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**Working Paper**

## Sustainability of public finances in Finland and the four largest Euro-area Economies

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# BANK OF FINLAND DISCUSSION PAPERS

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25/98

**Helvi Kinnunen – Pasi Kuoppamäki**

Economics Department  
26.11.1998

## Sustainability of Public Finances in Finland and the Four Largest Euro-area Economies

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# Sustainability of Public Finances in Finland and the Four Largest Euro-area Economies

Bank of Finland Discussion Papers 25/98

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Pasi Kuoppamäki  
Economics Department

## Abstract

The paper analyses the sustainability of fiscal policy in the four largest countries of the EMU area and Finland with the aim of assessing whether current fiscal policies are compatible with the Stability and Growth Pact in the medium term. The sensitivity of the deficit and debt ratios to changes in the real interest rate and economic growth is also assessed. Moreover, since population ageing will cause an extra burden on public finances, the fiscal pressure of rising pension costs in the longer term is also investigated.

The baseline calculations for the medium term suggest that fiscal policy is sustainable in all countries except perhaps France. However, highly indebted countries such as Italy are clearly more sensitive to changes in interest rates. The results indicate that there is little or no room for active fiscal policy. The room for manoeuvre is even more limited if one takes into account that tax rates most likely need to be lowered in many countries, especially in Finland and Italy, due to tax harmonization and tax competition. Moreover, population ageing will impose pressures on public finances in the long run. Only Finland and Italy seem to be in a position to cope with increasing pension expenditures over the long run.

Key words: Public finance, sustainability, stability pact, tax competition, ageing, pensions

# Julkisen talouden kestävyys Suomessa ja neljässä suurimmassa euroalueen maassa

## Suomen Pankin keskustelualoitteita 25/98

Helvi Kinnunen  
Pasi Kuoppamäki  
Kansantalouden osasto

### Tiivistelmä

Selvityksessä analysoidaan finanssipolitiikan kestävyyttä Suomessa ja suurimmissa euroalueen maissa. Erityisesti arvioidaan, onko vallitseva finanssipolitiikka sopu-soinnussa vakaus- ja kasvusopimuksen julkisen sektorin tasapainotavoitteen kanssa keskipitkällä aikavälillä. Selvityksessä tarkastellaan myös vajeiden ja velan bkt-osuuksien herkkyyttä reaalikoron, talouskasvun ja verotuksen suhteen. Lopuksi selvitetään väestön ikääntymisen vaikutuksia julkisen talouden kestävyyspiikillä aikavälillä.

Keskipitkällä aikavälillä julkisten sektoreiden talous oli kestäväällä pohjalla muualla paitsi mahdollisesti Ranskassa. Voimakkaasti velkaantuneiden maiden, kuten Italian, tilanne on selvästi herkempi korkotason muutoksille. Tuloksista voi päätellä, että keskeisen euroalueen suhdannepoliittinen liikkumavara on varsin rajallinen keskipitkällä aikavälillä; tulos ei ole kovin herkkä korko- ja talouskasvuoletuksille. Verotuksen mahdollinen yhdenmukaistuminen kaventaishi erityisesti Italian ja Suomen finanssipolitiikan liikkumavaraa. Lisäksi eläkemenojen kasvu väestön ikääntyessä aiheuttaa merkittäviä paineita julkisen talouden kestävyyspiikille. Vain Italia ja Suomi näyttäisivät selviävän eläkemenojen kasvusta pitkäällä aikavälillä.

Asiasanat: Julkinen talous, kestävyys, kasvu- ja vakaussopimus, verokilpailu, ikääntyminen, eläkkeet

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# 1 Introduction

*'During the most profound peace, various events occur which require an extraordinary expence, and government finds it always more convenient to defray the expence by misapplying the sinking fund than by imposing a new tax. Every new tax is immediately felt more or less by the people. It occasions always some murmur, and meets with some opposition. ... The more the public debts may have been accumulated, the more necessary it may have become to study to reduce them, the more dangerous, the more ruinous it may be to misapply any part of the sinking fund; the less likely is the public debt to be reduced to any considerable degree...' - Adam Smith (1776 [1985 edition])*

Progress in balancing public finances in the last two years in EU countries has been highly impressive. In 1995 only three member states fulfilled the Maastricht deficit criteria whereas at the end of 1997 only Greece exceeded the limit. However, the margin by which public deficits in member states were below the reference value was in many cases quite small. In addition, only in four member states was the debt ratio below the reference value. This indicates that under unfavourable economic conditions the risk for unsustainable development of public finances is not excluded at least in most indebted countries.

The issue of sustainability of fiscal balances has been a vital discussion topic during the EMU process. Key elements have been the assessment of the need for consolidation efforts in highly indebted countries (European Monetary Institute 1998a, European Commission 1998, Deutsche Bundesbank 1998) and the implications of current fiscal policies on future debt ratios under different assumptions as to economic developments (eg Brandner, Diebalek and Schubert 1998). This paper supplements this conversation by analysing the effects of growth shocks on budgetary balance. Long-run cost pressures caused by ageing are also taken explicitly into account. Moreover, the room for fiscal adjustment in different countries is evaluated by considering differences in average tax rates. The study covers the budgetary situation and sustainability conditions in Finland and four major Euro countries, Germany, France, Italy and Spain.

The analytical framework is based on the intertemporal budget dynamics; the basic idea is described in section 2. The baseline calculations are constructed using 1997 figures as a starting point. The results are presented in section 3, while section 4 presents the sensitivity of deficits and debt to changes in the real interest rate and economic growth. Section 5 reproduces the calculations assuming lower taxation in those countries where the average rate of taxation at present is above the average. Section 6 analysis the extra burden on public finances caused by population ageing.

## 2 The arithmetic of sustainability

The basic idea of the sustainability calculations is to analyse whether a certain fiscal policy will keep the debt ratio on a non-increasing path, ie fiscal policy is defined to be sustainable if it leads to a stable or decreasing government debt ratio in the long run. If the debt ratio is on an expanding path, this indicates that the current policy must be tightened sooner or later.

The idea of sustainability is based on the dynamic government budget constraint, which is given by

$$(1) \quad \Delta B = G + H - T + rB = D + rB,$$

where  $\Delta B$  denotes the change in government debt,  $G$  is government spending,  $H$  is transfers,  $T$  is taxes plus other income,  $r$  is the real interest rate, and  $D$  is the primary deficit, which is defined as the difference between government income and expenditure excluding interest payments (Blanchard 1990).

In terms of ratios vs GDP, we get

$$(2) \quad \Delta b = g + h - t + (r - \theta)b = d + (r - \theta)b,$$

where  $\theta$  is rate of growth rate of GDP. The equation shows that the difference between the interest rate and the growth rate<sup>1</sup>, the primary deficit and the debt ratio determine the condition for sustainability. A sustainable debt position requires a primary fiscal surplus in the medium to long run. The size of the required surplus varies with the difference between the real rate of interest and the real rate of growth as well as the debt ratio. An alternative expression for the sustainability condition is that fiscal policy is sustainable if

$$(3) \quad \int de^{-(r-\theta)s} ds = -b_0.$$

This transversality condition says that the present value of the primary deficit ( $d$ ) discounted at  $r-\theta$  must be the same as the initial level of debt ( $b_0$ ).

Condition (3) determines the required permanent primary surplus that produces sustainable development under different growth and interest rate assumptions and initial debt ratio. The higher the debt ratio, the more sensitive the budget position with respect to growth and interest rate variation.

The sustainability condition derived from the previous equation (3) is often expressed in the form of a tax gap. This indicator illustrates more exactly the magnitude of the needed consolidation. Solving equation (3) for the sustainable tax rate  $t^*$  gives:

$$(4) \quad t^* = (r - \theta) \left[ \int (g + h) e^{-(r-\theta)s} ds + b_0 \right].$$

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<sup>1</sup> The calculations require that the interest rate exceed the growth rate. Otherwise sustainability conditions do not exist.

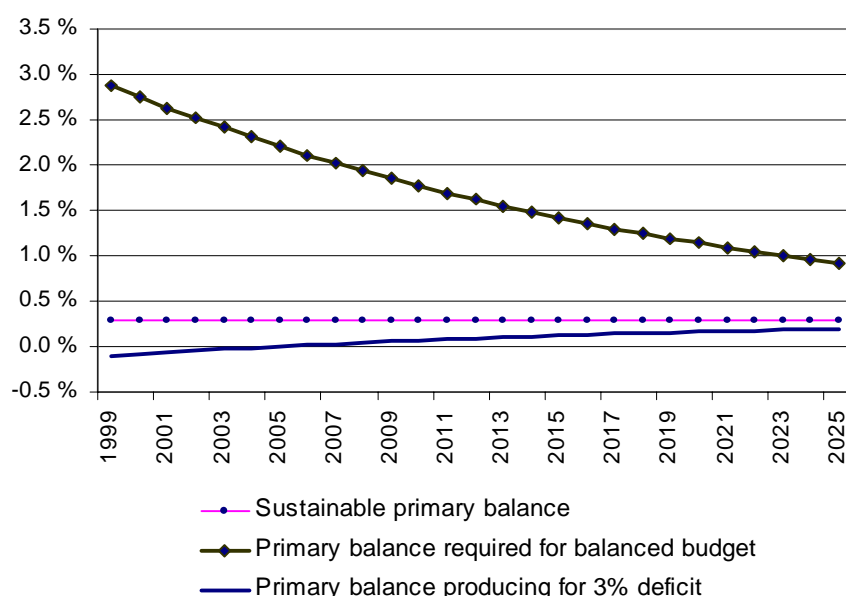
The tax gap indicator is the difference between the sustainable tax rate and the initial tax rate,  $t^* - t$ .

In practice, the calculations for the medium and longer term are made assuming that the correct measure of the current fiscal position is the latest observed primary deficit. In other words, revenues and noninterest expenditures are assumed to be a constant share of GDP. Variation in the growth rate and interest rate produces different debt paths and different needs for the adjustment of fiscal policy.

Besides sustainability, the budgetary arithmetic provides a convenient tool for assessing the fiscal policy constraints laid out in the Stability and Growth Pact. The core element of the Pact is a 3 per cent upper limit on the deficit<sup>2</sup> and a medium-term objective of a government budget that is roughly in balance. This is meant to ensure that there will be enough room for automatic stabilizers to work in normal business cycles.

The Stability and Growth Pact sets a more stringent goal (balanced budget) for fiscal policy than the sustainability condition. The following chart illustrates the primary balances required by different deficit criteria. Calculations are made for a hypothetical country with a 60 per cent debt ratio, 2.5 per cent real growth, 2 per cent inflation and a 5 per cent nominal interest rate. In this country, fiscal policy is sustainable if the primary balance is 0.3 per cent, whereas the medium-term goal of a balanced budget, as laid out in the Stability and Growth Pact, would require nearly a 3 per cent primary surplus at the start. The 3 per cent deficit limit, which is the upper limit for the deficit under ‘normal’ times according the Stability and Growth Pact, would instead lead to a primary deficit that would not stabilize the debt level. In general, the higher the initial debt level, the bigger the gap between the primary balance required by the Stability and Growth Pact and the sustainable primary balance.

Chart 1. **Primary balance under sustainability, 3 per cent deficit and budget balance**



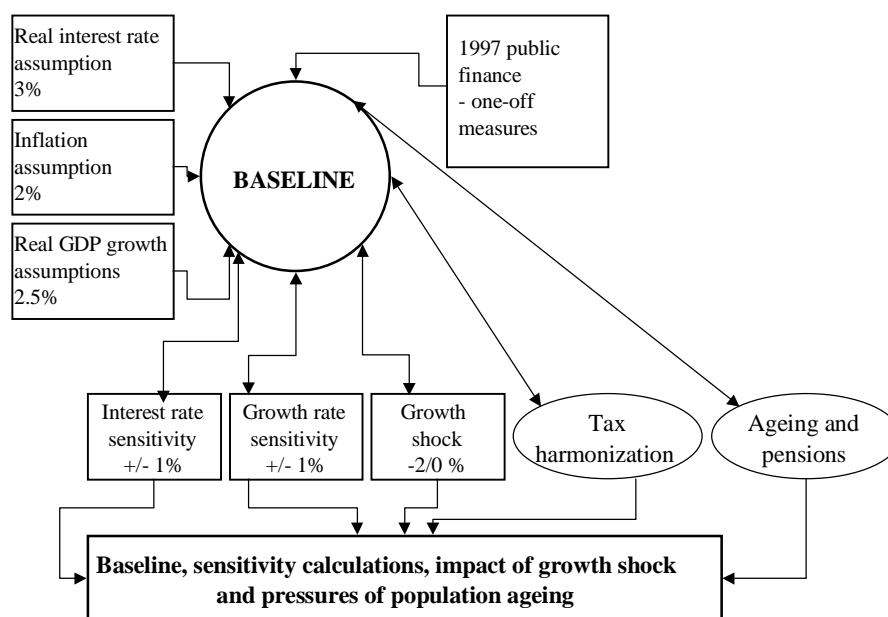
<sup>2</sup> The Stability and Growth Pact allows the deficit to exceed the limit only temporarily under severe economic circumstances.

### 3 Baseline sustainability calculations for the medium term

Baseline sustainability calculations are done for the four largest countries of the Euro area, Germany, France, Italy and Spain, as well as for Finland. The calculations cover the period from 1998 to 2005. Projections are based on the assumption that the fiscal position for year 1997, corrected for one-off measures<sup>3</sup>, will prevail in the near future. In the baseline calculations, macroeconomic developments are assumed to be uniform across countries, with real GDP growth at 2.5 per cent, inflation at 2 per cent and the long term interest rate at 5 per cent. These assumptions represent both recent experience and current economic expectations. Later, in the sensitivity calculations, we allow for higher interest rates and other variations.

Chart 2 shows the structure of the forthcoming sections. Left-hand boxes show the baseline macroeconomic assumptions and the bottom row of boxes and ellipses the assumptions for the sensitivity analysis and two types of more fundamental variations, tax harmonization and ageing. All these results are then briefly summarized and discussed in the concluding section.

Chart 2. **Basic structure of the calculations**



<sup>3</sup> One-off measures are defined as deficit-reducing measures that are effective for a limited period and which in some cases imply a burden on future budgets. Estimates are based on a survey by the European Monetary Institute (European Monetary Institute Convergence Report 1998).

The data series for general government are based on the National Accounts. For Finland, the social security funds had to be treated separately because their surplus reduces public debt only when they invest in government securities. In recent years these funds have invested the major part of their assets in government bonds; hence the following calculations are based on the assumption that in the future this share will diminish only slowly.

A continuation of the type of fiscal policy that prevailed in 1997 would lead to declining deficit ratios in all countries (table 1). However, the declines would be slow in Germany and France. In Finland and Italy the deficit ratios would actually turn into surpluses during the period. The debt ratio declines in all countries except France, where it increases slowly. This is a direct result of the fact that France had a primary deficit and the other countries a primary surplus in 1997. The decline in the debt ratio is most rapid in Finland and Italy.

Table 1. **Baseline projections**

	D Deficit	I Deficit	E Deficit	F Deficit	FIN Deficit	D Debt	I Debt	E Debt	F Debt	FIN Debt
1991	-3.1	-10.1	-4.2	-2.1	-1.5	41.5	101.5	45.5	35.8	23.0
1992	-2.6	-9.6	-3.8	-3.9	-5.9	44.1	108.7	48.0	39.8	41.5
1993	-3.2	-9.5	-6.9	-5.8	-8.0	48.0	119.1	60.0	45.3	58.0
1994	-2.4	-9.2	-6.3	-5.8	-6.4	50.2	124.9	62.6	48.5	59.6
1995	-3.3	-7.7	-7.3	-4.9	-4.7	58.0	124.2	65.5	52.7	58.1
1996	-3.4	-6.7	-4.6	-4.1	-3.3	60.4	124.0	70.1	55.7	57.6
1997	-2.7	-2.7	-2.6	-3.0	-0.9	61.3	121.6	68.8	58.0	55.8
1998e	-2.9	-2.7	-2.4	-3.6	-1.0	61.4	118.8	68.1	59.0	53.4
1999e	-2.8	-1.9	-2.1	-3.5	-0.5	61.4	115.4	67.2	59.9	50.9
2000e	-2.7	-1.3	-2.0	-3.5	-0.1	61.3	111.5	66.1	60.7	48.5
2001e	-2.6	-0.7	-1.8	-3.4	0.3	61.1	107.2	64.9	61.4	45.9
2002e	-2.5	-0.2	-1.7	-3.4	0.6	60.9	102.6	63.7	62.0	43.1
2003e	-2.5	0.2	-1.5	-3.4	0.9	60.6	97.8	62.3	62.6	40.2
2004e	-2.4	0.6	-1.4	-3.3	1.1	60.3	92.8	61.0	63.1	37.2
2005e	-2.4	0.9	-1.3	-3.3	1.3	60.0	87.7	59.6	63.6	34.1

The results indicate that the objective of the Stability Pact is hard to achieve under the given assumptions and initial conditions, even though output grows at its trend rate and the interest rate on government debt declines gradually. Only Finland and Italy seem to be able to achieve a balanced budget on average in the years 2000-2005. To sum up, without further consolidation measures, France, Germany, and to a lesser extent Spain, may face problems in meeting the Stability and Growth Pact criteria in the medium term.

Tax gap indicators, explained in the section 2, illustrate more exactly the pressures on fiscal policy caused by the sustainability and balanced budget conditions (table 2). Given the 1997 expenditure level, the tax rate should be increased by nearly two percentage points in France and Germany in order for those countries to reach and maintain a balanced budget; in Spain there is less tax pressure.

Table 2.

**Tax gaps**

Criteria	Germany	Italy	Spain	France	Finland
Sustainability	-0.4	-5.2	-1.5	0.4	-3.5
Stability Pact	1.9	-1.5	1.3	1.8	-2.0

These results are subject to many reservations. First of all, it may be that the primary deficit for 1997 is not be a valid measure of current fiscal policy. For instance, the result would be different if the one-off measures become permanent – as has been the case in the past for some taxes initially intended to be temporary. Thus, if one-off measures are taken into account, the primary balance becomes more positive in all countries and also France shows a surplus. The deficit ratio in France does not however show clear signs of disappearing even in the better case (table 3).

Table 3.

**Baseline projections including one-off measures**

	D Deficit	I Deficit	E Deficit	F Deficit	FIN Deficit	D Debt	I Debt	E Debt	F Debt	FIN Debt
1991	-3.1	-10.1	-4.2	-2.1	-1.5	41.5	101.5	45.5	35.8	23.0
1992	-2.6	-9.6	-3.8	-3.9	-5.9	44.1	108.7	48.0	39.8	41.5
1993	-3.2	-9.5	-6.9	-5.8	-8.0	48.0	119.1	60.0	45.3	58.0
1994	-2.4	-9.2	-6.3	-5.8	-6.4	50.2	124.9	62.6	48.5	59.6
1995	-3.3	-7.7	-7.3	-4.9	-4.7	58.0	124.2	65.5	52.7	58.1
1996	-3.4	-6.7	-4.6	-4.1	-3.3	60.4	124.0	70.1	55.7	57.6
1997	-2.7	-2.7	-2.6	-3.0	-0.9	61.3	121.6	68.8	58.0	55.8
1998e	-2.7	-1.7	-2.3	-3.0	-0.4	61.2	117.8	68.0	58.4	52.8
1999e	-2.5	-0.9	-2.0	-2.9	0.1	61.0	113.4	67.0	58.7	49.7
2000e	-2.4	-0.1	-1.8	-2.8	0.6	60.7	108.4	65.8	58.9	46.7
2001e	-2.4	0.5	-1.7	-2.7	1.0	60.3	103.1	64.5	58.9	43.4
2002e	-2.3	1.0	-1.5	-2.7	1.3	59.9	97.4	63.2	58.9	40.0
2003e	-2.2	1.5	-1.4	-2.6	1.6	59.4	91.6	61.7	58.9	36.5
2004e	-2.2	1.9	-1.3	-2.6	1.9	58.9	85.6	60.3	58.8	32.9
2005e	-2.1	2.3	-1.2	-2.5	2.2	58.4	79.4	58.7	58.7	29.1

## 4 Sensitivity analysis

The sensitivity calculations were carried out assuming three different economic scenarios. Firstly, to allow for fast and slow growth scenarios, we applied real GDP rates 1 percentage point higher and lower than the baseline rate. Secondly, we simulated the results for interest rates 1 percentage point higher and lower than the baseline rate. Thirdly, the departure from baseline was taken to be a temporary negative growth shock, as discussed in the Stability and Growth Pact. We introduce two shock variants, zero growth and negative 2 per cent growth in 2000, after which the growth rate returns to the trend rate of 2.5 per cent. The choice of year 2000 is merely for convenience; the post-slump analysis period is long enough to reveal significant deviations from the baseline.

The shock calculations use the Commission estimates (1995) for revenue and expenditure elasticities with respect to GDP growth deviations from the trend (see table 4). We assume that the same elasticities can be applied to the present trend growth assumptions as well. The total EU-15 estimate for revenue elasticity with respect to growth shock is 0.45, ie one percentage point lower (higher) growth than the trend rate would reduce (increase) the revenues by 0.45 percentage point. Expenditure elasticity for the EU-15 is 0.09 per cent, mainly as a result of the change in unemployment expenditures.

Table 4. **Government revenue and expenditure elasticities**

Country	Revenue elasticity	Expenditure elasticity
Germany	0.41	-0.07
Italy	0.32	-0.14
Spain	0.49	-0.16
France	0.46	-0.05
Finland	0.50	-0.16

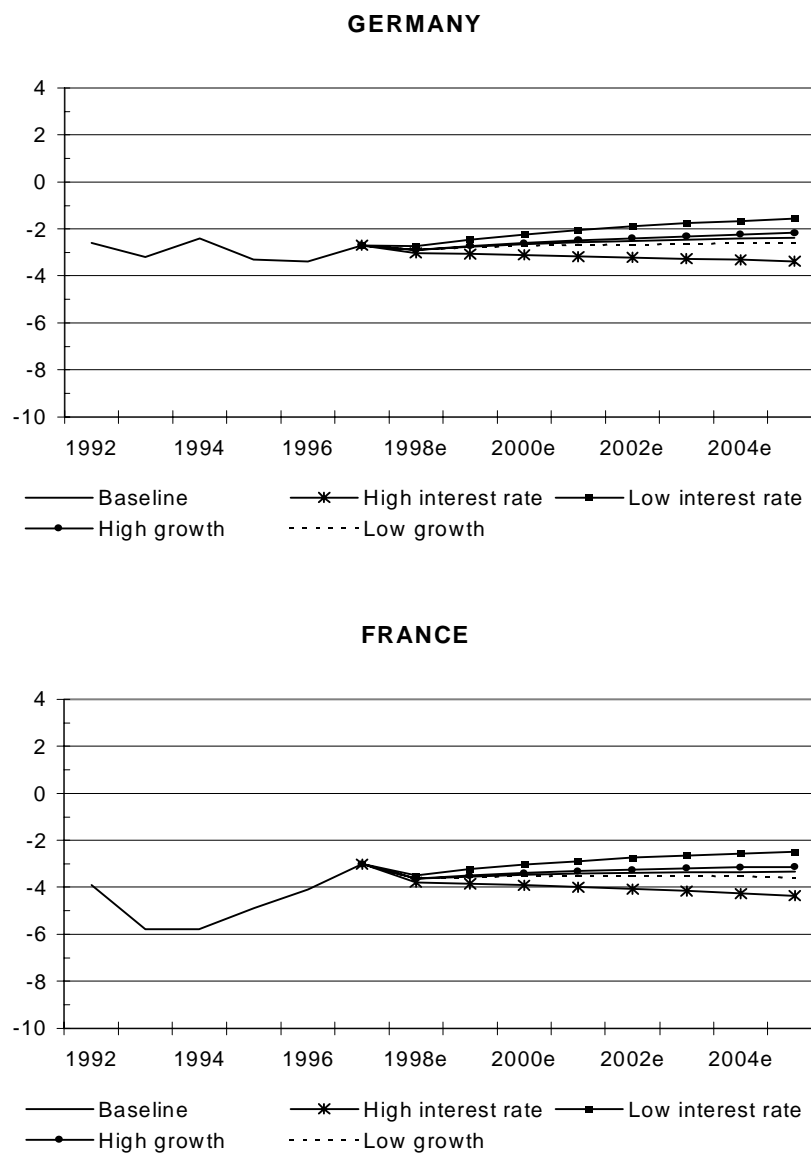
### 4.1 Growth and interest rate sensitivity

Deviations from the interest rate and growth assumptions by 1 percentage point do not substantially change the results obtained compared to baseline (see chart 3). However, lower GDP growth shifts the German debt-to-GDP ratio onto a divergent path. Budgetary conditions in France worsen, but other countries' budget positions survive the slowdown without reversion to a downward spiral.

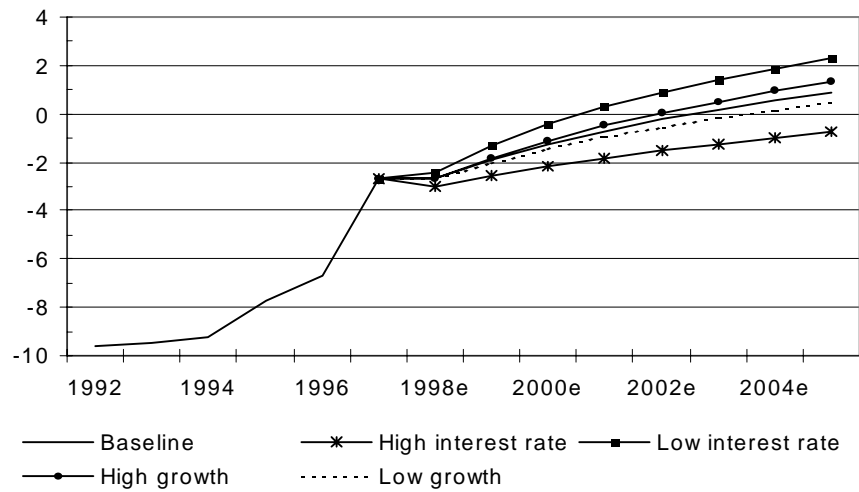
A 1 percentage point higher interest rate would be problematic for the fiscal balance in France, *ceteris paribus*. Italy, being a highly indebted country, would also suffer a deceleration in debt reduction. In fact, the debt in Italy could then remain above 100 per cent of GDP beyond 2005. However, a strong positive primary balance prevents Italy from embarking on an explosive debt path. A high interest rate could push Germany and Spain onto slowly exploding debt paths, but Finland would have no problem coping with the higher interest rate. A lower interest rate is good for all the debtor countries. For instance, a 1 percentage lower interest rate would turn the

deficit ratio also in France onto a clearly declining path. In Italy the surplus would be nearly 3 per cent in 2005, which is 1.5 percentage point higher than in the baseline projection.

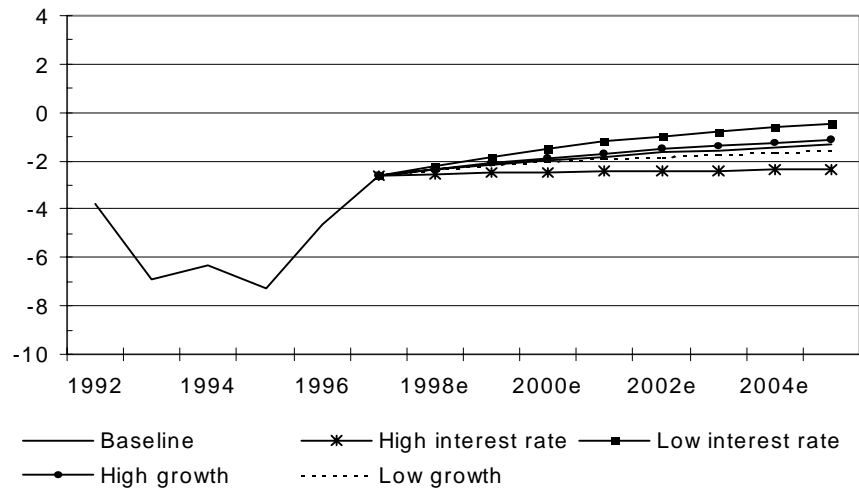
Chart 3. **Deficit ratio under different growth and interest rates**



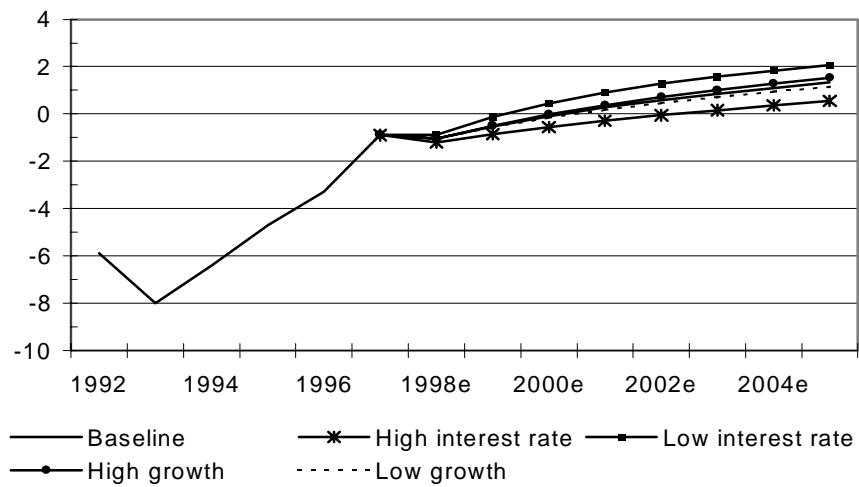
### ITALY



### SPAIN



### FINLAND



The sensitivity calculations indicate that the response of the public debt and deficit ratios is stronger with respect to interest rate changes than growth changes. Projections show that in France, where the budgetary position under the baseline assumptions is most problematic, a 1 percentage point higher growth rate for GDP only turns the indebtedness onto a very slowly declining path; the same applies to Germany. For other countries, faster growth brings clearly faster relief.

The results illustrate the problem that pronounced interdependence between public finances and interest rates in indebted countries can affect the conduct of monetary policy. For example, there is a risk that a rise in the interest rate would readily push the deficit too high in terms of the objectives of the Stability Pact. In our calculations this risk is not excluded in the cases of France and Germany. From the point of view of the Stability Pact, another critical issue concerns growth shocks, which will be evaluated closer in the following calculations.

## 4.2 Recession shocks

One evident effect of the Stability and Growth Pact is the fact that it might hinder the operation of automatic stabilizers, eg in situations requiring expansive fiscal policy, especially if the budget is already in deficit before the shock. If a country is hit by an asymmetric, country-specific, economic disturbance, there is a danger that it will be induced to undertake procyclical measures in order to avoid reaching the 3 per cent deficit ceiling.

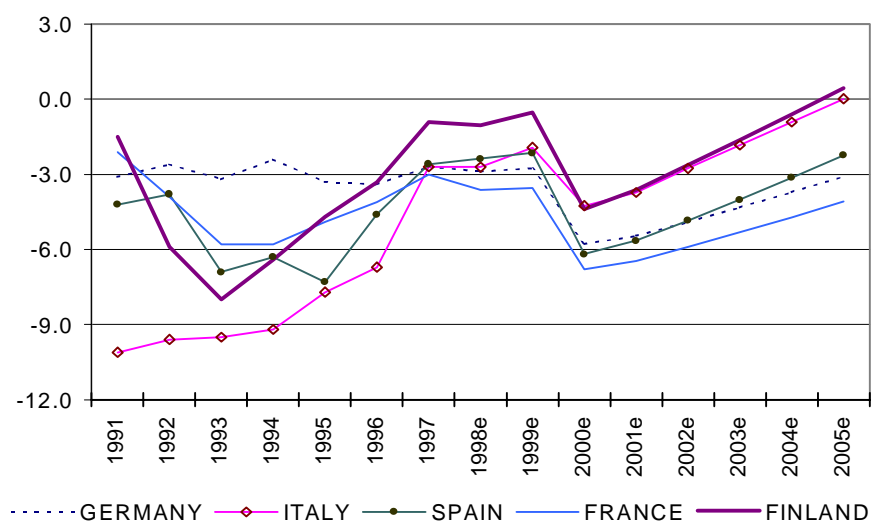
Recession shocks affect public finances through several channels. Most importantly, deviations of growth from trend alter the tax base and affect expenditures by increasing or decreasing social security transfers. Debt-to-GDP ratios change because of the instant growth effect. Moreover, in the longer time horizon, the debt ratio is affected by the intertemporal budget dynamics. And since revenue and expenditure changes derive mainly from changes in unemployment, it is clear that the economy will return only slowly to its pre-shock position. Thus labour market hysteresis is reflected also in public finances<sup>4</sup>. This kind of effect is taken into account in the following calculations by assuming that public expenditures and revenues as a share of GDP return to the pre-shock level in five years, ie by 2005.

A severe recession involving a 2 per cent decline in production in 2000, ie a 4.5 percentage point shortfall from trend growth, would lead to temporary public finance problems in all countries and continuous deficit growth in France. Growth of the debt-to-GDP ratio in Germany would not level off until 2004, and the shock would force the debt ratio in France to peak at over 75 per cent in 2005. All countries except France would be able to bring their deficits down slowly to 3 per cent within five years. Finland would be able to reduce its deficit to less than 3 per cent in two years, which implies that Finland could withstand a 2 per cent shock without significant risk of a penalty for an excessive deficit as defined in the Stability Pact.

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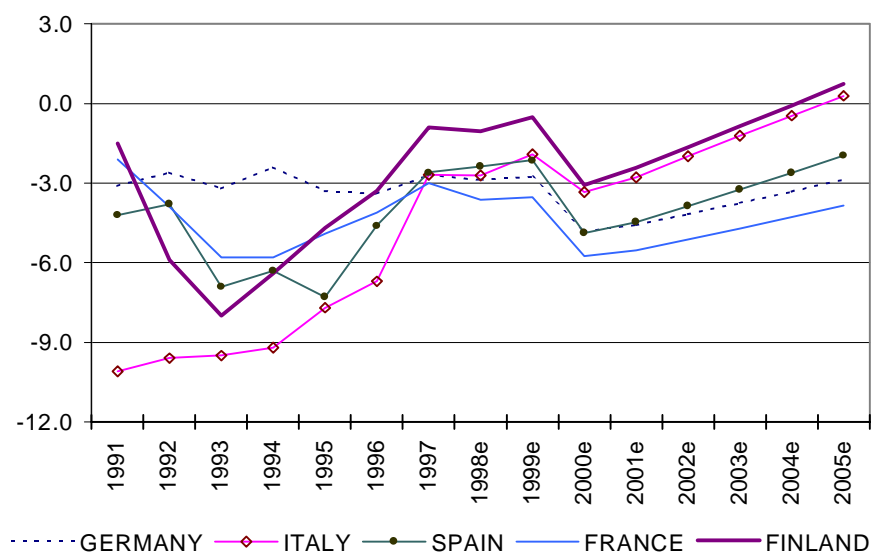
<sup>4</sup> If the calculations are done with full hysteresis, ie with unemployment never returning to the previous level, one gets very gloomy results even with just one zero-growth year. The negative results caused by sticky unemployment underline the importance of flexibility in the labour markets.

Chart 4. **Deficit ratios with a -2 per cent change in GDP in 2000**



A growth recession (zero growth) in 2000, would cause a similar but dampened reaction. The situation would be most critical in France where the deficit ratio would rise to over 6 per cent in 2000. Finland's budgetary position would not come under serious attack, nor would Italy's. In brief, save Finland and Italy, excessive deficits would ensue for several years.

Chart 5. **Deficit ratios with no change in GDP in 2000**



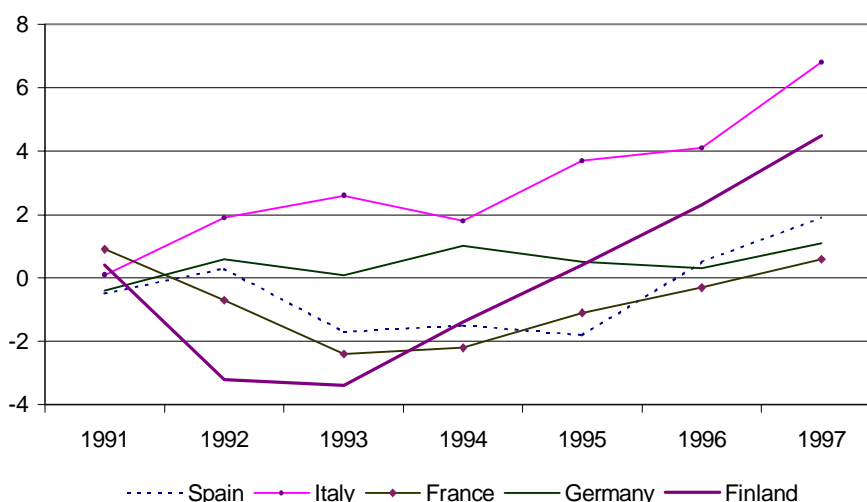
In summary, public finances in the countries studied do not presently seem to be well positioned to withstand significant shocks. The room for fiscal discretion is very limited in most of the countries, which portends difficult problems in the event of a severe growth shock. The implication for the long run is that only countries with sound budget balance in 'normal' times and the political discipline necessary to

maintain primary surpluses will have the strength to absorb large shocks. These findings do not differ much from those of other recent studies. For example, Artis and Marcellino (1998) concluded that, with few exceptions, EU governments are insolvent, albeit debt-to-GDP ratios are showing signs of stabilizing.

### 4.3 Fiscal consolidation: hindsight

These kinds of long-horizon projections may lead to faulty interpretations of potential problems in fiscal balance if the applied primary balance is highly exceptional compared to a country's past experience. For example, a deep recession or an overheated boom could bias the fiscal policy measure. Thus it is necessary to compare the 1997 primary deficit to developments over a longer time period. This type of country-specific analysis, entailing some historical perspective, is intended to indicate whether current fiscal balances can be regarded as 'representative' (chart 6).

Chart 6. **Primary balance, 1991–1997**



Germany, which in 1997 seemed to be in a difficult position regarding its budget deficit, has been going through a costly reunification process. A similar episode took place earlier when the deep recession of the 1970s caused Germany to run a deficit for several years. However, with these few exceptions, German public finances have shown a balanced course of development. The budget was balanced from the 1960s till the depression hit in 1974 and during late 1980s before massive support was given to New Bundesländer. Thus the current expenditures can be considered to be higher than the norm.

The deterioration of Italy's primary balance began in the early 1960s and led to a deficit in excess of 10 per cent of GDP by the mid-1980s. Thus the history of Italy's debt accumulation goes back several decades and includes periods of both strong and weak growth. For this reason, current fiscal policy clearly differs from its history. Moreover, Italy needs to accumulate a buffer against future shocks by curtailing its debt.

Spain has been integrating rapidly into the rest of the EU since the late 1970s. This has also meant an expanding public sector and budget deficits. Recent developments have however been positive, and Spain's fiscal position does not appear to be highly problematic within our framework. Furthermore, the sensitivity of public expenditures and revenues to growth and interest rate changes are more pronounced in Spain than on average, which means that strong economic growth there would lead to rapid improvement in public finances.

The need for fiscal consolidation seems to be the greatest in France because of its weak primary balance. This is largely due to the significant expansion of the public sector from early 1970s till the mid-1980s, which was not matched by expanded revenues. Since 1985 France has been trying to keep revenue increases in line with expenditures but with little success, partly because of a slowing economy. Furthermore, compliance with EMU criteria was partly achieved by sizable one-off measures. Consequently, the French government needs to find a balance between fiscal stringency and pressures for expansive economic policy.

Previous projections indicate that in Finland there is less of a need for further fiscal consolidation than in the core EMU countries. Finnish public finances even survived the various economic fluctuations and shocks without exceeding the deficit limit or getting too far from a balanced budget. Historical comparison reveals that Finland's primary balance is substantially different than the average primary balance for the 1990s. The difference can be largely attributed to the deep depression in the early 1990s, since the cyclically-adjusted primary deficits in the 1990s deviate much less from the 1997 figure. Taking a longer historical perspective, one sees that the 1997 primary deficit is not far from the average for 1980–1990. However, the current fiscal position entails higher tax rates than those of the 1980s on average. Finland too needs to prepare for forthcoming economic downturns by maintaining a sufficiently strong fiscal position.

To sum up, if the starting point were the average primary deficit during the 1990s, corrected for cyclical effects, the projections for Finland, Italy and Spain would not be as favourable as was found here. The German position of 1997 is close to the historical norm, and the French budget seems slightly tighter than it has been on average. All in all, in the medium term calculations, only Italy and Finland comply with the balanced budget objective.

## 5 Tax competition and budget balance

Country comparisons of the type involved in this study, relying as they do on very rough fiscal policy indicators, do not necessarily tell us much about the limits that policymakers are actually facing. In fact the possibilities for fiscal policy also depend on the size and structure of the public sector. Table 5 reflects notable cross-country differences in the average size of the public sector. Measured by the expenditure-to-GDP ratio, the public sector has been about 12 percentage points smaller in Spain than in Finland. The public sector is also relatively large in France and Italy. These size differences are reflected directly in differences in the tax burden. The average tax rate in Finland is about 8 percentage points above the average for the other countries, and Italy and France also have high tax rates. On the other hand, taxation is relatively easy in Spain.

Table 5. **Structure of the public sector**

Average 1991–97	Spain	Italy	France	Germany	Finland	Total	Total-FIN
<b>Total revenues</b>	40.9	45.6	49.8	45.9	54.1	47.2	45.5
Tax revenues	22.6	26.9	24.6	23.9	32.1	26.0	24.5
Social security revenues	14.1	15.1	21.3	19.1	14.8	16.9	17.4
Other revenues	4.2	3.7	3.9	2.8	7.2	4.4	3.6
<b>Total expenditures</b>	46.0	53.5	54.0	49.0	58.5	52.2	50.6
Transfers	20.0	22.2	27.9	22.2	28.2	24.1	23.0
Interest expenditures	4.7	10.9	3.5	3.4	4.3	5.4	5.6
Consumption expenditures	16.6	17.0	19.2	19.8	22.7	19.1	18.1

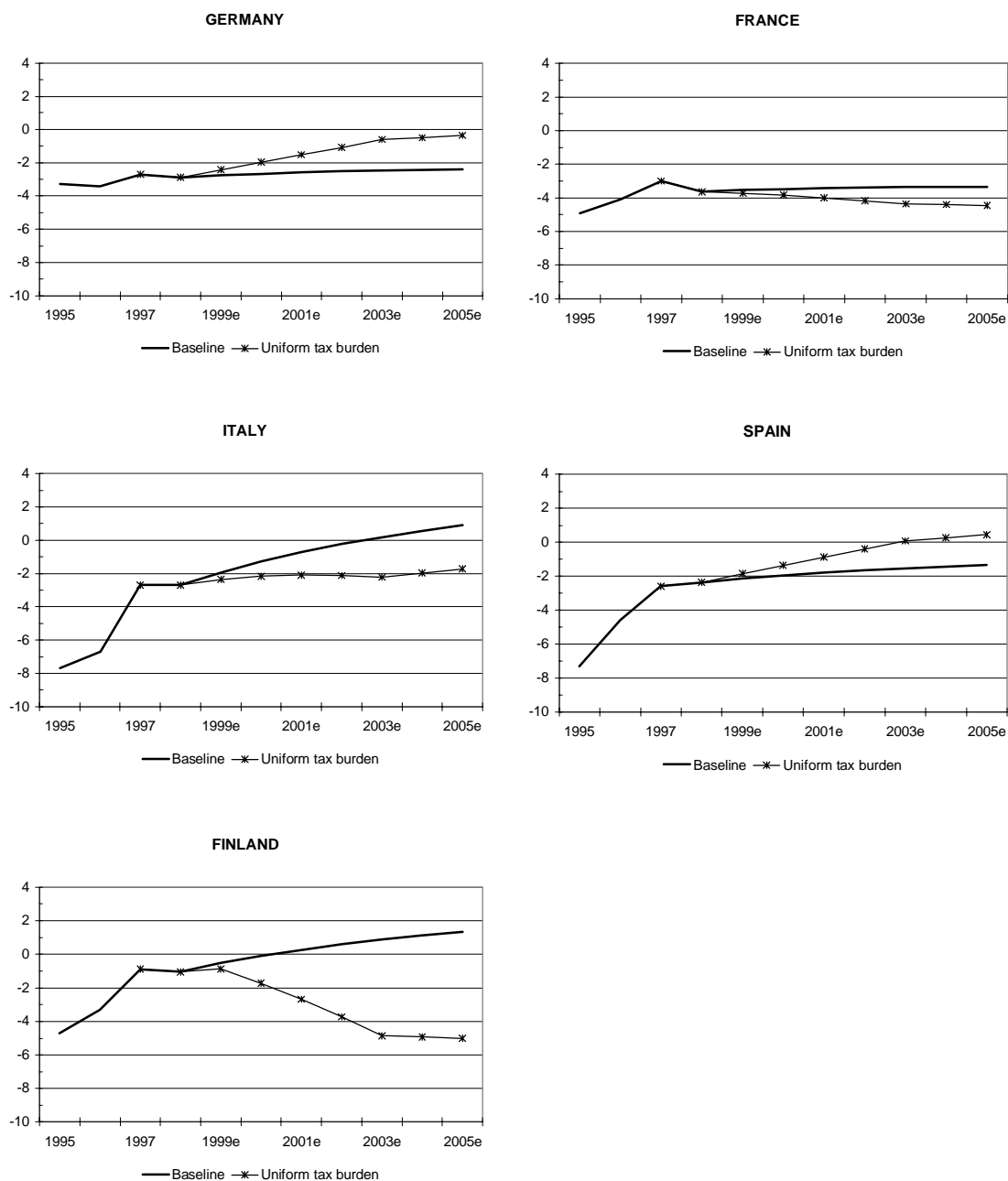
A possibly critical limit for fiscal policy is the pressure that tax competition could place on tax rates in Euro countries. It is possible that the pressure to harmonize national tax policies across Euro countries will increase along with the changeover to the common currency. Assuming that taxation converges to the average level for the Euro countries (25 per cent), we can tentatively calculate the magnitude of the fiscal adjustment needed for a balanced budget. Compared to the major competitors, USA and Japan, European tax rates would still be fairly high. The European average, however, forms a good reference and reveals which countries have the greatest need for tax reform. We further assumed that the needed adjustments take place gradually over a period of 5 years and that a 1 percentage point reduction in the tax rate would reduce tax income by only 0.7 per cent<sup>5</sup>; a lower tax rate would imply more vigorous economic activity and a larger tax base. This would allow Germany and Spain to increase taxation by about 2 percentage points relative to GDP, whereas Italy and France would have to lower their tax ratios by 3 and 2 percentage points respectively. Finally, Finland faces the need to reduce its tax ratio by 8 percentage points.

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<sup>5</sup> The sensitivity estimate is based on a tentative simulation using the Bank of Finland quarterly model.

Fiscal policy adjustments needed to distribute the overall tax burden more equally change the previous projections for deficit developments. Tax easing would worsen fiscal balances in Finland and Italy so that budget balance could not be achieved without expenditure cuts (chart 7). In Germany and Spain the situation is the reverse, and France's budgetary position would remain problematic.

Chart 7. **Deficit in baseline with shift to more uniform tax burden**



## 6 Ageing and Sustainability

Ageing poses one of the most fundamental future challenges for public finances. After two or three decades, the baby boom generation will be retiring and leaving the work of production to smaller generations in most EU countries. The rising dependency ratio will place a burden on future generations because the funding rate for public pensions has been relatively low in most countries and because ageing also typically increases health care costs. Moreover, with ageing, productivity tends to decline, which lowers the growth rate for output. And there is some evidence that ageing will reduce saving rates, which will put upward pressure on real interest rates. From the point of view of sustainability of fiscal policy, the question arises whether prevailing fiscal policy can be maintained in the face of changing demographic trends and fixed benefit shares.

The calculations done here on long-run sustainability, which explicitly account for ageing-related public expenditure, are subject to many methodological caveats and data problems (see eg the study by Franco 1995). A rough idea of the costs of future pension payments can be gained by simulating their future course assuming the prevailing pension policies and expected economic and demographic trends<sup>6</sup>. However, projecting current pension schemes under the assumption of given demographic trends is a highly challenging task because pension schemes are typically extremely complicated.

The following calculations utilize forecasts done by the European Commission (Franco and Munzi 1997). These scenarios are based on national estimates and differ to some extent from OECD (Roseweare et al 1996) calculations, which are done using model-based simulations. Table 6 shows that even if the level of pension projections differs as between the above-mentioned forecasts, the trend appears to be roughly the same.

Table 6. **Pension expenditures, per cent of GDP**

<b>Commission</b>	<b>1995</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2040</b>
Germany	10.1	10.7	11.7	12.5	13.5	14.6	n.a.
Italy	15.5	15.3	16.0	17.2/17.7	17.8/18.6	18.1/19.4	17.8/19.7
Spain	9.9	10.0/10.1	10.0/10.6	10.1/11.2	10.1/11.5	10.3/12.0	n.a.
France	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	14.0	13.4/14.8	14.6/17.4	16.5/17.9	16.8/17.9	17.1/17.9	n.a.
<b>OECD</b>	<b>1995</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2040</b>
Germany	11.1	11.5	11.8	12.3	n.a.	16.5	18.4
Italy	13.3	12.6	13.2	15.3	n.a.	20.3	21.4
Spain	10.0	9.8	10.0	11.3	n.a.	14.1	16.8
France	10.6	9.8	9.7	11.6	n.a.	13.5	14.3
Finland	10.1	9.5	10.7	15.2	n.a.	17.8	18.0

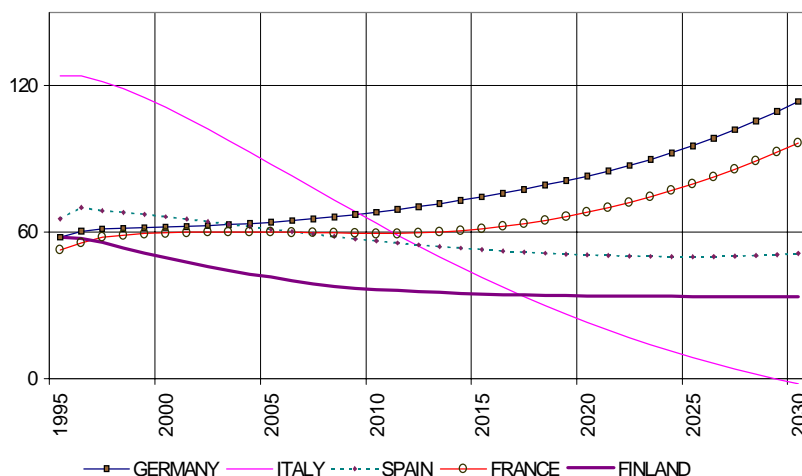
Split figures (x/y) indicate (best/worst) scenarios.

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<sup>6</sup> Another commonly used method is generational accounting. The idea here is to calculate the financial burden imposed on future generations under the assumption that prevailing policies concerning public taxation, transfers and spending will be maintained for current generations.

Our computations take the 1997 figures as presented in previous sections and add the increase in the pension expenditures in a piecewise linear manner to the other expenditures included in the baseline, ie the ratio of total expenditures to GDP rises as much as the assumed change in pension expenditures. The difference in the dynamics, compared to the medium-term baseline, thus derives from the longer period applied and developments in nonfinancial public expenditures. Chart 8 on the debt ratio conveniently demonstrates the results of the tentative calculations and gives a rough idea of the pressures each country faces, *ceteris paribus*.

Chart 8. **Long-run debt ratios, per cent of GDP**



As above, a strong primary balance is imperative for sustainable public finances. Countries with a weak balance, ie France and Germany, face exploding deficits when pension expenditures increase soon after 2000, assuming no additional measures are taken. By contrast, Italy, with its strong primary surplus, would be able to pay off its debt by 2030. For Spain and Finland, the debt ratio stabilizes below 60 per cent of GDP even under the simulated pension pressures. For Finland, the greatest pension pressures occur after 2020, but some effects can be seen already by 2010. Briefly, under this scenario all countries except Italy face higher debt ratios compared to the baseline scenario.

The projected increase in pension expenditures indicates that, if the countries studied want to reduce their debt ratios, they will have to adjust their fiscal policies. However, the method is too rough to produce a precise description of the needed adjustments in current fiscal policy. Our tentative calculations show that there is some time - at least a decade - in which to reform the pension system before the major problems become acute.

## 7 Concluding remarks

With a single currency world fiscal balances certainly will have a more critical effect on economic developments than has so far been the case. Under a common monetary policy, the ability of a single country to smooth out its economic cycles becomes more dependent on the state of its government's fiscal balance. A weak fiscal position means that there will be no room to react to an economic downturn. In the worst cases, the countries may have to react in a pro-cyclical manner to growth disturbances. This paper has analysed whether current fiscal policies will lead to a government fiscal balances that are strong enough from this point of view and compatible with the Stability and Growth Pact. The analysis covered four major Euro-countries, Italy, Germany, Spain and France, as well as Finland. The effects of variations in the interest rate and growth, as well as the effects of growth shocks, were analysed within the framework of medium-term intertemporal budget dynamics. Moreover, the issue of uneven tax burdens across the countries was raised in the evaluation of the room for active fiscal policies. The fiscal effects of ageing were also taken into account in the long-term calculations.

The calculations for the medium term showed that the fiscal position for 1997 would lead into a non-increasing debt ratio in all the countries except France. But if the trend growth rate were 1.5 per cent instead of the baseline 2.5 per cent, debt ratios could shift onto growing paths also in Germany and Spain. By contrast, the fiscal positions in Finland and Italy produce primary surpluses that lead to rapid debt reduction under all scenarios. However, Italy, being a deeply indebted country, is sensitive to changes in interest rates. The calculations also showed that just one slump in the growth rate would lead to long-lasting fiscal imbalance in France, Germany and Spain. It seems that only Finland and Italy would not violate the Stability Pact in the event of a zero-growth year in 2000. In summary, the results indicate that fiscal policy has little or no room for a pronounced countercyclical reaction in the medium term in the core Euro countries.

The above results on the strength of fiscal balances change when structural differences in public sectors are taken into account. The calculations, which assumed that tax competition would force countries to equalize tax burdens, showed the weakness of fiscal positions in Finland and Italy. In France also, the budgetary position would remain problematic. The easing of taxation would worsen their fiscal positions, so that budget balance could not be achieved without expenditure cuts. The situation was quite the opposite in Germany and Spain. Moreover, it was also evaluated whether the primary balance in 1997, which was the starting point and crucial for the results, was in line with past developments. It turned out that the primary balance was not far from its historical position in Germany and Finland but that Italy, Spain and France had had historically tight fiscal positions during a couple of the years prior to the selection of EMU participants.

Deterioration of the dependency ratio, which will take place in all the countries studied, would in the long run lead to increasing deficit and debt ratios in all the countries except Italy and Finland. Overall, the results indicate that prevailing fiscal policies will not produce sufficiently strong fiscal positions in the EU countries studied. Also in Finland, where the relative position was strongest, fiscal balances need to be strengthened by expenditure cuts unless the overall tax burden is to stay above the EU average.

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# Appendix

Table 1A.

## Elderly dependency ratio

Country	1990	2010	2030
Germany	21.7	30.3	49.2
Italy	21.6	31.2	48.3
Spain	19.8	25.9	41.0
France	20.8	24.6	39.1
Finland	19.7	24.3	41.1

Source: Bos (1994). Citizens 65 and over, per cent of population

Chart 1A.

## Total government revenues

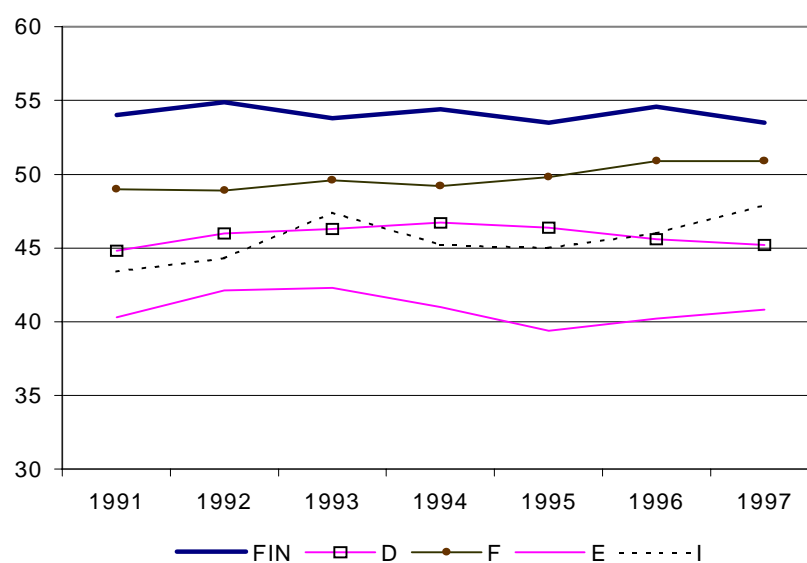


Table 2A.

## One-off measures, 1997

Country	Germany	Italy	Spain	France	Finland
One-off measures, Per cent of revenue	0.2	1.0	0.1	0.6	0.6