

Robert Schuman Centre for Advanced Studies

**“Close to Balance or in Surplus”
A Policy Maker’s Guide
to the Implementation of the Stability
and Growth Pact**

Michael J. Artis and Marco Buti

RSC No. 2000/28

EUI WORKING PAPERS



EUROPEAN UNIVERSITY INSTITUTE

All rights reserved.
No part of this paper may be reproduced in any form
without permission of the authors.

© 2000 Michael J. Artis and Marco Buti
Printed in Italy in June 2000
European University Institute
Badia Fiesolana
I – 50016 San Domenico (FI)
Italy

Robert Schuman Centre for Advanced Studies

Programme in Economic Policy

The Working Papers series

The Robert Schuman Centre for Advanced Studies' Programme in Economic Policy provides a framework for the presentation and development of ideas and research that can constitute the basis for informed policy-making in any area to which economic reasoning can make a contribution. No particular areas have been prioritized against others, nor is there any preference for "near-policy" treatments. Accordingly, the scope and style of papers in the series is varied.

Visitors invited to the Institute under the auspices of the Centre's Programme, as well as researchers at the Institute, are eligible to contribute.

Abstract*

Under the Stability and Growth Pact, countries are committed to achieve medium-term budget positions of “close to balance or in surplus”. The rationale for this commitment is that such budgetary positions would allow for the full working of the built-in stabilisers without triggering the sanctions procedures of the Pact. The paper sets out to show how quantifications of the medium-term (“structural”) requirement can accommodate the desired aim and suggests how fiscal measurement and forecasting errors as well as the budgetary effects of ageing may be allowed for. All in all, broadly balanced budgets in the medium term appear to be “roughly right” for most euro-area countries. Of course, as the cyclical behaviour of the euro-area economy adapts to the new EMU environment, the medium-term targets will need to be addressed again.

JEL classification: E61, H6

* Mike Artis (European University Institute), Marco Buti (European Commission). The authors would like to thank Filip Keereman who has supplied the data for the estimates provided in section III.3 and Juan Toro and Maarten van de Stadt for excellent research assistance. The authors are grateful for helpful comments to a number of Commission economists, in particular Jonas Fischer, Mervyn Jones and Massimo Suardi, and participants in a seminar at the European University Institute, Florence; in the conference sessions of the International Atlantic Economic Society held in Munich, in particular Bernd Hayo; and in the ESRC/JCMS/CEPR workshop “EMU’s First Birthday”, held at South Bank University, London. Any remaining mistakes are obviously ours. The opinions expressed in this article only commit the authors and do not necessarily correspond to those of the European Commission or its services.

Correspondence: artis@datacomm.iue.it, marco.but@cec.eu.int.

“It is better to be roughly right than precisely wrong”
(J.M. Keynes)

I. INTRODUCTION

The Maastricht Treaty introduced convergence requirements on fiscal policy as a condition of eligibility for membership of Economic and Monetary Union (EMU). These requirements were spelled out in terms of “reference values” for the deficit-to-GDP ratio and the debt-to-GDP ratio (3% of GDP and 60% of GDP) with “forgiveness clauses” to accommodate deviations from these values. The Stability and Growth Pact demands that the countries of the European Union (EU) aim for “medium-term objectives of budgetary positions close to balance or in surplus”. The Pact can be seen as strengthening the procedures introduced by the Maastricht Treaty, at least in relation to the deficit criterion. Its objective is to ensure respect fiscal prudence, as embodied in the fiscal criteria, applies not only in the run up to, but also in monetary union, i.e. once participation in the euro-area has already been achieved and the threat of exclusion dissolved.

The aim of this paper is to provide the policy maker with a roadmap in implementing this important clause of the Pact. It takes the current EMU institutional framework as given and does not re-evaluate the economic merits of numerical rules *à la* Maastricht or discuss the pros and cons of the set-up laid out in the Stability and Growth Pact. We ask how to set the medium-term fiscal targets having in mind the need to strengthen the credibility of EMU fiscal discipline, the objective of restoring room for manoeuvre for cyclical stabilisation in EMU, and the long term sustainability of public finances. In short, the task is to show how to set a medium-term fiscal target which is “roughly right”.

The Maastricht deficit criterion pertains to the actual value of the unadjusted, interest-inclusive deficit. The choice of the actual deficit is dictated by the legal exigencies of the focal position the deficit occupies in the Maastricht Treaty. This means that the definition chosen had to be as free as possible from methodological ambiguities. However, there are good reasons for thinking that a better description of the “thrust” of fiscal policy is to be found in the concept of the structural balance, a point that has been made with particular reference to the provisions of the Stability Pact by, e.g. Eichengreen (1997). As the medium-term budget target can be seen as a cyclically-adjusted position, the Pact represents an “economics friendly” innovation compared to the Treaty.

In his proposal for a “Stability Pact for Europe” in November 1995, the German Finance Minister, Theo Weigel, proposed to set a medium-term goal of 1% deficit of GDP, thereby providing a safety margin of 2% points of GDP. During the negotiations on the Pact, however, it emerged that a uniform safety margin was not appropriate given the different sensitivity of the budget balance to the economic cycle and the different cyclical behaviour across EU countries. In particular, a budget surplus was felt to be appropriate in the case of Nordic countries. Some governments (Sweden) also insisted on mentioning a surplus target explicitly as they had already announced such an objective in their programme and risked a backlash in public opinion in the event of a “looser” European clause. The compromise was a call for budgetary positions of “close to balance or in surplus”.

However, no precise definition is given of this concept. Several factors have been highlighted in the debate¹. First, the influence of fluctuations in economic growth on the government’s budget needs to be considered. This is clearly spelled out in the Resolution of the European Council on the Stability and Growth Pact, which states that “adherence to the objective of sound budgetary positions close to balance or in surplus will allow all Member States to deal with normal cyclical fluctuations while keeping the government deficit within the value of 3% of GDP.” A supplementary safety margin may need to be ensured in the case of countries having a “taste” for active counter-cyclical budgetary policy working on top of the automatic stabilisers. Secondly, a safety margin around the medium-term budgetary positions may be required to cope with unforeseen variability in the budget balance arising from non-cyclical factors such as unexplained tax shortfalls, interest rate shocks, etc.. Finally, there is the issue as to whether the medium term targets should encompass directly the need to prepare for the future fiscal burden of population ageing.

The paper analyses the factors influencing the setting of fiscal targets and provides initial evidence on how to quantify them. In doing so, the basic assumption is made that member countries will treat the prospect of infringing the 3% deficit ratio as one to be strictly avoided. That is, we assume that the cost of risking the triggering of the sanctions procedure of the SGP is regarded by all countries as large. Those costs of course include not only the formal financial penalties envisaged in the sanctions procedure but also the costs that the market might inflict and the loss of political “face” that could be involved. Since the invocation of the sanctions procedure depends on qualified majority voting, situations are imaginable in which the sanctions could be deflected by political coalitions within the ECOFIN Council (“hard to punish one of us”). As we do

¹ See Buti *et al.* (1998) and European Commission (1999).

not consider these situations our analysis can be treated as a benchmark, applicable in the case where the sanctions are fully credible.

After a brief section where we argue that fiscal discipline is a pre-condition for the use of fiscal policy for stabilisation purposes, we illustrate in the third section the economic mechanisms at work through a simple model which examines the interplay between national fiscal authorities and supranational monetary authority. This section goes on to present the currently available estimates for the cyclical safety margin which would allow countries to respect the deficit ceiling in economic downturns while letting automatic stabilisers work freely. It also provides a tentative quantification of unforeseen fiscal developments which, if sizeable, may also be a source of risk. The fourth section introduces some considerations on the consistency between the close to balance provision and the long-term sustainability of public finances. As a first step in computing a long-run safety margin, it presents a tentative quantification of the required structural balance to pre-empt the budgetary consequences of future demographic developments. The final section concludes.

II. FISCAL DISCIPLINE AS A PRE-CONDITION FOR FISCAL FLEXIBILITY

The goal of fiscal prudence is translated within the framework of the Pact into a commitment by EU countries to aim for a budgetary position providing a large enough safety margin so that the 3% of GDP deficit criterion will not be breached in the event of recessions.

Does the requirement for fiscal prudence embodied in the Maastricht criteria and the Pact hamper fiscal stabilisation? If so, the loss of monetary independence compounded by constrained fiscal policies may lead to a sub-optimal degree of stabilisation especially in the event of country-specific shocks. During the initial years of EMU, before the budgetary targets will have been achieved, cyclical stabilisation may be restricted because of the closeness of initial deficits to the 3% ceiling (Allsopp and Vines, 1996, and Eichengreen and Wyplosz, 1998). Indeed, as already pointed out by Buti *et al.* (1997, p. 362), “in the event of a severe recession during the early years of EMU, since several countries will still have deficits in the 2% to 3% of GDP range, they risk moving into excessive deficit, unless they take a pro-cyclical budgetary stance”.

Beyond this transition period, however, no contradiction exists between fiscal discipline and fiscal flexibility. To the contrary, the Stability and Growth Pact can be interpreted as a commitment device to recover room for manoeuvre for fiscal policy to sustain the cycle. Indeed, sound budgetary positions in “normal” times may be important for the effective use of fiscal policy for

stabilisation purposes in periods of cyclical slowdown. This conclusion is based on two related sets of considerations: the effectiveness of fiscal expansions under conditions of “fiscal stress”, on the one hand, and the actual behaviour of fiscal authorities in cyclical slowdowns, on the other hand.

According to a recent literature, the traditional Keynesian effects of fiscal policies may be reversed in conditions of considerable imbalances in the public finances. The unsustainability threat arising from a fiscal expansion when public debt is of high or rapidly growing may imply substantial premia in interest rates to cover for explicit or implicit default risks. This may crowd out investment, thereby offsetting the direct effect of the budgetary boost. On the consumption side, “when debt reaches extreme values current generations of consumers know that they will be alive when the next stabilisation programme is implemented. A fiscal deficit can have a contractionary effect on consumer spending in these situations.” (Sutherland, 1997)².

Empirical evidence in favour of non-Keynesian effects in the presence of high fiscal imbalances is found by Perotti (1999). In a panel regression on 20 OECD countries, this study finds that the effects of spending shocks on private consumption are positive under normal circumstances, but that the opposite holds in situations of fiscal stress. In Arreaza *et al.* (1998), the point estimates for the EU countries during 1971-93 indicate that smoothing through the government deficit is higher for low deficit countries. However, this does not hold for the OECD group, leading the authors to conclude that there is no evidence of a relation between the size of the deficit and the amount of consumption smoothing it provides. Alesina and Ardagna (1998) and Giavazzi *et al.* (1998) find also no strong evidence that high or increasing debt ratios are associated with non Keynesian effects.

As the empirical evidence is mixed, it may be useful to look at the actual behaviour of governments during periods of slowdown. The use of fiscal policy (or lack thereof) could be taken as an indication of its perceived *ex ante* effectiveness to support demand. Buti *et al.* (1997) have examined the behaviour of the fiscal authorities in EU countries in severe recession episodes over the period 1960-97. Severe recessions are those defined as involving a drop in real GDP of 0.75% or more, which would potentially trigger the “exceptionality clause” under the Pact³. As shown in Table 1, countries with low debt and

² In the seminal paper by Bertola and Drazen (1993), the element triggering the occurrence of non-Keynesian effects is the level of government spending.

³ This clause recognises that, in the event of a harsh and persistent recession, the budgetary room for manoeuvre between close-to-balance and a deficit of 3% of GDP may not be sufficient to cushion the negative effects of a severe economic downturn. The latter is considered ‘exceptional’ if there is an annual fall of real GDP of at least 2%. An annual fall of

deficits have in fact responded to such severe shocks via fiscal policy much more than countries with highly unbalanced public finances.

Table1: Comparison of Budgetary Reactions to Severe Recessions Starting from Different Pre-recession Budgetary Situations (1961-97)

Pre-recession budgetary situation	Cumulative change between year before recession and last year of the recession (average over episodes)			
	actual deficit	<u>Of which:</u> primary deficit	structural deficit	<u>Of which:</u> structural primary deficit
-Member States with deficit and debt ratios above the EU average	1.9	-0.4	1.1	-1.2
-Member States with deficit and debt ratios below the EU average	5.1	1.4	4.4	0.8
Average over all episodes	3.6	0.5	2.8	-0.1

Source: Buti *et al.* (1997).

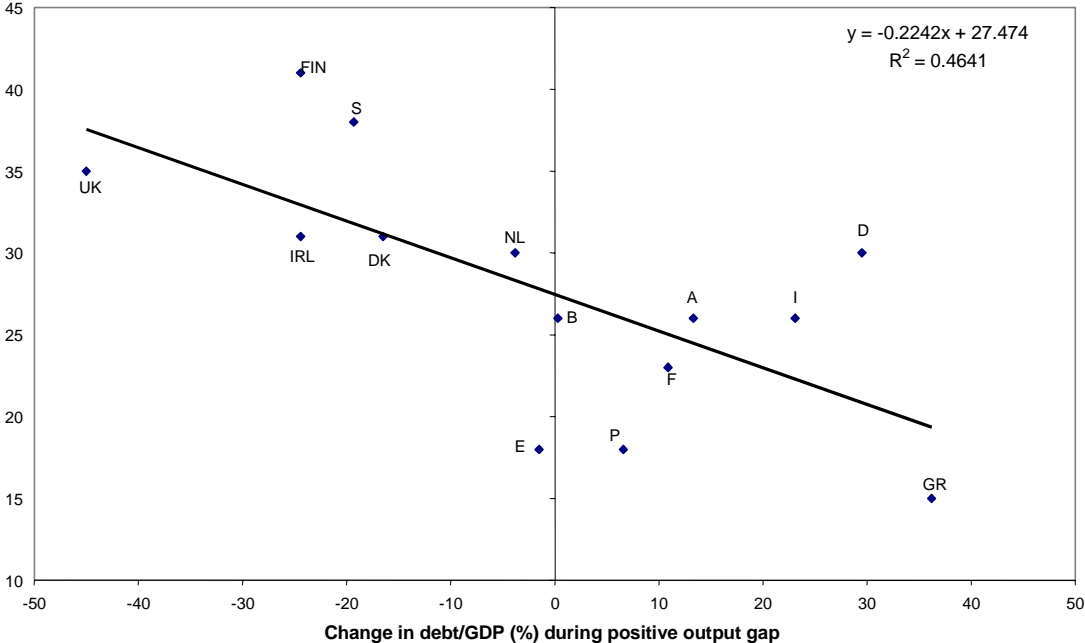
Member States with high deficit and debt ratios tightened their fiscal stance and reduced their structural primary deficit by 1.2 percentage points of GDP on average during severe recession episodes. Fiscal retrenchment policies aimed at preventing a worsening of the budgetary situation were adopted especially during protracted recession periods. On the contrary, countries with relatively lower deficit and debt ratios undertook “prudent” fiscal relaxation policies by supplementing their automatic stabilisers with an increase in their structural primary deficits of 0.8 percentage points of GDP. As discussed in Buti *et al.* (1998), this pattern appears to be confirmed when attention is shifted from severe recessions to normal cyclical slowdowns. Evidence of a positive interplay between fiscal discipline and fiscal stabilisation is also found in Leefink (2000).

That fiscal discipline and fiscal flexibility are in mutual support is suggested by the observation that countries with strong built-in stabilisers, which produce large swings in the deficit over the cycle, have managed to

GDP of less than 2% could nevertheless be considered exceptional in the light of further supporting evidence, such as the abruptness of the downturn or the accumulated loss of output relative to past trends. In any event, in evaluating whether the economic downturn is severe, the Member States will, as a rule, take an annual fall in real GDP of at least 0.75% as a reference point.

maintain their average stock of debt within reasonable boundaries. This is illustrated in Graph 1. On the X-axis is depicted the change in the public debt ratio during positive output gaps over the past three decades, as estimated by the European Commission. Clearly, a large majority of EU countries continued to accumulate debt even in periods of above-trend growth, providing *prima facie* evidence that they did not follow “tax-smoothing”. On the Y-axis, the graph shows the degree of stabilisation provided by automatic stabilisers as estimated by the Commission services’ QUEST model. The smoothing effect of the automatic stabilisers was computed as the difference in output changes following a private consumption shock under a scenario in which the stabilizers are free to work and an alternative scenario in which the stabilisers were prevented from operating *via* discretionary counterbalancing measures (Buti and Sapir, 1998). Although only suggestive, the negative correlation shown in the graph underpins the view that strong fiscal discipline in “good times” goes hand in hand with fiscal stabilisation in “bad times”.

GRAPH 1. Stabilisation and public debt accumulation



Source : Buti and Sapir (1998) and own calculations

III. RESPECTING THE DEFICIT CEILING

III.1. An Illustrative Model

The approach underlying the Pact is that EMU countries select an appropriate structural budgetary position and then let the automatic stabilisers work freely. This target should be sufficiently ambitious to withstand cyclical fluctuations without exceeding the 3% deficit ceiling. Throughout this paper, in line with the Maastricht institutional framework, it is assumed that the overriding concern of fiscal authorities is to prevent the budget deficit from exceeding a given ceiling even in bad circumstances whilst allowing the built-in stabilisers to play fully. Therefore, the budgetary target is selected by positing “extreme” negative values of shocks affecting the economy. This approach implicitly assumes that the costs associated with violating the target are very high. In EMU, these costs comprise the sanctions under the Stability and Growth Pact and, probably more importantly, the reputational loss brought about by an excessive deficit position. There may be a financially costly correlate to this loss of reputation, if markets dump the debt of the country concerned. As argued by, e.g. Eichengreen and Wyplosz (1998), and confirmed by the concrete experience so far with the application of the Pact, the 3% ‘limit’ has indeed become a “hard” ceiling.

The safety room under the deficit ceiling depends on several factors. In order to explore the mechanisms at work, we lay out a simple model which illustrates various channels influencing the choice of the medium-term fiscal target.

The model is formally presented in Annex 1. We look at a single country within a monetary union. The model encompasses a demand-(IS) equation and a supply-(Phillips curve) equation of standard type determining the value of the output gap and inflation. The policy rules are very simple:

- According to the approach sketched out above, national fiscal authorities set a target for the cyclically-adjusted balance and then let automatic stabilisers work. This formulation implies that, when interest rates move, there occurs an internal compensation between the interest burden and the primary balance so as to keep the structural balance constant. Therefore, even if there is no active Keynesian fiscal policy, some discretionary adjustments within the budget do take place. While playing a role implicitly within the structural balance, the stock of public debt explicitly enters the IS equation via the fiscal impulse variable, which is assumed to be the inflation-adjusted budget balance.

- The monetary authority follows a Taylor rule, taking into account the average inflation and output gap in the currency area. Given the fact that the monetary authorities do not target an unemployment rate below the NAIRU, the model does not exhibit the Barro-Gordon inflation bias. Provided that the coefficient of inflation is sufficiently high, this formulation appears to be consistent with the primary statutory duty of the ECB to ensure price stability. Moreover, as pointed out by Svensson (1999), a positive weight on the output gap may signal that the central bank is concerned about future inflationary pressures rather than explicitly caring about output stabilisation.

The interactions within the monetary union arise via the behaviour of the central bank and trade linkages between the member countries (the currency union as a whole is assumed to be a closed economy). These two channels are influenced by the type of shocks hitting the countries. In order to simplify the analysis, two extreme categories of shocks are considered:

(a) “pure symmetric” shocks. Since we disregard the asymmetric responses to symmetric disturbances arising from different transmission mechanisms (e.g. industry structure, degree of labour market flexibility, etc.), these shocks affect the member countries in an identical manner and the countries’ external balance does not change. Hence, beside the automatic fiscal stabilisers, only the monetary smoothing channel is at work.

(b) “pure asymmetric” shocks in which a shock hitting the domestic country is fully offset by an identical shock of the opposite sign affecting the other member countries. As the average output gap and inflation of the currency area do not change, the interest rate does not move and only the balance of payments operates in smoothing output.

The medium-term budgetary target is computed on the basis of the “worst possible” shocks affecting the economy. These shocks, by feeding through the economy and interacting with the monetary and fiscal behaviour, give rise to large, negative output gaps. The initial deficit position has to be sufficiently low to accommodate such adverse circumstances without exceeding the nominal deficit ceiling. To be on the safe side the most binding cases across different types of shocks are retained.

As shown in Annex 1, the fiscal target is influenced by the structural features of the model, in particular the level of public debt, the cyclical sensitivity of the budget and the relative size of the domestic economy within the monetary union. It depends also on the assumed reaction function and the

degree of conservatism of the central bank. Crucially, the way in which these elements affect the fiscal target depends on the most binding shock and its synchronicity across frontiers.

The general conclusions derived formally in Annex 1 are summarised in table 2.

In the case of *demand shocks*, a country which is in tune with the rest of the currency area (hence is affected mainly by symmetric disturbances) can select a less (more) ambitious budgetary target if monetary smoothing is stronger (weaker) than the balance of payments smoothing. This is likely to be the case of a large country, which is less affected by the external balance and, by influencing the monetary union average, can more likely trigger a favourable monetary response. On the opposite side of the spectrum, a small country with a cycle “out of synch” with the rest of the currency area will have to face the perverse effect of monetary policy whilst benefiting from the rise in net exports. Countries with a high debt can choose less ambitious targets because the lower inflation causes a fall in the inflation tax, thereby limiting the deterioration of the output gap. For identical levels of debt, the inflation tax goes down more in the asymmetric country because its inflation rate is allowed to fall without an intervention by the central bank. Notice also that countries with a more flexible labour market (that is a higher coefficient of the inflation surprise in the Phillips curve) need to select a more ambitious budgetary target because the fall in inflation brings about a larger fall in the output gap. Again, this effect is higher in the case of asymmetric shocks.

In the case of *supply shocks*, a rise in inflation goes hand in hand with a negative output gap. The fiscal target is influenced by the degree of conservatism of the central bank. If the shock is symmetric, a “hard nosed” central bank will react to the rise in inflation with a pro-cyclical rise in interest rates, which leads to an even larger negative output gap. Hence, in order to let automatic stabilisers work fully without breaching the deficit criterion, the fiscal target has to be more ambitious. If the shock is asymmetric, the net smoothing effect brought about by the external balance depends on the relative importance of the income effect (positive) and the competitiveness effect (negative)⁴. All in all, a small country “out of synch” with the average cycle of the currency area can choose a less ambitious budgetary target. Due to a rise in the inflation tax, countries with a high stock of debt have to set more ambitious fiscal targets. However, given the already high interest burden, these countries may hit their

4 An important aspect not captured in this simple framework is the persistence of the shock. If, for instance, a long-lasting negative supply shock reduces output potential, taxes and spending will have to be adjusted on a structural basis. However, cyclical stabilisers may ease the adjustment process.

“maximum politically feasible primary surplus” (Blanchard, 1984), thereby running against a “political feasibility constraint”. An increase in the degree of “conservatism” of the central bank entails a lower decrease in the medium-term target in high debt countries than in low debt countries. This is because under a

Table 2: Fiscal and non Fiscal Stabilisers in the Event of a Negative Shock under a “Conservative” Central Bank

Country behaviour Type of shock	Symmetric	Asymmetric
Demand (fall in the output gap and inflation)	Monetary loosening Automatic fiscal stabilisers	Increase in net exports Automatic fiscal stabilisers
The impact on the medium term budgetary target depends on the relative importance of monetary and foreign trade smoothing		
Supply (rise in inflation coupled with a fall in the output gap)	Pro-cyclical monetary policy Automatic fiscal stabilisers	Negative competitiveness effect versus positive absorption effect Automatic fiscal stabilisers
Under standard values of the parameters, a more ambitious fiscal target is needed in the case of a country with a symmetric behaviour		

more conservative central bank inflation will rise by less. Therefore, countries with a higher stock of debt will experience a lower increase in the inflation tax. Contrary to the case of demand shocks, countries with a more flexible labour market can select a less ambitious fiscal target.

Fiscal shocks cover essentially unexpected tax shortfalls or unforeseen expenditures, including interest rate shocks to the extent that the change in the interest burden is not fully offset by an opposite move in the structural primary balance. Whilst demand or supply shocks are likely to be the “binding” shocks, adverse fiscal shocks can play a role if the country wants to be on the safe side by creating an additional safety margin under the deficit ceiling. If fiscal shocks encompass not only fiscal forecasting errors, but also discretionary “surprise” fiscal policies, governments with a taste for Keynesian fiscal policies will have to set tougher medium-term fiscal targets to create the room for active use of the budget. In all cases, as expected, the higher the budgetary sensitivity to the cycle, the lower the deficit target will have to be.

The main conclusion of the above discussion is that the degree of ambition of the medium-term target is influenced by the type of “most binding” shock (either supply or demand shock), the size of the country (which affects the degree of symmetry of the shocks) and the public finance variables (stock of debt, cyclical sensitivity of the budget, “pure” fiscal shocks). The behaviour of the central bank also has an important role. Given the reaction function of the central bank, under the assumption of a “hard-nosed” central banker, large countries (affecting the monetary union average) should fear more negative supply shocks, whilst in the case of small, de-synchronised countries negative demand shocks are more likely to bite.

III.2 Estimates of the “Worst” Cyclical Component

To identify a ‘safe’ budgetary position allowing the deficit to be kept below 3% of GDP, the influence of all factors contributing to the volatility of the budget balance needs to be examined. Many of these aspects are likely to change in the new EMU framework.

Size, origin and synchronicity of the shocks will affect the size and volatility of cyclical fluctuations in output. While EMU will entail changes it is not clear in what direction these will run. In the longer run, it might be expected that cyclical variations will become more synchronised between EMU members. Given the stability-oriented macroeconomic framework of EMU, country-specific, policy-induced shocks are likely to decrease in the euro area. Furthermore, trade integration may spread shocks more uniformly across frontiers and higher competition in product markets will reduce the risk of wage setting shocks (Buti and Sapir, 1998). As argued in section II above, sound macroeconomic conditions will also increase the smoothing effectiveness of stabilisation policies⁵. The extent of these convergence-promoting effects is not known, however and trade-induced patterns of industrial specialization may change in a direction that promotes some divergence. However, in the shorter run, different economic structures as well as lack of full availability of stabilisation instruments may work in the opposite direction. Furthermore, what is relevant for the present analysis is not the impact of the new EMU framework on the “normal” cyclical profile of EMU members, but the exposure of these economies to important economic shocks giving rise to “large” output gaps.

It is also unclear whether the sensitivity of budget balances to the cycle will change significantly once in EMU. Even in the event that the ongoing reforms of the tax system – in particular of corporate taxes and social security

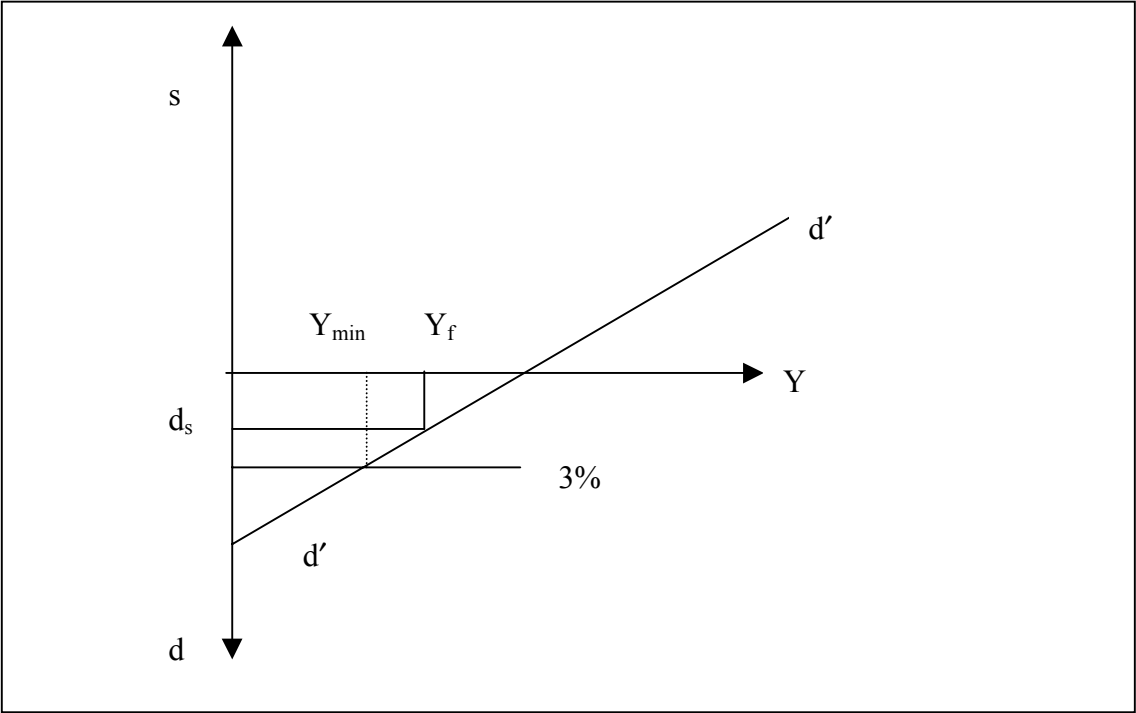
⁵ Beside the arguments recalled in the previous section, Dekten (1999) argues that a monetary policy delivering price stability increases the effectiveness of fiscal policy by reducing the degree of Ricardianism of the economy.

contributions – and of transfer payments to the unemployed lead to a reduction of the budget’s cyclical sensitivity, such an effect will not take place overnight. It can therefore be assumed that the sensitivity of the budget to the cycle will not change much in the coming years⁶.

As discussed in the previous section, the exact nature of the ECB’s monetary strategy is bound to play an important role. In relation to the pre-ERM era, of course, countries are giving up the possibility of using their own monetary policy actions to stabilize their economies; however, compared to the ERM period, (non-German) countries can expect a proportionate weight in ECB decisions which they did not have in the Bundesbank’s policy⁷.

All in all, EMU is “too young” to allow us to identify as yet the direction of change. Given these uncertainties, we have resorted to the analysis of past cyclical history of EU member countries. To give some quantified indications, illustrative country-specific “minimal benchmarks” have been calculated on the basis of estimates for the largest possible cyclical component that occurred in the past.

Graph 2: Finding the Safe Medium Term (structural) Deficit



6 On the issue of the different smoothing effectiveness in countries featuring an analogous degree of fiscal sensitivity to the cycle, see Roeger and Wijkander (1999).

The basis for the estimates, which are detailed in Table 3, is conveyed in Graph 2. Here the level of output (Y) is measured along the horizontal axis, the budget surplus (s) and deficit (d) ratios along the vertical. The schedule $d'd'$ represents a country's "fiscal programme". The value of output corresponding to the natural rate of unemployment is designated as Y_f . The corresponding level of the deficit, d_s , given by the schedule $d'd'$, is the structural deficit associated with the fiscal programme. The slope of the $d'd'$ schedule corresponds to the estimates of the budget sensitivity to output gap changes which are computed by all three of the leading international economic policy advisory organizations – the OECD, IMF and EC.

The values used here are those produced by the European Commission and are shown in the first column of Table 3. The calculation of the 'safe' structural deficit is the one that ensures that at the lowest level of output foreseen (Y_{min}), the fiscal programme and its associated structural deficit do not produce a current deficit in excess of 3 per cent of GDP. As drawn, the fiscal programme $d'd'$ and its associated structural surplus are just adequate in this respect. A fiscal programme displaced downwards from that shown would run the risk of producing a deficit in excess of 3 per cent in the case that the 'worst case' output gap should be realized.

Clearly, the selection of that 'worst case' is critically important to the calculation of the 'safe' structural deficit. The footnote (2) to Table 3 indicates that what was done here, in fact, was to take three possible values for Y_{min} and to choose as the safe figure, the mid-point of the range of the two most conservative structural deficit figures.

These calculations allow to compute the so-called "minimal benchmarks" (European Commission, 1999). As shown in Table 3, assuming that the cyclical behaviour of EU economies does not change with the advent of EMU, Belgium, Denmark, Spain, Ireland, Luxembourg, the Netherlands, Portugal and the United Kingdom will have to aim for a structural budgetary deficit of between 0% and 1% of GDP in order to keep the budget balance within the 3% of GDP reference value. Germany, Greece, France, Italy and Austria could aim for a deficit even slightly above 1% of GDP. Sweden and Finland would have to aim for a surplus as their budgets have a high sensitivity to the cycle and their economies have in the past shown a high degree of volatility⁸

7 In the context of a simple IS-LM framework, Buti and Suardi (2000) argue that the move from a German dominated ERM to EMU should improve the convergence of economic cycles in the euro-area.

8 These calculations do not take into account that some of these large negative output gaps have occurred in periods of severe recession, which, according to the Pact rules, could have triggered the application of the exceptionality clause allowing countries to exceed the 3%

Table 3: Ensuring an Adequate Cyclical Safety Margin

Member States	Sensitivity of budget balance to the cycle (1997) (1)	Mid-point of range of budgetary positions (government deficit, % of GDP) (2)	Budgetary targets in 2002-2003 (3)
Countries participating in the euro-area:			
Belgium	0.6	1.0	-0.2
Germany	0.5	1.1	0.5
Spain	0.6	0.4	-0.2
France	0.5	1.5	0.5
Ireland	0.5	0.9	-2.6
Italy	0.5	1.2	0.1
Luxembourg	0.6	0.0	-3.1
Netherlands	0.8	0.1	1.1
Austria	0.5	1.3	1.3
Portugal	0.5	0.6	0.3
Finland	0.7	-1.3	-4.7
EUR11	0.5	1.0	0.3
Countries not participating in the euro-area:			
Denmark	0.7	0.7	-2.5
Greece	0.4	1.4	-0.2
Sweden	0.9	-0.8	-2.0
United Kingdom	0.7	0.1	0.3
EUR15	0.6	0.8	0.1

(1) The figures come from the European Commission. See Buti and Sapir (1998) for further discussion.

(2) The mid-point figures shown are computed from the range implied by three alternative assumptions about the output gap. The first of these is the unweighted average of the largest negative output gaps in EU Member States which, over the period 1960-98, was 4% of GDP. The second is the largest negative output gap that has been recorded in each Member State over the period 1960-97. The third is the average volatility of the output gap in each Member State, as measured by two times its standard deviation. For each country, the two extreme cases of these three alternatives have been retained as the bounds for the range for budgetary positions which would allow Member States to let the automatic stabilisers operate fully without running the risk that the deficit exceeds the 3% of GDP threshold. The mid-point of this range is then taken as a first approximation for the country-specific benchmark.

(3) Budgetary targets (surplus (-), deficit (+)) announced in the stability and convergence programmes.

The fiscal adjustment still to be accomplished to attain the “minimal benchmarks” constrained fiscal policies in several EU countries in the recent past. Graphs 3 shows the difference between the structural deficit and the “minimal benchmarks” against the estimated output gaps. The data refer to 1998

limit. By excluding the years where growth collapsed by 2% points or more, the safety margin shrinks somewhat in Ireland, Sweden and Finland, but the overall picture does not change. The safety margin is reduced slightly in a majority of countries if one applies the most recent estimates of the cyclical sensitivity of the budget as calculated by the OECD (van den Noord, 2000).

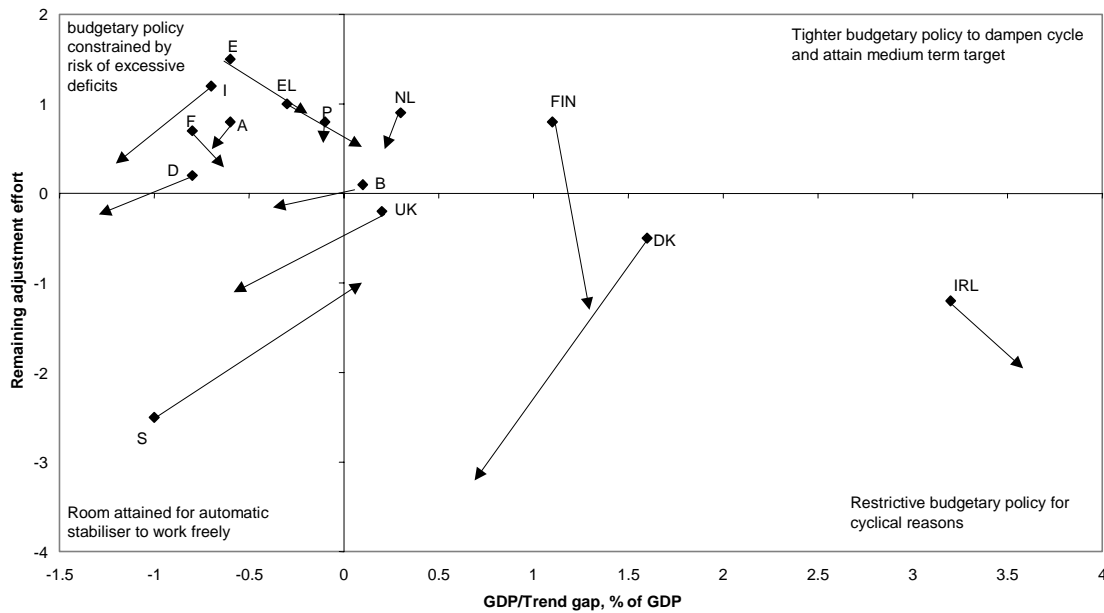
and 1999 (arrows indicate the direction of change between the two years). As shown in the Graph, most of the countries potentially requiring a fiscal boost did not have sufficient room for manoeuvre in 1998. None of the large countries in the euro-area could have envisaged a sizeable expansionary budgetary policy given their closeness to the 3% of GDP ceiling. The only country which had a large enough budgetary safety margin under the Pact - Ireland – also had a large positive output gap, hence, a tighter budgetary policies to cool the cycle was warranted. In the case of the Netherlands and Finland, having a positive output gap and still a way to go before attaining a safe budgetary position, a restrictive discretionary policy was deemed appropriate⁹. As shown by the arrows, all countries, with the exception of Sweden, continued the fiscal adjustment in 1999 thereby attaining or coming closer to the “minimal benchmarks”.

The application of the above method leads to the identification of cyclical components that are much in line with those resulting from similar calculations made by other international organisations. The IMF (1998) and the OECD (1997) find that a structural deficit in the range of 0.5% to 1.5% of GDP and below 1.5% of GDP, respectively, would be enough to allow the automatic stabilisers to operate without breaching the 3% of GDP deficit threshold even in periods of pronounced cyclical slowdown.

Similar conclusions were obtained by Dalsgaard and de Serres (1999), in the context of an estimated structural VAR model. The results of this study also show that, for a majority of EU countries, a structural deficit between 1% and 1.5% of GDP would help to avoid breaching the 3% of GDP threshold with a 90% certainty over a three-year horizon. If governments aimed for a structural position between zero and 1% of GDP, the confidence horizon was extended to between five and seven years.

⁹ Buti and Suardi (2000) argue that the macroeconomic policy mix in the first year of EMU was at least partly explained by the renewed commitment to fiscal discipline which, by strengthening the credibility of the stability oriented macroeconomic framework of EMU, allowed the ECB to maintain an accommodative monetary stance.

Graph 3 : Budgetary Room for Manoeuvre in the EU, 1998-1999



(Source: European Commission)

Stochastic simulations on the NiGEM model of the National Institute for Economic and Social Research (NIESR) show that, for the five large economies, the probability of breaching the 3% of GDP threshold is still high at present for France and Italy, but drops significantly by the year 2002 (see Barrell *et al.*, 1999). In a later paper, also based on stochastic simulation of the NiGEM model, Dury and Pina (2000) indicate very low probabilities of collision with the sanctions procedures of the Pact, a result that is robust to variation in assumptions about the monetary strategy pursued by the ECB. Similarly, Barrell and Pina (2000)'s estimates of the stabilizers by applying methods of stochastic simulation, are generally lower than normally assumed (and lower than assumed in this paper). Their study confirms that, if the countries adhere to their stability and convergence programmes, the built-in stabilizers and the Stability and Growth Pact are broadly compatible.

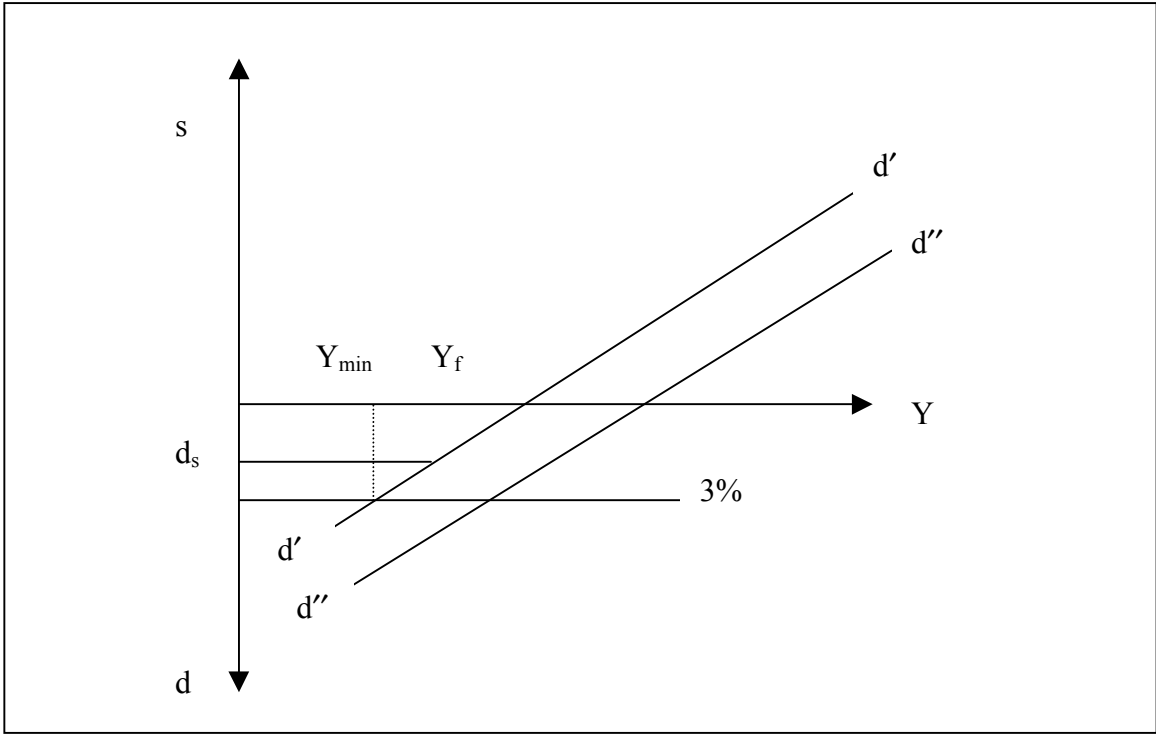
Most Member States show in their stability and convergence programmes that they plan to reach or, in several cases, go beyond the minimal benchmarks discussed above by the year 2002. Recent updates of the programmes extend the projection period to 2003, indicating further improvements. The final year targets are shown in the last column of Table 3. In its opinion on the 1998-99 programmes, the Council explicitly mentioned whether or not it considered the medium-term target set in the programme to be in line with the provisions of the

Pact (European Commission, 1999). The Council found Denmark, Ireland, Luxembourg and Sweden already to be in line with the requirements of the Pact, but considered that the positions targeted by the Netherlands, Austria and Portugal were not sufficiently ambitious and invited these countries to aim for better results than those envisaged in their programmes.

III.3 Coping with Unforeseen Budgetary Developments

The risk of exceeding the 3% ceiling is not only related to the cyclical component of the budget, but also to unforeseen fiscal developments not directly linked to the working of built-in stabilisers. Unexpected tax shortfalls or higher-than-projected spending commitments can push up the deficit and represent a further source of fiscal instability. Graph 4 illustrates the point. The graph is identical to Graph 2 except in allowing that a fiscal shock might displace $d'd'$ to a position like that indicated by the schedule $d''d''$. In that event, as can be seen, the previously 'safe' structural deficit could result in an infringement of the SGP.

Graph 4: Finding the Safe Medium Term (structural) Deficit: the Incidence of “Pure” Fiscal Shocks



Fiscal shocks may of course go in the other direction, but since our concern here is with calculating the 'safe' deficit, we focus on positive deficit shocks. These unforeseen budgetary developments may include also the

budgetary impact of interest rate shocks. In the model above, it is assumed that there is a within-year fiscal re-balancing between the primary surplus and the interest burden whenever the latter changes following a change in monetary conditions. However, such behaviour may be both infeasible and undesirable as it would introduce excessive volatility in tax rates or spending plans. Interest rate shocks may be a serious problem especially for highly-indebted countries whose budget is more vulnerable than that of the low-debt countries - this also depends, obviously, on the maturity structure of their debt¹⁰. The risk associated with interest rate shocks has been recognised by the Council which stressed this point repeatedly in its opinions on the stability and convergence programmes of countries with a high debt ratio (European Commission, 1999). It also recommended that Belgium, Greece and especially Italy maintain and even step up their adjustment efforts and privatisation plans in order to accelerate the reduction of their government debt ratio.

How large is this erratic component in the budget deficit? Should an additional safety margin be built into the calculations of the medium-term target?

Fiscal shocks may of course go in the other direction, but since our concern here is with calculating the 'safe' deficit, we focus on positive deficit shocks. These unforeseen budgetary developments may include also the budgetary impact of interest rate shocks. In the model above, it is assumed that there is a within-year fiscal re-balancing between the primary surplus and the interest burden whenever the latter changes following a change in monetary conditions. However, such behaviour may be both infeasible and undesirable as it would introduce excessive volatility in tax rates or spending plans. Interest rate shocks may be a serious problem especially for highly-indebted countries whose budget is more vulnerable than that of the low-debt countries - this also depends, obviously, on the maturity structure of their debt¹¹. The risk associated with interest rate shocks has been recognised by the Council which stressed this point repeatedly in its opinions on the stability and convergence programmes of countries with a high debt ratio (European Commission, 1999). It also recommended that Belgium, Greece and especially Italy maintain and even step up their adjustment efforts and privatisation plans in order to accelerate the reduction of their government debt ratio.

11 As shown by Missale (2000), public debt management can help deficit stabilisation under the Stability Pact.

How large is this erratic component in the budget deficit? Should an additional safety margin be built into the calculations of the medium-term target?

In order to disentangle this erratic component from other budgetary developments, a promising approach involves the comparison between fiscal forecasts and outturns, a strand of research recently developed by Artis and Marcellino (1999). An extension of their work to the fiscal forecast record of all the EU countries is greatly facilitated by the recent publication of all the necessary component details in Keereman (1999), who examines the track record of EC forecasts. Drawing on those figures, Table 4 presents a summary of descriptive statistics of the fiscal forecast record for the EU member countries.

The forecasts for which the descriptive error statistics are quoted are those generated in the spring of year t for year t – so-called “current year forecasts” – and are forecasts for the fiscal deficit in per cent of GDP. The Table gives the mean, mean absolute error and the root mean square error. The mean errors are generally very low – with the exception of Portugal and Luxembourg none exceeds one half of one per cent of GDP. However, it can be seen from the figures of mean absolute error, that the low means in some cases are due to large offsetting errors, Greece being a notable example. The RMSE figures thus generally lie between 1 and 2 per cent of GDP.

Table 4: Overall Fiscal Forecast Accuracy: ,% GDP.

Country	Mean Error	Mean Absolute Error	Root Mean Squared Error
Belgium	-0.2	0.4	0.6
Denmark	-0.1	0.9	1.2
Germany	0.2	0.8	1.0
Greece	-0.5	2.0	2.4
Spain	-0.3	0.1	1.3
France	0.1	0.7	1.0
Ireland	0.2	1.4	1.9
Italy	-0.2	1.1	1.5
Luxembourg	0.6	1.7	2.0
Netherlands	0.3	0.9	1.1
Portugal	0.6	1.0	1.0
UK	-0.2	0.7	1.0

Note: Sample periods vary: they are: Belgium 1971-97; Denmark 1977-97; Germany 1969-97; Greece 1982-97; Spain 1986-97; France 1969-97; Ireland 1974-97; Italy 1969-97; Luxembourg 1974-97; N'lands 1969-97; Portugal 1986-97; UK 1973-97; EU 1969-97.

Data source: Keereman (1999).

At first sight, this might seem to indicate that a cautious participant in the SGP might have to allow (i.e. subtract) a margin of 2 to 4 per cent of GDP in calculating a safe deficit figure to aim for. However, it is well known (see, e.g., Artis and Marcellino, 1999, Table 5) that a prime source of fiscal forecast error lies in mistaken output growth projections. It would be in line with the previous calculations set out in this paper to allow for this source of error, by using the values for the built-in stabilizers and the output forecast errors tabulated in Keereman's paper.

Formally, the expected and the actual budget deficits as a share of GDP can be written as follows:

$$(1) \quad d^e = d_s^e - \alpha G^e$$

$$(2) \quad d = (d_s^e + \varepsilon) - \alpha G$$

where d is the budget deficit, d_s is the cyclically-adjusted deficit, G is the output gap, α is the cyclical sensitivity of the budget and ε is the erratic fiscal shock. The suffix 'e' indicates expected values. The total forecast error is given by the forecast error on the discretionary component, ε , and the error on the cyclical component of the budget. Under the assumption that trend growth does not change over the forecast period, the forecast error on the output gap corresponds to the forecast error on real GDP growth, we can derive the expression of the erratic component in the budget:

$$(3) \quad \varepsilon = d - d^e + \alpha(y - y^e)$$

As shown in equation (3), in order to gauge the size of the erratic component in the budget, the effect of the GDP growth forecast error has to be netted out. By applying the figures of the cyclical sensitivity of the budget shown in Table 3 to these errors, we can estimate the "pure" erratic component in the deficit. The results are set out in Table 5.

Table 5: Statistics on the ‘Fiscal Shock’ Component

Country	Mean (% GDP)	Variance	75% Quantile (% GDP)	Mean of positive deviations (% GDP)	Correlation with output growth
Belgium	0.1	0.58	0.5	0.3	0.91
Denmark	-0.3	0.74	0.3	0.3	0.75
Germany	0.4	1.45	1.4	0.7	0.67
Greece	-0.2	6.10	1.0	0.9	0.23
Spain	-0.1	2.75	0.9	0.6	0.98
France	-0.1	0.72	0.3	0.3	0.74
Ireland	1.6	3.16	2.6	1.9	0.73
Italy	0.1	0.46	0.6	0.4	0.27
Luxemb’g	0.6	5.09	2.0	1.2	0.25
N’lands	0.6	0.78	1.2	0.8	0.67
Portugal	0.6	2.00	1.6	1.0	0.54
UK	-0.0	1.30	0.5	0.4	0.92
EU	0.1	0.48	0.8	0.4	0.89

Note: The sample period is 1986-1997.
Data source: Keereman (1999).

The early part of the sample period underlying Table 4 features some extraordinary fiscal forecast errors for some countries and represents a volatile high-inflation era in which some very large fiscal swings also occurred. Probably, the conditions prevailing in the later years are more relevant for our assessment. The data shown in Table 5 accordingly pertain to the period 1986-1997. The first two columns show the overall mean and variance of the “pure” fiscal shock component. As can be seen, for the most part these are relatively small. Our concern, however, is with upside risks on the deficit, since we try to quantify what allowance, if any, countries should make in setting their deficit target to prevent ‘pure fiscal error’ from triggering the onset of the sanctions procedure in the Pact. Accordingly, Table 5 presents the 75% quantile which indicates the largest value of 3/4 of all observations. Some of the values are large and, in two countries (Ireland and Luxembourg) are 2% points of GDP or higher. In three other countries (Netherlands, Germany and Portugal) deviations are larger than non-negligible; but it does not appear that large positive deficit

shocks occurred in periods of low growth, when the cyclical component in the budget deficit is also large. In all other countries the 75% quantile lies between 0.3 and 1% of GDP.

Given the fact that some of these large deviations occurred in the early years of the sample, "extreme" values may not be representative of "bad" risks in the current situation. Accordingly, the last column of Table 5 shows the mean of positive deviations. With the exception of two countries (Ireland and Luxembourg), the average deviations lie in the 0.3% to 1% range.

An additional reason for not focussing on outlier values is the fact that large positive shocks do not seem likely to occur when the deficit is already large for cyclical reasons. The last column of the table shows the correlation between the actual growth rate of output and the pure fiscal shock; the positive association indicated there suggests that positive deficit shocks tend to coincide with periods of high growth. The consistency of this positive correlation between ε and output growth may be felt to be somewhat puzzling. One explanation could be related to forecast error on the interest burden: as interest rates in forecast exercises are often set in a 'quasi-technical' manner (i.e. small or no change is projected over the forecast period), whilst severe recessions (booms) are usually associated with monetary relaxation (tightening), the forecast interest burden tends to be systematically biased¹².

Moreover, our approach implies that the forecast error on the discretionary component, ε , is due fully to unexpected, erratic developments or measurement errors. However, in the case of countries having frequently adopted within year budgetary measures (such as Italy), our results may overestimate the "pure" erratic component. To the extent that pro-cyclical budgetary measures tend to occur in episodes of above-average or below-average growth, a positive correlation between the "erratic" component and output growth may result. This explanation is consistent with the results in Buti, Franco and Ongena (1997) who find that discretionary fiscal policies have generally been "prudent" in periods of severe recessions and that pro-cyclical fiscal policies were enacted in "good times".

As pointed out above, although the sample period was restricted to 1986-97, the track record we have examined is one which is not fully representative of contemporary conditions in some important respects - in particular, it includes periods of high and variable deficits, moderate to high inflation and periods

¹² It is worth noting that, unless shocks are highly symmetric, such an effect is likely to be reduced in EMU as the ECB sets interest rates having in mind the euro-area economy as a whole.

when accurate deficit forecasting was not at a premium. We are inclined to assume that the added salience of deficit forecasts which the presence and operation of the Stability Pact now provides will raise the premium on forecast accuracy and reduce the incidence of forecast errors. But this can be questioned and, especially where *published* forecasts are concerned, different outcomes are imaginable. For example, political expediency may lead to a desire to project matters as being better than they really are most likely to be: if so, we should expect the published forecasts to be biased in a ‘optimistic’ direction.

However, the opposite bias is also possible: by publicly projecting higher deficit figures than are really likely a government might seek to gain credit for a spurious “achievement”¹³ or ensure a higher, “hidden” safety margin. There is some evidence that some countries have indeed built in an extra room for manoeuvre in their budgets in recent years by overestimating interest payments (Italy) or projecting very conservative GDP growth rates (Netherlands). A related effect of the political salience of fiscal forecasts may increase observed accuracy, by turning the forecast into a target; thus, the fiscal authorities may be able to ‘validate’ the forecast by taking within-the-year corrective actions.

Summing up, while further research is required to disentangle the various factors behind the results in Table 5, we are inclined to conclude that the additional margin for fiscal shocks to be allowed for in the computation of ‘safe’ structural deficits would be relatively small. An additional room for manoeuvre of between 0.5 and 1% - broadly corresponding to the average range in Table 5 – would seem appropriate for a risk-averse policy maker.

IV. STRUCTURAL BALANCE AND LONG RUN SUSTAINABILITY OF PUBLIC FINANCES

IV.1 Government solvency and population ageing

The Pact does not mention the debt criterion and has been firmly criticised for this omission (see Pisani-Ferry, 1996). The criticism gains particular force from the idea that the externality prompting the need for the Pact is the risk of contagion from “debt runs”. From this point of view, standard considerations point to the need to ensure that governments are at least solvent and debt ratios at least sustainable. The reason for the qualifier “at least” is that formal tests for

13 For a consideration of related issues, see Artis and Marcellino (1999). In that study the authors follow up a suggestion of Granger (1997) and treat the possibility that the fiscal forecasting loss function may be asymmetric. They derive some support for this proposition.

solvency and sustainability can be satisfied at debt levels which may not prevent debt runs. Government solvency is essentially the requirement that the present value of future surpluses should be sufficient to pay off current debt: this is what it means to say that “the government can pay its debts”. In a growing economy in which, however, the growth rate is less than the interest rate, this condition can be satisfied at a positive, but constant, ratio of debt to GDP. In such a case, debt levels would be growing, by definition, at the growth rate, y , so that at any future time i , the debt level (originally B_0) would be given by $B_0(1+y)^i$; the discount rate, r , however - bigger than y by hypothesis - implies a discount factor $(1+r)^i$ which is larger than $(1+y)^i$, so the discounted value of debt is falling. This definition of what it means for a government to be paying its debts thus does not imply that debt should ever be observed to be zero.

In their study of the solvency of EU government finances, Artis and Marcellino (1998) find that in general there is a tendency for debt/GDP ratios to stabilize at a positive value (not at zero). The absence of explosive behaviour is reassuring. But the market’s belief in the government’s ability actually to repay its debt is based on the government’s ability to tax and on its ability to pay off debt in its own currency. In the context of EMU an individual country can no longer implicitly promise to pay off its own debt in its own money. The European Central Bank is expressly forbidden from conniving in any such activity. McKinnon (1994) has thus correctly emphasized that the transition to EMU is something of a regime change. The presumption is that debt/GDP ratios which were satisfactory in the previous regime may no longer be so in the new one. It thus seems desirable that fiscal policy should be so framed as to reduce debt/GDP ratios. The medium term target of close to balance, or surplus - since the balance is interest-inclusive - necessarily implies a potential trend reduction in debt/GDP ratios and stabilization ‘in steady state’ at modest or, possibly, negative levels¹⁴. Whether the implied rate of reduction is sufficiently rapid is not something which can be calculated in the absence of firm knowledge as to the desirable level, where economic theory is silent.

The literature on government solvency implies that the future stream of spending and revenue are accounted for. Demographic developments and, in particular, the ageing of populations are increasingly pointed at as an important factor affecting future spending commitments.

14 This does not imply, however, that the debt ratio decreases continuously. In periods of recession, as automatic stabilisers give rise to higher deficits, the debt may temporarily increase. This is likely to be the case especially for countries with a relatively low debt stock.

Table 6: Age-related Public Expenditure* Trends 1995 to 2030 (% of GDP)

	2000	2010	2020	2030
Belgium	29.4	30.9	32.9	34.4
Germany	25.6	27.0	28.0	31.2
Spain	20.5	21.1	22.0	23.2
Italy	27.8	29.1	31.2	33.3
Netherlands	30.4	31.3	32.6	35.0

* Included are: spending on health insurance, invalidity benefits, education, pensions, unemployment benefits, family allowances and maternity and nursery benefits. Projections under the worst demographic scenario.

Source: Franco and Munzi (1997)

There exist a number of studies which attempt to quantify the budgetary impact of the ageing of populations. Many projections translate, in a mechanical fashion, existing estimates of age-related public expenditures to future demographic profiles. Using common assumptions on productivity, unemployment and growth rates, and assuming “no policy change”, an OECD Study (Roseveare *et al.*, 1996), estimated primary balances between 1995 and 2030. A common U-shaped pattern is evident. Favourable demographic trends (growing labour force, large baby-boom cohort in high income earning years) initially result in improving budget balances prior to a rapid deterioration after 2010, when the baby boom generation will retire.

A study by the European Commission (Franco and Munzi, 1997) integrated the results of pension expenditure projections carried out by national authorities with mechanical estimates of the effects of demographic changes on the other main age-related expenditure items (such as health care, education and family allowances) for a number of Member States. Table 6 shows the budgetary projection for a subset of euro-area countries. The share to GDP of total primary expenditure over the period 2000 to 2030 is estimated to increase by almost 6 percentage points in Germany, by approximately 5 percentage points in Belgium, Italy and the Netherlands, and by 1 percentage point in Spain. Under unchanged policies, present primary surpluses would be eroded over time and the debt-to-GDP ratio, while declining initially, would undergo unsustainable increases in some Member States.

IV.2 A fiscal strategy of “internal budgetary compensation”?

Whilst the analysis of the appropriate medium-term target for fiscal policy focuses on the “institutional” requirement not to breach the 3% deficit ceiling, considerations related to the future burden on the budget of population ageing may come into play. For instance, in its assessment of the stability programmes, the Council invited Germany to prepare for the future burden on the budget of demographic developments. Spain and Finland were also advised to take measures to address the problem of population ageing.

Clearly, the way forward implies tackling the problem at source, by reforming welfare programmes most sensitive to the impact of ageing. Without such structural reforms, the ageing of populations will have a sizeable negative impact on GDP and employment in the long-run (McMorrow and Roeger, 1999). However, since bold reforms in such areas are politically difficult, it has been suggested that a strategy of “internal budgetary compensation” may help to pre-empt the fiscal consequences of ageing: fiscal targets which entail a fall in the stock of public debt would lead to a reduction in the interest burden. In turn, this could offset, at least partly, the budgetary impact of demographic developments. Such a strategy would *de facto* amount to pre-funding the ageing problem.

Given a number of simplifying assumptions, the level of the budget balance which would allow the budgetary impact of ageing to be offset *via* a reduction in the interest burden can be computed. Annex 2 sets out the arithmetic of the calculations. In the exercise below, we posit “full offsetting” within each decade between 2000 and 2030. This means that, for each decade, we compute the constant budget balance which would bring about a reduction in interest payments matching exactly the rise in government spending over the same period, as estimated by Franco and Munzi (1997)¹⁵. The results are presented in Table 7.

The table shows the expected increase in public spending due to ageing, A , and the budget balance, d , which, if maintained over the period, brings about a fall in interest payments by the end of the period matching exactly the rise in spending. The last column shows the “minimal benchmarks” already discussed in section III.2.

15 It could be argued that these results are on the high side of the spectrum, because the ageing estimates do not incorporate the effects of a number of reforms especially in the area of pensions introduced in some EU countries in the past couple of years. As national estimates show, these reforms are expected to have substantial effects on public spending over a long run horizon. However, it is common experience that national projections over the last years have proven too optimistic and have been systematically revised upwards.

**Table 7 Internal Budgetary Offsetting: Rise in Spending and Required Budget Balance
(% of GDP)**

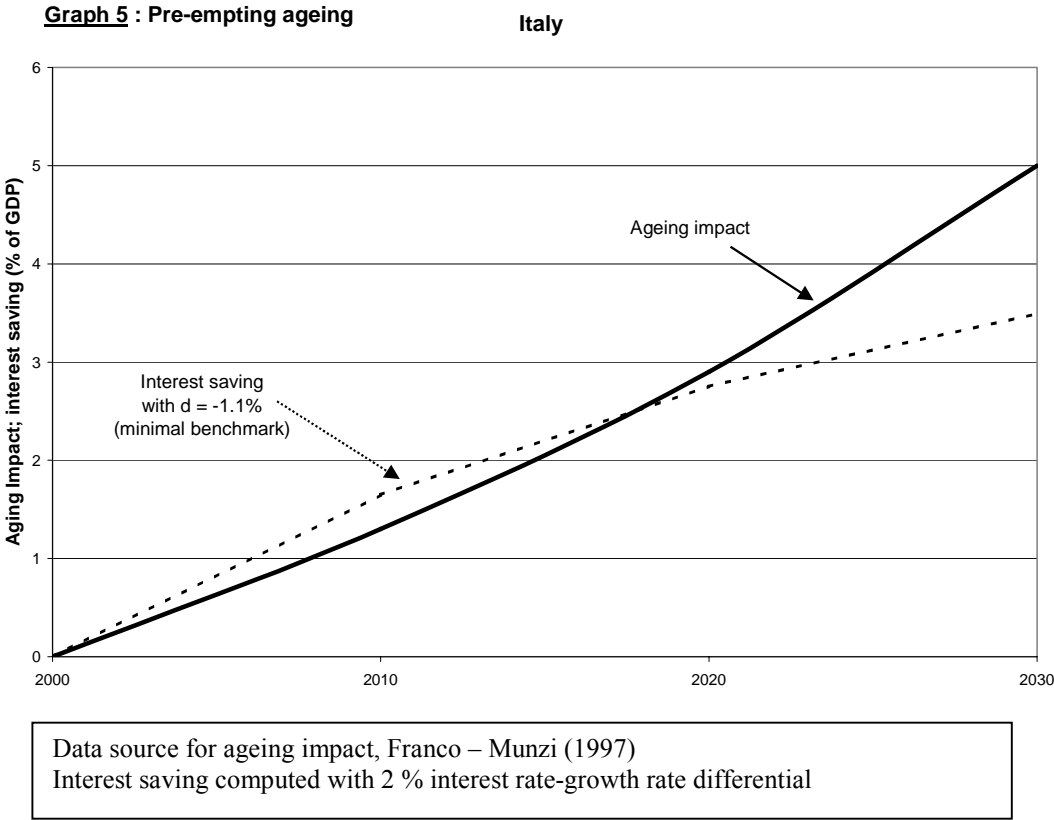
	2000 - 10		2010 - 20		2020 - 30		"Minimal Benchmarks"
	<i>A</i>	<i>d</i>	<i>A</i>	<i>d</i>	<i>A</i>	<i>d</i>	
Belgium	1,5	-1,4	2,0	0,6	1,5	1,0	-1,0
Germany	1,4	0,4	1,0	0,5	3,2	5,6	-1,1
Italy	1,3	-1,8	1,6	-0,3	2,1	1,7	-1,2
Spain	0,6	-1,3	0,9	-0,3	1,2	0,9	-0,4
Netherlands	0,9	-0,5	1,3	0,9	2,4	4,0	-0,1
<p><i>A</i> = Increase in spending due to ageing (Franco and Munzi, 1997) <i>d</i> and "minimal benchmarks" = surplus (+) or deficit (-) Interest rate - growth rate differential = 2%</p>							

As shown in Annex 2, and confirmed by inspection of the table, the initial level of debt plays an important role, alongside the "intensity" of the projected ageing impact on public finances. Sticking to their "minimal benchmarks" would allow high debt countries to compensate, at least partly, the higher spending due to ageing. As shown in the table, the required budget deficit in Belgium and Italy to fully offset the ageing impact over the period 2000-10 (1.4 and 1.8% of GDP, respectively) is higher than the "minimal benchmarks" computed in section III. However, even in the case of these countries, such a deficit level would fall short of full offsetting over a longer time period.

Compared to Italy and Belgium, low debt countries would require much higher budget surpluses to generate similar savings. This point is clearly illustrated by the case of Germany, which is expected to undergo similar budgetary pressures as Belgium and Italy in the 2000-10 period, but would require a considerably higher adjustment, given its lower potential for interest savings. Given the relatively low expected increase in spending, Spain and the Netherlands would achieve full compensation in the first decade by sticking to their "minimal benchmarks".

As the ageing impact gathers pace in the future, the "full-offsetting" budget balance becomes considerably more ambitious. As shown in the table, the required fiscal improvement would bring the budget balance beyond the "minimal benchmarks" for all the countries in the sample in the period 2000-20. The gap becomes particularly large especially in countries with a relatively low debt such as Germany and the Netherlands. Even in the case of high-debt countries, if the reduction in the interest burden has to cover the whole effect of ageing, the adjustment needs to be sizeable. For instance, Belgium and Italy

would have to go well beyond the "minimal benchmarks" and accept a sustained correction bringing the medium term target to a surplus of over 1% of GDP¹⁶.



Graph 5 illustrates this result for the case of Italy. The graph shows the estimated effect of ageing on public spending (as a percentage of GDP) and the reduction in the interest burden attained by setting the budget deficit at the "minimal benchmark" (1.1% of GDP, in the case of Italy). This would ensure full offsetting over the first 15 years or so, but will not be sufficient to compensate for the acceleration of spending due to ageing in the later period. Clearly, a gap opens again between the interest savings and the rise in spending unless further corrections in the budget balance are implemented.

In sum, a "myopic" behaviour aiming at making room for the budgetary impact of ageing as and when the spending pressure materialises, implies relatively un-ambitious budget balances in the early years, but would require growing budget surpluses in the future, going well beyond "close to balance" targets. Hence, postponing the adjustment makes pre-funding increasingly unattractive. On the contrary, front loading, by entailing a fast reduction in the

¹⁶ The calculations are sensitive to the assumptions on the interest rate-growth rate differential. When the effective interest rate on government debt is set at a lower level, the budget target needs to be more ambitious to ensure that the reduction in interest payments makes enough room to deal with the budgetary consequences of ageing.

stock of debt would allow budgetary efforts to be distributed more evenly over time. Sticking to the 2002-03 targets announced in their Stability and Convergence Programmes (see Table 3) would create a larger room for manoeuvre after 2010 when the ageing impact becomes more acute.

While a pre-emptive budgetary strategy may be appealing, "full" pre-funding aiming at covering the whole impact of ageing *via* a lower interest burden may not be politically feasible¹⁷, nor economically desirable¹⁸. Ambitious budgetary targets will help in facing the budgetary pressure of ageing with a lower public debt, but do not relieve policy makers of responsibility for tackling the ageing problem head on by reforming pension and health care systems.

V. CONCLUSIONS

This paper has examined an important aspect in the implementation of fiscal policy in EMU, namely that of choosing a medium-term budgetary target consistent with the provisions of the Stability and Growth Pact. *Via* this choice, attention is shifting from the nominal, uniform 3% deficit ceiling - two features of the EMU set-up often criticised in academic debate - to cyclically-adjusted, country-specific targets.

The available estimates of the structural budgetary positions encompassing a sufficient cyclical safety margin point to a target between 0 and 1% of GDP for most of the EU countries, and a surplus for the Nordic countries which, traditionally, have experienced a larger cyclical component in their budgets. The so-called "minimal benchmarks" estimated by the European Commission indicate that the three large countries in the euro-area would need to achieve at least a structural deficit of around 1% of GDP.

The empirical evidence in this paper helps to qualify these indications. We provide some evidence on the erratic component in the budget deficit which, if sizeable, may also be a source of risk. The additional safety margin to cover for

¹⁷ The political feasibility of full offsetting is far from certain as it would imply a sizeable increase in historically high primary surpluses at least in an initial period. In a simple version of the Barro-Gordon model, Buti *et al.* (1998) show that in order to ensure political feasibility, the agreed upon speed of reduction of public debt towards the 60% of GDP target cannot be "too high". See, e.g., Blanchard (1984) for the notion that there is a political constraint in fiscal adjustment programmes which may be related to the level and rate of change of primary surpluses.

¹⁸ For instance, the "quality" of public finances may be undermined as there would be strong incentives to curtail further public investment or to increase taxation to create the extra room for manoeuvre. This may heighten the negative effects of ageing on growth and employment.

such risks - of the order of 1/2 to 1% of GDP - would bring most countries of the euro-area towards a balanced budget or a small surplus. In a longer term perspective, such targets would help countries to face the demographic shock with a lower stock of public debt. The national budgetary targets for 2002-03 presented in the Stability and Convergence Programmes are more ambitious than the “minimal benchmarks” which cover only the cyclical safety margin. As such, they seem to be largely consistent with the “close to balance” requirement of the Pact.

These conclusions have to be treated with caution. In particular, the model in section III indicates that the source of the “most binding” shocks, the degree of symmetry of shocks and the behaviour of the central bank all affect the appropriate degree of ambition of the medium-term target. These aspects will be different in the new EMU-framework from the pre-euro era. Since EMU represents a wholly new policy setting, it is still not clear what the direction of change will be. This will affect both the cyclical and the erratic components in the budget.

However, given the overriding goal of maintaining fiscal discipline and avoiding the reputational costs of “excessive deficit” positions under the Treaty, it would be advisable for EMU members in setting their medium-term budgetary targets to err on the side of caution. All in all, with due consideration paid to national differences, broadly balanced budgets in the medium-term appear to be “roughly right” objectives for most euro-area countries.

Mike Artis
RSC-EUI
artis@datacomm.iue.it

Marco Buti
European Commission
marco.but@cec.eu.int.

BIBLIOGRAPHY

Alesina, A. and S. Ardagna (1998), "Tales of Fiscal Adjustment", *Economic Policy*, 27: 489-545

Allsopp, C. and D. Vines (1996), "Fiscal Policy and EMU", *National Institute Economic Review*, 158: 91-107.

Arreaza, A., B.E. Sorensen and O. Yosha (1998), "Consumption Smoothing Through Fiscal Policy in OECD and EU Countries", *NBER Working Paper*, 6372, January.

Artis, M.J. and M. Marcellino (1998), "Fiscal Solvency and Fiscal Forecasting in Europe", *EUI Working Papers*, ECO. No. 98/2; also *CEPR Discussion Papers*, No. 1836.

Artis, M.J. and M. Marcellino (1999), "Fiscal Forecasting: the Track Record of the IMF, OECD and EC", *CEPR Discussion Papers*, 2206, August.

Artis, M.J. and B. Winkler (1998), "The Stability Pact: Safeguarding the Credibility of the European Central Bank", *National Institute Economic Review*, 163: 87-98.

Barrell, R. and A. Pina (2000), "How Important are Automatic Stabilizers in Europe?", *EUI Working Papers*, ECO. Forthcoming.

Barrell, R., K. Dury and I. Hurst (1999), "Analysing Monetary and Fiscal Policy Regimes Using Deterministic and Stochastic Simulations", NIESR mimeo.

Belgian Federal Planning Bureau (2000), "Long-Term Budgetary Prospects in Belgium", paper presented at a Banca d'Italia workshop on long-term sustainability, January.

Blanchard, O. (1984), "Current and Anticipated Deficits, Interest Rates and Economic Activity", *European Economic Review*, 25(1): 7-28.

Bertola, G. and A. Drazen (1993), "Trigger points and Budget Cuts: Explaining the Effects of Fiscal Austerity", *American Economic Review*, 83(1): 11-26.

Buti, M., Franco D. and H. Ongena (1997), "Budgetary Policies during Recessions: Retrospective Application of the 'Stability and Growth Pact' to the Post-War Period", *Recherches Economiques de Louvain*, 63 (4): 321-66.

Buti, M., Franco D. and H. Ongena (1998), "Fiscal Discipline and Flexibility in EMU: the Implementation of the Stability and Growth Pact", *Oxford Review of Economic Policy*, 14 (3): 81-97.

Buti, M. and A. Sapir, eds. (1998), *Economic Policy in EMU – A Study by the European Commission Services*, Oxford University Press.

Buti, M. and M. Suardi (2000), "Cyclical Convergence or Differentiation? Insights from the First Year of EMU", *Revue de la Banque*, 2-3: 164-72.

Dalsgaard, T. and A. de Serres (1999), "Estimating Prudent Budgetary Margins for 11 EU Countries: a Simulated SVAR Model Approach", *OECD Economics Department Working Papers* no. 216.

Dury, K. and A. Pina (2000), "European Fiscal Policy after EMU: Simulating the Operation of the Stability Pact", *EUI Working Papers*, ECO. Forthcoming.

European Commission (1999), "Budgetary Surveillance in EMU: the New Stability and Convergence Programmes", *European Economy*, Supplement A, no 2/3.

Eichengreen, B. (1996), "Saving Europe's Automatic Stabilisers", *National Institute Economic Review*, 159: 92-98.

Eichengreen, B. and C. Wyplosz (1998), "The Stability Pact: More than a Minor Nuisance?", *Economic Policy*, 26: 65-115.

Franco, D. and T. Munzi (1997), "Ageing and Fiscal Policies in the European Union", in *European Economy Reports and Studies*, 4. Reprinted in M. Buti, D. Franco and L.R. Pensch, eds., *The Welfare State in Europe – Challenges and Reforms*, Edward Elgar.

Giavazzi, F., T. Jappelli and M. Pagano (1998), "Searching for Non-Keynesian Effects of Fiscal Policy", *mimeo*.

Granger, C.W.J. (1997), "Outline of Forecast Theory Using Generalised Cost Functions", *mimeo*, UCSD.

IMF (1998), *World Economic Outlook*, October 1998.

Keereman, F. (1999), "The Track Record of the Commission Forecasts", *Economic Papers* of the European Commission Directorate-General for Economic and Financial Affairs, no. 137, October.

Leeftink, B. (2000), "Rules vs. Flexibility: Is there a Trade-off between Budgetary Sustainability and Budgetary Stabilisation?", paper presented at a Banca d'Italia workshop on long-term sustainability, January.

McKinnon, R.I. (1994), "A Common Monetary Standard or a Common Currency for Europe? Fiscal Lessons from the United States", *Scottish Journal of Political Economy*, 41, November, 337-357.

Mc Morrow, K. and W. Roeger (1999), "The Economic Consequences of Ageing Populations - A Comparison of the EU, US and Japan", *Economic Papers* of the European Commission Directorate-General for Economic and Financial Affairs, no. 138, November.

Missale, A. (2000), "Optimal Debt Management with a Stability and Growth Pact", *Public Finance and Management*, forthcoming.

Noord, P. van den (2000), “The Size and Role of Automatic Fiscal Stabilisers in the 1990s and Beyond”, *OECD Economics Department Working Papers*, no. 230.

OECD (1997), *OECD Economic Outlook*, December 1997.

Perotti, R. (1999), “Fiscal Policy in Good Times and Bad”, *Quarterly Journal of Economics*:1399-1436.

Pisani-Ferry, J. (1996). “Fiscal Policy under EMU”, *CEPII Newsletter*, n° 6, 2nd semester 96, Paris, 1-2.

Roeger, W. and H. Wijkander (1999), “Fiscal Policy in the European Monetary Union, the Stabilisation Aspects”, mimeo.

Rosevaere, D., Leibfritz, W., Fore, D. and E. Wurzel (1996), “Ageing Populations, Pension Systems and Government Budgets: Simulations for 20 OECD Countries”, *OECD Economics Department Working Papers*, no. 168.

Sutherland, A. (1997), “Fiscal Crises and Aggregate Demand: Can High Public Debt Reverse the Effects of Fiscal Policy?”, *Journal of Public Economics*, 65: 147-62.

Svensson, L. (1999), “Monetary Policy Issues for the Euro-system”, *Carnegie-Rochester Conference series on Public Policy*.

ANNEX 1

SETTING THE MEDIUM- TERM FISCAL TARGET: AN ILLUSTRATIVE MODEL

The model is for a member country of a monetary union. The rest of the world is omitted. The model encompasses a demand (IS type) equation and a supply equation, determining the level of the output gap, G (% trend GDP), and inflation, π :

$$\begin{aligned} 1) \quad G^D &= \phi_0 + \phi_1(d - \pi b) - \phi_2(i - \pi^e) + \varepsilon_1 - \phi_3(\pi - \pi_f) - \phi_4(G - G_f) \\ 2) \quad G^S &= \omega(\pi - \pi^e) + \varepsilon_2 \end{aligned}$$

where: d is the budget deficit (% GDP), i is the nominal interest rate, b is the stock of public debt (% GDP), ε_1 is demand shock and ε_2 is a supply shock. The superscript “ e ” indicates expected variables, the subscript “ f ” the rest of the monetary union. The fiscal impulse in the IS equation is the inflation-adjusted budget balance ($d - \pi b$).

According to the fiscal rule, the government sets the level of the structural balance, d_s , and lets automatic stabilisers work:

$$3) \quad d = d_s - \alpha G + \varepsilon_3$$

where α is the cyclical sensitivity of the budget and ε_3 is the fiscal shock.

The nominal deficit d should not exceed a deficit ceiling: $d \leq \bar{d}$.

The central bank follows a monetary rule *à la* Taylor:

$$4) \quad i = i^* + \beta(\bar{\pi} - \pi^*) + (c - \beta)\bar{G}$$

where: π^* is the inflation target, i^* is the equilibrium nominal interest rate compatible with the inflation target π^* , and β is the degree of “conservatism” of the monetary authorities. In this formulation, c indicates the degree of “activism” of the central bank ($c > \beta$). A positive, large, value of β indicates a “hard nosed” central bank. The central bank targets *average* inflation and output

gap of the monetary union: $\bar{\pi} = \gamma\pi + (1 - \gamma)\pi_f$ and $\bar{G} = \gamma G + (1 - \gamma)G_f$

where γ is the weight of the country in the monetary union ($0 \leq \gamma \leq 1$). The subscript “ f ” indicates the variables of the rest of the monetary union.

Under rational expectations, the model can be solved for the output gap. The general solution is the following:

$$5) \quad G = \frac{1}{\Omega} \{ \omega \varepsilon_1 - [\phi_2(c + \beta)\gamma + \phi_3 - \phi_1 b] \varepsilon_2 - \omega \phi_1 \varepsilon_3 + B(\pi_f - \pi_f^e) + C(G_f - G_f^e) \}$$

where:

$$\Omega = \omega[1 + \phi_1\alpha + \phi_2(c - \beta) + \phi_4] + \phi_2(c + \beta)\gamma + \phi_3 + \phi_1b > 0$$

$$B = \phi_2(c + \beta)(1 - \gamma) - \phi_3$$

$$C = \phi_2(c - \beta)(1 - \gamma) - \phi_4$$

In order to obtain a definite solution, we need to make assumptions about the type of shocks affecting the monetary union. Under the extreme cases of “pure symmetric” and “pure asymmetric” shocks, the solution is immediate because we do not need to model explicitly the behaviour of inflation and output gap in the rest of the union.

Under **pure symmetry** to a first approximation γ is equal 1 and the external trade effects vanish.

$$6) G = \frac{1}{\Omega_s} \{ \omega \varepsilon_1 + [\phi_2(c + \beta) - \phi_1b] \varepsilon_2 - \omega \phi_1 \varepsilon_3 \}$$

where:

$$\Omega_s = \omega[1 + \phi_1\alpha + \phi_2(c - \beta)] + \phi_2(c + \beta) + \phi_1b$$

Under **pure asymmetry**, $\bar{\pi}$ and \bar{G} do not change (hence i remains fixed):

$$7) G = \frac{1}{\Omega_A} \left\{ \omega(\varepsilon_1 + \phi_1\varepsilon_3) + \frac{\phi_3 + \phi_1b}{1 - \gamma} \varepsilon_2 \right\}$$

where:

$$\Omega_A = \frac{\omega[(1 - \gamma)(1 + \phi_1\alpha) + \phi_4] + \phi_3 + \phi_1b}{1 - \gamma}$$

The structural budget balance is set so as to have $d = \hat{d}$ for maximum adverse shocks $(\hat{\varepsilon}_1, \hat{\varepsilon}_2, \hat{\varepsilon}_3)$.

Under pure symmetry and asymmetry, we obtain, respectively:

$$8) \quad \hat{d}_s = \hat{d} - \frac{\alpha}{\Omega_s} \left[\omega \hat{\varepsilon}_1 + \phi_2(c + \beta) \hat{\varepsilon}_2 \right] + \frac{\omega[1 + \phi_2(c - \beta)] + \phi_2(c + \beta)}{\Omega_s} \hat{\varepsilon}_3$$

$$9) \quad \hat{d}_s = \hat{d} - \frac{\alpha}{\Omega_A} \left(\omega \hat{\varepsilon}_1 + \frac{\phi_3}{1 - \gamma} \hat{\varepsilon}_2 \right) + \frac{\omega(1 - \gamma + \phi_4) + \phi_3}{(1 - \gamma)\Omega_A} \hat{\varepsilon}_3$$

The effects of different values of structural parameters and policy preferences are discussed in the text.

ANNEX 2 PRE-EMPTING THE BUDGETARY IMPACT OF AGEING

A strategy of internal budgetary compensation between higher spending in ageing related programmes and lower interest burden can be formalised as follows:

$$(1) \quad i[b(0) - b(T)] = A$$

where i is the exogenously-given nominal interest rate, $b(t)$ is the level of debt (at the beginning and at the end of the decade) and A is the higher spending due to ageing between 0 and T .

By replacing in (1) the expression for public debt accumulation and solving for the budget deficit, d^* , we find

$$(2) \quad d^* = b(0)(y + \pi) - \frac{A(y + \pi)}{i[1 - e^{-(y + \pi)T}]}$$

where $y + \pi$ is the nominal GDP growth (assumed constant).

Clearly, the required budget deficit is a positive function of the level of debt, $b(0)$ and a negative function of the ageing impact, A .

In table 7, the level of debt in $t=0$ is that attained at the end of 2000 for the 2000-10 calculations; in subsequent periods, the initial stock of debt is that attained at the end of the previous decade by maintaining the budget balance at its required "equilibrium" level.

Graph 5 pictures the interest saving computed through equation (1) by keeping the deficit at the minimal "benchmark level".