

# Stability Pact

More than a minor nuisance?

## SUMMARY

---

*The Stability and Growth Pact will lead member countries to aim for cyclically balanced budgets. Until this steady state is reached, Europe will continue its efforts at deficit cutting. While so doing, politicians are less likely to undertake the difficult labour market reforms that are really needed. Is further fiscal retrenchment wise? The paper reviews the reasons that have been advanced in favour of a Stability Pact and finds them wanting. The most serious justifications, such as the systemic risk of bank crisis following a government's failure to service its debt, can be better dealt with in other ways: for example, by prudential limits on banks' exposure to public debts. Moreover, our analysis reveals that the macroeconomic costs of the Stability Pact, while sizeable, are not as dangerous as often believed. The costs will be barely visible once the steady state is reached. The true macroeconomic costs are front loaded; they concern the next few years, after a decade already dominated by convergence efforts.*

— Barry Eichengreen and Charles Wyplosz

---

# The Stability Pact: more than a minor nuisance?

Barry Eichengreen and Charles Wyplosz

IMF, University of California, Berkeley, CEPR and NBER; Graduate Institute of International Studies, Geneva, and CEPR

## 1. INTRODUCTION

The Maastricht Treaty provides the institutional framework for Europe's monetary union. Its essential features have been the subject of extensive discussion: these include the three-step transition, the creation of a European Central Bank, procedures for shaping the conduct of fiscal policy (the Excessive Deficit and Mutual Surveillance Procedures of Art. 103, 104 and 109) and the no-bailout rule prohibiting the ECB from acquiring public debt directly from the issuer (Art. 104 of the treaty and Art. 21 of the Protocol on the European System of Central Banks).

The one post-Maastricht element, finalized at the June 1997 meeting of the European Council in Amsterdam, is the Pact for Stability and Growth.<sup>1</sup> The pact clarifies the provisions of the Excessive Deficit Procedure. It calls for fiscal

---

For help with data we thank Tamim Bayoumi, Herve Daudin, Paul De Grauwe, Tom Fernley, Morris Goldstein, Patrick Honohan, Alessandro Missale, Th. Papaspyrou, Ole Marius Tideman, Giuseppe Tullio, Bill White and Geoffrey Woglom. Xavier Debrun, Arjan Kadareja, Darren Lubotsky and Matthew Olson provided efficient research assistance. Financial support was provided by FNRS in Switzerland and the Center for German and European Studies of the University of California as well as the National Science Foundation in the United States. The opinions expressed are not necessarily those of the International Monetary Fund. Without implicating them in our conclusions, for helpful comments and guidance we would like to thank Donogh McDonald, the members of the Economic Policy Panel, our discussants, the journal's referees and David Begg.

<sup>1</sup>The 'growth' part was added at the request of the French authorities as a face-saving device after they were forced to soften their previous opposition.

positions to be balanced or in surplus in normal times so that automatic stabilizers can operate. It urges stronger surveillance of medium-term fiscal positions with the goal of providing an early warning signal that the 3% reference value for budget deficits is at risk. It clarifies the conditions under which participants in the monetary union will be allowed to exceed the 3% deficit ceiling without being determined to have an excessive deficit. Countries will be automatically exempt only if their GDPs have declined by 2% and the excess deficit is temporary and small. Those in which GDP declines by between 0.75% and 2% could also be exempt, but only with the concurrence of the Council of Ministers. Countries with even milder recessions will be found to have an excessive deficit and forced to make mandatory deposits that are transformed into fines if the fiscal excess is not eliminated within two years.

Although this new transparency is welcome, it also reveals a more restrictive set of provisions than those laid down by the Maastricht Treaty. The treaty says only that the general government deficit may not exceed its reference value (3% of GDP) unless the deficit has declined significantly and continuously to where it is close to that reference value, or the excess of the reference value is only exceptional and temporary and the deficit remains close to the reference value. It says nothing, in other words, about the size of the output decline producing that exceptional and temporary excess deficit, or the period over which it must occur. In this sense the Stability Pact implies less flexibility than the Maastricht Treaty.

The Stability Pact has not received the same systematic analysis as other aspects of the Maastricht Treaty.<sup>2</sup> Providing that analysis is our purpose in this paper.

Our conclusion is that the Stability Pact will have some effect. Governments will adjust their fiscal policies just enough to avoid incurring fines. EU authorities for their part will give countries just enough leeway to avoid having to fine them. Actually imposing fines would worsen conditions in the adversely affected member state, lead to recrimination and deal a blow to EU solidarity. Actually incurring fines would subject a government to serious embarrassment and loss of political face. Hence, the pact is likely to alter fiscal behaviour just enough to avoid these outcomes.

This will reduce the extent of automatic stabilization. Estimates based on historical data suggest that automatic stabilization may increase in the output gap, but by only a fraction of a percentage point. Hence the 'minor nuisance' of the title. But even a fraction of a percentage point on the growth rate can become important when allowed to accumulate over time. Our simulations suggest that, after accumulation over the last two decades, levels of real output would have ended 5% lower in France and the UK, and 9% lower in Italy.

---

<sup>2</sup> See, however, Artis and Winkler (1997), Beetsma and Uhlig (1997) and Buti *et al.* (1997).

The critical question, therefore, is how hamstrung automatic stabilizers will be. Will the Stability Pact weaken them as much in the future as it would have in the past, had it been superimposed on actual experience? The answer hinges on how far below the 3% ceiling budget deficits are when Stage III begins. If budgets move significantly into surplus relative to past experience, there is no reason why automatic stabilizers will be much affected. But in the present climate, where electorates lack the appetite for further spending cuts, significantly smaller deficits require significantly faster growth. The danger is thus that the Stability Pact will divert effort from the fundamental reforms needed to step up the pace. In particular, without fundamental labour market reform, Europe will fail to grow by at least  $3-3\frac{1}{2}\%$  a year, and deficits will not decline. The Stability Pact will grow more binding, and the operation of Europe's automatic stabilizers will remain feeble, increasing the volatility of output, further depressing growth, and making the provisions of the pact even more binding than before. Through the operation of this vicious spiral, Europe could be condemned to a low-level equilibrium trap.

Our view is that leaders have a fixed amount of political capital that they can allocate to politically costly fiscal reform or politically costly labour market reform. To the extent that they invest in one, they have fewer resources left to devote to the other. In practice, they are likely to compromise, doing a little of each. For example, those European countries that have made the most progress in eliminating budget deficits and increasing labour market flexibility (Ireland and Finland spring to mind) have allocated their adjustment effort evenly to fiscal consolidation and labour market reform.

Our conclusion will be that the Stability Pact may have some slight benefits in terms of fiscal discipline, but may have significant costs, both in diverting political effort from more fundamental problems and indeed in making those fundamental problems worse than before.

## 2. WHAT THE STABILITY PACT SAYS

The Stability Pact consists of two Council regulations, one on the Excessive Deficit Procedure and another on surveillance, and a European Council resolution that provides guidance to the Council and member states on the application of the pact. The two Council regulations have the force of law. They clarify the meaning of the Maastricht Treaty's provisions regarding excessive deficits, in particular in respect of exceptional and temporary circumstances under which the 3% reference value for the general government deficit can be exceeded without a determination that the deficit is excessive. In addition, under the pact's provisions, participants in the monetary union commit themselves to a medium-term budgetary stance 'close to balance or surplus'.

The pact will consider a deficit in excess of 3% to be exceptional if a country's GDP declines by at least 2% in the year in question. In addition, a recession in which real GDP declines by less than 2% but more than 0.75% may qualify with the concurrence of the Council. The country will have to show that its recession was exceptional in terms of its abruptness or in relation to past output trends. Countries with annual output declines smaller than 0.75% will not be able to claim exceptional circumstances. These provisions thus clarify the Maastricht Treaty's clauses regarding the exceptional circumstances under which the 3% reference value can be exceeded without leading to the determination of an excessive deficit.

The pact also includes provisions concerning further exemptions. While countries are obliged to correct excessive deficits 'as quickly as possible after their emergence' and to 'launch the corrective budgetary adjustments they deem necessary without delay', they will probably be able to run deficits in excess of 3% of GDP for at least two years in a row without incurring fines. The Commission will receive definitive data that a country's deficit in year  $t$  exceeded 3% around March of year  $t+1$ . By the end of May it will have issued a recommendation for eliminating that excess in accordance with Article 103(4). The country will then have to take corrective action such that the excess is eliminated by year  $t+2$ . If no corrective action is taken by the end of year  $t+1$ , financial sanctions will be imposed. But presumably corrective action that will eliminate the excess in year  $t+2$  will suffice to eliminate this threat. Thus, two successive years of budget deficits in excess of 3% (and possibly more – see below) will be permitted.

Moreover, the passage specifying these time limits ends with the qualifying phrase 'unless there are special circumstances'. The nature of those special circumstances is not specified. But presumably a country like Finland in the early 1990s, which suffered budgetary difficulties reflecting special circumstances largely beyond its control, would be allowed to take even longer to bring its deficit back down to 3%. Nor does the pact clarify a third provision of the Excessive Deficit Procedure, that the budget must remain 'close' to the reference value to avoid the determination of an excessive deficit.

Sanctions, when required, will take the form of non-remunerated deposits, which start at 0.2% of GDP and rise by one-tenth of the excess deficit up to a maximum of 0.5% of GDP. Additional deposits will be required each year until the excessive deficit is corrected. If the excess is not corrected within two years, the deposit will be converted into a fine; otherwise it will be returned.

Thus, a careful reading does not imply that fines will be levied as soon as budget deficits exceed 3% of GDP. The pact is rather more flexible. It allows temporary exemptions for countries experiencing 'severe' recessions. More generally, it allows time for excessive deficits to be corrected; in the case of undefined 'special circumstances' it allows unspecified amounts of time. Clearly, one needs to think harder about the political economy of EU policy making to forecast how strictly the fines and sanctions of the Stability Pact will be applied.

### 3. RATIONALES FOR THE STABILITY PACT

For an argument favouring the Stability Pact to convince, it must satisfy three conditions. The effect on which it hinges must be first order (on the principle that controversial policies with potentially important side-effects should not be adopted in response to negligible problems). It must have Europe-wide repercussions (on the principle that, if its effects are purely national, there is no justification for a Europe-wide response). And, arguably, it must be a consequence of monetary union rather than a corollary of European integration (on the principle that the Excessive Deficit Procedure and the rest of the Maastricht Treaty apply to member states whether in or out of the monetary union, whereas the sanctions of the Stability Pact apply specifically to participants in EMU).<sup>3</sup>

#### 3.1. To prevent inflationary debt bailouts

The most compelling argument for the Stability Pact is as extra protection for the ECB from pressure for an inflationary debt bailout. The scenario might run as follows. The government of an EMU country gets into fiscal trouble, from which it cannot extricate itself. Investors fear suspension or (more likely) modification of payment on its public debt, and therefore sell its bonds. Its bond prices start to plummet. Banks holding those bonds find their capital impaired, inciting depositor runs. Bond markets (and indirectly banks) in other EMU countries suffer adverse repercussions, as investors in public debt of other European states become demoralized. To prevent the collapse of Europe's banking and financial system, the ECB buys up the bonds of the government in distress. As the costs are being borne by the residents of the EMU zone as a whole rather than the citizens of the responsible country, governments have an incentive to run riskier policies in the first place, and investors have less reason to apply market discipline.

This scenario is more than hypothetical: in 1994–5 something similar occurred in Mexico (see Box 1). But is it relevant to Europe? Recent debt problems, not just in Mexico but in Thailand, South Korea and elsewhere, suggest that the monetary authorities (the ECB in Europe, the IMF in the broader international context) come under intense pressure to extend a debt bailout when two conditions hold: debt problems place the banking system at risk; and they threaten to spread contagiously to other national markets.<sup>4</sup> Banks are the weak link in the chain of macroeconomic and financial stability: their core business, maturity transformation, renders them

<sup>3</sup>The point is arguable because other pact provisions, such as medium-term surveillance and the precise conditions under which a deficit will be found as excessive, will apply to EU countries whether or not in EMU.

<sup>4</sup>The probability of bailouts is further enhanced by serious imbalances in the vertical structure of taxation and spending, when the centre collects the taxes but subcentral governments receive transfers and do the spending. This works against the likelihood of a debt bailout in Europe, where member states collect the bulk of their own taxes, and where transfers from the EU remain relatively small. We develop these points further in Box 2.

illiquid. Operating in an environment of asymmetric information, they are vulnerable to runs when depositors lack confidence. The Great Depression reminds us that widespread bank failures can have serious macroeconomic repercussions. Contagion provides major motivation for IMF intervention in countries like

### **Box 1. Should Stability Pact proponents fear that Europe will be another Mexico?**

A precedent for the bailout scenario feared by European policy-makers is the Mexican crisis of 1994–5 (for an overview and analysis on which we draw, see Sachs *et al.*, 1995). That episode points to four factors that magnify bailout risk. First, a significant share of Mexican public debt, the notorious *tesobonos*, was foreign-currency indexed. Since the Bank of Mexico could not print dollars and was committed to holding the exchange rate within a band, once investors began selling its bonds, the Mexican government was in the same predicament as a member of a monetary union. It could purchase what was being sold only in so far as it possessed dollar reserves. Since its reserves were limited, it had to solicit a bailout from the USA and the IMF.

Second, much of Mexico's debt was short term. The *tesobonos* and their domestic-currency equivalents, *celes*, ran only 30, 60 or 90 days to maturity. Not only did the government have to service its debts, but it had to redeem a significant quantity if investors failed to roll them over. Since it lacked the dollars to do so and might print pesos to finance redemptions, the spectre of inflation loomed. Doubts about the government's willingness or ability to service its debts could therefore ignite a run.

Third, significant quantities of public debt were held by the Mexican banking system, whose stability was critical for the macroeconomy. The outbreak of the crisis was followed immediately by withdrawals by domestic and foreign depositors. Fear of collapse of the banking system was a powerful motive for the rescue by the USA and IMF.

Fourth, there were fears of contagion. The Mexican crisis led to extensive reserve losses and deposit withdrawals in Argentina and repercussions as far afield as Thailand, Hong Kong and Sweden. US officials cited danger of contagion and systemic risk as a rationale for the Mexican bailout.

Each of these points has an analogy in EMU. National central banks will be mere operating arms of the ECB, unable to print euros. Some candidates for EMU have significant amounts of short-term debt, held in important part by the banking system. And as European banking systems and financial markets more generally become increasingly integrated and interdependent, worries of contagion will grow.

## Box 2. Sooner or later? When will bailout risk be greatest?

At what stage in the construction of EMU will bailout risk be greatest? McKinnon (1996) suggests it will be most intense at the start; von Hagen and Eichengreen (1996) argue that bailout risk will be least at the outset.

McKinnon's conclusion follows from assuming that bailout risk is minimized when four conditions are met:

- *monetary separation* (the government neither owns nor controls the central bank). Monetary separation hardens budget constraints, discouraging governments from recklessly accumulating debts.
- *fiscal separation* (little co-mingling of revenues of different levels of government, so lower levels of government cannot expect additional transfers from higher levels when they overspend). When lower levels of government receive transfers, their budget constraints are softened, and they may be tempted to run reckless fiscal policies.
- *factor mobility*, intensifying tax competition and limiting the size of the public sector. This, in McKinnon's view, will limit the size of the public sector debts that member states accumulate.<sup>5</sup>
- *low debt/GNP ratios*, so that governments do not pressurize the monetary authorities to use the inflation tax on optimal-taxation grounds.<sup>6</sup>

The first three conditions will be met from the outset. The single market, by encouraging factor mobility, will intensify tax competition. No national government will have its own central bank. Revenue sharing will be minimal. If there is bailout risk, it will arise from failure to meet the final condition, a failure that will be most egregious in the short run. This implies that the need for the Stability Pact is most pressing in the early years of EMU but less so subsequently (when debt overhangs have been removed).

Von Hagen and Eichengreen emphasize that bailout risk will depend on the vertical structure of the tax base: in other words, on the extent to which subcentral – in the context of EMU, member state – governments collect their own taxes versus relying on transfers from the centre. Contrast two situations. In scenario A, all taxes are raised by a central government that provides grants to subcentral governments. If a subcentral government experiences difficulties, its

*Continued*

<sup>5</sup> The counterargument, which we regard as more plausible, is that tax competition will put downward pressure on revenues, but its impact on expenditure may be less than one for one. For this reason it may be associated with larger deficits and debts, not smaller ones.

<sup>6</sup> A clear analysis of how high debt burdens lead governments to press for use of the inflation tax in the Ramsey model is De Grauwe (1996).

**Box 2. *continued***

only options are to default or obtain a bailout. If default is not politically palatable, then a bailout will be forthcoming. A subcentral government that knows this will have an incentive to run risky policies.

In scenario B, subcentral governments control their own taxes. If they experience difficulties, they can be asked to raise the tax rates they control, reinforcing their financial position. Since in this case there exists a lower-cost alternative to default, the central bank can credibly promise not to provide a bailout.<sup>7</sup>

It follows that pressure for a bailout will be intense in the early years of EMU. The European Union lacks a highly developed system of fiscal federalism. Its budget is small, and the vast majority is earmarked for the common agricultural policy and Structural Funds (leaving it unavailable for treating debt- and deficit-related problems). The member states control the taxes levied on their citizens. This will give national governments a third, low-cost, alternative to default and bailout: namely, adjusting their own tax rates to redress their own financial problems. The ECB, aware of the existence of this third alternative, should be able to resist the pressure for a bailout.

Eventually there may develop pressure for a European system of fiscal federalism to smooth the operation of the monetary union, in which case the vertical structure of the tax base will be transformed and with it the severity of bailout risk. But this is a long-run prospect. Thus, in contrast to McKinnon, who sees bailout risk as most intense in the short run, von Hagen and Eichengreen and the present authors see it as more pressing later.

Correctly choosing between these models is important, for erroneously accepting one could aggravate the very problems forecast by the other. Say that one accepts McKinnon's interpretation and adopts strict limits on fiscal policy. If member states are then prevented from operating their automatic fiscal stabilizers in response to business-cycle disturbances, they will press the EU to do so for them. They will lobby for an expanded EU budget with automatic-stabilization capacity and transfers from the EU to the member states. Ultimately this could lead to precisely the bailout problem about which the proponents of the Stability Pact are so concerned.

---

<sup>7</sup>Von Hagen and Eichengreen test this hypothesis by estimating a probit regression on cross-country data for 1985–7. The presence or absence of fiscal restrictions on subcentral governments, which will be needed where bailout risk is most intense, is modelled as a function of the share of subcentral government spending financed out of own taxes. (Per-capita income is also included as a control.) The results confirm that the vertical structure of taxation matters for the incidence of fiscal restrictions and by implication for bailout risk.

Mexico, Thailand and South Korea; if a crisis in one country has major international externalities that national policy-makers have little incentive to internalize, there is an obvious argument for multilateral intervention (in the European case, by the ECB).

We take seriously the rationale for the Stability Pact based on the spectre of an inflationary debt bailout. But the Maastricht Treaty already contains a no-bailout rule that prohibits the ECB from purchasing public debt directly from the issuer. To justify reinforcing this rule with a Stability Pact, it is necessary to show that the factors heightening bailout risk – threats to the banking system and bond market contagion – will operate in EMU: in other words, that the risks to Europe's banking system and bond markets are sufficiently intense that the ECB will be unable to resist importuning by heavily indebted countries. We provide evidence on these questions below.

### 3.2. To neutralize inflationary pressure more generally

A second popular rationale for the Stability Pact is to offset other sources of inflationary pressure. The ECB, concerned to maximize economic efficiency, will seek to balance the deadweight cost of the inflation tax against the deadweight cost of other taxes. Where the total resources required by the public sector are large, all taxes, including the inflation tax, will be high. If governments of EMU countries run large deficits and accumulate high debts, the ECB will permit more inflationary monetary policies to reduce the deadweight losses associated with *other* taxes. Since product and factor market taxes fall on the residents of each country, while the inflation tax will be shifted to the residents of the whole euro zone, national incentives to run deficits will be increased by EMU membership.

This analysis, as in De Grauwe (1996), presupposes that the ECB will be simply a Stackelberg follower to the fiscal lead of different member governments. However, there are convincing reasons to think that the ECB will not act as a myopic follower of fiscal fashion, but will engage in a repeated game in which it seeks to convince governments and markets of the credibility of its commitment to price stability. It will keep inflation low even if this means that other taxes have to be higher.<sup>8</sup> Governments, finding the deadweight loss of taxation to be higher, may then pursue lower government spending. They will be Stackelberg followers, not leaders.

Thus, there is good reason to think that any inflation bias in ECB policies produced on optimal taxation grounds will be small. This is a weak reed, hardly first order in magnitude, on which to rest any justification for the Stability Pact.

<sup>8</sup> If EMU members appoint independent central bankers who attach overriding importance to the goal of price stability, even a myopic ECB will be reluctant to trade off higher inflation tax revenue for reductions in distortions from other sources of tax revenue.

### 3.3. To offset political bias towards excessive deficits

A third widely voiced rationale for the Stability Pact is to offset Europe's bias towards excessive deficits (Beetsma and Uhlig, 1997). Years of deficit spending have saddled governments with debt/GDP ratios in excess of 70%. High debts make the public finances more fragile, reduce the effectiveness of monetary policy (Giavazzi *et al.*, 1997), increase fiscal crowding out (since additional government spending, by raising interest rates, thereby raises debt service costs), raise the deadweight cost of taxation, and make funding social security liabilities more difficult.

The solution is to move Europe's budgets towards balance sufficiently to stabilize the debt/income ratio or to allow it to decline. Thus, the Stability Pact sees Europe's budgets as broadly balanced or in modest surplus in expansions, with deficits widening to as much as 3% of GDP in contractions. With real GDP growing at 2–3% per year, this should suffice for debt/income ratios to fall over the medium run.

The obvious objection to this rationale for the Stability Pact is that it suppresses the symptoms without eradicating the disease. If EU policy-makers fail to remove the underlying disorder – identified by the 'institutional school'<sup>9</sup> as excessively decentralized fiscal procedures that aggravate free-rider problems – then imposing numerical caps on budget deficits only encourages devious behaviour to meet the letter but not the spirit of the law. We need only note the operation of the Excessive Deficit Procedure. While some progress has been made in curbing deficits in Stage II, the EDP has also encouraged fiscal fiddles like refundable 'euro taxes', sales of central bank gold reserves and one-off appropriations of public enterprise reserves. It remains to be seen how much recent progress is sustainable. Pessimists (including one of the authors) worry that, in the absence of an effective remedy for the underlying disorder, 'Maastricht fatigue' will set in once countries are admitted to EMU, as refundable euro taxes are refunded and, more generally, as countries previously forced to suck in their stomachs to squeeze into Maastricht's tightly tailored trousers then expel their breath violently.<sup>10</sup>

However, suppressing the symptoms is standard practice when the disease is untreatable. Doctors administer powerful pain-killers to patients with untreatable cancers. If excessive deficits can be prevented only by using the EU's authority to impose a credible external constraint, there is no reason not to try.

### 3.4. To internalize international interest rate spillovers

Another popular justification for the Stability Pact is to internalize the cross-border interest rate spillovers associated with uncoordinated fiscal policies. Policy-makers,

<sup>9</sup> See Alesina and Perotti (1994), von Hagen and Harden (1994) and Alesina *et al.* (1995).

<sup>10</sup> See Eichengreen (1997).

in this view, have inadequate incentive to take into account the impact of their borrowing on interest rates in other member states when formulating their national fiscal policies. The Excessive Deficit Procedure and the Stability Pact offset this bias. However, European countries borrow in global not national financial markets: it is unclear how fiscal policy in Italy and Spain has significant effects on interest rates in Germany or France.

Even if they did, in the absence of other distortions, changes in interest rates are purely redistributive. They redistribute income from debtors to creditors, within and across EU states. Table 1 suggests that higher interest rates would mean redistribution from the Nordic countries, Spain and Italy towards Germany and the Benelux countries. Ironically, core members of the future EMU should be the last countries to worry about redistributive effects of high interest rates! In any case, in so far as these externalities are pecuniary, they do not warrant intervention on standard efficiency grounds (Buiter *et al.*, 1993).

Of course, in the presence of other distortions, such as rigid wages, changes in interest rates can have cross-border effects on the level of output and employment. But these are unlikely to be significant, not least because two effects substantially offset one another: deficit spending at home boosts the demand for imports and therefore output and employment in neighbouring countries, but also drives up interest rates and therefore depresses output and employment abroad. The two effects roughly cancel out (Oudiz and Sachs, 1984).

At this stage, this case for the pact is unproven: we return to the evidence in section 6.

### 3.5. To encourage policy co-ordination

A fifth argument for the pact invokes the advantages of policy co-ordination in an integrated Europe. It is desirable both that national fiscal policies be co-ordinated (as explained in section 3.3) and that monetary and fiscal policies be co-ordinated with one another. A bad policy mix of loose fiscal policy and tight monetary policy may lead to high real interest rates, low investment, a chronically overvalued exchange rate and slow growth (Debrun, 1997). Medium-term surveillance under the pact will serve the useful purpose of focusing European governments' attention on the need for a balanced policy mix.

Not only do most studies of policy co-ordination suggest, however, that the

**Table 1. Net foreign assets, 1994 (% of GDP)**

Sweden	-57	Austria	-12	Germany	10
Finland	-56	Italy	-11	Belgium	11
Denmark	-29	France	-7	Netherlands	26
Spain	-20	UK	-2		

Source: OECD.

benefits are slight, but numerical deficit limits like those of the Stability Pact are far from an ideal basis for encouraging policy co-ordination. By limiting the flexibility of national fiscal policies, they may actually impede efforts to co-ordinate policies. In the long run, the non-cooperative equilibrium in recessions is as likely to be inadequately expansionary budgets as excessively expansionary budgets, with European countries failing to take into account the locomotive effects of their deficit spending on neighbouring states (much like the states of the USA). Numerical deficit ceilings are the wrong instrument for addressing the general problem. If the Stability Pact is seen as a way of putting flesh on the bones of the Mutual Surveillance Procedure of the Maastricht Treaty (Art. 103, under which the Council develops guidelines for the economic policies of member states, monitors their performance and issues recommendations), then it is misguided.

### 3.6. Summing up

The most compelling rationale for the Stability Pact rests on the need to buttress the no-bailout rule of the Maastricht Treaty. That need will be most pressing where debt problems place banking systems at risk and where bond market contagion is pervasive. It is to these questions that we therefore turn.

## 4. WOULD A DEBT RUN DESTABILIZE EUROPE'S BANKING SYSTEM?

Imagine a heavily indebted government, which, unable to borrow in the markets and subject to the no-bailout rule for the ECB and EU institutions, has to default. Its bond prices collapse, causing a loss of asset values for commercial banks holding this debt. Fears that banks are at risk triggers runs by depositors (King, 1997). Although this crisis originates in one country, banks in other countries are linked by the interbank market, and by payments and settlement systems. In the worst-case scenario, banking panic infects much of Europe, leading the ECB to monetize debt to prevent a meltdown.

EMU membership may alter the incentives of governments in undesirable ways. When rescue operations are conducted by national central banks, the domestic taxpayer ultimately foots the bill. Within EMU the burden will be borne by EMU taxpayers. In effect, the defaulting country will obtain a transfer from its fellow EMU members. This ability to 'shift the bill' provides a perverse incentive to run risky policies. The role of the Stability Pact, in this view, is to limit moral hazard.

How likely is a debt crisis to infect the banking system? How exposed are banks to public debt? Data on public debt holdings by banks are hard to obtain. Table 2 shows data for 1992. We focus on national public debt as a share of bank assets (in the first panel), although the picture is essentially the same when we consider bank holdings of public debt as a percentage of GDP (in the second panel). The share of public debt in bank portfolios tends to be higher where the government is heavily

**Table 2. Bank exposure to national public debt (NPD) and real estate loans (REL), 1992**

Bank holdings	% of bank assets		% of GDP		% of public debt		Memo item: Public debt as % of GDP
	NPD	REL	NPD	REL	NPD	REL	
Austria			23		48		52
Finland							39
France	1	14	2	19	5		39
Germany	4		9		31		34
Greece			9		12		105
Ireland	8	6	11	8	12	8	92
Italy	17		20		19		106
Netherlands			11		17		62
Norway	2	32	1	25	42	108	23
Spain	12	14	17	20	42	48	41
Sweden	2	35	3	71	8	160	67
Switzerland		29		72			16
UK	1	10	2	24	3	70	34

*Notes:* For Ireland real estate is personal house mortgage finance; for Sweden data concern all credit institutions. Final column refers to central government debt.

*Source:* National central banks; government statistical yearbooks.

indebted, as in Italy and the Netherlands, although there are exceptions to the rule.<sup>11</sup>

How much public debt is too much? One comparison is with house price fluctuations in the late 1980s and early 1990s, exposure to which created serious problems for European financial institutions; in Nordic countries it forced governments to rescue the banks. Table 2 compares bank exposure to real estate loans with bank exposure to public debt. By this measure, exposure to public debt is not obviously a problem. At the time of the Nordic crisis in 1992, the BIS estimates that the share of bad loans in banks' portfolios was 7.7% in Finland, 8.3% in Sweden and 9.3% in Norway (BIS, 1993). Suppose we conclude that the loss of 5% of bank assets was enough to cause severe distress and force the authorities to intervene.<sup>12</sup> Were a government fully to default on its debt, exposure of 5% or more would be dangerous. Of course, governments rarely repudiate their debts; more typically they restructure, limiting capital losses for bondholders. Even if the capital loss associated with restructuring were 50% of the face value of the debt, only bank exposure in excess of 10% would be dangerous. By this measure, only Italy and Spain face significant risk of bank failure for debt-related reasons.

Debt default could still be a problem if the banks' customers rather than the banks themselves hold the bulk of the debt. Default might incite households and

<sup>11</sup> Central government debt is 12% of bank assets in Spain and 8% in Ireland, yet such debt is 105% of GDP in Ireland, but only 23% in Spain.

<sup>12</sup> These are averages for all banks (for more details, see Dalheim *et al.*, 1992).

non-bank firms holding bonds to scramble for liquidity, and the ensuing withdrawal of deposits might create liquidity problems. It is instructive to consider the response of the Federal Reserve to the collapse of stock prices in 1929 and again in 1987. In both instances monetary policy was eased *despite* the fact that US financial institutions directly held only small amounts of stock. The Fed's fear on both occasions was that financial distress would lead to defaults by brokers and other bank customers that would impair the capital position of the banks. In both cases, however, the liquidity injected into the financial system was smoothly withdrawn once the crisis passed; the consequences were deflationary, not inflationary.<sup>13</sup> Similarly, banking crises in Sweden, Norway and Finland and serious problems for the banking system in France, Spain and Switzerland were all associated with deflation, not inflation, despite pervasive intervention by governments to rescue the banking system.

## 5. WOULD DEFAULT BY AN EMU MEMBER DEMORALIZE EMU BOND MARKETS?

A second channel through which debt problems in one jurisdiction can spill over to another is contagion in the bond market itself. If information is asymmetric, one debtor's default may lead investors to revise downwards their expectations of maintenance of debt service by others. Debtors will find themselves having to accept higher yields to place new issues or to induce investors to roll over maturing ones. In so far as adverse consequences follow for the entire European bond market and not just the market in assets of the country in which the problem originates, pressure for the ECB to head off the problem will be intense.

This seems unlikely in Europe. Compared, say, to Latin America, information about governments' willingness and ability to pay is relatively complete. It is unlikely that default or near default by one EMU country will *per se* lead investors to sharply higher expectations of default in another. This is logically distinct from the question of what might *cause* debt problems in an EMU country (election of a fiscally irresponsible politician, an asymmetric shock or an asymmetric response to a common shock); here we are concerned not with the causes of default, but with the scope for contagion.

From this point of view, a good analogy for post-EMU Europe may be the US market in state and municipal bonds. Not only is information relatively complete,<sup>14</sup>

<sup>13</sup> Subsequent research has found no role for fiscal profligacy in either crisis; indeed, scholarly accounts of the Great Depression blame excessively contractionary monetary policy. Neither suggests that a stability pact would have been helpful.

<sup>14</sup> Especially in so far as tax advantages lead the vast majority of a state's bonds to be held by its residents, who are in a good position to monitor the state's economy and government.

but the USA is also a monetary union and individual states lack individual central banks to underpin their bond markets. The US market for state bonds has been analysed extensively: Goldstein and Woglom (1994) and Bayoumi *et al.* (1995) have studied yield spreads on state bonds issued between 1981 and the 1990s.

An objection to the use of these state and municipal data is that they pertain to lightly indebted governments. Both because 49 of the 50 state governments operate subject to statutory and constitutional fiscal constraints of varying severity and because their tax bases are relatively mobile, they have a limited capacity to incur and support high volumes of debt. Gross state debt to gross state product ratios are around 3%, far below the 70% debt ratio that characterizes the EU. Without substantial debts, US states have not experienced substantial debt problems; one would not expect to observe contagion. Yet US states rely on a smaller tax base than the European governments. Table 3 shows statistics on the ratio of public debts to the tax base (approximated by public spending). The difference between the two sets of governments remain sizeable, but less than the debt/income ratios.

While this objection has merit, US data are the only game in town. Nor is it true that statutory and constitutional restrictions prevented states and municipalities from running into trouble – recall New York City in the 1970s and Orange County in the 1990s. US states might have light debt loads, but having highly mobile tax bases, they also have limited capacity to raise taxes once a fiscal problem arises. Bayoumi *et al.* (1995) estimate that states get rationed out of the capital market when their debt/gross state product ratios approach 9%.

### 5.1. Event-study analysis

If contagion is present in a bond market like the USA, it may be a danger in post-EMU Europe. We therefore look for evidence that state-specific interest rate shocks have indeed been transmitted to neighbouring US states. Ideally, the original shock should be large, exogenous and state specific. We identified the ten largest changes in annual yield spreads (i.e., those at least two standard deviations above the mean change).<sup>15</sup> All spreads are defined relative to the yield on New Jersey's general

**Table 3 Public debt as % of public spending**

	Average	Minimum	Maximum
51 US states (1990)	15	3	41
EU14 (1996)	158	102	250

*Note:* EU14 is without Luxembourg.

*Sources:* Bayoumi *et al.* (1995) and OECD.

<sup>15</sup> Alabama, Michigan, Minnesota, Rhode Island, Washington and Wisconsin in 1982, New Hampshire in 1983, Texas in 1986, Louisiana in 1987 and Massachusetts in 1990.

obligation bonds, since this is how they are provided by the source. In most cases we were able to identify events leading to extraordinary increases in yields. Some of these were plausibly exogenous (the effect of the downturn in the auto industry on Michigan in 1982, the effect of falling oil prices on Louisiana in 1987). But neither the recession of the early 1980s nor the oil price decline of the late 1980s had effects limited to an individual state. For these, sympathetic increases in bond yields elsewhere could reflect that common shock rather than contagion *per se*.

One case where the shock was large, exogenous to the bond market *and* plausibly state specific was Washington State in 1982, where a major power district ran into serious trouble, servicing bonds issued for the construction of nuclear power plants (see Box 3). We concentrated on this case. We re-estimated the equations of Bayoumi *et al.* (1995), explaining the determinants of yield spreads to control for observable economic and demographic characteristics of states, and examined the residuals.<sup>16</sup> Washington State had a large positive residual of 57 basis points in 1982. There was also a large positive residual for Oregon (20 basis points), consistent with contagion, even after controlling for changes in the debt burden,

### **Box 3. Whoops! Washington State under nuclear stress**

The 1982 shock to the Washington State bond market emanated from problems with servicing the obligations of the Washington Public Power Supply System (WPPSS). While these were not general obligation bonds, they represented one of the largest US bond defaults in history, and there was considerable uncertainty for a time about whether the state would assume responsibility for these obligations. WPPSS had been established in 1957 by a consortium of some two dozen small municipal utilities, whose initial goal was to build a hydroelectric plant and a steam generating plant, among other projects, to serve the member utilities. In 1970 WPPSS made a huge leap in scale and technology, beginning construction of five nuclear power plants. The small utilities involved had no experience of large-scale power projects, much less nuclear power. By the early 1980s they had incurred enormous cost overruns. In 1982 the bonds issued to finance the construction of Nuclear Units 4 and 5 lapsed into default. The event found immediate reflection in the yields on Washington State's bonds. These increased by more than 70 basis points between 1981 and 1982, in the single largest increase in the ten-year sample.

<sup>16</sup> Bayoumi *et al.* (1995) relate the observed yield spread to the level of debt (as a percentage of gross state product, or GSP), the taxation of state bonds, the rate of unemployment and the strength of constitutional controls on state borrowing.

unemployment, tax rates and so forth. But several other states also had positive residuals in 1982 at least as large as Oregon's, including Delaware, Florida, Massachusetts, Michigan, Minnesota and Rhode Island; it is hard to see why any of them should have been especially strongly affected by difficulties in Washington State.

Other, unobservable, characteristics of states influencing yields could conceivably account for these patterns. To control for unobservables that are constant over time, we examined the *change* in the residuals from the yield spreads equation between 1981 and 1982. While the increase in the residual from the spreads equation is large and positive for Washington (51 basis points), it is now *negative* for Oregon. Positive increases of at least 25 basis points in the residual were also observed in Minnesota, Michigan and Rhode Island; decreases of at least 25 basis points in Pennsylvania as well as Oregon. As a final test, we examined states other than Washington that were also constructing nuclear power plants. Again the results were negative: there were neither unusually large residuals nor unusually large changes in the residuals in such states in 1982. Nothing in this analysis provides much evidence of interstate contagion.

## 5.2. Econometric analysis

To analyse contagion in the US state and municipal bond market more systematically, we re-estimated the Bayoumi *et al.* model, adding a measure of interest rate shocks in 'economically contiguous states'.<sup>17</sup> If the coefficient on the relevant measure of economic contiguity, when interacted with interest rates in neighbouring states, is positive, we have evidence of contagion. The critical step, obviously, is to measure economic proximity, the economic neighbours from which interest rate spillovers are most likely to spread. We consider a variety of specifications, appending them to Bayoumi *et al.*'s basic specification (column (1) of Table 4). In this basic specification, the spread increases with the ratio of debt to gross state product (heavier debt burdens increasing default risk), declines with the highest marginal tax rate in the state (a higher tax rate creating a captive market for bonds, income on which is tax exempt for local investors), rises with the state unemployment rate (in so far as this implies less tax capacity) and falls with the stringency of self-imposed fiscal restrictions (which imply less debt accumulation in the future). All four regressors included in the basic specification are significant at conventional confidence levels.<sup>18</sup>

<sup>17</sup> Bayoumi *et al.* are concerned with non-linearities in the relationship between spreads and the level of debt; but while their non-linear specification allows them to capture the possibility of credit rationing, it also introduces instability into the model. We therefore focused on a linear version of their preferred specification. The basic results turn out to be quite similar to those of Bayoumi *et al.*

<sup>18</sup> We also estimated, but do not report, the constant term and a vector of dummy variables for years.

**Table 4. Bond market contagion in US states**

	Baseline (1)	Similarity: debt/GSP (2)	Similarity: Federal aid (3)	Similarity: govt size (4)	Similarity: fiscal restraints		
					$N < 6$ (5)	$N < 7$ (6)	$N < 10$ (7)
Debt	7.5 (4.4)	13.5 (2.5)	7.5 (4.3)	7.7 (4.6)	3.8 (1.3)	8.3 (3.2)	5.4 (2.7)
Tax	-2.2 (2.0)	-3.0 (2.0)	-1.6 (1.4)	-2.1 (1.9)	-1.8 (1.3)	-3.2 (2.7)	-1.3 (1.0)
Unemployment	5.8 (8.8)	6.2 (8.3)	6.3 (9.1)	5.8 (8.3)	6.6 (7.0)	6.1 (9.3)	5.7 (8.4)
Fiscal restraints	-3.5 (8.3)	-3.7 (8.0)	-3.7 (8.4)	-3.4 (7.9)	4.4 (1.5)	-7.2 (4.7)	-6.7 (5.8)
Economic similarity		-0.8 (1.2)	-0.6 (1.8)	0.1 (0.4)	2.6 (2.7)	-1.0 (2.4)	-1.0 (2.0)
SER	19.2	20.8	20.1	19.1	20.7	22.9	20.7

*Notes:* *t*-statistics in parentheses. Debt is debt/GSP. Tax is highest marginal tax rate in states that impose different tax rates on in-state and out-of-state bonds. Fiscal restraint indexed from 0 (none) to 10 (maximum). Unemployment and fiscal restraints treated as exogenous. Estimated by 2SLS using as instruments: average household size, population, change in population, proportion of young and old, trend GSP. All statistics computed with White heteroscedastic consistent procedure. 380 observations.

*Source:* Bayoumi *et al.* (1995) pooled time series (1981–95) over 33 US states.

In the first of our augmented regressions (column (2)), we assume that interest rate spillovers are most likely to spread from states with similar debt burdens (as a share of gross state product): markets may interpret higher debt costs in one state as a signal of impending difficulties in states with similar debt levels. For each state in each year, we calculate the average yield in the four states with the most similar debt burdens, taking the two states just below and the two states ranked just above, using the debt/GDP ranking. We treat the average spread in these neighbouring states as endogenous to reflect common shocks as well as spillovers from a state to its neighbours. In column (2) the coefficient on ‘economic similarity’, having the wrong sign and being insignificantly different from zero, lends no support to the hypothesis of contagion.

In column (3) we consider a second definition of economic proximity based on federal aid per capita received. We apply the same procedure as for debt (selecting the two states immediately above and the two immediately below, using this ranking). Again we fail to detect significant contagion. The same result obtains using a third definition of proximity: the size of the state government measured as the ratio of state spending to GSP, in column (4).

Columns (5)–(7) focus on institutional constraints on fiscal policies, specifically the stringency of statutory and constitutional balanced-budget and debt-limitation provisions. The hypothesis, which seems plausible a priori, is that states are most subject to contagion from other states that use similar institutional procedures to

formulate their fiscal policies, since such states would be expected to respond similarly to similar disturbances. Bayoumi *et al.* (1995) utilize an index of the stringency of institutional restraints on fiscal policy constructed by the Advisory Commission on Intergovernmental Relations (discussed further in Eichengreen, 1990), which ranges from 1 to 10 in increasing order of severity. Unfortunately, states are not uniformly distributed over this interval. Of the 38 states in Bayoumi *et al.*'s sample, seventeen have the maximum score of 10, while another seven have a ranking of 8 or 9. Hence, using the same procedure as before to identify states would yield indeterminate or arbitrary results. We therefore consider states only with rankings  $N$  and below, assigning a value of zero for states ranked above, and then we allow  $N$  to take several values from 5 to 9.

The results are in columns (5) to (7). For  $N=5$ , we detect some evidence of contagion via our economic similarity measure, but for larger values of  $N$  the effect is negative not positive: higher yield spreads in states with similar budgetary institutions lead to lower yields in states with similar fiscal arrangements, as if the markets, when they grow concerned by a state's finances, shift their holdings so as to maintain a balanced portfolio of risks.

We also investigated whether there is contagion between 'politically similar' states.<sup>19</sup> We define political proximity by the party affiliation of the governor, and construct a proximity dummy that takes a value of 1 when two governors are both Democrats or both Republicans (and zero otherwise). We then multiply the previous economic proximity variables by this dummy. Since rerunning the regressions in Table 4, replacing economic proximity by the above measure of economic and political proximity, made little difference to the broad pattern of results, we do not report these results separately. Indeed, in the few cases in which proximity variables that had previously been insignificant now became significant, their sign was *negative*, again suggesting *portfolio diversification* rather than *contagion*. The experience of US states provides no evidence to justify European-wide fiscal restraints to protect against contagious bond market crises.

## 6. WOULD EXCESSIVE DEFICITS PUSH UP EMU INTEREST RATES?

In EMU, within which capital is mobile, borrowing by one country is likely to have only a small effect on EMU interest rates: European countries borrow on global capital markets, relative to which they are individually small. Even if a country's actions raise its own interest rates – for example, through a larger risk premium – there is little reason (contagion apart) why this should imply substantial cross-border spillovers.

<sup>19</sup>Note that we condition political proximity on economic proximity. Unconditional political proximity is unlikely to be a sharp classification if about half the governors are Democrats and the other half are Republicans.

## 6.1. Evidence from the financial markets

The ideal way to verify this hypothesis would be to build a structural model of savings and investment for each European country, taking account of the influence of both domestic and foreign variables, and distinguishing rest-of-Europe and rest-of-world magnitudes. This is ambitious to say the least. Here we take the simpler tack of estimating the reduced-form relationship between interest rates, asking whether interest rates in a particular European country are affected mainly by own values, rest-of-Europe values or rest-of-world values.

The straightforward way of implementing this analysis is with Granger causality tests. Two prior decisions that must be made are what countries and what interest rates to analyse. But no one would be surprised if our results showed that interest rates in Luxembourg were affected by interest rates in the rest of the world and in the rest of Europe, but that interest rates in Luxembourg affected those in neither the rest of Europe nor the rest of the world. We therefore bias the results against our own hypothesis by considering the impact of rest-of-world and rest-of-Europe interest rates on Germany, and the impact of German interest rates on those of the rest of the world and the rest of Europe.

Similarly, if the analysis concerned itself with co-movements in short-term interest rates, no one would be surprised if we found evidence of Granger causality running in both directions, since these timing relationships could reflect not just market spillovers but also the induced policy reaction of central banks, which use short-term interest rates as policy instruments (Wyplosz, 1990). We therefore focus on the behaviour of long-term interest rates, whose co-movements are less likely to be dominated by induced central bank reactions and are more likely to convey information about market spillovers.<sup>20</sup>

**Table 5. Causality tests on long-term interest rates, 1973:1 to 1997:5**

	Germany causes Europe?	Germany causes ROW?	Europe causes Germany?	Europe causes ROW?	ROW causes Germany?	ROW causes Europe?
<i>F</i> -statistic	1.9	1.4	2.2	2.0	3.2	2.4
Probability (%)	3.9	14.4	1.3	2.8	0.0	0.7

*Notes:* Tests with 12 lags (choice implied by Akaike and Schwartz criteria). Europe is GDP-weighted average of Austria, Belgium, Denmark, France, Ireland, Italy, Netherlands, Spain, UK. Rest of the world (ROW) is weighted average of Canada, Japan and USA.

*Source:* IMF, *International Financial Statistics*.

<sup>20</sup> Since long rates are an average of the current and expected future short rates, this does not eliminate the possibility that the correlations we pick up are in part central bank reactions, but it should minimize that possibility.

We used monthly data, current and lagged up to twelve months, on treasury bond rates for Germany, the rest of Europe (a weighted average of nine European countries listed in the note to Table 5, weighted by 1985 GDP) and the world (proxied by interest rates for the USA, Canada and Japan, again weighted by 1985 GDP). At the 1% level, we can reject all spillovers except that rest-of-world interest rates affect European interest rates and that rest-of-world interest rates affect German interest rates: once we control for world interest rates, innovations in German rates do not affect interest rates in the rest of Europe, and innovations in rest-of-Europe rates do not affect German rates. The only other relationship that approaches significance at the 1% level is the impact of rest-of-Europe rates on Germany. In each case, then, it is the larger entity whose interest rates affect those of the smaller economy.

These tests confirm that European countries borrow on a global capital market, with only small interest rate spillovers between EMU members. They hardly justify a stability pact to internalize cross-border interest rate spillovers of national fiscal policy.

## 7. WOULD THE PACT INCREASE THE VOLATILITY OF EMU OUTPUT?

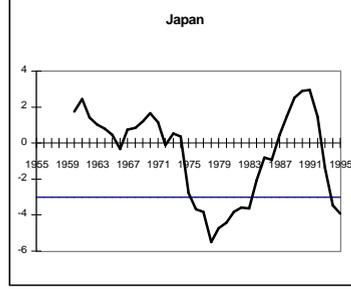
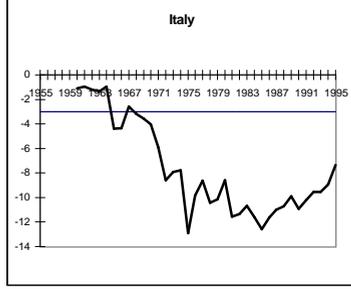
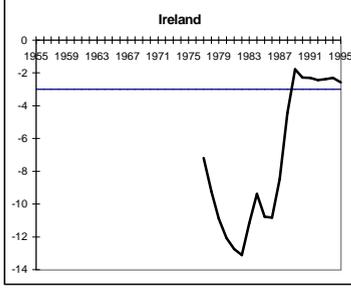
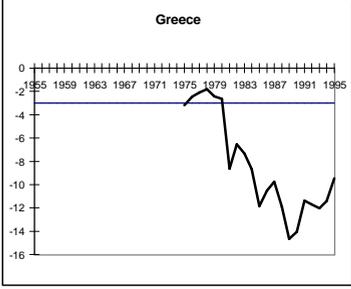
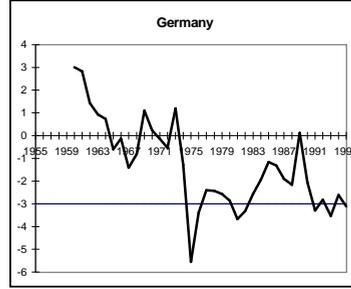
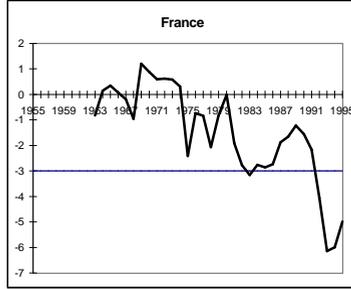
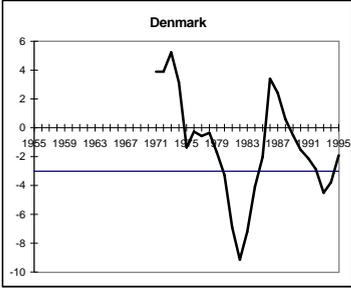
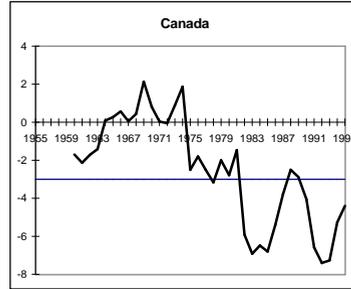
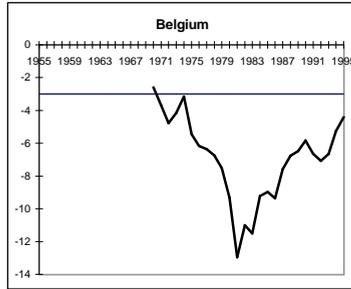
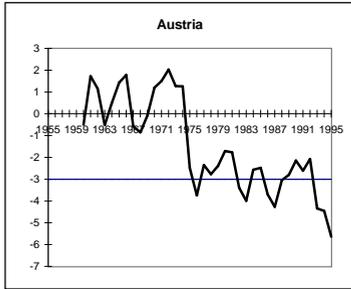
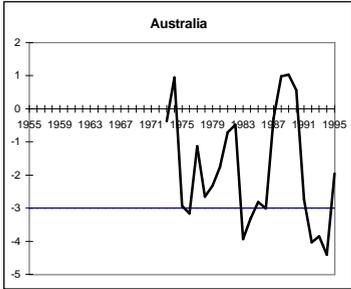
We address this question in two steps. We use retrospective evidence to ask how frequently the Stability Pact would have been binding, and we use counterfactual simulations to estimate how European output would be affected if binding Stability Pact ceilings were imposed. Inevitably this exercise is subject to the Lucas critique: evidence from the past may not be a reliable guide to the future. We go some way towards answering this objection by adjusting historical debt ratios and interest rates to the levels likely to prevail at the outset of EMU, basing our simulations on these adjusted values.

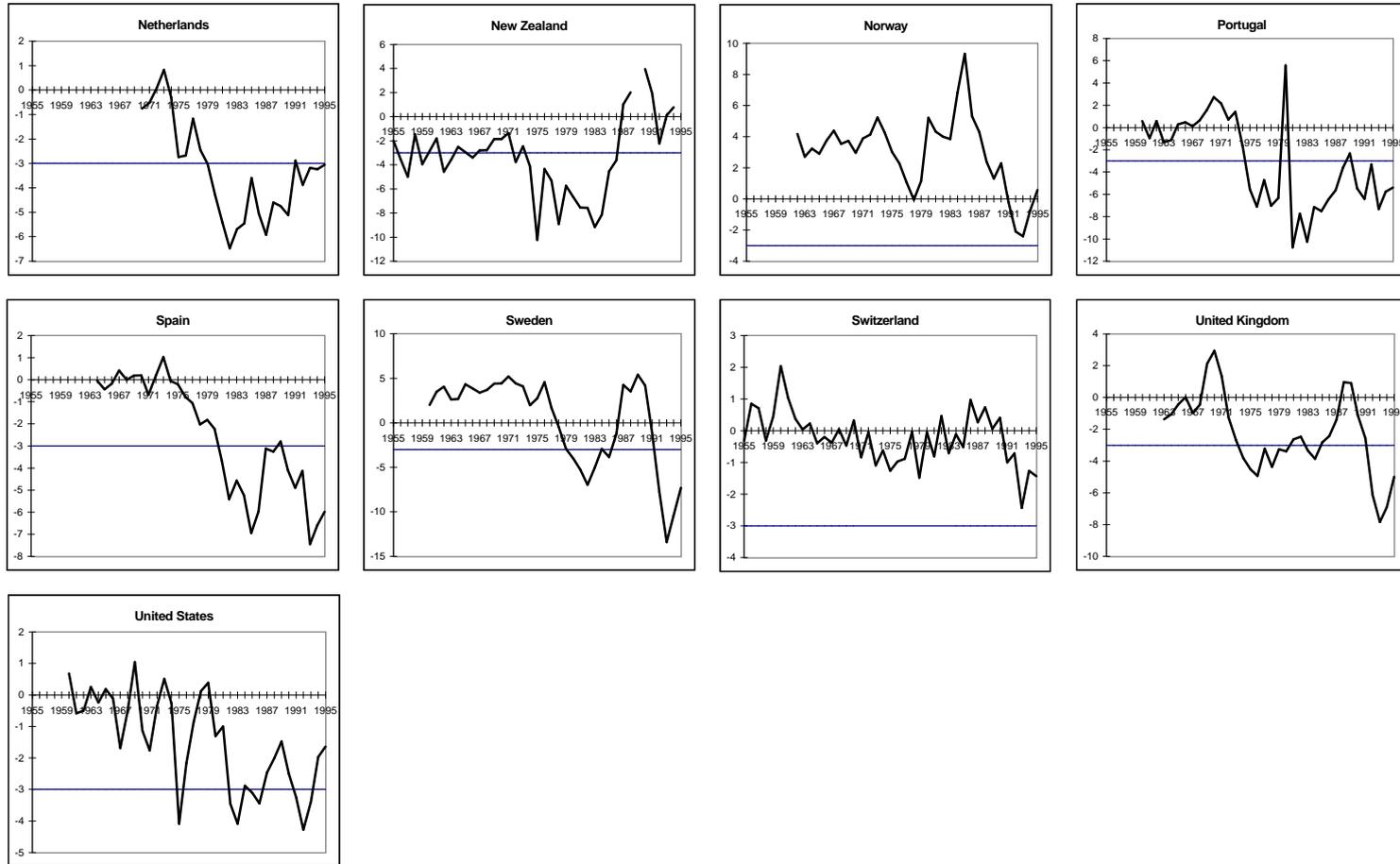
### 7.1 Retrospective evidence

Figure 1, which shows budget balances for OECD countries since 1955, documents that the 3% barrier has been breached quite frequently.<sup>21</sup> (A similar analysis, reaching the same conclusions, is provided by Buti *et al.*, 1997). Table 6 shows that this has been the case 34% of the time for the OECD as a whole, and 40% of the time in Europe.

Of the 241 cases when the deficit was more than 3% of GDP, in only 7 was the concurrent decline in GDP more than 2%, and in only 28 was it more than 0.75%.

<sup>21</sup> The Maastricht Treaty includes a particular definition of deficits that may differ slightly from the data from *International Financial Statistics* used in the figure.





**Figure 1. Budget balances (% of GDP)**

Source: OECD.

**Table 6. Number of times the deficit exceeded 3% of GDP**

	Number of years	Total observations	Percentage above 3%	Recession years	
				Above 0.75%	Above 2%
<b>(a) Actual budget (OECD countries, 1955–96)</b>					
Australia	7	23	30.4	1	0
Austria	9	36	25.0	0	0
Belgium	25	26	96.2	3	0
Canada	13	36	36.1	2	1
Denmark	7	36	19.4	1	0
Finland	4	36	11.1	2	1
France	5	33	15.2	1	0
Germany	7	36	19.4	3	0
Greece	16	21	76.2	1	0
Ireland	12	19	63.2	0	0
Italy	30	36	83.3	2	1
Japan	10	36	27.8	0	0
Luxembourg	0	13	0.0	0	0
Netherlands	16	26	61.5	1	0
New Zealand	17	39	43.6	1	1
Norway	0	34	0.0	0	0
Portugal	19	36	52.8	3	1
Spain	14	32	43.8	1	0
Sweden	9	36	25.0	2	1
Switzerland	0	41	0.0	0	0
UK	13	33	39.4	2	0
USA	8	36	22.2	2	1
All countries	241	700	34.4	28	7
EU countries	186	455	40.9	22	4
<b>(b) Budget assuming 1995 debt and 6% interest (1960–95)</b>					
Australia	9	22	40.9	0	0
Austria	12	26	46.2	0	0
Belgium	27	27	100.0	3	0
Canada	21	36	58.3	2	1
Denmark	10	25	40.0	1	0
Finland	4	35	11.4	2	1
France	9	26	34.6	1	0
Germany	21	36	58.3	2	0
Greece	20	21	95.2	1	0
Ireland	13	19	68.4	0	0
Italy	36	36	100.0	1	1
Japan	8	36	22.2	0	0
Luxembourg					
Netherlands	12	26	46.2	1	0
New Zealand					
Norway	0	21	0.0	0	0
Portugal	17	34	50.0	2	1
Spain	18	32	56.3	1	0
Sweden	10	26	38.5	2	1
Switzerland					
UK	12	26	46.2	1	0
USA	17	36	47.2	3	1
All countries	276	546	50.5	23	6
EU countries	221	395	55.9	18	4

*Note:* Recession years are counted only when the budget deficit exceeds 3% of GDP.

*Source:* OECD *Economic Outlook*.

Had OECD countries been operating with the Stability Pact, 85% of the deficits that exceeded 3% of GDP would have been judged excessive.<sup>22</sup> Put differently, we can calculate the probability of observing a deficit in excess of 3% of GDP *conditional on* there being no recession. When a recession is defined as a decline in annual real GDP of at least 0.75%, the conditional probability is 32%, rising to 34% when recession is defined as a 2% decline (Table 7). If the past is a guide, we can expect violations every third year. The constraint imposed by the Stability Pact appears even more stringent when we realize that the conditional probability of observing a recession when the budget deficit exceeds 3% is only 12% if the recession corresponds to the 0.75% definition, and 3% for the 2% definition.

One can argue that this record is evidence of the need for constraints to prevent misbehaviour. Indeed, the common interpretation of the Stability Pact is that it will lead member countries to aim at budgets that are on average in balance, or slightly positive. With a budget in surplus at the peak of cycle, it will be possible to use fiscal policy as a counter-cyclical tool. What is wrong with that? A first response – the second one is presented below in section 8 – is that the ‘misbehaviour’ documented in Table 7 did not have the dramatic inflationary consequences of concern to proponents of the Stability Pact. Average annual inflation for the same sample of countries was a relatively moderate 6% over the period. This 6% may be more inflation than some Europeans would like, but it is hardly the inflationary disaster feared by some EMU-sceptics. Pooling the data for all countries, the partial correlation between inflation and the budget deficit is *negative* (though not significant), contradicting the assumption that deficits are associated with inflation.

**Table 7. Conditional probabilities of excessive deficits**

Event	Conditional upon	Conditional probability
<b>Using actual budgets 1955–96</b>		
Deficit > 3%	No recession (0.75%)	0.32
Deficit > 3%	No recession (2%)	0.34
Recession (0.75%)	Deficit > 3%	0.12
Recession (2%)	Deficit > 3%	0.03
<b>Assuming 1995 debt level and 6% interest rate</b>		
Deficit > 3%	No recession (0.75%)	0.49
Deficit > 3%	No recession (2%)	0.50
Recession (0.75%)	Deficit > 3%	0.08
Recession (2%)	Deficit > 3%	0.02

*Source:* Authors' calculations based on Table 6.

<sup>22</sup> Our approach does not exactly match the criteria of the Stability Pact which apply to the previous four quarters, since we have to look at calendar years (fiscal data are widely reported only on an annual basis).

## 7.2. Counterfactual evidence

Can we gauge the consequences of having subjected the European economies to the Stability Pact for the last 30 years? One approach involves estimating, for the four largest countries (France, Germany, Italy and the UK), a simple structural model. The simplest structural macroeconomic model of all, of course, is the textbook model of an upward-sloping aggregate supply curve and a downward-sloping aggregate demand curve in the output–price space. Fiscal policy, among other variables, shifts the demand curve. We measure the fiscal stance by the fiscal impulse, the year-to-year change in the cyclically adjusted budget deficit. This allows us to minimize the risk that an observed correlation between the deficit and output captures the impact of output on the budget, rather than the impact of the budget on output, with which we are concerned. Allowing for some inertia in both relationships, we get the reduced form for output and inflation in Table 8.<sup>23</sup> In order to impose the restriction that fiscal policy has no steady-state effect, we use the output gap and the change in the inflation rate along with the fiscal impulse measure. The output gap and the cyclically adjusted budget are taken from the OECD *Economic Outlook*.

**Table 8. Models used for counterfactuals**

Coefficient ( <i>t</i> -statistic)	France		Germany		Italy		UK	
	Output gap	Change in inflation						
(Output gap) <sub>-1</sub>	0.87 (6.18)	0.35 (1.61)	0.85 (4.52)	0.42 (3.40)	0.87 (6.43)	0.21 (0.61)	0.89 (7.26)	0.58 (2.25)
(Inflation change) <sub>-1</sub>	-0.31 (2.38)	-0.02 (0.09)	-0.59 (1.84)	-0.15 (0.71)	-0.13 (1.28)	0.23 (0.95)	-0.15 (1.73)	-0.16 (0.88)
Fiscal impulse	-0.68 (3.03)	0.09 (0.26)	-0.58 (2.11)	-0.33 (1.79)	-0.43 (1.73)	1.28 (2.52)	0.69 (2.03)	0.51 (1.07)
Adjusted <i>R</i> <sup>2</sup>	0.71	0.43	0.51	0.39	0.74	0.12	0.69	0.26
SER	0.01	0.02	0.02	0.01	0.01	0.03	0.02	0.04

Source: OECD.

Notes: Fiscal impulse is change in cyclically adjusted budget surplus; for France and the UK this variable is contemporaneous; for Germany and Italy it is lagged one period.

<sup>23</sup>Note the parallel between these reduced forms and standard VARs, since output and inflation both depend on their own lagged values. The policy inferences that we make from these equations are subject to standard critiques (see Cochrane, 1994). We finesse some but not all of these objections by using the cyclically adjusted budget as opposed to the actual budget deficit. In addition, we worry about the possibility that the fiscal impulse variable is systematically correlated with monetary policy, thus biasing the estimate of its coefficient. A check is to look for subsample stability. Performing Chow tests with a break in 1985, to account for a change in the policy mix when monetary discipline was introduced in the EMS, we can reject at the 5% confidence level (and in most cases at the 1% confidence level) the hypothesis that the estimates change from one subperiod to the other.

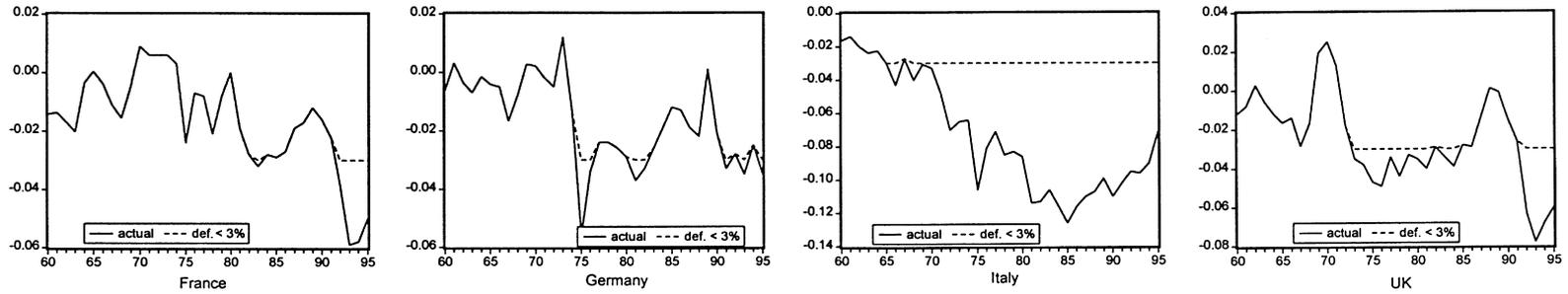
The coefficient on the fiscal impulse shows the impact of the budget on the output gap. This coefficient is similar across our sample, ranging from  $-0.43$  in Italy to  $-0.68$  in France; thus, for each of the four countries, an increase in the cyclically adjusted surplus by 1% of GDP lowers the output gap by roughly 0.5% of GDP.

These equations are used for counterfactual simulations in which the budget deficit is capped at 3%, as if the Stability Pact had been strictly binding. The top row of Figure 2 shows the actual budget balance in our four countries (the solid line) and the counterfactual deficits capped at 3% of GDP (the broken line). French deficits would have been different only in the early 1980s, under the first Mitterrand government, and in the 1990s. German deficits would have been smaller in the wake of the two oil shocks and to a lesser extent following unification. Italy, the high-deficit country in our sample, would have had very much smaller deficits since the early 1970s, while the UK would have had somewhat smaller deficits over the same period, with the exception of the second half of the 1980s.

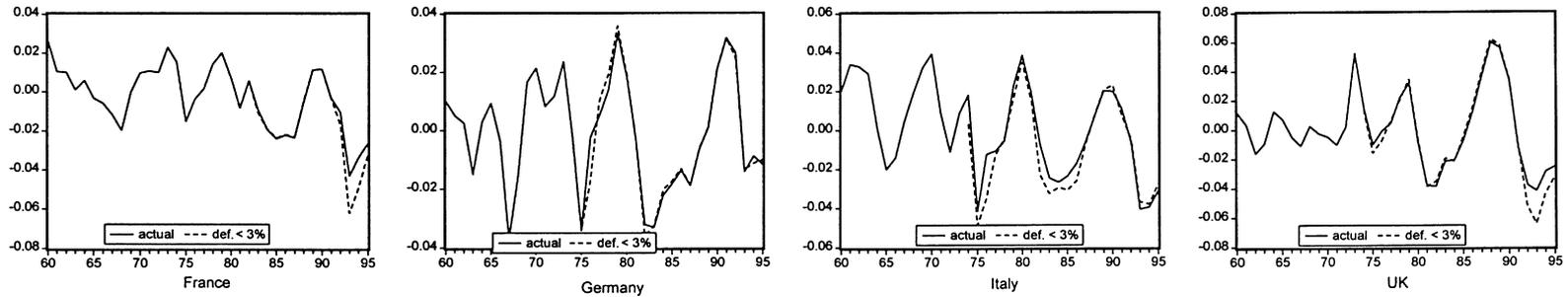
The bottom row of Figure 2 shows the effect in our estimated model of restricting the budget deficit to a maximum of 3%. It displays the actual output gap (the solid line) and the counterfactual gap from a simulation where the deficits are capped at 3%, as shown in the top row (the broken line). A fair characterization is that Stability Pact ceilings on deficits would have mattered for output, but not dramatically so. (Box 4 discusses the extreme cases.) Table 9 compares the average actual and simulated output gaps. In each country but Germany the output gap is lower when the deficit is capped; while the slowdown is not large, even a fraction of a percentage point on the annual growth rate can become a big effect when it lasts over decades. This is shown by cumulating the gaps over the 22-year period 1974–95: the output losses range from about 5% in France and the UK to 9% in Italy, significantly larger than optimistic estimates of favourable output effects to be expected from EMU. For example, the EU Commission's report *One Market, One Money* (1990) set its central estimate of the gross gains at 9.8% of GDP. Furthermore, in each case but Germany, the variability of output as measured by the standard deviation is higher under the counterfactual. The tempting political-economy inference is that Germany is particularly insistent on a 3% cap on deficits because historically it alone among the four large EU member states would not have suffered too seriously from the imposition!

It can be objected that these simulations do not provide a reliable guide to the future because historical time series do not capture fiscal conditions as they will exist at the beginning of EMU. Simulations and conditional probabilities based on historical data are an imperfect guide to the future because debts are higher now than historically and because (nominal) interest rates will be lower at the start of EMU than over the last twenty years. If we adjust debts and interest rates to levels likely to prevail in 1999 (we use 1995 debt/GDP ratios and nominal interest rates of 6% (2% inflation + 4% real interest), this has the predictable effect of raising the probability of a deficit in excess of 3%. The bottom part of Table 7 showed that,

Budget balance: actual and restricted (deficit not to exceed 3% of GDP)



Output gap: actual and simulated under 3% deficit restriction

**Figure 2. Imposing the 3% deficit ceiling: the counterfactuals**

Sources: OECD and authors' calculations.

**Table 9. Counterfactuals: the effect of a 3% deficit ceiling, 1974–95**

		Actual output gap (%)	Counterfactual output gap (%)	Cumulative output difference (%) by 1995
France	Mean	-0.7	-0.9	-4.7
	Standard deviation	1.7	2.1	
Germany	Mean	-0.3	-0.3	-0.2
	Standard deviation	2.1	2.1	
Italy	Mean	-0.6	-1.1	-9.3
	Standard deviation	2.3	2.4	
UK	Mean	-0.1	-0.3	-4.8
	Standard deviation	3.1	3.5	
<b>Assuming 1995 debt level and 6% interest rate</b>				
France	Mean		-0.8	-2.6
	Standard deviation		2.0	
Germany	Mean		-0.3	1.3
	Standard deviation		2.3	
Italy	Mean		-0.9	-6.7
	Standard deviation		2.5	
UK	Mean		-0.3	-4.9
	Standard deviation		3.5	

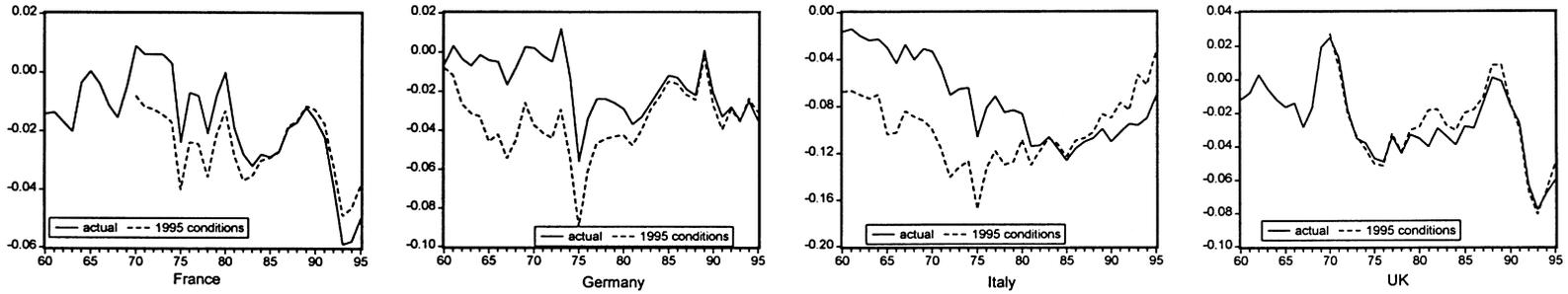
Sources: OECD and authors' calculations.

when a recession is defined as a decline in annual real GDP of at least 0.75%, the conditional probability is 49% (up from 32% when historical data are used), rising to 50% (up from 34%) when recession is defined as a 2% decline. This suggests violations every second year.

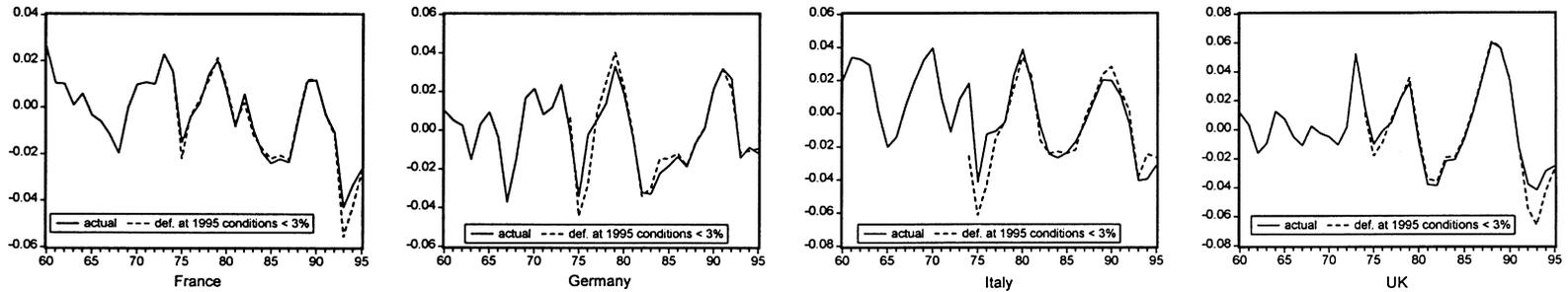
We can also revisit our simulations under these assumptions. The top row of Figure 3 shows (as a fraction of GDP) the actual budget surplus (solid line) and the counterfactual budget under these assumptions (broken line); predictably, higher debts would have led to larger deficits in the early part of the sample period for France, Germany and Italy. The bottom row of Figure 3 assumes 1995 debt levels and a 6% interest rate, and contrasts the actual output gap (solid line) with the counterfactual simulation under the assumption of a 3% deficit ceiling (broken line). Output losses and increased variability are lower than when actual debt and interest rate levels are used. In Germany, output is actually higher and only slightly more variable. Again, our simulation provides unexpected insight into why Germany is such a strong advocate of the Stability Pact compared to its neighbours.

Had the Stability Pact been in place over previous decades, it would not have had a devastating impact on the level and variability of output. The future, of course, will differ from the past; recessions within EMU may be deeper and more protracted than those of previous decades. Our calculations suggest that they would have to be very much deeper before the Stability Pact began to make a major difference. But if an unusually protracted recession qualifies as a 'special' circumstance, even then the Stability Pact may not bind.

Budget balance: actual and assuming 1995 debt level and 6% interest



Output gap: actual and including the 3% deficit ceiling at 1995 conditions



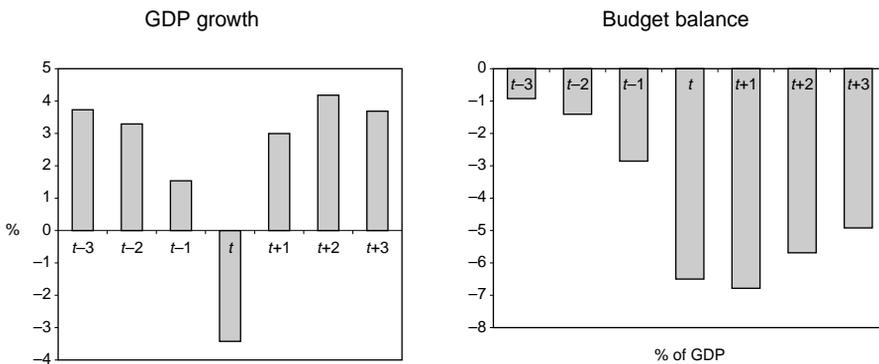
**Figure 3. Imposing the 3% deficit ceiling with 1995 debt levels and a 6% interest rate: the counterfactuals**

Sources: OECD and authors' calculations.

**Box 4. Extreme recessions**

Table 6 reveals that, over the 42 years spanning the period 1955–96, recessions deeper than 2% occurred only seven times. These cases are Canada (–3.2% in 1982), Finland (–7.1% in 1991 followed by –3.6% in 1992), Italy (–2.7% in 1975), New Zealand (–2.3% in 1991), Portugal (–4.3% in 1975), Sweden (–2.2% in 1993) and the USA (–2.2% in 1982). Figure 4 shows the average growth rate for these seven cases during the seven years surrounding the bottom of the recession. In all cases but the Nordic countries, these were snap recessions often followed by a rebound the next year. The quick rebound may imply that OECD recessions are typically rare and very short-lived, the impact effect of unusual events (the dates point to the oil shocks and bursting bubbles). Alternatively, it could be that macroeconomic policies have been actively used, and have successfully limited the extent and duration of the recessions. The behaviour of budget balances, however, shows that after three years the deficits are still significantly deeper than before the recession. Would a Stability Pact have prolonged the recession?

One way of dealing with this issue is to perform a counterfactual experiment. Since Italy turns out to be among the deep recession cases, this is shown in Figure 1. The deep recession of 1975 is indeed visible. The simulation suggests that, even if Italy had not been awarded exceptional suspension of the Stability Pact, the output gap would not have been immensely worse.



**Figure 4. The seven deepest OECD recessions**

## 8. EUROPE'S FISCAL PROSPECTS

Economic outcomes may also influence politics. If the Stability Pact prevents Europe's automatic stabilizers from operating and increases the severity of recessions, it may undermine support for free and open markets. Will member states manage to attain a budgetary position that on average is in balance or even in surplus, thereby leaving scope for customary levels of automatic fiscal stabilization to be provided in recession without triggering penalties under the Stability Pact? The answer comes in two parts: how much endogenous fiscal improvement should be expected as Europe continues to recover from its mid-1990s recession; and how extensive will be the discretionary changes in policy that work to reduce budget deficits further?

### 8.1. Growing out of deficits

Current OECD estimates for Europe put 1997 budget deficits at 3% of GDP. With potential output rising at between 2 and  $2\frac{1}{2}\%$  per annum, that much growth is required to hold the output gap steady and prevent growing budget deficits. The elasticity of the fiscal balance/GDP ratio with respect to growth is about 0.5% – for every additional percentage point of growth, the deficit ratio falls by half a per cent. The precise elasticity varies with the structure of the national tax and expenditure system, although it tends to be higher in Europe's smaller, more open economies. DG II of the European Commission puts these elasticities at 0.8 for the Netherlands, and 0.5 for Germany and France, with an average of 0.5 for the EU as a whole; OECD estimates are similar. IMF staff estimates suggest somewhat higher average elasticities, of the order of 0.6, with those for Denmark, the Netherlands, Sweden and the UK around 0.75.<sup>24</sup>

For Europe to reduce its budget deficits from 3.0% in 1997 to 2.5 or 2.6% in 1998 (OECD forecasts; see Table 10) without further discretionary changes in fiscal policy, output will have to grow by between 3 and  $3\frac{1}{2}\%$ . As of mid-1997, the OECD forecast for 1998 growth in OECD Europe was 2.7%, the J.P. Morgan forecast 2.9%. The IMF forecast for the EU, released in its September 1997 *World Economic Outlook (WEO)*, split the difference at 2.8%. This is consistent with an average EU deficit ratio of 2.8 or 2.9%, as the *WEO* forecasts. For the OECD forecast of 2.5–2.6% to be right, there will have to be substantial discretionary cuts in public spending or further increases in taxes in 1998.

This implies that, if growth proceeds at the expected pace, Europe will enter

<sup>24</sup> 'Box 3: The European Union's Stability and Growth Pact,' *World Economic Outlook* (October 1997). Bayoumi and Eichengreen (1995) put the elasticity at 0.51 for the Netherlands, 0.44 for Germany and 0.41 for France (for consolidated government budgets, including social security funds).

**Table 10. OECD forecasts of EU budget balances (surplus (+) or deficit (-) as a % of nominal GDP)**

	1995	1996	1997 <sup>a</sup>	1998 <sup>a</sup>
Germany	-3.6	-3.8	-3.2	-2.7
France	-5.0	-4.2	-3.2	-3.8
Italy	-7.0	-6.7	-3.2	-3.8
UK	-5.5	-4.4	-2.8	-1.8
Austria	-5.3	-3.9	-3.0	-3.4
Belgium	-4.1	-3.4	-2.8	-2.7
Denmark	-1.9	-1.6	0.0	0.7
Finland	-5.1	-2.6	-2.0	-1.4
Greece	-9.2	-7.4	-5.2	-4.0
Ireland	-2.1	-0.9	-1.2	-1.0
Netherlands	-4.1	-2.4	-2.3	-1.7
Portugal	-5.0	-4.0	-2.9	-2.8
Spain	-6.6	-4.5	-3.0	-2.6
Sweden	-7.7	-3.6	-2.1	-0.2
<b>EU average<sup>b</sup></b>	-5.2	-4.4	-3.0	-2.6

<sup>a</sup> Projected figures.

<sup>b</sup> Excluding Luxembourg.

Source: OECD.

EMU in 1999 with a budget deficit somewhat greater than 2%. Assuming growth continues at 3% a year, it is unlikely that the endogenous response of revenues and expenditure alone will eliminate budget deficits even by 2002. And if a recession intervenes due to, say, the end of the already long-lived US expansion, even less progress can be expected.

## 8.2. Discretionary initiatives

The elimination of budget deficits could be accelerated by additional discretionary tax increases or expenditure cuts. Since 1992 France and Germany have reduced their cyclically corrected budget deficits at an annual average rate of 0.4% of GDP per year, while in Italy the improvement has been nearly 1½% per annum. If fiscal consolidation continues at this pace, Europe's budgets may move substantially towards balance by about 2002.

There are several reasons to question this rosy scenario. There are already signs of fiscal fatigue in Europe after successive years of tax increases, and (in fewer cases) spending cuts, without readily visible benefits. The French elections of mid-1997 are only the most visible indication of public resistance to further austerity. Consistent with this diagnosis, European governments have relied on one-off measures – central bank sales of gold, refundable euro taxes, appropriation for the general budget of public enterprise pension reserves, and sales of strategic petroleum reserves – to meet the Maastricht fiscal criteria for 1997. Moreover, further discretionary cuts in public spending will depress the rate of growth and therefore slow the endogenous closing of the fiscal gap. Nor are demographic trends

favourable: even ten years hence, one begins to worry about the fiscal consequences of an ageing population, especially in countries where health services are publicly provided. OECD (1996) suggests that these effects may become quite substantial within ten years of the start of EMU, especially for the Netherlands and the Nordic countries.

None of this rules out further discretionary cuts in spending or discretionary tax increases that will move Europe's budgets towards balance more quickly. In our estimation, however, taxes are already prohibitively high, and public support for radical expenditure cuts is absent.

Could deficit reduction become more popular because it actually boosts growth? According to the recent literature on the anti-Keynesian effects of fiscal policy (e.g., Giavazzi and Pagano, 1995), cutting the deficit can be expansionary when it boosts consumer confidence and therefore consumer spending. If a country was previously on an unsustainable fiscal trajectory, returning to a stable fiscal path can increase confidence, much as stepping on the brakes of a car hurtling towards a brick wall can increase the confidence of the passengers. This effect is most likely when deficit reduction is significant, sustained and credible, and when it takes the form of spending cuts rather than tax increases (Alesina and Perotti, 1995). These, of course, are precisely the conditions lacking in Europe. Deficits of 3% and debts of 70% may be too high, but they are not obviously unsustainable. Refundable euro taxes and other one-off measures hardly build confidence that fiscal correction will be sustained. The Jospin government's stated intention of paring the French deficit just enough to qualify for EMU hardly creates confidence that the budget will be cut significantly from recent levels. So far, the majority of adjustment has taken the form of increased taxes rather than reduced spending on social programmes and other entitlements. We should not expect deficits to become more popular because of an anti-Keynesian effect in boosting output.

### 8.3. Stepping up the pace

Ensuring that Europe's fiscal stabilizers are unconstrained by the Stability Pact requires stepping up the pace of growth to accelerate endogenous deficit reduction. If Europe grew at 4% a year, the rate projected for the USA in 1997 by the IMF, this would lop off between  $\frac{3}{4}$  and 1% of its deficit per year through the endogenous response of revenues, assuming that restraint was exercised on fiscal spending.

Faster growth without inflation requires more flexible markets, and more flexible labour markets in particular. The danger here is that excessive energy devoted to fiscal consolidation and to the Stability Pact will sap the energies of reformers. Leaders, having invested most of their political capital in pushing through deficit-cutting measures, may have little left to invest in labour market reform. Truck drivers, farmers and employees of Air France are already feeling the pinch of budget cuts; further cuts in sick leave or annual holidays will be one more insult.

The reduction of hiring and firing costs, among the most important labour market reforms, will meet with considerable resistance in a slowly growing economy, where the odds of a dismissed worker finding another job are relatively slim; yet fiscal consolidation in Europe is making for slow growth.<sup>25</sup>

Less rigid preoccupation with fiscal consolidation will improve the prospects for labour market reform, for two reasons: European leaders will retain more political capital to devote to the issue; and a more buoyant macroeconomic environment will reduce public opposition to the reduction of hiring and firing costs. If successful, labour market reform will reinforce the buoyancy of the macroeconomic environment and hasten the pace of fiscal consolidation.

## 9. POLICY IMPLICATIONS

We have sought in this paper (1) to identify the economic problems that prompted adoption of the Stability Pact and (2) to assess its costs and benefits. Our assessment is that enforcement of the pact will be relatively loose, but still tight enough to affect some member states' deficits. EU officials will be reluctant to levy fines and lose goodwill. Member states will be reluctant to incur fines and suffer embarrassment. As in most EU affairs, a negotiated settlement just acceptable to both sides is the likely outcome.<sup>26</sup> EU decision-makers will compromise, allowing the 3% ceiling to be violated. Governments will compromise, eliminating deficits that egregiously violate the Stability Pact. They will modify their fiscal policies just enough to avoid forcing their neighbours to impose fines.

### 9.1. The pact's fiscal implications hinge on Europe's growth performance

If member states quickly move their budgets to balance or surplus, the Stability Pact will become a non-issue. If they run surpluses of 2% of GDP in expansions, they will be able to provide customary levels of automatic stabilization in response to an increase in the output gap of as much as 10% of GDP. It is hard to see that the Stability Pact could bind.

But except for clearly unsustainable fiscal trajectories, governments are reluctant to impose sharp discretionary shifts in the fiscal balance. In the United States, where circumstances have been relatively normal, a shift in the fiscal position of 0.25% of

<sup>25</sup> To date fiscal progress has been piecemeal. Coe and Snower (1997) argue that this explains both why the results have been disappointing and why there is public resistance to further reform. And policies (like work sharing and early retirement) that reduce measured unemployment rather than increase the demand for labour impede faster deficit reduction.

<sup>26</sup> Theorists would attribute the prevalence of successful negotiations, and absence of breakdown and sanctions, to the repeated-game nature of the interaction, the relatively complete nature of the information environment, and the fact that the EU has built institutions to minimize transaction and negotiation costs over the course of its 40-year history.

GDP is a big deal politically. Throughout Europe, the backlash against fiscal austerity is evident. It is not clear that the political will exists to go faster.

If Europe is to eliminate deficits and move budgets into surplus, it will have to do so by outgrowing them. Even if one adopts an optimistic forecast of economic growth (3% a year), Europe's deficits will only fall to 2½% by the time EMU begins, *unless other discretionary changes are adopted*, which for the above-mentioned reasons seems unlikely. If, contrary to our expectations, governments attempt to reduce their deficits more quickly, growth will slow. Two pounds of fiscal effort will thus be needed to obtain an extra pound of fiscal results. And if a recession intervenes, little if any progress will be made.

## **9.2. Concern with fiscal stability should not divert attention from labour market reform**

There is a real danger that preoccupation with fiscal consolidation is hindering labour market reform, and hindering more general reforms to enhance economic flexibility and boost productivity growth. As explained above, more fiscal flexibility in the short run may improve the prospects for labour market reform. If successful, labour market reform will reinforce the buoyancy of the macroeconomic environment and on balance hasten rather than slow the pace of fiscal consolidation.

The remaining implications of our analysis flow from the principle that efficient intervention should take place as close as possible to the source of the problem in order to avoid creating more distortions than it eliminates. Those implications are as follows.

## **9.3. Better public debt management would permit greater fiscal flexibility without aggravating bailout risk**

If the danger is a financial crisis, such as struck Mexico in 1994–5 when investors refused to roll over the government's maturing debts, the efficient solution is to lengthen the maturity structure of the debt and smooth the distribution of maturing issues, not to limit governments' fiscal flexibility. Debt runs occur when large amounts of debt mature suddenly and investors refuse to roll it over. This likelihood can be minimized by efficiently managing the term structure, lengthening maturities and avoiding bunching.

Lengthening maturities may seem easier said than done for countries with large debts. However, Table 11 shows no correlation between the size of debts and their maturity structure. High debts have been no barrier to lengthening maturities for countries that have made this a priority.

To be sure, countries that lengthen the term structure force themselves to shoulder a larger term premium. This implies higher taxes, lower spending or larger

**Table 11. Structure of central government debts in Europe**

	Debt as % of GDP	Short-term as % of domestic debt	Foreign-held debt as % of total	Year
Austria	52.4	0.4	19.1	1993
Belgium	131.1	21.1	15.8	1993
Finland	38.7	27.9	65.1	1992
France	38.7	42.4	n.a.	1994
Germany	33.7	3.9	48.7	1994
Greece	104.9	50.0	21.5	1992
Italy	105.8	39.4	14.5	1992
Luxembourg	3.9	45.5	6.9	1992
Netherlands	61.6	4.9	21.3	1994
Norway	23.2	35.4	29.9	1992
Spain	41.3	52.7	17.0	1992
Sweden	66.7	15.3	50.5	1994
UK	34.0	29.6	17.1	1992

Sources: Government statistics; IMF.

deficits, other things equal. But the real danger is not debts so heavy that European countries will repudiate them, all but unprecedented in peacetime, but rather that investors will refuse to roll over maturing debts, creating a more serious and sudden problem that European governments lack the resources to address. If the problem with lengthening the term structure is that this heightens the temptation to inflate, the appropriate response is to index the debt.

Since less debt is also better than more from this point of view, measures to limit debt accumulation may also be desirable. The longer and smoother the term structure, the looser can be application of the Stability Pact, because the risk of problems in the market for public debt will be lower.

#### **9.4. Better bank regulation would permit greater fiscal flexibility without aggravating bailout risk**

If the problem is that the ECB will come under pressure to intervene when the crisis spreads to the banking system – because bank failures destabilize the macroeconomy or because the banking system is a channel for contagion – the efficient policy response is to strengthen the banks, not to limit fiscal flexibility. This was the lesson drawn by the Argentine government from the country's debt-cum-banking crisis in 1995, when Mexico's bungled devaluation led investors to withdraw their funds, placing Argentina's bank system at risk. In response, the government raised capital and liquidity requirements for the banks; by limiting their ratio of liquid liabilities to liquid assets, it limited the resources that had to be raised in the event of a run.<sup>27</sup>

<sup>27</sup> For further details on the spread of instability from Mexico to Argentina and how the Argentine government responded by strengthening the position of its banking system, see Caprio *et al.* (1997).

In Europe, the fear is that the costs of a bailout of a national banking system would be borne by the residents of the whole EMU zone, not just the offending country, inducing moral hazard. If so, the solution is to raise capital and liquidity requirements for the banks – perhaps to even higher levels than mandated by the BIS Accords (which are designed for countries with their own central banks). If European policy-makers believe that the banks' investments in government bonds are a threat to financial stability, the efficient solution is to limit the banks' ability to hold such bonds, not to limit governments' ability to issue them. The BIS allows banks to adjust their capital holdings for risk using proprietary models; if European officials feel that those models underestimate the risks of holding public debt (because they neglect externalities associated with, *inter alia*, contagion and systematic risk), then the efficient policy response is to change how those capital standards are calculated, not to prevent governments from issuing debt. More generally, if the underlying problem is instability in the banking system, national governments and the EU should tighten supervision and inspection of Europe's banks rather than placing fiscal authorities in a straitjacket. The stricter is prudential supervision and the higher are capital and liquidity requirements, the looser can be the Stability Pact, because the risk to the banking system will be less.

We conclude that the Stability Pact is a minor nuisance if European countries succeed in moving their budgets into balance or, better, into surplus, making room for their automatic stabilizers to work. But if their deficits remain right up against their 3% reference values when EMU begins, the pact becomes more of a problem. Since much of Europe lacks the appetite for radical fiscal consolidation, reducing deficits means outgrowing them. Here labour market flexibility is key. In this connection, the Stability Pact should not be allowed to become a diversion. Europe needs more attention to labour market reform, not single-minded preoccupation with fiscal retrenchment. If its politicians do not devote all their political capital to contentious fiscal cuts, they will have more resources to push through needed labour market measures. And to the extent that debt management and financial sector reforms encourage them to apply the Stability Pact more flexibly, faster deficit-reducing growth, not interrupted by recessions, becomes easier to sustain.

---

## Discussion

### Charles Bean

London School of Economics

This paper could just as easily have been entitled 'The costs and benefits of the Stability Pact'. Eichengreen and Wyplosz conclude that the benefits are probably minimal, and could have been achieved in other ways. I agree. They also argue that the costs will be small. I am less convinced.

As far as the benefits go, Eichengreen and Wyplosz list five possibilities. The first, and potentially most important, is to prevent inflationary debt bailouts. Of course, there is already a 'no-bailout' clause in the Maastricht Treaty, but questions remain as to whether that is an entirely credible commitment on the part of the signatories. If, say, Italy were to find itself unable to fund its debt obligations, is it really likely that its European partners would not come to its aid? The first point to note is that, if a bailout did happen, the European Central Bank would not be the main agency involved; rather it is the IMF and national governments that would have to organize any rescue package. The ECB enters the picture only if there is a risk of contagion and a flight to liquidity that threatens the stability of the financial system. Here the authors undertake a brave attempt to draw lessons from US experience. The fiscal position of US states is so different from that of the EU nations that it is tempting to dismiss the exercise as irrelevant, but one should look where one can for evidence. In this respect, surely the Latin American experience of the 1980s, and that of the Far East today, provide better laboratories for investigating contagion effects. Clearly, excessive debt levels generating financial instability are a cause for concern, but provided any injection of liquidity by the ECB is temporary, and is withdrawn as financial stability is restored, it need have no effect on inflation. Furthermore, the risk of such a scenario can be reduced in a sharper and more direct way by limiting the exposure of financial intermediaries to risky sovereign debt.

As for the other arguments for limiting debt and deficits, the argument that high-debt countries will press for higher inflation so as to reduce the real value of their outstanding debt obligations ignores the fact that the members of the Governing Council of the European System of Central Banks are not supposed to act as representatives of narrow national interests. Moreover, if there were genuine concern that this might happen, the voting rights of high-debt countries could be limited, as suggested by Paul De Grauwe.

As far as dealing with the political bias towards excessive deficits goes, there is no reason why this should be a matter for supranational action. If indeed it is the case that deficits are excessive, and have the adverse effects enumerated by the authors – all of which are internal to the country – then national governments could tie their hands by passing into law a Code for Fiscal Stability that constrains fiscal policy along appropriate lines. Such a code is presently in force in New Zealand and is currently being introduced in the United Kingdom. There is a case for supranational action only if there are adverse spillovers from these excessive deficits on to other countries.

Indeed, spillovers on to interest rates provide the fourth argument for constraining deficits. Aside from the fact that such spillovers appear to be small – although in their empirical work the authors confuse a lack of statistical significance with a lack of economic significance – there is surely a widespread misunderstanding of the theoretical case here, which the authors do a service by exposing. If a country chooses to borrow beyond the point at which the opportunity cost of funds equals the (social) returns, the costs of that inefficiency are borne by the taxpayers of the

borrowing country. At most there is a distributional issue, as countries that are net lenders (borrowers) will gain (lose) from higher interest rates. As most European countries have a net asset position that is quite close to balance, such distributional considerations are marginal.

Finally, as far as the policy co-ordination argument goes, the literature shows that fiscal policy could just as easily be too tight as too loose, and that consequently the Stability Pact is ill-designed for achieving a more efficient outcome.

Let me now turn to the costs of the pact. Its architects believe that countries will be sufficiently far-sighted and will run surpluses in good times, so as to give room for the automatic fiscal stabilizers, and other discretionary fiscal action, in bad times. To anyone who has observed the shameless fiscal bribery of the electorate by successive UK governments as election time draws near, this is hopelessly Panglossian. The problem with the pact as presently framed is that it is all stick and no carrot; rewarding good fiscal behaviour in booms rather than, or in addition to, punishing bad behaviour in slumps would surely make better sense. This could easily be done by relating payments to the EU budget or the distribution of euro seigniorage to fiscal positions.

Eichengreen and Wyplosz seem to subscribe at least partially to the Panglossian view, while simultaneously arguing that sufficient discretion exists to ensure that fines would in any case not be imposed. Surely there is an inconsistency here – if governments do not believe fines will be imposed in bad times, why should they run fiscal surpluses in good times?

The authors undertake an interesting counterfactual exercise in asking how different the past would have looked if the Stability Pact had been in force over the past 22 years, and conclude that the cumulated output losses for France, Italy and the UK would be somewhere between 5 and 9% of GDP, i.e. the equivalent of an annual loss of  $\frac{1}{4}$ – $\frac{1}{2}$ % of GDP, which is significant but not disastrous. However, their methodology is flawed in that, to carry out the simulations, they calculate the historical excess deficit and then assume that this is the amount by which the cyclically corrected deficit (their fiscal impulse measure) also needs to change. But in practice a one percentage point decline in the cyclically corrected deficit requires a reduction in the actual deficit of more than one percentage point because the fiscal contraction lowers taxes and boosts transfers. In fact, using the estimates in the paper for the elasticities of output with respect to the deficit, and of the deficit with respect to output (Table 11), suggests that the output losses are at least half as much again as the authors suggest.

Looking forward, the authors note that further fiscal retrenchment is required if member countries are to have sufficient room to allow the fiscal stabilizers to operate, and for any supplementary discretionary fiscal action, during recessions. What to my mind the authors do not bring out sufficiently clearly is that improvements in the fiscal position due purely to faster cyclical growth will be of little help here, since what is required is an improvement in the cyclically corrected fiscal

position; at best, more robust cyclical growth buys a little more time. Instead what is required is a permanent and sustainable increase in the level of output – something that is harder to achieve.

Finally, the most serious criticism of the Stability Pact, and indeed of the drive towards the single currency, is that it has served as a distraction from tackling some of Europe's more serious structural problems: in particular, high and persistent unemployment and the need for pension reform. As far as unemployment goes, some people argue that monetary union will hasten labour market reform as countries will no longer have access to the quick fix of devaluation. But since Europe's unemployment is primarily structural rather than cyclical, devaluation is in any case only a temporary solution. Furthermore, the political reality of labour market reform is that it is easier to reduce firing costs, cut unemployment benefits, etc. in a booming economy. Getting the agreement of the various social partners to such policies will therefore be easier if macroeconomic policies are free to support the structural reforms, thus ensuring the gains from reform come hard on the heels of the necessary pain. Having greatly reduced their room for manoeuvre on the monetary front, European governments are now in danger of doing the same on the fiscal front.

As far as pension reform goes – one of the biggest challenges on the horizon for most European governments – the Maastricht debt numbers make no allowance for the accumulated pension obligations under the current pay-as-you-go arrangements. Given increasing longevity and the fall in the birth rate, the tax rate necessary to finance these obligations is set to become unacceptably high, and greater reliance on funded schemes is unavoidable. However, a major problem with switching from an unfunded to a funded arrangement is that at least one generation of taxpayers has to bear the double burden of saving for their own pensions as well as paying for the pensions of their parents. The equitable way of undertaking the transition is, of course, for the government to borrow to finance the pensions of the final generation of pay-as-you-go retirees, so that the burden is borne by future taxpayers as well as current ones. The Stability Pact makes this all but impossible to do.

## Stefan Gerlach

Bank for International Settlements, Basle

For those of us who have read past papers by Barry Eichengreen and Charles Wyplosz, this paper comes as no surprise: it provides a clear and careful analysis of an important policy question, and draws a provocative conclusion that the Stability Pact is something between a minor nuisance and a major problem. In my comments, I argue that the paper underestimates the risks and consequences of a public debt crisis and the likelihood of interest rate spillovers, that it downplays the inflationary consequences of high public debt, and that it is thus too quick to conclude that the Stability Pact (SP) is not desirable.

The paper starts with a review of a number of claims that have been made in support of the SP. After analysing each in turn, the authors conclude that only two of them may be valid: (1) the SP could reduce the likelihood of an inflationary debt bailout, and (2) it could limit the risk of interest rate spillovers within the euro area. The authors argue that whether the SP actually will have these benefits is an empirical question, and they go on to analyse these two claims more thoroughly before rejecting them. For reasons of space, I focus much of my discussion on their analysis of these arguments in favour of the Stability Pact. I conclude with a brief analysis of why the SP could be helpful in reducing inflationary pressures – an argument that the authors reject without much discussion.

## Debt bailouts

While the authors recognize that the SP may reduce the likelihood of a public debt crisis and therefore the need for an inflationary bailout, they do not believe that in practice this justifies the pact. They study the extent to which banks experienced losses on their real-estate lending in past banking crises, and compare these losses with banks' exposure to government debt. They argue that banks actually hold relatively little public debt and note that any debt crisis would only partially reduce the value of government bonds.<sup>28</sup> They therefore conclude that a public debt crisis is not likely to endanger the banking system. The authors argue, furthermore, that past banking crises have been deflationary rather than inflationary, and emphasize that any liquidity infusion by the central bank in a future crisis is likely to be temporary.

I have several reservations regarding these arguments. First, I doubt that past banking crises that were caused by poor real-estate loans provide much information about the likelihood that a public debt crisis would trigger a banking crisis. One reason for this is that real-estate loans, in contrast to bonds, are not marked-to-market and it is therefore easier for banks to keep problems related to such loans out of the public view for some time, which may reduce the risk of a bank run. Some opaqueness provided that it is temporary and that the supervisory authorities are kept informed at all times may be desirable from a systemic perspective, since it gives banks some time to resolve problems without at the same time having to endure a crisis of confidence. Second, I have some concerns regarding the authors' data on the exposure of the banking system. My colleagues Bob McCauley and Bill White have recently presented some calculations suggesting that banks are about twice as exposed as Table 2 of this paper suggests.<sup>29</sup> If this is correct, it seems that

<sup>28</sup> It is implicit in the paper that a public crisis, if it were to occur, would take the form of a forced exchange of short-term for longer-term debt, perhaps with a reduction of the applicable interest rate. Thus, a debt crisis would only partially reduce the value of the debt.

<sup>29</sup> See McCauley and White (1997, table 20, p. 377).

the authors may have underestimated the consequences of a public debt crisis for the stability of the banking sector. Third, while banking crises may well be deflationary, there are of course many other reasons – in particular, their effect on output and employment – why they should be avoided.

More fundamentally, however, I think the authors underestimate the potential systemic implications of a forced conversion of the public debt. It is important to recognize that a drastic fall in the value of government bonds could lead to a systemic crisis even if banks hold no public debt directly. A collapse of bond prices may lead to a collapse of non-bank financial institutions that are counterparties to banks in a number of markets. Thus, any crisis that erupted would spread to banks sooner or later. Moreover, for a systemic crisis to start, it is not necessary for a public debt crisis actually to occur. The mere suspicion that banks hold government bonds of questionable value may lead depositors to withdraw funds and counterparties to take their business elsewhere, which in turn could trigger a financial crisis.

### **Interest rate spillovers**

The second argument that the authors consider to be potentially correct is that the SP could reduce the risk of interest rate spillovers. Such spillovers could arise if, for instance, overly lax fiscal policies in one country lead to higher interest rates in other countries, or if a confidence crisis in one country triggers confidence crises elsewhere. The authors argue that, since governments are price-takers in integrated financial markets, it is difficult to believe that there would be large spillovers. They also provide some econometric evidence suggesting that there is little evidence of such spillovers among individual US states and in Europe.

However, I think it questionable whether the US evidence contains much information relevant to the likelihood of interest spillovers in Europe. First, debt/income ratios are much smaller for individual US states than for European countries. Second, there are apparently no cases of a ‘near-default’ in the US data, and it is therefore difficult to see what can be learned from them.<sup>30</sup> Third, since the income on bonds issued by the state of residence tends to be tax free, there are strong clientele effects in the markets for state debt in the USA, which are likely to reduce the possibility of interest rate spillovers. Since the US data are likely to be uninformative, it would be instructive to consider whether there were spillover effects in other episodes in which there was some uncertainty in the market for public debt. One episode of potential interest is the period surrounding the referendum in Quebec at the end of October 1995.

---

<sup>30</sup> The same argument would seem to hold for the European data.

## Inflation and the public debt

The ‘standard’ justification of the SP is that it is necessary to ensure the achievement and maintenance of price stability in the euro area. Viewed from this perspective, it is particularly striking that the authors apparently find no merit in the argument that large public debts can be inflationary.

There are at least two reasons why large public debts may be inflationary. The first is that large public debts carry with them a temptation to reduce the real value of the debt by generating an unexpected burst of inflation. However, since a significant part of the public debt in many countries is of short maturity, and since some borrowing may be in foreign currency, the practical relevance of this argument is negligible, at least in Europe.<sup>31</sup> The second argument is based on the observation that the maintenance of low inflation may sometimes conflict with the stability of the debt/GDP ratio. Suppose that the ECB cares about inflation and financial stability, and therefore the size of the public debt. A tightening of monetary policy not only raises the real interest rate (and hence debt service), it also reduces real growth (hence, at given tax rates, raising the primary deficit). Higher deficits lead to the accumulation of higher debt in the numerator, and lower output directly reduces the denominator: through both channels, tighter monetary policy will increase the debt/GDP ratio.

The monetary policy implications of this stem from the fact that at any point in time there are likely to be differences of opinion between the members of the Governing Council of the ECB regarding the appropriate stance of policy: some members might argue for a tightening of policy, others might prefer to leave interest rates unchanged, while still others might view a relaxation of policy as appropriate. While it is not clear what, in practice, the decision-making process in the ECB will be like, it is plausible that policy will be heavily influenced by the views of the ‘average’ member. The fact that a tightening of policy is likely to worsen the debt situation and increase the risk of financial instability may lead the average council member to be marginally less willing to tighten, or marginally more willing to relax, monetary policy. Large public debts could therefore impart an inflation bias to the ECB’s monetary policy. While it is difficult to speculate how large this inflation bias could be, a few per cent seems plausible. If correct, this would provide a good reason for limiting public debt in Europe.

## General discussion

Maurice Obstfeld thought that Canadian experience, more than that of the United

---

<sup>31</sup> Persson *et al.* (1996) show that an increase in inflation would impact positively on government finances in Sweden. However, these gains stem not from the real depreciation of the government debt and increased seigniorage, but rather from nominal features of the tax and transfer system.

States, could provide a useful guide to the future evolution of the Stability Pact. Canadian provinces have substantial debts and also greater leeway in their financing methods. One could test the validity of the bailout story by studying the debt ratios of provinces: do higher levels of debt push up the provincial interest rates? Importantly, such a test should concern itself with real interest rates rather than nominal ones. Finally, he noted that high growth is not a panacea for the problem of fiscal adjustment. A buoyant economy may allow us to postpone the hard decisions needed on the fiscal front, but it cannot do so indefinitely.

Kenneth Rogoff felt that concerns regarding the anti-inflationary ability of the European Central Bank were exaggerated. In his opinion, the real issue was the ECB's regulatory ability: in particular, its ability to co-ordinate and supervise banks.

Jürgen von Hagen, in contrast, doubted that the ECB could always resist the pressure to inflate away debt. Regardless of the constitution of the ECB, it may be tempted to allow higher inflation in exceptional circumstances. He noted that the deterioration of deficits is often caused not by the fiscal stance, but as in the case of Italy, by increased transfer payments and high interest rates. Moreover, judging from experience, fiscal restrictions in periods of recession tend to result in cutbacks in some crucial areas, such as infrastructure and education. If volatility in expenditure patterns in these sectors is costly, fiscal restrictions imposed by the Stability Pact will prove to be more than just diversions. Finally, simulations suggest that the impact of negative fiscal stimuli on an economy depends on the fiscal stance in other countries as well. Fiscal stimuli that affect many countries could have more pronounced effects than isolated ones.

Olivier Blanchard wondered how austere a government needed to be in the long run in order to keep room for manoeuvre against an occasional but significant recession. How much below the 3% level would the budget deficit have to be to provide this cushion? He expressed the view that fiscal restrictions imposed by the Stability Pact may lead to structural activism: reform and intervention in areas other than monetary and fiscal policy, most notably in labour markets. The UK had carried this out successfully, while France had not, so the results could well be mixed. In Klaus Zimmermann's opinion, the 3% deficit criterion was chosen to exclude Italy, which was somewhat unfair. If Italy's shadow economy were taken into account, we would come to a different judgement of its true position.

Andrew Rose thought the paper was concerned excessively with the size of the public debt, whereas the Stability Pact is designed around budget deficits. Torben Andersen thought that the Stability Pact focuses on the deficit norm because of perceived political myopia. Perhaps politicians do not realize that large persistent deficits lead to higher debt levels. He argued that the paper captured only the effects of discretionary changes in fiscal policy and left out the automatic stabilizers. Automatic stabilizers play a significant role in European economies, and if they were eliminated by the deficit criterion, the Stability Pact might prove to be costlier than expected.

Paul De Grauwe also stressed the role of automatic stabilizers. The Stability Pact aimed to move countries towards balanced budgets. It was not clear that the 3% deviation from balanced budget would provide enough room for automatic stabilizers to work properly. If not, the Stability Pact would restrict the efficacy of automatic stabilizers. Second, behind the Stability Pact lay the assumption that default and bailout risks were greater under monetary union. One could argue, to the contrary, that Italy's default risk is higher outside the EMU than inside it. Likewise evidence suggests that most bailouts have been carried out between countries that are not part of a common currency area.

Richard Portes stressed that the ECB definitely can intervene when liquidity problems are at stake. However, as far as solvency is concerned, there is nothing in the monetary process that requires European taxpayers to solve other countries' solvency problems. Robert McCauley felt that the paper ignored the considerable structural change that had occurred in the last 25 years. For instance, the change in the German long-term interest rate was certainly affected by German unification.

## REFERENCES

- Alesina, A. and R. Perotti (1994). 'Budget deficits and budget institutions,' unpublished manuscript, Harvard University and Columbia University.
- (1995). 'Reducing budget deficits', paper presented at conference on Growing Government Debt: International Experiences, Economic Council of Sweden, Stockholm, 12 June.
- Alesina, A., R. Hausmann, R. Hommes and E. Stein (1995). 'Budget institutions and fiscal performance in Latin America', unpublished manuscript, Interamerican Bank.
- Artis, M.J. and B. Winkler (1997). 'The Stability Pact: safeguarding the credibility of the European Central Bank', CEPR Discussion Paper no. 1688.
- Bayoumi, T. and B. Eichengreen (1995). 'Restraining yourself: the implications of fiscal rules for economic stabilization', *IMF Staff Papers*.
- Bayoumi, T., M. Goldstein and G. Woglom (1995). 'Do credit markets discipline sovereign borrowers? Evidence from US states', *Journal of Money, Credit and Banking*.
- Beetsma, R. and H. Uhlig (1997). 'An analysis of the Stability Pact', unpublished manuscript, Tilburg University.
- BIS (1993). *Annual Report*, Basle.
- Buiter, W. (1985). 'A guide to public sector debt and deficits', *Economic Policy*.
- , G. Corsetti and N. Roubini (1993). 'Excessive deficits: sense and nonsense in the Treaty of Maastricht', *Economic Policy*.
- Buti, M., D. Franco and H. Ongena (1997). 'Budgetary policies during recessions – retrospective application of the 'Stability and Growth Pact' to the post-war period', Economic Paper no.121, European Commission, Brussels.
- Caprio, G., M. Dooley, D. Leipziger and C. Walsh (1997). 'The lender of last resort function under a currency board', *Open Economies Review*.
- Cochrane, J. (1994). 'Comment on "What ends recessions?"', *NBER Macroeconomics Annual*.
- Coe, D. and D. Snower (1997). 'Policy complementarities: the case for fundamental labor market reform', *IMF Staff Papers*.
- Dalheim, B., G. Lind and A.K. Nedersjö (1992). 'Bank results in Sweden and other Nordic countries', *Quarterly Review*, Bank of Sweden.
- Debrun, X. (1997). 'Monetary stability in the European Monetary Union: inflation-adverse central bank and budgetary arithmetic', unpublished manuscript, University of Geneva.
- De Grauwe, P. (1996). 'Discussion', in H. Siebert (ed.), *Monetary Policy in an Integrated World Economy*, Mohr, Tübingen.
- Eichengreen, B. (1990). 'One money for Europe? Lessons from the US currency and customs union', *Economic Policy*.
- (1997). 'Saving Europe's automatic stabilizers', *National Institute Economic Review*.
- EU Commission (1995). *One Market, One Money*, Brussels.

- Giavazzi, F. and M. Pagano (1995). 'Non-Keynesian effects of fiscal policy changes: international evidence and the Swedish experience', paper presented at IMF Research Department seminar, 16 November.
- Goldstein, M. and G. Woglom (1992). 'Market-based fiscal discipline in monetary unions: evidence from the US municipal bond market', in M.B. Canzoneri, V. Grilli and P.R. Masson (eds.), *Establishing a Central Bank: Issues in Europe and Lessons from the US*, Cambridge University Press, Cambridge and New York.
- King, M. (1997). 'Debt deflation: theory and evidence', in Forrest Capie and Geoffrey Wood (eds.), *Asset Prices and the Real Economy*, Macmillan, London.
- McCauley R.N. and W.R. White (1997). 'The euro and European financial markets', in P.R. Masson, T.H. Krueger and B.G. Turtelboom (eds.), *EMU and the International Financial System*, IMF, Washington, DC.
- McKinnon, R.I. (1996). 'Monetary regimes, government borrowing constraints, and market-preserving federalism: implications for EMU', unpublished manuscript, Stanford University.
- OECD (1996). 'Labor market performance, budget control, and social transfers', *Economic Outlook*, Paris.
- Oudiz, G. and J.D. Sachs (1984). 'Macroeconomic policy coordination among the industrial economies', *Brookings Papers on Economic Activity*.
- Persson, M., T. Persson and L.E.O. Svensson (1996). 'Debt, cash flow and inflation incentives: a Swedish example', IIES Seminar Paper no. 613.
- Sachs, J., A. Tornell and A. Velasco (1995). 'The collapse of the Mexican peso: what have we learned?', *Economic Policy*.
- von Hagen, J. and B. Eichengreen (1996). 'Federalism, fiscal restraints, and European monetary union', *American Economic Review, Papers and Proceedings*.
- von Hagen, J. and I. Harden (1994). 'National budget processes and fiscal performance', *European Economy, Reports and Studies*.
- Wyplosz, C. (1990). 'EMS puzzles', *Revista Española de Economía*.