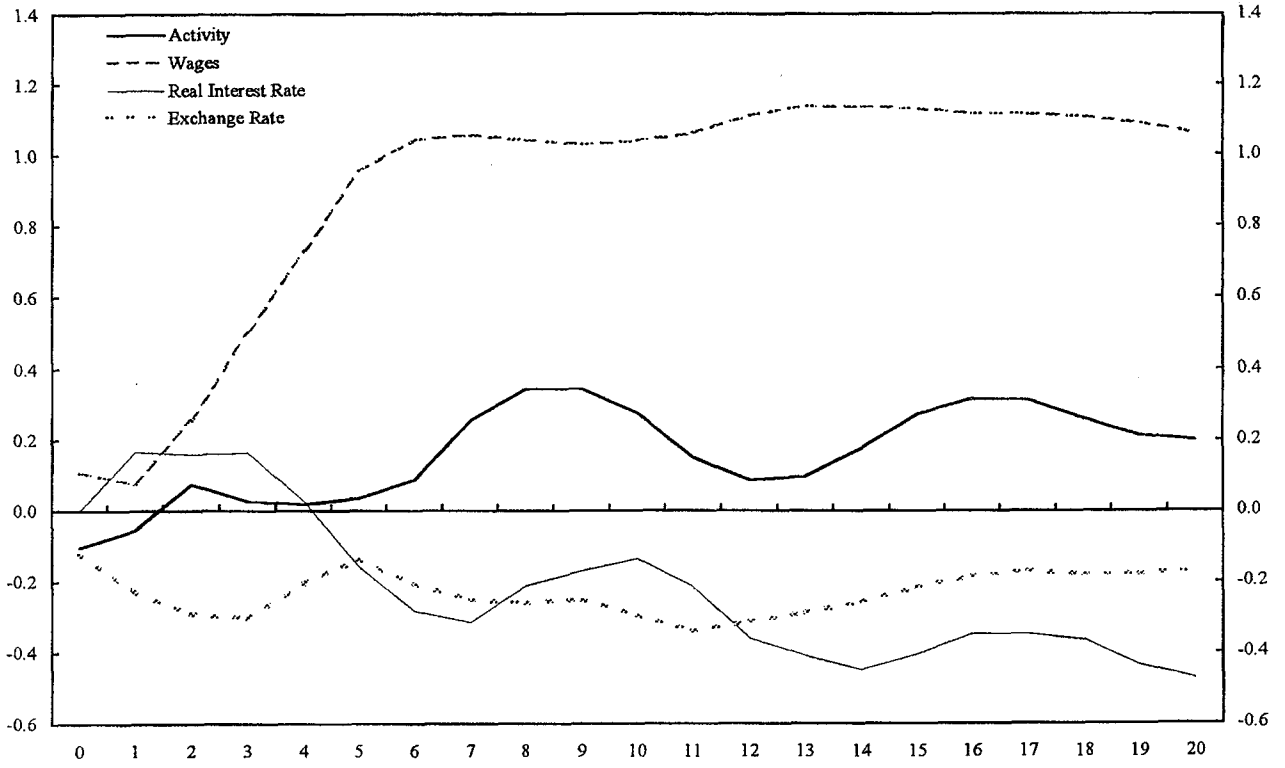
Restrictions on the Interactions of the Variables

Shock to:	Activity	Wages	Inflation	Interest Rate	Exchange Rate
Effect on:					
Activity	1	Lag	Lag	Lag	Lag
Wages	0.292 (0.097)	1	Lag	Lag	Lag
Inflation	-0.137 (0.060)	0.118 (0.086)	1	Lag	-0.118 (0.086)
Interest Rate	Lag	Lag	Lag	1	0.163 (0.105)
Exchange Rate	Lag	Lag	Lag	Lag	1

11.   The results of the VAR imply that each 100 basis point increase in the real short-term interest rate differential leads to a 0.2 percentage point decline in inflation after 2 years, with a 0.4 percentage point decline in inflation after three–four years (Figure 1). Inflation is actually found to increase in the year following an interest rate shock, but this likely reflects causation in the other direction: if the monetary authorities tighten policy when they observe inflationary pressures, the lag before this tightening affects the economy results in the transitory statistical association of increased interest rates with higher inflation. The decline of inflation four quarters after the interest rate rise suggests that the transmission mechanism of monetary policy to inflation is fairly lengthy in Greece, but that the restrictions on the interactions of shocks to the five variables properly identify the overall effect of monetary policy. This response includes the effect of interest rate changes on consumers' interest income that is the focus of Chapter 2; this is because the model allows interest rates to affect activity, which is the channel through which the effect of declining interest income would be seen through lower consumption. However, the impulse responses for the effects of interest rate shocks (not shown) indicate that a 1 percent lower real interest rate leads to 1 percentage point higher activity after two years, suggesting that any effect of lower interest income is outweighed by the stimulative effects of the monetary easing. This higher activity then affects inflation— Figure 1 shows that each percentage point of additional activity adds about 0.2 percentage points to inflation after two years (note, however, that the indirect effect of lower interest rates on activity and then inflation is already included in the magnitude of the interest rate effect on inflation).

12.   The real interest rate differential in *short-term* interest rates is projected to decline by around 700 basis points from September 1999 to late 2000, so that EMU-related convergence entails around an additional 1.4 percentage points of inflation in 2001–02 and twice this amount by 2003. This reflects the use in the model of the interest rate paid on bank deposits, which is linked to the short-term rate. The latter interest rate is expected to decline from

around 11 percent as of September 1999 to the euro level of around 3 percent at the end of 2000, while market expectations based on implied forward interest rates are for euro interest rates to rise by about 50 basis points, for a nominal convergence of about 750 basis points. The change in the real interest rate differential could be somewhat smaller, given the prospect that inflation in Greece is projected to pick up by more than inflation in Germany. Together, this gives a decline in the real interest rate differential of about 700 basis points. There has already been substantial convergence in long-term real interest rates, with the nominal interest rate premium over German 10-year bonds falling from 480 basis points at the end of 1997 to 160 basis points in September 1999. However, borrowing by firms and consumers is generally linked to the short-term rate where most of the convergence remains to occur—indeed, the policy of high short-term interest rates has been a central element of the Bank of Greece's strategy for lowering inflation.

13.   The calculation for the effect of monetary easing includes the inflationary consequences of both lower interest rates and the depreciation of the drachma. This is because the VAR results imply that a 100 basis point decline in the real interest rate differential results in a 0.4 percent depreciation of the drachma in effective terms after two years, so that a 700 basis points easing of real interest rates results in a 2.8 percent decline in the effective value of the drachma. Although the drachma is more than twice this amount above its central parity in ERM2, the euro is likely below its medium-term equilibrium value vis-à-vis other major currencies, so that any euro appreciation toward this value could provide for a smaller depreciation of the drachma in effective terms. To the extent that the nominal depreciation involved with EMU entry is greater than the depreciation normally associated with this degree of interest rate convergence, this would provide an additional source of inflationary stimulus. As seen in Figure 1, each additional percentage point depreciation (in effective terms) leads to 0.26 percentage points of higher inflation after two years and just over 0.3 percentage points after three years.

14.   Additional fiscal consolidation is a clear policy option to help ensure that inflation remains low after Greece enters EMU. The results of the econometric model indicate that a one percentage point increase in industrial production leads to an increased 12-month inflation rate of about 0.3 percentage points after two years. With a fiscal multiplier of 1.5, and assuming that the response of inflation to changes in industrial production is a reasonable proxy for the response to aggregate income, this means that a cumulative fiscal contraction equal to 3.1 percent of GDP would be needed by 2002 to counter the 1.4 percentage point inflationary consequence of the monetary easing implied by convergence. Further effort would then be required to offset the inflationary effects that result in the third year after the easing.

15.   As noted above, however, it is possible that the moderation of wage-setting behavior in recent years will lead to less persistence and smaller inflationary effects from the monetary easing implied by interest rate and exchange rate convergence than that estimated here on the basis of historical relationships. On balance, recent changes in the Greek economy would suggest that the size of the fiscal contraction noted above is probably an overly conservative (that is, too high) estimate of the tightening required to offset the inflationary implications of

convergence. Moreover, the disinflationary effort will need to rely also on structural reforms that increase productivity growth. Reforms that enhance competition in product markets would tend to lower the level of prices in the affected industries, and thus lower inflation over the period of this adjustment. Measures that enhance the efficiency of production, including measures that promote the efficiency of service industries, would alleviate capacity constraints that give rise to inflationary pressures. In sum, a menu of instruments and reforms would best allow Greece to offset the inflationary consequences of the monetary easing implied by EMU convergence.

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II. INTEREST RATE CONVERGENCE AND HOUSEHOLD CONSUMPTION: HOW IMPORTANT IS THE INCOME EFFECT?[5]

A. Introduction

16.   The implications of the substantial easing of monetary conditions over the next fifteen months in the case of Greece, associated with interest and exchange rate convergence in the run-up to EMU, is an area of considerable analytical and policy interest. In particular, from a policy perspective, understanding the effects in question would allow a better assessment of the policy mix and suggest the extent to which other macroeconomic policies may need to be adjusted to maintain the desired overall policy stance. In making this judgment, both the size of the effects of a monetary easing and the time horizon over which they operate are relevant.

17.   The previous chapter implemented a structural VAR model, based on a high degree of aggregation, and offered empirical evidence suggesting that a decline in short-term interest rates, and a concomitant depreciation of the drachma, can be expected to entail a substantial increase in the rate of inflation. Moreover, this effect turned out to be quite persistent, extending over the entire four-year simulation horizon. These results would imply that a monetary easing of the type envisaged for Greece in the run-up to EMU would require a quite sharp increase in the primary fiscal balance and/or a very rigorous program of structural reforms to mitigate its impact on prices.

18.   It could legitimately be questioned, however, whether such an inherently simple model, utilizing variables pertaining to overall economic activity and not explicitly controlling for variables pertaining to the patterns of financial intermediation and financial asset holdings, can do justice to all the various factors that could be potentially relevant. Specifically for the issue at hand, it has been suggested that, owing to the large stocks of bank deposits and government paper held by Greek households, a decline in interest rates could entail a large reduction in household income that could depress consumption to an extent that might offset partially, or even fully, the expansionary impact of lower interest rates on other components of aggregate demand (notably investment and the external balance). This chapter attempts to shed some light on this question by looking at the experience of, and model predictions for, a number of current euro area participants that underwent a process of interest rate convergence in recent years and that, to varying degrees, bear some relevant similarities to Greece's situation.

B. Some Stylized Facts and Theoretical Considerations

19.   The likely impact of a reduction in interest rates on the interest income of Greek households is quite substantial, given the currently large interest rate differential vis-à-vis the

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[5] Prepared by Ioannis Halikias.

euro area at the short end of the maturity structure and the large share of household financial assets held as bank deposits or treasury bills. On the basis of the stocks of bank deposits and repos and of short-term government paper held by households at end-1998 (Dr 18.2 trillion and Dr 13 trillion respectively), the Bank of Greece estimates that interest rate convergence to euro-area levels will entail a reduction in interest income accruing to households of some Dr 1.2 trillion, or 3¾ percent of GDP.[6] At first sight, therefore, the relevance of the income effect of an interest rate change on Greek household consumption would appear likely to be nontrivial.

20.   As is often the case, however, economic theory does not provide an unambiguous answer to the question of the impact of a change in the real interest rate on consumption. Thus, while the income effect of a reduction in interest rates would tend to reduce consumption, other factors work in the opposite direction. It is important to keep in mind in this connection that it is rather misleading to view interest income as an exogenous determinant of household consumption, in the sense that, at least in the absence of liquidity constraints, intertemporally optimizing households would in general simultaneously determine their holdings of financial assets (and hence their "interest income") and consumption expenditure. In that sense, there is a fundamental difference in the response of consumption to a decrease in wage income resulting from loss of employment or a reduction in the real wage, which can to a reasonable approximation be viewed as exogenous, and the corresponding response to a reduction in interest rates. Thus, in response to a decline in real interest rates, households could conceivably move their savings away from interest-bearing assets and into assets whose rate of return is either unrelated or inversely related to the interest rate (stocks come immediately to mind in this regard), or indeed substitute out of saving and into current consumption altogether, thus directly boosting economy-wide consumption expenditure.

21.   The ambiguities resulting from the interaction of the income and the substitution effect are illustrated in Figure 1. These well-known diagrams illustrate the choice between current and future consumption (C_1 and C_2, respectively) for a household with current and future income streams of Y_1 and Y_2; for simplicity, current and future income are assumed to be independent of the rate of interest. Line AA represents the household's intertemporal budget constraint: it passes through the (Y_1, Y_2) point and its slope depends only on the real interest rate (the lower the interest rate, the flatter the budget constraint). Point E represents the household's equilibrium at the original interest rate, with the upper panel depicting the situation of a household in a net creditor position and the lower panel the situation of a household in a net debtor position. A reduction in the interest rate will tilt the budget constraint through the (Y_1, Y_2) point to A'A', with the new equilibrium represented by point E'. For a household originally in a net creditor position, current consumption could increase or decrease, depending on whether the substitution or the income effect dominates. A similar

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[6] This amount is in net terms, that is, it adjusts for the lower tax liabilities on household interest income.

Figure 1. Greece: Interest Rates and Consumption

Net Creditor Household

Substitution effect dominates

Income effect dominates

Net Debtor Household
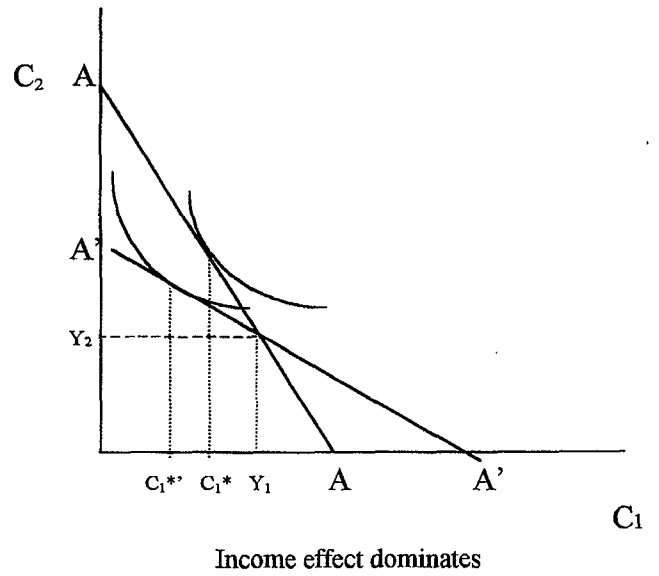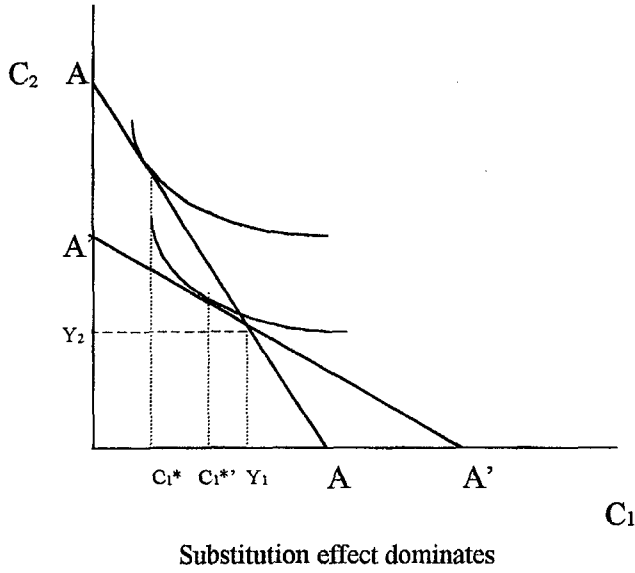
C_1, C_2 normal goods

C, inferior good
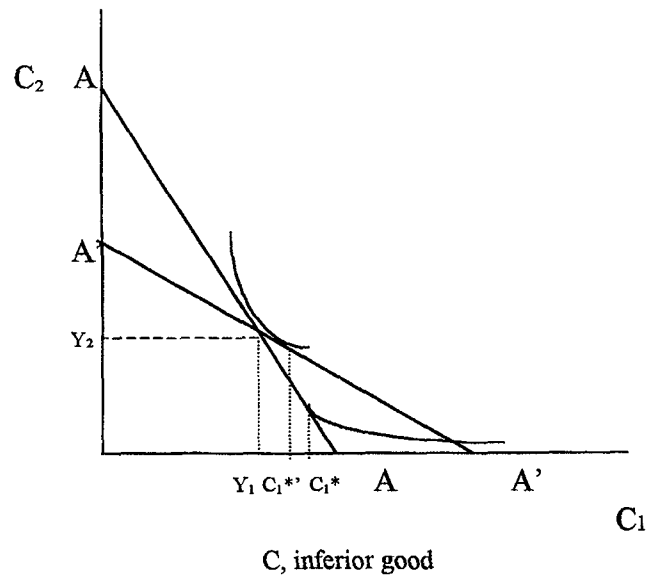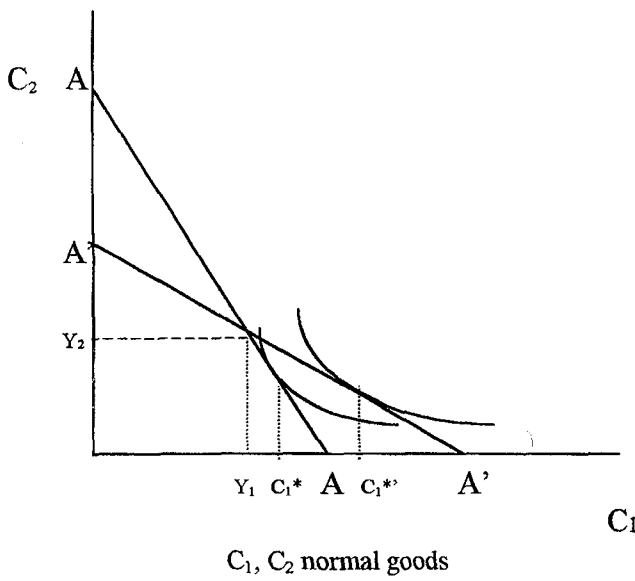
ambiguity exists for a household that is originally a net debtor—although in this case current consumption will increase if both current an future consumption are normal goods. An important asymmetry between the two types of households in this highly simplified setting may be worth noting. For a net debtor, an interest rate decrease will unambiguously raise welfare; on the other hand, the welfare of a net creditor will be lower as long as the household remains a net creditor (but will rise if it switches to a net debtor position in response to the lower interest rate—not shown in the diagram).

22.   A number of additional factors slightly complicate the picture, but can be expected to reinforce the substitution effect in boosting current consumption in the wake of a decline in real interest rates. First, if the interest rate decline acts to raise household current and/or future wage income (via an increase in aggregate labor demand), the budget constraint will not only become flatter but it will also shift out. In that case, a net creditor household will be more likely to raise current consumption, and at the same time may enjoy a welfare improvement as a result of the interest rate decline, even if it remains a net creditor. Second, a similar set of considerations apply to a situation where consumption depends not only on current and future income streams but also on an inherited stock of wealth, whose real value increases as interest rates decline—for example, in the form of capital gains on bond holdings. In the presence of this wealth effect, the intertemporal budget constraint will also shift out in the wake of an interest rate decrease, with very similar implications for current consumption and the welfare level of net creditor households.

23.   In the face of these ambiguities, the issue at hand needs to be resolved empirically. Unfortunately, however, such an investigation for the case of Greece is seriously hampered by data limitations. In order to formally test the empirical validity of the effects outlined above, one would need rather detailed household income and financial accounts, which are unavailable for Greece. Even a second-best approach that would entail estimating the impact of interest rates on household consumption is precluded by the unavailability of data on aggregate demand components at higher than annual frequency—working with annual data would necessitate looking at a very long sample period over which Greek financial markets underwent fundamental change, so that even the information content and economic function of interest rates in affecting the behavior of economic agents is far from uniform.

24.   While these limitations preclude the empirical investigation of the question at hand for the case of Greece, it can be hoped that that one can draw relevant inferences by looking at the experience of other countries that bear important similarities to Greece. In what follows, we perform model simulations on three southern European economies that currently participate in the euro area: Italy, Portugal, and Spain. All three economies were characterized by significant interest rate premia vis-à-vis the rest of the euro area and hence experienced substantial interest rate convergence in the run-up to EMU—albeit to a smaller extent than what is in store for Greece. Moreover, these economies have a broadly similar economic structure to Greece, as well as a similar level of development of their financial systems; an important common feature for the issue under consideration is that, at least until very recently,

the bulk of household financial assets was held in the form of bank deposits or short-term government paper.

25.   A cursory look at the behavior of consumers in Italy, Portugal, and Spain in the run-up to EMU casts doubt on the quantitative importance of the income effect on consumption of a reduction in real interest rates. Figure 2 plots the evolution of consumer spending and consumer credit for each of these three countries immediately before, during, and in the immediate aftermath of interest rate convergence.

26.   The trends depicted in Figure 2 fail to detect a dampening impact of interest rate convergence on consumption for each of the three countries considered. If anything, consumption appears to accelerate in the wake of (or just prior to) the decline in real interest rates, and continues to grow vigorously thereafter, especially in the case of Portugal and Spain. Even in Italy, in the context of a very weak economy, consumption shows signs of picking up, growing significantly faster than real GDP and thus constituting one of the few sources of support to economic activity. In addition, for all three countries, one can observe a clear acceleration of consumer credit with the onset of interest rate convergence. This may suggest the emergence of a relatively new transmission channel of interest rate changes, to which we return in the concluding section.

27.   Suggestive as they may be, such simple correlations cannot provide a definitive answer to the question of the impact of interest rates on private consumption, as it can plausibly be argued that other factors could have been at work in boosting consumption in the three countries under consideration. For instance, at least for Portugal and Spain, a case could be made that improved consumer confidence and sentiment, linked to the prospect of EMU participation itself and the associated boost to investment and employment, may have been more important factors accounting for the acceleration in consumption than the real interest rate reductions. In order to obtain a more satisfactory answer to the question at hand, we turn to simulations based on two well-established macroeconometric models.

C. Oxford Economic Forecasting Model Simulations

28.   The first set of policy simulations for the three countries under consideration was conducted on the basis of the Oxford Economic Forecasting model (OEF),[7] which is among the tools utilized by EU1 desks for their WEO projections. OEF is a relatively small-scale quarterly macroeconometric model of most OECD countries (Greece being a notable exception for lack of quarterly national accounts data) specifying Keynesian short-run dynamics and a classical long-run steady state. It is a well-specified general equilibrium model, with backward-looking expectations and an error-correction structure, which imposes a gradual adjustment of a variable to its steady-state level. The main advantage of its relatively

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[7] Oxford Economic Forecasting (1996).

Figure 2. Consumption and Consumer Credit, 1995:I-1999:II

Italy

Convergence

▒▒▒▒ Consumer credit (12-month percent change; right scale)
—— Real consumption (quarter-on-quarter, annualized; left scale)

Portugal

Convergence

Spain

Convergence
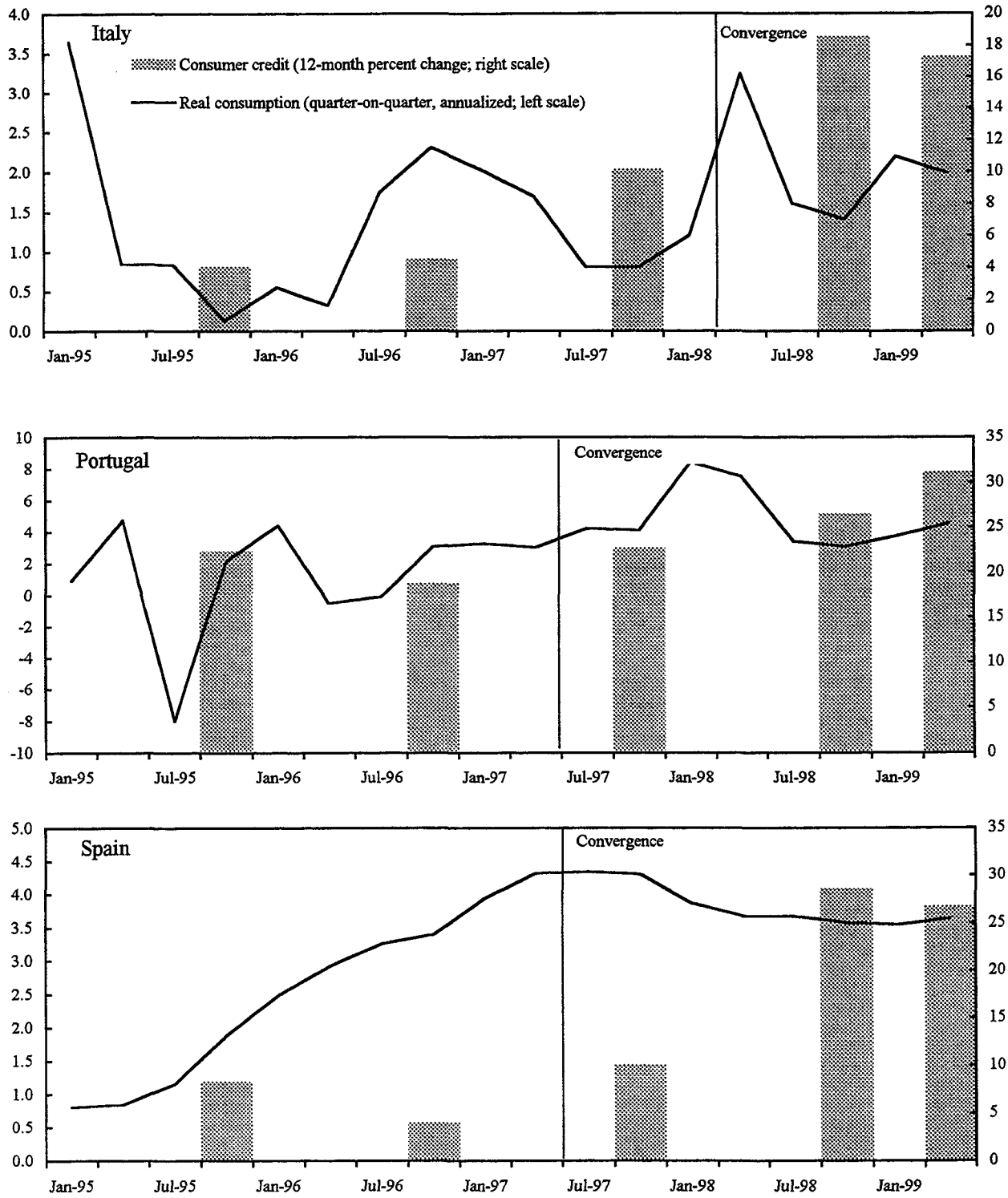
Source: Data provided by the authorities.

small size and fairly common structure across countries is that it renders cross-country comparisons fairly transparent and easy to interpret. Its main drawback is that it could miss certain country-specific factors or transmission channels that may be quite important in reality.

29.   As regards real household consumption, its short-run dynamics are modeled to be driven by changes in real disposable income, changes in the real interest rate (with the corresponding terms including variable lags), and lagged real household consumption. In the long run, real consumption is modeled to depend on real disposable income (with its coefficient constrained to 1 in accordance to the permanent income hypothesis), the wealth to disposable income ratio, and the real interest rate. In terms of the theoretical discussion of the previous section, it would thus appear that OEF should in principle capture the substitution effect of a change in the real interest rate. On the other hand, with wealth specified to enter the picture only in the long run, the contribution of corresponding wealth effects in the short-run dynamics of consumption can be expected to be rather limited.

30.   The model's estimation results for all three countries considered points to a negative and statistically significant impact of real interest rate changes on consumption, holding real disposable income constant, over a number of lags.[8] With the income effect presumably reflected in the disposable income term and the wealth effect reflected in the wealth term (albeit with the restrictions mentioned above), it would thus appear that the real interest rate terms should capture the underlying substitution effect. It should also be noted that the lag structure of the interest rate terms and, especially, the error-correction structure of the model, should impart a substantial degree of persistence on the effect of the real interest rate on consumption.

31.   The simulation experiment performed in this section (and the next) seeks to determine the impact on consumption and real GDP of a permanent reduction in the real short-term interest rate by 1 percentage point. The impact of this change was simulated over a four-year

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[8] For instance, for the case of Italy, the estimated consumption function is of the form:

$$\Delta \ln C = 0.02083 + 0.1766 \, \Delta \ln DY - 0.00087 \, \Delta R - 0.00073 \, \Delta R_{-1} - 0.00075 \, \Delta R_{-2}$$

$$+ 0.6732 \, \Delta \ln C_{-1}$$

$$- \quad 0.0750 \, [\ln C_{-1} - \ln DY_{-1} + 0.0300 \, W_{-1}/DY_{-1} + 0.00466 \, R_{-1} + 0.3056]$$

where C is real consumption, DY is real disposable income, R is the real interest rate, W is real household wealth, and Δ is the first difference operator. The first six terms in the equation represent the estimated short-run dynamics, while the term in brackets is the estimated long-run relationship.

horizon. The choice of the length of the simulation horizon was governed by two main considerations. First, a horizon of four years should capture the actual estimation results, before the long-run equilibrium conditions that serve to close the model (which are to some extent arbitrary) kick in. Second, a four-year horizon seems long enough to be relevant for policy purposes—for instance, if one were to attempt to estimate the amount of fiscal tightening needed to offset the impact of a given interest rate reduction, it would be unlikely that one would be looking for the relevant impact beyond four years.

32.   Finally, it should be emphasized that the version of OEF used for the simulations of this section is the post-EMU one. As such, it treats the exchange rate of each country under consideration with its euro area partners as fixed, a restriction that would not fit Greece which can expect exchange rate convergence to accompany interest rate convergence in the run-up to EMU. The implications of this feature of the OEF model will be compared and contrasted with the simulations of the next section. Moreover, the post-EMU version of the OEF model specifies an interest rate change as pertaining to the entire euro area, rather than as a change in a country's interest rate premium vis-à-vis the rest of the euro area which is what is in store for Greece.[9]

33.   The table below presents the simulated impact on real household consumption and GDP of a permanent 1 percentage point reduction in the real short-term interest rate for each country under consideration.

<div align="center">

Simulations Using OEF
(Percent deviations from baseline)

</div>

Year	Italy		Portugal		Spain	
	Cons.	GDP	Cons.	GDP	Cons.	GDP
1	0.28	0.16	0.23	0.35	0.44	0.28
2	0.44	0.28	0.44	0.30	0.50	0.35
3	0.29	0.26	0.36	0.19	0.41	0.37
4	0.17	0.19	0.30	0.16	0.36	0.31

34.   The simulation results of the above table cast considerable doubt on the dominance of the income effect of a change in the real interest rate on household consumption. For all three countries considered, a permanent interest rate reduction is shown to entail a positive impact on real household consumption, which, together with real GDP, remains above its baseline

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[9] See, however, Levy and Halikias (1997) and Dornbusch and others (1998) for a theoretical discussion and empirical evidence on possible differences in the impact on aggregate demand between changes in the interest rate premium and changes in the anchor currency interest rate under the ERM regime.

path throughout the four years of the simulation horizon. In fact, the simulation results seem to suggest that household consumption constitutes a major transmission channel of interest rate changes to economic activity in southern European countries, much more important than in the rest of the EU.[10] As the following section suggests, however, this may be an implication of the restriction in the OEF model of fixing intra-EU exchange rates, which would tend to dampen the importance of the external current account as a transmission channel.

35.   Another noteworthy feature of the simulations is that the cumulative (four-year) expansionary impact of a real interest rate reduction on real household consumption turns out to be smaller for Italy than for either Portugal or Spain. Given the model's restriction of constant intra-euro-area exchange rates, this probably does not mainly reflect Italy's lower degree of openness to international trade relative to either Portugal or Spain, even though Italy's extra-EU exports are among the highest in the EU. Rather, it could reflect the impact of Italy's higher government debt ratio, which is difficult to capture explicitly given the OEF's linear structure.

D. Bank of Italy Model Simulations

36.   This section conducts simulations on the basis of the Bank of Italy's macroeconometric model. Focussing especially on Italy as a comparator to Greece for the issue at hand appears justified in view of their similarities in the fiscal area. Specifically, the two countries are characterized by a similar level of the public debt-to-GDP ratio and a very similar pattern of its financing: at least until very recently, both Italy and Greece resorted mainly to short-term financing of their debt, with domestic households holding the bulk of treasury bills issued—the potential implications of recent changes in this regard are discussed in the concluding section.

37.   Compared to the OEF model, the Bank of Italy model also has Keynesian short-run properties, but it is much larger, specifying very detailed linkages between the various sectors of the economy;[11] as such, it may capture more Italy-specific institutional features, including those pertaining to the pattern of public debt financing that are of particular relevance for the problem under consideration.

38.   Regarding the modeling of household consumption, the Bank of Italy model specifies a number of its components separately, notably distinguishing between durable and nondurable goods. Moreover the Bank of Italy model contains a number of important differences relative to the OEF model in the specification of the income, substitution, and wealth effects of a change in the real interest rate. On the income effect, consumption is specified to depend on

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[10] See Bank for International Settlements (1994).

[11] For a description of successive vintages of the Bank of Italy's macroeconometric model, see Banca d' Italia (1986) and Galli and others (1990).

both wage income and household interest income, with the coefficients of the two components restricted to be identical; given the problems with treating interest income as exogenous to consumption mentioned in Section B, this is a rather strong restriction which may result in overstating the importance of the income effect. In contrast to the OEF model, the Bank of Italy model assumes that the real interest rate directly affects only the consumption of durable goods—hence, it may tend to underestimate the substitution effect. On the other hand, it allows household wealth to affect both the short-term dynamics of consumption and its long-run steady state.[12] Finally, adjustment to the long-run steady state is specified to be faster in the Bank of Italy model than in the error-correction OEF model, so that the effects generated by the former can be expected to be less persistent than the corresponding effects generated by the latter.

39.   The Bank of Italy model was used to simulate the same experiment as in Section C above, namely the effects on real consumption and GDP of a 1 percentage point reduction in the real short-term interest rate.[13] The simulations were run by alternatively treating the lira exchange rate as exogenous (an assumption similar to that made by the OEF model) or endogenous (which would appear to be more relevant to the situation that Greece is faced with). The simulation results are summarized in the tabulation below.

Simulations Using Bank of Italy Model
(Percent deviations from baseline)

Year	Exchange Rate Exogenous		Exchange Rate Endogenous	
	Cons.	GDP	Cons.	GDP
1	0.15	0.12	0.13	0.32
2	0.35	0.31	0.30	0.53
3	0.12	0.24	0.02	0.22
4	-0.13	0.09	-0.21	0.10

40.   Looking first at the simulation that treats the lira exchange rate as exogenous, which are more comparable to the simulations on the OEF model of the previous section, the Bank of Italy model appears to suggest a smaller expansionary impact on consumption of a real

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[12] The large estimated coefficient of the wealth variable may suggest that this variable may be actually capturing part of the substitution effect that is ignored by not including the real interest rate as a direct determinant of the consumption of nondurable goods.

[13] The simulations are included in Nicoletti Altimari and others (1997). See also Gaiotti and others (1997) for very similar simulations (which however focus on inflation rather than on real activity) on the basis of a VAR model.

short-term interest rate reduction, but the overall picture is qualitatively rather similar. Specifically, an interest rate reduction is estimated to boost consumption over a horizon of three years after the shock, with the effect turning negative only in the fourth year as the income effect begins to make itself felt—in cumulative terms, the impact is clearly expansionary over the entire simulation horizon. Moreover, even in the fourth year after the shock, the income effect turns out not to be strong enough to offset the expansionary impact of the interest rate reduction on other components of aggregate demand (notably private investment), and real GDP is estimated to remain above its baseline path throughout the simulation horizon—in fact, the simulated impact of the interest rate reduction on GDP turns out to be remarkably similar to the predictions of the OEF model.

41. We now turn to the simulation that treats the lira exchange rate as endogenous—in this setting, an interest rate reduction would entail a lira depreciation. This version of the Bank of Italy model renders comparisons with the OEF simulations of the previous section more difficult, but at the same time should be of more relevance to the Greek case, where interest rate convergence would be accompanied by a depreciation of the drachma to its ERM2 central parity. Compared to the simulations that hold the exchange rate constant, the boost to consumption brought about by the interest rate reduction now turns out to be smaller, as the adverse terms of trade shock has a further dampening effect.[14] Thus, consumption rises above its baseline path in the first two years after the interest rate shock, returns to baseline in the third year, and falls below the baseline in the fourth year. Still, over the entire simulation horizon, the cumulative impact on consumption remains expansionary, albeit to a smaller extent than in the constant exchange rate case. On the other hand, it should be emphasized that the overall expansionary impact on real GDP, which after all is what is relevant for policy purposes, is clearly stronger in the case where the exchange rate is treated as endogenous, notably during the first two years after the interest rate shock, as the improvement in the external current account associated with the exchange rate depreciation far outweighs the dampening impact of the terms of trade change.

E. Concluding Remarks

42. This chapter attempted to shed some light on the likely impact of the convergence of Greek interest rates to euro area levels in the run-up to EMU participation on household consumption. This question is of high policy relevance, given the large share of bank deposits and short-term government paper in Greek households' portfolios. In this setting, one could legitimately ask whether the substantial reduction in real interest rates that is in store for Greece, by depressing household disposable income, could conceivably bring about a reduction in private consumption to an extent that might dampen a good part of the

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[14] In the Bank of Italy model, the terms of trade shock affects both real disposable income and real household wealth.

expansionary impact of the lower interest rates on other components of aggregate demand, thereby attenuating the need for offsetting fiscal and structural policies.

43. In view of the paucity of relevant data in the case of Greece, this chapter sought to draw some lessons from three other southern European countries (Italy, Portugal, and Spain) that have already gone through the process of EMU-related interest rate convergence. Casual inspection of the post-convergence trends in these three countries cast some initial doubt about the quantitative importance of the income effect: the decline in real interest rates was not accompanied by a perceptible deceleration of consumption, while consumer credit accelerated markedly.

44. Simulation results of a real interest rate reduction on the basis of two standard macroeconometric models tended to confirm this impressionistic picture. Thus, on the basis of the Oxford Economic Forecasting (OEF) model, a reduction in the real interest rate turns out to actually boost consumption in all three countries throughout the (four-year) simulation horizon, with this effect being particularly strong in the case of Portugal and Spain. Simulations for the case of Italy on the basis of the much larger Bank of Italy model yielded similar, if a bit less stark, results: a reduction in the real interest rate tended to boost consumption two to three years after the shock (depending on the treatment of the exchange rate), with the income effect becoming dominant only during the fourth year.

45. As with any econometric estimates, the results of this chapter need to be interpreted with caution. A question is whether some feature of the models used, or the estimation period, could bias the estimated magnitude of the income effect in either direction. A potential factor that could lead to *under*estimation of the income effect may be the presence of nonlinearities, that is, a situation where the "true" dampening impact of an interest rate reduction on consumption increases with the level of interest-bearing household assets. Since the models considered are linear in nature, they cannot capture the possible impact of the rising trend over time of the public debt held by domestic households, a trend also relevant for the case of Greece.[15]

46. As regards the estimation period, it could be argued that the far-reaching changes in the financial structure of the countries considered may render the empirical results less reliable for the current context. For the problem at hand, two such factors, relevant for the countries considered in the simulations as well as for Greece, could actually lead to the *over*estimation of the income effect.

● First, the last years of the sample saw an important change in the maturity structure and pattern of holding of public debt. Whereas during most of the period public debt

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[15] In this regard, one could consider re-estimating the models over successive subperiods, but would very quickly run into problems of degrees of freedom.

was predominantly short-term and the bulk of it held by domestic households, more recently the average maturity of the debt has lengthened, and there are indications that households have been switching out of treasury bills and into long-term bonds[16] (also, the share of debt held by foreigners increased). In this context, and taking into account the sharp reduction in the longer term inflation outlook associated with EMU participation, households may have locked into interest rates that generate a higher ex ante stream of real income over the life of the security compared to the alternative of holding short-term paper. This factor could already be sustaining demand, and thus make a simple comparison of household interest income between one year and the next quite misleading for the purposes of explaining consumption behavior.

- Second, a notable development of the early 1990s was the liberalization of consumer credit, which has since grown very rapidly in importance as a source of financing of consumption spending. This development could add another channel, namely the credit channel, through which a decline in interest rates can boost consumption, which would not be fully captured by the sample period over which the models used in this chapter were estimated.

47. Taken together, the results of this chapter would suggest that policy formulation should not rely on the income effect of the interest rate reduction that is in store for Greece to offset the latter's expansionary impact on other components of aggregate demand. Rather, they point to the likelihood that recourse to other policy instruments (notably fiscal and structural) is necessary to keep inflation under control. Particularly as regards fiscal policy, the result that the expansionary impact of an interest rate reduction makes itself felt fairly quickly would suggest a front-loaded response, given that the lags typically associated with fiscal policy are rather short.

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[16] Although no data on household financial accounts exist for the case of Greece, it should be noted that mutual funds, generally thought to be held predominantly by households, increased from 3 percent of GDP in the early 1990s to 25 percent of GDP by end-1998.

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III. The Contribution of the Balassa-Samuelson Effect to Inflation: Cross-Country Evidence[17]

A. Introduction and Summary of Results

48.   Inflation in Greece is influenced in part by the catch-up of productivity in Greece's tradable goods sector to the productivity levels of its main trading partners. As discussed in several recent staff reports (Finland, Ireland, and Spain), this "Balassa-Samuelson effect" comes about because countries that are experiencing higher productivity growth in the tradables sector than in nontradables will tend to have higher inflation rates for nontraded goods such as services, as nominal wage growth will tend to exceed productivity growth in the nontradables sector.[18] In Greece, the highly centralized system of wage setting ensures that wage growth in nontradables largely keeps pace with that in tradables despite lower productivity growth. Overall inflation is a weighted average of inflation in the two sectors, so that the Balassa-Samuelson effects lead to higher inflation than would be the case were productivity growth even across sectors.

49.   To the extent that Balassa-Samuelson effects account for the comparatively higher rate of inflation that is currently seen in Greece and in some smaller euro area countries such as Ireland and Portugal, this would help ease concerns that such higher inflation results from demand-side pressures related to these countries' advanced cyclical positions. In a similar vein, the presence of Balassa-Samuelson effects potentially mitigates concerns about higher inflation giving rise to competitiveness problems. The inflation differential leads to an appreciation of the real exchange rate measured in terms of relative consumer price inflation, but this would not be considered a loss of external competitiveness to the extent that it stemmed from developments in nontradables.[19]

50.   This chapter develops measures of relative prices, productivity, and wages for a number of countries in Europe over the period from 1960 to 1996. These are used to quantify the contribution of the Balassa-Samuelson effect to inflation, both through a simulation of the original model and through estimation of an extended version that allows for differential wage growth across sectors. The estimation results generally match the predictions of the theory, with a statistically significant long-run relationship found in most countries between sectoral price, wage, and productivity differentials. The Balassa-Samuelson effect is estimated as having added 0.5–2.5 percentage points to the annual inflation rate of most countries

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[17] Prepared by Phillip Swagel.

[18] See Balassa (1964) and Samuelson (1964). Froot and Rogoff (1995) provide an updated discussion including a survey of recent empirical work.

[19] See Lipschitz and McDonald (1991) for a discussion of this effect and implications for measures of competitiveness.

examined, with the largest contributions typically found in the poorer countries (those with the lowest per-capita GDP), reflecting their greater scope for productivity convergence. A 1 percentage point increase in the *level* of productivity in nontradables is found to lower the *inflation rate* in most countries considered by 0.3–0.4 percentage points for 2–5 years. This suggests that structural reforms that increase the level of productivity can have fairly prolonged effects on inflation.

51.   In Greece, the Balassa-Samuelson effect is found to have contributed 1 percentage point of annual inflation on average over 1960–1996, an amount that accounts for nearly half of the average annual real appreciation of the drachma against the U.S. dollar over this 36 year period. Data for the most recent years available similarly point to a potentially important role of the Balassa-Samuelson effect: over 1990–96, nearly half of the real effective appreciation of the drachma against the ECU in terms of relative consumer prices can be accounted for by the contribution of this effect to higher inflation than in Greece's partner countries in Europe—this portion can be considered as not representing a loss of external competitiveness. Given the scope for further convergence of productivity in tradables in Greece to the levels in the rest of Europe, the Balassa-Samuelson effect can be expected to remain a medium-term influence on inflation.

52.   The next section presents the theoretical background and econometric model, after which Section C summarizes the data and provides initial evidence on the relationship between sectoral productivity and inflation. Section D discusses estimation results and results for the entire sample from 1960 to 1996, while Section E concludes by assessing the contribution of Balassa-Samuelson effects to inflation and real exchange rate changes in Greece.

B. Background and Methodology

53.   This section provides a brief exposition of the Balassa-Samuelson effect to motivate the empirical work; it follows the presentation in Froot and Rogoff (1995) and Alberola-Ila and Tyrväinen (1998). The model consists of a small open economy which produces tradables (indicated by a subscript, T), and nontradables (indicated by a subscript, N) according to Cobb-Douglas production functions:

$$Y_T = A_T L_T{}^{\theta} K_T{}^{1-\theta} \tag{1}$$

$$Y_N = A_N L_N{}^{\gamma} K_N{}^{1-\gamma} \tag{2}$$

where Y, L, and K are the quantities of output, labor, and capital, A is level of total factor productivity (TFP), and the parameters θ and γ are the respective output elasticities of tradables and nontradables with respect to the quantity of labor. With perfect competition and profit maximization, the levels of wages and the interest rate can be obtained as the marginal products of labor and capital for each sector:

$$R = (1 - \theta) A_T (K_T / L_T)^{-\theta}$$
$$R = P (1 - \gamma) A_N (K_N / L_N)^{-\gamma} \tag{3}$$

and

$$W = \theta A_T (K_T / L_T)^{1-\theta}$$
$$W = P \gamma A_N (K_N / L_N)^{1-\gamma} \tag{4}$$

where P is the relative price of nontradables in terms of tradables, P_N/P_T (that is, P_T is set to 1 without loss of generality). Similarly, the wage, W, and interest rate, R, are expressed in terms of tradables.

54.   Capital is assumed to be perfectly mobile across countries, so that the interest rate is fixed by the world interest rate. Together with the assumption that labor is mobile across sectors, this ensures that the nominal wage is the same for both sectors, and is determined entirely by conditions in the tradables sector. This can be seen in equations (3) and (4): the exogenous interest rate, R, fixes the capital-labor ratio in tradables, K_T/L_T, by the first equality in (3), and this determines wages, W, in the first equality of (4). The capital-labor ratio and relative price of nontradables are then solved from the second equalities in (3) and (4).

55.   The Balassa-Samuelson effect on inflation differentials comes about because with equal wage growth across sectors, higher productivity growth in tradables than in nontradables means that output prices in nontradables must increase more rapidly than in tradables to ensure that product wages in that sector remain equal to the marginal product of labor while nominal wages across sectors remain equal. The Balassa-Samuelson effect thus typically leads to faster growth of unit labor costs and prices in nontradables than in tradables.[20] To see this, the expressions for the sectoral capital-labor ratios are substituted from the production functions (1) and (2) into equation (4), and this is then solved for the relative price, P. Log-differentiating gives the Balassa-Samuelson relationship in growth rates:

$$\dot{p} = \dot{p}_N - \dot{p}_T = (\gamma / \theta)\dot{a}_T - \dot{a}_N \tag{5}$$

Lower case letters denote the log of the corresponding variable in upper case, and a "dot" indicates the change over time. Note that even if TFP growth is the same in tradables and nontradables, an inflation differential between the two sectors can result from differences in labor shares across sectors.

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[20] This will not necessarily be the case for unit labor costs if there is a divergence between total factor productivity, which drives the Balassa-Samuelson effect on prices, and labor productivity, which determines unit labor costs.

56.   The contribution of the Balassa-Samuelson effect to overall inflation depends on both the sectoral inflation differential and the share of nontradables in the aggregate price index. This is because overall inflation, π, is an average of inflation in the two sectors, with the production shares of nontradables, σ, and tradables, $1 - \sigma$, as the weights:

$$\pi = \sigma \, \dot{p}_N + (1 - \sigma)\dot{p}_T = \dot{p}_T + \sigma \, \dot{p} \tag{6}$$

57.   The extent to which the Balassa-Samuelson effect contributes to inflation differentials *across countries* depends on the relative *sectoral* inflation differentials. With (weak) purchasing power parity, tradables prices expressed in a common currency grow at the same rate in each country so that cross-country inflation differentials depend solely on differences in each country in the contribution of sectoral productivity differentials to domestic inflation, $\sigma \, \dot{p}$. Even without purchasing power parity—which, as discussed below, does not appear to hold in Europe—the contribution of the Balassa-Samuelson effect to inflation in a country can be compared to the average contribution for its trading partners. The difference between these (between the values of $\sigma \, \dot{p}$) can be viewed as the contribution of the Balassa-Samuelson effect to cross-country inflation differences, with variation in tradables inflation across countries and the failure of purchasing power parity attributed to factors beyond the scope of this chapter.

58.   Previous work has focused principally on estimating versions of equation (5) by regressing relative prices on various measures of relative productivity. De Gregorio, Giovannini, and Wolf (1994) augment (5) with demand-side variables such as government spending and per-capita GDP, and find a significant relationship between changes in total factor productivity differentials and relative prices. De Gregorio, Giovannini, and Krueger (1994) provide similar evidence for European countries, but note that there are important differences between the behavior of labor productivity and total factor productivity. Alberola-Ila and Tyrväinen (1998) find co-integrating relationships between relative prices and labor productivity in several European countries, and between prices, productivity, and wages in others. They then use these relationships and the assumption of a common inflation rate in tradables to calculate the contribution of Balassa-Samuelson effects to cross-country inflation differentials. Canzoneri, Cumby, and Diba (1999) obtain a relationship between prices and labor productivity in a panel of advanced economies, but find that purchasing power parity does not hold for traded goods. Moschos and Stournaras (1998) find that purchasing power parity does not hold for prices in Greece. This suggests that taking a common inflation rate for tradables goods is suspect.

59.   The approach in this chapter follows Alberola-Ila and Tyrväinen (1998) in augmenting (5) to allow for differential wage growth across sectors and then estimating a co-integrating relationship between relative prices, productivity, and wages. Sectoral wage differences are specified as offsetting a fraction, λ, of the inflationary impact of productivity differentials:

$$\dot{p} = \dot{p}_N - \dot{p}_T = (\gamma / \theta)\dot{a}_T - \dot{a}_N - \lambda(\dot{w}_T - \dot{w}_N) \tag{7}$$

Equation (7) suggests the existence of a long-run relationship between inflation rates, wage growth, and productivity growth, and forms the basis of the empirical work. The econometric approach is to use the Johansen technique to test for the presence of a co-integrating relationship between the three differentials, and then estimate a vector autoregression (VAR) that includes this co-integrating relationship as an error-correction mechanism.

60.   Rather than imposing the factor shares, θ/γ, as modifying the effect of tradables productivity, the specification simply examines the overall relationship between relative prices, p, productivity, a, and wages, w:[21]

$$\Delta p_t = \eta_p \Delta p_{t-1} + \eta_a \Delta a_{t-1} + \eta_w \Delta w_{t-1} + \alpha_p (p_{t-1} - \beta_a a_{t-1} - \beta_w w_{t-1}) + \varepsilon_t \qquad (8)$$

The η coefficients on the variables in first differences correspond to the short-run effects, the β coefficients to the long-run equilibrium relationship (the coefficients of the co-integrating vector), and α to the rate at which prices adjust in response to deviations from equilibrium (ε is the error term in the estimation). Equation (8) is shown with 1 lag (in first differences), but the actual number of lags is determined in the estimation. The estimated equations for particular countries include constants, dummies, and trends depending on the characteristics of the country examined; these are discussed below. Alberola-Ila and Tyrväinen (1998) estimate a similar equation, but rather than including relative productivity, they restrict the coefficient on nontradables productivity to one as implied by (7), and estimate only the coefficient on tradables productivity. In contrast, the approach used here does not impose this restriction but instead looks at the overall effect of productivity differentials. Another important difference is that the estimation in this chapter uses total factor productivity as suggested by the theory rather than labor productivity.

61.   Once the long-run relationship between prices, productivity, and wages is estimated, the β coefficients are used to calculate the predicted equilibrium inflation differential across sectors:

$$\text{Sectoral Inflation Differential} = \beta_a (\dot{a}_T - \dot{a}_N)_{avg} - \beta_w (\dot{w}_T - \dot{w}_N)_{avg} \qquad (9)$$

where $(\dot{a}_T - \dot{a}_N)_{avg}$ and $(\dot{w}_T - \dot{w}_N)_{avg}$ are the average values of the TFP growth and wage growth differentials over the estimation period. The contribution to overall inflation is then the predicted sectoral inflation differential from (9) multiplied by the share of nontradables in production, σ; this is the amount by which inflation in a particular country is higher solely on account of differential productivity and wage growth across sectors. No assumption is made

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[21] Three equations are estimated in the VAR (one per variable), but the focus here is on relative prices, so only this equation is written out.

that purchasing power parity holds—tradables inflation is not assumed to be the same across countries and the contribution to inflation is calculated separately for each country.[22]

C. Data and Preliminary Evidence

62.   Data for all countries but Greece and Portugal are from the OECD Intersectoral Database (ISDB), 1998 edition; for Greece and Portugal, data by sector are from the two countries' national accounts.[23] The tradables sector is comprised of manufactures and mining, while the nontradables sector includes all other sectors except agriculture.[24] Agriculture is excluded because the web of subsidies and nonmarket arrangements in European agriculture are likely to distort the relationship between productivity and prices.[25] This classification matches that in other papers such as De Gregorio, Giovannini, and Wolf (1994), with the exception that nontradables here include transport services, which are sometimes counted as traded in other work (the split here is meant to group together services). Government services are included in nontradables and account for more than 10 percent of GDP in all countries in Europe (and as much as 20 percent on average in Sweden). It must be noted, however, that this introduces a measurement issue, since government output is valued by the inputs rather than by the outputs as in other sectors (government-owned enterprises are, of course, counted as part of their respective industry and valued by their outputs).

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[22] This calculation also implicitly assumes that each country was on average in equilibrium over the sample period, since only the equilibrium relationship between prices, productivity, and wages is used to calculate the contribution of the Balassa-Samuelson effect to inflation. As discussed below, some changes in the relationship are taken into account in the estimation by the addition of trend terms or shifts in the coefficients when these are needed to estimate a statistically significant long-run relationship.

[23] The countries include Belgium, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Sweden, and the United Kingdom. Spain is not included because capital stock data are not available by sector, while Ireland is excluded because Aitken (1999) shows that the usual measure of TFP growth is distorted by the presence of large multinationals.

[24] The industry breakdown follows the ISIC classification for production. Tradables consist of mining and quarrying, and manufacturing. Nontradables are: electricity, gas, and water; construction; wholesale and retail trade, restaurants and hotels; transport, storage, and communication; finance, insurance, real estate and business services; community, social and personal services; and government services.

[25] Agriculture comprises less than 5 percent of the value of output on average over the sample period in all countries except Denmark (5.0 percent), France (5.5 percent), Italy (6.6 percent), Finland (9.3 percent), Portugal (12.0 percent), and Greece (13.8 percent).

63.   Total factor productivity growth is calculated as growth of the residuals from a Cobb-Douglas production function, where the average share of wages out of each sector's value-added is used to weight the growth of capital and labor inputs in the production function. Because the data include both the number of employees and total employment but wages only for employees, the average wage of employees is imputed to the self-employed to obtain the total share of wages in output. The use of production data means that the prices for tradables and nontradables are implicit price deflators, so that the measures of inflation are akin to GDP deflators rather than to the consumer price index. Overall (nonagricultural) inflation is calculated by using the value of production in each sector to calculate a weighted average of inflation in the two sectors.

64.   Table 1 provides a summary of the data over the entire sample for each country. The data start in 1960 for some countries and no later than 1970 for others, and include at least the early 1990's in each country, through 1996 in some countries. Inflation is higher on average in nontradables than in tradables in all countries but the Netherlands (where the two are nearly identical), while total factor productivity growth is higher in tradables in all countries. Average wage growth is higher in tradables than in nontradables in all countries but Portugal, though the gaps in wage growth are much smaller than the inflation or productivity differentials. This suggests that differential wage growth will at best attenuate but not completely offset Balassa-Samuelson effects stemming from productivity differentials. Finally, nontradables constitute by far the larger share of production in all countries, so that higher inflation in this sector than in tradables will have an important effect on overall inflation. As suggested by the theory, poorer countries such as Greece and Portugal—the countries with the lowest per-capita GDP of those examined—have among the highest rates of productivity growth in tradables reflecting their greater scope for productivity catch-up over the sample period.[26] Greece is also less open than most of the other countries examined, with a smaller share of tradable goods, so that higher inflation in nontradables has a relatively large effect on overall inflation.

65.   Figure 1 depicts the inflation and productivity differentials for both the full sample (top) and for the average of the available years in the 1990s (bottom). The Balassa-Samuelson relationship, which suggests a positive relationship between sectoral productivity growth and inflation differentials, is apparent, with a correlation of 0.78 over 1960–96, and a correlation

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[26] The income ranking in Table 1 is based on real per-capita GDP for 1990 from the Penn World Tables International Comparison Project (popularly known as the Summers and Heston database, version 5.6). This provides internationally comparable measures of output based on price deflators with common baskets of goods and is the most widely used database with which to make cross-country comparisons of per-capita output. See Summers and Heston (1991).

Table 1. Data Summary

Country	Rank of per-capita GDP	Inflation		TFP Growth		Wage Growth		Production Share of N
		T	N	T	N	T	N	
Belgium 1970-95	6	3.1	5.9	2.3	-0.2	7.7	7.6	76.1
Denmark 1966-92	5	6.1	7.4	1.0	0.1	8.7	8.2	78.7
Finland 1960-96	3	5.7	7.4	2.0	0.2	9.8	9.2	71.6
France 1970-92	4	6.7	7.9	0.6	0.2	9.6	9.3	72.0
Germany 1960-96	2	2.9	4.0	0.7	0.0	6.5	5.6	63.5
Greece 1961-96	12	10.2	12.1	2.2	1.4	16.3	15.5	82.6
Italy 1970-96	10	8.8	11.2	1.9	-0.7	12.8	11.8	72.4
Netherlands 1970-95	9	4.2	4.1	1.2	0.9	6.1	5.5	73.5
Norway 1970-91	7	6.2	7.3	-0.1	-0.6	9.5	8.6	73.7
Portugal 1960-95	11	8.6	11.3	2.7	0.5	13.8	14.1	78.4
Sweden 1970-94	1	6.6	7.6	1.2	0.0	9.2	8.6	75.0
United Kingdom 1970-93	8	8.2	9.8	1.2	0.2	11.6	10.6	68.5
Average weighted by 1990 GDP		6.3	7.8	1.2	0.0	9.8	9.0	70.2

Note: The rank of real GDP per-capita is constructed from the 1990 value of per-capita real GDP adjusted for changes in the terms of trade; the source is the Penn World Tables version 5.6.

Figure 1. Cross-Sector Productivity Growth and Inflation Differentials, 1960-96
(In percent)
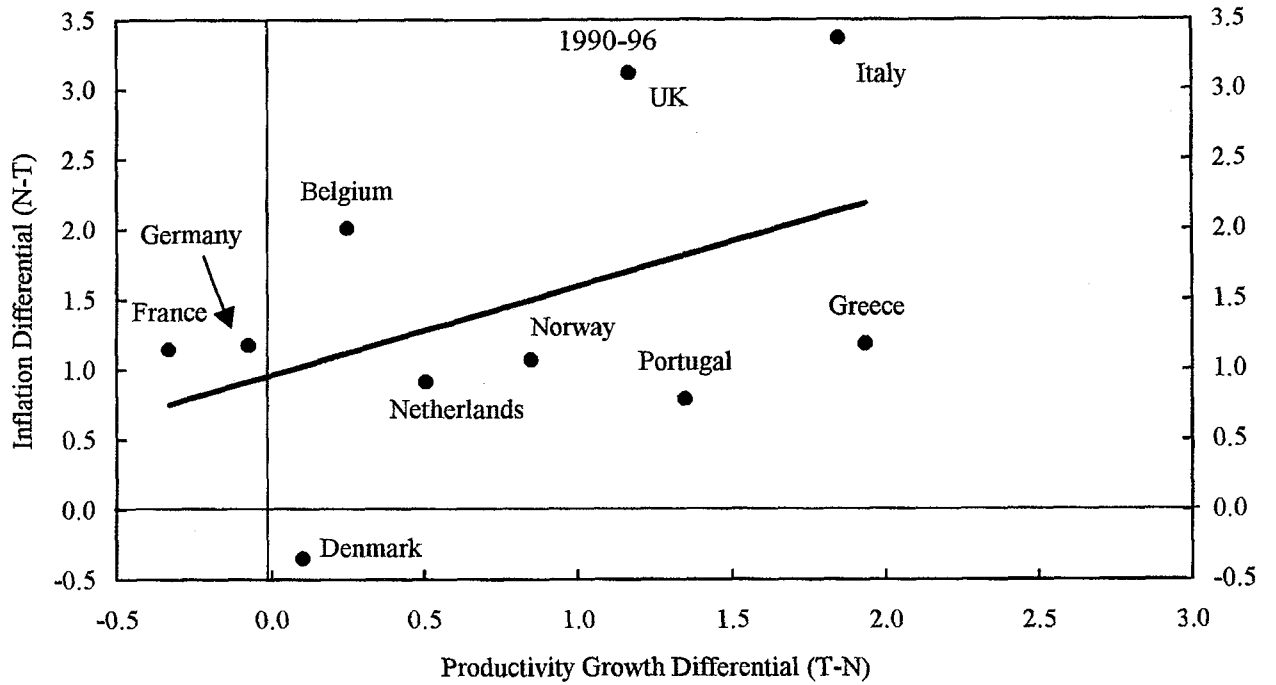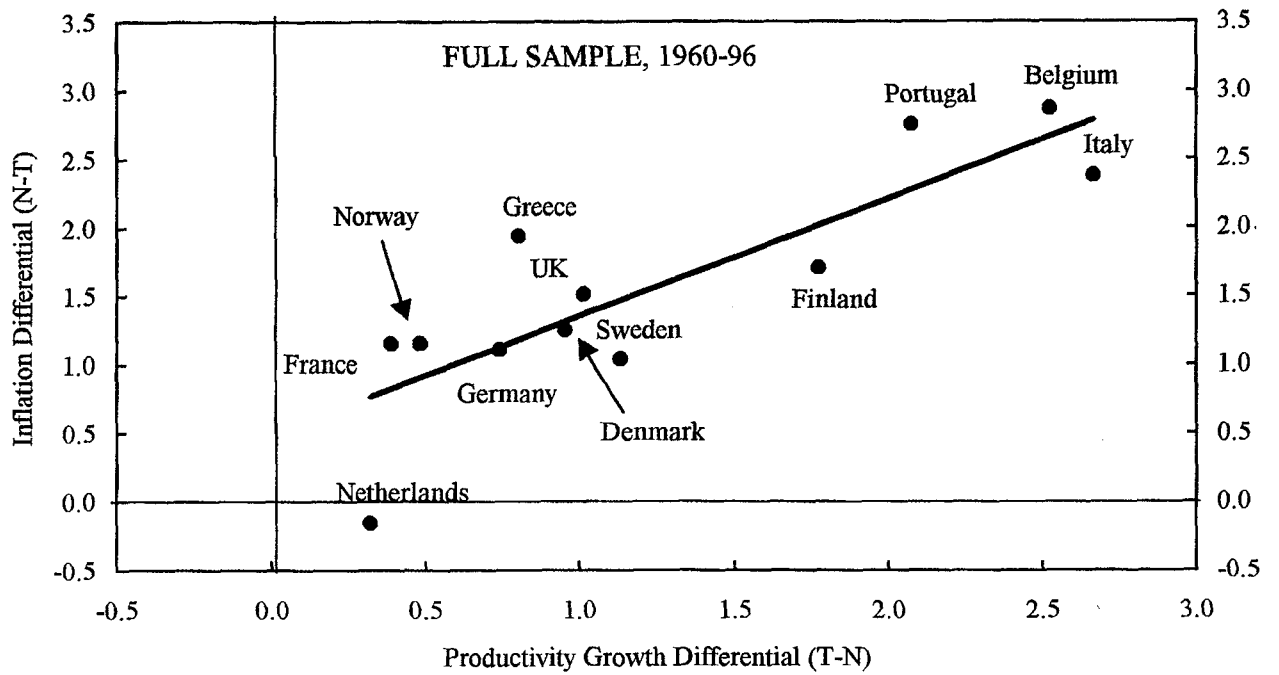
Source: OECD Intersectoral Database; and author's calculations.

of 0.58 for the period in the 1990's.[27] This provides strong initial evidence for Balassa-Samuelson effects. The next section discusses estimation results for each country.

D. Estimation Results

66.   Unit root tests were first run on the three variables; in all but one instance, the tests indicate that relative prices, productivity, and wages are integrated of order 1, warranting the next step of looking for a co-integrating relationship.[28] The 3 equation model of the form of equation (8) was estimated separately for each country using the Johansen VAR methodology for testing of co-integrating relations; Table 2 contains selected estimation results. Either one or two lags are sufficient to account for serial correlation, while certain dummy variables outside the co-integrating vector (that is, only in the short-run part of (8), where the variables are in first differences) were necessary to control for large residuals in the estimated equations in particular years. In Finland, for example, the co-integrating relationship appears to be unchanged throughout the sample, but the short-run relationship shifts in 1991. In some countries, the co-integrating vector includes a constant and/or a trend; in Greece and Germany, for example, the level of relative prices trends upward, possibly reflecting increased effects of external competition that affects only prices of tradables but not those of nontradables.

67.   In all countries but Norway and Sweden, the results of the cointegration tests (not shown) indicate at most one co-integrating vector. In some countries—notably Denmark but also France, Greece, and Portugal—the hypothesis of one co-integrating vector can be accepted at confidence levels of somewhat less than the standard 95 percent level. In these cases, one co-integrating vector is assumed, but then the estimated coefficients must be

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[27] Finland and Sweden are omitted from the calculations for 1990–96 because productivity growth and inflation differentials in these countries appear to be affected by particular events in this period that result in unusually large values for relative productivity growth. These include the financial crisis in the early 1990s in Sweden, and the development of the high technology sector in Finland.

[28] The only exception where stationarity appears more likely than not is for relative prices in Denmark; the results are mixed for wages in Italy and productivity in the Netherlands, with acceptance or rejection of a unit root depending on the number of lags and inclusion of a trend in the augmented Dickey-Fuller test. The finding of a long-run co-integrating relationship for Denmark is somewhat weaker than in most other countries, which is consistent with the lack of a unit root in relative prices.

assessed to gauge whether sensible results are obtained.[29] No co-integrating relationships could be estimated for Norway and Sweden using data for the entire sample period, so these countries are not considered in the results below. For Norway, this may result from the important role of oil prices, with the various oil shocks affecting the relationship between relative prices and productivity.[30] For Sweden, cointegration can be found using the data through 1989, but the relationship is substantially affected by developments in the 1990s— presumably the effects of labor market changes in the early 1990s and the financial crisis in 1992—and no combination of dummy variables or trends can salvage the results.

68.   The estimated coefficients for the co-integrating vector are shown in the first four columns of results in Table 2, normalized as in equation (8), with the coefficient on relative prices set to 1. The restriction that relative productivity is weakly exogenous (that is, the coefficient α in the productivity equation is zero) is not rejected in the estimation for any country. This means that any deviation from the long-run equilibrium of the Balassa-Samuelson model affects relative prices and wages but not productivity—the long-run levels of prices and wages adjust to TFP shocks but not vice-versa. In France and Germany, relative wages are also found to be weakly exogenous, indicating that the adjustment to shocks that move the economy away from the Balassa-Samuelson relationship comes about entirely through changes in relative prices. In Greece and Portugal, relative wages are found to have no effect on relative prices once relative productivity is taken into account, so that the co-integrating relationship is found to exist only between prices and productivity. Since relative productivity is again weakly exogenous in both countries, this means that the adjustment to productivity shocks comes about only through changes in relative prices.

69.   The coefficients for the co-integrating relationship between prices, productivity, and wages vary across countries but have the expected signs (with only one exception): a larger TFP differential leads to a higher price differential in all countries, while a larger wage differential offsets the Balassa-Samuelson effect and tends to lead to a smaller price differential. The only exception is France, where wage differentials appear to exacerbate price differences. As seen in Table 1, however, wage growth has been remarkably similar on

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[29] Bragoudakis and Moschos (1999) estimate the model of Alberola-Ila and Tyrväinen (1998) for Greece over 1962–97 (and again, use labor productivity rather than total factor productivity), but find no evidence of cointegration and implausibly large coefficients for the response of prices to productivity and wages. In contrast, the estimation here uses total factor productivity and produces reasonable coefficients though the existence of a stable long-run relationship in Greece is accepted at a lower level of statistical significance than in some of the other countries.

[30] However, adding oil prices or dummy variables in years of oil shocks as exogenous variables did not result in a finding of cointegration.

Table 2. Cointegrating Relationships between Relative Prices, Productivity, and Wages

Country	Long-run Relationship for Relative Prices (β coefficients)		Adjustment Speed for Prices and Wages (α coefficients)		Test of Over-Identifying Restrictions	Number of Lags; Terms in theError Correction; Terms in Short-run
	TFP	Wages	Prices	Wages	p-value	
Belgium	0.898 (0.020)	-0.899 (0.110)	-0.384 (0.476)	-0.522 (0.244)	0.926	1 lag; constant
Denmark	1.039 (0.735)	-1.833 (0.989)	-0.128 (0.035)	-0.362 (0.045)	0.969	2 lags
Finland	1.167 (0.19)	-1.063 (0.47)	-0.294 (0.126)	-0.185 (0.050)	0.005	1 lag; constant; 1991-96 dummy in short-run
France	0.782 (0.230)	1.758 (0.353)	-0.395 (0.091)	0	0.953	1 lag; constant; 1976 dummy in short-run
Germany	0.369 (0.172)	-1.058 (0.371)	-0.391 (0.090)	0	0.444	2 lags; trend and 1985-96 shift
Greece	0.616 (0.159)	...	-0.415 (0.103)	...	0.856	2 lags; trend and constant
Italy	1.470 (0.098)	-2.202 (0.475)	-0.206 (0.035)	-0.061 (0.033)	0.811	1 lag; constant; 1974 dummy in short-run
Netherlands	0.197 (0.655)	-0.514 (0.412)	-0.436 (0.179)	-0.092 (0.049)	0.574	2 lags; constant
Portugal	1.165 (0.073)	...	-0.397 (0.109)	...	0.782	1 lag
United Kingdom	1.924 (0.157)	-0.255 (0.078)	-0.667 (0.205)	-0.440 (0.226)	0.001	1 lag; constant

Note: Standard errors in parentheses.

average between tradables and nontradables in France, so the effect of the anomalous coefficient for relative wages turns out to be quantitatively small.

70.   The assumptions of weak exogeneity for TFP (and in some cases, wages) and the normalization of the coefficient on the relative inflation differential to 1 provide overidentifying restrictions that can be tested to assess whether the model is accepted by the data. The results are shown in Table 2: the model is accepted at fairly strong statistical levels in nearly every country. Finland and the United Kingdom are the only exceptions, meaning that in these countries the estimated coefficients are substantially affected by the restrictions imposed on the model. In both cases, however, the unrestricted results have the unacceptable property of explosive deviations from equilibrium (positive signs for the α coefficients), so the restrictions are imposed on the model.

71.   Figure 2 shows the effects implied by the estimation results of a one percentage point shock to relative productivity on the level of relative prices (solid line) and the effect on the overall inflation rate (dashed line). The change in the level of relative prices depends on both the direct effect of productivity on prices and the response of wages to TFP and the subsequent effect of wages on prices. The contribution to overall inflation reflects the slope of the relative price response (since inflation is the change in the price level), and the share of nontradables in the economy (because the Balassa-Samuelson effect changes only prices of nontradables). The results indicate that an increase in the *level* of relative productivity generally leads to a higher *inflation rate* for several years before equilibrium is restored, though the largest effects are typically felt within the first three years. In Greece, the main effect of productivity shocks on prices diminishes rapidly, reflecting the rapid speed of adjustment (the large value for α), but the trend and constant give some recurring effects until equilibrium is reached. The productivity shock has the largest effect on prices and inflation in France, Italy, Portugal, and the United Kingdom, reflecting the large magnitudes of the long-run coefficient on TFP (first column of Table 2), and the weak (at best) response of wages in offsetting price changes in these countries. The response of prices to productivity is erratic in Denmark, possibly reflecting the lack of a long-run relationship between the variables in the model as suggested by the weak estimation results.

72.   Figure 3 shows the predictions for the contribution of productivity differentials to overall inflation, calculated for both the original Balassa-Samuelson model with only relative prices and productivity as in equation (5), and for the estimation of the extended model in equations (7) and (8). As discussed above, the contribution to overall inflation is determined by the sectoral inflation from equation (9) that results from the average productivity and wage differentials over the entire sample for each country, and by the share of nontradables. In most countries, the estimated contribution to inflation is fairly close to the prediction of the model. In Greece, for example, the model predicts a contribution of 0.8 percentage points versus the results of 1.0 from the estimation. The estimated results of negative contributions of Balassa-Samuelson effects on inflation in Germany and the Netherlands stem from large long-run coefficients on wage differentials that more than offset the contribution of productivity differentials to higher inflation. This is also an important factor in Italy, where a large response

Figure 2. Effect of One Percentage Point Shock to Relative Total Factor
Productivity on Relative Prices and the Inflation Rate
(In percent)

——— Relative Price Level   ------- Inflation Rate
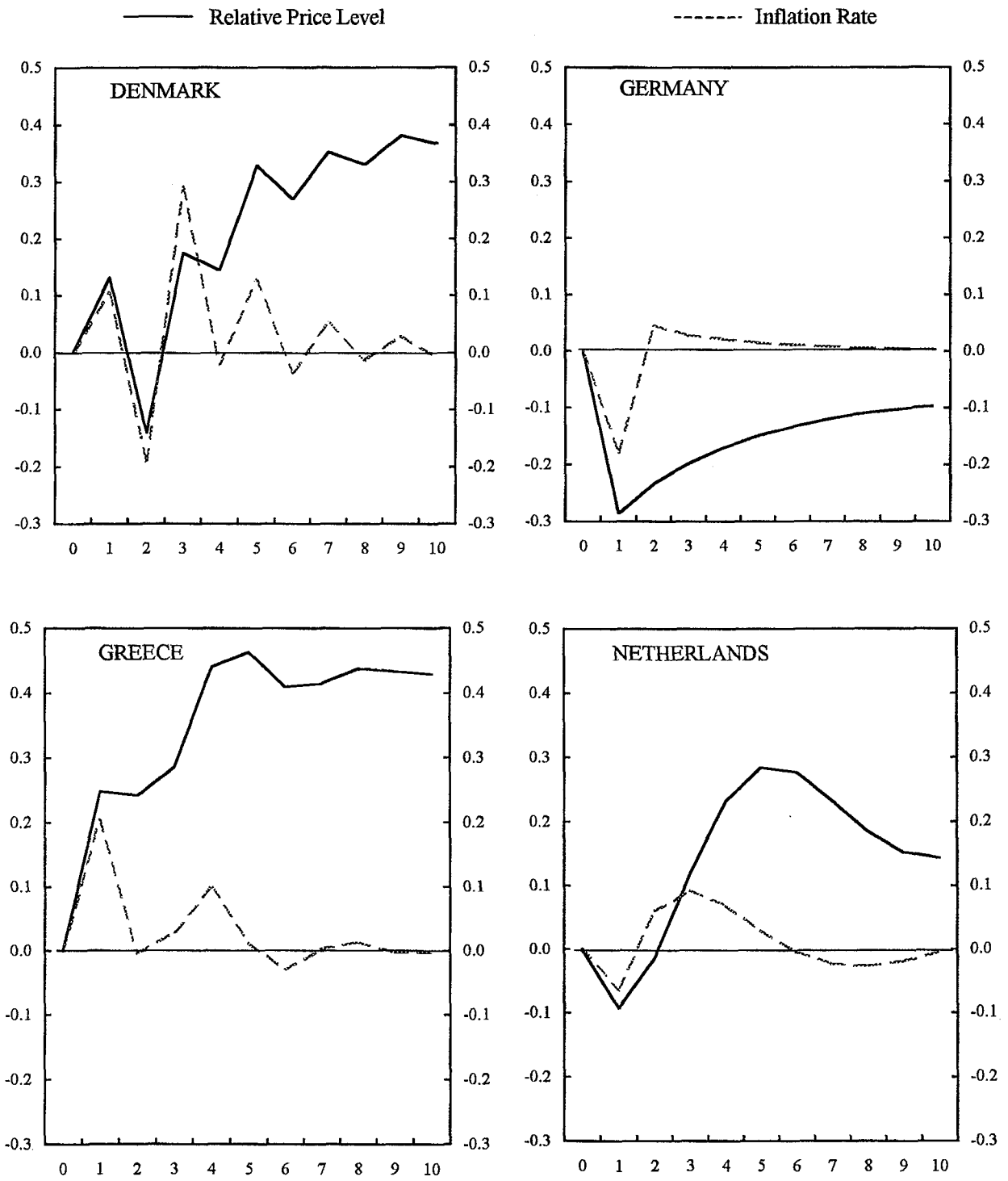
Source: Author's calculations.

Figure 2. Effect of One Percentage Point Shock to Relative Total Factor Productivity on
Relative Prices and the Inflation Rate (continued)
(In percent)

——— Relative Price Level   ------- Inflation Rate

Figure 2. Effect of One Percentage Point Shock to Relative Total Factor Productivity on
Relative Prices and the Inflation Rate (concluded)
(In percent)

——————Relative Price Level   - - - - - - - Inflation Rate
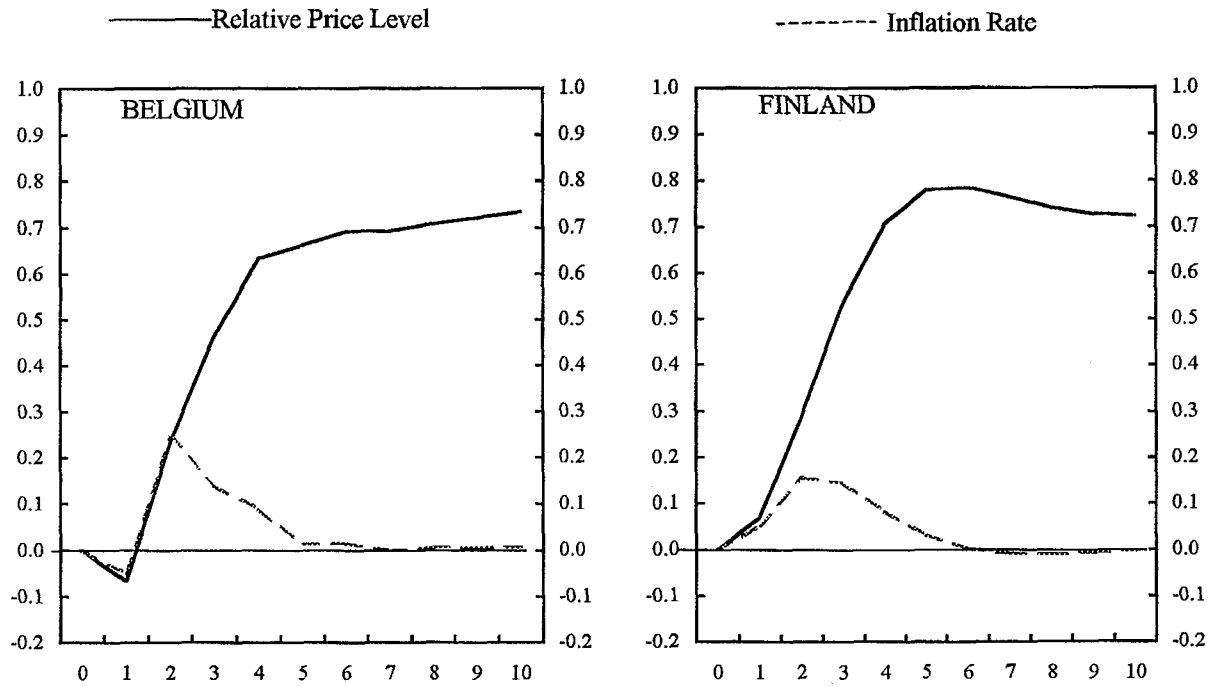
Figure 3. Contribution of Balassa-Samuelson Effect to Inflation, 1960-96
(In percent)
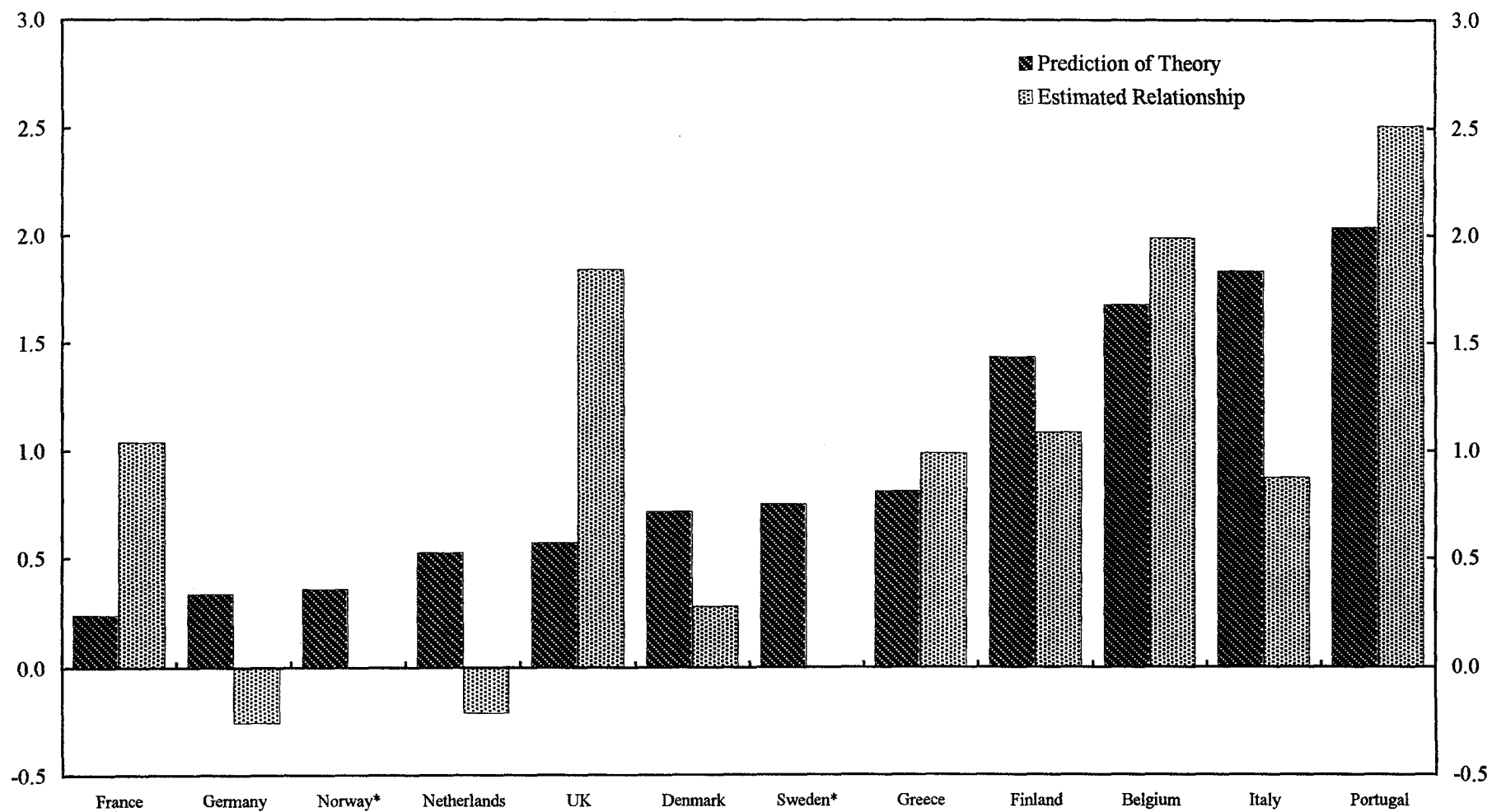
Source: Author's calculations.

*The estimated relationship is not available for Norway and Sweden because a cointegrating relationship could not be found.

of prices to wage differentials greatly diminishes the estimated contribution of productivity differentials to inflation compared to the prediction of the unaugmented model of equation (5) in which wages are assumed to grow at the same rate in both sectors.[31] The opposite is the case in the United Kingdom, where productivity differentials have a large effect on relative prices—nearly twice that predicted by the model—and are only slightly offset by relative wage differentials. In France, differential wage growth across sectors substantially magnifies rather than offsets productivity differentials, resulting in the much larger contribution from the estimation than the prediction of the theory.

E. Conclusion and Implications for Greece

73.   The Balassa-Samuelson model appears to hold reasonably well in the countries examined, with statistically significant long-run relationships found between inflation and productivity differentials across sectors. On average for the period from 1960–96, the Balassa-Samuelson effect is estimated to have contributed an additional 1.0 percentage point of annual inflation in Greece. Over this period, annual inflation averaged 11.8 percent in Greece and 4.7 percent in the United States, while the exchange value of the drachma against the dollar fell by an annual average of 5.1 percent. Together, this implies an average annual real appreciation of the drachma of about 2 percent in terms of relative consumer prices against the dollar. The one percent contribution of the Balassa-Samuelson effect to higher inflation in Greece thus potentially accounts for as much as half of the real appreciation of the drachma against the dollar.[32] The Balassa-Samuelson effect thus leads to an appreciation of the real exchange rate measured in terms of relative consumer price inflation, but this would not be considered a loss of external competitiveness.

74.   To examine the role of the Balassa-Samuelson effect in the most recent period, Figure 4 shows the contribution of inflation calculated by using the original Balassa-Samuelson model of equation (5) and the average differentials for inflation and productivity for the available years in the 1990's for each country. The estimated coefficients from equation (8) are not used in this exercise in order to exclude any data from earlier years. As expected, Balassa-Samuelson effects are largest in the 1990's in the poorer countries with the largest productivity differentials across sectors. Uneven productivity growth accounts for 1.7 percentage points of inflation in Greece over 1990–96, out of an average inflation rate of 14 percent in this period. This compares to a weighted average 0.5 percentage point contribution in the other countries (weighting by each country's share of tradable goods

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[31] Leaving government services out of nontradables eliminates most of the wage differential between tradables and nontradables, giving an estimated contribution to inflation close to the predicted 1.8 percentage points from the model.

[32] The amount would be smaller to the extent that the Balassa-Samuelson effect contributed to higher inflation in the United States, but this contribution is likely to be quite small.

Figure 4. Contribution of Balassa-Samuelson Effect to Inflation, 1990-96
(In Percentage Points)
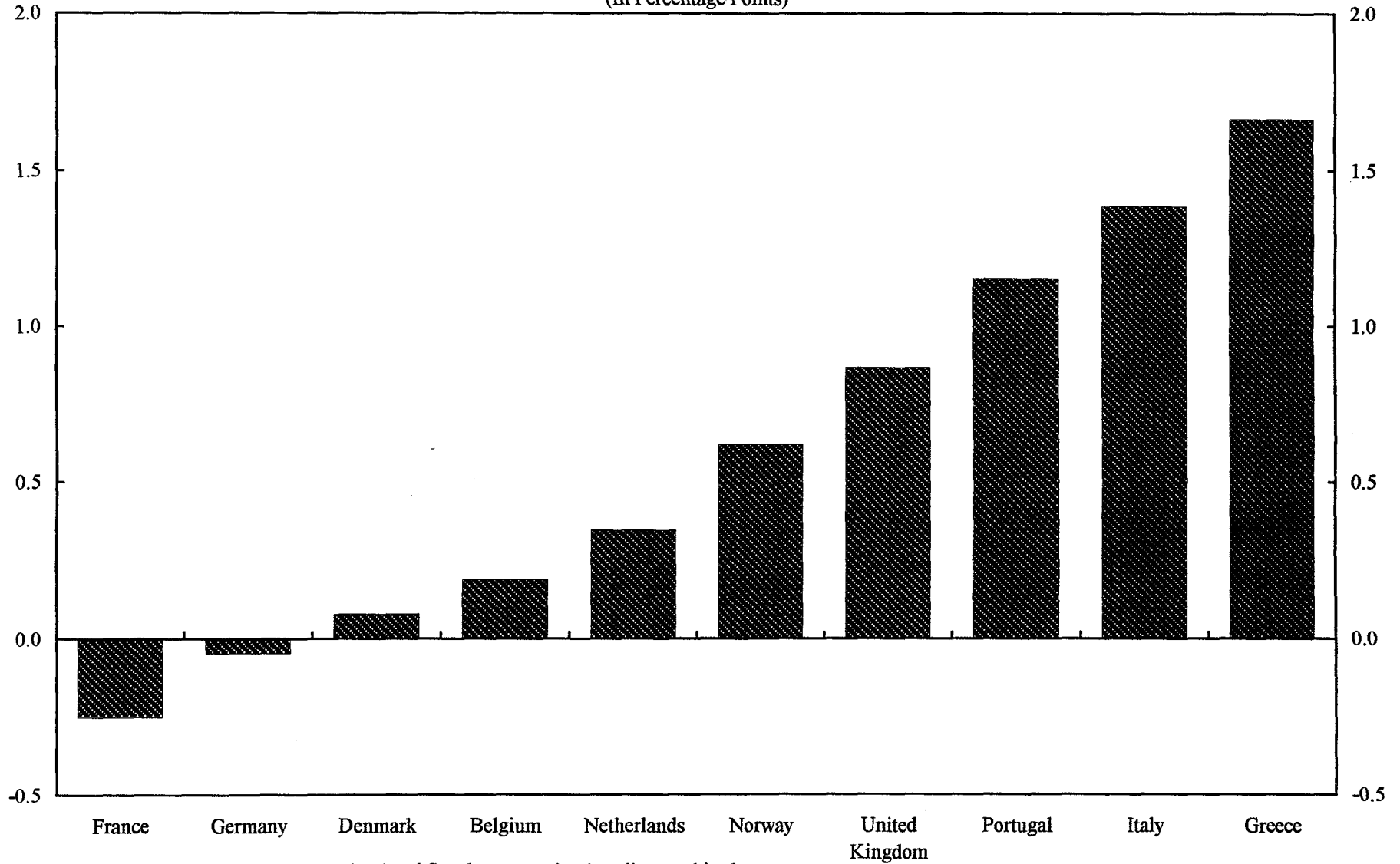
Source: Author's calculations. Finland and Sweden are omitted as discussed in the text.

production), so that the Balassa-Samuelson effect potentially accounts for 1.2 percentage points of the inflation differential between Greece and the rest of Europe during this period. Taking into account the higher inflation in Greece than in the rest of Europe and the depreciation of the drachma against the ECU, Greece experienced a roughly 2½ percent annual real appreciation in terms of consumer prices. The 1.2 percentage point Balassa-Samuelson effect thus accounts for nearly half of the real appreciation in recent years—and again, this portion can be considered as not representing a loss of external competitiveness.

75.   While the data do not include the most recent years, the results for 1990–96 suggest that some of the present inflation differential vis-à-vis the euro area countries reflects supply-side factors of productivity growth rather than Greece's more advanced cyclical position. Looking forward, the Balassa-Samuelson effect can be expected to remain an influence on inflation, since the level of productivity in tradables in Greece remains substantially below that of its EU partners.

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IV. FISCAL TRANSPARENCY: AN EXPERIMENTAL REPORT

76.   This chapter provides an assessment of fiscal transparency practices in Greece against the requirements of the IMF *Code of Good Practices on Fiscal Transparency—Declaration on Principles*. The authorities have completed the fiscal transparency questionnaire. The assessment has two parts. The first part is a description of practices, prepared by the IMF staff on the basis of the questionnaire response and incorporating further comments by the authorities. The second part is a staff commentary on some aspects of fiscal transparency in Greece.

A. Description of Practice

Clarity of roles and responsibilities

77.   The general government sector is clearly defined in conformity with the European System of Accounts (ESA). Though the state has heavily influenced the operations of the enterprise sector in the past, this involvement has decreased both because of obligations as a member of the European Union (EU) and as a matter of sound economic policy. Price controls have been eliminated on a wide variety of goods and services, though some controls remain and voluntary restraints are on occasion negotiated as part of wage/price bargaining. Despite an ongoing privatization program, the government has substantial ownership and equity participation in both financial and nonfinancial enterprise sectors. Provision of nonmarket services through these enterprises is largely covered by the budget, though some quasi-fiscal activities (QFAs) continue to be carried out (for instance, through the Fund for Loans and Deposits (TP & D) and the Post Office Credit Bank (DD), which are not in receipt of government transfers). The government no longer engages in equity support of ailing private enterprises and is in the process of selling or liquidating its present holdings.

78.   Fiscal responsibilities among branches of government and between levels of government are clearly defined by the Constitution and in practice. Within the central government, fiscal policy is conducted jointly by the Ministry of Finance and the Ministry of National Economy. The latter is responsible for economic policy and the public investment budget. The Ministry of Finance prepares the ordinary budget and, through its General Accounting Office (GAO), oversees all proposals involving expenditure or receipt of public funds. Extrabudgetary funds are currently being reviewed and are either to be incorporated in the budget or cancelled if their objectives have been achieved. The independence of the Central Bank has been firmly established in law (Law 2548/97) and in practice.

79.   The Constitution and Law 2362/95 provide a comprehensive legal framework for administration of public finance. All taxes and other public revenues have a legal basis. Exercise of discretion or other administrative decisions concerning taxes are subject to challenge in the Administrative Courts. Tax laws are widely available to the public in many forms. While in the past, as noted in the 1999 budget report, observance of tax laws has been problematic, recent reforms have strengthened collection and the laws are being brought to

EU standards. The Code of Public Employees (Law 2683/99) establishes clear ethical standards of behavior for public servants.

Public availability of information

80.   The annual budget report provides information on the fiscal position of general government (excepting some extrabudgetary accounts, that are now being incorporated in the budget) for the budget year and two preceding years. Details of government guarantees issued and called each year are provided and strict limits and conditions are applied to issuance of new guarantees. By law (2214/90) the central government budget must be accompanied by an attached budget of tax expenditures (1994 and 1995 tax expenditure budgets have been published and for the last three years a special statement on tax expenditures has been made during the introduction of the budget). Reports on the extent of QFAs are not provided. Information on the size and composition of public debt is published in the Budget Report and a monthly public debt bulletin provides information on new debt instruments, schedule of new issues, interest rates on government bonds and other institutional issues. The information on general government activity is provided to the public through such reports as the annual budget, final accounts, monthly budget reports, and monthly public debt bulletin. No advance release date calendar regarding fiscal data is produced.

Open budget preparation, execution, and reporting

81.   The budget is prepared within the framework defined by the Convergence Program and the Stability and Growth Pact. In this context, macroeconomic targets relevant to the Maastricht criteria, such as the deficit/GDP ratio, debt/GDP ratio, and inflation rate, are set and monitored for the budget year plus three forward years. The state budget gives forecasts and objectives only for the forthcoming budget year. Some steps are, however, being taken to introduce longer-term obligation budgeting. The semiannual report of the Ministry of National Economy provides detailed forecasts and objectives of the Convergence Program and examines budget performance in this context. Maintaining a primary surplus that will continue the downward trend in the debt/GDP ratio is a key fiscal policy objective. Long-term fiscal policy development is based on consideration of demographic trends and intergenerational transfers.

82.   Existing obligations are clearly distinguished from new policy proposals during budget preparation. Risks from variations in macroeconomic assumptions, contingent liabilities, and other uncertainties are explicitly examined in the budget documents. Reliability of budget estimates has been significantly improved in recent years because of improved budget control procedures. Accounting is on a modified cash basis, but the accounting system allows recording at all stages of the payments process and generation of accrual basis reports. Arrears of payments can be identified by the accounting system and it is intended that a statement be included in the next budget report. No public statement of budget accounting policies is made. Internal control of budget transactions relies on planning and limiting of spending authority by the GAO, prior approval of commitments by the Fiscal Auditing Office

of GAO, and payments and receipts control through Tax and Public Payment Offices of the Ministry of Finance. These procedures have been strengthened. Procurement and employment practices are clearly regulated and have open procedures. The Fiscal Auditing Office carries out extensive financial audits on both ordinary and investment budget transactions. Within-year budget reports are published monthly, but some three months after month-end. Final accounts are prepared by the GAO by the end of September, forwarded to the Court of Accounts, and the audited accounts presented to parliament by end-November of the year following the budget.

Independent assurances of integrity

83.   The Hellenic Republic Court of Audit is part of the judiciary system and independent of the executive branch of government. Recruitment of staff is entirely from professionally qualified individuals; senior appointments from professionally eligible candidates are made by the Cabinet on the advice of the Ministry of Justice. The budget is submitted under Ministry of Finance directives through the Ministry of Justice. The Court of Audit is responsible for audit of legality and regularity at both commitment and payment stages for government and public entity expenditures and for audit of financial statements of state bodies and local authorities. The Court can undertake proceedings against individuals found to be in breach of regularity or legality with regard to state finances. No audits of performance or "value for money" are currently carried out. The Court reports to the Chamber of Deputies on the state's annual financial statement and balance sheet. However, there are no procedures in the Chamber for a detailed oral hearing on the reports. The basis of macroeconomic forecasts are clearly explained in the budget and are subject to independent review by external agencies, such as the European Commission, OECD, and IMF, as well as by domestic agencies. The National Statistical Service of Greece (NSSG) is the official statistical agency and is technically independent under national law and EU regulations.

B.   Staff Commentary

84.   The staff broadly concurs with the authorities' assessment of fiscal transparency in Greece. The statement both reflects the real progress made in improving transparency in recent years and identifies areas for further progress. The steps taken to provide information and analysis to the public on government contingent liabilities and tax expenditures are particularly welcome. Other reforms made to budget procedures in recent years with respect to extrabudgetary funds and reduction in QFAs of public enterprises mean that the budget documents are increasingly becoming a comprehensive and reliable statement of government fiscal policy.

85.   Further improvement in several aspects of fiscal transparency practice, however, seem highly desirable, not only to give the public greater access to information but to facilitate the continued pursuit of the sound and sustainable fiscal policies that will be essential within EMU. The following are suggested:

Clarity of roles and responsibilities

- Though Greece conforms to the standard ESA definition of the general government sector, further clarity of definition of the relative roles of the general government and enterprise sectors is desirable, particularly with respect to noncommercial roles of the latter.

- Though both investment and ordinary budgets are included in the budget report, further clarification of linkages between the investment and ordinary budgets would be helpful to show the precise commitments to operations and maintenance spending that arise from asset creation.

- Law 2362/95 covers ordinary budget transactions; the investment budget is covered by a different law and different administrative processes. Transparency would be improved by developing a more consistent legal framework and administrative and accounting practices across both budgets.

Public availability of information

- As indicated in the self-assessment, reporting on the extent of QFAs in the annual budget report could be improved—or alternatively a program initiated to eliminate such activities.

- In line with proposals to subscribe to the IMF Special Data Dissemination Standard (SDDS), steps should be taken to improve timeliness of dissemination of monthly budget reports and to issue a formal advance release date calendar for fiscal reports.

Open budget preparation, execution, and reporting

- Medium-term fiscal policies could be made more transparent and accountable by adoption of a formal medium-term budget framework—this would also provide a framework for linking the ordinary and investment budgets.

- In view of the structural problems facing Greece over the long term, periodic inclusion of a comprehensive analysis of the sustainability of the government's fiscal position in the budget report would constitute one of the most significant steps toward improving fiscal transparency. Such a statement would examine long-term trends in the government's deficit and asset/liability position, covering the implications of demographic trends on social security balances and proposed changes in government ownership of enterprise assets and disposition of resources from privatization.

- In this context, it would be desirable to include a summary statement of the operations, balance sheet, and proposed plans of the public entity for the management of the state's financial assets (DEKA) in each year's budget report to enable tracking of these transactions in relation to the overall fiscal targets of the government.

- The treatment of fiscal risks in the budget report (covering contingent liabilities and macroeconomic risks) could be consolidated and provide a clearer quantitative assessment of the magnitude of possible variation to the estimates.

- A clear statement of the basis of accounting and the accounting policies underlying the budget should be included in both the budget report and the annual accounts.

- Specific attention should be paid each year to transactions involving acquisition of assets in public enterprises—which should be discussed also in the context of the government's plans for restructuring the enterprises sector.

Independent assurances of integrity

- Establishment of formal hearings of the audited financial statements of the State in the Chamber of Deputies would improve transparency and assurance of audit oversight.

V. IMPROVING INFORMATION ON RISK AND SUSTAINABILITY OF FISCAL POLICY[33]

86.   Given the need for a sustainably sound fiscal position under the Stability and Growth Pact (SGP), assessment of short- and long-term risks that may affect the fiscal outcome and the medium- and long-term sustainability of the fiscal position are being increasingly emphasized.[34] This paper explores three aspects of fiscal risk and sustainability in Greece: (i) the accounting and statistical framework, where it advocates developing a balance sheet approach to the government's operations; (ii) fiscal risks and sustainability in the annual budget and the medium term; and (iii) long-term fiscal sustainability. The suggestions are of a preliminary nature and considerable further work would be needed to put them fully into practice in Greece, but the framework is a logical extension of the reforms already underway.

A. The Accounting and Statistical Framework

87.   Most EU countries, including Greece, are considering some form of accrual basis accounting for government[35] and all accept the accrual basis system of national accounts and fiscal reporting embodied in the European System of Accounts, 1995 (ESA95). With respect to accrual basis government accounting, the pace of reform varies considerably among EU countries. EU reporting rules require only that the accounting systems be capable of generating accrual information that meets EUROSTAT standards for fiscal reports. The accounting system in Greece, like many other EU members, reports on a modified cash basis, but also provides accrual information to make the necessary adjustments for EU reporting. The Greek system also identifies and reports on arrears in tax receipts or expenditure payments.

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[33] Prepared by William Allan.

[34] The SGP includes a comprehensive surveillance procedure to monitor budget policies, whereby member states set out their budgetary strategy (in convergence or stability programs) for the coming years. A recent Opinion by the Monetary Committee, endorsed by the Ecofin Council of October 12, 1998 requires, among other things, that "the programmes shall provide an analysis of how changes in the main economic assumptions would affect the budgetary and debt position. This analysis should be complemented by a sensitivity analysis of the impact of different interest-rate assumptions on the budgetary and debt position." (http://ue.eu.int/newsroom/press/a/11825.EN8.htm).

[35] Blondal (1998) notes that four OECD countries have or are in the process of adopting both accrual accounting and budgeting, four others have adopted an accrual basis for whole of government financial reporting, and three have adopted an accrual basis for agency reporting. Although two-thirds of OECD countries have not yet formally adopted these standards, he considers it likely that many more will adopt an accrual basis of accounting in due course.

88.   There are several reasons why moving beyond these basic standards in the near future could be usefully considered in Greece. The present government budget and accounting system, though adequate for reporting on operations, debt, and contingent liabilities of central government institutions, is of limited usefulness in addressing broader public sector structural issues that are likely to have a strong fiscal impact in the future. In addition to the high government debt ratio (some of which arises from the assumption of public enterprise debt) and stock of outstanding government guarantees, Greece has the highest level of unfunded pension liabilities in the OECD and significant debt accumulated by loss-making public enterprises. On the other hand, Greece has a substantial stock of public enterprise assets and can anticipate a relatively high level of proceeds from privatization—especially if the privatization program were to be expanded to include majority sales of public utilities.

89.   Substantial benefits should be gained by improving the analysis of the fiscal implications of measures affecting the social security and public enterprise sector. In principle, the stock and all changes in these assets and liabilities of government should be registered in the accounting system and government financial statements. One key step toward this goal in Greece would be the development of a more comprehensive government balance sheet providing a coherent oversight of all of the government's financial assets and liabilities.[36] In this respect, it is recognized that a number of weaknesses in statistical compilation have to be overcome. Notably, data for noncentral government (particularly supplementary social security funds) are not timely, and priority has not yet been given to compilation of government balance sheet data. However, balance sheet information of public enterprises and social security funds is submitted to the National Statistical Service of Greece (NSSG). Such an effort could thus be relatively easily initiated and progressively improved.

90.   A more comprehensive government balance sheet (see Box 1), incorporating government equity in public enterprises and giving recognition in some form to unfunded liabilities of the social security funds, would convey to the public and to the financial markets a better perspective on the linkages between the structural and fiscal policy issues that have to be faced. The balance sheet should be more than a mere summary of financial assets and liabilities. It covers important strategic concerns, and should accordingly be accompanied by substantive analytical statements. A comprehensive balance sheet provides an important basis for examination of long-term sustainability (see Section C below). Equally importantly, an annual government balance sheet imposes discipline on year-to-year operational decisions and helps to provide assurance that consequences of policy actions are brought to account.

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[36] This would also be a significant step toward modified accrual basis accounting. However, many other public administration reform measures would be necessary before the full benefits of accrual accounting for the whole government could be realized (for instance, the environment must allow public sector managers to use accrual information for asset management decisions).

Box 1. A Balance Sheet Approach for Government

Associated with moves to accrual basis accounting, governments are increasingly adopting a balance sheet approach to fiscal management. The standard budget presentation focuses on annual transaction flows and does not completely address issues of asset/liability valuation nor provide a comprehensive framework for assessing fiscal stocks. Recent or emerging fiscal reporting standards, such as the draft Government Finance Statistics (GFS)[1] and the European System of Accounts (ESA95), embody a balance sheet as an integral part of the analytical framework. Inclusion of a balance sheet in government budgeting and accounting operations should enable a more comprehensive and strategic overview of fiscal policy and allow government decisions on assets and liabilities to be more effectively monitored.

A government balance sheet, however, is very different from that of a commercial enterprise and governments differ widely in their interpretation of what assets and liabilities should be included in the balance sheet. International standards are being developed in this area,[2] but, even in the absence of agreed standards, some basic principles are widely accepted. The treatment of the issues and the advantages of a balance sheet approach are well described in U.S. budget and accounting documents.[3] The U.S. government balance sheet approach aims to provide comprehensive information on assets and liabilities of government. Because of the nature of government, however, the statement makes important distinctions among the types of assets and liabilities held. It also extends the analytical framework beyond the timeframe of a conventional balance sheet to include (in separate but linked analytical tables) broader government powers for tax and spending (and implicit assets and liabilities) in the future.

The U.S. approach thus includes a conventional presentation of market-related assets and liabilities of government in the annual financial report (including memoranda on contingencies and commitments). A separate section of the report, however, provides "stewardship information" on various assets and obligations of government that, for various reasons, including valuation issues or nonrecognition of liability (as a matter of accounting policy), are not incorporated in the statement of assets and liabilities. Defense assets, natural assets, and heritage assets, as well as estimates of social security obligations, are included in this section of the report. Also included as stewardship information is a "current services assessment" projecting government receipts and outlays on the basis of no change to present laws.

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[1] See http://www.imf.org/external/pubs/ft/gfs/manual/index.htm
[2] See International Federation of Accountants, 1998, Guideline for Government Financial Reporting: Exposure Draft (New York: Public Sector Committee, IFAC)
[3] See United States: Analytical Perspectives, Budget of the U.S. Government, Fiscal Year 1999, and Financial Report of the United States Government, 1998.

91. A balance sheet approach could help to coordinate the various decisions being made about creation and disposal of public enterprise assets and government equity holdings. On the one hand, public assets are being created through the public investment budget, while on the other, assets are being sold, either directly by the government or through the operations of the public entity for the management of the state's financial assets (DEKA). It would be important for these strategic issues to be addressed in the light of a consolidated view of their impact, and that the public and financial markets be given as complete information as possible on which to gauge the direction and effectiveness of public policy. One line of argument is that the rate of public capital accumulation is a primary determinant of GDP growth,[37] and it is

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[37] Alogosokoufis and Kalyvitis (1997).

critical to maintain a high level of public capital formation. Other factors also need to be considered, however: particularly, the generally poor performance of public enterprises, the lack of competitiveness within the sectors dominated by public enterprises, and large potential gains to the economy from restructuring and deregulation of those sectors. The government's strategy is to direct public investment to commercializing and strengthening public enterprises to allow subsequent deregulation in the sectors concerned or divestiture of assets. Incorporation of these assets in a government balance sheet and the establishment of appropriate methods for valuing them would contribute to an effective review mechanism for monitoring government policies toward public enterprises.

92.   A subsidiary issue in the public investment program, that of "below-the-line" capital transfers to enterprises could also be partially resolved through a formalized balance sheet approach. Concern is frequently expressed that such transfers (amounting to about 1.5 percent of GDP each year), though accepted by EUROSTAT as asset transactions, implicitly involve a substantial element of government transfer expense and should, therefore, be added to the "real" deficit. The level of such transfers has been quite stable, giving no major concern with their impact on the current fiscal stance, in fiscal impulse terms. Such transactions, however, may provide an area where fiscal tightening could occur, and there could be concerns with the longer run impact of such transactions on the net financial worth of government.[38] Annual valuation of enterprise assets would help to monitor the effectiveness of the transactions and establish more clearly any subsidy element that may be involved.

93.   Similar considerations apply to the current treatment of contingent liabilities (mainly government guarantees) that are called. These also are treated below the line as an asset/liability transaction—at least implicitly, a loan to the entity offsets the liability assumed by the government. However, prima facie, the quality of the assets thus acquired are subject to some doubt. It would be highly desirable, therefore, that the analytical statement accompanying the balance sheet provide information on these assets and that the value of such assets be monitored carefully over time. Contingent liabilities also pose risks to the fiscal outcome and these aspects are discussed further below.

94.   The operations of DEKA and the transactions carried out through this vehicle would best be considered in the context of the government's overall strategy toward public enterprises. The government has an option whether or not to use DEKA for privatization, and so any examination of privatization necessarily involves looking at both direct government activities and those carried out by DEKA. Effective policy review would require, therefore, not only that government equity in DEKA be shown in the government balance sheet, but that

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[38] There could, on the other hand, be high returns from some of these investments, which are designed to strengthen existing enterprises with a view to possible privatization. This is largely an empirical question that should be resolved by careful analysis and monitoring through the public accounts.

an analytical statement covering all privatization operations and the extent to which these are carried out by DEKA be included in the annual financial statements of government.[39] The annual budget report description of privatization activities should also cover those to be carried out through DEKA.

B. Fiscal Risks in the Annual Budget and Medium Term

95.   Fiscal decisions and presentation of fiscal information are usefully considered in three time frames: the annual budget, the medium term (which here is taken to cover the annual budget plus two subsequent years, but in some countries may include up to four outyears), and the long term (which, for some purposes, may cover around 50 years). The focus of budget analysis naturally differs significantly among these time horizons. At one extreme, the annual budget, as a legal authority to spend, should make the most precise statements about revenue and expenditures—but it should also recognize that a variety of factors can affect these estimates and indicate their reliability. At the other extreme, long-term fiscal scenarios necessarily rely on a variety of assumptions about factors that can vary widely over that time period. Such scenarios do, however, allow investigation of demographic and other trends that will have to be taken into account in government's long-term policies.

96.   Medium-term formulation of budget policies provides a crucial link between the annual budget and long-term policies. Medium-term budget frameworks are becoming central elements of budget presentation in many OECD countries. As noted, in the context of the European Union, the elements of such a framework are a requirement under the SGP.[40] This section examines possible information improvements that could help enhance the Greek budget framework for annual budget and medium-term convergence/stability program needs. The final section looks at long-term fiscal sustainability issues in Greece.

Toward a statement of fiscal risk

97.   Greek budget documents already incorporate information on risks that could affect the annual budget outcome (for instance, with respect to government guarantees) and they describe the basic macroeconomic assumptions underlying the budget estimates. Further development of the analysis and budget presentation in a consolidated statement of fiscal risks

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[39] The government has made a submission to EUROSTAT regarding the status of DEKA—essentially arguing that it is a an enterprise and, therefore, not to be included as part of general government. The precise statistical treatment of DEKA operations, however, has no bearing on the recommendation made above. Effective fiscal management implies that DEKA operations be considered as a component of fiscal policy both ex ante and ex post.

[40] See European Commission (1999), for a description of requirements and an examination of budgetary policies needed in each member country to deal with cyclical variations while keeping within the 3 percent of GDP deficit limit.

should be relatively straightforward—and production of such a statement will show the public and financial markets how these risks have been taken into account in budget decisions. Incorporation of some of the following elements could be considered.

Effectiveness of budget control and discipline

98.   A number of improvements in budget control have been introduced on both the revenue and expenditure sides of the budget and these are contributing to an increased reliability of the budget estimates. Table 1 shows variations between original budget estimates and final outcomes (the data are from the budget prior to national accounts adjustments and so may not correspond to national accounts presentations). Between 1996 and 1998 the deviation from budget of both the overall and primary balances have declined as a percentage of GDP. A major factor in improving performance has been more effective revenue collection, particularly of direct taxes. Government consumption expenditure has been limited in real terms and more rigorous analysis and controls introduced for grants to public and private sector agencies.

Table 1. Central Government Budget Execution: Deviation from Budget								
(In billions of dollars)								
	1996			1997			1998		
	Budget	Outcome	% change	Budget	Outcome	% change	Budget	Estimate	% change
Revenue									
Current	7,710	7,384	-4.2	8,715	8,467	-2.8	9,376	9,528	1.6
Of which: Direct	2,415	2,316	-4.1	2,790	2,767	-0.8	3,111	3,587	15.3
Indirect	4,466	4,230	-5.3	5,014	4,834	-3.6	5,397	5,241	-2.9
Capital	600	568	-5.3	817	719	-12.0	890	913	2.6
Expenditure									
Primary current	6,102	6,147	0.7	6,757	6,848	1.3	7,204	7,434	3.2
Capital	1,364	1,274	-6.6	1,666	1,626	-2.4	2,005	1,881	-6.2
Interest	3,355	3,501	4.4	3,468	3,216	-7.3	3,220	3,233	0.4
Overall balance	-2,512	-2,970	18.3	-2,359	-2,504	6.1	-2,163	-2,107	-2.6
change (% GDP)			-1.5			-0.4			0.2
Primary balance	844	531	-37.0	1,109	712	-35.8	1,057	1,126	6.5
change (% GDP)			-1.1			-1.2			0.2
GDP	29,128	29,697	2.0	32,693	32,752	0.2	35,461	35,677	0.6

Source: Ministry of Finance General Accounting Office.

Government guarantees

99.   In the past, widespread use of guarantees had led to an estimated accumulated Dr 2,332 billion (7.9 percent of GDP) in outstanding contingent liabilities from guarantees by end-1996. Issuance of guarantees reached a high of 6 percent of GDP in 1989. Since 1995, however, issuance of guarantees has been controlled to a level no greater than 3 percent of budget appropriations—and, from that time, the issuance of guarantees has declined as a proportion of GDP from 1.3 percent in 1995 to 0.6 percent in 1998. Government policy now is that guarantees be used only for facilitating major infrastructure projects and for enterprise

investment capital with a reasonable prospect of earning a return—usually these are issued for EU loans that require sovereign guarantees.

100. Outstanding contingent liabilities from guarantees have declined to Dr 2,144 billion (6.5 percent of GDP) in 1997, and Dr 1,966 billion (5.5 percent of GDP) in 1998. Called guarantees amounted to Dr 111 billion in 1998.

Other contingent liabilities

101. Privatization and use of private sector financing initiatives for financing infrastructure often give rise to contingent liabilities by way of indemnities or guarantees to the purchaser of assets or provider of infrastructure. The authorities indicate that no contractual contingent liabilities arise from privatization—which is largely implemented by restructuring enterprises, listing on the stock market, and selling through market mechanisms. It would be appropriate, however, for a unit of the General Accounting Office of the Ministry of Finance to maintain records of all forms of legal liability and for such contingent claims to be declared in a statement of fiscal risks.

102. Some liabilities arise because government is assumed to have an implicit obligation. Several cases have occurred where the government has assumed the debt of third parties without a formal guarantee agreement. In addition to the financial rehabilitation loans referred to above, the government has issued debt to increase share capital of banks or other entities (e.g., National Bank for Industrial Development-ETBA, and Hellenic Postal Service-ELTA); it has also issued special loans for the purpose of settling accounts related to advance payments by the public sector and the exchange rate differentials account maintained by the Bank of Greece (Dr 3,980 billion outstanding as at end-1998). Many of these outstanding loans also embody an element of capitalized interest.

Variation of economic assumptions

103. Changes in the economic environment are another major element of risk that may affect both the annual budget and the medium-term budget estimates and it is becoming standard practice for these elements to be explained in budget presentations (see Box 2). Risks to the annual budget tend to be in somewhat sharper focus than those for the medium term; but it is important to ensure that due emphasis is given to implications beyond the budget year, so as to ensure compliance with the requirements of the SGP and long-term debt reduction in subsequent years.

104. For purposes of illustration, estimates of the sensitivity of estimates of primary and overall balances as a percent of GDP to changes in assumptions regarding the rate of GDP growth and interest rates are shown in Table 2. The estimates of sensitivity consider only a single parameter change in each case and do not consider policy adjustments that may be taken in response to such changes. A 1 percent increase in the assumed growth rate, other things remaining the same, would have a favorable impact on primary and overall balances of the order of 0.3–0.4 percent of GDP each year of the projected period. This effect occurs

mainly because it is assumed that primary expenditures would remain unchanged from the original budget projections. On the other hand, an assumed 1 percent increase in interest rates, which would impact the debt held as floating rate bonds or treasury bills, would cause a deterioration in the overall balance of around 0.4 percent of GDP each year of the projection.

Box 2. Uncertainty, Sensitivity, and Fiscal Risks

Annual budget estimates (and even more so, medium-term budget plans) are forecasts, many elements of which depend on assumptions about economic trends. Changes in key economic parameters will thus change a number of elements of the budget and are likely to affect the planned fiscal balance.

Sensitivity analysis: It is becoming increasingly common in OECD countries for budget documents to address explicitly the degree of uncertainty associated with the underlying economic assumptions and give a quantitative estimate of the sensitivity of budget aggregates to changes in key assumptions. Australia and the United States provide examples of non-EU countries that regularly produce an analysis of the sensitivity of fiscal aggregates to economic changes and an estimate of risk that the fiscal outcome could differ from the budget estimates. As noted in the text, such effects are expected to be included in country presentations of stability and convergence programs in the EU. In all cases, it is important to distinguish between those changes that are temporary and those that may be sustained for several years.

Cyclical factors: A particular issue under the SGP is the need to provide assurance that the budgetary positions of member states provide a sufficient safety margin for them to deal with the effects of "normal" cyclical fluctuations without breaching the 3 percent of GDP reference value for the overall deficit.[1] Estimating the position in the cycle for individual economies is subject to considerable uncertainty, and possible misspecification gives rise to a risk of significant effects on fiscal balances over the medium term.[2]

Economic risks: As well as risks that the fiscal balance will be changed by economic events, there are risks that unforeseen economic events will require discretionary changes in fiscal policy during the year—or over the medium term. In most budget presentations, such factors are considered within a general discussion of the economic background to the budget. In the context of EMU, however, fiscal policy, combined with flexible market adjustments, will bear the burden of individual country adjustment should economic conditions differ from the Euro-area average. An important element of fiscal risk assessment in EMU therefore is to assess whether there is any likelihood of divergence and to examine the possible roles of fiscal and other policies in response to such divergence.

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[1] See European Commission, 1999 (op cit), which estimates benchmark structural deficits for member states that would provide assurance that this goal could be achieved

[2] See, for instance,"Risks in estimating the cycle" in Chapter 5 of the *United Kingdom Convergence Programme*, 1998.

Improved planning and risk mitigation measures

105.   The government is taking a number of measures to improve planning and adaptation of policies to handle budget risks. Further developments could be beneficial in several areas.

Table 2. Greece: General Government Sensitivity Analysis 1/

	1998	1999	2000	2001	2002
		(Percent of GDP)			
Baseline					
Current revenues	39.3	39.6	39.2	38.9	38.6
Current expenditures	40.0	39.4	38.8	37.7	37.2
Primary expenditures	30.9	30.7	31.1	31.1	31.1
Interest payments	9.1	8.7	7.7	6.6	6.1
Net capital spending	1.7	1.9	2.0	2.2	2.2
Net capital transfers	-2.0	-2.1	-2.1	-2.2	-2.1
Gross capital formation	3.7	3.9	4.1	4.3	4.3
Saving	1.3	2.2	2.6	3.4	3.6
Primary balance	6.7	7.0	6.1	5.7	5.3
Overall balance	-2.4	-1.7	-1.5	-1.0	-0.8
Growth rate + 1 percent					
Current revenues	39.3	39.6	39.2	38.9	38.5
Current expenditures	40.0	39.4	38.3	36.9	36.0
Primary expenditures	30.9	30.7	30.8	30.4	30.1
Interest payments	9.1	8.7	7.6	6.5	5.9
Net capital spending	1.7	1.9	2.0	2.1	2.1
Net capital transfers	-2.0	-2.1	-2.1	-2.1	-2.1
Gross capital formation	3.7	3.9	4.1	4.2	4.2
Saving	1.3	2.2	3.0	4.1	4.6
Primary balance	6.7	7.0	6.5	6.3	6.3
Overall balance	-2.4	-1.7	-1.1	-0.1	0.4
Interest rate + 1 percent					
Current revenues	39.3	39.6	39.2	38.9	38.6
Current expenditures	40.0	39.4	39.2	38.1	37.6
Primary expenditures	30.9	30.7	31.1	31.1	31.1
Interest payments	9.1	8.7	8.1	7.0	6.5
Net capital spending	1.7	1.9	2.0	2.2	2.2
Net capital transfers	-2.0	-2.1	-2.1	-2.2	-2.1
Gross capital formation	3.7	3.9	4.1	4.3	4.3
Saving	1.3	2.2	2.2	3.0	3.2
Primary balance	6.7	7.0	6.1	5.7	5.3
Overall balance	-2.4	-1.7	-1.9	-1.4	-1.2

Source: Staff calculations.

1/ Alternate scenarios are assumed to apply from January 1, 2000.

- Article 18 of the Law Regarding Public Accounting, Auditing of Government Expenditures and Other Regulations (2362 \1995) allows a reserve fund, which is a special appropriation in the annual budget to cover emergency expenditures not covered in departmental appropriations. The reserve fund appropriation has been around 0.3 percent of GDP in recent years, but is to be discontinued from FY 2000. For the most part, contingencies that have been called have been met by off-budget balance sheet operations. Variations in revenue or expenditure requirements during the year have been covered by supplementary provisions or reserves, when additional resources were available, or by cutbacks—largely on capital spending—in the years when revenue was well below expectations or to compensate for overruns in current spending.

- Policies are being established that will help limit liability for claims without formal guarantee. Privatization programs in the banking sector, the restructuring of some of the more problematic state-owned banks, accompanied by continued strengthening of bank supervision by the Bank of Greece, should help to insulate government from future claims from this sector. Extension of the privatization program to all key sectors should help limit future claims on the public purse.

- In line with the rolling convergence (and eventually stability) program targets, initial steps are under consideration to establish a formal process of forward estimates that would be integrated with the budget. Under such a scheme, the budget presentation would give estimates for all general government revenue and expenditure proposals for the budget year and two forward years—and this would help to clearly identify future policies and their costs and potential risks. This practice would be consistent with that of many other EU member countries. Maintenance of rolling forward estimates covering both ordinary and investment budgets by all government ministries and budget-dependent public entities would be a key element of this proposal.[41]

C. Long-term Fiscal Sustainability

106.   An exploration of long-term fiscal scenarios provides a means to explore the impact of demographic and other structural changes that will affect the economy and fiscal position over an extended time period. Though such forecasts can be at best a rough guide to future events, they highlight major choices that need to be made—and the necessity to initiate appropriate action in the near and medium-term. For Greece, it is clear that a number of major structural changes will have to be considered to achieve the goals of continued reduction of the debt/GDP ratio, maintenance of stability, and strong economic growth over the long term.

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[41] Limited further guidance on this aspect, based on experience in several OECD countries, is also provided in the IMF *Manual on Fiscal Transparency* (see paragraphs 98–101).

107. One option for reducing the debt/GDP ratio toward the Maastricht limit is to maintain a high primary surplus, such as that set in the convergence program for 2000–01, for a prolonged period. Maintaining such a surplus, however, will become increasingly difficult as demographic forces increase the social security funds' deficit. OECD projections suggest that this effect will become increasingly prominent from around 2005 and that the deficit from this source will increase progressively from around 4.5 percent of GDP in 1997 to about 14 percent of GDP by 2050.[42] Tackling social security reforms is undoubtedly central to the issue of long-term sustainability and, as noted in a recent report to the government,[43] there is a limited window of opportunity for this work to be substantively tackled.

108. Economic restructuring provides another option for improving long-term fiscal sustainability. In conjunction with maintenance of a strong fiscal position, debt can, of course, be reduced directly by using privatization receipts. Greece is following this course.[44] A sustained program of privatization accompanied by efforts to deregulate and improve competitiveness of the enterprise sector (particularly of utilities) would also make a major contribution by spurring GDP growth and reducing pressure on the budget for enterprise subsidies. The OECD estimates that the cumulative output gain of a comprehensive restructuring and deregulation of the sectors dominated by public enterprises, including second round effects in other sectors, would be of the order of 9–11 percent of GDP, while such reforms would also exert an appreciable downward impact on the aggregate price level.[45]

109. A demonstration of the sustainability of fiscal policy would need to take all of these factors into account. Periodic assessment of long-term policy options could be undertaken by developing a long-term aggregate model. This could be used initially to generate long-term *baseline* fiscal forecasts showing expected trends in economic and fiscal aggregates, the overall and primary balances, and ratio of debt to GDP, given continuation of present policies on tax, primary budget expenditure, social security funds, and including conservative assumptions on anticipated receipt and disposition of proceeds from privatization.

110. The model could then be used to simulate the impact of different policy assumptions or to assess the magnitude of change required to meet agreed policy goals. One issue to be addressed is the level of sophistication of modeling that is required. Relatively simple baseline simulations would indicate the magnitude of the problems to be faced. Examination of policy

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[42] Mylonas and de la Maisonneuve (1999).

[43] Greece, Committee for the Examination of Economic Policy in the Long Term (1997).

[44] European Commission, 1999 assumes that Greece will continue to make "stock-flow adjustments" of the order of 1 percent of GDP over the next 10 years and, on this basis, could be expected bring the debt ratio below the 60 percent threshold in this time frame.

[45] See OECD (1998), Chapter IV.

alternatives would require more detailed data and analysis of the options in, for example, the social security and public enterprise sectors, so more complex modeling and analysis would likely be required in these areas. Upgrading of the public sector statistical collection and compilation would also be essential. Improved data on public enterprise balance sheets, for instance, would be needed both to develop a balance sheet approach to government decisions (as discussed earlier) and to provide reliable data for modeling medium- and long-term policy options.

111. A comprehensive analysis of options and decisions along the above lines could be undertaken to set the basis for sustainable fiscal policy in Greece over the long term. Such studies could be done periodically, say every four or five years, and a summary of the results released with the Budget Report and stability programs as evidence of fiscal sustainability.

112. Production of periodic reports along the above lines could help address the inherent "tragedy of the commons" problem that tends to inhibit reform in many countries. Various social groups see themselves as potential losers from reform and argue that the costs of adjustment be borne elsewhere—and governments, because of their limited term of office, have an incentive to address issues in a way that satisfies short-term objectives of politically influential groups. Effective policy review of these matters requires that a program extending beyond the life of any one government be proposed as a firm guide to policy choices. In part, this is a vehicle for educating the public at large on the choices that have to be confronted. A formal document defining these long-term choices can be developed as a tool for negotiations with various interest groups and as a binding basis for long-term strategic decisions.[46]

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[46] In some countries, the need for transparency on these issues has become a binding legal requirement on all future governments of the country. In Australia, for instance, the recently enacted "Charter of Budget Honesty" requires the production of an intergenerational report every five years to help guide the country's integrated medium-term and annual budget estimates process.

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Table 1. Greece: Aggregate Demand

(At constant prices of the previous year)

	1993	1994	1995	1996	1997	1998 Prel.
Gross domestic product at market prices	-1.6	2.0	2.1	2.4	3.2	3.7
Consumption	-0.3	1.5	3.1	1.8	2.1	1.6
Private	-0.8	2.0	2.7	1.9	2.5	1.8
Government	2.6	-1.1	5.6	5.0	-0.4	0.4
Gross fixed capital formation	-3.3	-1.0	7.8	11.1	10.7	9.8
Private	-4.7	-0.1	5.8	12.4	11.7	8.4
Public	1.4	-4.0	14.3	7.4	7.5	13.7
Construction	-6.0	-4.3	1.7	7.1	9.8	10.2
Equipment	0.6	-0.3	8.4	11.5	9.3	9.1
Change in stocks (in percent of GDP)	-0.3	0.1	0.7	0.1	0.0	0.3
Total domestic demand	-0.9	1.2	3.9	2.9	3.4	3.3
Foreign balance (in percent of GDP)	-10.3	-10.9	-13.4	-14.1	-14.4	-14.0
Exports of goods and NFS	-3.3	6.6	0.5	3.0	5.3	9.2
Imports of goods and NFS	0.2	1.3	9.2	4.9	5.4	5.7
Contributions to growth						
Gross domestic product at market prices	-1.6	2.0	2.1	2.4	3.2	3.7
Consumption	-0.2	1.3	2.8	1.6	1.8	1.4
Private	-0.6	1.5	2.0	1.4	1.9	1.3
Government	0.4	-0.2	0.8	0.2	-0.1	0.1
Gross fixed capital formation	-0.7	-0.6	0.8	1.6	1.9	2.0
Private	-0.8	-0.3	0.3	1.3	1.5	1.2
Public	0.1	-0.2	0.5	0.3	0.4	0.7
Total domestic demand	-1.0	1.3	4.2	3.2	3.7	3.6
Foreign balance	-0.6	0.7	-2.1	-0.8	-0.5	0.0
Exports of goods and NFS	-0.6	1.0	0.1	0.5	0.8	1.4
Imports of goods and NFS	-0.1	-0.3	-2.2	-1.2	-1.3	-1.4

Sources: Ministry of National Economy; and Fund staff calculations.

Table 2. Greece: Aggregate Demand

	1993	1994	1995	1996	1997	1998 Prel.
	(In billions of drachmas; at current prices)					
Gross domestic product at market prices	21,135.7	23,983.4	26,883.5	29,697.7	32,752.2	35,677.3
Consumption	18,964.2	21,357.5	24,317.1	26,552.2	28,883.3	30,843.8
Private	15,900.9	18,012.1	20,138.8	22,219.6	24,045.3	25,628.6
Government	3,063.3	3,345.4	4,178.3	4,332.6	4,838.0	5,215.2
Gross domestic investment	4,191.6	4,479.1	5,023.3	5,748.2	6,579.1	7,773.3
Gross fixed capital formation	4,267.1	4,453.3	4,981.1	5,728.7	6,563.7	7,674.2
Private	3,186.8	3,335.5	3,646.9	4,227.1	4,873.2	5,626.6
Public	1,080.3	1,117.8	1,334.2	1,501.6	1,690.5	2,047.6
Change in stocks	-75.5	25.8	42.2	19.5	15.4	99.1
Total domestic demand	23,155.8	25,836.6	29,340.4	32,300.4	35,462.4	38,617.1
Foreign balance	-2,020.1	-1,853.2	-2,456.9	-2,602.7	-2,710.2	-2,939.8
Exports of goods and NFS	3,355.5	3,904.0	4,258.2	4,697.8	5,143.7	5,846.7
Imports of goods and NFS	5,375.6	5,757.2	6,715.1	7,300.5	7,853.9	8,786.5
Net factor income from abroad	137.8	212.1	242.4	197.7	189.5	130.0
GNP at market prices	21,273.5	24,195.5	27,125.9	29,895.4	32,941.7	35,807.3
Depreciation	1,847.7	2,117.2	2,409.1	2,770.7	3,174.5	3,425.0
NNP at market prices	19,425.8	22,078.3	24,716.8	27,124.7	29,767.2	32,382.3
Indirect taxes less subsidies	2,310.1	2,596.3	2,969.5	3,337.9	3,916.9	4,249.5
NNP at factor cost	17,115.7	19,482.0	21,747.3	23,786.8	25,850.3	28,132.8
	(In percent of GDP)					
Consumption	89.7	89.1	90.5	89.4	88.2	86.5
Private	75.2	75.1	74.9	74.8	73.4	71.8
Gross fixed capital formation	20.2	18.6	18.5	19.3	20.0	21.5
Private	15.1	13.9	13.6	14.2	14.9	15.8
Foreign balance	-9.6	-7.7	-9.1	-8.8	-8.3	-8.2
Exports of goods and NFS	15.9	16.3	15.8	15.8	15.7	16.4
Imports of goods and NFS	25.4	24.0	25.0	24.6	24.0	24.6

Source: Ministry of National Economy.

Table 3. Greece: Private Sector Income Account 1/

(In billions of drachmas; at current prices; percentage changes in parentheses)

	1993	1994	1995	1996	1997	1998 Prel.
Compensation of employees	6,763.4 (12.3)	7,635.5 (12.9)	8,801.5 (15.3)	10,033.8 (14.0)	11,191.5 (11.5)	12,008.5 (7.3)
Nonlabor income, net	12,397.7 (14.4)	14,314.0 (15.5)	15,265.2 (6.6)	15,998.2 (4.8)	16,350.8 (2.2)	17,853.4 (9.2)
Current transfers received	4,020.2 (14.4)	4,624.7 (15.0)	5,308.3 (14.8)	5,752.0 (8.4)	6,239.7 (8.5)	6,877.5 (10.2)
Direct taxes	1,218.4 (18.8)	1,643.6 (34.9)	1,971.4 (19.9)	2,103.0 (6.7)	2,451.5 (16.6)	2,941.8 (20.0)
Current transfers paid	2,557.3 (22.6)	2,950.0 (15.4)	3,382.0 (14.6)	3,761.3 (11.2)	4,124.3 (9.7)	4,536.7 (10.0)
Disposable income	19,405.6 (12.4)	21,980.6 (13.3)	24,021.6 (9.3)	25,919.7 (7.9)	27,206.2 (5.0)	29,260.9 (7.6)
Private consumption	15,900.9	18,012.1	20,138.8	22,219.6	24,045.3	25,628.6
Private saving	3,504.7	3,968.5	3,882.8	3,700.1	3,160.9	3,632.3
Private saving rate	18.1	18.1	16.2	14.3	11.6	12.4

Source: Ministry of National Economy.

1/ Including public enterprises.

Table 4. Greece: Saving-Investment Balance

	1992	1993	1994	1995	1996	1997	1998 Prel.
Gross domestic investment	3,923.4	4,191.6	4,479.1	5,023.3	5,748.2	6,579.1	7,773.3
Gross fixed capital formation	3,983.8	4,267.1	4,453.3	4,981.1	5,728.7	6,563.7	7,674.2
Change in stocks	-60.4	-75.5	25.8	42.2	19.5	15.4	99.1
Total saving	3,923.4	4,191.6	4,479.3	5,023.3	5,748.2	6,579.1	7,773.4
Gross private saving	3,236.4	3,504.7	3,968.5	3,882.8	3,700.1	3,160.9	3,632.3
Net government saving 1/	-1,329.7	-1,701.0	-1,720.9	-1,925.6	-1,498.7	-594.6	-234.0
Depreciation	1,640.0	1,847.7	2,117.2	2,409.1	2,770.7	3,174.5	3,425.0
Foreign saving 2/	376.7	540.2	114.5	657.0	776.1	838.3	950.1
Gross domestic investment	20.9	19.8	18.7	18.7	19.4	20.1	21.8
Gross fixed capital formation	21.2	20.2	18.6	18.5	19.3	20.0	21.5
Change in stocks	-0.3	-0.4	0.1	0.2	0.1	0.0	0.3
Total saving	20.9	19.8	18.7	18.7	19.4	20.1	21.8
Gross private saving	17.2	16.6	16.5	14.4	12.5	9.7	10.2
Net government saving	-7.1	-8.0	-7.2	-7.2	-5.0	-1.8	-0.7
Depreciation	8.7	8.7	8.8	9.0	9.3	9.7	9.6
Foreign saving	2.0	2.6	0.5	2.4	2.6	2.6	2.7
Memorandum items:							
Government current revenue 1/	6,327.3	7,396.4	8,769.4	10,133.8	11,275.8	12,707.4	14,023.7
(in percent of GDP)	33.7	35.0	36.6	37.7	38.0	38.8	39.3
Government current expenditure 1/	7,657.0	9,097.4	10,490.3	12,059.4	12,774.5	13,302.0	14,257.7
(in percent of GDP)	40.8	43.0	43.7	44.9	43.0	40.6	40.0
Gross national saving	3,796.5	3,789.2	4,576.9	4,608.7	5,169.8	5,930.3	6,953.3
(in percent of GDP)	20.2	17.9	19.1	17.1	17.4	18.1	19.5

Sources: Ministry of National Economy; and Fund staff calculations.

1/ On a national accounts basis; government statistics refer to the general government.
2/ Current account deficit.

Table 5. Greece: Agricultural Production

(In thousands of tons)

	1992	1993	1994	1995	1996	1997	1998 Prov.
Soft wheat	879.0	819.0	838.0	758.0	630.0	654.0	612.0
Hard wheat	1,423.0	1,192.0	1,581.0	1,384.0	1,132.0	1,407.0	1,300.0
Maize	1,976.0	1,936.0	1,814.0	1,520.0	1,800.0	2,000.0	2,000.0
Alfalfa	1,479.0	1,489.0	1,428.0	1,396.0	1,266.0	1,237.0	1,232.0
Leaf tobacco 1/	187.0	136.0	129.0	120.0	126.0	121.0	126.0
Cotton (industrial)	818.0	986.0	1,180.0	1,250.0	962.0	1,100.0	1,170.0
Tomatoes for processing	966.0	950.0	1,100.0	1,130.0	1,162.0	1,167.0	1,226.0
Sugar beet	3,059.0	2,718.0	2,420.0	2,600.0	2,352.0	3,095.0	1,970.0
Olive oil	303.0	268.0	330.0	330.0	337.0	400.0	386.0
Lemons	176.0	137.0	141.0	140.0	161.0	153.0	152.0
Oranges	987.0	897.0	875.0	820.0	979.0	965.0	769.0
Apples	385.0	331.0	321.0	323.0	335.0	292.0	332.0
Peaches	1,122.0	1,083.0	1,173.0	745.0	897.0	246.0	483.0
Meat, total	545.0	528.0	522.0	510.0	525.0	522.0	493.0
Milk, total	1,803.0	1,828.0	1,853.0	1,834.0	1,786.0	1,768.0	1,848.0

Sources: Ministry of National Economy; and National Statistical Service of Greece.

1/ Oriental, burley, and Virginia varieties.

Table 6. Greece: Manufacturing Production

(Percentage changes)

	Weight in Index (1980)	1992	1993	1994	1995	1996	1997	1998
Total	100.0	-1.3	-3.2	1.1	2.1	0.6	1.0	3.4
Consumer goods	60.5	-2.1	-1.6	2.5	0.5	0.7	-0.6	2.8
Consumer durable goods	5.5	0.6	8.5	-0.2	-1.5	2.4	6.7	24.2
Capital goods	34.0	-0.1	-8.2	-1.5	6.5	0.1	4.3	2.0
Foodstuffs	11.9	7.8	-1.1	-1.1	2.0	-0.1	-3.3	3.9
Beverages	3.7	4.2	3.0	7.8	3.9	-6.0	-2.1	4.9
Tobacco	2.3	-4.9	-1.1	15.7	10.9	-1.2	-0.8	-5.1
Textiles	16.1	-8.5	-6.5	-0.5	-5.4	-4.6	1.4	-0.8
Clothing and footwear	6.1	-4.3	3.2	-11.8	-9.8	-12.0	-3.1	-13.1
Wood and cork	2.2	-3.1	-8.2	-9.0	17.0	-1.9	-11.6	-8.3
Furniture	1.2	-2.9	-0.9	2.4	-4.7	-0.2	-0.1	-3.4
Paper	1.9	2.1	-7.0	6.9	3.7	-5.0	-4.8	-3.3
Printing and publishing	2.6	-2.9	-5.6	-2.4	-0.7	8.4	-7.5	-4.4
Leather products	0.8	2.7	-5.6	-4.3	-8.3	-7.1	-11.8	-14.9
Rubber and plastics	3.9	-10.3	3.7	9.4	-12.6	1.1	-0.4	9.7
Chemicals	7.8	-3.7	4.0	2.0	10.8	7.9	2.0	10.3
Petroleum and coal production	2.8	14.3	-9.4	12.3	4.3	7.0	-0.6	2.0
Nonmetallic minerals	8.6	-4.2	0.3	3.0	1.8	7.1	2.2	2.5
Basic metallurgy	6.5	2.0	-5.0	4.9	4.8	-3.7	10.2	2.4
Manufactured metal goods	6.4	1.3	-8.2	-2.1	4.6	-1.5	8.2	-1.9
Nonelectrical machinery and appliances	1.9	-0.6	-10.8	1.1	20.5	2.9	11.1	2.2
Electrical machinery and appliances	4.7	1.7	9.1	-1.5	3.0	6.7	12.7	22.9
Transport equipment	8.0	-0.3	-20.4	-8.7	4.6	-1.1	-3.0	5.1
Other	0.6	-53.5	-36.5	-11.1	14.2	79.8	-2.4	-44.2
Memorandum item:								
Capacity utilization in manufacturing 1/	n.a.	77.9	74.9	74.9	76.6	75.6	74.4	...

Sources: National Statistical Service of Greece, *Monthly Statistical Bulletin*; Ministry of National Economy; and IOBE.

1/ Estimate by IOBE.

Table 7. Greece: Price Developments

(Average percentage changes over preceding period, except as indicated)

	Weights 1/	1992	1993	1994	1995	1996	1997	1998
Wholesale prices	100	n.a.	11.3	11.9	8.7	7.8	6.1	3.3	3.9
Final products for home consumption	82	n.a.	12.2	12.0	8.7	7.4	6.2	3.5	3.5
Domestic industrial products	54	n.a.	14.7	13.5	7.4	8.1	7.1	4.0	2.8
Domestic primary products	12	n.a.	1.7	5.4	13.6	5.1	8.9	4.2	7.5
Imported final products	15	n.a.	12.6	12.2	9.2	7.0	1.6	2.1	5.4
Exported products	18	n.a.	6.4	11.3	8.7	10.2	5.6	2.9	3.0
Consumer prices	100	100	15.9	14.4	10.9	8.9	8.2	5.5	4.8
Food and nonalcoholic beverages	33	21	11.8	10.5	13.7	8.4	7.0	4.1	4.4
Housing	11	14	17.3	15.8	10.5	9.6	9.2	2.8	3.2
Clothing and footwear	14	11	14.0	11.0	10.1	9.5	9.3	6.9	5.7
Durable goods and household supplies	8	8	12.3	8.8	8.9	8.9	6.6	6.2	5.6
Transport and communication	14	15	20.3	18.8	5.6	5.3	6.1	5.2	2.7
Other goods and services 2/	20	31	18.1	17.4	12.5	10.5	9.5	7.1	6.0
Consumer prices (EU harmonized HICP)	n.a.	n.a.	...	...	...	...	7.9	5.4	4.5
GDP deflator, at market prices	n.a.	n.a.	14.8	14.5	11.3	9.8	7.9	6.9	5.0
Import prices 3/	n.a.	n.a.	12.1	7.7	5.7	6.8	3.6	2.1	5.8
Private consumption deflator	n.a.	n.a.	15.6	14.2	11.0	8.6	8.3	5.5	4.7
Memorandum items:									
End-year increase									
Wholesale prices	n.a.	n.a.	12.8	9.1	10.2	6.7	3.9	3.5	3.0
Consumer prices	n.a.	n.a.	14.4	12.1	10.8	7.9	7.3	4.7	3.9
Consumer prices (HICP)	n.a.	n.a.	...	...	...	...	6.9	4.5	3.7

Source: Bank of Greece, *Annual Report* (various issues), *Monthly Statistical Bulletin*, and *Bulletin of Conjunctural Indicators*.

1/ Weights are based on 1980 for the wholesale price index and 1988 for the consumer price index prior to 1995, and based on 1994 for data for 1995-98.
2/ This category includes alcoholic beverages, tobacco, health and personal care, and education and recreation, along with other goods and services.
3/ Implicit import deflator for goods and services.

Table 8. Greece: Implicit Price Deflators

(Percentage changes)

	1992	1993	1994	1995	1996	1997	1998 Prel.
Gross domestic product (at market prices)	14.8	14.5	11.3	9.8	7.9	6.9	5.0
Consumption	15.6	14.2	10.8	9.8	7.3	6.8	6.8
Private	15.6	14.2	11.0	8.8	8.3	5.5	4.7
Government	15.3	14.2	10.1	18.2	2.7	12.1	7.4
Gross fixed capital formation	12.7	11.0	7.4	7.3	5.7	4.6	6.5
Private	12.8	10.5	7.1	7.2	5.5	4.3	6.5
Public	12.4	12.4	8.1	7.6	6.3	5.2	6.5
Exports of goods and nonfactor services	9.7	9.3	9.2	8.5	7.1	4.0	4.1
Imports of goods and nonfactor services	12.1	7.7	5.8	6.8	3.6	2.1	5.8
Terms of trade	-2.1	1.5	3.2	1.6	3.4	1.9	-1.6

Source: Ministry of National Economy.

Table 9. Greece: Cost-Push Indicators of Inflation

(Percentage changes)

	1992	1993	1994	1995	1996	1997	1998 Prel.
Unit labor costs	12.9	12.7	12.1	11.6	10.0	6.5	2.8
Gross operating surplus 1/	15.8	16.6	11.3	7.9	7.1	5.5	6.1
Net indirect taxes 1/	22.1	5.3	9.3	11.7	5.2	11.7	4.6
Import prices	12.1	7.7	5.6	6.7	3.9	2.7	5.8
Deflator of total expenditure	14.8	12.9	10.3	9.0	7.1	5.8	5.0
Contributions to changes in the deflator of total expenditure							
Unit labor costs	3.3	3.2	3.1	3.1	2.7	1.8	0.7
Gross operating surplus 1/	7.2	7.6	5.3	3.6	3.2	2.5	2.7
Net indirect taxes 1/	1.8	0.4	0.7	1.0	0.4	1.0	0.4
Import prices	2.5	1.6	1.1	1.3	0.7	0.5	1.1
Deflator of total expenditure	14.8	12.9	10.3	9.0	7.1	5.8	5.0
Memorandum items:							
Implicit GDP deflator	14.6	14.5	11.3	9.8	8.1	6.9	5.0
Implicit demand deflator	14.2	13.6	10.3	9.4	7.4	6.2	5.4

Source: Ministry of National Economy.

1/ Per unit of output.

Table 10. Greece: Labor Force, Employment, and Unemployment

(In thousands, unless otherwise noted)

	1992	1993	1994	1995	1996	1997	1998
Labor force	4,034	4,118	4,193	4,248	4,318	4,294	4,316
In urban and semi-urban areas	2,978	3,073	3,151	3,218	3,277	3,277	...
In rural areas	1,057	1,045	1,043	1,031	1,041	1,018	...
Employment	3,684	3,720	3,790	3,824	3,872	3,854	3,862
By region:							
In urban and semi- urban areas	2,674	2,728	2,791	2,844	2,885	2,950	...
In rural areas	1,011	992	998	980	987	967	...
By gender:							
Female	1,281	1,301	1,337	1,372	1,402	1,415	...
Male	2,403	2,419	2,452	2,452	2,470	2,439	...
Unemployment	350	398	404	425	446	440	433
Female	212	234	233	249	279	367	...
Male	138	165	170	176	167	173	...
Youth (under 25 years)	146	162	155	157	168	162	...
Long-term	172	199	210	223	260	251	...
Unemployment rates 1/							
(In percent)							
Total 2/	8.7	9.7	9.6	10.0	10.3	10.3	10.1
Youth unemployment 2/	26.9	28.9	29.1	29.8	32.2	32.3	...
Registered unemployment 3/	7.6	7.1	7.2	7.1	7.5	7.9	...
Memorandum items:							
Labor force participation rate 4/	48.3	48.5	48.7	48.9	49.2	48.5	...
Male	63.5	63.6	63.7	63.6	63.3	62.1	...
Female	34.2	34.7	34.9	35.6	36.5	36.2	...

Source: National Statistical Service of Greece.

1/ Period average.
2/ Based on the annual labor force survey by the National Statistical Service of Greece.
3/ By the Labor Force Employment Organization (OAED).
4/ 14+ age group.

Table 11. Greece: Employment in Selected Sectors

(In thousands)

	1993	1994	1995	1996	1997	1998
Manufacturing	578.9 1/	577.2	577.4	575.3	558.6	577.9
Construction	261.2	260.7	251.9	251.6	249.0	282.3
Public sector enterprises and organizations	154.2	160.3	161.7	161.0	158.5	156.5
Banks	53.0	55.9	58.1	59.8	60.5	61.7
Government 3/	312.8	306.4	313.1	320.2	323.4	326.4

Sources: Ministry of National Economy; National Statistical Service of Greece; and Union of Banks.

1/ Seventy thousand persons employed in the repair of vehicles and home appliances have been reclassified into the service sector.

2/ Permanent and temporary employees of the central administration, and other budgetary organizations.

Table 12. Greece: Wages and Salaries in the Nonagricultural Sector

(Percentage changes over previous period)

	1993	1994	1995	1996	1997	1998 Est.
Nominal wages and salaries:						
All sectors						
Wage bill 1/	12.3	12.9	15.3	14.0	11.5	7.3
Average earnings 2/	12.5	13.0	11.9	11.5	10.5	6.8
Manufacturing 3/						
Wages (per hour)	10.5	13.1	13.2	8.6	8.9	4.9 4/
Salaries (per month)	13.1	13.0	13.2	9.4	9.8	6.1 4/
Retail trade salaries (per month)	12.0	13.3	12.8	9.7	12.0	9.3 4/
Civil service average earnings	13.2	9.4	12.3	14.9	13.5	9.3 4/
Business sector average earnings 5/	12.1	12.9	11.2	8.8	8.8	5.9 4/
Minimum wages and salaries						
Wages (per day)	12.0	12.6	9.4	7.8	8.0	5.4
Salaries (per month)	12.0	12.6	9.3	7.8	8.0	5.3
Memorandum items:						
Consumer prices (average)	14.4	10.9	8.9	8.2	5.5	4.8
Real wages and salaries						
All sectors						
Wage bill 1/	-1.8	1.8	5.9	5.4	5.7	2.4
Average earnings	-1.7	1.9	2.8	3.0	4.7	1.9

Sources: Bank of Greece; and National Statistical Service of Greece.

1/ National accounts basis (ESA).
2/ Bank of Greece estimates; differences in rates of change between wage bill and average earnings are due not only to changes in employment, but also to statistical discrepancies.
3/ Gross remuneration (including overtime) in establishments with ten or more employees.
4/ Preliminary estimates (Bank of Greece).
5/ All sectors excluding the civil service, public enterprises, and banking.

Table 13. Greece: Employment, Productivity, and Unit Labor Costs in Manufacturing

(Annual percentage changes)

	1993	1994	1995	1996	1997	1998
Production	-3.2	1.1	2.1	0.6	1.0	3.4
Employment	-5.9	-3.0	0.1	-0.6	-3.2	-0.9 2/
Hours worked per employee 1/	0.0	0.1	0.1	0.2	-0.1	0.1 2/
Productivity 3/	2.9	3.9	2.0	1.1	4.6	5.3 2/
Hourly wages	10.5	13.1	13.2	8.6	9.4	4.8 2/
Unit labor costs	7.4	8.7	11.0	7.5	4.4	-0.5 2/
Including impact of social security contributions 4/	10.1	8.7	11.3	7.7	4.4	-0.5 2/

Sources: Bank of Greece; and National Statistical Service of Greece.

1/ For wage earners.
2/ January-September.
3/ Production per man-hour.
4/ Estimate (Bank of Greece).

Table 14. Greece: Collective Labor Agreements, Compulsory Arbitration
and Impact of Labor Disputes

	Number of collective agreements	Number of arbitration decisions	Number of man-hours lost to labor disputes (In millions)		
			Total	Private sector	Public enterprises and banks
1980	220	299	20.5	...	...
1981	233	330	5.3	...	...
1982	284	232	7.9	...	...
1983	57	80	3.0	...	...
1984	252	264	2.7	...	...
1985	175	167	7.7	5.5	2.2
1986	44	82	8.8	5.6	3.2
1987	76	84	16.4	10.8	5.5
1988	210	83	5.6	3.4	2.2
1989	276	111	8.9	5.5	3.4
1990	195	106	20.4	10.4	10.1
1991	287	87	5.8	3.8	2.1
1992	171	32 1/	7.1	2.7	4.3
1993	280	30	3.5	2.3	1.2
1994	287	37	1.9	1.0	0.8
1995	239	33	0.7	0.6	0.1
1996	385	43	1.6	1.3	0.3
1997	286	52	1.5	1.1	0.4
1998	292	58	1.5	0.8	0.7

Sources: Bank of Greece; and Ministry of Labor.

1/ Starting in 1992, arbitration decisions are not issued by courts, but by the newly established (under Law 1876/90) Organization for Medication and Arbitration.

Table 15. Greece: Summary of Central Government Finances 1/

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
					(In billions of drachmas)			
Central government revenue	5,970	6,940	7,786	8,811	10,005	11,166	11,251	12,063
Tax revenue	4,545	5,235	5,968	6,616	7,601	8,508	8,829	9,089
Direct	1,355	1,773	2,133	2,316	2,767	3,111	3,587	3,474
Indirect	3,189	3,462	3,835	4,300	4,834	5,397	5,242	5,615
Nontax revenue	1,425	1,705	1,818	2,195	2,404	2,658	2,422	2,974
Investment budget	290	310	345	568	719	890	913	1,060
Of which: EU	272	288	322	552	698	840	890	1,030
SAGAP 2/	709	768	730	859	819	900	810	. 973
Other	426	627	760	768	866	868	699	941
Central government expenditure	8,295	9,827	10,571	11,701	12,509	13,329	13,358	14,218
Ordinary budget	6,857	8,251	8,880	9,747	10,064	10,424	10,667	11,050
Of which: Interest paid	2,334	3,340	3,356	3,501	3,216	3,220	3,233	3,350
Investment budget	728	807	962	1,095	1,626	2,005	1,881	2,195
SAGAP 2/	709	768	730	859	819	900	810	973
Central government primary expenditure	5,961	6,487	7,215	8,200	9,293	10,109	10,125	10,868
Of which: Current primary expenditure	5,233	5,680	6,253	7,105	7,667	8,104	8,244	8,673
Central government balance (budget presentation)	-2,325	-2,887	-2,785	-2,890	-2,504	-2,163	-2,107	-2,155
Of which: Central government primary balance	9	453	571	611	712	1,057	1,126	1,195
Capitalized interest	353	250	84	179	33	27	27	0
Central government balance (Fund presentation)	-2,678	-3,137	-2,869	-3,069	-2,537	-2,190	-2,134	-2,155
Of which: Central government primary balance	-344	203	487	432	679	1,030	1,099	1,195
Memorandum item:								
GDP	21,136	23,934	26,590	29,595	32,752	35,461	35,677	37,961
					(In percent of GDP)			
Central government revenue	28.2	29.0	29.3	29.8	30.5	31.5	31.5	31.8
Tax revenue	21.5	21.9	22.4	22.4	23.2	24.0	24.7	23.9
Direct	6.4	7.4	8.0	7.8	8.4	8.8	10.1	9.2
Indirect	15.1	14.5	14.4	14.5	14.8	15.2	14.7	14.8
Nontax revenue	6.7	7.1	6.8	7.4	7.3	7.5	6.8	7.8
Investment budget	1.4	1.3	1.3	1.9	2.2	2.5	2.6	2.8
Of which: EU	1.3	1.2	1.2	1.9	2.1	2.4	2.5	2.7
SAGAP 2/	3.4	3.2	2.7	2.9	2.5	2.5	2.3	2.6
Other	2.0	2.6	2.9	2.6	2.6	2.4	2.0	2.5
Central government expenditure	39.2	41.1	39.7	39.5	38.2	37.6	37.4	37.5
Ordinary budget	32.4	34.5	33.4	32.9	30.7	29.4	29.9	29.1
Of which: Interest paid	11.0	14.0	12.6	11.8	9.8	9.1	9.1	8.8
Investment budget	3.4	3.4	3.6	3.7	5.0	5.7	5.3	5.8
SAGAP 2/	3.4	3.2	2.7	2.9	2.5	2.5	2.3	2.6
Central government primary expenditure	28.2	27.1	27.1	27.7	28.4	28.5	28.4	28.6
Of which: Current primary expenditure	24.8	23.7	23.5	24.0	23.4	22.9	23.1	22.8
Central government balance (budget presentation)	-11.0	-12.1	-10.4	-9.8	-7.6	-6.1	-5.9	-5.7
Of which: Central government primary balance	0.0	1.9	2.2	2.1	2.2	3.0	3.2	3.1
Capitalized interest	1.7	1.0	0.3	0.6	0.1	0.1	0.1	0.0
Central government balance 2/ (Fund presentation)	-12.7	-13.1	-10.8	-10.4	-7.7	-6.2	-6.0	-5.7
Of which: Central goverment primary balance	-1.6	0.8	1.8	1.5	2.1	2.9	3.1	3.1

Sources: Ministry of Finance; and Bank of Greece.

1/ Data not directly comparable to those on a national accounts basis in Tables 22 and 23.
2/ Special Account for Guarantees of Agricultural Products.

Table 16. Greece: Ordinary Budget Revenue

(In billions of drachmas)

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
Total ordinary budget revenue	4,971.0	5,861.8	6,727.8	7,384.0	8,467.3	9,376.0	9,528.0	10,030.0
Tax revenue	4,544.7	5,234.9	5,967.6	6,615.9	7,600.9	8,508.0	8,829.2	9,088.5
Direct taxes	1,355.4	1,773.4	2,132.7	2,316.0	2,767.0	3,111.0	3,587.3	3,474.0
Personal income tax	528.5	671.8	861.0	1,018.9	1,297.5	1,377.0	1,585.4	1,441.0
Corporate income tax	287.4	365.5	459.7	522.1	641.7	801.0	1,017.5	968.3
Property tax	70.2	76.5	80.0	78.9	123.8	139.5	132.6	130.5
Interest tax and other special income taxes	257.2	333.6	335.1	345.4	361.0	423.5	449.5	486.5
In favor of third parties	5.9	3.4	2.1	2.1	1.4	1.4	1.8	1.6
Other	206.2	322.7	394.7	348.6	341.6	368.6	400.5	446.1
Direct tax arrears	107.4	178.2	224.2	151.4	120.0	110.0	148.7	185.0
Extraordinary direct taxes (incl. on property)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	98.8	144.5	170.5	197.2	221.6	258.6	251.8	261.1
Indirect taxes	3,189.3	3,461.5	3,834.9	4,299.9	4,833.9	5,397.0	5,241.9	5,614.5
Consumption taxes	1,213.1	1,310.9	1,460.0	1,637.0	1,767.0	1,932.6	1,854.1	1,894.0
On imports (non-EU after 1993)	82.1	72.8	43.5	44.8	68.6	75.6	64.8	46.5
Cars	35.7	28.1	18.6	25.3	35.7	42.7	39.2	21.4
Other imports	46.4	44.7	24.9	19.5	32.9	32.9	25.6	25.1
On domestic goods	1,131.0	1,238.0	1,416.5	1,592.2	1,698.4	1,857.1	1,789.3	1,847.5
Hydrocarbon fuels	674.0	688.0	739.4	820.8	822.7	865.2	823.0	863.0
Tobacco	239.8	333.6	371.8	405.4	458.0	512.0	512.8	525.0
Alcohol, etc.	35.2	39.7	43.3	59.0	75.1	83.0	73.6	85.0
Road duties	51.0	39.3	76.0	80.4	97.8	107.5	90.8	110.0
Other	131.0	137.3	186.0	226.6	244.8	289.4	289.1	264.5
Turnover tax (FKE)	23.9	27.3	31.6	39.3	39.9	50.0	45.0	50.0
Other	107.1	110.1	154.4	187.3	204.9	239.4	244.1	214.5
Transaction taxes	1,866.4	2,034.4	2,262.2	2,545.0	2,923.6	3,307.0	3,246.9	3,550.5
VAT	1,543.7	1,717.7	1,933.0	2,154.0	2,448.6	2,770.0	2,720.7	3,000.0
On imports (non-EU after 1993)	289.9	236.4	222.1	239.4	302.6	335.5	326.3	360.0
On domestic goods	1,253.8	1,481.3	1,710.9	1,914.6	2,146.0	2,434.5	2,394.4	2,640.0
Other	322.7	316.7	329.2	391.0	475.0	537.0	526.2	550.5
Capital transfers	82.6	93.7	93.7	107.2	163.0	156.0	171.9	174.5
Special banking transactions tax	80.0	47.5	41.2	49.2	47.7	49.0	46.5	50.0
Stamp duty	160.0	175.3	193.7	217.5	257.5	300.0	292.0	300.0
Other	0.1	0.2	0.6	17.1	6.8	32.0	15.8	26.0
Other indirect taxes	109.8	116.2	112.7	117.9	143.3	157.4	140.9	170.0
Indirect tax arrears	28.7	39.0	30.0	28.1	43.2	46.0	28.0	60.0
For EU	51.5	47.6	50.8	50.4	57.5	65.0	64.2	55.0
Other	29.6	29.6	31.9	39.4	42.6	46.4	48.7	55.0
Nontax revenue	426.3	626.9	760.2	768.1	866.4	868.0	698.8	941.5
Capital receipts	152.7	243.9	422.9	366.0	474.7	508.7	408.2	537.5
Receipts from EU	104.8	141.7	86.0	88.1	44.5	65.0	33.9	59.5
Other	168.8	241.2	251.3	314.0	417.2	294.3	256.7	344.5

Source: Ministry of Finance.

Table 17. Greece: Ordinary Budget Revenue

(In percent of GDP)

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
Total ordinary budget revenue	23.5	24.4	25.0	24.9	25.9	26.4	26.7	26.4
Tax revenue	21.5	21.8	22.2	22.3	23.2	24.0	24.7	23.9
Direct taxes	6.4	7.4	7.9	7.8	8.4	8.8	10.1	9.2
Personal income tax	2.5	2.8	3.2	3.4	4.0	3.9	4.4	3.8
Corporate income tax	1.4	1.5	1.7	1.8	2.0	2.3	2.9	2.6
Property tax	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3
Interest tax and other special income taxes	1.2	1.4	1.2	1.2	1.1	1.2	1.3	1.3
In favor of third parties	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	1.0	1.3	1.5	1.2	1.0	1.0	1.1	1.2
Direct tax arrears	0.5	0.7	0.8	0.5	0.4	0.3	0.4	0.5
Extraordinary direct taxes (incl. on property)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7
Indirect taxes	15.1	14.4	14.3	14.5	14.8	15.2	14.7	14.8
Consumption taxes	5.7	5.5	5.4	5.5	5.4	5.4	5.2	5.0
On imports (non-EU after 1993)	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1
Cars	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Other imports	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
On domestic goods	5.4	5.2	5.3	5.4	5.2	5.2	5.0	4.9
Hydrocarbon fuels	3.2	2.9	2.8	2.8	2.5	2.4	2.3	2.3
Tobacco	1.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Alcohol, etc.	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Road duties	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Other	0.6	0.6	0.7	0.8	0.7	0.8	0.8	0.7
Turnover tax (FKE)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.6
Transaction taxes	8.8	8.5	8.4	8.6	8.9	9.3	9.1	9.4
VAT	7.3	7.2	7.2	7.3	7.5	7.8	7.6	7.9
On imports (non-EU after 1993)	1.4	1.0	0.8	0.8	0.9	0.9	0.9	0.9
On domestic goods	5.9	6.2	6.4	6.4	6.6	6.9	6.7	7.0
Other	1.5	1.3	1.2	1.3	1.5	1.5	1.5	1.5
Capital transfers	0.4	0.4	0.3	0.4	0.5	0.4	0.5	0.5
Special banking transactions tax	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Stamp duty	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.8
Other	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1
Other indirect taxes	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Indirect tax arrears	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2
For EU	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Other	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nontax revenue	2.0	2.6	2.8	2.6	2.6	2.4	2.0	2.5

Source: Ministry of Finance.

Table 18. Greece: Ordinary Budget Expenditures

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
					(In billions of drachmas)			
Total ordinary budget expenditure (budget presentation)	6,857	8,251	8,880	9,747	10,064	10,424	10,667	11,050
Personnel outlays	2,039	2,269	2,623	3,055	3,513	3,652	3,859	3,914
Wages, salaries and allowances	1,434	1,600	1,879	2,218	2,601	2,724	2,832	2,905
Of which: allowances paid from off-budget account	...	...	60	81	...	...	...	...
Pensions	498	546	604	676	740	770	861	865
Medical care	107	123	141	161	172	158	167	144
Interest payments (budget presentation) 1/	2,334	3,340	3,356	3,501	3,216	3,220	3,233	3,350
Central government (incl. charges)	2,168	3,162	3,205	3,400	3,106	3,120	3,131	3,243
On military debt	166	177	151	101	110	100	102	107
Restitution of revenue to third parties	295	345	456	470	585	665	736	751
Payments to EU	273	309	312	355	377	438	452	435
Tax refunds	279	213	236	306	291	283	272	310
Rebates on export financing and interest subsidies	1	6	19	20	21	5	3	5
Agricultural subsidies	143	28	73	93	126	101	101	105
Grants	975	1,115	1,221	1,379	1,369	1,402	1,410	1,474
Social security funds	565	694	747	805	883	913	891	926
Transport	91	54	61	60	53	51	51	66
Other	319	367	413	514	433	437	468	482
Other	518	484	486	469	567	563	602	615
Guarantees	115	76	39	2	2	1	1	1
Other consumer expenditures	403	408	447	467	565	562	600	614
Reserve	0	0	0	0	0	95	0	92
Investment expenditures	0	144	158	179	0	0	0	0
					(In percent of GDP)			
Total ordinary budget expenditure (budget presentation)	32.4	34.4	33.0	32.8	30.7	29.4	29.9	29.1
Personnel outlays	9.6	9.5	9.8	10.3	10.7	10.3	10.8	10.3
Wages, salaries, and allowances	6.8	6.7	7.0	7.5	7.9	7.7	7.9	7.7
Pensions	2.4	2.3	2.2	2.3	2.3	2.2	2.4	2.3
Medical care	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.4
Interest payments (budget presentation) 1/	11.0	13.9	12.5	11.8	9.8	9.1	9.1	8.8
Central government (incl. charges)	10.3	13.2	11.9	11.4	9.5	8.8	8.8	8.5
On military debt	0.8	0.7	0.6	0.3	0.3	0.3	0.3	0.3
Restitution of revenue to third parties	1.4	1.4	1.7	1.6	1.8	1.9	2.1	2.0
Payments to EU	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.1
Tax refunds	1.3	0.9	0.9	1.0	0.9	0.8	0.8	0.8
Rebates on export financing and interest subsidies	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Agricultural subsidies	0.7	0.1	0.3	0.3	0.4	0.3	0.3	0.3
Grants	4.6	4.6	4.5	4.6	4.2	4.0	4.0	3.9
Social security funds	2.7	2.9	2.8	2.7	2.7	2.6	2.5	2.4
Transport	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.2
Other	1.5	1.5	1.5	1.7	1.3	1.2	1.3	1.3
Other	2.5	2.0	1.8	1.6	1.7	1.6	1.7	1.6
Guarantees	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0
Other consumer expenditures	1.9	1.7	1.7	1.6	1.7	1.6	1.7	1.6
Reserve	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2
Investment expenditures	0.0	0.6	0.6	0.6	0.0	0.0	0.0	0.0
Memorandum items:								
Capitalized and accrued interest (in billions of drachma) 2/	360.0	120.0	211	179	33	27	27	27
Capitalized and accrued interest (in percent of GDP) 2/	1.7	0.5	0.8	0.6	0.1	0.1	0.1	0.1

Source: Ministry of Finance.
1/ Does not include capitalized and accrued interest.
2/ Bank of Greece data.

Table 19. Greece: Investment Budget Expenditure by Sector

(In billions of drachmas)

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
Public investment program								
Communications	0	0	1	0	0	9	9	21
Agriculture	11	9	7	12	89	82	121	138
Forestry, fishing	25	20	16	16	20	29	23	33
Land reclamation	58	47	32	27	29	50	48	57
Industry, energy, handicrafts	60	76	78	132	273	285	293	277
Transportation (excluding railways)	146	142	176	209	312	374	318	348
Railways	10	24	23	32	113	174	174	226
Tourism, museums, monuments	14	19	31	24	56	57	58	38
Education	73	101	106	92	120	196	155	194
Housing	4	8	27	18	49	108	69	69
Health, welfare	19	27	20	26	40	72	68	100
Water supply, sewerage	61	58	45	36	41	58	51	66
Public administration	15	11	15	17	15	45	38	52
Research, technology, technical cooperation	6	6	23	11	24	33	33	36
Prefectural and border-aid projects	186	205	271	275	267	276	284	369
Special projects in Athens and Thessaloniki	13	23	65	128	104	103	100	55
Miscellaneous (including amortization and interest payments)	27	34	26	40	75	41	42	106
Reserve	0	0	0	0	0	15	0	11
Total 1/	728	807	962	1,095	1,626	2,005	1,881	2,195
(In percent of GDP)	(3.4)	(3.4)	(3.6)	(3.8)	(5.0)	(5.7)	(5.3)	(5.8)

Source: Ministry of Finance.

1/ Does not include Dr 48.5 billion paid to the Greek Telecommunication Organization against loan from the European Investment Bank, and Dr 19 billion for increase of Olympic Airways share capital in 1995.

Table 20. Greece: Budget Transfers from and to the European Union

(In billions of drachmas)

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
Receipts	1,327	1,419	1,404	1,763	1,672	2,028	1,906	1,304
Ordinary budget	104	141	86	88	48	65	35	59
Investment budget	272	288	322	552	698	840	890	1,030
Special account for								
Agricultural Guarantees	709	768	730	859	819	900	810	973
Budget of other tiers of								
Government	241	222	267	265	107	223	171	242
Payments	273	309	312	355	377	438	452	435
Custom duties, etc.	44	38	44	45	50	45	53	46
GDP or VAT-based								
contributions	172	221	234	271	301	356	360	352
Other	57	50	34	39	26	36	38	37
Net receipts	1,054	1,111	1,093	1,408	1,295	1,590	1,454	1,869
(as percent of GDP)	5.0	4.6	4.1	4.7	4.0	4.5	4.1	4.9

Source: Ministry of Finance.

Table 21. Greece: Central Government Expenditure, Functional Classification

(Accrual basis)

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
				(In billions of drachmas)								(In percent of total)				
Defense	599	694	781	803	941	978	1,018	1,046	5.8	5.6	5.8	5.2	5.8	6.0	6.0	5.8
Of which: External debt servicing 1/	166	221	230	180	188	179	183	190	1.6	1.8	1.7	1.2	1.2	1.1	1.1	1.1
Education	654	748	862	963	1,128	1,247	1,217	1,304	6.3	6.0	6.4	6.2	7.0	7.6	7.2	7.3
Health, social welfare and insurance	1,172	1,420	1,558	1,714	2,051	2,091	2,229	2,225	11.3	11.4	11.5	11.0	12.7	12.8	13.2	12.4
Agriculture	1,029	1,030	1,011	1,190	1,166	1,279	1,242	1,456	9.9	8.3	7.5	7.7	7.2	7.8	7.3	8.1
Debt service	4,236	5,766	6,110	7,139	6,650	6,040	6,619	6,891	40.9	46.2	45.1	46.0	41.2	37.0	39.1	38.4
Interest payments 1/ 2/	2,528	3,239	3,337	3,501	3,060	3,068	3,078	3,160	24.4	26.0	24.6	22.6	19.0	18.8	18.2	17.6
Domestic 1/ 2/	2,283	2,953	2,974	3,117	2,656	2,656	2,580	2,695	22.0	23.7	21.9	20.1	16.5	16.3	15.2	15.0
External	245	286	363	384	404	412	498	465	2.4	2.3	2.7	2.5	2.5	2.5	2.9	2.6
Amortization	1,708	2,527	2,773	3,639	3,589	2,972	3,542	3,731	16.5	20.3	20.5	23.4	22.3	18.2	20.9	20.8
Domestic	1,127	1,897	2,039	2,864	2,415	1,591	2,087	2,603	10.9	15.2	15.0	18.5	15.0	9.7	12.3	14.5
External	477	517	585	516	903	991	1,055	726	4.6	4.1	4.3	3.3	5.6	6.1	6.2	4.0
Military Dept.	104	113	149	259	272	390	400	402	1.0	0.9	1.1	1.7	1.7	2.4	2.4	2.2
Other expenditures	2,673	2,817	3,233	3,711	4,195	4,692	4,602	5,028	25.8	22.6	23.8	23.9	26.0	28.7	27.2	28.0
Total expenditures	10,363	12,474	13,556	15,519	16,131	16,328	16,926	17,949	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Memorandum item:																
Total, excluding amortization	8,655	9,947	10,783	11,880	12,542	13,356	13,385	14,218	83.5	79.7	79.5	76.6	77.7	81.8	79.1	79.2

Source: Ministry of Finance.

1/ Including military debt service.
2/ Including capitalized interest.

Table 22. Greece: Summary of General Government Finances 1/

(In billions of drachmas)

	1993	1994	1995	1996	1997	1998 Prel.
Central government						
Current revenue	4,819.7	5,805.0	6,760.7	7,475.5	8,649.5	9,508.9
Of which: Tax revenue	4,050.3	4,766.6	5,449.7	6,007.1	6,936.9	7,782.4
Current expenditure	6,977.4	8,239.7	9,405.7	9,866.1	10,191.0	10,793.7
Public consumption	2,096.4	2,324.7	2,940.1	2,937.0	3,409.1	3,656.6
Interest	2,647.9	3,360.7	3,462.1	3,564.9	3,146.1	3,225.0
Net current transfers	2,233.1	2,554.3	3,003.5	3,364.2	3,635.8	3,912.1
Net capital spending	1,148.2	720.0	836.2	656.6	589.5	459.5
Of which: Debt assumptions	681.1	311.0	37.4	219.9	0.0	0.0
Overall balance	-3,305.9	-3,154.8	-3,481.2	-3,047.2	-2,131.0	-1,744.3
without debt assumptions	-2,624.7	-2,843.7	-3,443.8	-2,827.3	-2,131.0	-1,744.3
Primary balance	-657.9	205.9	-19.0	517.7	1,015.1	1,480.7
without debt assumptions	23.2	517.0	18.4	737.6	1,015.1	1,480.7
Social security funds						
Current revenue (including state transfers)	3,065.6	3,608.4	4,112.2	4,591.4	4,939.4	5,397.2
Of which: Contributions	1,990.7	2,320.1	2,681.1	2,983.5	3,264.5	3,591.1
Current expenditure	2,769.9	3,103.5	3,569.6	3,924.8	4,317.6	4,713.5
Of which: Interest	38.4	8.7	0.9	2.0	2.0	4.0
Net capital spending	-45.4	-158.3	-7.9	-53.7	-34.4	-39.0
Overall balance	341.2	663.3	550.6	720.3	656.2	722.7
Primary balance	379.6	672.0	551.4	722.3	658.2	726.7
Local authorities						
Current revenue (including state transfers)	240.0	274.3	346.6	399.2	421.2	478.3
Current expenditure	191.7	223.2	272.9	300.8	340.1	384.6
Of which: Interest	7.0	6.0	8.7	9.1	9.7	10.7
Net capital spending	45.8	49.1	53.2	93.6	64.1	78.4
Overall balance	2.4	2.0	20.5	4.8	17.1	15.3
Primary balance	9.3	8.1	29.2	13.9	26.7	26.0
Hospitals						
Current revenue (including state transfers)	410.0	460.5	539.3	586.8	708.1	760.6
Current expenditure	405.1	448.4	591.7	707.2	660.5	728.1
Of which: Interest	0.8	0.1	0.0	0.2	0.2	0.2
Net capital spending	8.4	3.5	-49.2	-107.6	10.1	5.5
Overall balance	-3.4	8.5	-3.2	-12.7	37.5	27.0
Primary balance	-2.7	8.6	-3.1	-12.6	37.7	27.2
Other public entities						
Current revenue (including state transfers)	294.2	299.2	331.6	414.0	434.8	439.4
Current expenditure	186.5	154.8	176.3	166.7	213.7	198.5
Of which: Interest	7.8	5.6	0.0	0.0	0.0	0.0
Net capital spending	51.4	64.6	91.2	148.2	102.3	164.6
Overall balance	56.3	79.7	64.1	99.0	118.8	130.4
Primary balance	64.1	85.3	64.1	99.0	118.8	130.4
Consolidated general government						
Current revenue	7,396.3	8,767.9	10,133.8	11,284.2	12,731.7	14,023.9
Current expenditure	9,097.4	10,490.2	12,059.4	12,782.8	13,301.6	14,257.8
Primary	6,395.5	7,105.2	8,587.7	9,206.7	10,143.7	11,017.9
Interest	2,701.9	3,381.1	3,471.7	3,576.2	3,158.0	3,239.9
Net capital spending	1,208.4	679.0	923.5	737.1	731.5	614.9
General government saving	-1,701.1	-1,722.3	-1,925.6	-1,498.7	-569.9	-233.9
Overall balance	-2,909.4	-2,401.3	-2,849.1	-2,235.8	-1,301.4	-848.9
Primary balance	-207.5	979.8	622.5	1,340.4	1,856.6	2,391.0
Without debt assumptions						
Overall balance	-2,228.3	-2,090.2	-2,811.7	-2,015.9	-1,301.4	-848.9
Primary balance	473.6	1,290.8	659.9	1,560.2	1,856.6	2,391.0

Source: Ministry of National Economy.

1/ Data on a national accounts basis; central government accounts not directly comparable to those compiled by the Ministry of Finance.

Table 23. Greece: Summary of General Government Finances 1/

	1993	1994	1995	1996	1997	1998 Prel.
			(In percent of GDP)			
Central government						
Current revenue	22.8	24.2	25.1	25.2	26.4	26.7
Of which: Tax revenue	19.2	19.9	20.3	20.2	21.1	21.8
Current expenditure	33.0	34.4	35.0	33.2	31.1	30.3
Public consumption	9.9	9.7	10.9	9.9	10.4	10.2
Interest	12.5	14.0	12.9	12.0	9.6	9.0
Net current transfers	10.6	10.7	11.2	11.3	11.1	11.0
Net capital spending	5.4	3.0	3.1	2.2	1.8	1.3
Of which: Debt assumptions	3.2	1.3	0.1	0.7	0.0	0.0
Overall balance	-15.6	-13.2	-12.9	-10.3	-6.5	-4.9
without debt assumptions	-12.4	-11.9	-12.8	-9.5	-6.5	-4.9
Primary balance	-3.1	0.9	-0.1	1.7	3.1	4.2
without debt assumptions	0.1	2.2	0.1	2.5	3.1	4.2
Social security funds						
Current revenue (including state transfers)	14.5	15.0	15.3	15.5	15.1	15.1
Of which: Contributions	9.4	9.7	10.0	10.0	10.0	10.1
Current expenditure	13.1	12.9	13.3	13.2	13.2	13.2
Of which: Interest	0.2	0.0	0.0	0.0	0.0	0.0
Net capital spending	-0.2	-0.7	0.0	-0.2	-0.1	-0.1
Overall balance	1.6	2.8	2.0	2.4	2.0	2.0
Primary balance	1.8	2.8	2.1	2.4	2.0	2.0
Local authorities						
Current revenue (including state transfers)	1.1	1.1	1.3	1.3	1.3	1.3
Current expenditure	0.9	0.9	1.0	1.0	1.0	1.1
Of which: Interest	0.0	0.0	0.0	0.0	0.0	0.0
Net capital spending	0.2	0.2	0.2	0.3	0.2	0.2
Overall balance	0.0	0.0	0.1	0.0	0.1	0.0
Primary balance	0.0	0.0	0.1	0.0	0.1	0.1
Hospitals						
Current revenue (including state transfers)	1.9	1.9	2.0	2.0	2.1	2.1
Current expenditure	1.9	1.9	2.2	2.4	2.0	2.0
Of which: Interest	0.0	0.0	0.0	0.0	0.0	0.0
Net capital spending	0.0	0.0	-0.2	-0.4	0.0	0.0
Overall balance	0.0	0.0	0.0	0.0	0.1	0.1
Primary balance	0.0	0.0	0.0	0.0	0.1	0.1
Other public entities						
Current revenue (including state transfers)	1.4	1.2	1.2	1.4	1.3	1.2
Current expenditure	0.9	0.6	1.1	0.6	0.7	0.6
Of which: Interest	0.0	0.0	0.0	0.0	0.0	0.0
Net capital spending	0.2	0.3	0.3	0.5	0.3	0.3
Overall balance	0.3	0.3	0.2	0.3	0.4	0.4
Primary balance	0.3	0.4	0.2	0.3	0.4	0.4
Consolidated general government						
Current revenue	35.0	36.6	37.7	38.0	38.9	39.3
Current expenditure	43.0	43.7	44.9	43.0	40.6	40.0
Primary	30.3	29.6	31.9	31.0	31.0	30.9
Interest	12.8	14.1	12.9	12.0	9.6	9.1
Net capital spending	5.7	2.8	3.4	2.5	2.2	1.7
General government saving	-8.0	-7.2	-7.2	-5.0	-1.7	-0.7
Overall balance	-13.8	-10.0	-10.6	-7.5	-4.0	-2.4
Primary balance	-1.0	4.1	2.3	4.5	5.7	6.7

Source: Ministry of National Economy.

1/ Data on a national accounts basis; central government accounts not directly comparable to those compiled by the Ministry of Finance.

Table 24. Greece: Public Entities Balance 1/

(In billions of drachmas)

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
Operating income	1,285.5	1,497.4	1,714.5	1,905.4	2,141.0	2,402.9	2,364.9	2,732.8
Operating expenses	1,861.1	2,163.7	2,427.1	2,707.0	3,131.7	3,429.1	3,421.8	3,721.1
Operating deficit	575.6	666.3	712.6	801.6	991.6	1,026.2	1,056.9	988.2
(In percent of GDP)	2.8	2.9	2.8	2.7	3.0	2.9	3.0	2.6
Workers' Housing Organization (OEK)	-38.8	-51.1	-64.0	-67.7	-73.1	-98.3	-95.9	-106.9
Social Insurance Organization (IKA)	251.4	292.3	332.0	384.1	490.2	549.2	548.4	568.7
Workers' Fund (EE)	2.6	-1.6	-1.2	-1.3	-3.3	-3.2	-3.3	-3.0
Labor Force Employment Organization (OAED)	36.5	28.2	30.2	11.0	61.7	59.8	70.0	51.9
Farmers' Social Insurance Organization (OGA)	225.9	303.0	314.8	360.9	379.3	380.0	393.6	321.9
National Welfare Organization (EOP)	8.3	8.3	9.5	9.8	12.2	13.5	12.5	12.1
Seaman's Insurance Fund (NAT-KAAN)	89.7	87.2	91.4	104.8	118.0	125.2	131.4	143.6
Investment expenditures 2/	33.4	41.7	46.8	47.1	46.8	80.8	100.6	98.6
Other expenditures	51.0	39.0	44.0	0.0	0.0	58.6	0.0	0.0
Operating and investment deficit	660.0	747.0	803.4	897.7	944.9	1,165.4	956.3	889.7
(In percent of GDP)	3.2	3.2	3.1	3.0	2.9	3.3	2.7	2.3
Less:								
State contributions								
Ordinary budget	523.9	632.6	641.6	720.5	753.4	784.1	772.7	784.0
Investment budget	48.2	92.0	89.0	80.2	142.1	136.0	132.2	214.7
Depreciation and special resources	29.5	31.0	46.9	47.1	41.7	45.4	45.3	43.2
Net borrowing requirement	58.4	-8.5	25.9	49.8	101.1	200.1	207.3	45.7
Workers' Housing Organization (OEK)	-2.5	-22.1	-38.8	-41.2	-46.3	-48.7	-31.1	-54.9
Social Insurance Organization (IKA)	48.7	30.8	78.2	120.1	188.0	292.3	300.1	263.5
Workers' Fund (EE)	2.9	-1.3	-0.7	-0.5	3.9	-1.0	-1.0	-0.9
Labor Force Employment Organization (OAED)	-45.4	-47.3	-41.9	-64.7	-42.7	-56.6	-42.5	-82.2
Farmers' Social Insurance Organization (OGA)	-5.2	-17.1	-24.0	-22.2	-24.9	-51.4	-33.0	-100.6
National Welfare Organization (EOP)	-0.2	0.0	1.5	1.4	-1.4	1.9	0.2	0.9
Seaman's Insurance Fund (NAT-KAAN)	60.2	48.4	51.6	56.9	24.5	63.7	14.6	19.8
Memorandum item:								
Interest payments	67.2	59.6	52.8	32.4	34.8	17.1	17.0	20.4
Of which: Social Insurance Organization (IKA)	45.0	50.0	50.0	30.0	33.0	17.0	16.0	20.0

Source: Ministry of Finance.

1/ Covers seven major public entities.
2/ Excluding amortization payments.

Table 25. Greece: Public Enterprise Balance 1/

(In billions of drachmas)

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
Operating revenue	2,416.4	2,728.3	2,971.0	3,368.6	3,568.2	3,980.1	3,948.3	4,285.0
Operating expenditures 2/	2,291.5	2,630.9	2,757.6	3,098.9	3,391.5	3,563.3	3,715.8	3,938.9
Of which:								
Wages and salaries	606.3	770.7	839.2	942.5	1,043.9	1,060.3	1,061.0	1,102.4
Fuel	155.0	160.9	174.1	213.0	164.1	242.2	220.4	217.5
Interest payments	159.3	186.5	179.5	179.9	200.3	182.1	243.2	224.5
Depreciation	300.5	322.7	296.4	318.7	388.4	368.4	486.9	510.0
Other	1,070.4	1,190.1	1,268.4	1,444.7	1,594.9	1,710.3	1,704.3	1,884.6
Operating balance 3/	124.9	97.4	213.4	269.7	176.7	416.9	232.5	346.1
(In percent of GDP)	0.6	0.4	0.8	0.9	0.5	1.2	0.7	0.9
Investment expenditures 4/	787.0	720.1	855.7	1,052.1	1,316.7	1,611.5	1,467.8	1,897.3
Other need of funds	93.2	308.7	287.7	166.9	313.7	267.1	350.9	317.3
Operating and investment deficit	755.3	931.4	930.0	949.3	1,453.7	1,461.7	1,586.1	1,868.5
(In percent of GDP)	3.6	3.9	3.5	3.2	4.4	4.1	4.5	4.9
Less:								
State contributions:								
Ordinary budget	3.2	24.4	34.0	38.1	-10.7	-14.7	-3.2	21.6
Investment budget, etc.	288.3	310.5	360.2	470.5	383.4	624.8	401.7	450.2
Depreciation and special resources	392.3	581.7	432.7	562.5	1,044.9	884.3	1,237.8	1,062.4
Net borrowing requirement 3/ 4/	71.5	14.7	103.1	-121.8	36.1	-32.6	-50.2	334.4
Of which:								
Public Power Corporation	5.7	-23.8	-16.4	58.8	93.8	64.4	70.0	76.7
Hellenic Telecommunications Organization	-16.4	37.5	36.9	-264.6	-205.8	-174.8	-85.5	164.7
Greek Railways	62.4	33.1	75.6	58.0	77.4	54.5	-11.0	44.5
Olympic Airways	19.7	-14.6	-34.9	-25.8	13.9	-48.9	-1.4	-17.5
Athens Urban Transport Organization	14.2	33.6	20.7	44.8	54.4	58.5	73.4	62.8
Hellenic Aerospace Industry	9.1	11.1	10.1	0.1	7.3	3.3	3.4	-5.0
Greek Post Office	4.8	16.5	41.9	53.8	37.3	50.6	36.1	17.3
Athens Water and Sewerage	-11.7	-10.0	-10.5	-10.3	-11.8	2.6	-22.0	-3.5
Other	-16.3	-68.7	-20.3	-36.6	-30.5	-42.7	-113.2	-5.6

Source: Ministry of National Economy.

1/ Covers 46 major public enterprises.
2/ Breakdown into components are estimates.
3/ Surplus (+) or deficit (-).
4/ Excluding amortization payments.

Table 26. Greece: Operating Balance of Selected Public Enterprises
(In billions of drachmas)

	1993	1994	1995	1996	1997	1998 Budget	1998 Prov.	1999 Budget
Public Enterprises								
Public Power Corporation	-2.7	9.3	59.1	80.3	27.2	45.0	14.3	43.0
State Oil Refinery	11.9	10.0	7.4	17.2	10.5	18.8	0.0	0.0
State Petroleum Industry	8.2	19.2	6.7	12.0	5.4	14.1	0.0	0.0
Institute for Geological and Mining Research	0.2	-5.4	-6.2	-7.0	-8.4	-7.9	-8.1	-8.0
National Organization of Greek Handicrafts	-7.5	-2.8	0.4	-3.0	-3.6	-3.6	-3.6	-4.0
Hellenic Telecommunications Organization	140.6	176.1	203.7	250.3	300.1	368.0	304.1	307.1
Greek State Railways	-70.7	-80.6	-84.1	-110.6	-148.9	-97.7	-139.5	-105.3
Olympic Airways	-15.7	0.9	6.5	11.2	-6.9	30.4	-17.0	20.9
Greek Post Office	-10.7	-16.9	-18.6	-14.0	-25.2	-15.7	-16.9	0.7
Athens Urban Transport Organization 1/	-23.5	-53.0	-66.1	-78.9	-94.7	-82.8	-75.1	-69.2
National Broadcasting Corporation	-14.5	-14.5	-4.3	-5.6	-2.3	3.2	2.8	-2.2
National Tourism Organization	-3.5	-4.7	-5.4	-4.2	-4.1	-5.0	-3.1	-2.5
Piraeus Port Authority	2.3	3.2	6.2	3.9	2.6	-0.3	9.4	1.5
Athens Water and Sewerage	5.2	-1.0	-1.2	9.3	9.3	6.0	17.4	12.5
Hellenic Aerospace Industry	2.6	1.0	0.5	-3.6	-2.5	0.7	0.1	4.6
Other public enterprises 2/	102.7	56.6	108.9	112.3	118.1	143.5	112.5	109.9
Total public enterprises	124.9	97.4	213.4	269.7	176.7	416.9	232.5	346.1

Sources: Ministry of Finance and Ministry of National Economy.

1/ Including Thermic Buses Corporation (since June 1994), Athens Piraeus Trolley Buses, and Athens Piraeus Electric Railways.

2/ Thirty-one additional public enterprises.

Table 27. Greece: Financing of the PSBR

(In billions of drachmas)

	1993	1994	1995	1996	1997	1998 Prov.
Central government balance (cash basis)	-2,941	-2,976	-2,994	-3,856	-2,595	-2302
Petroleum and other account balance	-128	-45	-55	-14	-25	-80
Public entity balance	295	516	546	647	345	535
General government balance	-2,774	-2,505	-2,503	-3,223	-2,275	-1847
Public enterprise balance	6	-205	1	-83	133	-35
Public sector borrowing requirement	-2,768	-2,710	-2,502	-3,306	-2,142	-1882
Financing						
Domestic	2,004	2,420	2,038	3,013	1,002	-16
Bank	972	798	-50	-100	352	-176
Bank of Greece 1/	-20	14	-438	-152	227	218
Treasury bills and bonds purchased by banks and specialized credit institutions	395	451	327	-166	95	-737
Loans and advances from banks and specialized credit institutions	238	74	-23	39	-5	318
Capitalized interest	360	259	84	179	35	25
Nonbank	1,032	1,622	2,088	3,113	650	160
Foreign	765	290	464	293	1,140	1898
Net foreign borrowing by central governm	554	184	298	181	1,296	174
Net foreign borrowing by public entities and enterprises	-46	2	-44	-39	-187	-126
Net foreign borrowing for oil imports	0	0	0	0	0	0
Net investment in government paper by no	257	60	-118	-209	31	1850
Net investment in government paper by domestic banks (in foreign exchange)	0	44	328	360	0	0
Memorandum items:						
Percent of PSBR (cash basis) financed by						
Banking system	35	30	-2	-3	16	-9
Of which: Bank of Greece	-1	1	-18	-5	11	11
Nonbank public	37	60	84	94	30	8
External financing	28	11	19	9	54	101

Source: Bank of Greece.

1/ Including treasury bills and bonds held by the Bank of Greece, as well as changes in the balance of the petroleum account through 1992.

Table 28. Greece: Gross General Government Debt

(In billions of drachmas; end of period)

	1993	1994	1995	1996	1997	1998 Prov.
Central administration	23,431	27,168	30,970	35,291	38,058	40,617
Drachma-denominated	15,017	17,646	21,189	27,315	27,690	29,413
Treasury bills	5,766	7,533	8,422	10,012	6,800	5,314
Bonds	2,452	3,380	5,939	9,772	15,242	18,753
Bonds for debt consolidation and restructuring, share capital increases, etc.	5,397	5,179	5,291	4,736	4,170	3,904
Bank of Greece	1,402	1,367	1,331	1,295	1,259	1,223
Short-term 1/	977	977	977	977	977	977
Long-term	425	390	354	318	282	246
Other	188	187	206	205	219	219
Of which: Participation in international institutions	182	182	201	201	214	214
Foreign currency-denominated	8,226	9,522	9,781	9,271	10,368	11,203
Foreign currency-linked bonds	1,702	1,879	1,574	239	151	3
External	4,482	5,388	5,672	6,377	7,453	8,319
Bank of Greece 2/	2,042	2,255	2,535	2,655	2,764	2,881
Armed forces	829	924	1,012	955	982	938
Drachma-denominated	74	82	92	99	105	108
Foreign currency-denominated	755	842	920	856	877	830
Of which: External	755	842	920	856	877	830
Central government	24,260	28,092	31,982	36,246	39,040	41,555
In percent of GDP	115	117	119	122	119	117
Drachma-denominated	15,279	17,728	21,281	26,119	27,795	29,522
Foreign currency-denominated	8,981	10,364	10,701	10,127	11,245	12,033
Foreign currency-linked bonds	1,702	1,879	1,574	239	151	3
External	5,237	6,230	6,592	7,233	8,330	9,149
Bank of Greece 2/	2,042	2,255	2,535	2,655	2,764	2,881
Local authorities	80	87	93	121	124	120
Drachma-denominated	71	79	83	114	124	120
Foreign currency-denominated	9	8	7	7	0	0
Of which: External	9	8	7	7	0	0
Social security funds	369	221	242	191	171	180
Drachma-denominated	369	221	242	191	171	180
Foreign currency denominated	0	0	0	0	0	0
Other	76	96	93	90	87	82
Inter-governmental debt	1,031	2,091	2,608	3,123	3,366	3,863
8. General government (Maastricht definition)	23,592	26,223	29,603	33,324	35,842	37,860
In percent of GDP)	111.6	109.3	110.1	112.2	109.4	106.1
Drachma-denominated	14,688	15,937	18,998	23,190	27,795	25,827
Foreign currency-denominated	8,990	10,372	10,708	10,134	11,245	12,033
Foreign currency-linked bonds	1,702	1,879	1,574	239	151	3
External	5,246	6,238	6,599	7,240	8,330	9,149
Bank of Greece	2,042	2,255	2,535	2,655	2,764	2,881

Sources: Ministry of Finance; and Bank of Greece.

1/ Replaced by long-term bonds at end-1993.
2/ Bonds issued in 1993 to cover valuation differences.

Table 29. Greece: Monetary Program and Outturn 1/

(End of period)

	1994		1995		1996		1997		1998		1999 2/
	Program	Outturn	Program	Outturn	Program	Outturn	Program	Outturn	Program	Outturn	Program
				(Annual percentage changes)							
Broad money (M3)	8-11	8.8	7-9	10.3	6-9	9.3	6-9	9.6	6-9	8.9	...
Of which:											
Currency in circulation	...	11.6	...	10.4	...	4.2	...	12.4	...	2.1	...
Private sector deposits	...	24.6	...	15.0	...	13.9	...	9.2	...	1.6	...
M4	...	13.9	11-13	8.2 2/	9-12	12.0	8-11	-1.6	...	3.2	...
M4N 3/	...	13.7	...	13.0	...	15.3	...	7.8	...	9.8	7-9
Domestic credit (net) 4/	6-8	8.9	6-8	7.9	5-7	5.9	4-6	9.7	4-6	9.7	7-9
Private sector 5/	11.0	13.8	...	22.0	...	17.0	...	15.3	...	15.2	...
Public sector 4/	...	7.0	...	2.4 6/	...	1.0	...	7.1	...	7.1	...
Drachma/ECU	...	5.6	3.0	3.0	broadly stable	1.0	stable	1.7	broadly stable	5.4	...
Nominal GDP	12.3	13.2	9.5	12.1	9.9	10.5	10.4	10.3	...	8.9	...
CPI	less than 10	10.6	7.0	7.9	5.0	7.3	4.5	4.7	less than 2 percent by end-1999	3.9	...
			(In billions of drachmas)								
Broad money (M3) 4/	1,200-1,600	1,281	1,200-1,400	1,625	1,040-1,540	1,625	1,150-1,700	1,821	...	1,863	...
Domestic credit (net)	1,400-1,600	1,915	...	1,917	...	1,607	...	2,969	...	3,412	...
Private sector	700	827	...	1,503	...	1,414	...	1,477	...	1,690	...
Public sector	700-900	1,088	...	414	...	193	...	1,492	...	1,722	...
Sales of government debt to the nonbank public	1,300-1,500	1,622	...	2,088	...	3,113	...	650	...	160	...

Source: Bank of Greece.

1/ The definition of net domestic credit and credit to the public sector in the monetary program is different from that in the monetary survey; it includes borrowing by the public sector directly from abroad, as well as capitalized interest. Also, for all credit aggregates the data do not reflect the exchange of government-guaranteed credit for government bonds.

2/ M4 was revised to include secondary market transactions from 1995 on.

3/ Beginning in 1999, the Bank of Greece started to rely, inter alia, on a new liquidity indicator, M4N, to provide information on the determinants of inflation. M4N, which includes M4 (currency in circulation, residents' drachma deposits, repos, bank certificates, and treasury bills), in addition to residents' foreign exchange depostis and money market mutual fund shares, is regarded as a more appropriate gauge of the conditions and stance of monetary policy. The expected growth rates of M4N and domestic credit are not intermediate monetary policy targets, but rather indicative projections.

4/ Percentage changes in credit to the public sector and net domestic credit are calculated as the flows during the year excluding valuation adjustments over the stock of debt outstanding at the end of the previous year.

5/ Excluding Securities

6/ NDC to the public sector in 1995 is affected by the inclusion of secondary-market sales of government paper from bank portfolios to the nonbank public.

Table 30. Greece: Monetary Survey 1/

(In billions of drachmas; end of period)

	1993	1994	1995	1996	1997	1998 Prov.
Net domestic credit	18,386.4	20,121.7	22,414.0	24,140.6	26,445.1	28,276.6
Private sector 2/	6,648.7	7,536.4	9,157.0	10,391.0	11,923.9	13,755.5
Net public sector 3/	11,737.7	12,585.3	13,257.0	13,749.6	14,521.1	14,521.1
Central government 4/	11,843.0	12,131.5	12,783.4	13,414.8	14,271.0	14,143.8
Public enterprises	282.5	405.6	449.8	498.0	527.8	688.8
Public entities	-387.8	48.2	23.8	-164.0	-277.7	-311.5
Net foreign assets (short-term)	205.4	1,499.7	1,479.2	3,138.7	293.4	-1,088.8
Foreign deposits	4,117.4	4,439.0	4,999.1	5,258.9	8,263.4	10,910.4
Foreign assets	4,322.8	5,938.7	6,478.3	8,397.6	8,556.7	9,821.5
Other items (net assets)	-4,117.0	-5,866.0	-6,512.8	-8,274.0	-5,912.1	-4,498.5
Of which:						
Long-term foreign currency liabilities	5,058.1	6,211.0	7,272.6	7,931.4	6,170.4	4,911.6
Long-term foreign currency claims on						
government	3,596.3	3,294.5	2,750.2	2,129.6	1,578.8	1,082.8
Broad money (M3) 5/	14,474.8	15,755.5	17,380.4	19,005.2	20,826.3	22,689.3
Narrow money (M1) 5/	2,223.7	2,793.5	3,149.0	3,548.0	4,003.0	4,538.5
Currency in circulation	1,512.0	1,687.7	1,863.6	1,941.4	2,182.7	2,229.3
Private sight deposits	711.7	1,105.8	1,285.4	1,606.6	1,820.3	2,309.2
Quasi money	9,653.7	11,805.7	13,564.6	15,308.3	16,654.7	16,465.9
Private savings deposits	7,709.7	8,811.5	10,445.4	12,201.7	13,335.3	13,751.4
Private time deposits	1,943.9	2,994.2	3,119.2	3,106.6	3,319.3	2,714.4
Bank bonds	703.5	838.4	570.8	59.8	126.7	163.6
Repos	1,893.9	317.8	96.0	89.2	41.9	1,521.4
Memorandum items: 5/						
M1 plus public sector sight deposits	2,687.6	3,299.4	3,718.1	4,295.8	4,817.4	5,538.7
M3 plus public sector deposits	15,846.7	16,665.0	18,746.6	20,515.0	22,218.6	23,951.3
M3 plus foreign exchange deposits	18,592.2	20,194.4	22,379.5	24,264.1	29,089.6	33,599.7
M4, drachma liquidity indicator	18,566.9	21,149.4	22,889.6	25,636.4	25,233.3	26,023.3
M4N, broader liquidity indicator	19,435.2	21,987.1	24,852.2	28,649.3	30,883.0	33,898.7

Source: Bank of Greece.

1/ Revised data not comparable to previous years, due to a change in the reporting system. Data reflect the exchange of government-guaranteed credit for government bonds. Also, net credit to the central government in 1991–95 includes capitalized interest on government bonds held by commercial banks.

2/ Includes securities and loans in foreign currency.

3/ Excluding long-term loans in foreign currency by the Bank of Greece.

4/ Net domestic credit to the central government now includes Bank of Greece foreign exchange differences.

5/ The monetary aggregates are defined as follows: narrow money (M1) is currency plus private sight deposits (excluding blocked deposits); broad money (M3) is M1 plus time and savings deposits, bank bonds and repurchase agreements; total drachma financial assets (M4) is M3 plus private sector holdings of T-bills and government bonds of maturity up to one year. M4N is M4 plus foreign exchange deposits and holdings of money market mutual funds.

Table 31. Greece: Growth of Money and Credit Aggregates 1/

(In percent per annum; end of period)

	1992	1993	1994	1995	1996	1997	1998 Provis.
Money							
Currency in circulation	12.3	7.2	11.6	10.4	4.2	12.4	2.1
M1, narrow money	12.9	13.0	25.6	12.7	12.7	12.8	13.4
M3, broad money	14.4	15.0	8.8	10.3	9.3	9.6	8.9
M3 plus foreign exchange deposits	17.0	16.0	8.6	10.8	8.4	19.8	15.5
Foreign currency deposits	27.5	19.5	7.8	12.6	5.2	57.1	132.0
M4, drachma liquidity indicator	19.2	15.3	13.9	8.2	12.0	-1.6	3.2
M4N, broader liquidity indicator		16.7	13.7	13.0	15.3	7.8	9.8
Credit 2/							
Net domestic credit	17.1	13.5	8.7	9.6	8.3	11.4	...
Credit to private sector 3/	14.2	12.3	13.8	22.0	17.0	15.3	15.2
Net credit to public sector	19.6	14.1	6.7	4.8	4.5	9.7	...
Of which: Credit to central government	25.6	22.6	2.4	5.4	0.5	4.3	...

Sources: Bank of Greece; and Fund staff calculations.

1/ Figures include capitalized interest on government bonds held by commercial banks. Data also reflect the exchange of government-guaranteed credit for government bonds.
2/ Excluding long-term loans to government in foreign currency by the Bank of Greece.
3/ Including securities and loans in foreign currency.

Table 32. Greece: Distribution of Bank Credit to the Private Sector 1/

(End of period)

	1993	1994	1995	1996	1997	1998	1998 In billions of Drachmas	In percent
Total private sector	11.5	13.8	22.0	17.0	15.3	15.2	12,836	100.0
Agriculture	6.1	7.0	14.6	5.5	2.8	2.3	1,149	8.9
Manufacturing and mining	4.7	11.7	14.4	10.9	5.4	7.1	3,410	26.6
Of which:								
Industry and mining	5.3	12.2	13.8	11.7	4.1	5.7	2,600	20.3
Short- and medium-term	7.4	14.5	19.5	20.0	6.0	5.5	2,083	16.2
Long-term	0.5	7.2	0.4	-11.6	-3.0	6.4	517	4.1
Small-scale industries	2.6	9.8	16.5	7.9	10.1	11.6	810	6.3
Trade	26.3	18.1	28.7	19.3	22.6	20.2	2,785	21.7
Housing	11.9	11.5	19.4	27.5	23.8	20.6	2,320	18.1
Other	22.0	21.6	38.0	24.3	23.0	22.1	3,177	24.7
Of which: Consumer credit	32.0	65.2	83.4	35.8	27.3	38.1	1,010	7.9

Source: Bank of Greece.

1/ Without taking into account the reduction in outstanding bank credit caused by the conversion of loans guaranteed by the government into government bonds. These conversions were: 1991 Dr 54.3 billion; 1992 Dr 185.0 billion; 1993 Dr 492.1 billion; and 1994 Dr 31.9 billion.

Table 33. Greece: Short-term Interest Rates

(In percent)

| | Interbank Rates | | Deposit Rates | | Short-Term Bank Lending Rate | | | Inflation |
| | (End of month) | (Monthly average) | One month term deposits (End of month) | on 12 month term deposits (End of month) | (Monthly average) | | | (12 month change in CPI) |
	(Overnight)				Total	Enterprises	Households	
1996								
January	13.8	13.9	13.3	14.7	21.4	...	...	8.4
February	13.8	13.8	13.1	14.6	21.2	...	...	8.4
March	13.8	13.8	13.0	14.6	21.2	...	...	8.9
April	13.4	13.6	12.9	14.5	21.2	...	...	8.8
May	13.4	13.4	12.9	13.9	21.2	...	...	8.7
June	14.1	13.6	13.1	13.9	21.2	...	...	8.4
July	13.3	13.3	12.7	14.4	21.2	...	...	8.1
August	12.4	12.8	12.4	13.2	21.1	...	...	8.0
September	13.8	12.6	12.3	12.6	20.6	...	...	7.9
October	13.4	12.8	12.0	12.5	20.5	...	...	8.0
November	13.4	13.3	12.0	12.3	20.5	...	...	7.5
December	12.6	12.8	12.0	11.9	20.2	...	...	7.3
1997								
January	12.4	12.4	11.2	11.3	19.9	...	...	6.8
February	11.9	12.1	10.8	10.3	19.6	...	...	6.5
March	10.4	11.7	10.1	10.1	19.3	...	...	6.0
April	10.5	10.8	9.7	9.7	19.0	...	...	5.9
May	10.9	10.6	9.5	9.6	18.7	...	...	5.4
June	11.0	11.7	10.0	9.6	18.3	...	...	5.6
July	11.5	11.7	10.3	9.6	18.2	...	...	5.4
August	11.4	11.6	10.2	9.6	18.2	...	...	5.6
September	11.3	11.0	10.0	9.5	18.4	...	...	4.9
October	131.7	16.9	17.1	9.5	18.2	...	...	4.7
November	11.1	23.7	12.7	11.3	20.1	...	...	5.2
December	10.8	11.0	11.2	11.2	19.1	...	...	4.7
1998								
January	11.7	15.1	12.7	11.2	19.5	...	...	4.4
February	12.8	13.0	12.8	11.3	19.8	...	...	4.3
March	10.3	13.2	11.2	11.0	19.3	...	...	4.6
April	13.8	11.9	11.2	10.5	18.7	...	...	5.3
May	11.6	11.9	10.9	10.5	18.5	...	...	5.3
June	11.2	13.4	11.1	10.7	18.6	...	...	5.2
July	11.9	12.3	11.0	10.7	18.3	...	...	5.1
August	12.3	12.4	11.4	10.7	18.2	...	...	5.0
September	11.9	11.7	11.2	10.8	18.2	...	...	5.2
October	12.0	11.9	10.6	10.6	18.0	...	...	4.7
November	12.3	12.3	10.5	10.4	18.0	...	...	4.2
December	10.8	11.9	10.4	10.0	17.6	...	...	3.9
1999								
January	10.9	11.4	10.2	9.5	...	15.6	20.4	3.7
February	10.1	10.2	9.4	9.3	...	14.7	20.5	3.7
March	10.2	10.2	9.2	9.2	...	14.7	20.6	3.4
April	10.2	10.2	9.1	8.8	...	14.9	20.5	2.8
May	10.8	10.4	9.1	8.8	...	14.8	20.6	2.4

Source: Bank of Greece.

Table 34. Greece: Official Interest Rates

(In percent)

Date of Change	Discount Rate	Lombard Rate	Overdraft Rate on Banks' Current Account with the Bank of Greece
1992			
1/1	19.0	...	26.0-30.0 1/
9/18	19.0	...	40.0
10/21	19.0	...	35.0
1993			
6/16	21.5	25.5	29.0
8/13	21.0	24.5	29.0
10/1	22.0	26.5	32.0
10/26	21.5	25.5	30.0
1994			
5/16	22.5	26.5	33.0 2/
5/31	22.5	26.5	33.0 3/
6/21	22.5	26.5	33.0 4/
7/11	22.5	26.5	33.0
9/28	21.5	25.0	30.0
11/21	20.5	24.0	30.0
1995			
3/31	20.5	24.0	28.0
7/27	19.5	23.0	27.0
8/25	18.5	22.0	27.0
12/18	18.0	21.5	27.0
1996			
4/22	17.5	21.0	26.0
12/18	16.5	21.0	25.0
1997			
2/17	15.5	20.0	25.0
3/28	15.5	20.0	25.0
5/13	14.5	19.0	24.0
7/25	14.5	19.0	24.0
8/18	14.5	19.0	24.0
10/8	14.5	19.0	24.0
10/31	14.5	19.0	24.0
1998			
1/9	14.5	23.0	24.0
3/31	14.5	19.0	22.0
4/10	5/	19.0	22.0
8/5	...	16.0	22.0
12/10	...	15.5	22.0
1999			
1/14	...	13.5	20.0

Source: Bank of Greece.

1/ According to the size of the overdraft.
2/ In addition, a penalty surcharge of 0.4 percent per day was imposed on bank overdrafts.
3/ In addition, a penalty surcharge of 0.3 percent per day was imposed on bank overdrafts.
4/ In addition, a penalty surcharge of 0.1 percent per day was imposed on bank overdrafts.
5/ This credit facility was abolished on April 10, 1998.

Table 35. Greece: Bank Interest Rates

(End of period; in percent per annum)

	1993	1994	1995	1996 I	II	III	IV	1997 I	II	III	IV	1998 I	II	III	IV	1999 I	II
Lending rates																	
Bank of Greece																	
Rediscount rate	21.5	20.5	18.0	18.0	17.5	17.5	16.5	15.5	14.5	14.5	14.5	14.5	14.5 1/	...	...	...	
Lombard facility 2/	25.5	24.0	21.5	21.5	21.0	21.0	21.0	20.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	13.5	13.5
Maximum penalty rate	30.0	30.0	27.0	27.0	26.0	26.0	25.0	25.0	24.0	24.0	24.0	22.0	22.0	22.0	22.0	20.0	20.0
Commercial banks																	
Short-term	28.4	26.4	21.1	21.2	21.2	20.6	20.2	19.3	18.3	18.4	19.1	19.3	18.6	18.2	17.6	14.7	14.8
Long-term	26.9	25.4	19.2	19.5	18.8	18.8	18.7	17.2	16.0	16.3	17.5	16.7	16.6	16.9	16.0	13.7	13.7
Deposit rates																	
Time deposits																	
- 1 month	19.6	16.7	14.2	13.0	13.1	12.2	12.1	10.1	10.0	10.0	11.2	11.2	11.1	11.2	10.4	9.3	...
- 3 months	18.5	17.7	14.3	13.7	13.9	12.8	12.6	10.6	10.3	10.4	13.2	11.6	11.8	12.2	10.5	9.4	...
- 12 months	20.0	18.6	14.9	14.7	14.4	13.3	12.9	10.1	9.6	9.5	11.2	11.0	10.7	10.8	10.0	9.2	8.5
Interbank rates (overnight)	20.1	17.0	14.1	13.8	14.1	13.8	12.6	10.4	11.0	11.3	10.8	10.3	11.2	11.9	10.8	10.2	...

Source: Bank of Greece.

1/ This credit facility has been abolished from April 10, 1998.
2/ The Lombard facility was introduced on June 16, 1993.
3/ Additional interest was charged on new debit balances or on increments in existing ones at the rate of 0.4 percent per day as from October 31, 1997, and 0.2 percent per day as from December 29, 1997.
As from March 31, 1998 the above surcharge has been abolished.

Table 36. Greece: Interest Rates on Government Paper

(End of period, in percent per annum)

| | Treasury Bill Yield | | | Government Drachma Bonds | | | | | | Inflation |
	3-month	6-month	12-month	2-year savings certificates	3-year 1/	5-year 1/	7-year 1/	10-year 1/	15-year 1/	(12 month change in CPI)
1996										
January	12.9	13.1	13.8	...	...	...	...	...		8.4
February	12.5	12.7	13.4	...	14.3	14.8	15.3	...		8.4
March	12.4	12.6	13.3	...	...	...	14.9	...		8.9
April	12.4	12.6	13.3	...	...	...	14.8	...		8.8
May	12.4	12.6	13.3	...	...	...	14.8	...		8.7
June	12.4	12.6	13.3	...	...	...	14.8	...		8.4
July	12.0	12.2	12.8	...	...	...	14.5	...		8.1
August	11.9	12.1	12.7	...	...	...	14.3	...		8.0
September	11.9	12.1	12.7	...	...	...	...	...		7.9
October	11.5	11.7	12.3	...	...	...	14.0	...		8.0
November	10.5	10.8	11.5	...	11.0	...	13.4	...		7.5
December	10.2	10.5	11.2	...	10.7	...	12.6	...		7.3
1997										
January	9.8	10.1	10.9	...	10.2	...	...	...		6.8
February	9.4	9.7	10.5	...	...	...	...	...		6.5
March	9.2	9.5	10.3	...	10.1	9.6	9.1	...		6.0
April	9.2	...	10.3	...	...	...	...	...		5.9
May	8.5	8.8	9.6	...	...	...	...	...		5.4
June	...	...	9.6	...	9.6	9.2	9.0	8.9		5.6
July	...	...	9.6	...	...	9.6	9.5	9.3		5.4
August	8.4	8.7	9.5	...	...	...	...	...		5.6
September	...	...	9.5	...	...	9.7	9.7	9.1		4.9
October	...	...	11.3	...	10.0	10.1	9.7	9.2		4.7
November	13.3	...	11.2	...	...	...	...	...		5.2
December	12.9	12.7	11.4	...	...	...	...	...		4.7
1998										
January	13.9	13.8	12.4	...	...	...	...	...	...	4.4
February	13.1	...	12.7	...	...	...	...	...	...	4.3
March	12.8	...	10.8	...	...	...	...	7.9	...	4.6
April	10.7	...	11.1	...	...	8.6	8.6	...	...	5.3
May	10.8	11.3	11.3	...	9.7	...	...	7.8	7.7	5.3
June	11.8	11.9	11.7	...	10.0	9.0	8.4	...	...	5.2
July	11.5	11.7	11.5	...	...	...	...	7.9	7.4	5.1
August	...	11.5	13.2	10.8	9.9	...	7.8	...	...	5.0
September	...	12.3	11.6	...	...	...	...	8.3	...	5.2
October	12.6	12.6	11.0	10.8	...	...	...	...	...	4.7
November	...	...	10.5	10.3	9.4	8.8	...	7.8	7.3	4.2
December	11.1	10.5	10.3	10.0	...	...	8.3	7.2	...	3.9
1999										
January	...	...	9.5	9.2	7.6	6.8	...	6.1	6.3	3.7
February	9.5	9.5	9.2	9.0	...	...	5.9	...	...	3.7
March	8.9	8.7	8.8	8.6	7.1	...	...	6.0	6.3	3.4
April	...	...	8.7	8.6	...	6.3	6.1	...	...	2.8
May	...	...	8.7	8.6	6.5	...	...	5.9	5.9	2.4
June	9.4	9.0	8.7	...	...	6.1	6.3	6.1	...	2.1
July	...	...	8.9	...	7.3	...	...	...	6.5	2.1
August	9.8	9.9	8.8	...	...	...	6.7	...	...	2.0
September	...	...	8.7	...	...	...	...	...	...	...

Sources: Bank of Greece; and IMF, *International Financial Statistics*.

1/ Tender rate at issue, which may vary from the coupon rate

Table 37. Greece: Exchange Rates
(Percentage changes) 1/

	1993	1994	1995	1996	1997	1998
Rate of Greek drachma against:						
U.S. Dollar, period average	-16.8	-5.5	4.7	-3.8	-11.8	-7.6
End of period	-13.9	3.8	1.3	-4.0	-12.6	0
Euro (ECU), period average	-8.0	-6.7	-4.1	-0.6	-2.3	-7.0
End of period	-6.6	-5.6	-3.0	-1.0	-1.7	-5.4
DM, period average	-11.8	-7.3	-7.5	1.1	1.6	-6.3
End of period	-7.3	-7.4	-6.3	4.1	0.7	-6.3
Nominal effective exchange rate						
Bank of Greece index 2/	-9.2	-7.1	-3.5	-1.1	-1.9	-5.9
IFS	-7.8	-6.8	-3.0	-1.7	-2.0	-5.9
Real effective exchange rate						
Manufacturing unit labor costs (BoG)	-5.1	4.0	7.5	5.1	4.3	-4.1
Relative normalized unit labor costs (IMF)	-3.2	1.7	6.0	5.7	4.0	4.4
Relative producer prices (BoG)	0.4	1.1	0.9	3.7	0.7	-2.0
Relative consumer prices (BoG)	1.3	0.4	2.7	4.8	1.8	-2.8
EU countries	3.4	0.7	1.9	4.1	2.5	-3.4
Relative consumer prices (IFS)	0.5	1.1	3.3	4.3	0.9	-1.8
Memorandum items:						
Drachma per U.S. dollar						
End of period	249.2	240.1	237.0	247.0	282.6	282.6
Period average	229.2	242.6	231.7	240.7	273.1	295.5
Drachma per DM						
End of period	143.7	155.1	165.5	159.0	157.9	168.5
Period average	138.7	149.5	161.6	160.0	157.5	167.4

Sources: Bank of Greece; IMF, *International Financial Statistics* ; and Fund staff calculations.

1/ Foreign currency per drachma; a negative sign denotes a depreciation.
excluding Luxembourg, the United States, Japan, and the EFTA counties excluding Ireland.
2/ Non-oil trade weighted vis-a-vis 15 competitor countries (1981–84 weights).

Table 38. Greece: Official Reserves

(In millions of U.S. dollars; end of period)

	1993	1994	1995	1996	1997	1998	1998 Mar.	1998 Jun.	1998 Sep.	1998 Dec.	1999 Mar.	1999 Jun.
Gold	856.3	850.9	871.7	833.2	684.5	685.3	679.5	679.7	680.1	685.3	858.3	858.9
SDRs	0.2	0.3	0.0	0.6	0.3	0.5	0.6	0.2	0.1	0.5	0.9	2.0
Reserve Position in the Fund	156.2	166.0	169.0	163.5	153.4	9.6	151.9	151.4	155.6	9.6	339.9	373.2
Foreign Exchange	7,634.0	14,321.6	14,611.0	17,337.3	12,441.2	17,188.3	19,522.2	18,497.9	16,804.1	17,188.3	20,376.1	19,726.1
Total	8,646.7	15,338.8	15,651.7	18,334.6	13,279.4	17,883.7	20,354.2	19,329.2	17,639.9	18,143.7	21575.2	20960.2
Memorandum Items: Official reserves in months of current year imports	4.8	7.7	6.6	7.4	5.7	6.9	7.9	7.5	6.8	7.0	...	...

Sources: IMF, *International Financial Statistics*; and Bank of Greece.

Table 39. Greece: Balance of Payments

(In millions of U.S. dollars; on a settlement basis)

	1993	1994	1995	1996	1997	1998
Imports, c.i.f.	17,616	18,742	22,929	24,136	23,643	23,247
Of which: Petroleum products	1,947	1,943	2,230	2,880	2,784	2,024
Exports, f.o.b.	5,034	5,219	5,783	5,770	5,372	5,566
Of which: Petroleum products	534	606	491	652	592	727
Trade balance	-12,582	-13,523	-17,146	-18,366	-18,271	-17,681
Of which: Non-oil	-11,169	-12,186	-15,407	-16,138	-16,079	-16,384
Oil	-1,413	-1,337	-1,739	-2,228	-2,192	-1,297
Invisible receipts	17,023	18,767	20,770	20,444	19,965	21,794
Travel	3,335	3,905	4,136	3,723	3,771	5,186
Transportation	1,920	1,957	2,190	2,264	2,104	2,281
Convertible drachma accounts	2,290	2,640	2,810	3,006	3,060	2,827
Private transfers	2,431	2,657	3,071	2,996	2,924	3,028
EU transfers (net)	4,085	4,307	4,968	5,057	4,622	4,865
Other	2,962	3,301	3,596	3,399	3,484	3,607
Invisible payments	5,158	5,366	6,475	6,618	6,528	7,757
Of which: Interest and dividends	2,086	2,101	2,683	3,003	2,482	2,716
Invisibles balance	11,865	13,401	14,296	13,826	13,437	14,037
Current account balance	-717	-122	-2,850	-4,540	-4,834	-3,644
As percent of GDP	-0.8	-0.1	-2.5	-3.7	-4.0	-3.0
Capital account balance 1/	4,402	6,903	3,161	8,657	111	8,527
Private capital	1,616	3,787	2,341	7,216	-4,371	-1,452
Long-term	1,983	3,439	3,930	7,560	-1,496	2,405
Entrepreneurial 2/	1,637	2,125	3,731	4,844	2,620	2,806
Real estate	946	956	1,040	1,044	967	903
Banks	32	29	6	6	-5	457
Suppliers' credits 3/	-14	-19	0	0	0	-1
Other	-618	348	-847	1,666	-5,078	-6,571
Short-term	-367	348	-1,589	-344	-2,874	954
Banks	46	60	-2,116	-603	-3,344	588
Of which: Foreign exchange deposits	46	60	-2,173	-686	-3,738	613
Suppliers' credits 3/	-413	288	527	259	470	366
Official capital	2,786	3,116	820	1,441	4,482	9,979
Long-term	2,341	2,337	-25	4,431	3,258	10,954
Bank of Greece	2,587	-1,791	-2,385	-2,194	-2,570	-2,082
Central government	-145	3,830	2,596	6,519	6,850	13,452
Public enterprises	-39	103	-190	-154	-979	-371
Other 4/	-62	195	-46	259	-44	-44
Short-term	445	779	845	-2,990	1,225	-975
Bank of Greece	-420	0	0	0	974	-975
Central government	1,028	873	845	-2,990	251	0
Other	-163	-94	0	0	0	0
Errors and omissions	-663	-415	-342	78	177	-428
Overall balance	3,020	6,367	-30	4,196	-4,546	4,855
Financing items:						
Use of IMF credit	0	0	0	0	0	0
Change in clearing accounts	-4	0	0	0	-6	0
Change in reserves (+: decrease/-: increase)	-3,106	-6,738	-304	-3,442	-5,840	4,855
Allocation of SDRs	0	0	0	0	0	0
Changes in the valuation of official gold (+:decrease)	88	372	334	-754	-1,302	400
Stock of reserves (IFS)	8,647	15,432	15,736	19,177	13,337	19,191

Sources: Bank of Greece, *Monthly Statistical Bulletin*; data provided by the authorities; and *International Financial Statistics*.

1/ Private and official capital, excluding errors and omissions.
2/ Includes direct investment and enterprise borrowing abroad.
3/ Includes official suppliers' credits.
4/ Borrowing by the Hellenic Industrial Development Bank, the Agricultural Bank of Greece, and the National Mortgage Bank of Greece.

Table 40. Greece: External Services and Transfers

(In millions of U.S. dollars)

	1995			1996			1997			1998		
	Receipts	Payments	Balance	Receipts	Payments	Balance	Receipts	Payments	Balance	Receipts	Payments	Balance
Services	12,731	6,445	6,286	12,391	6,586	5,805	12,429	6,504	5,925	13,901	7,714	6,187
Transportation	2,190	422	1,768	2,264	431	1,833	2,111	394	1,717	2,281	532	1,749
Travel	4,136	1,323	2,813	3,723	1,210	2,513	3,772	1,327	2,445	5,186	1,756	3,430
Investment income	1,008	2,683	-1,675	971	3,003	-2,032	962	2,482	-1,520	1,194	2,716	-1,522
Interest	986	2,489	-1,503	908	2,818	-1,910	929	2,371	-1,442	1,140	2,545	-1,405
Dividends and profits	22	194	-172	63	185	-122	33	111	-78	54	171	-117
Convertible drachma account	2,810	0	2,810	3,006	0	3,006	3,060	0	3,060	2,827	0	2,827
Other, including government	2,587	2,017	570	2,427	1,942	485	2,524	2,301	223	2,413	2,710	-297
Unrequited transfers	8,039	31	8,008	8,053	31	8,022	7,538	37	7,501	7,893	43	7,850
Private	3,071	31	3,040	2,996	31	2,965	2,916	37	2,879	3,028	43	2,985
Emigrant remittances	2,982	0	2,982	2,894	0	2,894	2,816	0	2,816	2,925	0	2,925
Other	89	31	58	102	31	71	100	37	63	103	43	60
Public 1/	4,968	0	4,968	5,057	0	5,057	4,622	0	4,622	4,865	0	4,865
Total services and transfers	20,770	6,476	14,294	20,444	6,617	13,827	19,967	6,541	13,426	21,794	7,757	14,037

Source: Bank of Greece.

1/ Receipts reflect net EU transfers.

Table 41. Greece: External Current Account Deficit and Financing

(In percent of GDP, settlement basis)

	1993	1994	1995	1996	1997	1998
Trade balance	-13.7	-13.7	-14.8	-14.9	-15.2	-14.6
Non-oil balance	-12.1	-12.3	-13.3	-13.1	-13.4	-13.6
Exports, f.o.b.	4.9	4.7	4.6	4.1	4.0	4.0
Imports, c.i.f.	17.0	17.0	17.8	17.2	17.4	17.6
Oil balance	-1.5	-1.4	-1.5	-1.8	-1.8	-1.1
Invisible balance	12.9	13.6	12.3	11.2	11.2	11.6
Invisible receipts	18.5	19.0	17.9	16.6	16.6	18.1
Travel	3.6	3.9	3.6	3.0	3.1	4.3
EU transfers (net)	4.4	4.4	4.3	4.1	3.9	4.0
Other	10.4	10.7	10.1	9.5	9.6	9.7
Invisible payments	5.6	5.4	5.6	5.4	5.4	6.4
Of which: Interest and						
dividends	2.3	2.1	2.3	2.4	2.1	2.2
Current account balance	-0.8	-0.1	-2.5	-3.7	-4.0	-3.0
Financing:						
Non-debt capital	2.2	3.5	1.6	5.6	-4.0	-1.9
Change in reserves	-3.4	-6.8	0.3	2.8	-4.9	4.0
Debt financing, net 1/	2.0	3.0	0.9	1.4	4.3	8.6
Memorandum items:						
GDP (drachma)	21,106.0	23,984.0	26,895.0	29,697.7	32,752.2	35,677.4
Dr/US$ exchange rate						
(period average)	229.3	242.6	231.7	240.7	273.1	295.5
GDP(millions of US$)	92,045.4	98,862.3	116,076.8	123,374.0	119,946.0	120,736.0

Sources: Bank of Greece; and IMF, *International Financial Statistics.*

1/ Including residual items.

Table 42. Greece: Current Account of the Balance of Payments 1/

(In millions of U.S. dollars)

	1993	1994	1995	1996	1997	1998
Exports of goods	9,186.0	9,816.5	11,595.7	12,373.3	11,688.7	11,685.5
Imports of goods	21,558.1	21,596.6	26,483.3	27,861.6	26,390.8	27,042.0
Trade balance	-12,372.1	-11,780.2	-14,887.6	-15,488.2	-14,702.0	-15,356.5
Percent of GDP	-13.4	-11.9	-12.8	-12.6	-12.3	-12.7
Exports of nonfactor services	5,450.8	6,275.7	6,785.3	7,143.0	7,148.7	8,098.4
Of which: Tourism	3,928.9	4,669.0	4,976.3	5,330.5	5,451.9	6,397.3
Imports of nonfactor services	1,890.5	2,134.4	2,503.2	2,467.3	2,372.0	2,689.4
Of which: Tourism	1,265.4	1,428.7	1,561.3	1,528.0	1,589.0	1,864.8
Balance of nonfactor services	3,560.3	4,141.3	4,282.1	4,675.7	4,776.7	5,408.9
Percent of GDP	3.9	4.2	3.7	3.8	4.0	4.5
Net factor income from abroad	601.1	874.3	1,046.3	821.3	694.0	439.9
Net private transfers	3,145.5	3,518.1	4,234.6	4,202.5	3,977.5	4,229.7
Net official transfers	2,708.8	2,774.5	2,488.5	2,564.5	2,183.8	2,063.1
Of which: EU transfers 2/	2,383.4	2,344.2	2,353.4	2,506.7	2,156.3	2,266.1
Balance of factor income and transfers	6,455.4	7,166.9	7,769.6	7,588.3	6,855.3	6,732.7
Percent of GDP	7.0	7.2	6.7	6.2	5.7	5.6
Current account balance	-2,356.4	-472.0	-2,836.0	-3,224.2	-3,070.0	-3,214.9
Percent of GDP	-2.6	-0.5	-2.4	-2.6	-2.6	-2.7
Balance of factor income and transfers (including all PIP transfers) 3/	7,642.3	8,355.0	9,158.7	9,865.2	9,411.6	9,744.2
Percent of GDP	8.3	8.5	7.9	8.0	7.8	8.1
Current account balance (including all PIP transfers)	-1,169.5	716.2	-1,446.8	-947.4	-513.8	-203.4
Percent of GDP	-1.3	0.7	-1.2	-0.8	-0.4	-0.2
Memorandum items:						
Current account excluding EU transfers	-4,739.8	-2,816.1	-5,189.4	-5,730.9	-5,226.4	-5,481.0
Percent of GDP	-5.1	-2.8	-4.5	-4.6	-4.4	-4.5
Total EU transfers (BoG)	4,085.0	4,307.0	4,968.0	5,057.0	4,622.0	4,865.3
Percent of GDP	4.4	4.4	4.3	4.1	3.9	4.0
Total EU transfers (Budget)	4,594.0	4,586.0	4,649.9	5,847.8	4,747.9	4,993.6
Percent of GDP	5.0	4.6	4.0	4.7	4.0	4.1
Total transfers to PIP 3/	1,186.9	1,188.2	1,389.2	2,276.8	2,556.2	3,011.5
Percent of GDP	1.3	1.2	1.2	1.8	2.1	2.5

Source: Ministry of National Economy.

1/ National accounts presentation. Converted into U.S. dollars using the annual average exchange rate.
2/ Excludes official EU transfers to the public investment program.
3/ PIP: Public Investment Program.

Table 43. Greece: Selected Indicators for Trading Partners 1/

(Annual changes, in percent)

	1993	1994	1995	1996	1997	1998
Output and demand in partner countries **(Export-weighted market growth) 2/**						
Real GDP 3/	0.4	2.5	3.0	1.9	2.0	2.3
Real total domestic demand 4/	-1.2	2.8	2.2	1.5	2.3	3.0
Volume of merchandise imports 3/						
Total	0.1	5.2	9.9	2.8	5.8	6.3
Non-oil	-0.6	6.2	10.8	5.2	8.8	4.7
Costs and prices of partner suppliers **(Import-weighted) 5/**						
Unadjusted for exchange rate changes 6/						
GDP deflators 4/	3.3	2.7	2.9	2.5	1.8	1.9
Consumer prices 4/	3.6	3.0	3.2	2.5	1.9	1.5
In U.S. dollar terms						
GDP deflators 4/	-7.6	3.5	10.4	1.2	-8.1	-0.5
Consumer prices 4/	-7.3	3.9	10.5	1.2	-8.1	-1.0
Export unit values 3/						
Total	-7.2	2.8	11.2	0.5	-8.5	-3.6
Non-oil	-6.6	3.3	12.1	-0.4	-8.8	-2.1
Costs and prices of industrial trading partners **(Export weighted, in U.S. dollar terms) 2/ 4/**						
Export unit values	-8.0	2.4	11.7	-0.4	-9.3	-2.3
Unit labor costs	-8.3	-2.8	7.7	0.6	-10.6	-2.7
World market prices for non-fuel commodities 7/ **(in U.S. dollar terms)**						
Weighted by:						
Commodity composition of Greek exports	-7.4	16.4	11.5	-5.4	4.1	-12.6
Commodity composition of Greek imports	5.1	4.1	-0.3	-0.8	-1.1	-13.3

Source: IMF, *International Financial Statistics*.

1/ Except for non-fuel commodity prices (see footnote 7 below), these composites are averages of percentage changes of data for each trading partner (as specified in footnotes 3 and 4 below) weighted by their share in exports or imports, as appropriate, of Greece

2/ Weights are proportional to 1992 exports of Greece to partner countries as specified in footnotes 3 and 4 below.

3/ Based on data for partner countries that together account for at least 95 percent of exports or imports, as appropriate, of Greece.

4/ Based on data for industrial partner countries only.

5/ Weights are proportional to 1992 imports of Greece from partner countries as specified in footnotes 3 and 4 above.

6/ That is, weighted averages of percentage changes in indices expressed in national currencies of industrial partner countries.

7/ Based on averages of world market prices for component non-fuel commodities weighted by the 1979-1 composition of commodity trade (exports and imports) of Greece.

Table 44. Greece: Capital Account

(In millions of U.S. dollars)

	1993	1994	1995	1996	1997	1998
Nondebt capital flows	2,011	3,489	1,808	6,951	-4,835	-2,274
Enterpreneurial capital 1/	1,637	2,125	3,731	4,844	2,620	2,806
Real estate investment	946	956	1,040	1,044	967	903
Deposits with credit institutions	46	60	-2,116	-603	-3,344	588
Other private capital flows	-618	348	-847	1,666	-5,078	-6,571
Debt financing	2,389	3,414	1,353	1,706	4,948	10,801
Medium- and long-term	2,357	2,346	-19.1	4,437	3,253	11,410
Bank of Greece, net	2,587	-1,791	-2,385	-2,194	-2,570	-2,082
Disbursements	3,915	0	0	0	0	0
Amortization	1,328	1,791	2,385	2,194	2,570	2,082
Central government, net	-145	3,830	2,596	6,519	6,850	13,452
Disbursements	1,229	4,738	4,108	9,755	9,517	16,932
Amortization	1,374	9,083	1,513	3,236	2,667	3,481
Public enterprises, net	-40	103	-190	-153	-979	-371
Disbursements	625	796	623	554	308	747
Amortization	665	693	813	708	1,286	1,119
State credit institutions, net 2/	-62	195	-46	259	-44	-45
Disbursements	7	258	0	318	0	0
Amortization	69	63	46	59	44	45
Commercial banks, net	32	29	6	6	-5	457
Disbursements	66	45	28	26	15	475
Amortization	34	15	23	21	20	18
Suppliers' credit	-15	-19	0	0	0	-1
Short-term	32	1,067	1,372	-2,731	1,695	-609
Bank of Greece	-420	0	0	0	974	-975
Central government	1,028	873	845	-2,990	251	0
Suppliers' credit	-413	288	527	259	470	366
Public enterprises	-163	-94	0	0	0	0
Errors and omissions	-663	-415	-342	78	187	-429
Memorandum items:						
Current account balance	-717	-122	-2,850	-4,540	-4,834	-3,644
Public sector gross borrowing 3/	5,765	5,795	4,732	10,627	9,824	17,679
Public sector net borrowing 3/	2,329	2,339	-25	4,431	3,258	10,955

Source: Bank of Greece.

1/ Includes some debt-creating capital flows in the form of enterprise borrowing abroad.

2/ Borrowing by the Helenic Industrial Development Bank, the Agricultural Bank of Greece, and the National Bank of Greece.

3/ Medium- and long-term only.

Table 45. Greece: General Government External Debt 1/

(In millions of U.S. dollars; end of period)

	1993	1994	1995	1996	1997	1998 Est.
Portfolio investment (bonds)	9,789.1	13,407.8	14,753.4	17,221.0	19,371.9	24,057.2
Loans	8,162.8	8,638.1	8,644.5	7,603.9	6,688.6	4,897.2
Long-term	8,003.8	8,478.1	8,484.5	7,443.9	6,528.6	4,738.2
Central government	7,967.4	8,446.3	8,457.0	7,431.2	6,528.6	4,738.2
Local government	36.4	31.8	27.5	12.7	0.0	0.0
Suppliers' credits	159.0	160.0	160.0	160.0	160.0	159.0
Military debt	3,029.3	3,504.7	3,880.8	3,440.0	3,106.6	3,174.0
Total debt	20,981.2	25,550.6	27,278.7	28,265.0	29,167.1	32,128.8
(in percent of GDP)	22.8	25.8	23.5	22.9	24.3	26.7
Distribution by creditor 2/						
Official creditors	3,553.8	4,127.7	4,722.1	3,865.8	3,589.7	3,116.5
International institutions	2,077.0	2,766.9	2,478.4	1,677.1	1,372.7	757.3
Governments	102.5	89.7	78.7	43.2	35.2	30.0
European Investment Bank	1,374.3	1,271.1	2,165.0	2,145.5	2,181.8	2,329.2
Private creditors	16,364.7	17,918.2	18,675.8	20,959.1	22,470.8	25,837.9
Bank loans	4,350.0	4,350.4	3,762.4	3,578.1	2,938.9	1,621.7
Bonds	11,755.7	13,407.8	14,753.4	17,221.0	19,371.9	24,057.2
Other	259.0	160.0	160.0	160.0	160.0	159.0
Total debt	17,951.9	22,045.9	23,397.9	24,824.9	26,060.5	28,954.4
Memorandum item:						
Private/total debt	82.2	81.3	79.8	84.4	86.2	89.2

Sources: Bank of Greece; and Ministry of Finance.

1/ Including external borrowing by the Bank of Greece on behalf of the Central government prior to 1994. Does not include drachma-denominated bonds held by non-residents because of the high volatility of ownership related to the operation of secondary markets.
2/ Excluding military debt.

Table 46. Greece: External Debt Service 1/

(In millions of U.S. dollars)

	1993	1994	1995	1996	1997	1998
A. Interest payments	1,983.8	1,985.3	2,489.2	2,818.0	2,370.7	2,544.5
Public sector	1,803.3	1,856.5	2,232.7	2,516.6	2,087.8	2,227.8
Private sector	180.5	128.8	256.5	301.4	282.9	316.7
B. Amortization	3,815.2	4,102.2	4,756.4	6,195.9	6,566.4	6,724.2
Private nonguaranteed	378.5	646.7	0.0	0.0	0.0	0.0
Public and publicly-guaranteed	3,436.7	3,455.5	4,756.4	6,195.9	6,566.4	6,724.2
C. Suppliers' credit 2/	24.0	22.6	0.3	0.2	0.1	0.7
Total (A + B + C)	**5,823.0**	**6,110.1**	**8,933.2**	**9,014.1**	**8,937.2**	**9,269.4**
Memorandum items:						
Debt service ratio 3/	26.4	25.5	33.7	34.4	35.3	33.9
Current account receipts	22,057.4	23,986.1	26,533.2	26,214.0	25,337.7	27,359.6

Source: Bank of Greece.

1/ Excludes private nonguaranteed amortization after 1994.
2/ Medium- and long-term only. Includes both interest and amortization payments.
3/ Debt service (total: A + B + C) in percent of current account receipts.