How Successful has the Stability and Growth Pact Been?: An empirical analysis

Andrew Hughes Hallett
Vanderbilt University and CEPR

John Lewis
Bank of Estonia

Abstract:

Prior to EMU, fiscal policy within the EU was disciplined by the threat of exclusion of the single currency; post-EMU, discipline has been exerted through the provisions of the Stability and Growth Pact. In this paper, we contrast the discipline induced by the two separate regimes on 3 specific criteria: the probability of violating the 3% deficit limit, the probability of commencing a budgetary consolidation, and the longevity of a budgetary consolidation once undertaken. We find that the run-up to EMU did lead to a marked increase in the probability of commencing consolidations. However, once inside EMU, this discipline gradually slipped- with the longevity of consolidations being reduced year on year, and the probability of violating the 3% limit rising year on year. By 2004, the cumulative slippage meant that the initial disciplinary benefits of joining the Euro were completely eroded.   Growth accounting analysis reveals that the source of the problem was the reliance on growth to meet budgetary targets and a corresponding failure to build up adequate surpluses at the top of the cycle.

April 2004

1. Introduction

At the heart of the institutional design of EMU, lies the belief that fiscal policy indiscipline can jeopardise the conduct of monetary policy, and adversely affect the stability of the price level and the exchange rate.[1]   The rationale for this is documented extensively in the literature[2] and is based on the fear that an excessive debt level may create political pressure for a bailout of debt, or more a looser monetary policy which leads to, in the language of Canzoneri et al (2001) a *fiscally dominated* regime, where monetary policy is subservient to the needs of fiscal policy.

This will be a particular problem when there are many fiscal authorities and just one monetary authority, since spillover effects and free rider problems encourage member states to run larger deficits than if they ran their own monetary policies.   Therefore, some institutional constraint is required to counteract these expansionary tendencies.

During the current process of European Monetary Union, we can identify two distinct institutional epochs. Between the signing of the Maastricht Treaty in December 1991 and the European Commissions 1997 decision on applications to join the Euro, countries were in effect, disciplined by the threat of being excluded from the first wave of single currency participants by virtue of violating one of the fiscal convergence criteria enshrined in article of the Maastricht Treaty. This stipulated that the deficit ratio was below 3%, and that government debt was below 60% of GDP or approaching that level satisfactorially

Following 1998, the threat of exclusion from the Euro was no longer credible or possible. Instead, governments were constrained by the strictures of the Stability and Growth Pact. In theory, this prohibited deficits of more than 3% of GDP, and laid out disciplinary

---

[1] See Sargent and Wallace (1981)
[2] Beetsma (2001) provides a comprehensive account of the this problem in the specific context of EMU.

procedures including fines on member states. It also required that member states publish annual reports outlining their compliance, and required member states to take remedial action if deficits approached 3% of GDP.

Since its launch, the stability pact has come under criticism from a variety of sources from the European Commission President downwards[3]. In this paper, we focus on one area of criticism- namely that it has been ineffective in disciplining member states. Accordingly, we examine empirically the question of whether the Stability and Growth Pact has succeeded on its own terms in disciplining fiscal policy.

In this paper, we quantify discipline by comparing fiscal discipline under the stability pact with previous epochs. Three specific features of fiscal policy are considered. First, we consider the probability of undertaking a fiscal consolidation, second we examine the longevity of consolidations once undertaken, and third, we examine the probability of a deficit violating the 3% reference value, which was a feature of both epochs. In each case, we aim to control for all *economic* factors which might affect fiscal policy at any given time. We assume that the behaviour which cannot be explained by institutional factors but which is picked up by time specific variables captures the effects of the institutional structure prevalent at this time.

In this way, we are able to put a numerical value on the success or failure of the stability pact, by comparing the probabilities before and after. More complex time variables also enable us to test for, and track changes over time in the disciplinary effects of the SGP.

This analysis contributes to current policy debates in several ways. First, we contrast fiscal discipline prior to the launch of the Euro, with the period afterwards, providing a clear numerical measure of the effects. Our results suggest that the threat of being excluded from the Euro led to a significant increase in fiscal discipline, but that once inside the Euro, the SGP failed to maintain this discipline. Second, our analysis tracks

---

[3] "I know very well that the stability pact is stupid, like all decisions which are rigid"- Romano Prodi, in *Le Monde* 17th October 2002.

the behaviour of fiscal authorities from 1998 onwards, and chronicles the unwinding of the stability pact. We find that by the time the pact was *de facto* suspended in 2003, the disciplinary effects of the pact had been completely eroded, with fiscal discipline identical to that of the pre-1991 era when no supranational institutional constraints existed. Third, we add to the literature on fiscal consolidations by quantifying the impact of monetary union and the stability as factors explaining the likelihood and success of consolidations. In this regard, we find that political factors can be much more important in determining the success or failure of consolidations than prevailing economic conditions. Fourth, given that the 3% benchmark was a common feature of both epochs, our results suggest that the enforcement technology which backs up a rule, is of critical importance in determining the consequences of a rule. In particular, this provides empirical support for the argument that enforcement structures which rely on peer pressure make punishment less credible.

The paper is organised as follows. Section 2 examines the factors affecting the commencement of a consolidation by means of a probit regression. Section 3 utilises hazard rate analysis to highlight the influences on the longevity of a consolidation once undertaken. Section 4 examines the probability of violating the 3% budget deficit criterion. Section 5 uses a growth accounting approach to decompose the effects of growth and fiscal prudence, to examine the relative contributions of these two factors to observed fiscal stance. Finally, results and discussed, and conclusions presented in section 6.

2. The probability of commencing a consolidation

In this section, we aim to quantify the factors determining the likelihood of starting a consolidation in any given period.

For the purposes of this analysis, we use the following definition of **"fiscal consolidation"** taken from von Hagen et al (2001). A fiscal consolidation is defined as an episode in which the cyclically adjusted budget deficit decreases (or surplus increases) by at least 1.25% of cyclically adjusted GDP in two consecutive years; <u>or</u> if the change exceeds 1.5% in one year, but was positive in both the preceding and following year. A consolidation episode is said to be **"ongoing"** for as long as the budget balance stands at no less than 75% of the balance in the first year of the consolidation episode. Cyclical adjustments are made on the basis of a linear quadratic trend for each country. A consolidation is therefore a contraction in a deficit position; a fiscal adjustment is a change that could go either way.

Clearly such a definition is to some extent arbitrary. However, it does have the advantage of focussing attention on periods in which governments made strong and deliberate efforts to consolidate their deficits.[4]

In what follows, the data used runs from 1960 to 2002, for all 15 countries who were EU members at the launch of the single currency.

2.1 Initial Conditions and the Probability of Commencing Fiscal Consolidations

In this section, we attempt to characterise the conditions under which fiscal consolidations are likely to be started. To do this, we construct a dummy variable which

---

[4] See Alesina and Perotti(1995,1997a) for a demonstration of the robustness of these results with respect to changes in definitions of "consolidation". Reasonable changes do not change the qualitative results (see also von Hagen et al 2001,2002), and the results reported in this paper are no exception.

takes the value one in the period that a consolidation is started, and zero in a period in which a consolidation is not started. Periods in which a previously begun consolidation is ongoing are excluded from the sample on the grounds that they are difficult to classify into one group or the other.[5]

We then conduct a probit regression to assess the likelihood that a country (which is not currently consolidating) will commence a consolidation.

Possible explanatory variables to be included in these regressions are the cyclically adjusted budget deficit; the debt ratio; domestic output gap; real interest rate; and the EU-wide output gap. In addition, dummy variables are included to capture specific behaviour in the run-up to EMU, and in the period following the launch of the single currency. The Maastricht dummy therefore corresponds to the period 1991-1997, prior to the final decision about membership being taken. The SGP dummy corresponds to the period from 1998 onwards when states were assured of EMU membership, but were subject to the Stability and Growth Pact.

2.2 Consolidations 1960-2002

We commence by considering the post-Maastricht era with the whole of the sample, and capturing the effects of EMU with dummy variables. Specifically, we estimate the following probit equation:

$$P(Starting\ a\ consolidation) = \phi(x_t{}'\beta)$$

where x_t corresponds to the vector of explanatory variables, β their co-efficients, and where ϕ signifies the normal distribution. This approach enables us to come up with a

---

[5] Including them as periods in which a consolidation does not commence, will bias the results against finding an effect for explanatory variables; however including them as periods in which a consolidation commences will conflate the issues of starting a consolidation with its longevity.

single figure between 0 and 1 to express the probability of commencing a consolidation given the initial conditions at time t.

In each case, we estimate three separate regressions using lags, levels and first differences. The levels regressions are intended to show the basic impact of a variable on the probability of a consolidation; but lagged regressions are also included to take into account the fact that policy responses to a given situation may be delayed due to information problems, implementation problems or for other reasons. We also consider first differences, because the rate of change may be more important than the level of a variable. For instance, the rate of economic growth may play a big role in determining the budgetary position of a government, through its effects on automatic stabilisers. Similarly, economic theory suggests that the rate of change in debt ratios and cyclically adjusted budget deficits may be of greater importance in determining whether a country's long-run fiscal position is viewed as solvent or not.

We report the results of all three cases, and consider whether the choice of levels, lags or differences appears to alter our results.

Box 1: For Tables 1-3, the dependent variable is the probability of starting a consolidation episode in any EU-15 country. The explanatory variables are:

Debt ratio = public sector debt/GDP (%)

Cyc Adj Deficit = cyclically adjusted deficit to GDP ratio (%), where the adjustment is made using a quadratic trend fitted to national output.

Dom Output Gap =domestic GDP-trend GDP, using the same trend estimates

EU Output Gap = sum of national output gaps

FSEU = aggregate fiscal stance in the EU (weighted aggregate of national deficit ratios)

SGP = dummy (=1 for the Stability and Growth Pact Era, 1998 onwards)

Maastricht = dummy (=1 for the post Maastricht Treaty period, 1992 onwards)

Real interest rate = nominal rate less inflation rate

Table 1 presents the probit regression results for three different equations- using levels, lags and first differences respectively, to capture the effect of initial conditions over the full period 1960-2002[6]. The variables used in this and the following regressions are defined in Box 1.

The coefficients on the debt ratio suggest that a rising debt ratio may act have a small effect on increasing the probability of starting a consolidation. As for the cyclically adjusted budget balance, it suggests that a rising budget imbalance may be a precursor for a consolidation. But if you don't act immediately, the consolidation will not be undertaken at all (the lagged effect).

Table 1: Initial Conditions for Commencing a Consolidation: 1960-2002

Variable	Levels		Lags		1st Difference	
Debt Ratio	0.003	(1.57)	0.002	(0.45)	**-0.042**	**(-2.16)****
Cyc Adj Deficit	**0.066**	**(3.16)****	**-0.124**	**(-4.69)*****	Not included	
Dom. Output Gap	0.037	(1.08)	**0.097**	**(1.98)****	**-0.121**	**(-2.64)*****
EU Output Gap	-0.029	(-0.40)	-0.147	(-1.13)	-0.004	(0.963)
FSEU	**-0.040**	**(-3.62)*****	0.004	(0.30)	**0.027**	**(3.08)*****
SGP	**-0.533**	**(2.15)****	-0.705	(-0.40)	**-0.502**	**(-2.25)****

---

[6] Our first observations are from 1960, but for some countries the data does not begin until later on.

Maastricht	0.082	(0.184)	**0.477**	**(3.04)***	0.203	(1.36)
Real Interest Rate	-0.031	(-1.52)	0.0312	(1.32)	-0.003	(-0.07)
Pseudo R²		**0.09**		**0.10**		**0.07**

Notes:

(1) Numbers in parentheses are t ratios.

(2) ***, **, * indicate that the co-efficient is significantly different from zero at the 1%, 5% and 10% significance levels respectively.

(3) First Difference of cyclically adjusted deficit is excluded because of close collinearity with definition of consolidation.

Political calculations may lie behind this result: governments may have been used to "fire-fighting", and if the decision has been taken not to consolidate then, it will have been for reasons that would lead them to loosen next period. Similarly, the domestic output gap may have some effect, suggesting that consolidations are more likely in a growing economy - perhaps because consolidations are politically easier to accomplish in good economic times. Interestingly, the lag of the output gap has the opposite effect, perhaps suggesting that it is actually only during the "upswing" of a cycle that fiscal consolidations are really more likely.

However, the EU output gap does not have a significant effect in any regression. Monetary conditions, as proxied by the real interest rate also appear to have no significant effect, although tight money would reduce the chances of a consolidation if it were significant.

More generally, the regressions suggest that economic factors are only part of the story, which leads one to suppose that whether consolidations are started or not may be very

much influenced by "political" factors as well. Chapter 5 will deal with these issues in depth.

Finally, we find some evidence of a "Maastricht effect" encouraging fiscal consolidations, but it is not very strong. Interestingly, we find in two of the regressions, that the significant dummy variable is the one reflecting the SGP, not the one reflecting the Maastricht period. The SGP dummy is particularly significant since it has the "wrong" sign even when the Maastricht dummy equals zero - suggesting that countries are *less* likely to undertake a fiscal consolidation post-1998 than they were prior to the signing of the Maastricht Treaty. On this basis, the post 1998 epoch is a period of unusually *few* consolidations, even when one controls for varying economic circumstances.

One possible explanation of this result might be that government objectives have changed over the period; and that the overriding goal now is to avoid the 3% limit imposed by the Stability and Growth Pact, whereas before 1998 it was to avoid being excluded from the Euro. Hence the emphasis has shifted from major consolidations pre-EMU, to a series of one-off fixes to ensure that budgets remain compliant with the 3% limit post EMU. In addition, it could also be argued that many governments did not consider the 3% limit to be binding, and so made little effort to consolidate post 1998. In other words, the Stability Pact's sanctions were evidently not regarded as either credible or enforceable. That observation can be justified by the fact that we find fiscal consolidations are evidently less likely if the rest of the EU is also running deficits at the same time.

2.3 The Post Maastricht Experience

We now consider only the Post-Maastricht era, to see if there is any substantial difference in the relationship between initial conditions and the likelihood of commencing a consolidation. Table 2 presents the results of regressions run on the sample between the years 1992 and 2002.

Table 2: Initial Conditions for Commencing a Consolidation: 1992-2002

Variable	Levels		Lags		1st Difference	
Debt Ratio	**-0.007**	**(-2.55)****	0.007	(1.42)	**-0.069**	**(-1.96**)**
Cyc Adj Deficit	**0.141**	**(3.99)*****	**-0.139**	**(-2.20)****	Not included	
Dom. Output Gap	0.128	(1.98)	0.068	(1.24)	-0.074	(-0.59)
EU Output Gap	0.895	(-0.43)	-0.171	(-0.77)	-0.072	(-0.35)
FSEU	0.451	(1.03)	-0.060	(-1.40)	**0.048**	**(1.89)***
SGP	-0.695	(-1.07)	**-0.854**	**(-2.25)****	**-0.682**	**(-2.24)****
Real Interest Rate	0.049	(0.51)	-0.036	(-0.74)	0.035	(0.69)
Pseudo R^2		**0.1604**		**0.1392**		**0.1501**

Notes:

(1) Numbers in parentheses are t ratios.

(2) ***, **, * indicate that the co-efficient is significantly different from zero at the 1%, 5% and 10% significance levels respectively.

(3) First Difference of cyclically adjusted deficit is excluded because of close collinearity with definition of consolidation.

Unlike the 1960-2002 period, we now find that the debt ratio was a significant factor in increasing the likelihood of beginning a consolidation - but that it now has the "wrong" sign. This probably reflects the fact that EMU participants with high debt ratios made strenuous efforts to reduce their budget deficits, perhaps in line with the 60% debt benchmark, because they would no longer have monetary policy to inflate debt away and restore sustainability in a crisis. Also, knowing that they could not reduce their debt ratios to 60% in short order, they may also have relied on the wording of the treaty which allows them to have larger debt or debt ratios if "the ratio of debt to GDP is sufficiently

diminishing and approaching the reference value at a satisfactory pace" (Article 104c). Whether the decline in their debt ratios would actually have been considered to be "approaching the reference value at a satisfactory pace" is a matter for judgement. But with debt levels one and half or two times the reference value (and deficit ratios close to 3%), the argument must have appeared to be worth a try.[7]

Similarly, we see a larger co-efficient on the cyclically adjusted budget deficit, which is around twice the size of its equivalent over the full sample and has the right sign. Again, this may well be due to the fact that countries with higher budget deficits were taking steps to consolidate, in order to reduce their budget deficits to less than 3% of GDP, in line with the Maastricht criteria.

Monetary policy has no role in explaining the likelihood of consolidation in this regression; and neither does the EU output gap, or the EU's general fiscal stance. However, the negative co-efficient on the SGP dummy demonstrates that the post 1998 period is still associated with a lower probability of starting to consolidate, suggesting that incentives were weaker once EMU had started. This backs up the result from the previous section, which suggested that the post-1998 epoch was one of *less* consolidation.

2.4 Were EMU participants more likely to consolidate?

Up to now, we have considered all 15 countries as one homogenous block, without taking account of the fact that the United Kingdom, Sweden and Denmark chose not to participate in the Euro during the period shown. On the one hand, this appears

---

[7] An altogether simpler explanation would be that the high debt or high deficit countries could not risk starting a consolidation for fear that the recession effects would worsen their deficits in the short term and prejudice their chances of entering the Euro or of not violating the SGP. To test that hypothesis do an extra regression with the low debt countries separated out. This resolves the problem. A regression for the high debt countries alone (those above 60%:Austria,Belgium,Denmark,Spain,Greece,Ireland,
The Netherlands, Sweden and Italy in this period) produces a negative coefficient of marginal sig-nificance on the debt ratio, as hypothesised. But the same regression for low debt countries has a positive and significant coefficient. Varying the definition of "high debt" does not alter these outcomes.

reasonable, as the governments of these countries still entertained the prospect of joining the Euro[8], and were keen to ensure that the Maastricht criteria were met.

However, from a political economy perspective, if one believes that consolidations are driven by a significant "political" component, then one must argue that the ambivalence of the UK, Sweden and Danish populations towards joining the Euro may have made consolidations less politically likely, than in countries where EMU membership was prized more highly. In addition, the desire to be seen as a "good European" and to not break the rules of the club may have been stronger in more pro-EMU nations.

To examine these differences, we divide up the sample between two groups: EMU participants or "Ins" (Austria, Belgium, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, Netherlands, Portugal and Spain), and those who chose not to participate - the "Outs". We perform separate regressions for each group. Table 3 now presents the results of those regressions.

Table 3: EMU Participants vs. Non-Participants: 1992-2002

Variable	Levels		Lags		1st Difference	
	INS	OUTS	INS	OUTS	INS	OUTS
Debt Ratio	**-0.007****	-0.029	**0.015****	0.029	**-0.617****	-0.151
Cyc Adj Deficit	0.142	0.106	**-0.305****	**-0.290*****	Not included	
Dom. Output Gap	0.112	0.627	-0.003	**0.527*****	-0.986	**0.411*****
EU Output	-0.112	-0.251	0.043	-0.742	-0.122	-0.397

---

[8] In the case of the UK, the governments of John Major and Tony Blair adopted a "wait and see" and "prepare and decide" policy respectively, with the intention of meeting formal convergence criteria, in order to preserve the option of joining. The Danish government favoured membership and held a referendum on the Euro membership in 2000. The Swedish government also supported joining the Euro, and held a referendum in September 2003 which rejected entry.

Gap						
FSEU	0.034	0.151	-0.027	-0.185	0.045	**0.106***
SGP	-0.805	-0.827	**-0.918****	-0.429	**-0.643****	-0.398
Real Interest Rate	0.021	0.246	-0.098	0.046	-0.179	**0.252***
Pseudo R^2	**0.1486**	**0.3170**	0.2043	**0.2454**	**0.1629**	**0.2515**

Notes:

(1) Numbers reported are regression co-efficients

(2) ***, **, * indicate that the co-efficient is significantly different from zero at the 1%, 5% and 10% significance levels respectively.

(3) First Difference of cyclically adjusted deficit is excluded because of close collinearity with definition of consolidation.

This table shows up some important differences between the two groups. First, the debt ratio is significant for EMU participants in every regression; but insignificant in each regression for non-EMU participants. That probably reflects the fact that the "Outs" actually enjoyed far lower debt ratios than the "Ins", and were less at risk given that they had retained their own monetary policies. They therefore had little incentive to consolidate from a debt reduction perspective.

Second, the debt variable has the right sign for the "ins", at least with a lag. But it has the wrong sign for the "outs". Serious consolidation may take a time to get organised - especially if countries believe in the wriggle room offered by the wording of Article 104c of the treaty.

Third, a glance at the variables which reflect the prevailing economic conditions demonstrates that these variables are far better at explaining consolidations for non-EMU

participants, than for EMU participants. This suggests that for those who stayed out, economic rather than political considerations best explain the observed consolidation episodes.

Fourth, the negative effect for the SGP dummy appears only for participant countries. This could be interpreted either as consolidation fatigue, or as the run-up to EMU being a period of exceptional consolidation. In fact, of course, only the "ins" were subject to the SGP, so one shouldn't expect the "outs' to be affected by this dummy.   The interesting feature of these results therefore is that "ins" are affected, but in the wrong way. The SGP has reduced the probability of a consolidation after 1998.   That must imply consolidation fatigue - or a relaxation once EMU entry had been achieved

3. Longevity of Fiscal Consolidations

The analysis of the previous section has concentrated entirely on the issue of starting a consolidation, but made no attempt to explain the factors affecting how it may be sustained. Clearly this neglects an important aspect of fiscal discipline, since the persistence of a consolidation (once started) is of great importance.

In this section, we pick out those periods in which a consolidation is ongoing, and consider the factors which affect the probability of it ending. Therefore, we are effectively using the portion of the data which was left out of the previous section – i.e. those periods where a consolidation was ongoing.

The methodology utilised in this section is hazard rate analysis. As before, we say that a consolidation episode is ended when the cyclically adjusted budget balance stands at less than 75% of its figure in the first year of the consolid-ation episode. A dummy variable is then constructed which takes the value of one when a consolidation is ongoing, and zero in the period in which it ends. All periods which come after the end of one consolidation but before the beginning of the next are excluded. Then, given that a consolidation has started, there is a certain probability that the consolidation will endure, and a certain probability that this period will be the last of the consolidation. The ratio of these is known as the *hazard ratio*. A low figure implies that the consolidation is very likely to continue into the next period, whereas a higher figure implies the consolidation is likely to end.

We next assume that the conditional hazard rate follows a *Weibull* distribution, which is particularly convenient in our context as it allows us to include the effect of time. Consider a consolidation which began in period *t-1*. The hazard rate is this given by the standard parametric Weibull hazard rate model:

$$\lambda(t|z) = \rho t^{\rho-1}\exp(z_t'\beta) \qquad\qquad (1)$$

where z_t is a vector of explanatory variables at time t, and β represents the co-efficients on these variables. The value of ρ captures the effect of time on consolidation hazard. A value of ρ>1 implies that the probability of failure increases as the consolidation goes on; a value of ρ=1 means that time has no effect.

Here we test the data over the full sample, with four parameters which capture the political factors surrounding the launch of the single currency. First, we have a trend dummy in the run up to EMU running from 1992 to 1997; then a trend dummy post-EMU, from 1998 onwards.

There are also two step dummies, one capturing the effect on behaviour of the period between Maastricht and the decision about participation, the other in the post-1997 period.

The rationale behind this setup is that firstly we are particularly interested in modelling how incentives have changed over time. Secondly, this specification nests a variety of more simple time structures, which means that the diagnostic tests can be applied to check whether this structure is appropriate. Table 4 presents the results, taken for all 15 countries over the full sample.

Table 4: Accompanying factors and consolidation hazard

Variable	Levels		Lags		1st Difference	
Constant	-3.104	(-9.23)***	**-3.077**	**(-9.45)*****	**-3.359**	**(-12.77)*****
Debt Ratio	-0.002	(-0.49)	-0.003	(-0.72)	0.039	(1.63)
Dom. Output Gap	0.055	(1.00)	-0.022	(-0.45)	**-0.173**	**(1.88)***
EU Output Gap	-0.079	(-0.73)	-0.094	(0.80)	-0.162	(-1.31)
FSEU	-0.022	(-1.55)	0.002	(0.23)	-0.015	(-1.41)

Real Interest Rate	-0.051	(-1.32)	-0.049	(-1.43)	-0.005	(-0.11)
Maas	0.641	(-1.32)	0.468	(0.65)	0.112	(0.14)
Pre-EMU trend	-0.192	(-1.01)	-0.166	(-0.91)	-0.133	(-0.65)
SGP	-1.596	(-2.49)**	-1.502	(-2.23)**	-1.53	(-2.54)**
Post-EMU trend	0.441	(2.79)***	0.449	(2.51)**	0.499	(3.16)***
ρ	2.49	(11.27)***	2.48	(12.75**)	2.41	(11.63)***
Chi-Square	20.87**		16.54*		26.99***	

Notes:

(1) Numbers in parentheses are t ratios.

(2) ***, **, * indicate that the co-efficient is significantly different from zero at the 1%, 5% and 10% significance levels respectively.

(3) The dependent variable is the probability that the current period is the last in this consolidation.

It confirms the existence of consolidation fatigue ($\rho>1$) in all cases. Interestingly, the results also suggest relatively little role for economic factors once a consolidation has been started. Only the first difference in the output gap appears to have a significant effect - indicating that a sudden fall in output

tends to hasten the end of a consolidation spell (i.e. the hazard rate rises).

Most interesting of all is the strong existence of time-specific effects. The run-up to EMU appears to have no effect on consolidation hazard, but thereafter, we observe two effects. Firstly, the step dummy for 1998 onwards suggests that a consolidation is less likely to end under the SGP arrangements. But the time trend says that, for each year beyond 1998 that we move, the more likely it is that any given consolidation will end. We interpret these co-efficients to mean that the probability of having any consolidation

sustained in 1998 was higher than earlier on in the sample, but that the probability of this consolidation being sustained is declining year on year after 1998. Hence, once one gets far enough beyond 1998, this time trend effect becomes larger than one-off effect; and at that point the probability of the consolidation being sustained is lower than for its pre-1998 counterpart. Comparing the size of the co-efficients in each case, we see that the SGP co-efficient is approximately 3 times larger than the time trend co-efficient, suggesting that 4 years after entry to EMU, the effect of the SGP in generating fiscal consolidations was eroded. This means that by 2004, the disciplinary effect of joining the Euro will have been completely lost. This is an observation which is entirely consistent with the idea that there was a concerted effort to qualify under the Maastricht treaty's deficit criterion; but then "consolidation fatigue" set in under the SGP, once EMU had started. In short there was a tightening of fiscal policy at the start of EMU –a second Maastricht effect –but it wears off fairly quickly so that by 2004 there is less fiscal discipline than before EMU.

4. Fiscal Policy and the 3% limit on budget deficits

The previous analysis has been conducted in terms of an arbitrary measure of "fiscal consolidation", with no direct link to the criteria laid out in the Maastricht Treaty or the Stability and Growth Pact. In this section, we explore fiscal policy specifically in terms of these criteria. In particular, we consider the condition of the fiscal policy relative to the 3% limit of budget deficits originally defined in the Maastricht criteria, and later on expressed in the Stability and Growth Pact.

Whilst the SGP does not prohibit deficits in excess of 3%, it does provide a trigger for the so called "Excessive Deficit Procedure", designed to prevent unsustainable fiscal policies. In this way, it provides a useful benchmark for proxying fiscal health, since it embodies a key objective of the current institutional framework.

To examine what has happened, we construct a dummy variable equal to 1 if the primary budget deficit of a country exceeds 3% of GDP, and zero otherwise. We then conduct a probit regression to find the probability of a country violating the 3% limit in any given year.

4.1 Fiscal Discipline in a Historical Context

In this section, we consider the whole sample. We use the same specification as in the previous section to capture the effect of time. Table 5 presents the results

Table 5: Factors Affecting 3% Budget Violation: 1960-2002

Variable	Levels		Lags		1st Difference	
Debt Ratio	0.065	(5.43)***	0.034	(6.46)***	0.176	(5.31)***
CA. Bud Bal	-0.870	(-6.13)***	-0.527	(-	0.0231	(0.49)

				7.32)***		
Dom. Output Gap	-0.394	(-4.02)***	-0.227	(-3.65)***	0.080	(1.87)*
EU Output Gap	0.110	(0.67)	-0.018	(-0.13)	0.054	(0.84)
FSEU	0.040	(3.42)***	-0.009	(-0.64)	0.009	(1.72)*
Real Interest Rate	0.047	(0.97)	-0.009	(-0.24)	-0.004	(-0.16)
Maastricht	-0.064	(0.16)	1.126	(2.64)***	0.439	(0.99)
Pre-EMU Trend	-0.793	(-1.00)	-0.292	(-2.97)***	0.016	(0.843)
SGP	-3.25	(-6.04)***	-3.130	(-5.09)***	-2.78	(-3.85)***
Post-EMU Trend	0.385	(3.19)***	0.448	(3.40)***	0.419	(-3.00)***
Pseudo R^2	0.7126		0.5931		0.3039	

Notes:

(1) Numbers reported are regression coefficients, numbers in parentheses are t-ratios

(2) ***, **, * indicate that the co-efficient is significantly different from zero at the 1%, 5% and 10% significance levels respectively.

(3) The dependent variable is now the probability of violating the SGP's 3% deficit limit in the current period.

We observe that a high debt ratio increases the probability of violating the 3% limit in all 3 regressions. Conversely, a (cyclically adjusted) budget surplus reduces the probability of a violation, as does a positive domestic output gap. But a (cyclically adjusted) deficit increases it. Where both the deficit and output gap effects are significant, we find that a 1% improvement in the cyclically adjusted budget balance has roughly twice the effect of

an increase of 1% domestic output gap. Monetary policy, as proxied by the real interest rate appears to be an insignificant factor in each regression.

The analysis of time specific factors tells a similar story in each of the 3 regressions. The onset of the stability pact appears to reduce the probability of violating the 3% limit, but the post-1998 time trend suggests that in each subsequent year (beyond 1998), there is a progressively increasing tendency to violate the 3% limit. As in table 4, these results are consistent with the view that countries made a concerted effort to get over the 3% hurdle in order to be accepted into the single currency, but since then discipline has gradually weakened.

4.2 Fiscal Discipline since 1991

We now turn our attention the period following the signing of the Maastricht Treaty for a closer look at the factors affecting countries probability of violating the 3% limit. We run the same regressions as before, but restrict the sample to the post-1991 period, and to EMU participant countries only.

Table 6: Factors Affecting 3% Budget Violation: EMU Participants 1991-2002

Variable	Levels		Lags		1st Difference	
Debt Ratio	0.126	(4.42)***	0.022	(2.32)**	0.359	(2.94)***
CA. Bud Bal	-2.249	(-5.26)***	-0.583	(-4.44)***	-0.366	(-3.03)***
Dom. Output Gap	-1.061	(-4.59)***	-0.199	(-1.84)*	-0.201	(-1.66)*
EU Output Gap	0.635	(1.72)*	-0.214	(-0.85)	0.802	(1.65)*
FSEU	0.093	(2.30)**	-0.072	(-2.85)***	0.072	(4.22)***
Real Interest	0.187	(1.47)	0.206	(3.08)**	0.287	(1.92)*

Rate			*		
Pre-EMU Trend	0.002	(0.01)	0.154	(0.74)	0.163	(1.20)
SGP	**-3.589**	**(-3.15)****	**-3.023**	**(-2.95)*****	**-6.286**	**(-3.18)*****
Post-EMU Trend	0.350	(1.31)	**0.586**	**(3.68)*****	**1.212**	**(4.31)*****
Pseudo R^2	**0.8242**		**0.5851**		**0.6606**	

Notes:

(1) Numbers reported are regression co-efficients, numbers in parentheses are t-ratios

(2) ***, **, * indicate that the co-efficient is significantly different from zero at the 1%, 5% and 10% significance levels respectively.

These results back up the account detailed in the discussion of table 5. For both sample periods, the debt ratio increases the probability of violation; and a high cyclically adjusted budget deficit reduces the probability of a violation as does a high domestic output gap. We also find that in the latter period, the size of these coefficients has changed, with each taking a higher value. In particular, tighter monetary policy now appears to have a positive effect on violation, unlike in the whole 1960-2002 period as a whole. So once inside EMU, tight monetary policies could trigger excessive deficits, though it is not clear from this analysis whether this is because tighter money may induce a recession, or because tighter money triggers a fiscal response to ward off these recessions. The point to make here is that this interaction with monetary policy *increases* in the Post-Maastricht era (compare table 5), and is *only* significant for its potential for causing violations of the SGP.

We see the same effect emerging from the Stability Pact, as we did for the Maastricht effect in Table 4 - namely that the initial effect (reducing probability of violating 3% limit) is offset by a time-trend running in the opposite direction. Comparing co-efficient

sizes, our analysis suggests that within five years --that is from 2004 -- the disciplinary benefits of the SGP will have worn off entirely.

5. Growth Accounting

Our regression results have shown the factors which influence the probability that a consolidation will be undertaken, but not whether those consolidations will be effective and produce deficit reductions of any particular size. For that we need a more detailed analysis of the budget developments themselves

The budget deficit in any one year is widely acknowledged to be a poor indicator of fiscal health, since it is influenced by both the underlying soundness of fiscal policy and the cyclical position of the economy in question. For this reason, EMU participants must not only aim to keep inside the 3% headline figure for budget deficits, but must also follow a longer term objective for their cyclically adjusted budget deficit.

Depending on the combination of discretionary fiscal policy and economic cycle, it is perfectly possible for a country to hit one, neither or both of the targets and there need not be a strong correlation between a country's success with the two criteria.

In this section, we analyse the actual budgetary positions of EMU members, taking into account both intrinsic prudence - i.e. the underlying budgetary balance - and their economic growth. In particular we utilise a growth accounting approach to quantify the strength of the relative effects.

Insofar as a country's observed fiscal health is attributable largely to economic growth, that county's health is liable to flounder if growth slows. On the other hand, if a country's observed fiscal health is attributable mainly to a healthy cyclically adjusted budget balance, then this desirable condition is much more likely to persist. Alternatively put, the extent to which a deficit can be attributed to lack of growth directly determines its long run sustainability.

In addition, we also analyse the performance of member states relative to both short term (actual budget deficit) and medium term (cyclically adjusted budget deficit) targets.

5.1 Actual Fiscal Performance versus Targets

In this section we analyse how countries measured up to pre-defined fiscal targets for both long term and short term variables.   The target values chosen are those agreed jointly by the European Commission and the government in question.   These figures are shown in table 8:

Table 8: Fiscal Policy Targets and Outcomes for 2001

	Actual fiscal balances		Cyclically adjusted budgets		
	Target	Outcome	Target	Min. Benchmark	Outcome
Belgium	0.2	0.3	-0.5	-1.0	-0.4
Germany	-1.5	-2.8	-0.5	-1.5	-3.0
Spain	0.0	-0.1	-0.5	-1.0	-0.8
France	-1.0	-1.6	-0.5	-1.5	-2.2
Ireland	4.3	1.2	-0.5	-1.0	0
Italy	-0.8	-2.6	-0.5	-1.5	-3.1
NL	0.7	0.1	+1.0	-1.0	-1.0
Austria	-0.8	0.3	-0.5	-1.0	0
Portugal	-1.1	-4.2	-0.5	-1.0	-4.6
Finland	4.7	5.1	+1.0	-1.0	+4.2
Greece	0.5	-1.9	-0.5	-1.0	-2.3
Denmark	2.8	2.2	+1.0	-1.0	+1.0
Sweden	3.5	4.7	+1.0	-1.0	+3.0
UK	0.6	0.5	-0.5	-1.5	+1.0

Source: European Commission (2001), taken from the individual Stability and Convergence Programmes; European Commission (2002). Figures exclude revenues from the sale of UMTS licences.

Note: "-" denotes a deficit.

These figures demonstrate that all countries bar Portugal were successful in terms of ensuring that the deficit ratio was no more than 3% of GDP. In terms of the country

specific target balances, there was reasonable compliance, with only Germany, Greece, Italy and Portugal substantially overshooting the deficit targets and France missing out by a smaller amount.

A similar picture emerges in terms of the targets for cyclically adjusted budget deficits. Again, Germany, France, Italy, Portugal and Greece have missed their target values by substantial amounts; with the remainder of the EMU participants, along with the UK, Sweden and Denmark meeting or surpassing the targets laid down. Indeed Germany, France, Italy and Portugal and Greece missed even their minimum benchmark figures. And on the more widely accepted goal of a cyclically adjusted deficit ratio of zero, only Finland, Austria and Ireland actually meet their targets.

By 2002, the fiscal situation had worsened visibly. Table 9 presents the same set of figures for the year 2002.

Table 9: Fiscal Policy Targets and Outcomes for 2002

	Actual fiscal balances		Cyclically adjusted budgets		
	Target	Outcome	Target	Min. Benchmark	Outcome
Belgium	0.2	0.1	-0.5	-1.0	0.1
Germany	-2.5	-3.6	-0.5	-1.5	-3.3
Spain	0.0	-0.1	-0.5	-1.0	-0.4
France	-2.0	-3.1	-0.5	-1.5	-3.3
Ireland	0.4	-0.3	-0.5	-1.0	-0.9
Italy	-0.5	-2.3	-0.5	-1.5	-2.1
NL	0.4	-1.1	+1.0	-1.0	-1.0
Austria	0.0	-0.6	-0.5	-1.0	-0.6
Portugal	-1.1	-2.7	-0.5	-1.0	-2.5
Finland	2.6	4.7	+1.0	-1.0	4.8
Greece	0.8	-1.2	-0.5	-1.0	-1.8
Denmark	1.6	2.0	+1.0	-1.0	1.9
Sweden	1.7	1.3	+1.0	-1.0	0.9
UK	-1.8	-1.3	-0.5	-1.5	-1.0

It demonstrates that there has been some "slippage" in the budgetary positions of member states. Only Finland managed to meet its target; all other states failed to do so, some by a very large margin. Across all EMU participants, the average budget deficit rose from 1.6 to 2.2% of GDP.[9]

This may be partly attributable to the slowdown in economic growth across Europe, but that is far from the full story. The cyclically adjusted figures demonstrate that even after allowing for the cyclical state of the economy, many countries worsened their budgetary positions. Indeed, across all Eurozone countries, cyclically adjusted budget balance fell by 0.3% of GDP

5.2 Growth Accounting

To analyse further the effects of growth, versus underlying prudence, we utilise a growth accounting technique pioneered by Von Hagen et al (2001). This approach allows us to decompose observed changes in deficit ratios into two components - those due to autonomous changes in revenue and spending, and those due to changes in economic growth. In order to this, we must construct a counterfactual estimate of the budget ratio over time under the assumption that the government follows a "neutral" fiscal policy - and then compare this with the actual observed changes in the deficit ratio over time. The hypothetical ratio demonstrates the effect of economic growth on the government's budgetary position. And the difference between the hypothetical and the actual figures shows the effects of the change in the government's fiscal policy.

---

[9] European Commission: Public Finances in EMU(2003)

This analysis rests on the notion of a "neutral" fiscal policy - by which we mean one where the government makes no autonomous changes in fiscal policy. This poses a challenge, because tax revenues and many items of government expenditure (e.g. unemployment and other social benefits) are determined endogenously by the level of economic activity.

Therefore, we must specify how these revenue and spending patterns would have changed in the absence of any changes in stance of the government's fiscal policies. A complete answer would require a detailed analysis of public how the public accounts vary with economic activity. But for the purposes of this analysis, we examine 3 possible definitions of a neutral fiscal policy as substitutes for that analysis.

We write the deficit ratio, d, as

$$d = (G-T)/Y = (g-t)$$

where T denotes total government (tax) revenues, G total government expenditures, and Y denotes national output (GDP). Thus g is the share of overall government spending in GDP, and t is the average tax rate.

Definition 1: Government Spending Held Constant

Our first definition of a neutral fiscal policy is one in which the average tax rate t, where $T=tY$ defines t, is held constant; and in which the level of public expenditures is held constant. In other words, real government expenditure is held constant, and tax revenues vary as a constant proportion of GDP. That is exactly the French government's intended fiscal programme at the moment, for example.

The contribution of economic growth to reducing the deficit ratio is then given by

$$\Delta d = -\frac{t\Delta Y}{Y} - \frac{\Delta Y}{Y}(g-t) = -\gamma(t+d) \tag{1}$$

where γ denotes the rate of growth of national income. Since $t + d = g$ is necessarily positive, (1) says that, in the absence of growth, there is no possibility of any improvements in the deficit ratio – irrespective of the current fiscal position, or of the consolidation efforts currently underway – unless you can also decrease the <u>share</u> of public expenditure in national income (or increase tax rates) by <u>more</u>, that is faster, than the fall in national incomes.[10]

That would be hard to achieve in reality, since in recession, *g* would tend to rise, and t would tend to fall.   Reducing the government spending as a proportion of GDP might also be politically difficult, and may have a contractionary effect which exacerbates the initial downturn.

Definition 2: Government Spends all Additional Revenue

We might, therefore, be interested in a weaker, but more "realistic" definition of neutral policy. We could define a constant fiscal policy to be one in which public spending is allowed to grow in line with any extra revenues generated, but not beyond. With this more lenient definition, the growth effect on the deficit ratio becomes

$$\Delta d = - \gamma d \qquad\qquad\qquad\qquad (2)$$

with $\Delta G = \Delta T$ implying $g = t$. This definition may be of interest because it shows what would happen if governments spend any new revenues as they come in.

Definition 3: Government Spending Rises with Trend Growth

---

[10] From (1),we get $\Delta d = (\Delta G - (t+d)\Delta Y)/Y$ which is negative only when $\Delta G < g\Delta Y < 0$ since t+d = g. That implies ΔG/G <γ<0. Alternatively we would need to have $\Delta t > -g\gamma$ to get the same result.

A third possibility is to define a neutral fiscal policy as one in which the average tax rate remains constant, but the level of government spending is kept at a constant proportion of trend GDP. In that case

$$\Delta G = g\Delta\gamma \qquad\qquad\qquad\qquad (3)$$

where γ is the trend rate of economic growth
which then implies:

$$\Delta d = \left(g\bar{y}Y - t\Delta Y\right)/Y - \gamma(g - t) = g(\bar{\gamma} - \gamma) \qquad\qquad (4).$$

Consequently $\Delta d < 0$ if $\gamma > \bar{\gamma}$; and $\Delta d > 0$ if $\gamma < \bar{\gamma}$, where $\bar{\gamma}$ denotes the growth in potential (or trend) output. This definition is of interest because fiscal policies are typically pre-committed. It may not be possible, and it is certainly not desirable, to try to change these policies with each fluctuation in national income. Equation (4) therefore shows what would happen to the deficit ratio if public expenditures increase as a constant proportion of trend output growth, but no more.

Tables 10-13 report estimates of these growth effects, together with the observed changes in deficit ratios in 1999. The latter are reported in the first column of the table. The second column presents the effects of economic growth on the primary deficit ratio during 1999 assuming a constant, no expenditure increase fiscal policy as defined by equation (1). This table shows that the growth in the EU in 1999 had a favourable effect on the deficit ratio of each member (Column 2). The third column then adds in the effect of the credibility gain of a more disciplined monetary policy on the interest payments element in the deficit. This also worked towards a reduction of deficit ratios in all countries. Adding the second and third columns and then subtracting the result from the observed reductions reported in column one, gives the effect of fiscal policy itself (column 4) after all the growth and monetary effects have been stripped out. This difference will be positive if the deficit ratio would have fallen by more than it actually

did, had there been <u>no</u> changes in fiscal policy between the previous and current years. Hence, a positive number in the fourth column indicates a relaxation of the fiscal stance in a given year, a negative number indicates a fiscal tightening.

Finally, column 6 (the last but one) shows the reductions in deficit ratios that would have occurred if countries had kept their fiscal stance neutral – in the sense that all new expenditures must be fully matched by new revenues. The last column then indicates the change in the deficit ratio that would have occurred if expenditures increased at their trend rate.

5.2.1 Fiscal Policy in 1999

Table 10 indicates that Denmark was the only country which tightened fiscal policy in 1999. Whilst all states bar Ireland enjoyed a reduction in the deficit ratio, this was in general due to growth effects, combined with the benefits of a lower debt stock and lower interest rates. All 12 Eurozone participants therefore had an expansionary fiscal policy, despite the Stability and Growth Pact requiring them to consolidate over the medium term to ensure a balanced budget

Table 10: The 1999 Growth Effects and Deficit Ratio Changes

	Observed Reductions	Due to of Economic Monetary growth, ΔG=0:	Impact Policy: Δr.b	**Due to Fiscal Policy Effort**	of which, due to falling debt: r.Δb	*Δb, the change neutral if g=t spending*	*change if trend*
Belgium	-0.2	-1.59	-0.29	**+1.68**	-0.29	*-0.161*	*-0.55*
Germany	-0.7	-1.00	-0.12	**+0.42**	-0.02	*-0.031*	*-0.21*
Spain	-1.9	-1.68	-0.70	**+0.48**	-0.13	*-0.046*	*-0.51*
France	-0.9	-1.72	-0.34	**+1.16**	-0.06	*-0.058*	*-0.62*
Ireland	+0.1	-3.83	-0.65	**+4.38**	-0.28	*+0.258*	*-1.30*
Italy	-1.4	-0.81	-1.51	**+0.92**	-0.08	*-0.028*	*0.0*
Netherlands	-1.5	-1.88	-0.38	**+0.76**	-0.26	*+0.028*	*-0.65*
Austria	-0.2	-1.48	-0.53	**+1.81**	-0.20	*-0.063*	*-0.34*
Portugal	-0.4	-1.74	-0.26	**+1.59**	-0.04	*-0.108*	*-0.55*
Finland	-0.5	-1.79	-0.38	**+1.66**	-0.11	*+0.069*	*-0.27*
Greece	-0.7	-1.69	-0.55	**+1.53**	-0.05	*-0.066*	*-0.27*
Denmark	-2.2	-1.48	-0.30	**-0.42**	-0.28	*+0.087*	*-0.21*
Sweden	-0.8	-2.75	-0.47	**+2.42**	-0.39	*+0.069*	*-1.21*
UK	-0.9	-0.94	-0.51	**+0.54**	-0.17	*+0.027*	*+0.06*

The last but one column shows the potential reductions, had countries kept fiscal stance neutral - in the sense that all new expenditures were fully matched by new revenues. This more generous measure of fiscal neutrality suggests there was some small tightening in the sense that the observed reductions are actually slightly larger than those that would have occurred under a regime of matching new expenditures with new revenues. Equally, this implies that the bulk of new revenues stemming from strong growth, were simply spent, rather than used for consolidation. Belgium, Germany and Ireland seem to have done that. A similar result holds for France, Austria, Portugal, Finland, Greece and Sweden, although their results are closer to those obtained for maintaining public spending in line with trend GDP growth.

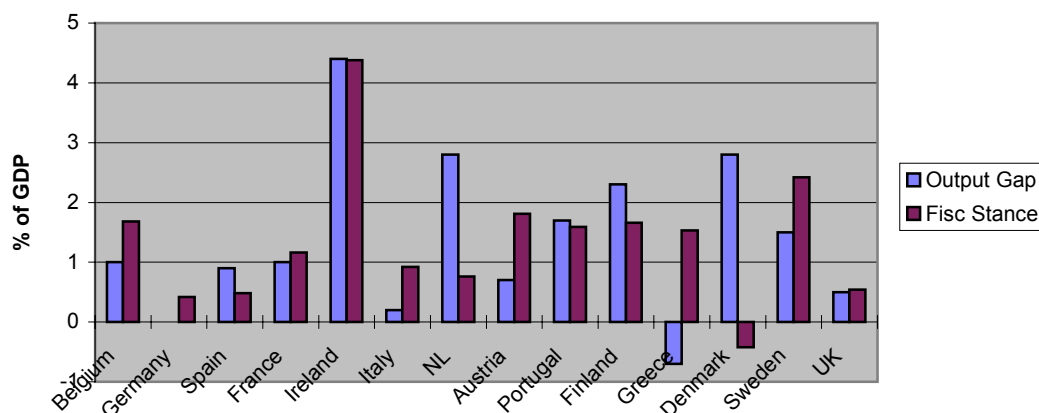**Figure 3: Output Gap and Fiscal Stance in 1999**

Figure 3 shows the calculated fiscal stance, alongside the output gap, as measured by the difference between actual and trend GDP[11]. This gives an indication of the cyclical position of the economies. In the main, the period is one of growth, and therefore one in which one might expect countries to be consolidating.

But in nearly every case fiscal expansions were running ahead of a positive output gap - the only exceptions are Spain, the Netherlands, Finland where there were fiscal contractions relative to the positive output gap; Denmark where there was an actual contraction; and Ireland, Portugal and the UK where there is no relative expansion

In sum, one might have expected a period of relative growth to be accompanied by more consolidation efforts. However, it appears that in the first year of EMU there was relatively little effort at consolidating, and that the expansionary fiscal positions could not be justified on grounds of stabilising output, given the strong cyclical position which most countries enjoyed.

5.2.2 Fiscal Policy in 2000

---

[11] The measure used comes from the Statistical Annex to The European Economy, *European Commission, 2003*

Table 11: The 2000 Growth Effects and Deficit Ratio Changes

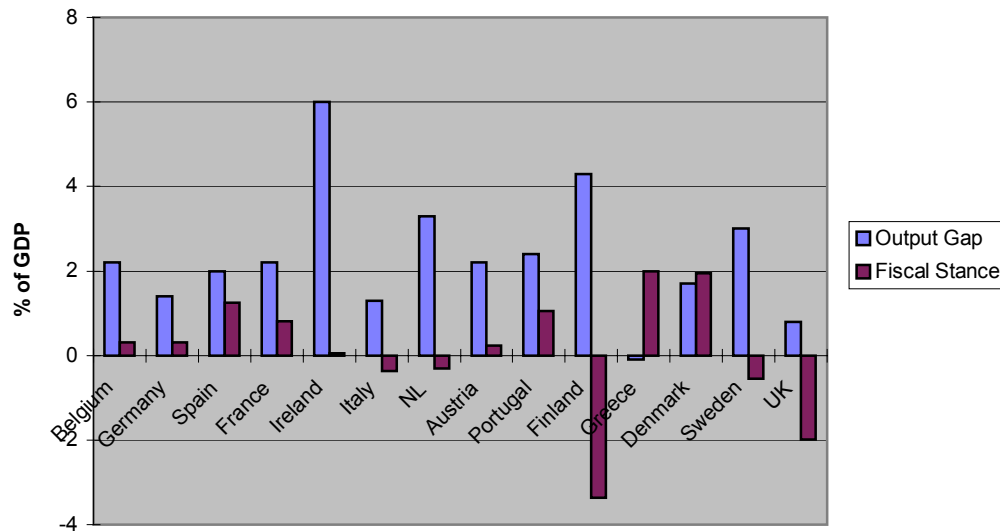|	Observed Reductions	Due to of Economic Monetary growth, $\Delta G=0$:	Impact Policy: $\Delta r.b$	**Due to Fiscal Policy Efforts**	of which, due to falling debt: $r.\Delta b$	*Δb, the change if g=t spending*	*change if trend neutral*
Belgium	-0.6	-1.03	+0.12	**+0.31**	-0.33	*+0.002*	*+0.01*
Germany	-0.4	-0.68	-0.04	**+0.32**	-0.06	*-0.016*	*+0.06*
Spain	-0.3	-1.49	-0.06	**+1.25**	-0.14	*-0.024*	*-0.06*
France	-0.4	-1.18	-0.03	**+0.81**	-0.07	*-0.030*	*-0.05*
Ireland	-2.3	-2.36	+0.01	**+0.05**	-0.51	*+0.332*	*-0.01*
Italy	-1.1	-0.79	+0.06	**-0.37**	-0.26	*+0.010*	*-0.00*
Netherlands	-1.5	-1.11	-0.08	**-0.31**	-0.51	*-0.054*	*+0.07*
Austria	-0.8	-1.05	+0.01	**+0.24**	-0.04	*-0.030*	*+0.06*
Portugal	-0.0	-1.12	+0.06	**+1.06**	-0.06	*-0.069*	*+0.07*
Finland	-4.9	-1.54	+0.02	**-3.36**	-0.17	*+0.216*	*-0.10*
Greece	+0.1	-1.72	-0.28	**+1.99**	+0.08	*-0.067*	*-0.23*
Denmark	-0.7	-1.24	-0.01	**+1.94**	-0.50	*+0.059*	*-0.01*
Sweden	-2.2	-1.54	-0.11	**-0.55**	-0.54	*+0.099*	*-0.08*
UK	-2.8	-0.90	+0.09	**-1.99**	-0.20	*+0.080*	*+0.06*

Table 11 reports the results for the year 2000, a year of relatively strong growth. Compared to 1999 we observe larger reductions in deficits. Growth effects are roughly the same, implying smaller expansions in the underlying fiscal positions. Within the Eurozone, Italy, the Netherlands and particularly Finland made attempts to tighten fiscal policy; and Sweden and the UK outside the Euro also made fiscal retrenchments.

Comparing actual deficit reductions with those that would have been obtained under the rule of spending additional revenues, we see that Belgium, Germany and Austria made some attempt to tighten fiscal policies. On the other hand, Spain, France, Portugal Greece and Denmark appear to have allowed public expenditures to remain on trend or simply absorb all new additional revenues.

With regard to the cyclical position, it is clear that 2000 was one of strong growth, with all countries bar Greece reporting a positive output gap. Set against this

backdrop, 2000 can be viewed as something of a missed opportunity for consolidation: whilst growth remained strong, few countries took the opportunity to build up surpluses.

Figure 4: Output Gap and Fiscal Stance, 2000

5.2.3 Fiscal Policy in 2001

In 2001, the predominant economic outlook was one of a slowdown in growth. Growth effects are a little weaker than before, but are supported by a stronger relaxation in monetary policy. Observed ratio changes are now positive for Ireland, Italy, the Netherlands, Portugal and Finland. This is largely the result of fiscal expansions. In this period, only Austria is showing any real desire to restrict fiscal policy. In contrast Germany, France, Italy, Portugal and Finland are all expanding spending even faster than they would have done had they merely spent all their new revenues, or increased their expenditures on trend.

Table 12: The 2001 Growth Effects and Deficit Ratio Changes

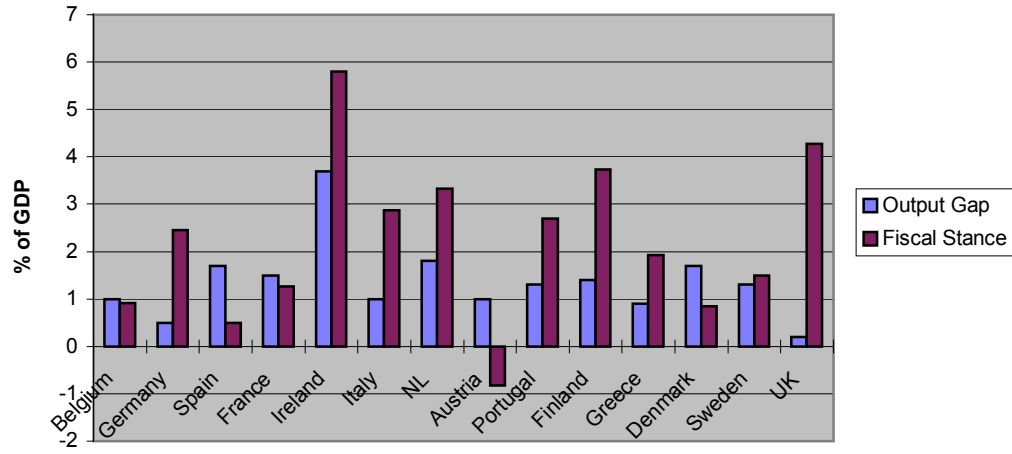|	Observed Reductions	Due to of Economic Monetary growth, $\Delta G=0$:	Impact Policy: $\Delta r.b$	**Due to Fiscal Policy Efforts**	of which, due to falling debt: $r.\Delta b$	*Δb, the change neutral if g=t spending*	*change if trend*
Belgium	-0.3	-0.98	-0.23	**+0.91**	-0.07	*+0.008*	*+0.05*
Germany	+1.7	-0.69	-0.06	**+2.45**	-0.04	*-0.040*	*+0.09*
Spain	-0.7	-1.18	-0.01	**+0.49**	-0.19	*-0.003*	*-0.03*
France	+0.1	-1.17	0.00	**+1.27**	0.00	*-0.032*	*-0.04*
Ireland	+3.0	-2.42	-0.35	**+5.80**	-0.12	*+0.107*	*+0.07*
Italy	+2.0	-0.80	-0.07	**+2.87**	-0.04	*-0.043*	*+0.01*
Netherlands	+2.1	-1.04	-0.19	**+3.33**	-0.20	*+0.002*	*+0.17*
Austria	-1.8	-0.99	+0.01	**-0.82**	+0.03	*+0.006*	*+0.10*
Portugal	+1.4	-1.07	-0.23	**+2.70**	+0.13	*-0.097*	*+0.15*
Finland	+2.0	-1.54	-0.19	**+3.73**	-0.07	*+0.153*	*-0.11*
Greece	-0.5	-1.68	-0.75	**+1.93**	+0.05	*-0.049*	*-0.22*
Denmark	-0.5	-1.23	-0.12	**+0.85**	-0.18	*+0.068*	*+0.03*
Sweden	-0.8	-1.51	-0.79	**+1.50**	-0.08	*+0.119*	*-0.05*
UK	+3.1	-0.98	-0.19	**+4.27**	-0.20	*+0.019*	*-0.04*

 Source: Authors Calculations and the AMEC data base.
NB: "-" denotes a fall (improvement) in the deficit ratio

In 2001, the predominant economic outlook was one of a slowdown in growth. Growth effects are a little weaker than before, but are supported by a stronger relaxation in monetary policy. Observed ratio changes are now positive for Ireland, Italy, the Netherlands, Portugal and Finland. This is largely the result of fiscal expansions. In this period, only Austria is showing any real desire to restrict fiscal policy. In contrast Germany, France, Italy, Portugal and Finland are all expanding spending even faster than they would have done had they merely spent all their new revenues, or increased their expenditures on trend.

Analysing the cyclical position shows that few countries could claim to be running a counter cyclical fiscal policy- with strongly expansionary fiscal policies largely accompanied by (smaller) positive output gaps. Only Austria, Denmark and Sweden appear show any signs of running an avowedly counter-cyclical policy.

Figure 5: Fiscal Stance and Output Gap, 2001

5.2.4 Fiscal Policy in 2002

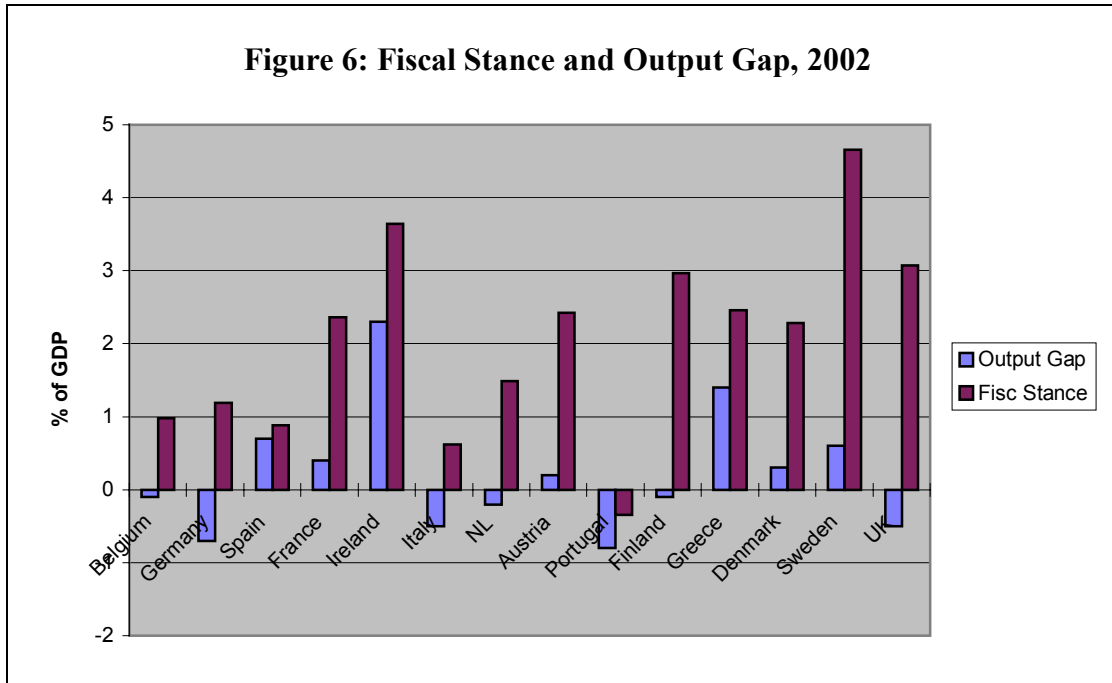**Table 13: The 2002 Recession Effects and Deficit Ratio Changes**

	Observed Reductions	Due to of Economic Monetary growth, $\Delta G=0$:	Impact Policy: $\Delta r.b$	**Due to Fiscal Policy Efforts**	of which, due to falling debt: $r.\Delta b$	*Δb, the change if g=t spending*	*change if trend neutral*
Belgium	+0.5	-0.15	-0.33	**+0.98**	-0.17	*-0.000*	*+0.86*
Germany	+1.0	-0.01	-0.18	**+1.19**	-0.07	*-0.004*	*+0.74*
Spain	0.0	-0.79	-0.09	**+0.88**	-0.11	*-0.002*	*+0.39*
France	+1.7	-0.54	-0.12	**+2.36**	+0.11	*-0.032*	*+0.57*
Ireland	+2.4	-1.08	-0.16	**+3.64**	-0.40	*-0.029*	*+1.39*
Italy	-0.2	-0.10	-0.72	**+0.62**	+0.02	*-0.005*	*+0.70*
Netherlands	+1.2	0.00	-0.29	**+1.49**	-0.01	*0.000*	*+1.23*
Austria	+2.1	-0.21	-0.12	**+2.42**	+0.20	*-0.007*	*+0.89*
Portugal	-1.0	-0.42	-0.24	**-0.34**	+0.13	*-0.029*	*+0.80*
Finland	+1.3	-1.23	-0.44	**+2.97**	-0.05	*+0.090*	*+0.21*
Greece	-0.1	-1.85	-0.73	**+2.46**	-0.06	*-0.052*	*-0.44*
Denmark	+0.9	-1.10	-0.29	**+2.28**	-0.02	*+0.040*	*+0.14*
Sweden	+3.2	-1.22	-0.24	**+4.66**	-0.15	*+0.027*	*+0.26*
UK	+2.0	-0.69	-0.38	**+3.07**	-0.02	*-0.020*	*+0.06*

Source: Authors calculations and the AMEC data base

NB: "-" denotes a fall (improvement) in the deficit ratio

Table 13 shows 2002 was a year of slower growth and recession for some countries. Germany, France, Ireland, the Netherlands, Finland, Austria and the UK all record significant increases in the deficit ratio. Pure growth effects are now generally at their lowest level since the start of EMU. Fiscal stance is expansionary for all countries bar Portugal - who was forced to take remedial measures, having been declared to be in "excessive deficit" during 2002. However, most countries had made some attempts to reduce the expansionary nature of their fiscal stance, despite the recession. Only in Spain, France, Finland and Greece was fiscal policy loosened *relative to 2001*. Indeed, Belgium, Spain and most noticeably Portugal, all reduced their deficits, despite the

recession, relative to the case where expenditure was allowed to increase in line with trend. Moreover this was a partial consolidation which occurred at a time when the output gap was relatively low, or even negative, for many countries.

Figure 6: Fiscal Stance and Output Gap, 2002

5.2.5 Conclusions

On the basis of examining the observed changes in budget deficits, one might be tempted to conclude that it was during the slowdown of 2001-2 that fiscal discipline appeared to be slipping. However, the figures presented above tell a quite different story - namely that the biggest failure to consolidate occurred as the European Economy came off the *top* of its cycle in 1999-2000. In particular, there was relatively little consolidation in 1999 and 2000 despite strong growth, with countries typically prepared simply to spend additional revenues as they came in.

In addition, apart from a few isolated cases in 1999-2000 and in contrast to the claims of Gali and Perotti (2003), fiscal policy does not appear to have been counter-cyclical in the

Eurozone. Indeed, for several countries, there appears to have been pro-cyclical movements in fiscal policy. Portugal is a case in point: following an expansionary policy in 1999 (when the output gap was nearly 2%), and then following a contractionary policy by 2002 (with a negative output gap) after violating the 3% reference value in 2001. However, our conclusions on the cyclicality of fiscal policy need to bear in mind the fact that for the majority of countries in the sample, we have yet to observe their behaviour in a serious downturn. However, the failure to build up surpluses in the upper part of the cycle suggests that they would have had limited room for manoeuvre when faced with a recession and the need to maintain deficits within a 3% limit in any recessions thereafter. It is that which gives European fiscal policy its apparently pro-cyclical impact.

6. Conclusions and Discussion

In this paper we contrast fiscal discipline under the stability and growth pact, with the discipline present in the run up to EMU, and with the pre-Maastricht era; on the basis of three criteria- the probability of commencing a consolidation, the longevity of consolidation and the probability of violating the 3% deficit ratio limit.

In terms of the starting consolidations, we find that the Maastricht era was one of higher probabilities of consolidations relative to the period 1960-1991, but that the SGP era was one of unusually few consolidations. For longevity of consolidations, we find that economic factors are of little importance, however the political factors as proxied by time variables. We find that prior to EMU, consolidations were no more or less likely to persist, but that post 1999 there was a sharp fall in the hazard rate. However, each year saw a subsequent rise in the hazard rate, with the effect that after 4 years, the initial boost to discipline had been entirely eroded.

A similar effect emerges when one considers the probability of violating the 3% limit. We find no effect over the run up to EMU, but that there was strong fall in the following the launch of the single currency. However, each year after 1998 sees an increase in the probability, with the effect that within 5 years the boost to discipline had been entirely eroded.

These results suggest that the desire to join EMU exerted a strong influence on fiscal discipline, with countries keen to qualify. However, once safely inside, the SGP was not an effective means of disciplining governments. Our results indicate that by the time of its *de facto* suspension in 2003, it was *already* a dead duck with fiscal discipline no different to the pre-Maastricht era in which no supranational constraints existed.

These results provide empirical support for the widely held view that the SGP has failed to discipline governments. What they add, is the fact even prior to the well publicised deficit problems experienced in 2004, the SGP had, in terms of our indicators, no

disciplining effect relative to the pre-1991 benchmark, suggesting that prior to its formal suspension, the SGP had already lost all credibility.

The growth accounting analysis gives a narrative account of what actually happened to fiscal policy in the SGP era. We find evidence that the asymmetric nature of the SGP led to a failure to build up surpluses during good times, which meant that many countries were close to 3%, even if they were not near the bottom the cycle. This afford little fiscal room for manouvre in the event of a downturn, and as the Portuguese case dramatically demonstrates, requires the fiscal contraction to come at the most inopportune stage of the cycle.

The comparison between the SGP era and the run up to EMU is particularly instructive, since in both cases, governments were aiming at a similar target- namely a budget deficit of less than 3% of GDP[12]. However, the sanctions they faced for failure to comply were quite different, providing us with a interesting comparison of different enforcement structures. Clearly, the threat of being excluded from EMU was a much stronger disciplining factor than the threat of fines and other procedures under the SGP. These results lend empirical support to the view that enforcement that relies on peer pressure, and in which peers must judge each other, are less effective. This could reflect political pressures, and the fact that punishment may not be a credible strategy for EMU members, since it requires a contraction with negative spillover effects.

---

[12] In fact, one might argue that the run up to EMU was a less stringent target, since governments were only required to meet the criteria at the point of assessment in 1997, rather than in every year across the whole period.