

Buiter, Willem H.; Corsetti, Giancarlo; Roubini, Nouriel

Working Paper

Excessive Deficits: Sense and Nonsense in the Treaty of Maastricht

Center Discussion Paper, No. 674

Provided in Cooperation with:

Yale University, Economic Growth Center (EGC)

Suggested Citation: Buiter, Willem H.; Corsetti, Giancarlo; Roubini, Nouriel (1992) : Excessive Deficits: Sense and Nonsense in the Treaty of Maastricht, Center Discussion Paper, No. 674, Yale University, Economic Growth Center, New Haven, CT

This Version is available at:

<https://hdl.handle.net/10419/160596>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

ECONOMIC GROWTH CENTER

YALE UNIVERSITY

Box 1987, Yale Station
27 Hillhouse Avenue
New Haven, Connecticut 06520

CENTER DISCUSSION PAPER NO. 674

**EXCESSIVE DEFICITS:
SENSE AND NONSENSE IN THE TREATY OF MAASTRICHT**

Willem H. Buiter
Yale University

Giancarlo Corsetti
Universita' di Roma III

Nouriel Roubini
Yale University

November 1992

Note: Center Discussion Papers are preliminary materials circulated to stimulate discussions and critical comments. This is a revised version of the paper originally written September 1992.

ABSTRACT

In this paper we present an evaluation of internationally agreed limits on public sector debt and deficits such as those agreed by the EC countries in the Treaty of Maastricht as preconditions for membership in a monetary union. These fiscal convergence criteria require that general government budget deficits should not exceed 3% of GDP and that the gross debt of the general government should not be above 60% of GDP. The Maastricht requirements, especially the debt criterion, are much more stringent than those required to ensure public sector solvency. Their implementation would require an excessive degree of fiscal retrenchment that would have negative consequences on the level of economic activity. The deficit guideline does not appear to be sensible, since the numerical criterion refers to the nominal interest payments-inclusive financial deficit, with no corrections for inflation and real output growth, no cyclical adjustment and no appropriate allowance for future revenue producing public sector investment. The verbal qualifications are too vague to neutralize the potential for serious damage attached to the numerical guidelines. We discuss the various "externality" arguments in favor of binding fiscal rules and find them wanting both theoretically and empirically. An argument in favor of external enforcement of binding fiscal rules might be made in the presence of "excessive deficits" due to political distortions. We conclude that the fiscal convergence criteria should be disregarded or applied quite loosely in order to avoid the risk of serious fiscal overkill.

JEL Classification: E62, E63, F33, H62, H63

Keywords: European Monetary Union, Fiscal Policy, Fiscal Rules

Willem H. Buiter
Department of Economics
Yale University
P.O. Box 1972 Yale Station
New Haven, CT 06520, U.S.A.
Tel: (203) 432-3580

Giancarlo Corsetti
Universita' di Roma III
Roma, Italy
(39 6) 49766356

Nouriel Roubini
Department of Economics
Yale University
P.O. Box 1972 Yale Station
New Haven, CT 06520, U.S.A.
Tel: (203) 432-3592

INTRODUCTION.

The agreement reached by the governments of the twelve EC members at the Maastricht summit in December 1991, to move ahead towards full monetary union by the end of the decade at the latest, can with hindsight be seen as the crest of a wave of West-European integration that had begun to build in the mid-eighties. Since early 1992, a sequence of adverse developments of increasing severity has undermined the progress towards European Monetary Union. The "no" vote in the Danish ratification referendum started the unraveling of Maastricht. The devaluation within the ERM of the Lira by 7 percent, agreed on Sunday September 13, 1992 came next. The token 0.25% cut that same day in the German Lombard rate (and the 0.5% reduction in the German Discount Rate), reinforced by several Bundesbank official indiscretions, made it clear that the Bundesbank shared the opinion of a growing number of private financial market participants that further realignments were necessary. On September 17, the suspension of the ERM membership of the UK and Italy, followed by the floating of these two currencies, and a devaluation of the Peseta by 5% created a European financial panic. The convincing "yes" vote in the Irish ratification referendum and the narrow "yes" vote in the French ratification referendum on Sunday September 20 were not sufficient to ensure the ultimate survival of the Treaty. The decision by the British government to postpone a Parliamentary vote on the Treaty until after the second Danish referendum further lengthened the odds against the Treaty.

It is therefore possible that the subject matter of our paper, the fiscal convergence criteria of the Maastricht Treaty, may, like the whole of the Treaty, become moot from a short-term political point of view. Fortunately for us, the Maastricht convergence criteria raise issues that are important regardless of the success of the current attempt at achieving monetary union in Europe. The process of European economic integration will continue regardless of the fate of the Maastricht Treaty. Even if the Treaty does not survive the recent political challenges, attempts to revive

the EMS are still likely in the near future and renewed attempts at achieving monetary union can be expected. It is, however, likely (and in our view desirable), that monetary unification, if and when it happens, will follow rather than anticipate and precede greater political integration. The concerns with government debt and deficits expressed in the Treaty of Maastricht can thus be expected to resurface as monetary union comes back on the agenda. We therefore present our evaluation of internationally agreed limits on public sector debt and deficits as preconditions for membership in a monetary union, without paying any further Danegeld to recent political developments.

Fearing that a monetary union without sufficient economic convergence might be fragile and a source of economic and social tensions, the EC governments agreed that satisfying four economic convergence criteria would be a necessary condition for admission to the monetary union. Three of these conditions make some intuitive sense considering the goal of a stable monetary union.

First, inflation rates among the member countries should converge to a level not too far above the inflation rates of the three members with the lowest inflation rates. A monetary union requires convergence to a *common* rate of inflation of tradable goods. While in principle this common inflation rate need not be a low or even a stable one, this concession to anti-inflationary rectitude is neither surprising nor necessarily harmful. Note, however, that it rules out the option of using the abandonment of the national currency as an anti-inflationary device for a country that cannot deliver low inflation as long as it has any national monetary autonomy.

Second, there should be stability of the nominal exchange rates for some time before monetary union and lack of persistent pressures for realignment. This too is not a *logical* prerequisite for a credible monetary union. One cannot dismiss the possibility (or even the desirability) of a final grand realignment the instant before exchange rates are irrevocably frozen and national currencies disappear, especially if the authorities

have managed to convince the public that such an end-game realignment would not occur. It may, however, not be optimal to start the new common currency era with a major act of fooling the people.

Third, nominal interest rate should converge (to a level not more than two percentage points above that achieved by the three lowest inflation countries). With the very high degree of intra-EC financial capital mobility achieved through the single market and given credibly fixed exchange rates (criterion two), the only source of interest differentials would be differential default risk. Convergence of inflation rates (criterion 1) does not in and of itself eliminate sovereign default risk. Achieving the elimination of the sovereign risk premium may be one motivation for the fourth and last convergence criterion.

The fourth convergence criterion refers to fiscal policies: public deficits should be kept or reduced below 3% of GDP and public debt should be kept or lowered below 60% of GDP. In the view of the backers and authors of the Treaty, lack of formal fiscal constraints would lead to "excessive deficits" and thus to monetary and financial instability.

In this paper we assess the case for fiscal rules such as those agreed to at Maastricht.¹ Two sets of basic issues are raised. First, what is the logic behind the Treaty's concern with public debt and deficits ? Specifically, why should the Community worry about the consequences of "excessive" deficits, i.e. what is the nature of the externalities that excessive deficits in one country might impose on other EC countries, and what is the evidence about their importance? Second, how are these theoretical criteria to be implemented in practice?

The plan of the paper is the following. In Section I we present the fiscal criteria of Maastricht in greater detail and discuss their relation to the other convergence criteria. We will evaluate the official rationale behind the EC concern with deficits and debt and interpret the logic behind the particular numerical reference values chosen

at Maastricht.

In Section II we analyze the present fiscal conditions in the EC countries as well as the historical trends in public sector deficits and debt, and compare them with the Maastricht targets. We will discuss whether the current path of fiscal policy in the EC member states is sustainable and present simulations measuring the size of the adjustment effort required to satisfy the fiscal convergence criteria by the deadline for monetary union. An important (and quite hotly contested) issue here concerns the consequences for the level of economic activity in Europe of a generalized fiscal retrenchment by the EC aimed at reducing public sector deficits and debt towards the Maastricht targets. Is there a risk of a deflationary and recessionary bias ?

In Section III of the paper we consider in detail what appears the logic behind the Treaty's concern with public debt and deficits. We evaluate the various arguments for and against the fiscal rules. We also ask why any country would systematically follow policies of "excessive" deficits; i.e. what are the economic or political distortions that would lead to a persistent bias towards larger-than-optimal budget deficits, and what is the empirical evidence about their prevalence? In the presence of political and other distortions that lead to excessive deficits by member states, is there a role for an external agent (such as the EC) to impose rules for fiscal discipline, monitor their implementation and credibly enforce them with a set of sanctions against deviant countries? Some concluding remarks are offered in Section IV.

I. THE FISCAL CONVERGENCE CRITERIA OF MAASTRICHT.

In 1989, the Delors Report argued that a European monetary union without fiscal convergence might lead to monetary and economic instability in the Community² and recommended the imposition of binding fiscal rules to limit policy makers' discretion in deciding the size and financing of fiscal deficits. Following the publication of the Delors Report the debate on "excessive" fiscal deficits, on the need for binding fiscal

rules in the EC and on the coordination of fiscal policies has been wide-ranging.³

The new Treaty approved at the Maastricht summit in December 1991 followed the spirit of the Delors recommendations by introducing a set of principles of fiscal discipline to be followed by member countries. The first principle is, in the words of Article 104c, that "Member States shall avoid excessive deficits". The definition of "excessive" deficits relies on two fiscal reference values for government deficits and debt that are spelled out in the Protocol on the excessive deficits procedure annexed to the Treaty. The Treaty also establishes sanctions against countries found to be having excessive deficits.

The second principle, expressed in Article 104b of the Treaty, is the "no-bail-out clause" according to which each member country (and only that member country) is responsible for servicing its public debt. This article implies that no Community member or agency will bail-out other member countries that experience a fiscal crisis.

The third principle, expressed in Articles 104 and 104a, "bans direct central bank financing and access to favorable financing of public deficits, by prohibiting the granting of central bank credit to governments, the obligatory purchase by banks of public debt instruments and privileged access by governments to financial institutions" (Commission of the European Communities, Annual Report for 1991).⁴

The assessment of "excessive" deficits starts from two reference criteria for deficits and public debt. First, the general government deficit (net borrowing) should not exceed 3% of Gross Domestic Product (GDP) at market prices; second, the general government gross debt should not exceed 60% of GDP at market prices.

These reference values are important because a country formally found to have "excessive" deficits would fail one of the four criteria (the fiscal convergence criterion) for joining the monetary union and would therefore be excluded from it.

Unlike the reference values for the inflation, interest rate and exchange rate convergence criteria, however, the fiscal reference values are not rigid and several

circumstances will be taken into account in deciding whether deficits are "excessive". First of all, a deficit in excess of 3% might be allowed if it "is only exceptional and temporary and the ratio remains close to the reference value".

Second, other factors specific to a country such as "whether the government deficit exceeds government investment expenditures" will be taken into consideration. This implies, for example, that a country with a high level of public investment (such as Spain or Portugal) might be allowed to run deficits in excess of 3% if it is deemed that such a high level of capital expenditures is appropriate.

Third, a deficit might not be considered excessive if it "has declined substantially and continuously and reached a level that comes close to the reference value" (Article 104c (a)). The significance of this caveat is due to the possibility that, if the 3% criterion were applied rigidly as a convergence criterion for joining the monetary union, a number of countries (for example Italy) would be excluded from joining the monetary union even if they had significantly improved their fiscal performance. The caveat suggests that a country such as Italy might be allowed to join the monetary union at the end of 1996 or 1998 if its 1991 deficit of 10.2% of GDP had by then been significantly and continuously reduced to a value close to but still in excess of 3%. How close to 3% is, however, left vague in the Treaty.

Fourth, a debt to GDP ratio in excess of 60% would not be deemed excessive if it is "sufficiently diminishing and approaching the reference value at a satisfactory rate" (Article 104c (b)). The reason for this caveat is quite clear. A number of EC countries have debt to GDP ratios well above 60%, in the case of Belgium, Ireland and Italy above 100% of GDP with Greece just under 100% of GDP. Economic wisdom (reinforced with simple numerical benchmark calculations reported in Section II of this paper and complete econometric model simulations reported in Section III), suggests that even with a major fiscal retrenchment in these countries it would be close to impossible to achieve a reduction of the debt-to-GDP ratio to 60% of GDP in time for

the beginning of 1997 (or of 1999) deadline.

One implication of these caveats is that the two reference values for deficits and debt will not be applied strictly and that countries whose deficits and/or debts exceed the reference values may not be found to have "excessive" deficits as long as they have made steady and substantial efforts towards achieving them. Another implication is that the wording of the Treaty is sufficiently vague that potentially irrelevant or even harmful political considerations are likely to be used in the assessment of whether the fiscal convergence criteria have been met or not.

The formal procedure that leads to a decision on whether a country has "excessive" deficits or not is complex and laid out in detail in Article 104c. First, the Commission writes a report on a country that does not satisfy the deficit or the debt reference values. The report (addressed to the Council) expresses the opinion of the Commission on whether an "excessive" deficit exists. Such an assessment will take into account all the factors and caveats discussed above.

The Council, acting on a qualified majority, will decide whether the country has an excessive deficit. Before the currency union, a finding that the country has an "excessive" deficit would imply that the country has not fulfilled the fiscal criterion for convergence and would not be allowed to join the union. After the monetary union, a finding of "excessive deficits" might lead to the imposition of a number of economic sanctions against the deviant country.⁵

It should also be observed that the fiscal convergence criteria for joining EMU are linked (economically if not legally) to the other three convergence criteria, the inflation rate, the interest rate and the exchange rate convergence criteria.⁶ The price stability criterion (together with the principle of no central bank financing of budget deficits at the discretion of the national governments) prevents the use of nationally differentiated seigniorage as a way of financing the fiscal deficit and reducing the debt ratios towards their target levels. The interest rate criterion is not redundant, even with the

increasing degree of international capital mobility among EMS members and in the presence of the inflation criterion. With efficient financial markets and ignoring differences due to taxation, international nominal interest rate differentials on public sector debt instruments are the sum of three components: the expected proportional rate of depreciation of the nominal spot exchange rate, the exchange rate risk premium (or currency risk premium) and a national default risk premium reflecting the possibility of debt repudiation due, for instance, to unsustainable fiscal positions. The criterion therefore implies that it is not enough, for a high debt and deficit country, to follow a strict anti-inflation policy that brings its current inflation rate down to the level of the best performing states. A serious fiscal adjustment is also required for a number of reasons.

First, such an adjustment could reduce and eventually eliminate national default risk premia by insuring the feasibility of a binding commitment to meet the government solvency constraint. Second, the fiscal policy adjustment would also affect differentials in interest rates due to expected exchange rate depreciation and the currency risk premium; these two components of the international interest differential would disappear completely only if market participants were totally certain that the country would join the monetary union and stay with it irrevocably. Since what represents sufficient fiscal adjustment is left vague in the Treaty, markets will attach positive probability to the prospect that a country will be excluded on the basis of fiscal criteria; and this probability will be higher for countries with worse fiscal conditions. This, in turn, will tend to keep nominal interest rates higher than they would be otherwise, since being unable to join EMU might undermine the fiscal and inflation credibility of the country and thus create a future exchange rate depreciation risk.

What can be inferred about the underlying motivation for Maastricht's concern about "excessive deficits"? One interpretation is that "excessive deficits" is really a

code word for "excessive government size" or "excessive public spending". In this view, the protagonists of binding commitments to reduce excessive deficits hope and/or expect (like the intellectual fathers of Reagonomics) that spending cuts rather than tax increases will be used to achieve such reductions. However, if we take the Treaty and its intellectual antecedents at face value, it appears that behind its rules against "excessive" deficits lies the concern that, in the absence of such binding fiscal rules, at least some EC governments might be subject to a systematic bias towards excessive budget deficits and that this bias might have serious negative external effects on other EC countries. The key externalities that have been stressed by proponents of EMU are the following ⁷:

1. Excessive deficits by a member country might eventually lead to an unsustainable public debt position and to a fiscal solvency crisis including debt default that will force the other member countries into a fiscal "bail-out" of the insolvent government.

2. A fiscal and financial crisis in one EC country could, through fundamental financial interdependence or through contagion effects, spread to other countries and force the future European Central Bank (ECB) to inject excessive liquidity into the EC financial system, thus creating additional inflationary pressure throughout the EMU area.

3. Even when government solvency is not an issue, there are international interest rate and exchange rate spill overs from national deficit financing policies. Such external effects must be internalized by cooperative action. In the budgetary field, centrally imposed and enforced rules are the best way of achieving cooperative behavior.

Another issue raised by the Maastricht Treaty concerns the logic behind the particular numerical reference values of 3% of GDP for the deficit and 60% of GDP for the public debt. At first glance, the particular levels that were chosen appear arbitrary; the debt reference value is very close to the average value of this indicator

for the EC in 1991 (61.7%) while the actual average deficit-GDP ratio in 1991 (4.3%) was above the reference value. There is of course no reason to believe the current average values to be optimal for the EC as a whole (on average), let alone for each of the 12 individual member states, which differ greatly in economic structure (levels and real growth rates of per capita GDP, inflation rates, degree of financial development, tax structure and tax administration capacity, size of the state enterprise sector etc.) and as regards initial conditions.

Simple debt dynamics accounting shows that the debt to GDP ratio evolves according to the following formula:

$$(I.1) \quad d_t - d_{t-1} = - \left[\frac{\psi_t}{1 + \psi_t} \right] d_t + \text{def}_t$$

where def_t is the deficit to GDP ratio, d_t is the debt to GDP ratio, and ψ_t is the rate of growth of nominal GDP, the sum of the growth rate of real GDP and the rate of (GDP) inflation. When the debt to GDP ratio is constant we get:

$$(I.2) \quad d_t = [(1 + \psi_t) / \psi_t] \text{def}_t$$

Equation (I.2) suggests that in the long run the deficit and debt guideline can only be consistent with each other given particular assumptions about the long run growth rate of nominal GDP. EC documents forecast an average long run growth rate of real GDP of 3% per year for the EC countries.⁸ One of the main objectives of the monetary union is price stability. In the particular European context, this probably translates into a target inflation rate for the GDP deflator around 2% per year. Complete price stability for internationally traded goods is likely to imply a positive (around 1 or 2 percent per annum) rate of inflation for broad price indices like the GDP deflator and the CPI, which include non-traded goods whose prices tend to rise faster than those of traded goods. Note that not even Germany in its prime achieved a sustained zero inflation rate.⁹ A real growth target of 3% and an inflation target of 2% then sum to a long term growth rate of nominal GDP of 5% per year. Thus,

equation (I.2) shows that for the EC as a whole, a steady state deficit of 3% of GDP per year and a 5% growth rate of nominal GDP require a stable long run debt to GDP ratio of approximately 60% (with continuous compounding it would be exactly 60%).

There may appear to be some deeper economic logic behind the choice of the 3% numerical reference value for the deficit-GDP ratio. A number of EC documents refer to the "golden rule of public finance" ¹⁰ according to which only capital expenditures can be financed with borrowing while current expenditures should be covered with current revenues. This principle requires that the gross savings of the government should always be larger than or equal to zero (with perhaps an exception for cyclical fluctuations). As it happens, capital expenditures in the EC have averaged 3% of GDP for a long period of time.¹¹ In this sense the 3% net borrowing guideline could be interpreted as implementing the idea that borrowing should be used only for investment purposes (under the maintained assumption that public investment will remain at 3% of GDP).

On reflection, however, the derivation of the reference value for the deficit from the "golden rule of public finance" appears to be false, except in a world with a zero rate of inflation. That "golden rule of public finance" does not state that the "nominal" net lending of the government should not exceed its capital spending; it says instead that the real "gross savings" of the government must be non-negative where the gross savings are equal to the inflation-adjusted net lending of the government minus gross government capital spending. With a 3% deficit to GDP ratio and public investment to GDP ratio, if the target inflation rate is 2% per year and the steady state debt to GDP ratio is equal to 60%, real government savings would actually be positive and approximately equal to 1.2% of GDP, the reduction in the real value of a 60% debt ratio induced by 2% inflation. Thus, in the steady state implied by the Maastricht rules only part of public investment (up to 1.8% of GDP) would be

financed by borrowing.^{12 13} It follows that, other things being equal, the "golden rule" would still be satisfied if we considered steady states characterized by higher ratios of debt and deficit relative to GDP.

II. FISCAL CONDITIONS AND PROSPECTS OF THE EC COUNTRIES.

II.1 THE CONDITIONS IN 1992.

How do the Maastricht fiscal guidelines stack up against the current general government debt- and deficit ratios of the Community members? If we compare the fiscal guidelines chosen at Maastricht with the fiscal conditions of the EC in 1991/92, we observe that very few countries satisfied these guidelines in 1991 and even fewer are expected to satisfy them in 1992. As shown in Table II.1, only Germany, France, the UK, Denmark, Ireland and Luxembourg kept their general government net borrowing below 3% of GDP in 1991 and only France, Denmark, Ireland and Luxembourg are expected to do so in 1992. Regarding the debt ratio requirement, Table II.2 shows that the only EC countries with a gross general government debt to GDP ratio below 60% in 1991 were Germany, France, the UK, Spain and Luxembourg (Portugal, at 64.7% and Denmark at 66.7% just fail to qualify). In 1992 the same five countries are again the only ones expected (according to the EC's generally somewhat optimistic forecasts) to meet the debt ratio criterion.

While only Germany, France, the UK and Luxembourg satisfy both criteria in 1991 and only France and Luxembourg are expected to satisfy both criteria in 1992, there is a wide divergence in the fundamental fiscal conditions of the other countries. At one extreme, the worst fiscal problems are faced by Italy and Greece. These two countries are characterized by very large budget deficits (10.2% of GDP in Italy and 16.5% of GDP in Greece during 1991). Table II.3 shows primary balances that are either barely in surplus (a virtual primary balance in 1991 for Italy, with a 0.7% of

GDP primary surplus expected, very optimistically, for 1992) or still in deficit (3.3% in 1991 and, very optimistically, an expected 0.5% in 1992 for Greece). Debt to GDP ratios remain very high (101.2% for Italy and 96.4% for Greece in 1991).

The underlying conditions of the other two high government debt countries, Belgium and Ireland are quite different. While these two countries are characterized by very high debt to GDP ratios (129.4% for Belgium and 102.8% for Ireland in 1991) that are the consequence of huge deficits in the 1970s and early 1980s, they now show substantial primary surpluses (4.7% for Belgium and 6% for Ireland in 1991) and overall deficits that are reasonably low. In Ireland, the debt to GDP ratio has been steadily falling since 1987. In Belgium, the debt to GDP ratio has been approximately stable at its 1987 level.

An intermediate country is the Netherlands where the debt ratio, although quite high (78.4% of GDP in 1991), has stabilized since 1990 thanks to growing primary surpluses (equal to 2.0% of GDP in 1991). Moreover, the overall deficit in 1991 (3.9% of GDP) is quite close to the Maastricht guideline. Spain and Portugal differ from each other in a number of ways. The overall fiscal deficit is quite small for Spain (at 4.4% of GDP) and moderate in the case of Portugal (at 6.4% of GDP). In the case of Spain the debt ratio is below 60% (45.6% in 1991) while Portugal is above the guideline (64.7% in 1991). Spain, however, still has a small primary deficit (0.2% of GDP in 1991) while Portugal has a 2.1% of GDP primary surplus in 1991.

Germany and the United Kingdom both have comparable debt ratios well below 60%. The West-German overall deficit was 3.1% of GDP in 1991 while Britain scored 2% that year. Both countries are, however, expected to violate the deficit ratio criterion in 1992. In spite of the fact that the U.K. deficit is expected to be well above the German one in 1992 (4.9% as opposed to 3.4%), the structural fiscal conditions of the U.K. may be more robust than the German ones. In fact, the U.K. deficits in the 1991-1992 period appear to have a major cyclical component, reflecting

the recession that resulted when Britain joined the exchange rate arrangements of the EMS at a greatly overvalued parity. This transitory cyclical component of the deficit should disappear (except for the interest on the additional debt accumulated during the recession) as and when the UK gets out of the present recession. The recent British suspension of its ERM membership and the associated depreciation of Sterling and cuts in interest rates make a recovery more likely. The component of the German deficit that reflects the unification process, while not cyclical, should nevertheless not be expected to be permanent. There is, however, considerable uncertainty and disagreement about the magnitude and degree of persistence of future net budgetary transfers to households, firms and other agencies in the former DDR. Their likely duration surely exceeds that of the typical business cycle.

Denmark is borderline on the debt criterion (66.7% of GDP in 1992), but solid primary surpluses and low overall deficits (2% of GDP in 1991) put her among the more fiscally sound economies. Finally, France and Luxembourg are the only two countries to satisfy both fiscal criteria, with fiscal deficits equal to 1.7% of GDP in France and -2.5% of GDP in Luxembourg and debt ratios equal in 1991 to 47.2% and 6.9% respectively.

II.2 THE HISTORICAL EXPERIENCE WITH DEFICITS AND DEBT.

While very few countries will fulfill the fiscal guidelines in 1992, the historical experience of the past few decades, shown in Tables II.1, II.2 and II.3, also suggests that fiscal deficits and debt ratios above the Maastricht reference values have occurred regularly in the past. Even disregarding the high deficits and debt to GDP ratios of many European countries in the period right after World War II, debt ratios above 60% and deficits above 3% have been quite common in the last 30 years.

In the 1960s, the gross debt to GDP ratio was above 60% in the United Kingdom and Belgium. The rate for the U.K. had been close to 130% in 1960 (a

leftover from the WWII debt build-up) and by 1970 was still equal to 80%. The Belgian ratio was over 80% in 1960 and had fallen to 68% by 1970. In all the other EC countries (but Italy) the debt to GDP ratio was falling in the 1960–1973 period while the average overall deficit to GDP ratio was on average below 3% per year in all countries but Ireland (see Tables II.1 and II.2).

The post-1973 stagflationary period was characterized by the rapid rise in the ratio of general government expenditures in GDP and the emergence of very large and persistent budget deficits and rising debt to GDP ratios in most European countries. In particular, the debt to GDP ratio was above 60% some time during the decade in Belgium, Ireland, Italy and the U.K. Moreover, during the 1971–1980 decade, the general government budget deficit was on average at or above 3% of GDP in Belgium (5.1%), Ireland (8.4%), Italy (7.6) and the United Kingdom (3.0%). Also, deficits in excess of 3% of GDP were observed in West-Germany (in 1975–76), Denmark (in 1980), the Netherlands (in 1979–80).¹⁴

While some fiscal retrenchment occurred in the 1976–1979 period after the deficits and the debt build-up following the first oil shock, large and persistent fiscal deficits were experienced again in the 1979–1983 period following the second oil shock which, in the cases of Italy, Belgium, Ireland, Greece, Portugal and the Netherlands, led to a significant increase in the debt to GDP ratio. Overall, during the 1980s, deficit to GDP ratios averaged above 3% of GDP in Belgium (8.8%), Greece (12.9%), Spain (4.6%), Ireland (9.3%), Italy (11.2%), the Netherlands (5.8%), Portugal (7.9%). Moreover, all the remaining EC countries but Luxembourg (that is, Denmark, Germany, France and the United Kingdom) experienced deficits in excess of 3% of GDP at some point during the 1980s. As a consequence of these fiscal imbalances, the debt to GDP ratio peaked at 122% in Ireland in 1987, at 132% in Belgium in 1988, at 80% in Denmark in 1984 and at 75% in Portugal in 1988, while it had not yet stabilized in 1991 in Italy and Greece. The debt-GDP ratio in the Netherlands may just have

peaked in 1991/92.

Since the mid 1980s, the fiscal balances of a number of these countries have improved; dramatic fiscal retrenchment and large primary surpluses in Denmark, Belgium and Ireland have led to a reduction in the debt to GDP ratio in these countries; since 1988 a significant fiscal adjustment has occurred in Portugal as well, and a smaller adjustment has taken place since 1991 in the Netherlands. In Italy and Greece, however, the fiscal adjustment in the last few years has not been sufficient to prevent further increases of the debt-GDP ratio.

II.3 SOLVENCY, SUSTAINABILITY AND PRIMARY GAPS.

The Treaty clause about the need to avoid "excessive" deficits stems in part from a concern that a number of member countries are following fiscal policies that are not sustainable in the long run. An important policy question is therefore whether the empirical evidence indicates that the government's intertemporal budget constraint or solvency constraint is actually likely to be met in each EC country if past and current patterns of behavior persist.

Empirically, the answer to this question is difficult because the solvency constraint *per se* generally imposes only mild restrictions on the behavior of the public sector. In principle, almost any finite duration path of revenue and expenditure can satisfy it: large and persistent deficits today can always be offset with large surpluses at some time in the future. However, while the solvency constraint does not rule out policies generating large primary general government deficits for prolonged periods of time, it does rule out the possibility that these policies be maintained forever when the initial stock of debt is positive.

A first approach to the empirical testing of the solvency condition is the one followed by Hamilton and Flavin [1986] and Wilcox [1989] (see also Trehan and Walsh [1989], Buiter and Patel [1990], Corsetti [1991], Corsetti and Roubini [1991, 1992a] and

Wickens [1992]). This class of tests stems from the following idea. The intertemporal budget constraint of the public sector is satisfied if, in the limit, the value of future government debt discounted to some fixed initial date goes to zero. The validity of the present-value budget constraint can therefore be verified by estimating the data generating process for the discounted debt and checking whether the long run value of the discounted debt vanishes in expectation.

Using such solvency tests for a large set of OECD countries over the sample 1971–1989, Corsetti and Roubini [1991, 1992a] find that problems of sustainability of the present paths of fiscal policy appear to exist in Italy, Belgium, Ireland, the Netherlands and Greece. Note that these countries have in common a large current debt to GDP ratio (close to or above 100% in Italy, Belgium and Ireland).

This class of solvency tests is carried out under the maintained hypothesis that the data generating process describing the evolution of discounted debt and/or deficit is stable (in the sense of parameter constancy) over time. The weakness of this approach, therefore, is that it may fail to capture structural breaks in these processes deriving, for example, from the structural changes in fiscal policy that have occurred in countries such as Ireland or Belgium in the mid 1980s and in the Netherlands since the beginning of the nineties.

The solvency conditions for the government are (extremely) forward-looking. Any assessment of solvency therefore depends on assumptions about the evolution of future primary balances into the indefinite future. Apart from the solvency tests described above, there are several alternative approaches in the literature to deal with this problem, all of which can be encompassed in a simple framework that looks at the "primary gaps" of the fiscal authorities. The idea of the "primary gaps" (see Blanchard [1990] and Blanchard, Chouraqui, Hagemann and Sartor [1990]) is to consider the difference between the constant primary balance (as a share of GDP) that would stabilize the debt to GDP ratio over some time horizon and the actual primary

balance. This concept is interesting in the Maastricht context because it suggests the minimum necessary amount of fiscal adjustment required to stabilize and start reducing the debt to GDP ratio. One can define alternative measures of the primary gap.

First, define s_N^* as the N-period required primary surplus, i.e. the constant primary surplus-GDP ratio that has to be maintained to keep the debt-GDP ratio constant between periods t and $t+N$. Note that, to calculate s_N^* one needs projections of the future real interest rates and growth rates of real GDP during the next N periods. Then, define the N-period actual primary surplus-GDP ratio, s_N^a , as that constant primary surplus-GDP ratio whose present discounted value is equal to the present discounted value of the primary surplus-GDP ratios that are actually planned or expected to prevail between periods t and $t+N$. Then, the N-period *primary gap*, GAP_t^N , is defined as the excess of s_N^* over s_N^a . Note that when $N \geq 1$, the construction of the N-period primary gap requires forecasts not only of future interest rates and growth rates, but also of future primary surpluses. The lazy person's or myopic N-period primary gap, $MGAP_t^N$, shortcuts this need for predicting future primary surpluses by considering the excess of the N-period required primary surplus-GDP ratio, s_N^* , over the current primary surplus-GDP ratio, s_t , instead of over the N-period actual primary surplus-GDP ratio, s_N^a . Obviously, when $N = 1$, the one-period required primary gap GAP_t^1 and the myopic one-period primary gap $MGAP_t^1$ coincide and that the calculation of $MGAP_t^1$ does not require any forecasts other than those going into the calculation of the current real interest rate and current growth rate of real GDP.

Next, we can define the constant primary surplus-GDP ratio that ensures long-run solvency which we shall call the *permanent required primary surplus-GDP ratio*, s_ω^* . The calculation of s_ω^* requires estimates of the long-run real interest rate (the internal rate of return on a real consol or index-linked perpetuity) and the long-run growth rate of real GDP. Note that if the long-run interest rate exceeds the

long-run growth rate, the required permanent surplus-GDP ratio is not only the constant primary surplus-GDP ratio that, if maintained indefinitely, would ensure government solvency. It is also the constant primary surplus-GDP ratio that will ensure that, ultimately, the debt-GDP ratio does not exceed *any* finite upper limit (including its current value).

The *permanent primary gap*, GAP_t^{∞} , is the excess of the permanent required primary surplus-GDP ratio s_{∞}^* over the permanent actual primary surplus-GDP ratio s_{∞}^a . The permanent primary gap was proposed in Buiter [1983, 1985 and 1990] as a measure of the the magnitude of the permanent correction required to the annuitized present discounted value of current and expected future primary surplus-GDP ratios in order to ensure government solvency. The measure is silent on whether the correction should involve tax increases (including increases in seigniorage revenue) or spending cuts. Finally, the *myopic permanent primary gap*, $MGAP_t^{\infty}$, is the excess of the permanent required primary surplus-GDP ratio, s_{∞}^* , over the current primary surplus-GDP ratio, s_t , instead of over s_{∞}^a .¹⁵

One feasible empirical approach is the one followed in Blanchard, Chouraqui, Hagemann and Sartor [1990] which implements empirically the myopic N-period primary gap measure for $N = 1$ and 5 years and attempts a preliminary N-period primary gap calculation for $N = 40$ years. Other measures of the primary gaps for the European countries have been computed by Wickens [1992].

Our own calculations of the one-period primary gap GAP^1 and the myopic permanent primary gap $MGAP^{\infty}$ are given in Tables II.4 and II.5.

Table II.4 first gives the EC forecasts for real GDP growth, the implicit real interest rate and the primary surplus for 1992, as well as the 1991 debt-GDP ratio. The last two columns provide the required one period primary surplus s_1^* and the 1-period primary gap, GAP^1 for 1992.

Table II.5 assumes a 3 % long run growth rate of real GDP and a 5 % per

annum long-run real interest rate for all EC countries. Column 3 has the same 1991 debt-GDP ratios as Table II.4, and the last two columns give, respectively, the required permanent primary surplus-GDP ratio and the excess of the required permanent primary surplus-GDP ratio over the primary surplus-GDP ratio forecast for 1992 by the EC. Note that higher real interest rates or a lower real growth rate would imply larger primary gaps (increasing, for each 1% increase in the real interest rate or reduction in the real growth rate, by a percentage of GDP equal to the debt to GDP ratio).

There is reason to believe that the EC forecasts of the primary surplus-GDP ratios for 1992 are rather optimistic. Table II.6 gives the excess of the 1992 primary surplus-GDP ratios forecast by the EC over those forecast (six months later) by the OECD.

Table II.5 shows that the required permanent primary surplus-GDP ratio is quite large for countries with a high debt to GDP ratio (2.5% of GDP for Belgium, 2.0% for Ireland, 1.9% for Italy and 1.9% for Greece). However, while Belgium and Ireland have large primary surpluses in excess of the required permanent balance, so that their debt to GDP ratio will be falling over time, Greece and Italy show actual primary deficits and large required permanent surpluses so that the myopic permanent primary gaps are large. In the case of Italy the EC has an optimistic forecast for the 1992 primary balance of 0.7% (of GDP) surplus; given a required permanent surplus of 1.9%, a (permanently sustained) improvement in the primary balance of 1.2% of GDP would be needed to ensure solvency of the Italian Treasury.¹⁶ Similarly, in Greece the respective figures are a -0.5% actual primary deficit, a 1.9% required permanent surplus and a 2.4% myopic permanent primary gap.

Table II.5 also shows significant myopic permanent primary gaps for the United Kingdom (2.4% of GDP), Germany (1.5%) and Spain (1.4%). As was pointed out already, however, the U.K. situation is biased by a large cyclical primary deficit; the

cyclically adjusted or structural primary gap would be much smaller for this country. Germany, instead, is still expected to exhibit healthy growth in the EC forecasts for 1992, so that its actual primary deficit represents a structural deficit associated with the unification costs. Finally, France, Denmark, Portugal and Luxembourg show negative myopic permanent primary gaps that imply "supersolvency" and indeed a long-run falling debt to GDP ratio (assuming unchanged primary surpluses and economic conditions).

The single period primary gaps reported in Table II.4 are different (and usually smaller) for a number of countries, relative to those computed in Table II.5 using (assumed) long term values for interest rates, growth rates and inflation rates. The reasons for these differences are quite important and worth discussing given their policy implications. Estimates of the long-run real rate of interest tend to be obtained from two sources: for the UK from the index-linked government bonds issued since the early years of the Thatcher era and for the rest of the universe by looking at long-term fixed rate nominal government debt and guessing a long-run rate of inflation.

There are three reasons why in 1991 the excess of the one-period interest rate over the one-period growth rate differs from its longer-run counterpart.

First, unlike our long interest rate, which in principle is calculated using the current long market rate, our one-period "effective" rate is calculated by dividing the actual interest payments by the face value of the debt. The effective interest rate on the existing stock of debt will tend to be lower than actual current market rate for new debt, when interest rates are at historically high levels (as they are today), with the magnitude of the difference depending on the maturity structure of the debt.

Second, the use of privileged forms of financing (such as low interest postal deposits) permanently lowers the (average) implicit interest rate below the long-term Treasury bond yields that lie behind the myopic permanent primary gap calculations. Third, unusually high current real growth rates and unusually low current real interest

rates bias the single-period required primary surplus-GDP ratio downwards relative to any multi-period required primary surplus-GDP ratio.¹⁷

The empirical weight of these factors is quite important. For example, the one-period primary gaps for Germany, the U.K., Spain and Greece are lower (at 0.5%, 2.1%, 0.5% and 0.8 of GDP respectively) than the myopic permanent primary gap with $r=5\%$ and $g=3\%$ (at 1.5%, 2.4%, 1.4% and 2.4 of GDP respectively). Conversely, one-period primary gaps are larger in Italy than in the long run exercise (as the one year real interest rate vs. growth differential was actually close to 3% rather than the 2% assumed in the myopic permanent gap calculations.).

In summary, while primary gaps (except for the non-myopic permanent primary gap which we do not try to calculate) are not by themselves measures of debt sustainability, they are useful complements to other measures of solvency; inferences about sustainability derived from primary gaps also tend to be consistent with those derived from other tests. In particular, Italy and Greece need major primary fiscal corrections in order to avoid insolvency; Germany will at some point have to deal with its structural deficit, while the UK primary gap is mostly driven by cyclical factors. Belgium and Ireland will have to continue their recent policies of large primary surpluses if they wish to achieve further reductions in their debt to GDP ratio. In France, Denmark, Portugal and Luxembourg, present policies are consistent with long term solvency.

II.4 WHAT WILL IT TAKE TO MEET THE MAASTRICHT CRITERIA?

While the primary gap calculations suggest the minimum amount of fiscal adjustment required to stabilize the debt-GDP ratio, the actual Maastricht objectives are much more restrictive since they require a reduction in the debt-GDP ratio towards the 60% target. The goal of this subsection is therefore that of exploring two related issues. First, what would be the evolution of the debt-GDP ratio if the deficit

reference value and the inflation target are reached by end-1996 (or end-1998) ? Second, how large a primary and overall fiscal adjustment would be required to satisfy the debt ratio criterion by end-1996 (or end-1998) ?

Consider first the "What happens to the debt?" question. Starting from the debt-GDP ratio inherited at the end of 1991, debt_{91} and assuming that the deficit target of 3% of GDP is reached on time (by the target date of December 31 1996 or December 31 1998), what will the debt-GDP ratio be on the target date (debt_{96} or debt_{98}) ? From equation (I.1) we see that to answer this question we need the growth rate of nominal GDP ψ_t and the deficit-GDP ratio def_t for each period from 1992 to the end of 1996 or 1998. In Table II.7 we consider two pairs of scenarios. The first pair, scenarios (a) and (b) outline an extremely disciplined fiscal adjustment where each EC country that is now above the 3% deficit and the 5% nominal GDP growth will reach these levels (through gradual adjustments) by end-1996 (in scenario (a)) or by end-1998 (in scenario (b)).¹⁸ The second pair, scenarios (c) and (d) present hypothetical cases where these deficit and nominal GDP growth targets are achieved immediately in 1992. They show the debt to GDP ratio obtained by end-1996 (scenario (c)) or end-1998 (scenario (d)). This second pair of scenarios is presented to show that, relative to scenarios (a) and (b), an immediate convergence of inflation rates can partially undo the effects of a substantial fiscal retrenchment on the debt-GDP ratio.

Table II.7 makes it abundantly clear that satisfying the deficit criterion and meeting the inflation target together would not do much to reduce the debt-GDP ratio even in the hypothetical case in which these targets were reached right away in 1992 (scenarios (c) and (d)). For example, in the most favorable scenario, Italy only lowers its debt-GDP ratio from 101.2 in 1991 to 90.2. The same point holds for high inflation countries such as Greece (high debt) and Portugal (low debt), where, however, the debt to GDP ratio decreases relatively more in scenarios characterized by a

combination of slow inflation and deficit adjustment.¹⁹ The high debt and low inflation countries (Ireland, the Netherlands and Belgium) do effectively nothing to their debt-GDP ratios when they meet the deficit targets.

The next question we address is "Starting from the 1991 inherited debt-GDP ratio, what constant deficit-GDP ratio will cause the debt-GDP target to be reached on time?". We again consider two pairs of scenarios (for the excess debtors in 1991 only). In Table II.8, scenarios (a) and (b) have nominal GDP growth declining gradually to 5%. The target date for the debt ratio is end-1996 for scenario (a) and end-1998 for scenario (b). Scenarios (c) and (d) consider the case in which the nominal GDP growth target is reached immediately in 1992 and maintained thereafter. The target date for the debt ratio remains end-1996 (scenario (c)) or end-1998 (scenario (d)).

Clearly, for countries like Belgium, Ireland, Italy and Greece, Table II.8 describes the economics of the lunatic asylum. For the Netherlands and Portugal there would be considerable pain. Only Denmark would have an easy ride. To try and achieve the debt target even by the end of 1998 would require hefty to very hefty overall budget surpluses. For Belgium the turnaround relative to 1991 would be about 11.5 % of GDP.

Table II.9 shows the 1991 primary deficit-GDP ratio, and the constant primary deficit-GDP ratio that achieves the debt target by end-1996 or end-1998, on the assumption of a 5 percent real interest rate and a 3 percent growth rate of real GDP. Table II.9 confirms the story of Table II.8: out of the seven countries that do not satisfy the debt criterion in 1991, only Denmark can relax, reduce its primary surplus and still meet the debt target by the end of 1996 or 1998. Belgium and Italy would have to experience Mexican-style increases in primary surpluses in order to meet the debt target by the end of 1996 or 1998.

Would the required adjustment be more realistic if the seven countries in Table

II.8 and II.9 were only required to move halfway to the debt target of 60% of GDP by 1996 or 1998? Tables II.10 and II.11 provide the answer. The average of the 1991 debt-GDP ratio and 60% is denoted d^* .

While the figures in Tables II.10 and II.11 are clearly less extravagant than their counterparts in Tables II.8 and II.9, the required primary adjustment (comparing the figures in the column below $-s_{91}$ in Table II.11 with those in the columns to its right) is still massive for Italy, Belgium and Greece. Comparing Table II.11 with Table II.5, we also note that the primary surpluses required to get even only halfway to the Maastricht debt target by 1998 is significantly higher than the primary surpluses required to ensure solvency for all seven countries currently exceeding the Maastricht debt norm (Italy (6.1% vs 1.9%), Belgium (8.2% vs 2.5%), Greece (6.9% vs 1.9%), Ireland (5.3% vs 2.0%), the Netherlands (3.2% vs 1.5%), Portugal (2.4% vs 1.2%) and even Denmark (2.4% vs 1.3%)).

We conclude that while especially Greece, Italy, Belgium and Ireland require serious fiscal retrenchment, any attempt to get even halfway to the Maastricht debt targets (and at the latest day) is likely to involve serious fiscal overkill. The blatantly unrealistic debt target clearly is not helpful for these countries in designing effective fiscal programs.

III. THE MAASTRICHT BUDGETARY GUIDELINES: A CRITIQUE.

In this section we use economic theory and econometric empirical evidence to evaluate the pros and cons of the Maastricht budgetary fiscal guidelines in greater detail.²⁰

III.1. ON APPROPRIATE INDICATORS OF GOVERNMENT DEBT AND DEFICIT.

III.1.1. Gross versus net debt.

The debt criterion is defined in terms of the nominal or face value of the *gross* financial debt of the general government ²¹ rather than the economically more relevant *net* non-monetary liabilities of the consolidated general government and central bank sector²². The two concepts differ in four respects.

First, since to a close approximation the *gross* financial debt of the general government differs from the *gross* non-monetary liabilities of the consolidated general government and central bank sector by the amount of the monetary base, in practice the criterion used at Maastricht penalizes the countries that because of historical accident or past policies have a high ratio of monetary base to GDP.²³

Second, general government gross financial assets (even quite readily marketable, liquid financial assets) are not netted out against gross financial liabilities. To consider the importance of this point, we can compare the value of the net debt of the general government (computed by the OECD), which differs from the gross debt by the value of the financial assets (but not the value of the public enterprises and other "real" assets) of the general government. As Table III.1 shows, the differences between net and gross debt can be sizable in several countries. For example, in the Netherlands the gap between the gross and the net debt is equal to 20% of GDP (78% for the gross debt as opposed to 59% for the net debt).

A country could achieve a reduction in its gross debt just by liquidating its financial assets and using the proceeds to redeem part of the gross debt; such a financial operation would leave the net debt unaffected but could significantly reduce the gross debt.

Third, in all European countries the general government owns public enterprises

whose value should be counted in order to get a meaningful measure of the net liabilities of the public sector. Privatization receipts, which should be counted as financing (that is, as equivalent, to a first approximation, to government borrowing), can be used to reduce conventional government debt issues, thus relaxing, under the Maastricht rules, the financial constraints on the government. In the convenient benchmark case where the government sells a state enterprise for its post-privatization market value and where this private market value is equal to its continuation value in the public sector (the present discounted value of its cash flow in the public sector), the correctly measured net worth of the government sector is not altered by the privatization.²⁴

This discussion makes clear that financial engineering through the liquidation of general government financial assets and the privatization of public enterprises can be used to reach the Maastricht debt and deficit targets without there being any real fiscal adjustment. Note that this lowers the effective cost to the government of using privatization to finance public spending, thus creating a bias towards reducing the size of the public sector, inclusive of state enterprises. Even where privatization is desirable for efficiency reasons, it is bad economic policy to do the right (structural) thing for the wrong (financing) reasons, especially when the financial sleight of hand involved can come back to haunt one in the future.

Fourth, Bovenberg [1991] and Bovenberg and Petersen [1991] have pointed out that differences in the way the government finances its pension obligations to its employees can have important implications for its longer-run financial position. The two extremes are on the one hand the Netherlands, whose supplementary civil service pensions are fully funded, and on the other hand Germany and France, where there is no funding of public sector pensions of any magnitude. Social security pensions tend to be fully unfunded throughout the EC.

Most countries make pension scheme premiums tax deductible while benefits are

taxable. A few, however, have non-deductible premiums and non-taxable benefits. Other things being equal, the postponement of taxes under the first scheme relative to the second scheme, amounts to a loan by the government to the pension funds and its contributors. To make the financial position of two countries operating under the two different tax systems comparable, the value of the implicit loan could be subtracted from the conventionally measured public debt.

After correcting for differences in funding practice of public sector pensions and social security pensions and in the tax treatment of pension fund premiums and benefits, the corrected general government debt of the Netherlands amounts to 33 percent of GDP in 1989 (against an uncorrected figure of 80 percent of GDP). Germany moves from an uncorrected figure of 43 percent of GDP to a corrected figure of 38 percent, France from 47 percent to 45 percent and the UK from 39 percent to 3 percent!

III.1.2. The nominal deficit guideline.

The Maastricht deficit guideline refers to the nominal, cum interest, overall (current and capital) fiscal balance of the general government. This does not appear to be a desirable fiscal target or constraint.

III.1.2a Inflation differentials.

The authors of the Maastricht Treaty seem unconcerned about and/or unaware of the distinction between nominal and real interest rates. A large component of interest payments in several EC countries represents a purely nominal rather than a real interest burden. Therefore, a fiscal guideline based on nominal cum interest deficits is not very appealing as long as inflation rates among the EC countries are not equalized. Note that the inflation convergence criterion permits a country to exceed the average inflation rate of the lowest three inflation countries by 1.5 percent per annum and still

to qualify for participation in EMU. We can expect that, if and when the member states of the EC have a common currency, there will be no sizable permanent national or regional differences in inflation rates.²⁵ Until we get to that point, however, there are likely to be differences that should be allowed for in the any deficit criterion.

III.1.2b Real growth differentials.

Historically, growth rates of real GDP have differed significantly among EC members. Convergence in growth rates of real GDP is also not one of the Maastricht criteria. Quite the opposite in fact applies: economic and social solidarity will require the real growth rates of the poorer members of the Community to exceed those of the richer ones for decades to come. The debt to GDP ratio stabilizing budget deficit is of course different for countries with different growth rates of real output. Countries with a higher growth rate of real GDP can *ceteris paribus* safely support a higher deficit-GDP ratio.

III.1.3. Tax-smoothing and Keynesian arguments in favor of countercyclical budget deficits.

A correct interpretation of the deficit guideline is crucial in assessing how rigidly the deficit ceiling will be applied. There are many positive and normative reasons why fiscal deficits would emerge during recessions. First, automatic stabilizers are at work. Many major areas of public spending (e.g. unemployment compensation, social welfare expenditure, early retirement benefits, job retraining and subsidies for ailing firms) are inherently counter-cyclical, so that portions of government spending tend to rise automatically during recessions, while tax revenues linked to the level of economic activity fall.

Moreover, both Keynesian and neoclassical (tax-smoothing) models of fiscal deficits suggests the optimality of deficit spending during recessions. The neoclassical theory of

the optimal use of distortionary taxes suggests that temporary (exogenous) increases in expenditures and temporary (exogenous) reductions in the tax base should be reflected in temporary government deficits and permanently higher tax rates. In a Keynesian framework, the operation of automatic stabilizers is often reinforced by discretionary demand management intervention.

Does Maastricht allow for counter-cyclical deficit spending ? At best, the wording of the Treaty is ambiguous on whether recurrent fiscal deficits due to cyclical downturns in excess of the reference value would be allowed. The Protocol states that a deficit in excess of 3% might be allowed if it "is only exceptional and temporary and the ratio remains close to the reference value". While the concepts of temporary and exceptional are vague, one interpretation of this wording is that deficits in excess of 3% due to cyclical factors such a recession might not be deemed excessive. This interpretation is supported by the Article 104c reference to the "medium term...budgetary position of the Member State" as being relevant to the assessment of the existence of excessive deficits. On the other hand, Article 104c specifies that the deficit excess should be "exceptional" as well as "temporary"; the stress on the "exceptional" suggests an interpretation where regular deficits in excess of 3 percent of GDP due to cyclical factors might not be considered acceptable.²⁶

III.1.4. The Golden Rule of public sector investment.

The Treaty refers, without mentioning it by name, to the "golden rule" of government financing: balance the current budget and borrow no more than the amount of gross public sector capital formation. The German negotiators were (for domestic constitutional reasons) especially keen on this rule for virtuous borrowing.

The practical problems associated with any attempt to distinguish consumption spending from investment are well known. "Current" expenditures on education, such as teachers' salaries are an obvious example. Even if that problem is solved, the

"golden rule" for financing government expenditure makes no economic sense and can lead to bad policy choices.

First, there is nothing intrinsically wrong with borrowing to finance public consumption expenditures, even if we ignore tax-smoothing arguments and possible Keynesian benefits from government borrowing in economies with widespread capacity underutilization. The permanent income and life cycle hypotheses have formalized the insight that it is desirable to smooth consumption over time and across states of nature when current income streams are variable and/or uncertain. While consumption smoothing in the face of a temporary decline in income can of course be achieved without borrowing (by running down a positive stock of (financial) wealth that has been accumulated for that purpose), it may, at certain times and for some economic agents, be better to smooth consumption by varying one's financial liabilities. As long as the borrower realizes that, *ceteris paribus*, future consumption will have to decline in present value by as much as current consumption increases, there is no *prima facie* reason to second guess his intertemporal choices and forbid consumption loans. An obvious exception to this *laissez faire* attitude would have to be made if there is convincing evidence that market failure has resulted in saving rates lower than the social optimum.

Second, many socially useful and desirable government investment projects do not, either directly (say, through user fees) or indirectly (say, by boosting the productivity of the private economy and thus the tax base) increase the future balance of government receipts over non-interest expenditures by an amount at least equal in present discounted value to the cost of these projects. In that case financing by borrowing must sooner or later be supplemented by policies to raise revenues or cut other non-interest expenditures to make up the shortfall. Unlike a private firm, a government will often knowingly engage in investment projects whose returns need not (exclusively) take the form of enhanced future cash flow for the government. The

social rate of return on a government investment project need bear no relation to its total (direct and indirect) effect on the government's future cash flow²⁷. To the extent that the government does not appropriate the social returns to public sector investment, naive application of the "golden rule" of public sector financing may be a recipe for weakening the public sector balance sheet that can ultimately lead to insolvency, even if the social rate of return is at least equal to the government's cost of borrowing.

III.2. SHORT-RUN AND LONG-RUN EFFECTS OF A FISCAL CONTRACTION IN THE EC.

Maastricht elevates a number slightly below the current EC average debt-GDP ratio to *one-sided* or *asymmetric* debt norm (values above the norm are frowned upon, values below the norm are not). A number significantly below the current EC average deficit-GDP ratio is likewise made into a *one-sided* or *asymmetric* deficit norm. If pursuit of these norms is taken seriously over the next few years, fiscal policy in the EC will be subject to a contractionary bias. There is no mention in the Treaty of the need for a less restrictive average stance of monetary policy to compensate for this contractionary fiscal bias.

Rather little is known empirically about the long-run effects on the level and growth rate of real output of a fiscal contraction. If the fiscal contraction takes the form of a cut in productive public expenditure (such as public sector investment that is not a close substitute for private capital formation) the effects on the long-run output level and (in endogenous growth models) output growth rates may well be negative. The Maastricht Treaty tries to guard against this by being more lenient about borrowing to finance public sector investment.

A permanent cut in public sector consumption would, in the simple representative agent model, simply boost private consumption one-for-one, with no effect on private capital formation. In most other standard models, (such as OLG models) there are

positive effects on private investment (and thus on the long-run level and perhaps growth rate of real GDP) from cuts in public consumption spending.

Fiscal contraction through tax increases or through cuts in transfer payments and subsidies will have long-run effects on the level and growth rate of output that are very specific to the precise instrument chosen (think of an increase in the corporate profits tax versus a cut in unemployment benefits).

The short-run effect on economic activity of public spending cuts or tax increases works mainly through aggregate demand acting on output and employment because of short-run rigidities in money prices and wages and the presence of liquidity constrained economic agents. A standard model (the Dornbusch version of the Mundell-Fleming model) has a negative effect on aggregate demand of an unexpected, immediately implemented fiscal contraction. The depreciation of the nominal and real exchange rate and, in a large economy, the decline in interest rates caused by the fiscal contraction mitigate but do not negate completely the negative effect on output and employment. In other words, government borrowing crowds out private borrowing, but less than one-for-one.

Taking Maastricht seriously would in all likelihood lead to a multi-year sequence of tax increases and spending cuts for the EC as a whole. The standard model also has the property that the *current* effect of anticipated *future* fiscal tightening is expansionary. Today's long interest rate falls and today's exchange rate depreciates, in response to the anticipated decline in future short interest rates associated with the future fiscal contraction. As the future materializes, of course, the expansionary announcement effects wear off and the contractionary effects of concurrent fiscal retrenchment dominate.

The announcement of a sequence of fiscal tightening, beginning immediately, would be expansionary only if the scale of the spending cuts and tax increases were to increase over time. It therefore seems likely that the impact effect on the level of

economic activity of attempts to satisfy the Maastricht criteria will be negative. Three independent model simulations by the OECD (Englander and Egebo [1992]) using INTERLINK, by Giovannini and McKibbin [1992] using the MSG model and by the IMF (in a confidential study), support this conclusion, although the quantitative magnitudes involved differ considerably.

A key problem in evaluating the consequences of attempts to satisfy the Maastricht criteria is the specification of the base-line or reference scenario, that is, the counterfactual to the pursuit of the fiscal norms of EMU. It clearly would make no sense to assume that, absent Maastricht, the 12 EC members (or the 11 pre September 1992 ERM members) would, until end-1996 or end-1998, simply maintain their current deficit-GDP ratios (or even their cyclically adjusted or structural deficit-GDP ratios). With or without EMU, Italy should (and in all probability would) take steps to reduce its fiscal imbalance. The same is true for Greece and to a lesser extent, also for Belgium, the Netherlands, Portugal and Spain.²⁸

Recent press reports have referred to a confidential IMF study on the economic effects of Maastricht. On the basis of such press reports and a press release by the French government ²⁹ the following results can be inferred. The medium-term (1992-1996) IMF simulations assume for the reference scenario that primary budget deficit-GDP ratios are held constant from 1992 on.³⁰ Two alternative "Maastricht scenarios" are considered. Both scenarios show the consequences of the gradual implementation of policy measures to achieve, by 1996, the required degree of convergence of budget deficits and inflation rates, but not necessarily of the debt-GDP ratios. Scenario I (Convergence with Risk Premium Adjustment) assumes that the process of convergence gradually eliminates the risks of nonparticipation in stage 3 of EMU and thus removes the interest differential between Germany and the other EMU members. Scenario II (Convergence without Risk Premium Adjustment) assumes that despite the fiscal and inflation convergence, the interest differential between Germany

and the rest persists at its 1992 level.³¹

Not surprisingly, the result is a deeper contraction in Scenario II (sans credibility) than in Scenario I (mit credibility). For the EC as a whole, the cumulative output loss relative to the reference scenario over the period 1992-96 is 0.4 percent (of the 1992 level) in Scenario I and 0.8 percent in Scenario II.³² Output growth rates are above their reference levels before the end of the period in Scenario I. The negative output effects are concentrated overwhelmingly in Italy, especially in Scenario 2 where a cumulative output loss of over 2% is incurred.^{33 34}

Englander and Egebo [1992] take as their base-line or reference path the OECD secretariat 1993 projections, which already contain short-term tightening of budgetary policies and disinflationary monetary policies in line with the stated medium-term objectives of national policy makers.³⁵ While Englander and Egebo report precious little quantitative information about their simulation (no information at all is given about real GDP and only graphical information is provided about unemployment) their findings appear consistent with the IMF simulations.

First, the extent to which the fiscal cut backs are contractionary depends to a large extent on the fiscal- monetary policy mix adopted by Germany. Tighter fiscal policy and looser monetary policy in Germany minimize the output and unemployment cost of achieving the Maastricht deficit and inflation criteria.³⁶

Second, for countries requiring major deficit reductions, the effect on economic activity is negative, despite the interest rate reductions. The unemployment rate in Italy rises to almost 12 percent by the end of 1996 (more than 2 percentage points above base line), while the Spanish unemployment rate reaches 16 percent in 1996, about 1.5 percentage points above base line. The impact on Denmark, Ireland, France and the UK, countries whose required adjustments are minor, are small. Belgium goes through a large transitional increase in unemployment. The simulated impacts on debt-GDP ratios are rather small, despite the sometimes large reductions in

deficit-GDP ratios.³⁷ Finally, external spillovers beyond the EC are very modest.³⁸

Giovannini and McKibbin [1992] report qualitatively similar findings for the EC countries, although the magnitudes involved are rather more dramatic.³⁹ The base line has fiscal deficit-GDP ratios in Europe at their 1991 levels "for the foreseeable future". Inflation converges to the German rate by 1996 due to the constraints imposed by the EMS. The Maastricht scenario has each country with a fiscal deficit above 3% of GDP target at 3% of GDP by 1996.⁴⁰

In the Maastricht scenario, Italy gets slaughtered. On impact output falls by about 11 percent relative to base line. While the recovery is rather swift, even by 1996 output is still almost 1 percent below base line. The proximate cause of this recession is a very large increase in real interest rates. The culprit is the large reduction in inflation (by more than 7 percent in 1992), the counterpart of the very deep recession.⁴¹ Outside Italy, relative little happens, although Germany, with contractionary monetary and fiscal policy, experiences a mild recession.

Our own view is that the output and unemployment costs of Maastricht are likely to be somewhere between the excessively low estimates of the IMF (and the OECD) and the implausibly high numbers of Giovannini and McKibbin.

It is worth noting that, while the three simulation studies did place the Maastricht policy experiment in a global context, the average monetary-fiscal policy mix for the Community as a whole in relation to the monetary-fiscal policy mixes in North America and Japan appears not to have been a concern to the authors of the Treaty, which maintains an inward-looking silence on this issue.

III.3. PROS AND CONS OF VAGUENESS IN THE APPLICATION OF THE MAASTRICHT FISCAL CRITERIA.

In defense of the Maastricht guidelines, it is often argued that the two reference values for deficits and debt will not be applied strictly, that all sorts of caveats

(discussed above) would be taken into consideration and that a country whose deficit and/or debt exceed the reference values may not be found to have "excessive" deficits as long as it has made steady and substantial efforts in getting close(r) to them. It should also be noted, however, that another implication of the vagueness in the wording of the Treaty is that irrelevant or inappropriate political considerations are likely to play a role in the assessment of whether the fiscal convergence criteria have been met.

A number of strategic issues come to mind. Suppose, for instance, that a country like Italy would be allowed to join EMU, having reduced its deficit from 11% to a level somewhat above the 3% reference value (4% of GDP for example) and having reduced its debt to GDP ratio slowly but continuously by late 1996 or 1998. Permission to join might be considered a reasonable and likely reward for such a continuous and significant adjustment of the deficit and debt ratios.

Suppose, moreover, that a different country, for example Denmark, with a deficit in 1992 close to 6.0% of GDP, were to make a much smaller fiscal adjustment and also reduced its deficit to 4% of GDP by the EMU deadline. Should Denmark then be excluded from EMU in spite of having a deficit equal to the Italian one and a debt to GDP ratio much smaller than the Italian one (61% of GDP against the Italian 107% in 1992), simply because of its lack of significant and continuous fiscal adjustment ? Or should it be allowed to join because of its better overall fiscal and debt position, reflecting Denmark's earlier fiscal retrenchment in the 1980s?

More generally, should countries like Denmark, Belgium and Ireland, that did much of their "continuous and significant" fiscal adjustment during the 1980s be treated more or less leniently than countries (like Italy and Greece) that will make most of their adjustment in the 1990s at the earliest? And how would the incentives for fiscal retrenchment by countries such as Denmark be affected by the knowledge that they might satisfy the fiscal criteria as long as their deficit and debt ratio values are no higher than those of a country like Italy ? Finally, how would the incentives of

countries like Italy be affected by the knowledge that the reference values are not strict and that other countries might also decide their adjustment effort on the basis of the effort undertaken by a country like Italy ?

III.4. THE RELATION OF THE FISCAL CRITERIA TO THE OTHER CONVERGENCE CRITERIA.

The budgetary norms are neither necessary, nor sufficient, nor necessarily useful for satisfying the other convergence criteria in the Treaty of Maastricht. We have already discussed how the fiscal convergence criteria for joining EMU are linked to the other convergence criteria, concerning the inflation rate, the interest rate and the exchange rate.

Since the interest rate criterion is worded with reference to the interest rates of the three member states that have the lowest inflation rates (rather than with reference to the interest rates of the three member states with the lowest interest rates), there could, in principle, be room for strategic behavior by member states. For example, the public debt of a country with falling but still high debt and deficit ratios might carry a large international interest differential, reflecting both expectations of exchange rate depreciation and sovereign default risk. In that case, the country would have a strong incentive to be a very low inflation country because its low inflation would then be used to define the interest rate criterion.

The interest rate criterion may well be hard to satisfy, even for a low inflation country. Interest rate differentials might persist because of risk premia reflecting the market's perception of the odds that a country will not be allowed to join EMU (and will therefore remain subject to devaluation risk) because of insufficient (albeit steady) fiscal adjustment. One could envisage self-fulfilling equilibria with a country being excluded from EMU on the basis of the fiscal and interest rate criteria, despite a significant reduction in its primary deficit, because nominal interest rates have remained

high (reflecting currency realignment risk) and have caused larger interest-inclusive financial deficits. While the 2% spread in rates allowed by the interest rate criterion leaves some flexibility and implicitly recognizes the possibility of still wide interest differentials, such scenarios cannot be dismissed.

III.5. WHAT ARE THE EXTERNALITIES OF "EXCESSIVE DEFICITS"?

Assuming that a bias towards "excessive" deficits exists, what is the nature of the negative externalities that an excessive deficit in one country imposes on the other EC countries ? As mentioned in Section I, three kinds of externalities have been appealed to as justifications for the fiscal rules: (a) fiscal bail-out externalities; (b) monetary bail-out externalities and (c) interest rate, exchange rate or effective demand externalities, that is, international spillovers through market prices and the level of economic activity.

III.5.1. The fiscal bail-out argument.

This argument suggests that excessive deficits by a the government of a member country might eventually lead to an unsustainable debt position and to a solvency crisis that will force the member countries into a fiscal "bail-out" of the deviant country, that is a net transfer from solvent to insolvent governments.

Germany has been especially concerned about this bail-out risk and has insisted on the introduction of language in the Treaty stressing that neither the Community agencies nor the member states are under any obligation to bail out insolvent member states. The "no bail-out principle" is stated clearly in Article 104b of the Treaty: if a member country fails to service its debt, there will be no bail-out by the Community or by other member states; the defaulting member country and its creditors will bear the consequences of such a fiscal crisis.

Underlying the fiscal bail-out argument are two assumptions. The first is that

private markets are not going to offer effective discipline against deviant fiscal behavior. The second is that the no bail-out clause of the Treaty (Article 104b) is likely to be ineffective and needs backing up with a rule that, if enforced, will make the no bail-out clause moot, because no default will ever occur.

As regards the first of these propositions, it is frequently argued that with a fixed exchange rate (and a fortiori with a common currency), national governments that issue debt denominated in the common currency will not be subject to effective discipline and restraint by the financial markets. This argument has rather little going for it.

Assume that EMU is a fact and that a common currency (the ECU) has been adopted. If, for instance, the German government, unwilling to face paying the fiscal price of German unification, were to continue issuing large amounts of debt (now denominated in ECUs), it would in due course have to pay a growing sovereign risk premium in its ECU interest rate. In addition, and more important in practice, it would sooner or later encounter credit rationing. It would be unable to sell debt in any currency and at any rate of interest.

The disappearance of the national currency implies that exchange rate risk or currency risk disappears as a source of national interest differentials. Other forms of risk (especially sovereign default risk) will continue to be priced in the market and to be reflected in quantitative constraints on borrowing. These sovereign risk premia should be incurred only by the deviant countries through an increase in their country risk premium, but should not affect the interest rates of other Community borrowers.

It has been argued that market discipline through higher interest rates for countries following undisciplined fiscal policies might not work if financial markets are not very good in assessing the default risk of a deviant country (see Goldstein and Woglom [1992] for evidence on risk premia in the US municipal bond market). However, if the probability of a fiscal bail-out is close to zero and if the European central bank is credibly committed to price stability, imperfections in the capital

market that lead to weak market discipline should be of no concern to the Community since there is no reason why these imperfections will affect Community-wide interest rates. Specifically, if a fiscal crisis and default does not lead to external effects the costs of these market imperfections will be borne only by the defaulting country and its creditors.

For the proper functioning of the national and international credit markets it is necessary that the member states of the EMU (and the supranational organs of the Community) make it absolutely clear and credible, that national debt is and remains the exclusive obligation and responsibility of the national government in question and of those who, now or in the future, pay taxes to this government. This is exactly the purpose of the "no bail-out clause" ⁴². The same is of course true without EMU and without a common currency. Whether or not such a formal commitment against debt bail outs can be made credible is a practical political issue. Experience shows that this is not difficult in practice. For instance, in the US this has long been the case for the debt of individual states and of local government units.⁴³

Some observers have argued that, regardless of formal or informal statements about a "no bail-out" rule, the Community would be hard-pressed not to intervene and support a member country whose excessive deficits had brought it to a financial crisis with serious risk of default. The very idea of an economic, monetary and political union, so the argument goes, implies a degree of 'solidarity' or 'cohesion' that would imply some form of support in case of a fiscal crisis. The presence of an explicit no bail-out clause in the Treaty, however, suggests that this extension of the concept of solidarity was not what the authors of the Treaty had in mind. In any case, solidarity or cohesion considerations suggest aid from the rich to the poor, not from the fiscally sound to the fiscally unsound.

We also see little reason to believe that intra-Community international solidarity will be strengthened by EMU, or that EMU will strengthen the bargaining power of

debtor governments vis-a-vis creditor governments. What, after all, can post-EMU debtor governments threaten creditor governments with that they cannot already threaten them with today? That they would abandon EMU and restore their national currencies? How does this threaten creditor governments? That they would default or some or all of their internally or externally held debt? That option is equally available with or without a common currency, and the costs to the defaulter are well-known.⁴⁴

The hub of the fiscal externality argument is that a national government debt default may have adverse *systemic* effects, say for the functioning of the community-wide financial system (or for a key part of it like the banking system or the payments system). If the scale of the default is large and if a significant share of the defaulting government's debt is held by private institutions (such as commercial banks and other deposit-taking institutions) that are vulnerable to sudden "runs", that is, to demands for immediate conversion of their liabilities into cash, a financial panic and liquidity crisis could result. While the contagion and bandwagon effects that propagate such confidence crises are not very well understood (but see Diamond and Dybvig [1983] and Eaton [1987] for informative analytical approaches to the issue), experience teaches us that they can cause serious damage. Note, however, that the damage can be limited through cooperative action by the national governments of the other Community members and the supranational bodies. Such concerted support need not imply, *de jure* or *de facto*, that the defaulting government is relieved of its debt burden. Consider, for instance, the case where a large chunk of the defaulting national government's debt is held by that nation's banking system (or indeed by another member country's banking system)⁴⁵. The European System of Central Banks (ESCB) and the European Central Bank (ECB) can play the "lender of last resort" function without "taking over" the debt of the defaulting government and without raising the trend rate of growth of the nominal money stock in the EC as a whole. Moral hazard problems can be avoided by making sure that policy of safeguarding the payments

system ('saving the banks') goes hand-in-hand with the realization of appropriate losses by those owning equity in the banks and with the dismissal of the banks' managers.

III.5.2. The monetary bail-out argument.

The second half of the bail-out argument is that the fiscal norms are necessary to render it impossible (or at any rate unlikely) that the new ESCB will effectively be forced to monetize the budget deficits of countries without fiscal discipline. This can be viewed as a special case of the general fiscal bail-out argument, with the ESCB acting as the fiscal agent in the transfer to the defaulting debtor government. Fear that a fiscal and financial crisis in one EC country could spread to other countries (whether through psychological bandwagon and contagion effects or through portfolio exposure) might force the future European Central Bank to inject excessive liquidity in the EC area and thus to create monetary and price instability.

The possibility that a fiscal crisis in a member country might lead to an indirect bail-out through a debt monetization on the part of the European central bank is unlikely. The Maastricht Treaty is very clear about the principle of the "independence" of the European central bank, the primacy of the objective of "price stability" and the elimination of any privileged financing of the deficits by the country's central bank.

The formal independence of the proposed ESCB and ECB vis à vis the governments of the member states and the supranational authorities of the European Communities is greater even than the formal independence of the Bundesbank today. This holds for the appointment procedures for members of the Executive Board and Governing Council and for the absolute ban on overdrafts and other credit facilities with the ESCB and ECB for all EC, national, regional, local and other public authorities. The ban on direct purchases of government debt instruments by the ESCB

is of course only cosmetic, since "indirect" purchases (that is all purchases of debt instruments in the secondary markets) are permitted.

The one major formal blot on the ESCB independence banner is the vague and confusing verbiage in the Treaty concerning the powers of the Council of Ministers over the common external exchange rate (Article 109). Substantive central bank independence requires that the central bank be in charge of exchange rate policy. If the Council of Ministers were to have power over exchange rate determination, or even just power to choose the broad outline of the exchange rate regime (fixed versus managed floating etc.), then the independence of the ESCB would be seriously undermined. Would the Council of Ministers, for instance, have the authority to decide that the value of the ECU should be fixed in terms of some basket of non-ECU currencies? If the answer is "yes", the independence of the ESCB would be vacuous, as it would no longer be able to pursue price stability as it saw fit, except to the extent that the ESCB could assume a leadership role vis-à-vis the central banks of the rest of the world, just like the Bundesbank has today within the EMS.⁴⁶

Even if a central bank is *formally* completely independent of the executive and legislative powers, it remains possible that its *effective* or *substantive* independence is severely restricted by other agents (such as the ministry of finance) who can maneuver it into a position where its domain of choice is very limited. While this is in principle a possibility with the ESCB, it will not be relevant in practice because after EMU any national fiscal authority will be in a considerably weaker position vis à vis the new ESCB, than it is today vis à vis its own national central bank. The ESCB will be (to an even greater degree than the Bundesbank is today) the "leader" in the monetary-fiscal game of chicken (see Sargent [1986, pp. 19-39]) at least until the supranational executive and legislative institutions of the EC are as strong relative to the ESCB as today's national Treasuries and Legislatures are in relation to their national central banks.

III.5.3. International spillovers with solvent governments.

Another class of arguments suggesting the need for internationally agreed rules for fiscal discipline is based on international spillovers of economic policy, and specifically on interest rate, exchange rate and activity externalities, that are present even when there is no risk of government default. Since the spending and financing decisions of even fully solvent governments spill over into other countries (through integrated credit markets, goods markets and factor markets) in ways that are not fully taken into account and valued by national governments, uncoordinated national fiscal policies might lead to spending levels and/or fiscal deficits that are suboptimal and beggar-thy-neighbor.

One often hears references to the "external effects" of government budget deficits (see e.g. Bovenberg et. al. [1991] and Commission of the European Communities [1991]). If, for instance, the German government finances its deficit in the capital markets, this will *ceteris paribus* raise real interest rates in Germany and in all countries tied to Germany through efficient capital markets ⁴⁷. From this premise, which is non-controversial (unless one is a believer in Ricardian equivalence) it is then inferred that such negative external effects must be opposed and, if possible, avoided altogether. Both the designation "external effects" and the characterization "negative" require further scrutiny.

When Bonzo increases his purchases of bananas in a competitive market with an upward-sloping banana supply schedule, the price of bananas will rise. This is good news for all those who are long in bananas (net banana exporters) and bad news for all those who are short in bananas (net banana importers). The increase in the price of bananas is exactly what ought to happen if the market system is to do its job of allocating resources efficiently. The price increase inflicted by Bonzo on other banana buyers and sellers is what economists call a **pecuniary externality**. It is to be

distinguished sharply from **technological externalities**, effects of one agent's actions on the consumptions sets, utility functions or production functions of other agents for which no appropriate price is charged. In complete competitive markets, no adverse efficiency consequences are associated with pecuniary externalities. They are merely another word for general market interdependence. As is clear from the banana example, the price changes will have distributional consequences. If these are undesirable, policy makers are free to do something about that with the most effective redistribution instruments at their disposal⁴⁸.

Deficit financing has two important distributional consequences. First, by borrowing instead of covering its expenditures with current taxes, the government engages, holding all else constant, in intergenerational redistribution.⁴⁹ Second, the reduction in total (private plus public) saving that results from the substitution of borrowing for tax financing at given real interest rates, will put upward pressure on real interest rates and also, in all likelihood, cause an appreciation of the real exchange rate and an increase in the external terms of trade. Thus, when a government finances a deficit in the capital markets and interest rates rise, this is good news for creditors everywhere and bad news for debtors everywhere⁵⁰. It is also good news for net exporters and bad news for net importers. If this form of redistribution is undesirable, governments are free to respond appropriately. It is extremely unlikely that the best way to achieve the desired redistribution is by forbidding budget deficits or debts above a certain level. Note that it is also quite irrelevant whether the deficits under consideration finance public consumption or productive public investment.

There are theoretical arguments, for the international coordination, on efficiency grounds, of virtually every aspect of budgetary policy. With very limited exceptions, however, the need for coordination does not arise with respect to government deficit and government debt. When the economy has "pre-existing" distortions, or when the instruments the government manipulates in the pursue of national advantage create

inefficiencies or distortions, an efficiency-based case for fiscal coordination may exist. Among the pre-existing distortions that may make policy transmission through market prices inefficient are: distortionary taxes and transfers⁵¹; technological consumption or production externalities; non-competitive behavior; incomplete markets; and Keynesian market failure reflecting insufficient or excessive effective demand (the practical problems of productive international coordination are an important subject in their own right, which cannot be addressed here). However, even in these cases, the need for fiscal policy coordination almost never requires limits to government deficits and debt. For example, non-cooperative equilibria of a multi-country fiscal game in a Keynesian model, which are Pareto-inefficient, might be characterized by either excessive or insufficient government contributions to aggregate demand, depending on the nature of the international spillovers and the relative weights put by the policy makers on different objectives.

An argument can in principle be made for internationally agreed limits on public borrowing when taxes are distortionary. In this case, the increase in a nation's public sector deficit has real external effects on other countries if their governments have positive stocks of debt outstanding. Higher world interest rates increase the foreign governments' real interest bills, which have to be serviced by distortionary taxation (Canzoneri and Diba [1991]).

International effective demand spillovers from government deficit financing when labor and product markets are in non-Walrasian equilibrium and credit market imperfections generate multiplier effects also blur the distinction between pecuniary and technological externalities, but there is no general presumption that such spillovers imply that deficits are excessive rather than insufficient. The effective demand spillover argument is of course not restricted to the case of deficit financing and would apply equally to balanced-budget variations in public spending.

On balance, it seems fair to say that no convincing efficiency-based theoretical

case has been made for a supranational coordination mechanism such as the Maastricht fiscal norms. There already is an international coordination mechanism, the international financial markets. It is ironic that Brussels insists on encumbering with international quantitative norms the one corner of budgetary policy where there exists virtually no efficiency case for international coordination. Conversely, the Treaty says nothing about fiscal issues that do require international coordination or supranational regulation such as the provision of local, regional, national and EC-wide public goods, tax competition and fiscal federalism.

Is it perhaps appropriate to set norms cooperatively in Europe for reasons of intergenerational redistribution or for redistribution between creditors and debtors (or between exporters and importers), when deficit financing changes intertemporal relative prices (or static international relative prices)? We are not aware that this has been the subject of intergovernmental discussion at the EC level. Indeed, there is little or no consensus on these issues within national economies. These distributional questions are therefore quite different from the issue of solidarity between richer and poorer regions in the EC that has found expression in the structural funds and the cohesion fund.

Apart from the foregoing theoretical critiques of the externality arguments, it appears that from an empirical point of view also too much attention has been given to arguments suggesting a need for fiscal coordination on the basis of economic externalities and international spillovers of non-cooperative fiscal policies. We would argue that the estimated size of these spillover effects is small enough and the ambiguity about their sign large enough, to render it very unlikely that a systematic bias towards excessive deficits might result from such externalities.

For what concerns the size of the international spillovers from fiscal policy in the EC, the available evidence suggests that these are going to be small since the typical European country (with an important exception for the case of Germany) is too small

to affect world interest rates or economic activity in other European countries. Both the economic models used by the Community for fiscal policy simulation exercises (the MULTIMOD model and the QUEST model) and other models (such as the variant of the MSG model developed in Roubini [1991]) imply that under the ERM the output and interest rate effects of a fiscal expansion are confined mostly to the originating EC country and that the international spillover effects will be insignificant. For example, the MULTIMOD model used by the Commission to analyze the benefits and cost of monetary union (see Commission of the European Communities [1990]) implies that, under a full EMU monetary regime, the first year effect of an increase in government expenditures in France equal to 1% of French GDP will be 0.80% of GDP in France but insignificant in the other EC countries (-0.08 in Germany, -0.04% in Italy and -0.05% in the U.K.). While the French fiscal policy has a beggar-thy-neighbor effect on the other EC countries' output, the size of the effect is so insignificant that it should be of little concern to France's European partners. Moreover, the simulation results suggest that while the output effects might be marginally beggar-thy-neighbor, the spillover of fiscal policy on foreign inflation is negative (i.e. a fiscal expansion reduces inflation in the partner countries). Similar results to those of France are obtained for the other EC countries other than Germany.

Four further points should be made about international fiscal spillovers. First, in addition to being small, the spillover effects of fiscal policy are also uncertain: a number of econometric and simulation models (such as those used in the comparative Brookings study by Bryant et al.[1990]) suggest that even the sign of the spillover effect is likely to be ambiguous. Second, since the spillover may be positive or negative depending on which variable and which model one considers, it is not possible to determine a priori whether non-cooperative fiscal policies will lead to excessive fiscal deficits rather than to excessive surpluses. Third, the simulation exercises usually imply that the original fiscal expansion is matched some time down the line by an

increase in taxes that guarantees the solvency of the government. Non-cooperative fiscal policy in these exercises therefore cannot, by construction, lead to permanent "excessive" fiscal deficits since the intertemporal budget constraint of the government has to be satisfied in the long run.

Fourth, and most important, Germany is the only European country large enough to cause significant international fiscal spillovers. This is reinforced by its leadership role in the ERM which effectively requires it, unlike the other ERM members, to sterilize international reserve flows. In this regard, the econometric results derived in model used by the Commission to analyze the benefits and costs of monetary union (see Commission of the European Communities [1990]) need to be considered carefully. Such simulations suggest that, under a fully cooperative and symmetric EMU monetary regime, the first year effect of an increase in government expenditures in Germany equal to 1% of German GDP will be 0.80% of GDP in Germany but essentially equal to zero in France, Italy and the in the U.K. Under the hypotheses of the model, trade and interest rate linkages offset each other almost completely.

What explains these results is that a fiscal expansion in Germany is complemented with a significant monetary expansion by the Bundesbank and some monetary contraction by the other ERM members, in order to maintain exchange rate parities within the ERM. In the more realistic case of an asymmetric EMS or EMU where the burden of pegging the exchange rate is not carried by the leader country (Germany) but rather by the followers (the other ERM members), a fiscal expansion in Germany, unaccompanied by a German monetary expansion, would put pressure on the nominal and real exchange rates, lead to an increase EC interest rates and force all the other EMS countries to contract monetary policy in order to peg their ERM parities.⁵² In this case, German fiscal expansion causes a recession in all other ERM countries.

According to the MULTIMOD model, a German fiscal expansion of 2% of GDP could lead, in the first year, to a 1% increase in German GDP and a fall in French,

Italian and British GDP equal to 0.25% of GDP. Even stronger effects are found by Roubini [1991], using a variant of the MSG simulation model: in an asymmetric EMS, a permanent German fiscal expansion equal to 1% of GDP reduces GDP in the other ERM countries by over 1% of GDP in the first year; after five years, the other ERM countries' output is still 0.5% below the baseline. Similarly, in an asymmetric EMU, a monetary contraction by the leader (Germany) forces the other ERM countries to contract their money supplies in order to maintain their ERM parities. This monetary contraction, in turn, leads to a transitory output fall in all ERM countries. In the simulations by Roubini [1991], a permanent German monetary contraction equal to 1% reduces GDP in the other ERM countries by an average of 0.8% of GDP in the first year as they contract their money supplies to peg their parities with the Deutsche Mark; this output contraction is transitory and disappears after about seven years.

Since the recent German macroeconomic policy mix has been characterized by a significant fiscal expansion accompanied by a monetary contraction aimed at preventing excessive inflation, the ensuing rise in nominal and real interest rates put significant pressure on the ERM exchange rates. Given the asymmetric nature of the present ERM regime, where the leader has not been willing to loosen its monetary policy in order to take the pressure off the ERM parities, the German policy mix has inflicted serious output and unemployment costs on all ERM members.

However, for ERM countries other than Germany, the evidence suggests that externalities due to non-cooperative fiscal policy cannot explain why there should be a systematic bias towards "excessive" deficits nor why the Community should be concerned about these "externalities".

III.6. A BIAS TOWARDS "EXCESSIVE" DEFICITS WITHOUT INTERNATIONAL EXTERNALITIES?

III.6.1. Politically motivated fiscal deficits.

Explanations of "excessive" deficits based on international economic externalities (whether efficiency-related or distributional) are unsatisfactory. It then follows that, if a structural bias towards "excessive deficits" exists, there must be some **political distortion** that leads some governments, even in a closed economy, to follow systematic policies of fiscal deficits in excess of what can be considered economically optimal. One could then attempt to rationalize the EC rules for fiscal constraint with the idea that discretionary fiscal policy leads to politically motivated "excessive" deficits.

In the absence of significant international spillovers, however, such politically motivated excessive national government deficits would not require international coordination through a centrally determined, monitored and enforced set of uniform fiscal norms. Each nation could separately legislate and enact nation-specific rules restricting its government's ability to borrow. Only if, despite the absence of significant international externalities, a foreign or supranational agency is able to impose and enforce rules that the individual nation cannot impose on itself, would there be a case for Maastricht-like fiscal rules. Even then, one would not expect to find that the rule specifies the same two numbers for all member states.

In general, the empirical evidence is consistent with the view that such a bias towards deficits exists in a number of countries. For example, the formal tests discussed in Section II of this paper show that the path of fiscal policy followed by a few EC countries might not be consistent with long term solvency of their public sector. Similarly, the existence of large primary gaps in a number of countries suggests that a change in the present path of fiscal policies will be required to avoid persistent

(and eventually unsustainable) increases in debt ratios.⁵³

What can therefore explain excessive deficits? A class of recent explanations elaborates the idea of "political" distortions that lead governments to adopt systematic policies of excessive fiscal deficits. There are at least four classes of political models of fiscal deficits: 1. The public choice approach of Buchanan; 2. Models of government weakness and decentralized government; 3. Models of strategic public debt choice; 4. Political business cycle models.⁵⁴

The empirical evidence on these political models of deficits is growing and not discouraging. Roubini and Sachs [1989a, 1989b], using panel data on a sample of 15 OECD countries, find that political instability (as proxied by variables such as the type of government (single party majority, presidential, presidential with divided government, multi-party coalition, minority) or low average duration of the government lead to higher inflation-adjusted budget deficits. Roubini [1991] and Cukierman, Edwards and Tabellini [1991] find similar evidence that high government turnover is associated with deficits in developing countries. More recently, Grilli, Masciandaro and Tabellini [1991] have found similar evidence showing the effects of weak government and short coalition duration on fiscal deficits in the industrial countries. Expanding on the evidence in Sachs and Roubini, Alesina, Cohen and Roubini [1992] find that both political instability and electoral factors (such as those stressed by the political business cycle models) explain fiscal deficits. Alesina, Cohen and Roubini [1993] find some evidence that, in addition to the aforementioned variables, the partisan nature of a government matters for inflation-corrected fiscal deficits: in particular, left-wing governments tend to run larger fiscal deficits than right-wing ones. Similar evidence by Alogoskoufis and Philippopoulos [1991] for partisan effects on inflation rates in Greece might help explain the high level of nominal fiscal deficits in that country.⁵⁵

In summary, the evidence supports the idea that political factors play a role in explaining biases towards budget deficits. Specifically, the political instability and the

government weakness that prevail in Italy are important factors in explaining the fiscal stalemate in that country and its inability to adjust its fiscal balances. Similarly, partisan bias and conflict and a high degree of political polarization appear to be important factors in the large fiscal deficits of Greece. However, the argument regarding the role of government instability and weakness also works the other way around. In particular, the drastic fiscal adjustment in the early 1980s in countries such as Belgium, Ireland and Denmark began after elections (in 1982) that led to a new and stable political majority. Similarly, the improvement in the fiscal conditions of countries such as Spain and Portugal has occurred under the rule of stable one-party majorities (socialist in Spain, conservative in Portugal).

III.6.2. An argument in favor of the external enforcement of rules of fiscal discipline.

The existence of political factors making for a tendency towards excessive deficits may seem to provide support for fiscal rules such as those agreed to in Maastricht. When one considers the experience of the ERM, it seems quite clear that the existence of the exchange rate constraint did affect the political and social debate in the early 1980s in countries such as Italy and France and strengthened the bargaining position of political and economic groups favoring anti-inflationary policies. In Italy, the drive towards a reduction in wage indexation (recently completed successfully) appears to have been helped by the ERM constraint. In France, after the go-alone socialist expansionary policies of the 1981-83, the contractionary fiscal and monetary policies followed after 1983 were sold to the French public as the only ones that would allow France to remain in the ERM and in Europe.

In a similar way, the Maastricht fiscal constraints might be expected to affect the political game regarding the need for fiscal austerity in countries such as Italy and Greece. With the penalty for failure to meet the fiscal criteria of eventual exclusion from monetary union looming over the political horizon in Italy, the Maastricht stick

(rigid fiscal rules) and carrot (participation in the monetary union) will figure prominently in the political debate over fiscal adjustment in that country. The same stick and carrot are likely to affect the political debate and the fiscal policies adopted in other EC countries that are presently following policies of excessive deficits.

Even if the ERM rules did have the effects attributed to them here and even if the Maastricht rules will do so in the future, the necessity of these rules for these outcomes has not been demonstrated. One could argue that, while political uncertainty and instability in the domestic polity may be a source of a systematic bias towards budget deficits, reputational forces might be enough to support cooperative rules conducive to fiscal discipline in a democratic institutional framework where different governments and parties alternate in power. Even if an "external" mechanism were to be necessary to support co-operative behavior among the domestic players, the word "external" in game theory refers to an arrangement, institution or agent outside the original set of players. It does not need to be "external" in the sense of foreign or supranational. Domestic constitutional arrangements are an example. It is therefore not obvious that an external enforcement mechanism such as the Maastricht guidelines supported by EC sanctions is necessary to enforce national fiscal discipline ⁵⁶.

Consider, for the sake of argument, the case where a cooperatively agreed upon national budget rule has the following conservative features: over the course of a normal business cycle, the inflation-and real output growth-corrected⁵⁷ current budget of the general government must be balanced or in surplus⁵⁸. Inflation-and real output growth-corrected, structural (or cyclically adjusted) current fiscal deficits (surpluses) will be run during recessions (cyclical expansions) and periods of transitorily high (low) government spending. Such a rule would keep the expected net public debt-GDP ratio from rising over business cycle length time intervals⁵⁹. While inevitably arbitrary, such a rule would be less objectionable than the Maastricht rules. Game theory suggests that, in some circumstances, reputational forces might be enough to sustain cooperative

behavior: if discount rates are not too high, if the benefits from cooperation are large and the short term benefits from cheating small and if the true state of the economy can be ascertained easily, a cooperative agreement could be sustainable as a political equilibrium without the need for an external agent to enforce it.

In reality the presence of systematic and unavoidable uncertainty is likely seriously to weaken these reputational forces⁶⁰:

1. Output shocks might be observed with delay and measurement errors.
2. There might be legitimate disagreements about the transitory or permanent nature of output and spending disturbances.
3. The distinction between current and capital expenditure is not clear-cut.
4. There are many implicit, intangible and often contingent future liabilities of the public sector (as in the case of the liabilities of the social security system) that will give rise to uncertain future spending flows that need bear no relation to the current values of these flows, or even to their average values over the cycle.
5. As the U.S. experience with Gramm-Rudman targets shows, rigid fiscal targets can be circumvented by putting off-budget certain spending items (see for example the S&L bail-out and the FDIC refinancing). An external arbitrator and settlement enforcer is required in case of irresolvable disagreement.
6. Any real-world rule, even a contingent one, can be no more than an incomplete contract that cannot cover the myriads of contingencies that might occur in reality.

In the presence of such pervasive uncertainty, the reputational mechanisms supporting fiscal discipline are likely to break down and institutions become necessary to monitor agreements, interpret rules, adjudicate controversies, and enforce the agreed rules through sanctions against deviant agents. Where such a deus ex machina can be found is, unfortunately, not part of the theory.⁶¹

Under these circumstances, the EC (or one of its organs such as the Commission)

can play the enforcement role, providing external surveillance and monitoring of the fiscal balances of the member countries. The constant monitoring can strengthen the domestic incentives for fiscal discipline. However, such surveillance would be toothless without the presence of explicit sanctions aimed at punishing deviant countries. In the period leading up to monetary union, the sanction of exclusion from such a union appears a stronger incentive to follow disciplined fiscal policies than the rather tepid sanctions once EMU is a fact.

IV. CONCLUSION: HOW TO LIVE WITH THE FISCAL CONVERGENCE CONDITIONS OF MAASTRICHT.

It may be that the whole issue of EMU will be made moot by a widespread collapse of political support for it. The turmoil in the foreign exchange markets during the week leading up to the narrow "yes" vote in the French referendum on Maastricht has created doubts as to the likelihood, feasibility and desirability of monetary union. There is growing awareness that the 12 EC members are still characterized by persistent, even if reduced, divergences in macroeconomic policies and policy objectives and that they continue to be buffeted by asymmetric disturbances.

The United Kingdom, faced with a choice between maintaining a seriously overvalued currency at the cost of record high real interest rates and a persistent recession or suspending its membership in the ERM and pursuing its own monetary and interest rate policy, has for now opted for the second road. Alone among the major EC countries, EMU continues to receive widespread political support in Italy. In Germany, the support for the Maastricht Treaty by the Kohl government appears to clash with the subtle and not-so-subtle attempts by the Bundesbank to undermine it. The decision of the Bundesbank effectively to maintain its tight monetary policy even when confronted with the currency crisis that this policy stance contributed to, confirms that the only form of European monetary union acceptable to the German central bank

is one where the objective of German price stability overrides all other policy objectives.

A plausible, if Machiavellian, interpretation of the advocacy by the Bundesbank of the infeasible debt norms of Maastricht is that these are expected and intended to delay EMU, and especially the move to a common currency, until well into the next century and perhaps to prevent it from taking place altogether. One motivating factor could be the first universal law of organizational behavior, according to which no organization ever cooperates enthusiastically and wholeheartedly with a venture that, if successful, will result in its demise⁶². This of course applies to all national central banks that would lose their formal autonomy under EMU. In addition, German monetary officials must realize that they will never be as influential in the ESCB and the ECB following EMU and the adoption of a common currency, as they are today under the exchange rate mechanism of the EMS with the D-Mark. By contrast, French and Italian monetary officials can anticipate an increase in their influence following EMU, after many frustrating years of subordination to the Bundesbank in the EMR. The same sentiments may also explain in part the official French and Italian eagerness to have the Maastricht Treaty ratified and the monetary union process continued successfully.

The Italian enthusiasm for EMU, however, clashes with the objective fact that this country is very far from satisfying the minimal economic conditions required for joining a monetary union and staying in it. Italy's fiscal deficit is out of control: its debt to GDP ratio exceeds 100%; when it left the ERM last September, its real exchange rate was seriously overvalued by five years of fixed nominal rates despite positive inflation differentials vis a vis the rest of the EMR countries; its political system appears paralyzed. The crisis of the Lira in the week before the French referendum has at least had the positive effect of shaking any remaining misplaced self-confidence, optimism and policy inertia that five years of exchange rate stability

may have created. Whether the shock waves set off by the devaluation of the Lira and the suspension of Italy's ERM membership will break the political stalemate and lead to a serious fiscal adjustment remains, however, an open issue.

If the Maastricht Treaty is eventually ratified and EMU remains alive, the EC member states are faced with a number of options. If by the end of 1996 at least 6 countries are judged to have satisfied the membership criteria, these six would, presumably, become the nucleus of the monetary union. If by the end of 1997 the date for the beginning of the third stage (full monetary union) has not been set, the third stage will start on 1 January 1999, with the list of qualifiers established no later than 1 July 1998. After January 1, 1999, non-member states will join as soon as they are judged to meet the criteria. The United Kingdom alone can choose to meet the criteria without becoming a full member.

Clearly, the fiscal criteria, and especially the debt criterion, will be one of the sticking points. If both the deficit and the debt reference values are interpreted strictly, Greece, Italy, Belgium, Ireland and even the Netherlands will not be able to join the monetary union by the end of 1996. The Netherlands might meet the debt criterion by the end of 1998 with a significant (at least 2.5% of GDP) increase in the primary surplus from the 1991 level of 2% of GDP. Greece, Italy, Belgium and Ireland are unlikely to satisfy the debt reference value until well into the next decade.

Assuming that full economic and monetary union remains the objective, how should the fiscal criteria be applied in the evaluation of potential members' fitness to join?

We have argued in this paper that the fiscal convergence criteria designed to eliminate or prevent "excessive deficits" are badly motivated and poorly designed and apt to lead to unnecessary hardship if pursued mechanically. The debt criterion is especially likely to cause avoidable pain. There is no case for restricting the debt-GDP ratio to lie below any particular numerical value, and *a-fortiori* no case for a common

numerical limit for 12 heterogeneous countries.

Given the inherited debt-GDP ratio, the achievement of government solvency clearly puts a lower bound on the long-run average value of the primary surplus-GDP ratio. It is also evident, that it does not constitute a credible policy to justify persistent primary deficits which would be inconsistent with solvency if maintained indefinitely, with the promise of large compensatory primary surpluses at some unspecified time in the distant future.

Given an inflation target, a lower bound on the long-run average primary surplus-GDP ratio implies an upper bound on the long-run average interest-inclusive deficit-GDP ratio. Such an upper bound is of course consistent with cyclical variations in the deficit and with temporary increases in the deficit above the upper limit on its long-run average value reflecting transitory (but not necessarily cyclical) spending increases or reductions in the revenue base.

The "golden rule" of government financing is based on two fallacies. The first is that consumption loans to the public sector are intrinsically undesirable. The second is that government investment does not, in the long run, constitute a drain on the government budget because, directly or indirectly, it generates higher future primary surpluses equal in present discounted value to the investment outlays. However, the returns on sector investment projects (even socially desirable ones) need not accrue in the form of cash returns that are appropriated by the government. There is no substitute for the careful consideration of the current and future cash flow implications of public sector investment projects.

Since the achievement of neither fiscal target is necessary in order to satisfy the inflation, interest rate and exchange rate convergence criteria for EMU, one is left to wonder about the political reasons for their inclusion in the Treaty and its protocols. The Bundesbank was, after all, not a signatory to the Treaty. Could it be true that "They reflect not economic logic, but a mixture of German horror at the Italian

national debt, and Dutch Puritanism (always the most extreme in my experience) – a grim combination." as Anthony Harris [1992] argued recently?

Of the two numerical targets, the 60% debt-GDP ratio will have to be ignored (or interpreted so loosely that it amounts to the same thing) if massive unnecessary fiscal deflations in Italy, Greece, Ireland, Belgium and the Netherlands are to be avoided. Pursuing the 3% deficit-GDP ratio in a gradualist manner will be painful only for Italy and Greece, moderately painful for Belgium and Portugal and relatively painless for the rest.

The adoption and centralized enforcement of the deficit norm may be potentially helpful for a country like Italy whose government appears, for reasons that are not well understood, to receive from international agreements a transplant of fiscal backbone that it cannot obtain through domestic political commitments. In a similar manner, Portugal currently appears to achieve an injection of anti-inflationary discipline from membership in the ERM, the way France did in the eighties.

Both fiscal norms appear largely irrelevant for France, Germany, the UK and Luxembourg, countries that already satisfy them or will be able to meet them without excessive effort. They also appear irrelevant for Greece but for the opposite reason. Greece has not yet shown a sign of durable fiscal rectitude, regardless of international or domestic commitments.

Countries like Belgium, Ireland, Denmark and the Netherlands, where appropriate fiscal retrenchment has been under way for some time, should be allowed to ignore the debt norm and pursue the deficit norm in a gradualist manner.

As regards the transitional output and unemployment cost of a concerted attempt by the eleven (until September 1992, now nine) ERM members to meet the deficit criterion by end-1996 or end-1998, a lot will depend on the stance of EC-wide monetary policy (effectively controlled by the Bundesbank when all major countries participate in the ERM). The current high nominal and real interest rates in Europe

are driven by two factors: first, high real rates reflecting European savings-investment imbalances caused by the transformations in Eastern Europe and the German deficit financing of the East German economy reconstruction; second, a very restrictive monetary stance of the Bundesbank driven by its concern about the increase in German inflation associated with the East German reconstruction and consumption boom. This German policy mix has significantly increased the real interest burden of the public debt in the EC, especially in countries with high debt-GDP ratios such as Italy, Belgium, Ireland and the Netherlands. It has also deepened the recession in the non-German ERM member countries and contributed to cyclical increases in their public sector deficits.

The reconstruction and consumption boom associated with German unification implied the need for an appreciation of the German real exchange rate. This would probably have been true to some extent even if the spending increase had been tax-financed. Deficit financing reinforces the effect. The required real appreciation can in principle be accomplished either through a nominal revaluation of the D-Mark (or, equivalently, through a nominal devaluation of the other ERM currencies) or through a temporary excess of the German inflation rate over the inflation rates of the other ERM countries. When the Bundesbank refused to accept the inflation option, the need for an eventual ERM realignment became inescapable. The timing was of course influenced by the "exogenous" shock of the French referendum.

The inflexibility of the Bundesbank also gives cause for future concern, should Maastricht get back on track. For a given level of real output, a decrease in real and nominal interest rates resulting from the fiscal contraction required by Maastricht increases the demand for real money balances. In the absence of empirically implausible degrees of general price level flexibility, a recession is unavoidable unless the Bundesbank accommodates with a one-off increase in the nominal money stock the lower interest rates associated with the fiscal contraction and the disappearance of

exchange rate realignment risk. An institution with the conservative monetary reputation of the Bundesbank is ideally placed to engineer a recession-preventing once-and-for-all increase in the *level* of the nominal money stock without this fueling private sector fears of inflationary sustained future increases in the *rate of growth* of the nominal money stock. Given the past, inward-looking and inflexible record of the Bundesbank, however, it is doubtful that their ability to act is matched by wisdom to act.

What are the options for a nation that does not meet the convergence criteria by the end of 1998? The first is to keep on trying until the conditions for membership are met. This would presumably involve adopting a unilaterally fixed exchange rate regime vis a vis the ECU, the common currency of the full members of EMU. If the full members perceive a good-faith effort by the candidate member, the latter's fixed exchange rate with the ECU could even be managed cooperatively.

The second option for a country that fails (or expects to fail) to meet the Maastricht criteria by the end of 1998 is to "go it alone" and manage its exchange rate so as to best serve its perception of its national interest, without any further attempt to satisfy the criteria for full membership. This could of course be the option chosen by (or forced upon) all current ERM members if the Treaty is not delivered from its current state of limbo.

What would be the economic consequences of a failure to move to a common currency? Compared with a system of credibly fixed exchange rates between national currencies, the benefits from a common currency are small. These benefits would consist in the saving of transaction costs associated with the replacement of several national currencies by the ECU, and in the opportunity for competing somewhat more effectively with the Yen and the US dollar as international reserve and vehicle currencies. For individual member states the distribution of the internal and external seigniorage of the ESCB-ECB is also important. The costs and benefits of the

non-monetary aspects of economic union (the single market, economic aspects of the protocol on social policy) are independent of the success or failure of monetary union. However, the main benefits of a monetary union possibly consist in the discontinuous gain in credibility for countries subject to an inflation bias. One should therefore not compare a monetary union with a system of credibly fixed exchange rates but rather with a system of partially credible fixed rates with a realignment option.

The costs of a common currency are non-negligible. These consist mainly in the costs of any system of irrevocably fixed exchange rates in comparison with a fixed exchange rate regime that allows for realignments or with a floating rate system. The larger and less open member states lose a mechanism that enables them to achieve necessary changes in international relative prices and costs more rapidly and with lower costs than would be possible through variations in relative national nominal costs and prices. No-one has convincingly demonstrated that the eleven ERM members (or even the nine) form an "optimal currency area"; if anything, recent empirical work by Eichengreen [1991] and Eichengreen and Bayoumi [1992] and Von Hagen and Neumann [1992] suggests the opposite.

In addition, each member state, large or small, loses the opportunity of pursuing an optimal nationally differentiated inflation policy. Since the EC members differ greatly in their ability to levy non-inflation taxes, this restriction on the national fiscal policy arsenals could be of some relevance for a few countries.

With a common currency, national exchange rate adjustments and nationally differentiated monetary policy disappear from the stabilization arsenal. The importance of flexibility in the use of the remaining national stabilization instrument, national fiscal policy, is correspondingly enhanced. Debt and deficit ceilings impair that flexibility and with it each member state's ability to respond to nationally differentiated shocks.

There are non-economic arguments for EMU. The move to a common currency

is an important step in the European federalist agenda, and one might be in favor of it because it represents a strengthening of supranational European institutions. This, however, raises the important issue of *sequencing*. Historically, no political entity whose degree of political integration was not at least that of a confederation, has succeeded in maintaining a common currency.⁶³ The level of political integration in the EC still falls well short of that of a confederation, let alone that of a federation. It may not be wise to attempt monetary union again before further political integration has taken place.

The economic case for EMU is by no means overwhelming. If there are no sizable political gains to be set against the economic price of transitional fiscal deflation and permanently reduced fiscal flexibility, the cost of the alternative to EMU—continued national monetary autonomy for those who want it and continuing the current ERM-DM zone for the rest—may not seem unbearable.

References

- Alesina, A., G. Cohen and N. Roubini [1992] "Macroeconomic Policy and Elections in OECD Economies", **Economics and Politics**, March.
- Alesina, A., G. Cohen and N. Roubini [1993] "Political Business Cycles in Industrial Economies", forthcoming, **European Journal of Political Economy**.
- Alesina, A. and N. Roubini [1992] "Political Cycles in OECD Economies", forthcoming, **Review of Economic Studies**, October.
- Alesina, A. and A. Drazen [1991] "Why Are Stabilizations Delayed ? A Political-Economic Model", **American Economic Review**, 1170-1188.
- Alesina, A. and G. Tabellini [1990] "A Political Theory of Fiscal Deficits and Debt in a Democracy", **The Review of Economic Studies**, July, 403-414
- Barro, R. [1979] "On the Determination of Public Debt", **Journal of Political Economy**, October, 87, 940-971.
- Bayoumi T. and B. Eichengreen [1992], "Shocking Aspects of European Monetary Unification", **CEPR Discussion Paper** no. 643
- Bean, C. [1992], "Europe 1992: A Macroeconomic Perspective", London School of Economics
- Begg, D., J. Danthine, F. Giavazzi, C. Hamilton, D. Neven, V. Norman, A. Sapir, A. Smith L.A. Winters and C. Wyplosz [1990] **Monitoring European Integration: The Impact of Eastern Europe**, CEPR, London.
- Begg D., P. Chiappori, F. Giavazzi, C. Mayer, D. Neven, L. Spaventa, X. Vives and C. Wyplosz [1991], **Monitoring European Integration: The Making of the Monetary Union**, CEPR, London.
- Blanchard, O. [1990] "Suggestions for a New Set of Fiscal Indicators", **OECD, Department of Economics and Statistics Working Papers**, No.79, April.
- Bovenberg A. Lans, Jeroen J.M. Kremers en Paul R. Masson [1991], "Economic and Monetary Union in Europe and Constraints on National Budgetary Policies", **IMF Staff Papers**, 38, no.2, June, pp. 374-398.
- Bryant, R.C., D.W. Henderson, G. Holtham, P. Hooper and S.A. Symansky [1990], **Empirical Macroeconomics for Interdependent Economies**, The Brookings Institution, Washington, D.C.
- Buchanan, J.M., C.K. Rowley and R.D. Tollison [1986] **Deficits**, New York: Basil Blackwell.
- Buiter, W. [1985] "A Guide to Public Sector Debt and Deficits", **Economic Policy**, October, 4-69.
- Buiter, W. [1989] **Budgetary Policy, International and Intertemporal Trade in**

the Global Economy, North Holland, Amsterdam.

Buiter, W. [1990] **Principles of Budgetary and Financial Policy**, MIT Press, 1990.

Buiter, W. and K. Kletzer [1990] "Fiscal Policy, Interdependence and Efficiency", mimeo, Yale University, March.

Buiter, Willem H. [1983], "Measurement of the Public Sector Deficit and Its Implications for Policy Evaluation and Design", **IMF Staff Papers**, 30, June, pp. 306-349.

_____ and Kenneth M. Kletzer [1991a], "The welfare economics of cooperative and non-cooperative fiscal policy", **Journal of Economic Dynamics and Control**, 15, pp. 215-244.

_____ and _____ [1991b], "Reflections on the fiscal implications of a common currency", in Alberto Giovannini and Colin Mayer eds., **European Financial Integration**, Cambridge University Press, Cambridge, 1991, pp. 221-244.

_____ and _____ [1992a], "Who's afraid of the national debt?", **American Economic Review, Papers and Proceedings**, May.

_____ and _____ [1992b], "Government Solvency, Ponzi Finance and the Redundancy and Usefulness of Public Debt", Yale University Department of Economics, mimeo.

_____ and Urjit R. Patel [1992], "Debt, deficits and inflation; an application to the public finances of India", **Journal of Public Economics**.

Commission of the European Communities [1990], "One market, one money", **European Economy**, number 44, October 1990.

_____ [1991], "The economics of EMU", **European Economy**, Special Edition No 1.

Committee for the Study of Economic and Monetary Union (Delors Committee) [1989], **Report on Economic and Monetary Union in the European Community**, Luxembourg.

Corsetti, G. [1991], "Testing for Solvency of the Public Sector: An Application to Italy", **Economic Notes**, 3.

Corsetti, G. and N. Roubini [1991a] "Fiscal Deficits, Public Debt and Government Solvency: Evidence from OECD Countries", **Journal of Japanese and International Economies**, 5, 354-380.

Corsetti, G. and N. Roubini [1992a] "The Design of Optimal Fiscal Rules for Europe after 1992"; **CEPR Discussion Paper Series No.862**; forthcoming in Francesco Giavazzi and Francisco Torres (eds.) **Monetary Union in Europe**, Cambridge University Press.

Corsetti, G. and N. Roubini [1992b] "The Design of Optimal Fiscal Rules in a

Political Equilibrium, in progress, Yale University, July.

Cukierman, A. and Meltzer [1989] "A Political Theory of Government Debt and Deficits in a Neo-Ricardian Framework", **American Economic Review**, 4, 713-732.

Diamond, D.W. and P.H. Dybvig [1983], "Bank runs, deposit insurance, and liquidity", **Journal of Political Economy**, 91, pp. 401-419.

Eaton, Jonathan [1987], "Public debt guarantees and private capital flight", **The World Bank Economic Review**, 1, May, pp. 337-395.

Eichengreen B. [1992], "The Political Economy of Fiscal Policy After EMU", forthcoming in **Stato e Mercato**, winter.

Englander, A. Steven and Thomas Egebo [1992], "Adjustment under fixed exchange rates: application to the European Monetary Union", OECD Economics Department Working Papers, No. 117,

Garrett, J. and B. Weingast [1991] "Ideas, Interests and Institutions: Constructing the EC's Internal Market", mimeo, October.

Giovannini, A. and L. Spaventa [1991] "Fiscal Rules in the European Monetary Union: A No-Entry Clause", **CEPR Discussion Paper** No.516, January.

Giovannini, A. and W. McKibbin [1992], "The Economic Consequences of Maastricht", Mimeo, May.

Glick, R. and M. Hutchison [1990] "Fiscal Constraints and Incentives with Monetary Coordination: Implications for Europe 1992", mimeo, May.

Goldstein M. and G. Woglom [1992], "Market Based Fiscal Discipline in Monetary Unions: Evidence from the US Municipal Bond Market", in M. Canzoneri, V. Grilli and P. Masson, ed., *Establishing a Central Bank: Issues in Europe and Lessons from the US*, Cambridge University Press

Grilli, V. D. Masciandaro and G. Tabellini [1991] "Political and Monetary Institutions and Public Finance Policies in the Industrial Democracies", **Economic Policy**, 13, 342-392.

Hamada K. and D. Porteous [1992], "Monetary Integration in Historical Perspectives", Yale University.

Hamilton, J.D. and M.A. Flavin [1986], "On the Limitations of Government Borrowing: A Framework for Empirical Testing", **American Economic Review**, 76, 808-819.

Harris A. [1992], "The British disease becomes endemic", **Financial Times**, August 17, p.15

International Herald Tribune [1992], July 29.

Kenen P. [1992], **EMU after Maastricht**, Group of Thirty, Washington, D.C.

Liberation [1992], July 29.

Milgrom, P., D. North and B. Weingast [1990] "The Role of Institutions in the Revival of Trade: The Medieval Law Merchant, Private Judges, and the Champagne Fairs", **Economics and Politics**, 1.

Ministere de l'Economie et des Finance [1992], Communiqué, July 29.

Nordhaus, W. [1975] "The Political Business Cycle", **Review of Economic Studies**, 42, 169-190.

Padoa Schioppa, T. [1990] "Fiscal Prerequisites of a European Monetary Union", mimeo, January.

Persson, T. and L. Svensson [1989] "Why a Stubborn Conservative Would Run a Deficit: Policy with Time Inconsistent Preferences", **Quarterly Journal of Economics**, May, 325-346.

Rogoff, K. [1998] "Equilibrium Political Budget Cycles", **American Economic Review**, 80, 21-36.

Rogoff, K. and A. Sibert [1989] "Elections and Macroeconomic Policy Cycles" **Review of Economic Studies**, 55, 1-16.

Roubini, N. [1991] "Economic and Political Determinants of Budget Deficits in Developing Countries", **Journal of International Money and Finance**, 10, 549-572.

Roubini, N. [1991] "Leadership and Cooperation in the EMS", **Journal of Policy Modeling**, April.

Roubini, N. and J. Sachs [1989a] "Political and Economic Determinants of Budget Deficits in the Industrial Democracies", **European Economic Review**, May, 903-933.

Roubini, N. and J. Sachs [1989b], "Government Spending and Budget Deficits in the Industrial Countries", **Economic Policy**, 8, 99-132.

Sargent, T.J. [1986], **Rational Expectations and Inflation**, New York, Harper and Row.

Sala-i-Martin and J. Sachs [1992] "Fiscal Federalism and Optimum Currency Areas: Evidence for Europe from the United States", in M. Canzoneri, V. Grilli and P. Masson, eds., *Establishing a Central Bank: Issues in Europe and Lessons from the US*, Cambridge University Press

Tabellini, G. [1991] "Istituzioni Politiche e Debito Pubblico", presented at the meeting of the Societa' Italiana degli Economisti, October.

Tabellini, G. and A. Alesina [1990] "Voting on the Budget Deficit", **American Economic Review**, 80, 37-52.

Trehan, B. and C.E. Walsh [1988], "Common Trends, the Government Budget Constraint, and Revenue Smoothing", **Journal of Economic Dynamics and**

Control, 12, 425-444.

Van der Ploeg, F. [1990] "Macroeconomic Policy Coordination during the Various Phases of Economic and Monetary Integration in Europe", **European Economy**.

Von Hagen J. and M. Neumann [1992], "Real Exchange Rate Within and Between Currency Areas: How Far is Emu?", **CEPR Discussion Paper** no. 660

Wilcox, D.W. [1989], "The Sustainability of Government Deficits: Implications of the Present Value Borrowing Constraint", **Journal of Money Credit and Banking**, 21, 291-306.

Woolley, J.T. [1991] "Creating a European Central Bank: Negotiating EMU and the ESCB", mimeo, University of California, Santa Barbara, November.

Wyplosz, C. [1991] "Monetary Union and Fiscal Policy Discipline", **CEPR Discussion Paper** No.488, January.

Table II.1

General Government Net Lending (as a share of GDP)

	61-70	71-80	81-90	1970	1971	1972	1973	1974	1975	1976
Belgium	-1.5	-5.1	-8.8	-2.2	-3.2	-3.7	-3.3	-2.7	-4.8	-5.6
Denmark	1.3	0.9	-2.5	4.1	3.9	3.9	5.2	3.1	-1.4	-0.2
Germany	0.4	-1.9	-1.9	0.4	0	-0.4	1.3	-1.2	-5.5	-3.3
Greece	NA	NA	-12.9	NA	NA	NA	NA	NA	NA	NA
Spain	NA	-0.6	-4.6	0.7	-0.5	0.3	1.1	0.2	0	-0.3
France	0.4	-0.5	-2.3	0.9	0.6	0.6	0.6	0.3	-2.4	-0.7
Ireland	-3.6	-8.4	-9.3	-4.3	-4.2	-4.1	-4.6	-8.2	-12.5	-8.6
Italy	-2.3	-7.6	-11.2	-3.3	-4.8	-7	-6.5	-6.4	-10.6	-8.1
Luxembourg	1.8	2.6	2.3	3.2	2.6	2.3	3.8	5.3	1.1	2
Netherlands	-0.8	-1.9	-5.8	-1.2	-1	-0.4	0.8	-0.2	-2.9	-2.6
Portugal	NA	NA	-7.9	NA	NA	NA	NA	NA	NA	NA
United Kingdom	-0.6	-3	-1.7	3	1.3	-1.3	-2.7	-3.8	-4.5	-4.9
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Belgium	-5.6	-6.1	-7.3	-9.2	-12.8	-11.1	-11.5	-9	-8.5	-9.1
Denmark	-0.5	-0.3	-1.7	-3.3	-6.9	-9.1	-7.2	-4.1	-2	3.4
Germany	-2.3	-2.4	-2.5	-2.8	-3.6	-3.3	-2.5	-1.9	-0.9	-1.3
Greece	NA	NA	NA	NA	-11	-7.7	-8.3	-10	-13.8	-12.6
Spain	-0.6	-1.7	-1.6	-2.6	-3.9	-5.6	-4.8	-5.4	-6.9	-6
France	-0.8	-2.1	-0.8	0	-1.9	-2.8	-3.2	-2.8	-2.9	-2.7
Ireland	-7.6	-9.7	-11.4	-12.7	-13.4	-13.8	-11.8	-9.8	-11.2	-11.2
Italy	-7	-8.5	-8.3	-8.6	-11.4	-11.3	-10.6	-11.6	-12.5	-11.7
Luxembourg	3.3	5	0.7	-0.4	-3.5	-1	2	3.4	5.3	3.5
Netherlands	-1.8	-2.8	-3.7	-4	-5.5	-7.1	-6.4	-6.3	-4.8	-6
Portugal	NA	NA	NA	NA	-9.3	-10.4	-9	-12	-10.1	-7.2
United Kingdom	-3.2	-4.4	-3.3	-3.4	-2.6	-2.5	-3.3	-4	-2.8	-2.4
	1987	1988	1989	1990	1991	1992				
Belgium	-7.1	-6.9	-6.7	-5.7	-6.2	-5.9				
Denmark	2.4	0.5	-0.5	-1.5	-2.0	-2.1				
Germany	-1.8	-2.1	0.2	-1.9	-3.1	-3.4				
Greece	-12.2	-14.4	-18.3	-20.4	-16.5	-13.2				
Spain	-3.2	-3.3	-2.7	-4	-4.4	-4.3				
France	-1.9	-1.8	-1.2	-1.7	-1.7	-2.0				
Ireland	-9.1	-5.2	-3.5	-3.6	-2.3	-2.5				
Italy	-11	-10.9	-10.1	-10.7	-10.2	-9.9				
Luxembourg	1.6	2.4	4.3	4.7	2.5	2.6				
Netherlands	-6.6	-5.2	-5.2	-5.3	-3.9	-4.0				
Portugal	-6.8	-5.4	-3.4	-5.8	-6.4	-5.4				
United Kingdom	-1.3	1.1	1.3	-0.7	-2.0	-4.9				

Source: European Economy, Commission of the European Economies
and European Economy Supplement A, Commission of the European Economies

Note: 1992 figures are forecasts.

The Germany figures refer to West Germany only.

Table II.2

Gross Public Debt (as a share of GDP)

	1970	1971	1972	1973	1974	1975	1976	
Belgium	68.5	66.6	66.4	64.2	59.8	60.5	60	
Denmark	14.8	12.8	11.2	8.8	6	6.8	11.2	
Germany	18.4	18.4	18.8	18.6	19.6	25.1	29.1	
Greece	21.3	21.9	23.2	19.5	25.6	22.4	22.1	
Spain	15.3	15.8	14.4	12.6	12.1	12.5	13.1	
France	27.6	26.5	24	22.4	21.9	24.1	22.9	
Ireland	62.1	61.5	57.8	54.7	59.7	65.9	70.7	
Italy	44.8	50.5	56.5	58	55.6	63.8	58.6	
Luxembourg	28.1	28.2	25.1	20.4	16.6	18.1	16.4	
Netherlands	52.2	49.8	46.7	43.4	41.4	41.4	40.2	
Portugal	NA	NA	NA	17.6	17.3	25.5	31.4	
United Kingdom	80	81.8	72	66.2	61.7	61.1	58.4	

	1977	1978	1979	1980	1981	1982	1983	1984
Belgium	63.9	68	71.4	76.9	89.4	97.5	107.4	112.6
Denmark	15.5	23.6	29	39.3	52	64.5	74.3	79.8
Germany	28.5	30	30.8	32.7	36.3	39.3	40.9	41.6
Greece	22.4	29.4	29	28.8	34.2	36.1	41.2	53.2
Spain	14.2	14	16.1	17.9	23.2	28.7	35.1	39.9
France	22.7	23.2	24.2	24.6	23.9	27.9	29.5	43.8
Ireland	67.5	69.6	75.2	76.8	81.7	87.2	97.3	104.8
Italy	57.8	62.4	61.6	59	61.1	66.4	72	75.1
Luxembourg	16.6	15.4	14.2	13.8	14.4	14.5	14.8	15
Netherlands	39.7	40.9	42.7	45.9	50.3	55.6	62	66.1
Portugal	33.2	36.3	41	37.1	46.6	50.1	56	62.4
United Kingdom	64.3	57.1	55.1	54.1	53.3	58.1	57.7	60.3

	1985	1986	1987	1988	1989	1990	1991	1992
Belgium	119.8	124	131	132.4	128.4	127.3	129.4	129.6
Denmark	76.8	69	65.8	66.1	65.6	66.4	66.7	65.8
Germany	42.3	42.4	43.5	44.1	43	43.6	46.2	48.7
Greece	62.6	65.2	72.9	80.4	85.8	93.7	96.4	99
Spain	45.2	46.2	46.6	42.9	44.2	44.5	45.6	46.4
France	45.5	45.7	47.3	47.2	47.4	46.6	47.2	47.5
Ireland	108.5	120.8	122	120.4	110.1	103	102.8	100.4
Italy	82	86.5	90.9	93.3	96	98.6	101.2	103.9
Luxembourg	14	13.5	11.8	9.9	8.5	7.3	6.9	6.4
Netherlands	69.7	71.6	75.4	77.7	77.9	78.3	78.4	79.5
Portugal	70.9	69.5	72.9	75.2	72	68.2	64.7	62.7
United Kingdom	58.9	57.7	55.7	50.3	45.1	42.8	43.8	45.6

Source: European Economy, Commission of the European Economies.

Note: 1992 figures are forecasts.

Table II.3

General Government Primary Balance (as a share of GDP)

	74-81	1982	1983	1984	1985	1986
Belgium	-1.9	-1.8	-2	1	2.3	2.3
Denmark	1.2	-3.1	0.9	5.5	7.9	12.2
Germany	-1.3	-0.5	0.5	1.1	2.1	1.7
Greece	NA	-5.1	-4.6	-5.4	-8.5	-6.8
Spain	-0.7	-4.6	-3.5	-3.3	-3.6	-2
France	0.3	-0.8	-0.6	-0.1	0	0.2
Ireland	-4.9	-4.8	-2.5	-0.4	-0.9	-1.5
Italy	-3.9	-4.2	-3.1	-3.6	-4.5	-3.2
Luxembourg	2.6	0	3.1	4.5	6.4	4.6
Netherlands	0.4	-1.9	-0.7	-0.3	1.5	0.2
Portugal	NA	-4.9	-2.6	-4.9	-2.2	2
United Kingdom	0.7	2.5	1.4	0.9	2.1	2.1
EC 12	-0.9	-1.4	-0.9	-0.6	-0.2	0.2

	1987	1988	1989	1990	1991	1992
Belgium	3.6	3.4	3.9	5.2	4.7	5.4
Denmark	10.7	8.4	6.9	5.7	5.4	5.2
Germany	1.1	0.7	2.9	0.7	-0.8	-0.6
Greece	-5	-6.5	-10.1	-8.4	-3.3	-0.5
Spain	0.3	0	0.7	-0.5	0.2	-0.5
France	0.9	1	1.6	1.4	1.9	1.3
Ireland	0.6	4.2	5.6	4.8	6.0	5.8
Italy	-3	-2.7	-1.1	-1	0.0	0.7
Luxembourg	2.7	3.4	5.1	5.4	3.2	3.1
Netherlands	-0.5	0.9	0.7	0.6	2.0	2.2
Portugal	1	2.4	3.7	2.4	2.1	3.0
United Kingdom	3	5	5	2.6	1.2	-1.6
EC 12	0.6	1	1.9	0.9	0.2	0.4

Source: European Economy, Commission of the European Communities.

Note: 1992 figures are forecasts.

TABLE II.4
One-Period Primary Gaps For 1992

	Real growth rate (%)	Real interest rate (%)	Public debt (% GDP)	S_1^* (% GDP)	GAP ¹ (% GDP)
Germany	2.2	1.9	46.2	-0.1	0.5
France	2.3	4.4	47.2	1.0	-0.3
Italy	2.0	5.7	101.2	3.7	3.0
UK	2.0	3.1	43.8	0.5	2.1
Belgium	2.1	5.4	129.4	4.2	-1.2
Denmark	3.0	9.8	66.7	3.9	-1.3
Greece	1.2	1.6	96.4	0.3	0.8
Ireland	2.3	5.1	102.8	2.8	-3.0
Netherlands	1.3	5.4	78.4	3.2	1.0
Spain	3.1	3.2	45.6	0.0	0.5
Portugal	1.7	3.0	64.7	0.8	-2.2
Luxembourg	3.4	4.1	6.9	0.0	-3.1

S_1^* is the one period ahead debt-GDP ratio stabilizing primary surplus-GDP ratio; GAP¹ denotes the corresponding primary gap. Source: EC data and forecasts.

TABLE II.5
Myopic Permanent Primary Gaps For 1992

	Growth rate (%)	Real interest rate (%)	Public debt (% GDP)	s_∞^* (% GDP)	MGAP ^ω (% GDP)
Germany	3.0	5.0	46.2	0.9	1.5
France	3.0	5.0	47.2	0.9	-0.4
Italy	3.0	5.0	101.2	1.9	1.2
UK	3.0	5.0	43.8	0.8	2.4
Belgium	3.0	5.0	129.4	2.5	-2.9
Denmark	3.0	5.0	66.7	1.3	-3.9
Greece	3.0	5.0	96.4	1.9	2.4
Ireland	3.0	5.0	102.8	2.0	-3.8
Netherlands	3.0	5.0	78.4	1.5	-0.7
Spain	3.0	5.0	45.6	0.9	1.4
Portugal	3.0	5.0	64.7	1.2	-1.8
Luxembourg	3.0	5.0	6.9	0.1	-3.0

s_∞^* is the constant primary surplus-GDP ratio required for long-run solvency; GAP^ω denotes the corresponding primary gap. Source: EC data and forecasts.

Table II.6

Differences between forecasts of primary surpluses for 1992 by EC and OECD

	$s_{92}(\text{EC}) - s_{92}(\text{OECD})$ (% of GDP)
Germany	0.7
France	1.0
Italy	1.6
UK	1.3
Belgium	0.8
Denmark	4.1*
Greece	0.6
Ireland	0.7
Netherlands	0.7
Spain	1.1
Portugal	NA
Luxembourg	NA

* The difference between the EC and OECD forecasts of the primary balance in Denmark depends largely on whether interest receipts and royalties are considered as current revenues (as in the EC data) or as negative interest payments (as in the OECD data).

TABLE II.7
WHAT HAPPENS TO THE DEBT WHEN THE DEFICIT TARGET IS MET?

Scenarios:				(a)	(b)	(c)	(d)
	debt ₉₁ (%)	ψ ₉₁ (%)	def ₉₁ (%)	debt ₉₆ (%)	debt ₉₈ (%)	debt ₉₆ (%)	debt ₉₈ (%)
GE	46.2	7.8	2.9	47.6	47.9	49.8	51.1
F	47.2	4.3	1.7	46.1	45.7	50.6	51.8
It	101.2	8.8	10.2	97.1	96.1	92.9	90.2
UK	43.8	4.6	2.0	44.1	44.3	48.0	49.4
B	129.4	4.7	6.2	121.3	119.0	115.0	110.2
DK	66.7	4.0	2.0	64.1	63.2	65.9	65.6
GR	96.4	21.3	16.5	88.6	86.3	89.2	86.7
IR	102.8	5.1	2.3	90.9	86.8	94.2	91.3
NL	78.4	5.4	3.9	76.1	75.4	75.1	73.9
S	45.6	9.5	4.4	52.9	55.1	49.4	50.6
P	64.7	16.1	6.4	61.2	60.0	64.3	64.2
L	6.9	4.7	-2.5	-5.9	10.3	19.0	23.1
EC	61.5	6.9	4.3	60.9	60.8	61.8	61.9

Scenario (a). ψ : starting from the 1991 value for nominal GDP growth, if ψ exceeds 5%, it declines at a constant exponential rate and reaches 5% by the end of 1996. It stays constant at its 1991 value otherwise.
 def: if the 1991 value of the deficit-GDP ratio exceeds 3%, def declines at a constant exponential rate and reaches 3% by the end of 1996. It stays constant at its 1991 value otherwise. The debt-GDP ratio at the end of 1996 is calculated.

Scenario (b). Same as (a) but taking 1998 rather than 1996 as the final year.

Scenario (c). ψ : if ψ exceeds 5% in 1991, this value is reached immediately in 1992 and maintained every year thereafter. It stays constant at its 1991 level otherwise.

def: if def exceeds 3% in 1991, this value is reached immediately in 1992 and maintained thereafter. It stays constant at its 1991 level otherwise.

Scenario (d). Same as (c) but taking 1998 rather than 1996 as the final year.

TABLE II.8
WHAT CONSTANT DEFICIT-GDP RATIO TO GET TO THE DEBT TARGET?

	debt ₉₁	ψ_{91}	def ₉₁	The constant deficit-GDP ratio that would reduce the debt-GDP ratio to 60% under scenarios:			
				(a)	(b)	(c)	(d)
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
It	101.2	8.8	10.2	-3.2	-0.9	-4.2	-1.96
B	129.4	4.7	6.2	-9.2	-5.4	-9.1	-5.3
DK	66.7	4.0	2.0	1.5	1.8	1.7	2.1
GR	96.4	21.3	16.5	-0.2	1.9	-3.4	-1.4
IR	102.8	5.1	2.3	-4.5	-2.1	-4.5	-2.2
NL	78.4	5.4	3.9	-0.2	0.8	-0.3	0.7
P	64.7	16.1	6.4	1.5	1.8	1.7	2.1

Scenario (a). ψ : starting from the 1991 value for nominal GDP growth, if ψ exceeds 5%, it declines at a constant exponential rate and reaches 5% by the end of 1996. It stays constant at its 1991 value otherwise.

The value of the constant deficit-GDP ratio that would bring the debt-GDP ratio to 60% by the end of 1996 is calculated.

Scenario (b). Same as (a) but taking 1998 rather than 1996 as the target date.

Scenario (c). ψ : if ψ exceeds 5% in 1991, the 5% is reached immediately in 1992 and maintained thereafter. It stays constant at its 1991 value otherwise.

The value of the constant deficit-GDP ratio that would bring the debt-GDP ratio to 60% by the end of 1996 is calculated.

Scenario (d). Same as (c) but taking 1998 rather than 1996 as the target date.

TABLE II.9
WHAT CONSTANT PRIMARY DEFICIT-GDP RATIO TO GET TO THE DEBT TARGET?

	debt ₉₁	ψ_{91}	primary deficit-GDP ratio	The constant primary deficit-GDP ratio that would reduce the debt-GDP ratio to 60% under scenarios:			
				(a)	(b)	(c)	(d)
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
It	101.2	8.8	0.0	-11.7	-9.6	-11.0	-8.6
B	129.4	4.7	-4.7	-17.8	-13.9	-17.6	-13.6
DK	66.7	4.0	-5.4	-2.8	-2.4	-2.9	-2.6
GR	96.4	21.3	3.3	-11.5	-10.1	-9.9	-7.8
IR	102.8	5.1	-6.0	-11.3	-8.8	-11.4	-8.9
NL	78.4	5.4	-2.0	-5.8	-4.7	-5.7	-4.6
P	64.7	16.1	-2.1	-2.8	-2.4	-2.9	-2.6

Scenarios: same as in Table II.8. We further assume a constant 5% real interest rate and a constant 3% growth rate of real GDP.

TABLE II.10
WHAT CONSTANT DEFICIT-GDP RATIO TO GET HALFWAY TO THE DEBT TARGET ?

	debt ₉₁	ψ_{91}	def ₉₁	debt [*]	The constant deficit-GDP ratio that reduces the debt-GDP ratio halfway to 60% under scenarios:			
					(a)	(b)	(c)	(d)
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
It	101.2	8.8	10.2	80.6	1.4	2.6	0.3	1.4
B	129.4	4.7	6.2	94.7	-1.6	0.3	-1.5	0.5
DK	66.7	4.0	2.0	63.4	2.2	2.4	2.4	2.6
GR	96.4	21.3	16.5	78.2	3.9	5.0	0.6	1.6
IR	102.8	5.1	2.3	81.4	0.2	1.4	0.2	1.4
NL	78.4	5.4	3.9	69.2	1.8	2.3	1.7	2.2
P	64.7	16.1	6.4	62.4	4.3	4.5	2.6	2.7

Scenarios: same as in Table II.8. However, the target debt-GDP ratio is now halfway between the 1991 value and 60%. debt^{*} denotes this new target.

TABLE II.11
WHAT CONSTANT PRIMARY DEFICIT-GDP RATIO TO GET HALFWAY TO THE DEBT TARGET?

	debt ₉₁	ψ_{91}	primary deficit 1991	debt [*]	The constant primary deficit-GDP ra that reduces the debt-GDP ratio halfway to 60% under scenarios:			
					(a)	(b)	(c)	(d)
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
It	101.2	8.8	0.0	80.6	-7.1	-6.1	-6.5	-5.2
B	129.4	4.7	-4.7	94.7	-10.2	-8.2	-9.9	-7.9
DK	66.7	4.0	-5.4	63.4	-2.8	-2.4	-2.9	-2.6
GR	96.4	21.3	3.3	78.2	-7.4	-6.9	-5.9	-4.8
IR	102.8	5.1	-6.0	81.4	-6.6	-5.3	-6.7	-5.4
NL	78.4	5.4	-2.0	69.2	-3.7	-3.2	-3.6	-3.1
P	64.7	16.1	-2.1	62.4	-2.4	-2.4	-1.9	-1.8

Scenarios: same as in Table II.10. The real interest rate is constant at 5% and the growth rate of real GDP is constant at 3%.

Table III.1.
EC General Government Gross and Net Debt, in 1990.

	Gross Debt (% GDP)		Net Debt (% GDP)
	(EC)	(OECD)	(OECD)
Germany	43.6 [*]	43.9	24.1
France	46.6	47.1	25.4
Italy	98.6	103.8	100.9
U.K.	42.8	36.7	30.0
Belgium	127.3	131.5	121.3
Denmark	66.4	59.6	27.3
Greece	93.7	85.2	NA
Ireland	103.0	113.0	NA
Netherlands	78.3	79.8	59.3
Spain	44.5	45.3	32.7
Portugal	68.2	NA	NA
Luxembourg	7.3	NA	NA

^{*} West Germany.

^{**} On a SNA basis except for the UK and Greece where the data are based on national methods.

Sources: EC and OECD Economic Outlook.

FOOTNOTES

We would like to thank Jeffrey Frankel, Rafael Repullo and the other participants in the Economic Policy Panel Meeting of October 15/16 1992 in London, UK, for comments on an earlier version of this paper. Willem Buiter did much of his work on this paper while a Visiting Scholar in the Commodities and Special Studies Division of the Research Department of the IMF, during August 1992. The usual disclaimers apply with unusual force.

¹ A number of other papers have recently analyzed and discussed the case for tight fiscal rules in the context of EMU and presented arguments partly similar to those in our paper. Among the recent important contributions are those by Bean [1992], Begg et. al. [1991], Eichengreen [1992] and Kenen [1992].

² "Uncoordinated and divergent national budgetary policies would undermine monetary stability and generate imbalances in the real and financial sectors of the Community" (Delors Report (1989), page 16).

³ For an detailed overview of this debate, see Woolley [1991]. Recent contributions to the fiscal implications of Maastricht include Buiter [1992], Corsetti and Roubini [1992a] and Eichengreen [1992].

⁴ It does not, however, proscribe the "indirect" purchase of government securities in the secondary market by the future ECSB. Open market operations, foreign exchange market intervention and indeed domestic credit expansion that ends up financing government deficits, remain possible, as long as any sales or purchases of government debt by the ECSB go through the secondary market rather than straight between the government and the ECSB, and as long as they occur at the initiative of the independent ECSB. There is no substantive distinction between the government selling its debt to the private sector and the central bank subsequently buying that debt from the private sector and the government selling debt to the central bank directly.

⁵ After the monetary union, if the Council decides that an excessive deficit exists, it will make fiscal recommendations to the member state (not to be made public at first), establishing a deadline by which to take the necessary corrective steps. If by this time-limit no effective action is undertaken, the recommendations are made public (presumably as a way to embarrass the deviant country) and the member state is required to submit periodic reports about its adjustment efforts. *Finally*, if the fiscal imbalance persists, the Council *may* decide: a) to require the member state to publish additional information before issuing debt; b) to *invite* the European investment bank to reconsider its lending policy towards that state; c) to require the member state to make a non-interest bearing deposit with the Community or d) to impose a fine of "an appropriate size". While the threat of not being allowed to join the monetary union because of failing to meet the fiscal criterion would be a strong sanction against a country interested in joining EMU, the range of sanctions considered for deviant countries after EMU is achieved appears to be quite mild.

⁶ These criteria are presented in Article 109j and explained in detail in the Protocol on the Convergence Criteria. Article 1 of this Protocol states that the price stability criterion "shall mean that a Member State has a price performance that is sustainable and an average inflation rate, observed over a period of one year before the examination, that does not exceed by more than 1.5 percentage points that of, at most, the three best performing Member States in terms of price stability". According to Article 4, "The criterion

on the convergence of interest rates...shall mean that, observed over a period of one year before the examination, a Member State has an average nominal long-term interest rate that does not exceed by more than two percentage points that of, at most, the three best performing Member States in terms of price stability". Article 3 requires a Member State to respect "the normal fluctuations margins...of the European Monetary System without severe tensions for at least the last two years before the examination. In particular, the Member State shall not have devalued its currency's bilateral central rate against any other Member State's currency on its own initiative for the same period".

⁷ See for example the chapter on the implications for public finance of EMU in the Commission of the European Communities (1991) document on EMU.

⁸ For example, the Commission document on the "Economics of EMU" (Commission of the European Communities (1991)) discussed sustainability of debt under the assumption that the long term growth rate is going to be 3.0% for all member states except those whose GDP per capita is more than 25% below average for which growth is forecast to be 3.5% (these are Greece, Spain, Ireland and Portugal).

⁹ German inflation (as measured by the GDP deflator) averaged 4.5% in the 1974-83 period, 2.4% in the 1984-1989 period and accelerated to 3.4% and 4.3% in 1990 and 1991.

¹⁰ See for example the Commission background study on monetary union and the 1991 Annual Report in Commission of the European Communities [1991, 1992].

¹¹ The share of the general government fixed capital formation in GDP was equal to 3.00% in 1990 and 1991 and averaged 3.02% in the 1974-1989 period.

¹² The failure of the Community to consider such a inflation correction leads to gross mistakes in official EC documents measuring whether the EC countries satisfy the "golden rule". For example, the study on budgetary policies in the Community attached to the 1991 Annual Report of the Commission measures gross saving as the difference between nominal net lending (as a % of GDP) and public investment (as a % of GDP). Then, high debt and/or high inflation countries such as Italy, Greece, Belgium, Ireland and Portugal appear as having large (and sometimes huge) dissavings and a failure to satisfy the "golden rule" while a correct measure of savings would show in several cases positive savings.

¹³ Since high debt countries such as Belgium, Ireland, Greece and Italy will only gradually reduce their debt to the 60% level, a deficit target set in terms of nominal deficit, implies that a very small fraction of their public investment would be financed through borrowing even in the best scenario in which their inflation rate has been reduced to the 2% target. Real government savings will be persistently positive.

¹⁴ It should be observed that the high deficit figures in the 1970s were inflated by the high nominal rates of interest associated with the high inflation rates of the post 1973 period, while the Maastricht reference values of 3% appear to be looking forward to a future of balanced growth with low inflation.

¹⁵ Formally, with an N-period real interest rate r_N , an N-period growth rate of real GDP g_N , and a debt-GDP ratio d_{t-1} at the end of period $t-1$, the *required*

N-period primary surplus-GDP ratio s_N^* is given by:

$$s_N^* \equiv \frac{(r_N - g_N)}{(1+g_N) \left[1 - \left[\frac{1+g_N}{1+r_N}\right]^N\right]} \left[1 - \left[\frac{1+g_N}{1+r_N}\right]^N\right] d_{t-1}$$

When $N = 1$, this simplifies to

$$s_1^* = \left[\frac{r_1 - g_1}{1 + g_1}\right] d_{t-1}$$

We also define the *actual N-period primary surplus-GDP ratio*, s_N^a , to be that constant primary surplus-GDP ratio whose present discounted value over N periods is the same as the present discounted value of the actually planned or expected primary surplus-GDP ratio over the next N periods. The actual primary surplus-GDP ratio is denoted s .

$$s_N^a \equiv \frac{(r_N - g_N)}{(1+g_N) \left[1 - \left[\frac{1+g_N}{1+r_N}\right]^N\right]} \sum_{k=1}^N \left[\frac{1+g_N}{1+r_N}\right]^k s_{t-1+k}$$

The *N-period primary gap* in period t , GAP_t^N is defined as the excess of the required N -period primary surplus-GDP ratio, s_R^N , over the actual N -period primary surplus-GDP ratio, s_A^N :

$$GAP_t^N \equiv s_N^* - s_N^a$$

The *N-period myopic primary gap* in period t , $MGAP_t^N$ is defined as the excess of the required N -period primary surplus-GDP ratio, s_N^* , over the actual primary surplus-GDP ratio in period t , s_t :

$$MGAP_t^N \equiv s_N^* - s_t$$

When $N = 1$, the primary gap calculations simplify to:

$$(20) \quad GAP_t^1 = MGAP_t^1 \equiv s_1^* - s_1^a = \left[\frac{r_1 - g_1}{1 + g_1}\right] d_{t-1} - s_t$$

When $N \rightarrow \infty$, the *permanent primary gap* and the *myopic permanent primary gap* are given by

$$GAP_t^\infty \equiv \left[\frac{r_\infty - g_\infty}{1 + g_\infty}\right] d_{t-1} - s_\infty^a$$

and

$$MGAP_t^\infty \equiv \left[\frac{r_\infty - g_\infty}{1 + g_\infty}\right] d_{t-1} - s_t$$

¹⁶ It should be observed that the significant deterioration of the Italian fiscal conditions in early 1992 makes the forecast of a 0.7 surplus as completely unrealistic. Even if the fiscal correction that is now being

considered is implemented, the best outcome for 1992 would not be more than a zero primary balance. In this case the permanent primary gap for 1992 would be 1.9% of GDP rather than 1.2%.

¹⁷ Note that the effective interest rate on the debt of the consolidated general government and central bank will be below that of the general government alone, because of the zero interest rate bearing liabilities of the central bank (the monetary base).

¹⁸ If the 1991 growth rate of nominal GDP is less than 5%, we assumed that the 1991 value is maintained for each subsequent period; similarly, if the 1991 deficit-GDP ratio is below 3%, we assume that the 1991 value is maintained for each subsequent period. We therefore allow for deficit and inflation overachievers. We repeated the simulation for the case where there are no overachievers (i.e. all countries will move to 3% deficits and 5% nominal GDP growth by 1996 or 1998) but the results for what happens to the debt-GDP values were not very different.

¹⁹ In high inflation countries, a serious dent in the debt to GDP ratio would result by assuming that the deficit is reduced immediately to 3% but nominal income growth stays at its initial 1991 high level (in most cases, however, the debt ratio would still be well above 60%: in the case of Italy, for example, it would be 72.6% in 1998). Nonetheless, maintaining high nominal income growth would be inconsistent with the inflation convergence criteria; therefore such an option for reducing the debt ratio is not allowed by the Maastricht rules.

²⁰ Some of the arguments in this section have appeared in recent contributions such as Bean [1992], Begg et. al. [1991], Eichengreen [1992] and Kenen [1992].

²¹ The general government sector includes the central, state, provincial and local authorities as well as social security agencies.

²² The familiar government budget constraint of the macroeconomic literature considers the consolidated general government and central bank. General government debt held by the central bank is netted out; central bank holdings of foreign exchange reserves are treated as an asset of the consolidated central bank and general government sector; base money, a central bank liability, becomes a (largely non-interest bearing monetary) liability of the consolidated central bank and general government sector.

²³ In 1990 the ratio of monetary base to GDP ranged from lows of 4.0, 5.4 and 5.6% for U.K., France and Denmark to highs to 17.8, 19.5, and 23.4% for Greece, Spain and Portugal.

²⁴ If the market value of the public enterprises differs from their continuation value in the public sector, things would be slightly more complicated, as the distribution between the private and public sector of the valuation difference would become important. Conditional on the distribution of the the valuation change, the earlier point stands: Gross public debt would fall if debt is redeemed with the proceeds of the privatization, but there would be no further change in public sector net worth; general government fiscal deficits would be further reduced but the correct fiscal balances of the public sector would not changed any further.

²⁵ If there are persistent national differences in productivity growth rates in the non-traded goods sectors, national inflation differences can persist even with a common currency.

²⁶ Even if the Maastricht Treaty and protocols are interpreted as ruling out cyclical variations in the government deficit centered on the reference value of 3 percent of GDP, cyclical variations in the deficit would still be permitted around an average value sufficiently below 3 percent of GDP. Any attempt to get the average deficit sufficiently far below 3% of GDP to eliminate the risk that cyclical increases in the deficit will take it above the reference value would of course reinforce the contractionary bias of the debt and deficit norms during the transitional period, discussed in Section III.2.

²⁷ In calculating the social rate of return on a public sector investment project, one should of course allow for the costs associated with any unavoidable distortionary financing of the project.

²⁸ Note that what Italy does fiscally, and how Germany responds with monetary policy, really dominates the outcomes for the EC as a whole. Only Italy has both the size and the disequilibrium to make an EC-wide fiscal impact and Germany of course determines monetary policy (short-term nominal interest rates) for the ERM area as a whole.

²⁹ See Ministere de L'Economie et des Finances, Communique, July 29, 1992.

³⁰ The French press release (Ministere de L'Economie et des Finances, Communique, July 29, 1992) correctly points out that some fiscal retrenchment would occur even in the absence of the Maastricht guidelines so that the comparison between the Maastricht scenarios and the reference scenario is affected by the choice of what the reference scenario would be.

³¹ See Ministere de L'Economie et des Finances, Communique, July 29, 1992, Liberation July 29, 1992 and International Herald Tribune, July 29, 1992.

³² See Ministere de L'Economie et des Finances, Communique, July 29, 1992. This official French document presents the results of the IMF study for the growth rate of the EC in the 1993-1996 period under the two scenarios (relative to the reference scenario). These are:

	93	94	95	96	Cumulative output loss 92-96
Scenario I	-0.8	+0.3	+0.3	+0.3	-0.4
Scenario II	-0.9	0.0	+0.1	+0.3	-0.8

³³ See International Herald Tribune, July 29, 1992.

³⁴ Note that under Scenario I interest rate differentials disappear and the common EC level of interest rates is established at the low German level. With real EC output above its reference value by 1995 and nominal interest rates lower than on the reference path, the demand for real money balances must be higher and the stock of real money balances must be larger towards the end of the simulation period under Scenario I than on the reference path. While this increase in real money balances may have been engineered partly by the disinflation at the beginning of the simulation period, it seems likely that it reflects in part an increase in the nominal money stock relative to the reference path. We therefore suspect that the smallness of the output loss under Scenario I is due in part to the fact that, together with a fiscal contraction, Scenario I also has an EC-wide monetary expansion.

³⁵ Like the IMF simulations, their simulation aimed to evaluate the additional policy requirements needed to achieve the inflation and budget deficit targets within 5 years, and the implications of these policies for activity, interest

rates and exchange rates. Note also that, again as in the IMF simulations, the debt criterion has been written off as unrealistic for the high debt EC countries.

³⁶ The simulation assumes that Germany pursues a 2% of GDP deficit target. Interest rates come down by about 100 basis points in Germany over the 5-year period and the interest rates of the other member countries converge to the German level. Here too, EC-wide monetary policy appears to be clearly expansionary.

³⁷ The Italian debt-GDP ratio is effectively unchanged at about 105% at the end of 1996 and the Belgian (about 127%), Dutch (about 77%) and Irish (about 94%) debt-GDP ratios remain far above the Maastricht norm.

³⁸ The OECD simulation (like the IMF) has each national authority pursuing 2 objectives (the deficit-GDP ratio and the inflation rate) with only one "free" instrument (fiscal policy) and another instrument (national monetary policy) that, except for Germany, is effectively emasculated by the requirements of the ERM. It is therefore not surprising that the achievement of the deficit targets is inconsistent with the simultaneous achievement of the inflation targets, which are in fact overshoot for a number of countries, including France, Italy, Belgium, Ireland and Denmark.

³⁹ For the rest of the world, however, they report (contrary to what the standard 2-country Mundell model would lead one to expect) a positive activity effect from a fiscal retrenchment in Europe.

⁴⁰ Note that inflation convergence is built into the base line, unlike the OECD simulation.

⁴¹ Short real rates rise by almost 700 basis points in 1992 (relative to base line) and do not return to their base line level until 1996. Long real rates (not shown in the paper) therefore also increase. All this occurs despite the fact that nominal (ten year) interest rates in Italy fall. Monetary policy in Italy becomes contractionary to prevent a depreciation of the lira vis-a-vis the D-mark. At the end of 1996, the Italian debt-GDP ratio is effectively unchanged, the effect of lower deficit-GDP ratios having been canceled out by lower nominal income growth. The paper erroneously suggests that Italy achieves its debt to GDP target by 1992. What is shown is the ratio of debt to baseline GDP, not to GDP under the Maastricht simulation.

⁴² International mutual insurance against this form of sovereign risk cannot be effective due to "moral hazard" problems.

⁴³ In countries such as the United States and Canada, independent fiscal authorities at the state and regional level are allowed to follow their own budgetary and deficit policies without that affecting or jeopardizing the monetary union of the whole country. This was true even before a significant degree of inter-state income redistribution and *de-facto* income insurance took place through Federal transfer and tax programs (see Sachs and Sala-i-Martin [1992] for a study of the importance of these income sharing arrangements through the Federal budget in the USA).

⁴⁴ The proper response to sovereign default in the EC (pre- or post-EMU) is simple. If, for instance, the German government were to default on its obligations towards creditors resident in Germany, this would be a strictly German problem; at the very least the defaulting government would pay at the next election. If German government non-performance were at the expense of

creditors resident in other EMU countries, there should be no special obligation for the non-German governments or for the supranational Community agencies to compensate the losers. One would of course expect the other national, regional or supranational authorities and the non-German private sector to impose the usual sanctions for foreign sovereign default: no further credit; current transactions on a cash-in-advance basis only; attachment of German official assets abroad etc.

⁴⁵ With the goal of creating appropriate conditions for market discipline to work, it has been argued that regulating banks and financial intermediaries so as to limit the amount of public debt they can hold in their portfolios is an effective protection from systemic risk (Begg et al. [1991]).

⁴⁶ Note, however, that these limits on independence also apply in spades to today's most independent national central bank, the Bundesbank. It had at most an advisory role in the process leading to the German government's early support for EMU and a common currency. It was completely ignored when Chancellor Kohl opted for accelerated monetary unification of the two German states and played no role in the selection of the exchange rate between the former West German and East German marks.

⁴⁷ The counterfactual to the borrowing is current tax financing using the most broadly-based, least distortionary taxes. The effect on the interest rates of other countries is most easily appreciated when there are credibly fixed exchange rates or a common currency. It is also quite likely to be true, however, if the exchange rate floats. Exchange rate risk need not be affected appreciably by the choice between current taxes and borrowing.

⁴⁸ Even if Bonzo's individual actions in the banana market cause only pecuniary externalities, it is clear that, even when we just consider public spending on ordinary consumer goods (such as bananas) without technological external effects, an argument can be still be made that the uncoordinated actions of national governments will not lead to Pareto efficient outcomes. Governments are (potentially) large players in the markets in which they operate, and will not act competitively. Strategic interdependence is always present when we deal with governments, and the equilibria of non-cooperative games will in general be inefficient. They do not lie on the contract curve. With government borrowing things are different. Government debt is not an intrinsically valued consumption or producer good. Variations in the amount of public debt outstanding influence the economy only to the extent that they redistribute resources between heterogeneous economic agents. Non-cooperative government financing games are games of pure redistribution, that is they are games on the contract curve. All equilibria of these games (Nash, Stackelberg or whatnot) are Pareto-efficient. The usual caveats apply about (1) dynamic inefficiency, (2) the provision of intergenerational insurance through the tax-transfer-public debt mechanism in the presence of incomplete markets participation and (3) second best complications in the presence of distortionary taxes and transfers.

⁴⁹ Given the structure of taxation and transfer payments in most EC countries, borrowing involves redistribution from the younger (working) current generations and from future generations to the current older (retired) generations. At given intertemporal relative prices (interest rates), this boosts aggregate consumption today, at the expense of current saving and therefore (barring Keynesian miracles) at the expense of consumption tomorrow. It is important to realize that the government can, through its budgetary

instruments, achieve exactly the same redistribution and exactly the same stimulus to current consumption with a balanced budget (see e.g. Buiter and Kletzer [1992b]). The government deficit and the government debt must be seen in the context of the sum total of redistribution mechanisms between generations.

⁵⁰ In Buiter and Kletzer [1991a,b], this argument is developed at greater length, both at a non-technical level (Buiter and Kletzer [1991b]) and at a technical level (Buiter and Kletzer [1991a]).

⁵¹ The cases of international tax competition, of national subsidy races and of the competitive dismantling of national welfare systems in order to attract foreign direct investment come to mind.

⁵² A warning that German unification and the ensuing fiscal expansion in Germany might lead to a real appreciation of the DM was given early on by a number of authors; see, in particular, Begg et al. [1990].

⁵³ Moreover, since the formal solvency tests only refer to the feasibility rather than the optimality of fiscal policy, evidence in favor of solvency does not necessarily imply that the solvent countries have followed "optimal" fiscal policies. In this regard, the evidence in Roubini and Sachs [1989a, 1989b], Roubini [1991], Cukierman, Edwards and Tabellini [1991] suggests that the tax smoothing view of fiscal policy-making and the optimal seigniorage model of the inflation tax are both rejected for developed as well as developing countries. In particular, transitory shocks to output and government spending fail to explain the movements of public debt in a large set of countries and inflation rates do not appear to be correlated (or co-integrated) with tax rates.

⁵⁴ See Buchanan, Rowley and Tollison [1986], Roubini and Sachs [1989a, 1989b], Tabellini [1991], Alesina and Drazen [1991], Alesina and Tabellini [1990], Tabellini and Alesina [1990], Nordhaus [1975] Rogoff [1990] and Rogoff and Sibert [1989]. For a more systematic survey of this literature see Corsetti and Roubini [1992a].

⁵⁵ Similarly, Alesina and Roubini [1992] and Alesina, Cohen and Roubini [1992, 1993] find partisan and political business cycle effects on inflation rates for a large set of OECD countries.

⁵⁶ For a more extended discussion of these issues, see Corsetti and Roubini [1992a, b].

⁵⁷ This means that the product of the stock of net government debt and the rate of growth of nominal GDP is subtracted from the government's structural current deficit.

⁵⁸ Note that this makes sense only if public sector capital formation yields a cash rate of return to the government equal to its cost of borrowing. In that case the criterion amounts to aiming for a zero or negative single-period primary gap.

⁵⁹ Net debt refers to public sector debt minus public sector financial and real assets.

⁶⁰ On this point see the discussion in Garrett and Weingast [1991].

⁶¹ Weingast and Garrett [1991] and Milgrom, North and Weingast [1990] stress this important role of institutions as a means to enforce cooperation.

⁶² While the national central banks will formally survive after EMU, they will be no more than branch offices of the ECB, with no substantive autonomy.

⁶³ See Hamada and Porteus [1992] for an historical perspective on monetary union and political integration.

LISTED BELOW IS A SUMMARY OF RECENTLY PUBLISHED ECONOMIC GROWTH CENTER DISCUSSION PAPERS.
 COPIES ARE AVAILABLE AT \$2.00 EACH PLUS POSTAGE BY WRITING TO THE PUBLICATIONS OFFICE,
 ECONOMIC GROWTH CENTER, P.O. BOX 1987, YALE STATION, NEW HAVEN, CONNECTICUT 06520.

642. "Saving and Endogenous Growth: A Survey of Theory and Policy," September 1991. (58 pp.) Willem H. Buiter
643. "Public Policy and Anthropometric Outcomes in the Cote d'Ivoire," October 1991. (36 pp.) Duncan Thomas
 Victor Lavy
 John Strauss
644. "Agricultural Research Productivity in Pakistan," May 1991. (119 pp.) Qazi Tauqir Azam
 Erik A. Bloom
 Robert E. Evenson
 Robert J. Barro
 Xavier Sala-i-Martin
645. "Convergence," July 1991. (44 pp.) Nouriel Roubini
 Xavier Sala-i-Martin
646. "Financial Development, the Trade Regime, and Economic Growth," October 1991. (57 pp.) Nouriel Roubini
 Xavier Sala-i-Martin
647. "Smoothing Primary Exporters' Price Risks: Bonds, Futures, Options and Insurance," October 1991. (52 pp.) Kenneth M. Kletzer
 David M. Newbery
 Brian D. Wright
648. "Measuring the Value of Children by Sex and Age Using A Life Cycle Model of Fertility," November 1991. (34 pp.) Namkee Ahn
649. "Wages, Schooling and Background: Investments In Men and Women in Urban Brazil," November 1991. (50 pp.) John Strauss
 Duncan Thomas
650. "Regional Growth and Migration: A Japan-U.S. Comparison," December 1991. (55 pp.) Robert J. Barro
 Xavier Sala-i-Martin
651. "Transitional Dynamics in Two-Sector Models of Endogenous Growth," January 1992. (59 pp.) Casey B. Mulligan
 Xavier Sala-i-Martin
652. "Taxes and the Form of Ownership of Foreign Corporate Equity," November 1991. (37 pp.) Roger H. Gordon
 Joosung Jun
653. "Two Blades of Grass: Research for U.S. Agriculture," January 1992. (70 pp.) Robert E. Evenson
654. "Should We Worry About the Fiscal Numerology of Maastricht?" March 1992. (29 pp.) Willem H. Buiter
655. "Capital Mobility in Neoclassical Models of Growth," March 1992. (34 pp.) Robert J. Barro
 N. Gregory Mankiw
 Xavier Sala-i-Martin
656. "Distribution of Rents and Growth," April 1992. (29 pp.) Charles Engel
 Kenneth M. Kletzer
657. "Pensions," April 1992. (58 pp.) Xavier Sala-i-Martin
658. "A Growth Model of Inflation, Tax Evasion and Financial Repression," April 1992. (39 pp.) Nouriel Roubini
 Xavier Sala-i-Martin

659. "Government Solvency, Ponzi Finance and the Redundancy and Usefulness of Public Debt," April 1992. (44 pp.) Willem H. Buiter
Kenneth M. Kletzer
660. "Cigarette Demand, Health Scares and Education in Turkey," April 1992. (24 pp.) Aysit Tansel
661. "Wage Employment, Earnings and Returns to Schooling for Men and Women in Turkey," April 1992. (27 pp.) Aysit Tansel
662. "The Relationship Between Local Family Planning Expenditures and Fertility in Thailand, 1976-1981," April 1992. (42 pp.) T. Paul Schultz
663. "Measurement of Returns to Adult Health: Morbidity Effects on Wage Rates in Cote D'Ivoire and Ghana," April 1992. (27 pp. plus tables) T. Paul Schultz
Aysit Tansel
664. "Permanent International Productivity Growth Differentials in an Integrated Global Economy. The Roles of Households, Non-Tradedness, Self-Financing and Fiscal Policy," June 1992 (38 pp.) Willem H. Buiter
Kenneth M. Kletzer
665. "A Comparative Study of Fertility Determinants in Togo and Uganda: A Hazard Model Analysis," August 1992 (27 pp.) Namkee Ahn
Abusaleh Shariff
666. "Public Welfare and Growth," June 1992 (32 pp.) Xavier Sala-i-Martin
667. "Gender, Intrafamily Allocation of Resources and Child Schooling in South India," January 1992 (26 pp.) P. Duraisamy
668. "The Demographic Transition in Southern Africa: Another Look at the Evidence from Botswana and Zimbabwe," June 1992. (26 pp.) Duncan Thomas
Ityai Muvandi
669. "The Distribution of Income and Expenditure within the Household," July 1992. (32 pp.) Duncan Thomas
670. "The Role of Education and Human Capital in Economic Development: An Empirical Assessment," August 1992. (30 pp.) T. Paul Schultz
671. "U.S. Money Demand: Surprising Cross-Sectional Estimates," September 1992. (60 pp.) Casey B. Mulligan
Xavier Sala-i-Martin
672. "The Reconstruction and Stabilization of the Postwar Japanese Economy: Possible Lessons for Eastern Europe?" September 1992. (54 pp.) Koichi Hamada
Munehisa Kasuya
673. "Leaving Parental Home: Census-Based Estimates for China, Japan, South Korea, United States, France, and Sweden," July 1992. (43 pp.) Zeng Yi
Ansley Coale
Minja Kim Choe
Liang Zhiwu
Liu Li
674. "Excessive Deficits: Sense and Nonsense in the Treaty of Maastricht," November 1992. (87 pp.) Willem H. Buiter
Giancarlo Corsetti
Nouriel Roubini