FISCAL CONSOLIDATION IN EUROPE

by
Michel Aglietta and Merih Uctum

Federal Reserve Bank of New York
Research Paper No. 9519

August 1995

FISCAL CONSOLIDATION IN EUROPE

by

Michel Aglietta* and Merih Uctum**

August 1995

* Universite de Paris X, Nanterre, CEPII and Banque de France
**Federal Reserve Bank of New York

Abstract*

The Maastricht Treaty imposes constraints on fiscal policy that will last beyond the formation of EMU. However, the fiscal requirements are determined in an ad hoc way, and do not consider the position of the countries in the business cycle, nor the medium-term planning horizons of the governments.

In this paper we revisit the concept of "sustainability" of deficits announced in the treaty. After discussing the cyclical and the structural aspects of total deficits that occurred until 1994, we use an intertemporal, forward-looking approach to evaluate the fiscal stands of the countries under several scenarios until 2000. The advantage of our framework over the Maastricht fiscal criteria is that it provides different options for countries to follow for membership in EMU, while taking into account the effect of the cycles on the deficit and debt accumulation.

Our analysis shows that if countries follow the sustainability rule, they have to pursue tight fiscal policies until 2000 in order to qualify for membership in EMU. If the fiscal restraints start in 1995, all countries become eligible. Otherwise, our analysis provides explicit measures each country needs to apply to have a sustainable deficit.

Our results depend on the assumption of deficit reduction. If governments run primary deficits between 1996 and 2000, the sustainability condition is not satisfied unless corrective measures are taken, consisting in generating tax revenues or reducing expenditures. These measures are feasible for countries like France and the United Kingdom (a rise in the tax ratio of about 2 percent) but more serious for Spain and Italy. If, on the other hand, countries continue the fiscal rigor they have been following recently, the sustainability criterion is, in general, satisfied (except for France which must increase tax revenues or reduce expenditures by a little less than 2 percent).

Imposing the 60 percent debt rule shows that Italy can satisfy this criterion only under unrealistic conditions. Spain has to make additional efforts to reach the debt criterion. Finally, we show that if growth were sustainable, no country would be under fiscal pressure, meaning that they would not need to follow tighter policies and generate further surpluses.

JEL Classification: E63, F42, H87

---

*We thank participants at the International Macro seminar for many useful comments, and Andy Peterson for excellent assistantship.

Transition to economic and monetary union (EMU) in Europe is a process monitored by convergence criteria that are spelled out in the Maastricht Treaty. These criteria are: a high degree of price stability, exchange rates maintained within normal fluctuation bands, demonstration of a durable convergence in closely tied long-run interest rates, and a sustainable fiscal position.

The fiscal requirements are the most difficult to fulfill and raise the main obstacle for the entry into EMU. Contrary to the inflation and interest rate criteria, they are defined in absolute rather than in relative terms. They are supposed to be enforced not only to qualify for EMU membership but also after EMU has been established, and they are intended to define permanent rules of economic policy.

However, the fiscal requirements are determined in an ad hoc way, and do not consider the position of the countries in the business cycle, nor the medium-term planning horizons of the governments. In this paper we assess the fiscal positions of five European countries. After discussing the cyclical and the structural aspects of total deficits until 1994, we use an intertemporal, forward-looking approach, to evaluate countries' fiscal positions, under several scenarios until 2000.

The Treaty specifies budgetary discipline in its Article 104c, which says that public finance will be assessed on the basis of two quantitative criteria: (1) the ratio of the government deficit to GDP will not exceed a reference value (stipulated to be 3 percent by the Protocol); (2) the ratio of government debt to GDP will not exceed a reference value (stipulated to be 60 percent by the Protocol).

However, two conditions have been introduced into the Treaty that qualify these thresholds. These conditions leave room for interpretation if the thresholds are violated. First, the deficit ratio can be accepted as nonexcessive if it has declined "substantially and continuously", or if there is an "exceptional" deviation from, but general conformance with, the reference value. Second, the debt

ratio can be accepted as compatible with fiscal discipline if it is "sufficiently" diminishing and approaching the reference value at a "satisfactory" pace.

The Treaty, however, does not spell out how to interpret a "sufficient" marginal improvement, or an "exceptional" deviation to the reference value. It is thus argued that to avoid confusion over these conditions, the fiscal crieria should be accompanied by a more unified framework. In this paper we propose that casting the concept of "sustainability" of deficits (specified in the Treaty) in a dynamic framework could serve as an adjunct or alternative to the fiscal criteria.

The first part of the paper emphasizes the rationale for the fiscal criteria. The second part is devoted to the analysis of the difficulties faced by EC countries in satisfying the fiscal requirements during the transition to EMU. In the last section we introduce the notion of sustainability of the deficit. We develop a dynamic and forward-looking framework for the management of the public debt and analyze expected profiles for budget deficits and public debts for the five largest European countries. We find that if these countries maintain the fiscal discipline they have been practicing recently, they will satisfy the sustainability criterion by 2000. Imposing the 60 percent rule, however, makes it impossible for Italy to join EMU. Finally, we also show that, as long as growth is sustainable, countries will not need to follow tighter policies than assumed in OECD forecasts.

THE PROS AND CONS OF FISCAL CRITERIA IN EMU.

The Maastricht Treaty imposes constraints on fiscal policy that will last beyond the formation of EMU. However, since countries will give up their monetary independence, fiscal policy will also acquire more importance after the construction of the Union. The contradictory role of fiscal policy suggests that fiscal constraints should entail discipline and flexibility simultaneously. In this section,

we will review the arguments on fiscal restraint versus flexibility, and show that the dilemma must be solved for the proper working of EMU. The way to a solution may be in interpreting the criteria dynamically, to which we return in the last section.

Perpetual fiscal restraints

It is argued that the main microeconomic benefit of a monetary union and a single currency is eradication of foreign exchange risks between member countries, which leads to homogeneous individual prices in the Single Market (European Commission 1990). However, the same feature can bring adverse externalities at the macroeconomic level if the national budgets are run independently. Three types of negative externalities are to be feared in EMU if fiscal discipline is not imposed: high interest rates, threat to the credibility of monetary policy, and doubt about the sustainability of the public debt.

Interest rate linkages

The first adverse consequence of excessive deficits in a monetary union is the possible impact on interest rates. Theory says that in a closed economy with high budget deficits, when government expenditures are financed by borrowing rather than by taxation, government saving is reduced. This leads to a general decline in national saving because private agents do not generally increase their saving to the extent postulated by Ricardian equivalence. The reason is that they expect the burden of debt repayment to be shifted onto future generations. The lower aggregate saving, therefore, the higher the level of the real interest rate required to equate aggregate saving to investment.

In a monetary union, the potential for each government to raise its deficit and debt is higher.

Elimination of currency risks between member countries facilitates a deeper financial integration by making financial assets closer substitutes (Isard 1989), and leads to a diversification in investor portfolios among several governments' debt instruments. In a financially integrated market, governments may be induced to increase their deficit for two reasons. First, taking other countries' policies as given, every government may believe that its own budget deficit is too small to affect significantly the European interest rate. Second, the discipline imposed by financial institutions on individual countries through risk premia is likely to be weaker in a union.[1]

Thus, with lower expected interest rates, governments could increase their deficits and to run permanently higher debts. If all governments indulged in this behavior, the crowding-out of private investment would be larger and real interest rates higher than before union. On the other hand, a government that is dedicated to a conservative fiscal policy would not benefit from lower interest rates to the same extent as before union, because it would suffer from other countries' lack of discipline through the integrated financial market (see, in particular, Bovenberg et al. 1991, and Buiter and Kletzer 1991).

The credibility of monetary policy.

The European central bank is legally independent according to its status and the designation of its managers. However, competing fiscal policies might force it to pursue a time-inconsistent monetary policy relative to its goal of price stability (Wyplosz 1990).

A major source of time inconsistency stemming from undisciplined budgetary policies is

[1]Even at the country level, Begg et al. (1991) argue that market discipline on sovereign governments is always delayed and becomes effective only when solvency is at stake.

associated with nominal contracts denominated in national currencies or in the new European currency. A high level of nominal government liabilities held by nonresidents could induce a behavior of "benign neglect" from the monetary authorities of a world currency. As has been repeatedly observed in the United States, a surprise devaluation of a national currency with possible inflationary consequences would lower the level of real government indebtedness in the whole union. The European central bank (ECB) will not be immune to this response, especially if the rise of interest rates associated with the combination of expansionary budget policies and a nonaccommodating monetary policy crowds out interest-sensitive private sectors too severely.

Sustainability of public debts

Sustainability requires a government budget to be solvent over the long run. That is, the intertemporal budget constraint must be satisfied. The Treaty imposes fiscal discipline on the member countries of EMU. Members must always be able to convince private lenders that they will be able to pay back their debt without resorting to inflation or default as a result of excessive debt accumulation.

Financial markets cannot properly monitor sovereign debtors. As a result, in the absence of explicit constraints on public debts, sustainability could not be guaranteed and pressure on monetary policy could not be excluded. If monetizing the liability of a government is the only way to avoid a financial crisis (triggered by the alarm about the imminent insolvency of a particular government) the pressure on the central bank could become overwhelming. In the case of such financial distress, a no-bail-out clause would not be credible to convince the markets. As financial integration spreads, with inter-country holding of government debt and greater interdependence generally, there could be

widespread pressure from investors for a bail-out.

Need for active and coordinated fiscal policies

Critics of the fiscal criteria raise concerns about the arbitrariness and rigidity of the quantitative requirements (Buiter et al. 1993). They argue that, in the absence of a federal budget, fiscal policy is needed in a monetary union to respond to asymmetric shocks, and to control the external equilibrium of the union.

Response to asymmetric shocks: a case for active fiscal policy at the national level

According to the Mundell-Fleming model, the impact of budget policy on economic activity is enhanced in a monetary union. A fiscal stimulation in an open economy crowds out the private sector to a much smaller extent than in a closed economy, because the financing of the marginal deficit occurs without a significant increase in interest rate and appreciation of the exchange rate. In countries deprived of autonomous monetary policies, the budget is the most effective (if not the only) tool that can absorb asymmetrical shocks in the short run because domestic prices generally respond insufficiently or do it with a lag (Blanchard 1992).

Thus, budgetary flexibility of national governments can act as a substitute for a system of transfers at the Community-wide level (Bureau and Champsaur, 1992). Provided shocks are temporary, the government can run a deficit (possibly higher than 3 percent), without jeopardizing its solvency or even feeding into a permanently higher level of public debt. In the medium run, increased competition in the unified market would trigger wage and price adjustments that would restore labor market equilibrium. Higher tax income, generated by rising employment in the private

sector, would reduce the deficit incurred to prevent unemployment following the shock.

Strict enforcement of the criteria considerably reduces the effectiveness of such automatic stabilizers and discretionary policies. The only way of conducting countercyclical policy in a recession without hitting the fiscal limits is to run a high primary surplus. This policy is likely to require a restrictive fiscal stance on a permanent basis. However, according to modern growth theory, public and private capital expenditures are complementary in the long run. Thus, in the process of generating a primary surplus, investment and economic activity may eventually be hurt, particularly if capital expenditures bear the brunt of spending cuts. Therefore, critics of the fiscal criteria argue that, in order to avoid such an outcome, countries should be allowed to temporarily transgress the deficit limit.

The European policy-mix: a case for coordination of fiscal policies

In EMU, domestic price stability will be ensured by the ECB. In turn, the external equilibrium of the Union (determined by a common exchange rate and a common balance of payments against the rest of the world) requires a second European-wide instrument. Since the Union does not have a federal fiscal policy, the aggregate of national budget policies will play the role of this instrument and will require active coordination. Failure to recognize the external balance as a public good can adversely affect the macroeconomic performance of most member countries.

For example, suppose the government of a large country or part of the governments of the Union pursue independent budget policies. Lack of coordination may easily lead to a situation where the current account balance of the Union turns heavily negative. In such a situation the ECB would face a difficult dilemma: Either it would need to keep its monetary stance unchanged letting the

exchange rate depreciate, or it would have to defend the exchange rate by raising the interest rate sharply. In the first case, a boost in foreign demand in addition to an expansionary public demand could awaken inflationary pressures. In the second case, countries following a conservative fiscal policy would be penalized by rising real interest rates. Both cases are obviously sub-optimal scenarios (Masson and Melitz 1990).

Since fiscal policy is expected to be rigorous and more flexible simultaneously, there is a need for an interpretation of the budget criteria that is forward-looking in its assessment of the long-run sustainability of deficit profiles. The fiscal criteria stipulated by the Treaty, however, are based on the realized level of the budget deficit and the public debt. They are, therefore, not suited for evaluating the adequacy of an ongoing process to its target, and need an interpretation guided by auxiliary indicators and a rigorous methodology.

In the rest of the paper we study three aspects of fiscal policies. First we summarize the past developments in budget deficits without linking them to public debt, using auxiliary indicators. Second, we examine the relationship between the budget and the public debt in steady state. Third, we analyze the interrelation of the primary deficit and debt, and determine the dynamic paths to long-run sustainability.

ASSESSING PAST AND FUTURE PERFORMANCE

Cyclical and structural components of the budget

The distiction between the two components of the budget helps identify the transitional and the permanent forces that move the deficit. Chart 1 exhibits the positions of the overall government

deficit-to-GDP ratios for the five main economies of the EC between 1979 and 1994. It shows that the present high budget deficit ratios in most countries are not the result of a steady and incurable worsening. In fact, there were times of substantial improvements in the second half of the Eighties. Chart 2 highlights the impact of the deficits on the debt ratios, which declined or were stabilized in all countries but Italy.

The dramatic increase in deficits between 1990 and 1993, with the notable exception of Italy, was partly due to the long recession in Europe. It shows that in depressed economic conditions, automatic stabilizers create deficits well above the limits, even if the criteria were easily satisfied before the recession. If the limits were to be kept every year, irrespective of the position in the business cycle, the countercyclical function of fiscal policy would be paralyzed. Since a similar scenario might also occur in EMU, it is important for the Treaty to allow some flexibility to accommodate a temporary slump in aggregate demand (see Corsetti and Rubini, 1992).

However, some of the economic deterioration may have been structural. We use auxiliary indicators like the structural and primary balances to disentangle different effects. The structural budget balance reflects what government revenues and expenditures would be if output were at its potential level, while the cyclical components show the degree to which governments let the stabilizers play their countercyclical role in the recession. The primary balance, in turn, measures the magnitude of the fiscal adjustment on the active part of the budget.

Table 1 shows the relative cyclical and structural components of the change in the overall financial balance. In addition to the larger economies, we also consider the situation of three smaller countries that undertook ambitious fiscal adjustments in the Eighties.

The cyclical component of budgets indicates that almost all countries allowed the stabilizers

to offset the downward pressure of recession on growth. Germany was the only exception, because the shock of reunification provoked an expansionary stimulus that overcame the recessionary international environment. However, governments' budget policies showed wide variations as reflected in the structural and primary balances. The huge differences in primary balances indicate a lack of convergence, a condition which threatens the transition to EMU. The divergence in the primary balances brought a pessimism about the capacity of EU countries to carry out fiscal adjustments without thwarting growth.

What was the impact of the deficit on public debt? What can we say about the fiscal stands of the countries within the next five years? The next section explores the link between deficit and debt and its interpretation in the long run.

Financial sustainability in steady state

The second fiscal criterion specified by the Protocol on the convergence criteria imposes a limit on the average debt ratio in the EU at the end of the 1990s. However, a high ratio of debt to GDP says little about present and nothing about future policies, though convergence depends entirely on future fiscal paths. Thus, a natural way of assessing the fiscal discipline adopted by countries is to look at the sustainability of their accumulated debt over time rather than the most recent debt figure. "Sustainability" means a government's budget is solvent over the long run (or in the steady state). We can deal with this problem using the familiar government budget constraint:

$$B_t - B_{t-1} = D_t + i_t B_{t-1} \qquad (1)$$

where B is the stock of outstanding debt, D is the primary deficit, and i the prevailing interest rate on

government debt. The primary deficit is defined as government spending and transfers minus tax revenues and seignorage revenues from inflation. Deflating by nominal GDP enables the identity to be rewritten as

$$b_t - b_{t-1} = d_t + (i_t - \pi_t - \theta_t) b_{t-1} \qquad (2)$$

where lowercase letters represent the corresponding uppercase variables divided by nominal GDP, π and θ are the inflation rate and the growth rate of output.

We can express a sustainable policy in the steady state simply as a policy leading to a stable debt-to-GDP ratio in the long run, whatever the level inherited from the past. The share of the overall budget balance-to-GDP is thus compatible with the debt-to-GDP ratio when nominal GDP is on a steady-state growth path. This concept can be defined by setting the left-hand-side of equation (2) to zero and expressing the deficit inclusive of interest payment as f:

$$f = (\pi + \theta) b \qquad (2')$$

Since the Maastricht conditions impose a cap on the inflation rate, the sustainability rule says that a government can run a permanent deficit as long as growth of real GDP is positive, which will eventually reduce the debt ratio. Alternatively, it indicates that the government must reduce the deficit when the economy slows down in real terms.

Table 2 compares the deficit performances of the five countries in 1994 and 2000, using both the 3 percent rule required by the Treaty and the static sustainability rule. The calculations are based on OECD forecasts of inflation, growth, debt-to-GDP ratios, and deficit-to-GDP ratios, under the assumption that these countries conduct policies in line with the convergence criteria.

It turns out that, although the sustainability rule appears to be less restrictive than the 3

percent rule, it still requires a reduction in the deficit of most countries, except Germany. In 1994, the sustainable deficit is above 3 percent for all countries except for France (column 2). However, column 1 shows that all countries, except for Germany, violate both the 3 percent rule and the sustainability rule, implying that they must impose fiscal discipline on government finances for the next five years to qualify for membership in EMU.

Assuming that all countries follow tight policies, under the 3 percent rule Italy still cannot be entitled to become a member of EMU in 2000 (column 3). However, under the sustainability criterion, column 4 reveals that all countries qualify to enter EMU, including Italy. Therefore, Table 2 suggests that if countries do not follow the sustainability rule during the economic slowdown and reduce their deficit procyclically, they have to make the fiscal adjustment afterwards and reduce the deficit countercyclically.

Governments, however, adopt strategies over four or five year planning horizons. A steady-state concept of debt evaluation, even if it were sustainable, may also be misleading, because it does not take into account a multi year or dynamic deficit financing plan. For instance, a large deficit in a given year may turn out to be inconsequential if subsequent surpluses balance the budget over a medium-term horizon. Conversely, a sustainable deficit figure in a given year tells nothing about the medium-term horizon debt profile of the government. To get a realistic estimate of public finances, the next section analyzes the dynamic sustainability of the budget constraint (or the present value constraint).

Dynamic sustainability: an intertemporal framework[2]

A fiscal policy that is sustainable in the future can be derived from solving equation (2) forward:

$$b_t - E_t \gamma_{t+n} b_{t+n} = -E_t \sum_{i=1}^{n} \gamma_{t+i} d_{t+i} \qquad (3)$$

where the forward discount factor γ is defined as:

$$\gamma_{t+i} = \prod_{i=1}^{n} \frac{1}{1 + i_{t+i} - \pi_{t+i} - \theta_{t+i}} \qquad (4)$$

The general approach in the literature is to consider the case with an infinite horizon where the sustainability condition is:

$$\lim_{n \to \infty} \quad E_t \gamma_{t+n} b_{t+n} = 0 \qquad (5)$$

Equation (5) says that for the intertemporal budget constraint to be satisfied, the discounted value of government's expected debt-to-GDP ratio must go to zero (no Ponzi games are allowed). If the intertemporal budget constraint is satisfied, the current path of government deficit and debt is sustainable, and equation (3) says that current debt will be paid back by expected discounted primary surpluses.

However, with 1999 four years away, we need to consider the finite version of this problem.

[2]Sustainability of the budget deficit was studied extensively in the late 1980s. In the context of the U.S. budget constraint see Hamilton and Flavin (1986), Wilcox (1989), Hakkio and Rush (1991), Kremers (1989) and Trehan and Walsh (1988). At the international level, see Blanchard et al (1990) and Wickens (1994). The concept of sustainability has been applied to the international budget constraint by Trehan and Walsh (1991) and Wickens and Uctum (1993).

We thus adopt the procedure employed by Blanchard et al. (1990) and Wickens (1994) to derive a fiscal pressure measure required for sustainability. We apply this measure to evaluate the economies' fiscal positions by the year 2000. According to the Maastricht criteria, government debt should be at most 60 percent of GDP. Denoting by b* the desired level of the debt ratio at the end of the planning period, we can rewrite equation (3) as:

$$b_t - E_t \gamma_{t+n} b^*_{t+n} = -E_t \sum_{i=1}^{n} \gamma_{t+i} d_{t+i} \qquad (6)$$

Equation (6) can be interpreted as follows. The left-hand-side (LHS) represents the discrepancy between the actual stock of the debt ratio and the expected value at time t of the desired discounted debt ratio n periods ahead. This discrepancy can also be seen as the desired debt decumulation (accumulation) if the discounted future debt ratio is less (greater) than the actual one. The corresponding right-hand-side (RHS) is the flow of discounted future primary surpluses/deficits, expected at time t.

Thus, fiscal policy is sustainable if the government with a positive debt is anticipating a desired debt decumulation by running a stream of future surpluses. Note that the government does not have to run a surplus at each point in time. All that is required is that the *sum* of budget deficits/surpluses be sufficiently positive so as to buy back the existing debt. Sustainability makes the LHS positive and is consistent with the Maastricht debt criterion that imposes a debt reduction on countries with a debt ratio greater than 60 percent.

If the LHS is negative, then the desired level of debt is larger than the actual value and the

government is willing to accumulate debt by running expected primary deficits. This situation is clearly unstable because it leads to an exploding debt pattern and violates the sustainability condition (5), unless corrective measures are adopted.

The desired debt accumulation can be negative for other reasons. A negative value may reflect the desire of the government to reduce its current debt at time t relative to a future target. One such example is the U.K. experience in the early 1980s. Finally, a negative value may be caused by a very low discount rate (or a high discount ratio) due to high real rates or low growth, making the present value of the future debt higher than the actual one. The first two cases discussed result from an active fiscal policy, while the last one is due to cyclical factors.

We can easily calculate a constant average tax ratio, τ^* that satisfies equation (6). We can then derive the fiscal pressure measure, defined as the discrepancy between the actual tax ratio and the sustainable tax ratio, and express it as

$$\tau^* - \tau = [E_t \sum_{i=1}^{n} \gamma_{t+i}]^{-1} [b_t - E_t \gamma_{t+n} b^*_{t+n} + E_t \sum_{i=1}^{n} \gamma_{t+i} d_{t+i}] \qquad (7)$$

If the left-hand-side (LHS) is positive then the tax ratio required for sustainability of fiscal policy is larger than the current tax ratio. This means that fiscal pressure is positive, indicating that fiscal consolidation is required and the government must generate future primary surpluses. If the LHS is negative then there is no fiscal pressure and the government can even reduce tax revenues or raise spending.

Note that the same measure could be derived with respect to expenditures. The intuitive appeal of this fiscal indicator is that it is a simple measure that can be easily implemented because it

is based on observable variables or available forecasts.

In the next section we use this measure to gauge the sustainability of the fiscal positions of the five European countries.

EMU and Sustainability of the Five European Countries' Budget Deficits

We start our analysis with charts displaying the LHS and the RHS of equation (6) and the resulting fiscal pressure described by equation (7). We consider a five-year planning period (n=5) and calculate the sustainability condition for each point in time. Until 1989, each panel is constructed with the readily available data. This means that, at each point in time, we use actual values to construct the graphs and obtain ex post measures of debt accumulation, deficit, and fiscal pressure. After 1990, we start to incorporate into computations the forecast values for growth, inflation, interest rate, debt and deficit. For example, for 1991 measures we include the actual values of 1992, 1993, and 1994, and forecasts for 1995 and 1996. From 1994 onwards, all calculations are made with forecasted values.

All forecasts until 1996 are taken from the OECD Economic Outlook (1994). The same publication also gives forecasts of growth, inflation, interest rate, and debt for 2000. For these variables, we filled the gap between 1996 and 2000 with a linear approximation converging toward the forecasted values in 2000; thereafter, we kept all forecasts constant until 2005. Implicitly, we assume that the dynamic path is converging toward a steady state at the start of EMU.

The only variable for which no forecast was available for 2000 is the primary deficit. To obtain a forecast value we applied the formula $d_t=(b_t-b_{t-1})+i_t b_{t-1}$ after 1996. Since i is the interest rate on outstanding debt and it may be greater or smaller than the long-term interest rate depending on

the debt maturity profile, we generated it using the ratio of net interest payments on debt to total debt. In doing so, we assume that the government does not receive any revenue from seignorage. This is a somewhat restrictive albeit realistic assumption, given that countries are required to have a low inflation rate by the end of the century. However, we also consider the case where d is kept constant at its 1996 level until 2000.

We first consider the current situation and evaluate where the countries stand with respect to the sustainability criterion. We then calculate the fiscal pressure that is generated if all countries had to satisfy the 60 percent Maastricht debt criterion. It may be argued that the worsening of the debt position of several countries after 1991 is mainly due to the recession coupled with high interest rates. As can be seen from equation (7), fiscal pressure hinges upon the debt ratio, the discount rate, and the deficit ratio, which are all affected by the cyclical variations in the economy. To check this argument, we conduct two experiments in each country, where we keep constant consecutively the discount rate and the primary deficit at their respective 1989 levels.

We conduct all the experiments, except the last one, under two different hypotheses on the deficit forecast after 1996. The first one is the case where no seignorage is allowed after 1996 in the financing of the deficit. We call this case the "pessimistic scenario" because the underlying assumptions generate a conservative path for budget balances. The OECD assumes that countries follow restrictive fiscal policies between 1994-1996. In the case called the "optimistic scenario" we extend this assumption to the year 2000.

Where do countries stand with respect to sustainability?

The current fiscal positions of five countries, evaluated from the sustainability perspective,

are depicted in Charts 3 and 4. Chart 3 represents the "pessimistic" scenario, where no country runs a primary surplus in the second half of 1990s. In Chart 4, the "optimistic" alternative, most countries run primary surpluses after 1996.

The top panels in both Charts 3 and 4 are identical and represent the LHS of equation (6). They show the discrepancy between the current debt ratio and the present value of the debt level (desired debt accumulation) five years ahead.

Between 1980 and 1994 debt accumulation in Germany, France and the United Kingdom fluctuated and hit a trough in 1990-91. With the exception of Italy, debt accumulation in all countries worsened between 1984-1991 because the 5-year-ahead debt ratios were higher than the actual ones. From 1991 onwards, all countries reverse their unsustainable trend and reduce their desired debt ratio below the actual level.

At the beginning of the 1980s, both Italy and Spain start at a very large negative level, indicating that their five-year-ahead discounted debt ratios were much higher than the actual level. This discrepancy, however, declines at a high rate in both countries until 1986. This is puzzling since both countries, and in particular Italy, have been accumulating debt at a faster rate than others (recall Chart 2). This puzzle can be explained by the fact that during this period their discount ratio, adjusted for inflation and growth, is higher than others. In other words, in high-inflation, high-growth economies, a high discount ratio depreciates the value of future indebtedness more and reduces the discrepancy with current debt faster than in low-inflation, low-growth economies.

Looking ahead, the first two panels in Charts 3 and 4 indicate that, although all countries show an intention to reduce their desired debt ratios by 2000, the discrepancy between the actual and the desired level is declining. To learn more about the fiscal pressure that this decline may entail, we

need to turn to the stream of financial balances that we analyze under two assumptions.

The middle panel in Charts 3 and 4 represents the RHS of equation (6), the sum of the discounted future primary deficits/surpluses. A positive value indicates that over the next 5 years the government is running an overall primary surplus.

Pessimistic scenario: The discounted sum of primary balances starts to deteriorate with the historical data, after 1986. In Italy the worsening appears only after 1991, preceded by an impressive improvement of the primary deficit since 1980. After 1996, all countries are expected to improve their primary balances despite the conservative assumption about primary deficits. However, this improvement will likely not be enough, since no country is expected to give a sequence of primary surpluses to support the high debt levels and to compensate the slowing desired debt reduction. What is then the required fiscal adjustment that will put all countries back to the sustainable path? The last panel gives the answer to this question.

The lowest panel is a weighted average of the top two panels and shows the fiscal pressure derived in equation (7). Until 1991, fiscal pressure was not an issue for any of the countries. With the European recession in the 1990s, and given growth forecasts, the fiscal pressure also increases and becomes a predicament for the period following 1994. Results indicate that, in order to qualify for sustainability, most countries must raise their tax ratio or reduce their spending ratio by about 1 to 2 percent until 2000. For Spain this figure reaches about 3 percent, and for Italy 4 to 5 percent.

Optimistic scenario: Chart 4 displays the sustainability condition under the assumption that countries continue until 2005 their realized and planned deficit reduction started between 1994-1996. The middle panel indicates that the deficit situation is much improved. The only countries that are not able to generate a sequence of primary surpluses are the United Kingdom and France. Spain is

in balance, Germany, and Italy are running discounted primary surpluses.

It is also not surprising to see on the bottom panel that fiscal pressure is less severe in general. The only countries that experience pressure are France and Spain. By running a balanced budget, Spain is not able to generate funds to reduce the existing stock of debt at the desired rate, and therefore, must reduce spending or raise taxes by about 1 percent. France has the same debt profile as Spain but a primary deficit in 1996 that is prolonged into 2000 giving rise to a fiscal pressure of about 2 percent. Both Italy and the United Kingdom do not have any pressure by 1999, while Germany can even stimulate the economy by reducing taxes or raising expenditures.

Sustainability and the Maastricht debt requirement

In this section we consider the fiscal pressure that countries would experience for their budget to be solvent if they have to satisfy the 60 percent debt requirement (Chart 5). In order to save space, we only consider the panels depicting the fiscal pressure. Imposing the debt requirement by the year 2000 leaves the analysis unchanged for Germany, France, and the United Kingdom, since this assumption is incorporated in the forecasts of the OECD. However, Italy and Spain are required to make sizeable sacrifices.

Pessimistic scenario: The situation becomes intolerable for Italy, which has to raise its tax revenues by about 17 percent for at least 5 years. It is difficult for Spain, which must generate a positive surplus in tax revenues of about 5 percent between 1995 and 2000 (top panel).

Optimistic scenario: The fiscal pressure is marginally lower for both Italy and Spain because they continue running the same level of primary surplus as in 1994-1996 (bottom panel). However, the level of tax revenue that are needed to reduce the debt level to 60 percent is still politically

infeasible for Italy (roughly 13 percent for about 4 years) and difficult albeit possible for Spain (2 to 3 percent for 5 years).

Under both assumptions on the primary deficit, this analysis shows the economic and political infeasibility of the strict application of the Treaty's criterion for governments with initial high indebtedness, while a condition like sustainability imposes a viable fiscal discipline.

Sustainability with constant discount rates

Chart 6 displays the fiscal pressure on five countries with the discount rate held constant at its prerecession level of 1989. The second half of the 1980s is characterized by higher nominal growth and, therefore, a higher discount ratio than the 1990s. The only exception is Germany, which has had a fairly stable discount rate since the early 1980s. Under both scenarios the fiscal pressure is lower overall. A high discount ratio raises the present value of the desired future debt ratio and reduces the discrepancy with the actual debt ratio. The sequence of discounted primary deficits required to sustain the gap between the two measures becomes therefore smaller, reducing the fiscal pressure on the economy.

Pessimistic scenario: In countries where the actual discount ratio declines substantially in the 1990s due to low nominal growth and high interest rates, keeping the discount rate constant at its 1989 level leads to sustainable budget deficits (France and Spain), or at least to feasible ones (Italy). In countries where the discount ratio does not change much, the fiscal pressure remains roughly the same (Germany and the United Kingdom).

Optimistic scenario: With the additional advantage of budget surpluses generated after 1996, keeping the discount rate at its prerecession level removes all fiscal pressure from all of the countries.

It is interesting to note that, the two most highly indebted countries, Italy and Spain, appear to have the highest fiscal margin to reduce taxes domestically. These countries turn out to have a high discount ratio in 1989 or a primary surplus after 1996. These characteristics reduce the desired debt accumulation in the case of Spain, and increase the sequence of discounted budget surpluses in the case of Italy. Both effects alleviate the fiscal pressure on the economies.

These results under alternative scenarios suggest that the current fiscal pressure originates from the economic slowdown in the first half of the 1990s and the consequent low inflationary environment in Europe.

Sustainability with constant 1989 primary deficit

At the onset of the European recession France, Germany, and the United Kingdom were running primary surpluses, Spain had a balanced budget, and Italy was in a deficit. Keeping these deficits at their respective levels leads to a lower desired reduction in debt and to little or no fiscal pressure for all countries, except for Italy (Chart 7). The fiscal pressure on the Italian government is even higher than before, because by keeping the deficit constant, we eliminate the primary surplus run by the government after 1992, which slowed down debt accumulation. The three countries with primary surpluses in 1989 (Germany, France and the United Kingdom) have no fiscal pressure, and the required increase in the tax ratio for Spain is barely 1 percent. This experiment also concludes that cyclical factors have been the main cause behind the worsening of the fiscal stance of European countries.

Conclusion

The Maastricht Treaty imposes constraints on fiscal policy that will last beyond the formation of EMU. However, since countries will give up their monetary independence, fiscal policy will also acquire more importance after the construction of the Union. The contradictory role of fiscal policy suggests that fiscal constraints should entail discipline and flexibility simultaneously.

The specific deficit and debt constraints stipulated in the Treaty are indifferent to the fiscal deterioration caused by automatic stabilizers during a recession, and thus lack flexibility. These constraints were determined just before the 1990 recession started in Europe in an ad hoc way. While most economies had a satisfactory fiscal position at the time and could satisfy the fiscal criteria, in 1995 very few of them do.

In this paper we revisit the concept of "sustainability" of deficits announced in the Treaty. After discussing the cyclical and the structural aspects of total deficits that occurred until 1994, we use an intertemporal, forward-looking approach to evaluate the fiscal stands of the countries under several scenarios until 2000. The advantage of our framework over the Maastricht fiscal criteria is that it provides different options for countries to follow for membership in EMU, while taking into account the effect of the cycles on the deficit and debt accumulation.

Our analysis shows that if countries follow the sustainability rule, they have to pursue tight fiscal policies until 2000 in order to qualify for membership in EMU. If the fiscal restraints start in 1995, all countries become eligible. Otherwise, our analysis provides explicit measures each country needs to apply to have a sustainable deficit.

Our results depend on the assumption of deficit reduction. If governments run primary deficits between 1996 and 2000, the sustainability condition is not satisfied unless corrective measures

are taken, consisting in generating tax revenues or reducing expenditures. These measures are feasible for countries like France and the United Kingdom (a rise in the tax ratio of about 2 percent) but more serious for Spain and Italy. If, on the other hand, countries continue the fiscal rigor they have been following recently, the sustainability criterion is, in general, satisfied (except for France which must increase tax revenues or reduce expenditures by a little less than 2 percent).

Imposing the 60 percent debt rule shows that Italy can satisfy this criterion only under unrealistic conditions. Spain has to make additional efforts to reach the debt criterion. Finally, we showed that if growth were sustainable, no country would be under fiscal pressure, meaning that they would not need to follow tighter policies and generate further surpluses.

Table 1

Changes in the budget balance from the average 1979-89 to 1993

Improvements (+) or degradation (-) as percent of nominal GDP

	Overall	Structural	Cyclical	Primary
Germany	-1.2	-1.3	+0.1	-0.7
France	-3.7	-2.0	-1.7	-2.3
Italy	+1.4	+2.7	-1.3	+5.9
U.K.	-5.7	-3.3	-2.4	-6.5
Spain	-3.2	-2.2	-1.0	0.0
Belgium	+2.4	+3.8	-1.4	+3.4
Netherlands	+1.6	+2.3	-0.7	+2.2
Denmark	-1.7	+0.7	-2.4	-1.8

Source: OECD Economic Outlook, Vol. 56, December 1994.

Table 2

Fiscal Criteria

Growth in Government Debt Ratio (average % change over previous period)				
	1980-1990	**1991-1994**	**1995-2000**	**Level in 2000**
Germany	3.2	3.9	1.2	54.9
France	2.3	8.7	1.5	54.1
Italy	4.6	5.7	-0.2	120.9
U.K.	-4.1	14.2	-0.7	50.8
Spain	10.3	9.3	2.0	72.3
Actual/ Forecasted Deficit Ratio versus Sustainable Deficit Ratio				
	Deficit in 1994	**Sustainable**	**Deficit in 2000**	**Sustainable**
Germany	2.7	3.0	1.5	2.8
France	5.7	2.0	1.3	2.6
Italy	9.7	7.3	4.2	6.9
U.K.	6.8	3.3	0.7	3.1
Spain	6.8	3.8	2.9	4.3

Source: OECD Economic Outlook, Vol. 56, December 1994 and authors' calculations.

REFERENCES

Aglietta M. (1995), The transition to EMU: structural and strategic aspects, *Federal Reserve Bank of New York Research Paper*, #9511.

Begg D., Chiappori P.A., Giavazzi F., Mayer C., Neven D., Spaventa L., Vives X., Wyplosz C. (1991), *Monitoring European integration, the making of monetary union*, CEPR.

Blanchard O. (1992), Le role de la politique budgetaire dans l'Union Economique et Monetaire, in *La desinflation competitive, le mark et les politiques budgetaires en Europe*, Groupe International de Politique Economique de l'OFCE, Le Seuil, Mars.

Blanchard O., Chouraqui J.C., Hagemann R.P., Sartor N. (1990), The sustainability of fiscal policy: new answers to an old question, *OECD Economic Studies*, No 15, Autumn, pp. 7-36.

Bovenberg A.L., Kremers J.J.M.,Masson P. (1991), Economic and Monetary Union in Europe and constraints on national budgetary policies, *IMF Staff Papers*, Vol. 38, No. 2, June.

Buiter W.H. and Kletzer K.N. (1991), Reflections on the fiscal implications of a common currency, in A. Giovannini and C. Mayer (eds.), *European Financial Integration*, CEPR, Cambridge Univ. Press.

Buiter W.H., Corsetti G. et Roubini N. (1993), Excessive deficits: sense and nonsense in the Treaty of Maastricht, *Economic Policy*, No. 16.

Bureau D. and Champsaur P. (1992), Fiscal Federalism and European Economic Unification, *American Economic Review*, May.

Corsetti G. and Roubini N. (1991), Fiscal deficits, public debt and government solvency: evidence from OECD countries, *Journal of the Japanese and International Economies*, 5.

Corsetti G. and Roubini N. (1992), The Maastricht Treaty: a look at the fiscal aspects, *Review of Economic Conditions in Italy*, Fall.

Craig R.S. (1995), Who will join EMU? Impact of the Maastricht convergence criteria on economic policy choice and performance, *Board of Governors of the Federal Reserve System, International Finance Discussion Papers*, No. 480, february.

Creel J. and Sterdyniak H.(1995), Les deficits publics en Europe: causes, consequences ou remedes a la crise?, *Document de travail de l'OFCE*, No. 95-01, janvier.

Cukierman A. and Meltzer A.H. (1989), A political theory of government debt and deficits

in a Neo-Ricardian framework, *American Economic Review*, Vol. 79, No. 4, September.

Commission of the European Communities (1990), One market, one money, *European Economy*, No. 44, October.

Giavazzi F.and Pagano M. (1990),Can severe fiscal contractions be expansionary? Tales of two small European countries, *NBER Macroeconomics Annual.*

Giovannini A.and Spaventa L. (1991), Fiscal rules in the European Monetary Union: a no-entry clause, *CEPR Discussion Paper Series,* No.516, January.

Haan J. de, Kam C.A. de, Sterks C.G.M. (1992), Towards budget discipline: an economic assessment of the possibilities for reducing national deficits in the run-up to EMU, *Commission of the Economic Communities Economic Papers*, December.

Isard P. (1989), The relevance of fiscal conditions for the successof European Monetary Integration, *IMF Working Papers*, No.89/6, January.

Masson P. (1985), The sustainability of fiscal deficits, *IMF Staff Papers*, Vol.32, No.4.

Masson P. and Melitz J. (1990), Fiscal policy independence in a European Monetary Union, *IMF Working Paper*, No. 90/24, March.

Plihon D. (1993), Le statut ambigu de la politique budgetaire dans le Traite de l'Union, *Cahiers Economiques et Monetaires de la Banque de France*, No.42.

Trehan B. And C.E. Walsh (1991), Testing intertemporal budget constraints: Theory and application to U.S. federal and current account deficits, *Journal of Money, Credit and Banking*, Vol.23, No. 2, pp. 206-223.

Wickens R.M. (1992), The sustainability of fiscal policy and the Maastricht conditions, London Business School and CEPR, mimeo.

Wickens R.M. and M. Uctum (1993), The sustainability of current account deficits: A test of the U.S. intertemporal budget constraint, *Journal of Economic Dynamics and Control*, 17, pp.423-441.

Wilcox D.W. (1989), The sustainability of government deficits: implications of the present value borrowing constraint, *Journal of Money, Credit and Banking*, Vol. 21, No. 3, August.

Wyplosz C. (1990), Les implications budgetaires de l'Union Monetaire, *Observations et Diagnostics Economiques*, No. 33, Octobre.

Chart 1: Government Debt *

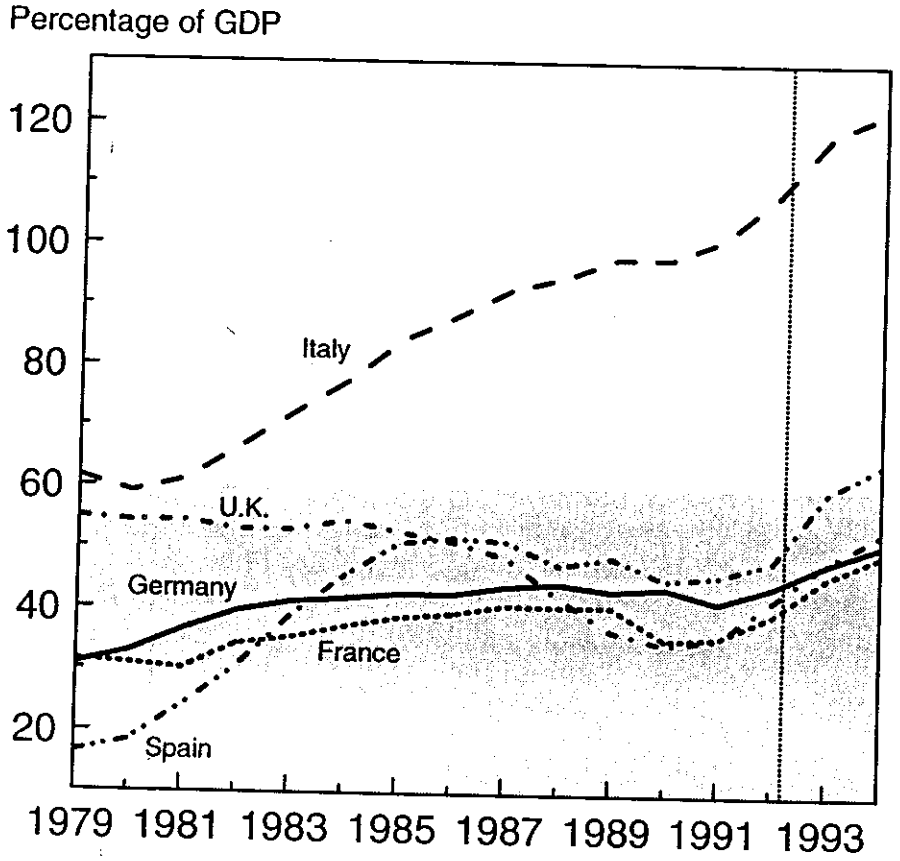
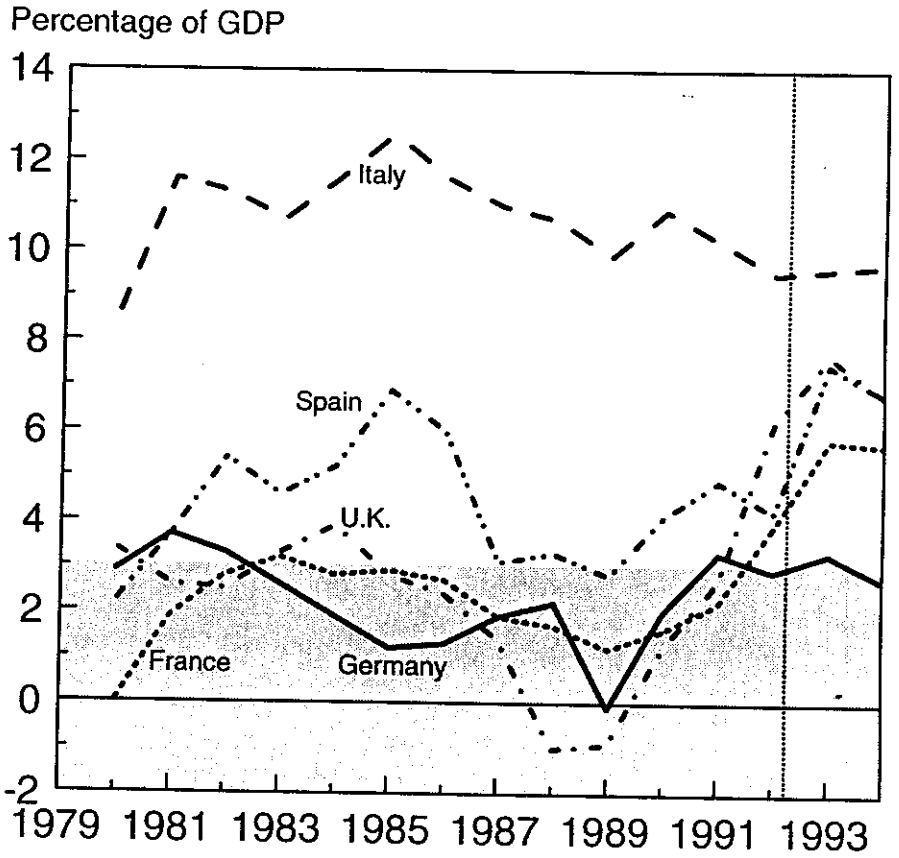


Chart 2: Government Deficit**

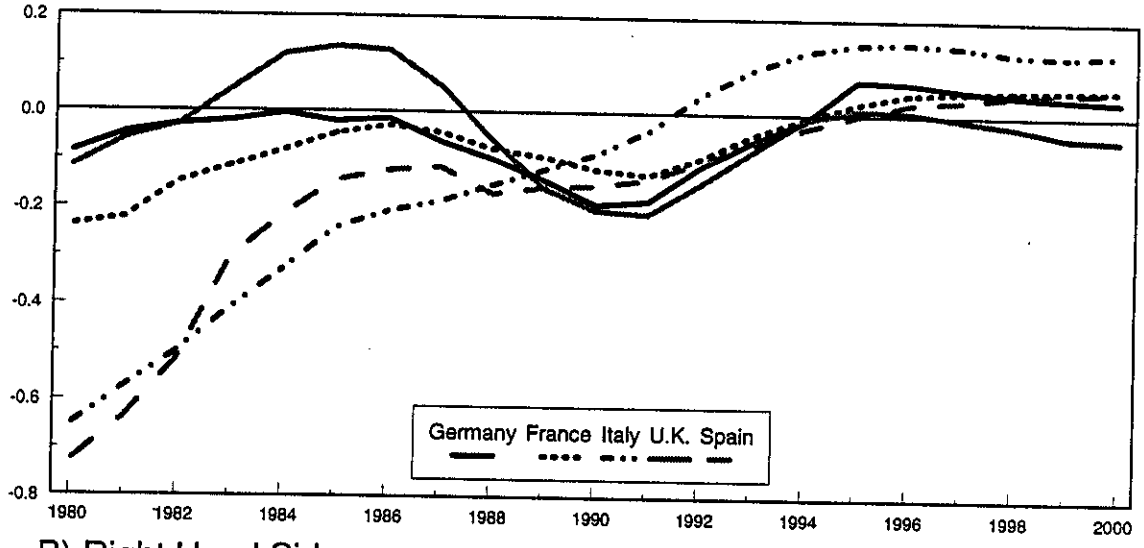


* Prior to 1990, standard national account definition, 1990-1994 figures use Maastricht definition.
Shaded areas represent 60 percent limit on government debt.

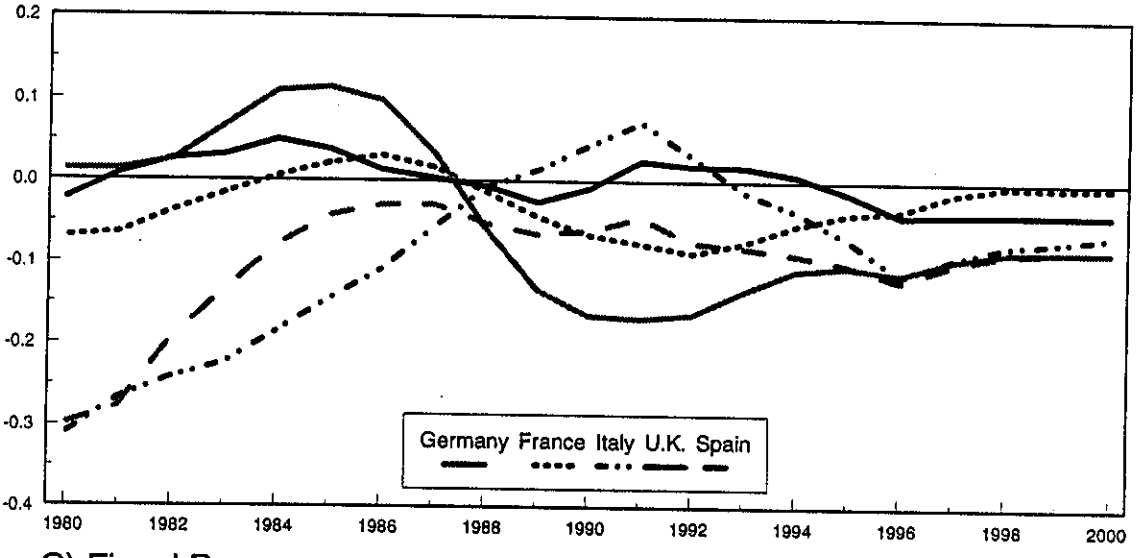
** Standard national accounts definitions.
Shaded area represent 3 percent limit on deficit.

Chart 3: Sustainability of EC Budget Deficits*
Pessimistic Base Scenario

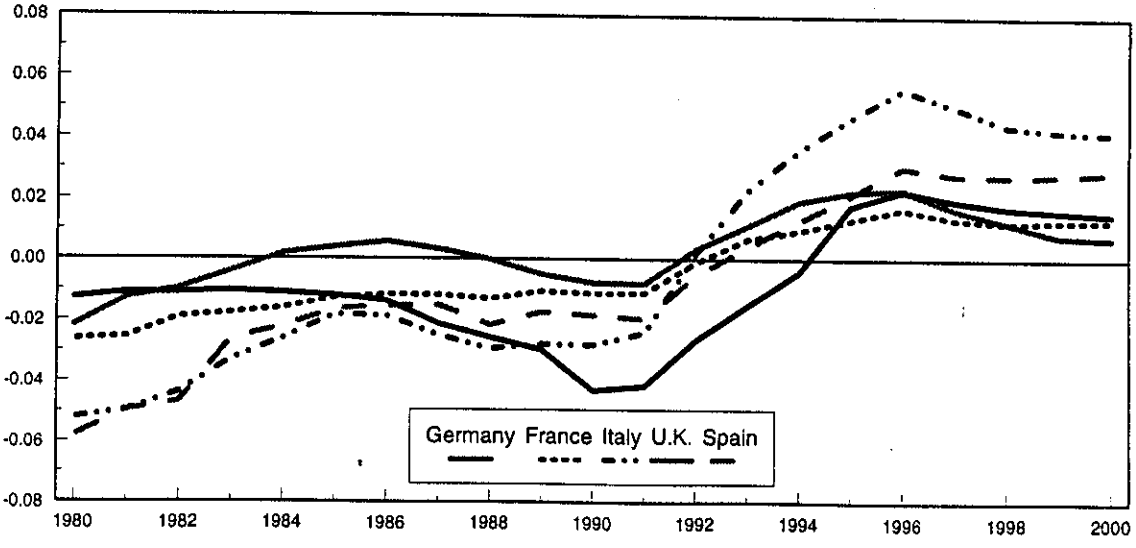
A) Left Hand Side



B) Right Hand Side



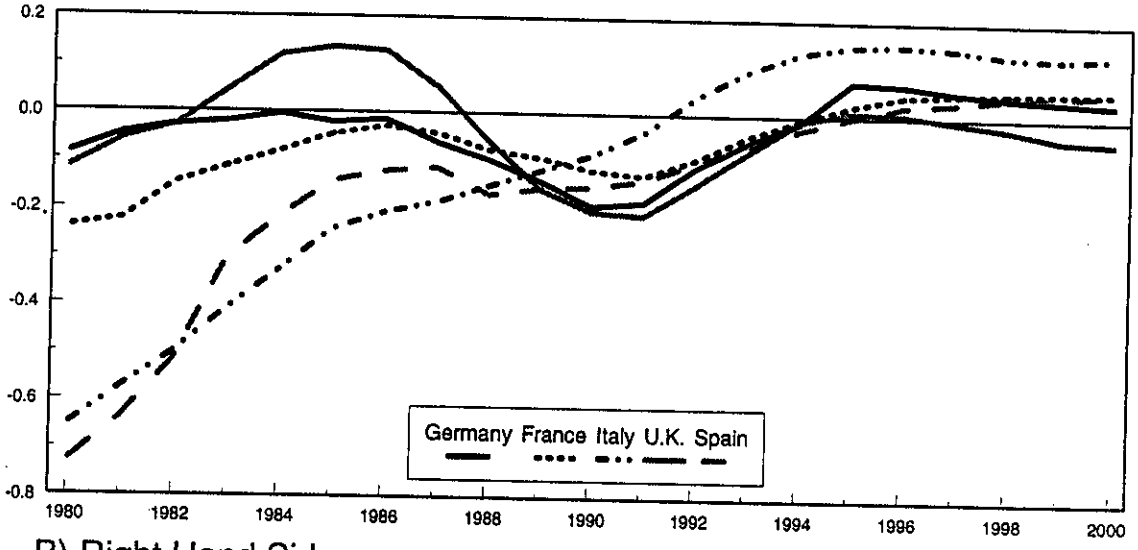
C) Fiscal Pressure



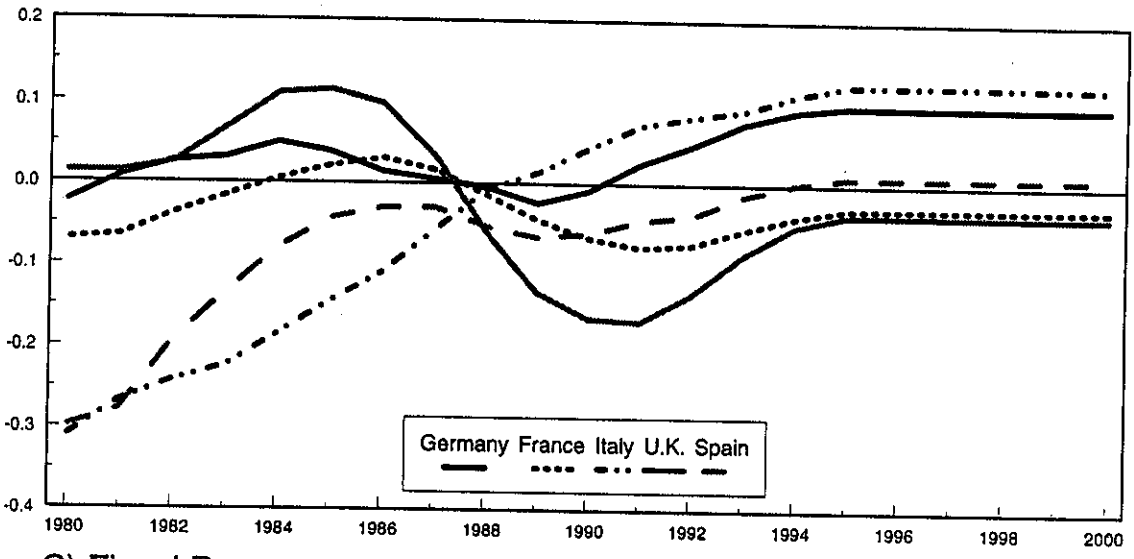
*Standard National Account Definition

Chart 4: Sustainability of EC Budget Deficits*
Optimistic Base Scenario

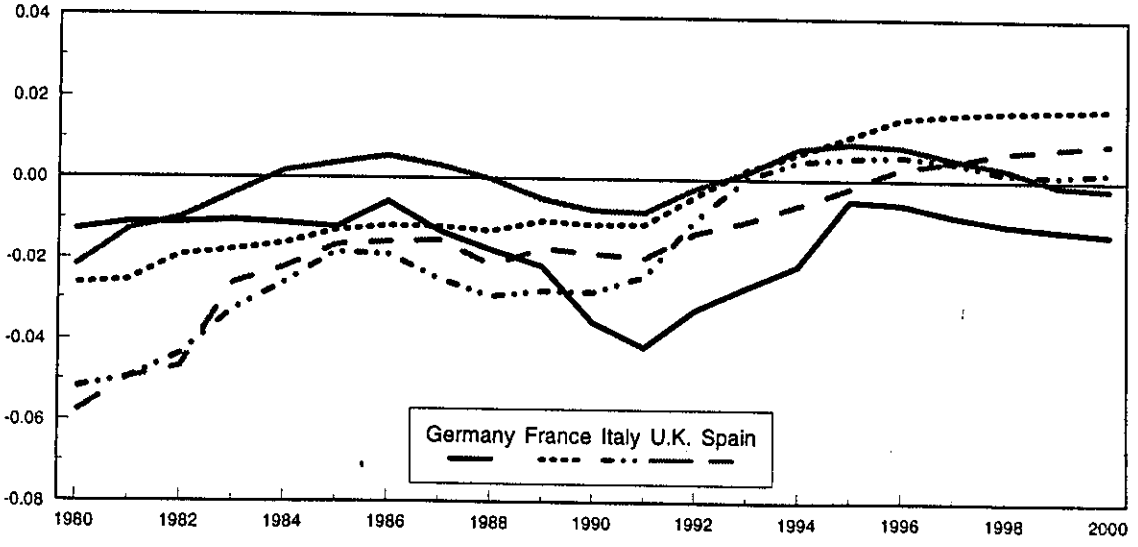
A) Left Hand Side



B) Right Hand Side



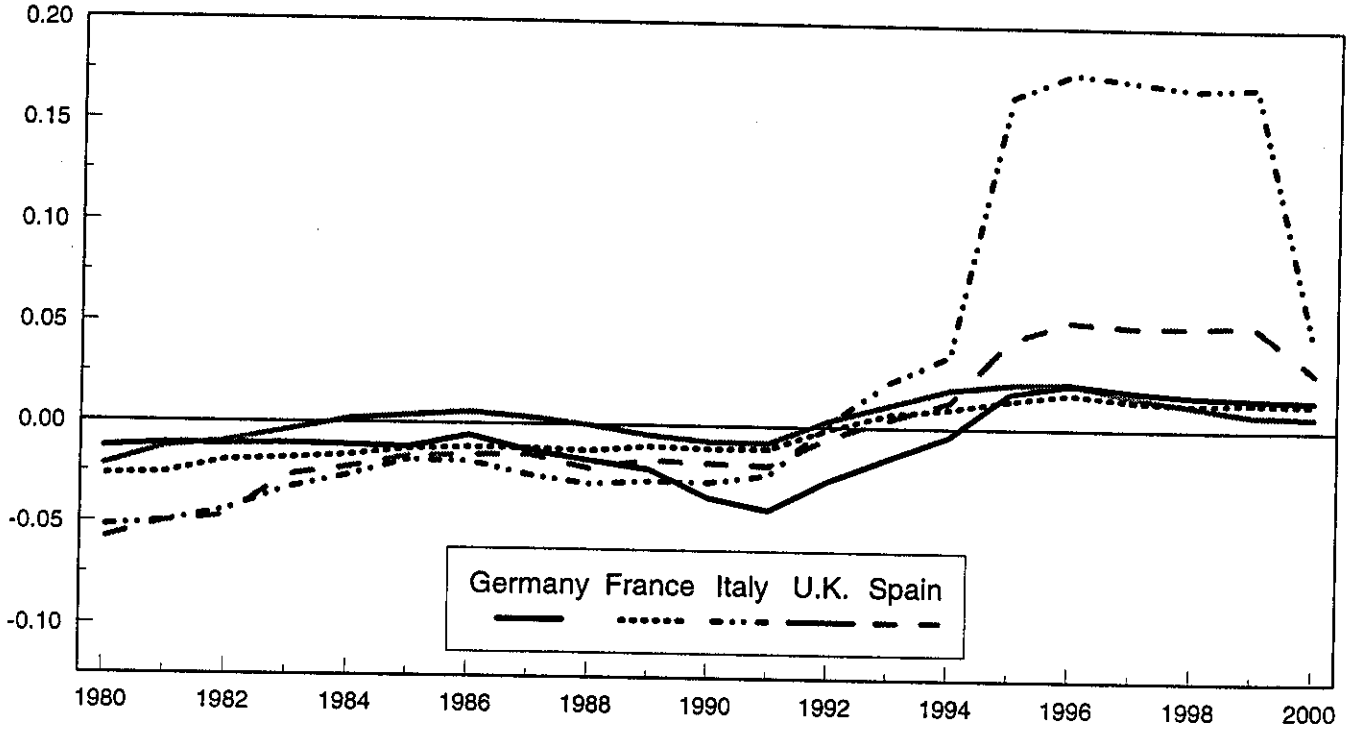
C) Fiscal Pressure



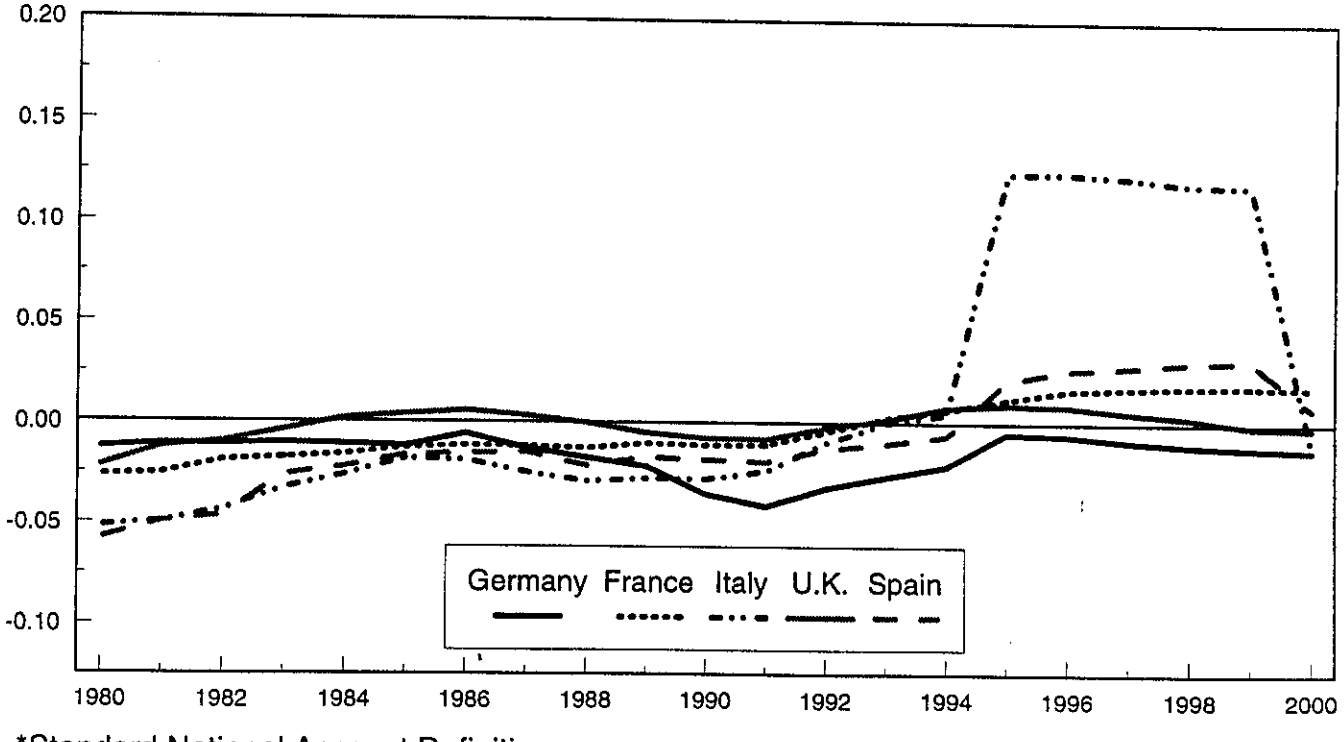
*Standard National Account Definition

Chart 5: Sustainability of EC Budget Deficits* with 60 Percent Debt Criterion

A) Pessimistic Scenario



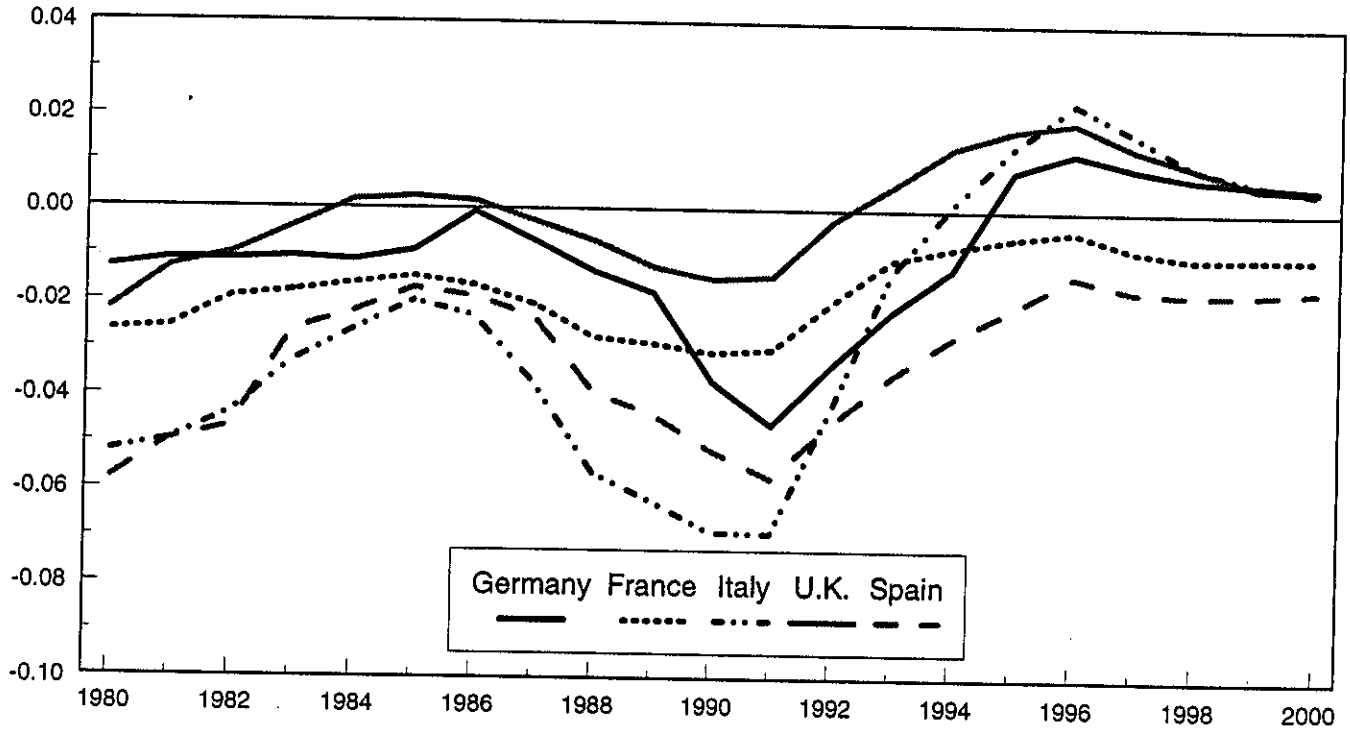
B) Optimistic Scenario



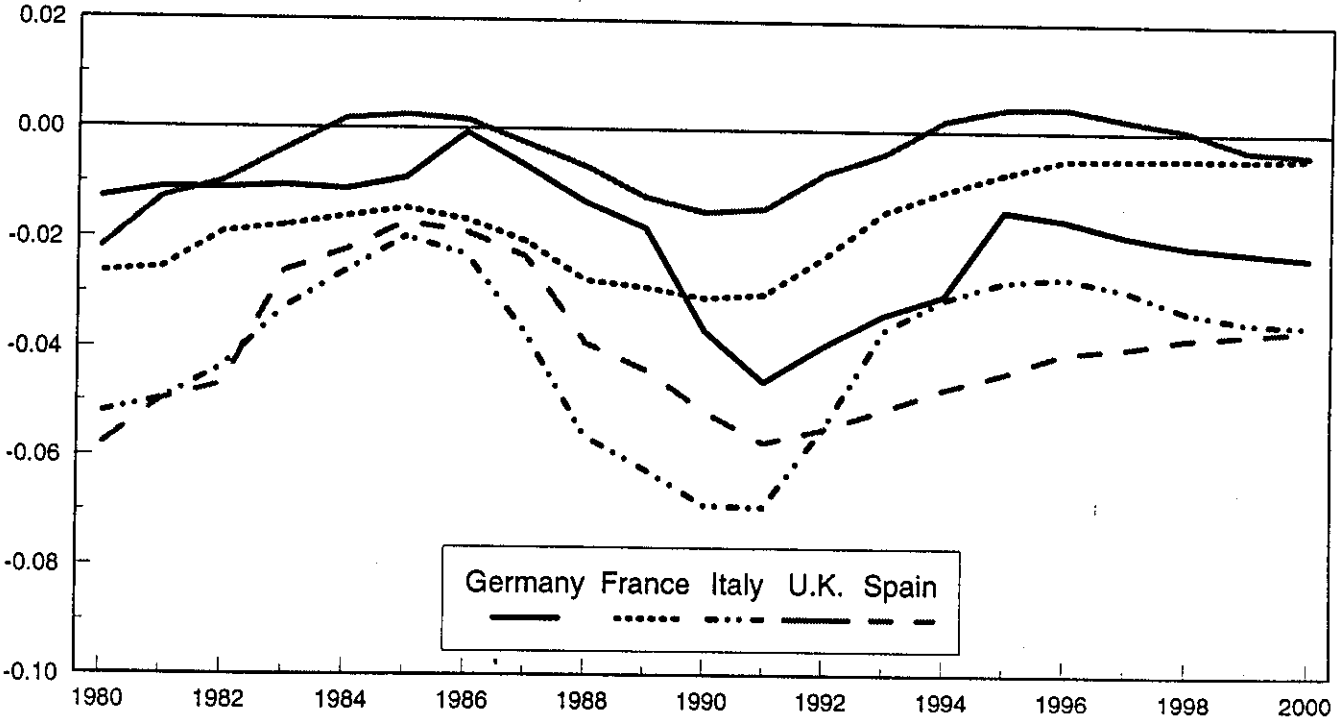
*Standard National Account Definition

Chart 6: Sustainability of EC Budget Deficits* with Constant 1989 Discount Rates

A) Pessimistic Scenario

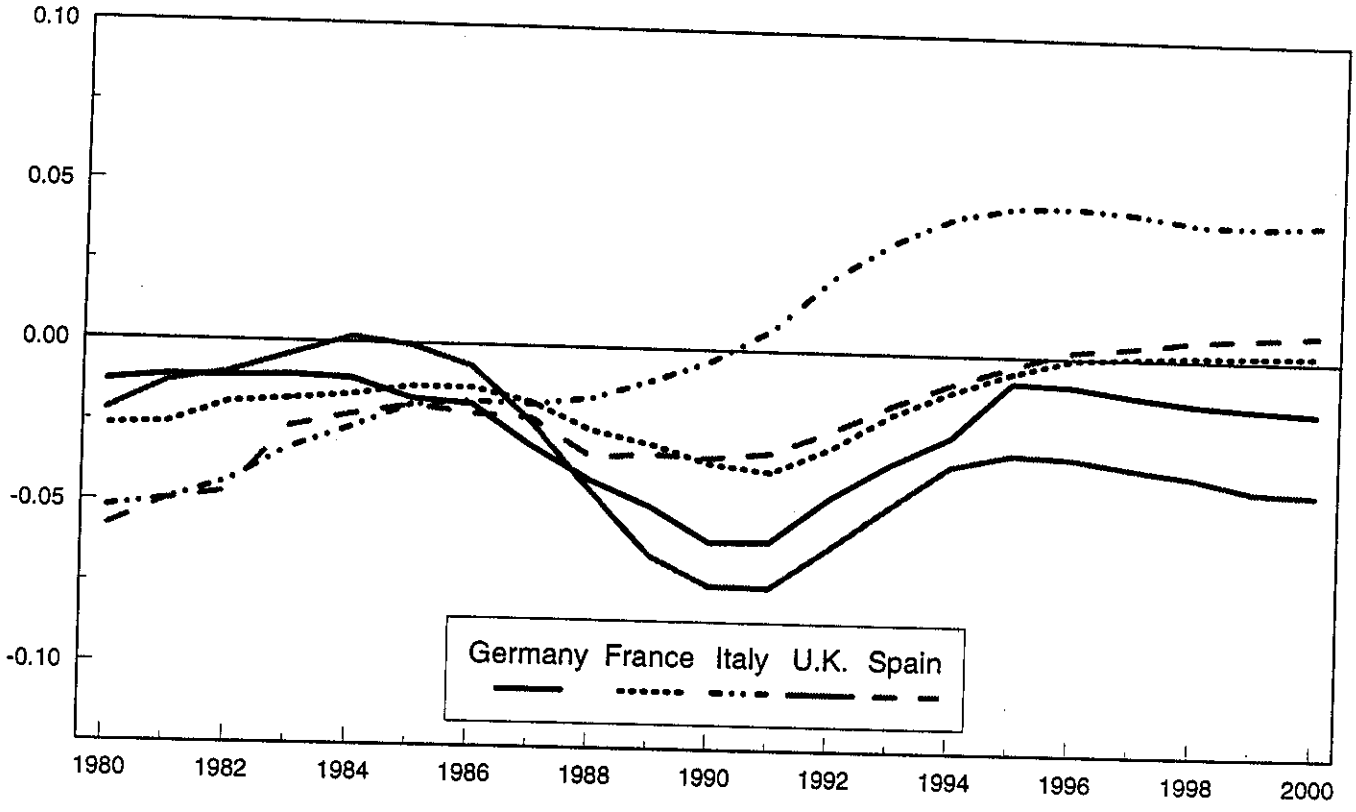


B) Optimistic Scenario



*Standard National Account Definition

Chart 7: Sustainability of EC Budget Deficits* with Constant 1989 Primary Deficit



*Standard National Account Definition