The Sovereign Debt Crises in the Euro Area

Lars Calmfors

Intermediate Macroeconomics

8 March 2012

Important concepts

General government net lending = Difference between government revenues and government expenditures

General government primary net lending = Difference between government revenues and government expenditures excluding interest payments

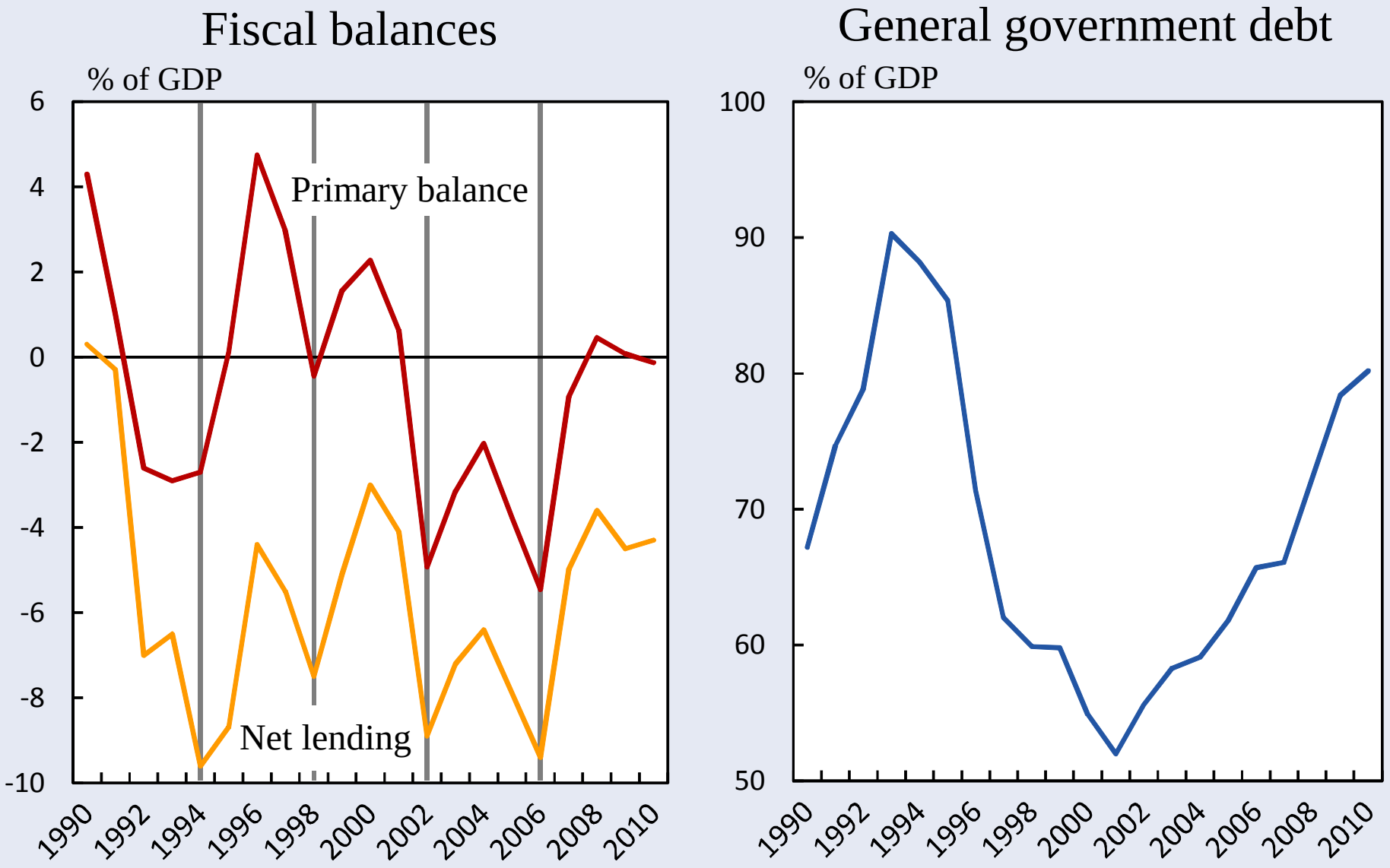
Consolidated government gross debt (Maastricht debt) = General government total debt after all internal claims and liabilities in the sector have been netted out

	Net lending (per cent of GDP)	Primary net lending (per cent of GDP)	Consolidated Government Gross Debt (per cent of GDP)	Consolidated Government Gross Debt (billions of euro)
Greece	-8,9	-2,1	162,8	340
Ireland	-10,3	-6,7	108,1	178
Italy	-4,0	0,9	120,5	1870
Portugal	-5,8	-1,6	101,6	170
Spain	-6,6	-4,5	69,6	723
France	-5,8	-3,2	85,5	
Belgium	-3,6	-0,3	97,2	
Germany	-1,3	1,1	81,7	
Euro area	**-4,1**	**-1,2**	**88,0**	**8139**
Sweden	0,9	1,7	36,3	

Automatic tendency to government debt ackumulation in democracies (deficit bias)

- Myopia
- More popular to cut taxes and raise government expenditures in downturns than to raise taxes and cut government expenditures in booms
- Election cycles: expansionary fiscal policy before elections
- Incumbent governments favour their consitutencies while in power (and restrict the possibilities for other governments to do the same in the future by building up debt that has to be serviced)
- Common pool problems: interest groups lobby for favours without consideration of the costs for others

Hungarian general government balances and debt



Note: Vertical lines indicate election years.
Sources: Barabás et al. (1998) for the period 1990-1994, Eurostat for the period 1995-2010, last accessed on 19 October 2011.

Why are government budget deficits a problem?

- **Higher taxes tomorrow imply large distortionary costs**
  - **distortionary costs rise more than proportionally with the (marginal) tax rate**
  - **tax smoothing (constant marginal tax rates) is optimal**
- **Intergenerational redistribution**
  - **interest payments from future to current generations**
  - **crowding out of investment**
- **Risk of government default**
  - **financial crisis when lenders make capital losses**
  - **defaulting country likely to be shut out of financial markets and to be unable to borrow**

Government debt dynamics

B = government debt

Y = GDP

r = real rate of interest

g = GDP growth rate

D = fiscal deficit

PD = primary fiscal deficit (deficit excluding interest payments)

Government debt dynamics cont.

$$B_t = D_t + B_{t-1}$$

$$D_t = rB_{t-1} + PD_t$$

$$B_t = rB_{t-1} + B_{t-1} + PD_t$$

$$B_t = (1+r)B_{t-1} + PD_t$$

Divide by Y_t

$$\frac{B_t}{Y_t} = (1+r)\frac{B_{t-1}}{Y_t} + \frac{PD_t}{Y_t}$$

Government debt dynamics cont.

Use that $Y_t = (1+g)Y_{t-1}$

$$\frac{B_t}{Y_t} = \frac{1+r}{1+g} \cdot \frac{B_{t-1}}{Y_{t-1}} + \frac{PD_t}{Y_t}$$

Define:

$$b_t = \frac{B_t}{Y_t}$$

$$b_{t-1} = \frac{B_{t-1}}{Y_{t-1}}$$

$$pd_t = \frac{PD_t}{Y_t}$$

Government debt dynamics cont.

Thus:

$$b_t = \frac{1+r}{1+g} b_{t-1} + pd_t$$

Deduct b_{t-1} from both LHS and RHS.

$$b_t - b_{t-1} = \frac{1+r}{1+g} b_{t-1} - b_{t-1} + pd_t$$

Government debt dynamics cont.

$$b_t - b_{t-1} = \left[\frac{1+r}{1+g} - 1\right] b_{t-1} + pd_t$$

$$b_t - b_{t-1} = \frac{r-g}{1+g} b_{t-1} + pd_t$$

If g is small (close to zero), then:

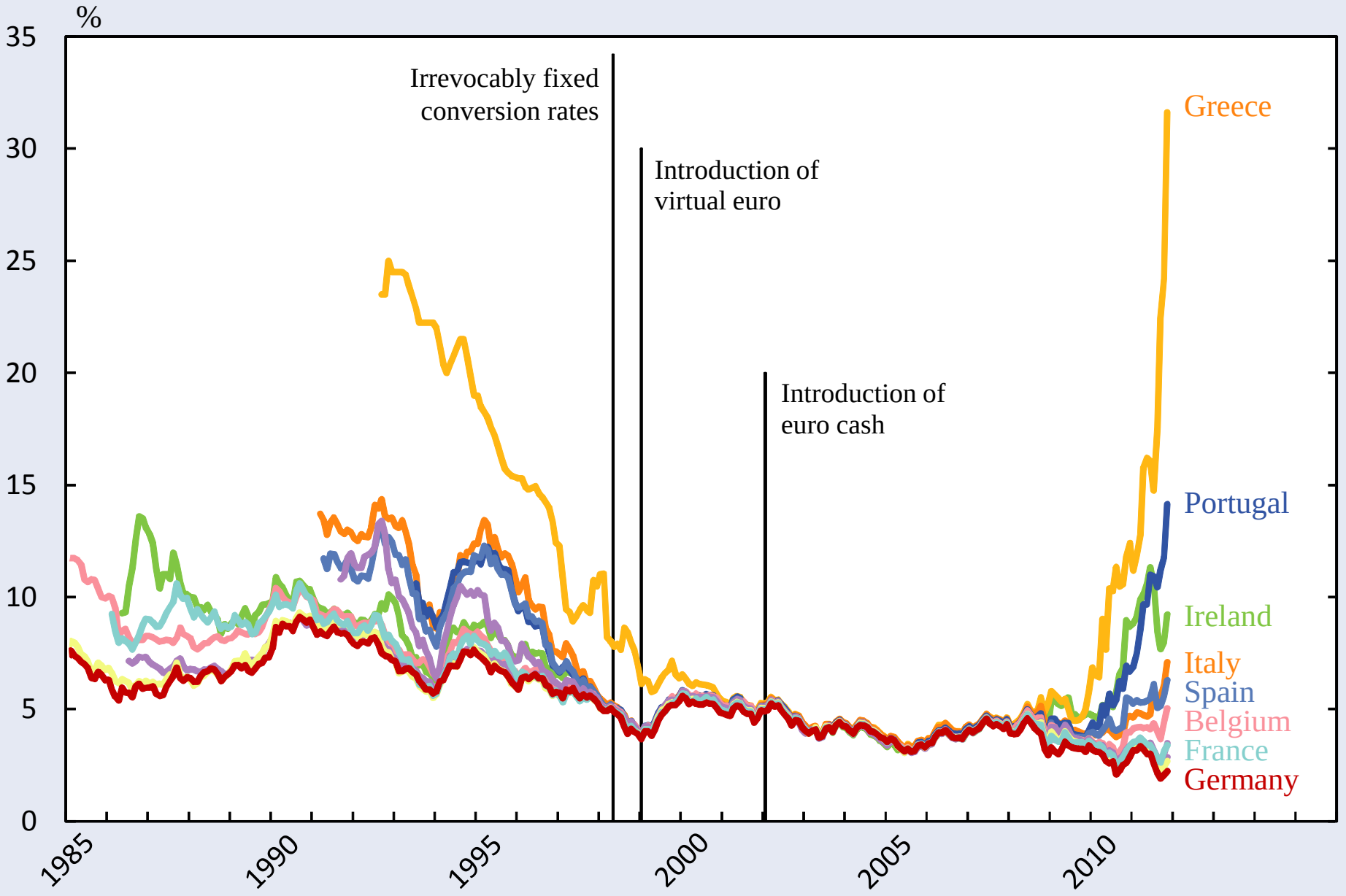
$$b_t - b_{t-1} \approx (r-g) b_{t-1} + pd_t$$

Risk of spiralling government debt

$$b_t - b_{t-1} \approx (r - g)b_{t-1} + pd_t$$

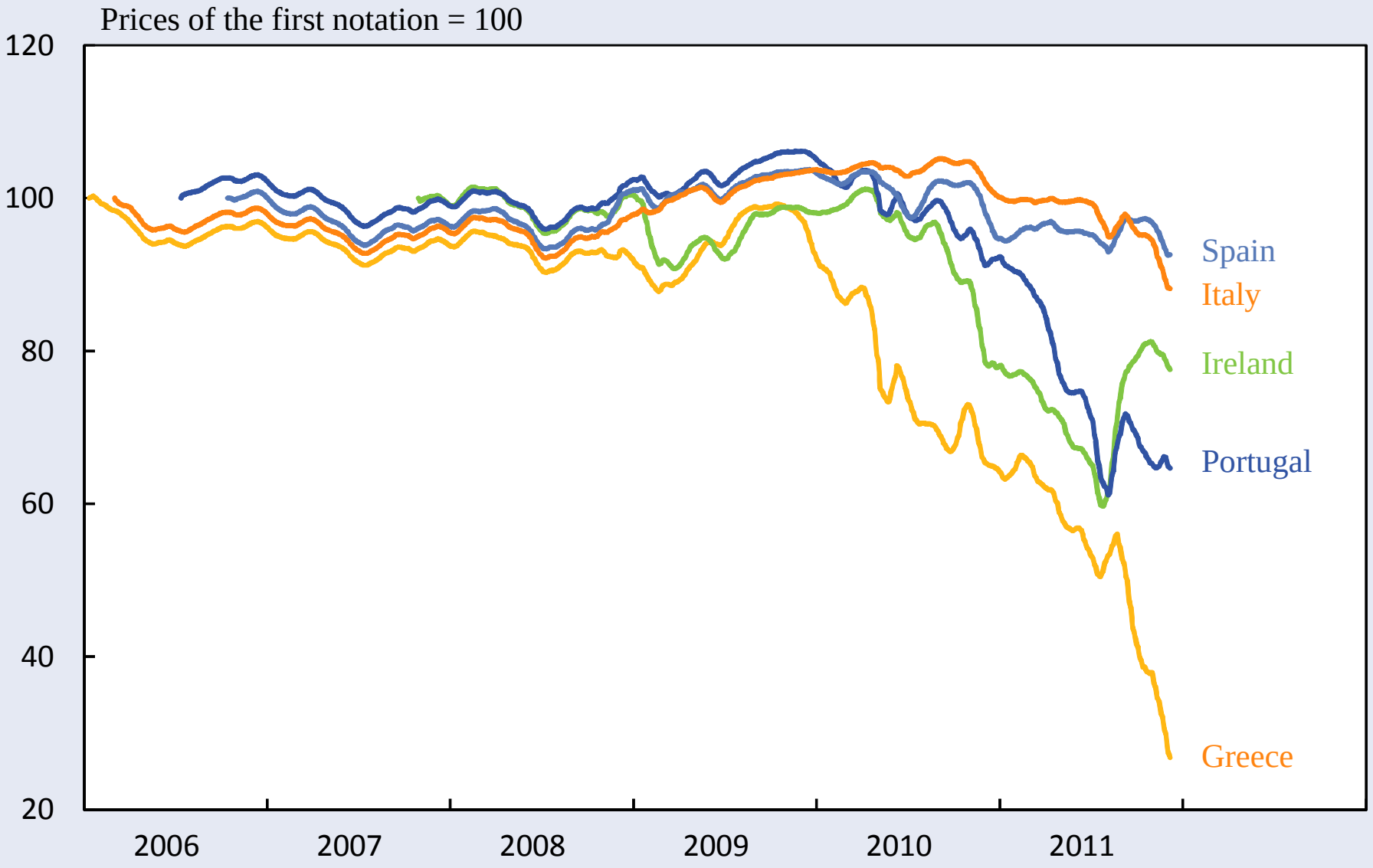
- If large b_{t-1} and pd_t
- Then fast growth in the debt ratio
- $r \uparrow$ $g \downarrow$
- Debt grows even faster
- $r \uparrow\uparrow$ $g \downarrow\downarrow$ etc.
- $r > g$ and $b_{t-1} > 0$ implies that debt can only be stabilised if there is a primary surplus ($pd_t < 0$).
- But fiscal consolidation implies lower growth.

Interest rates, ten-year government bonds



Source: Thomson Reuters Datastream.

Prices of ten-year government bonds



Note: Year of issue: 2006; Ireland: 2007.
Source: Thomson Reuters Datastream.

Why was Greek fiscal situation unsustainable?

g = -4 per cent

r = 10 per cent

b_{t-1} = 160 per cent

pd_t = 2.8 per cent

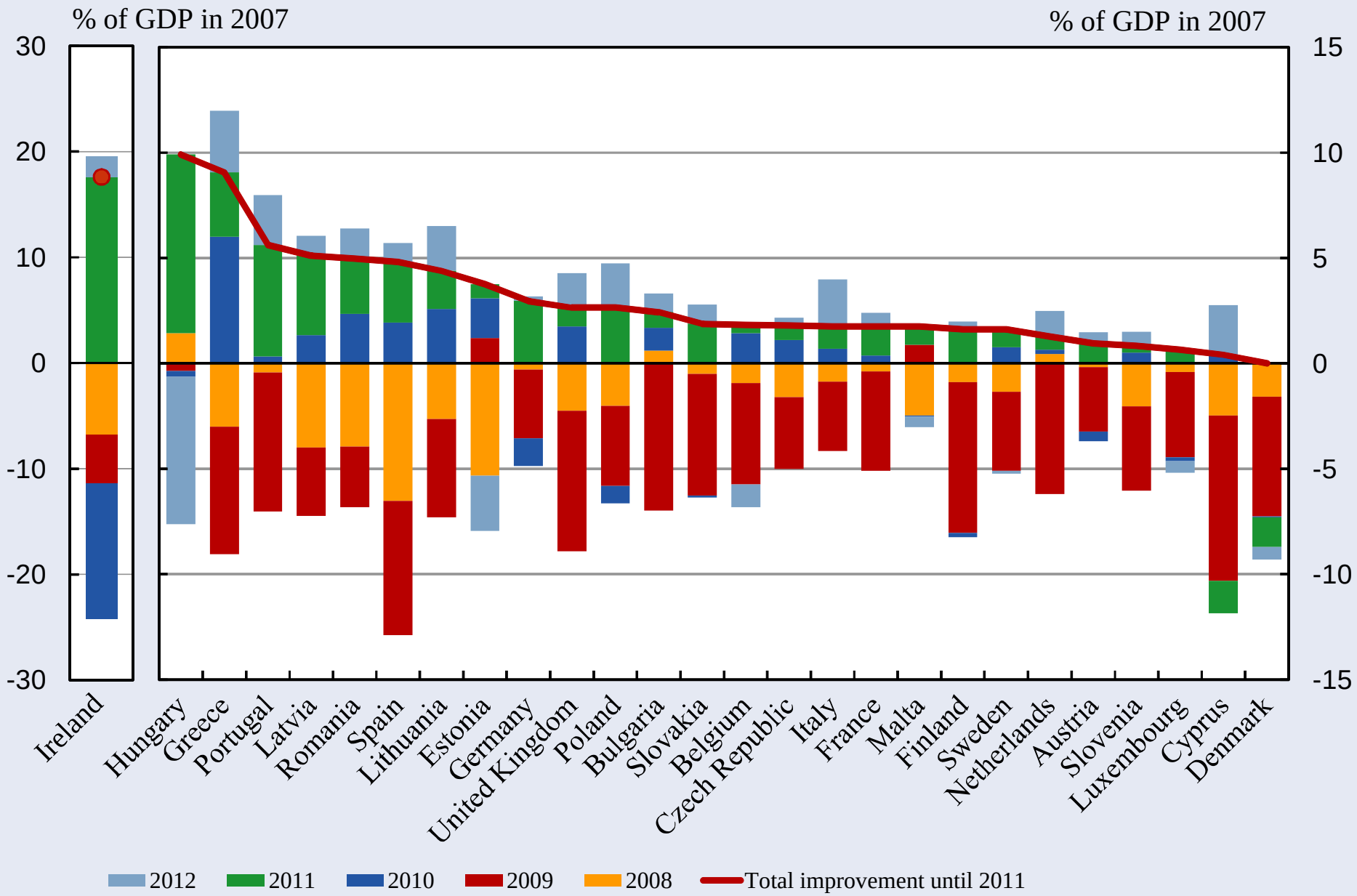
$$b_t - b_{t-1} = (r - g)b_{t-1} + pd_{t-1}$$

$$b_t - b_{t-1} = [0.10 - (-0.04)] \times 160 + 2.8$$

$$b_t - b_{t-1} = 0.14 \times 160 + 2.8 = 25.2$$

- Yearly rise in debt ratio of the order of magnitude of 25 percentage points

Changes in the primary fiscal balances relative to pre-crisis GDP

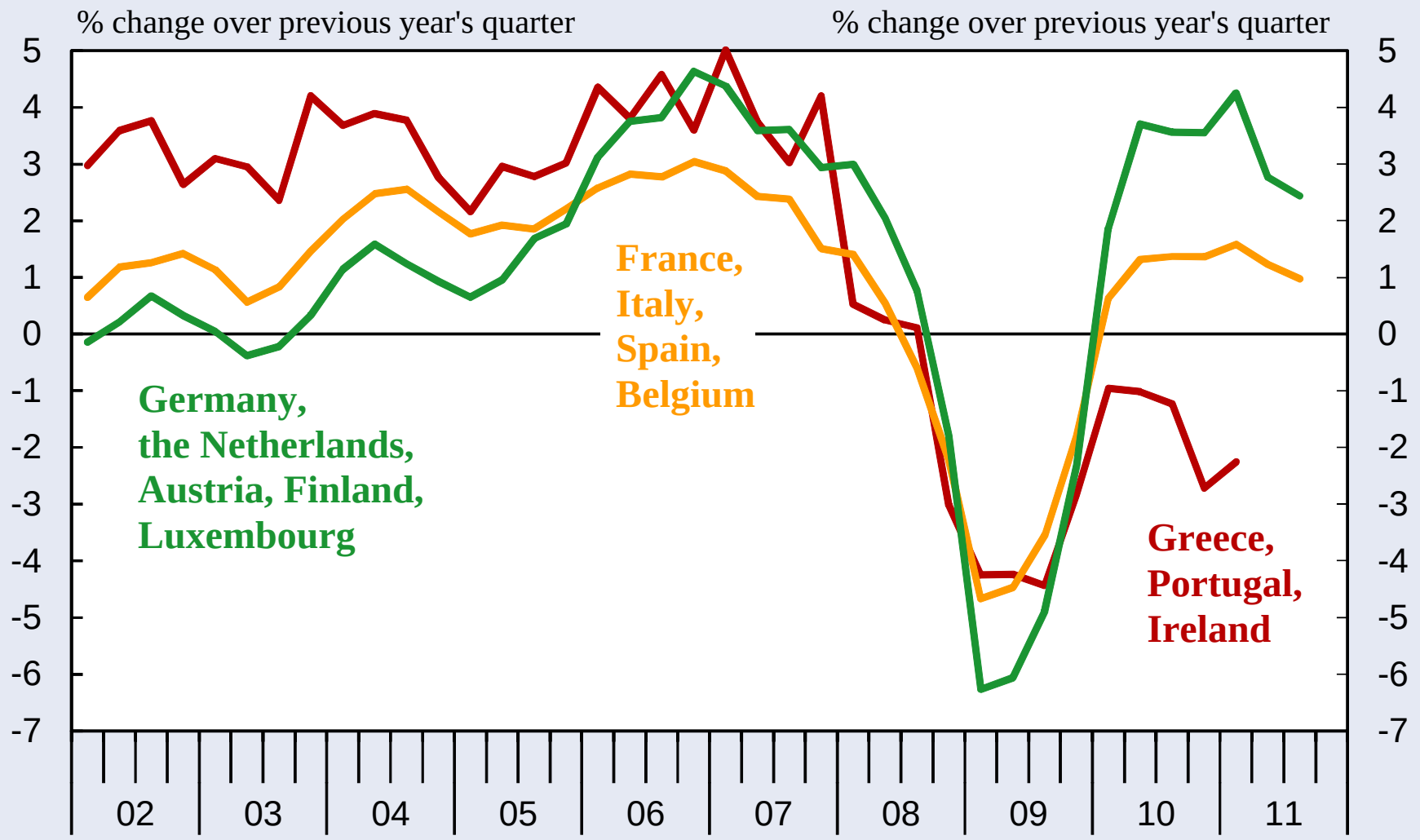


Source: European Commission, DG ECFIN, General Government Data, Autumn 2011, Tables 54A and 56A.

Problem in crisis countries

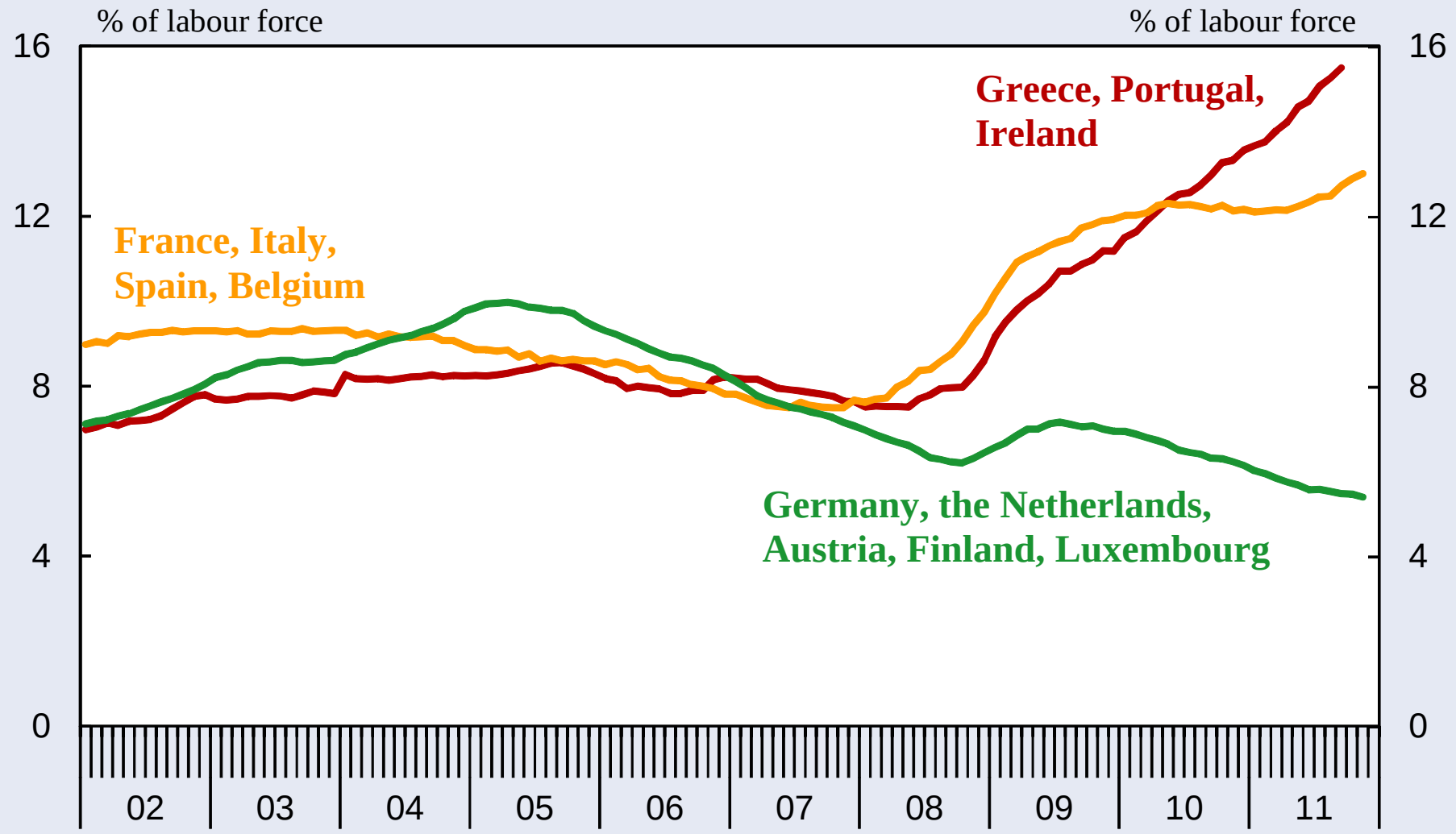
- Fiscal tightening (austerity) needed to improve fiscal balance: tax rises and government expenditure cuts
- But overall fiscal balance will not improve if market expectations cause interest rates to rise
- Fiscal tightening will reduce output and employment and hence also tax revenues
- Even at best the improvement in the fiscal balance will be very small

GDP growth in selected regions of the euro area



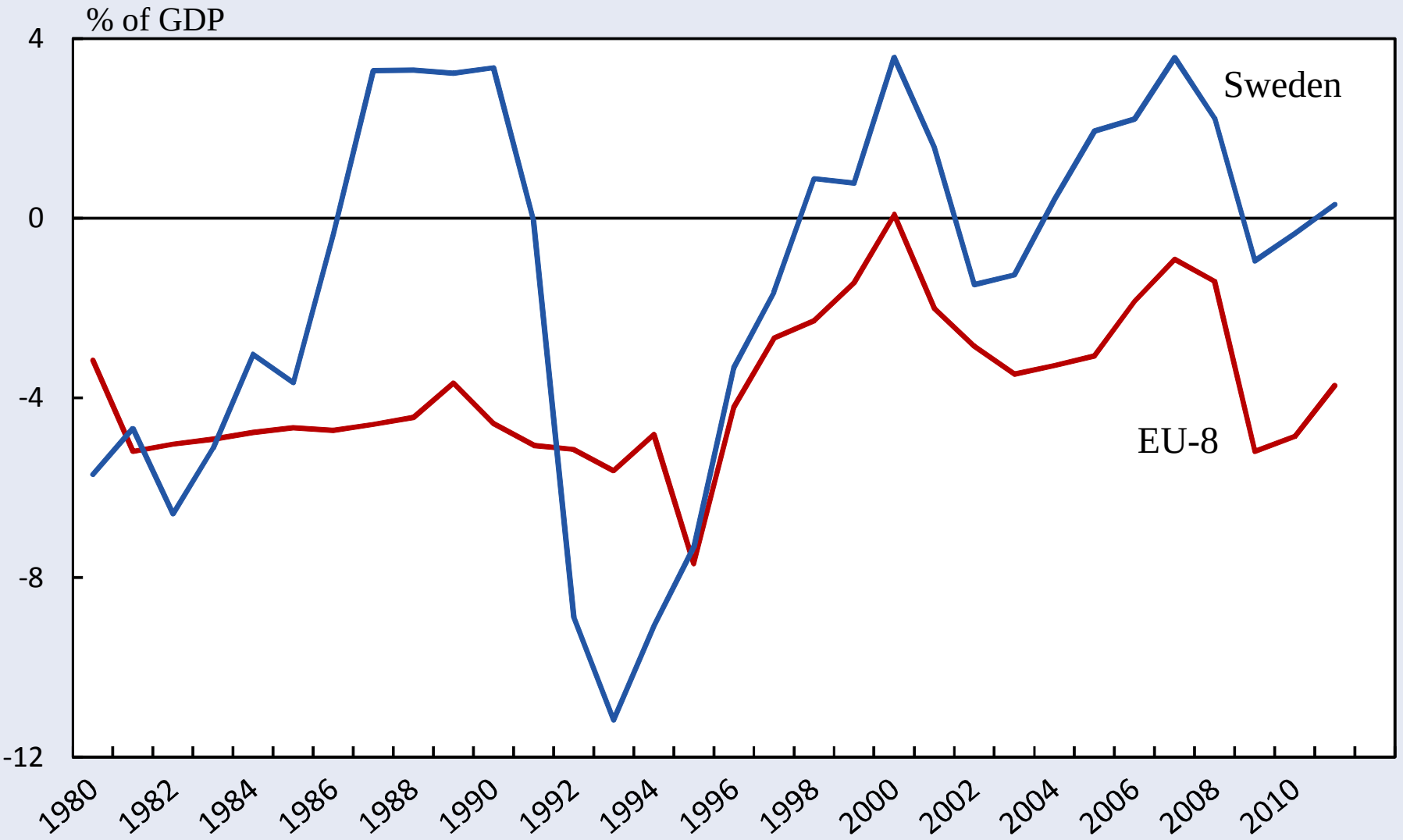
Source: Eurostat, last accessed on 29 January 2012; EEAG calculations.

Unemployment rates in selected regions of the euro area



Source: Eurostat, last accessed on 18 January 2012; EEAG calculations.

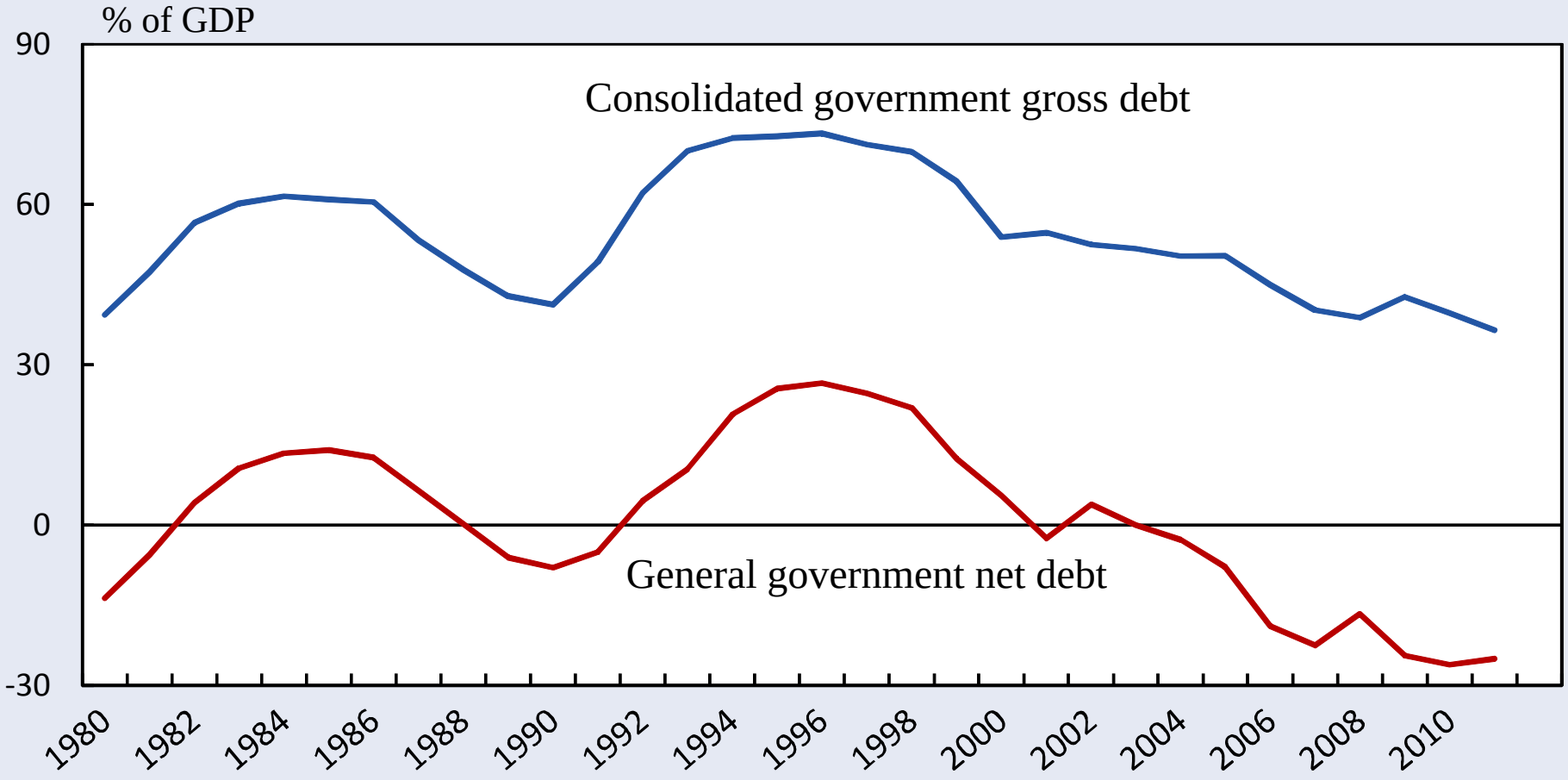
General government net lending in Sweden and the euro area



Note: EU-8 is a weighted average for Austria, Belgium, Finland, France, (West) Germany, Italy, the Netherlands and Portugal.

Sources: OECD Economic Outlook No. 89 (Sweden); and Ameco and own calculations (EU-8).

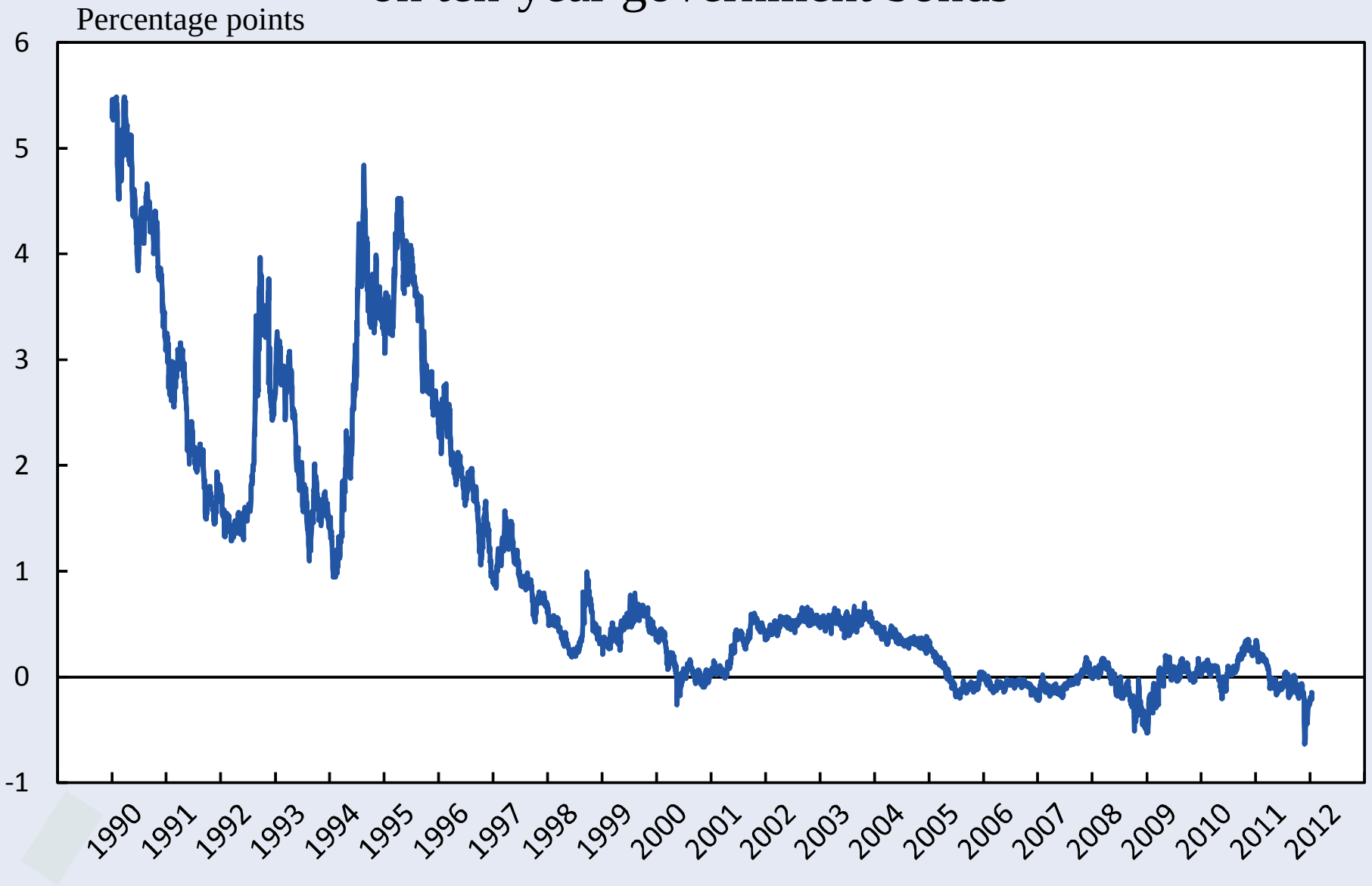
Government debt in Sweden



Note: Consolidated government gross debt (Maastricht debt) is defined as the general government total debt after internal claims and liabilities in the sector have been netted out. General government net debt is the sector's gross financial debt minus the sum of its financial assets, including both claims by one part of the government sector on other parts of it and claims on the private sector. The large difference between consolidated government gross debt and general government net debt depends mainly on large claims on the private sector held by the public pension system.

Sources: Ameco (consolidated government gross debt) and OECD Economic Outlook No. 89 (general government net debt).

Interest rate differential between Sweden and Germany on ten-year government bonds

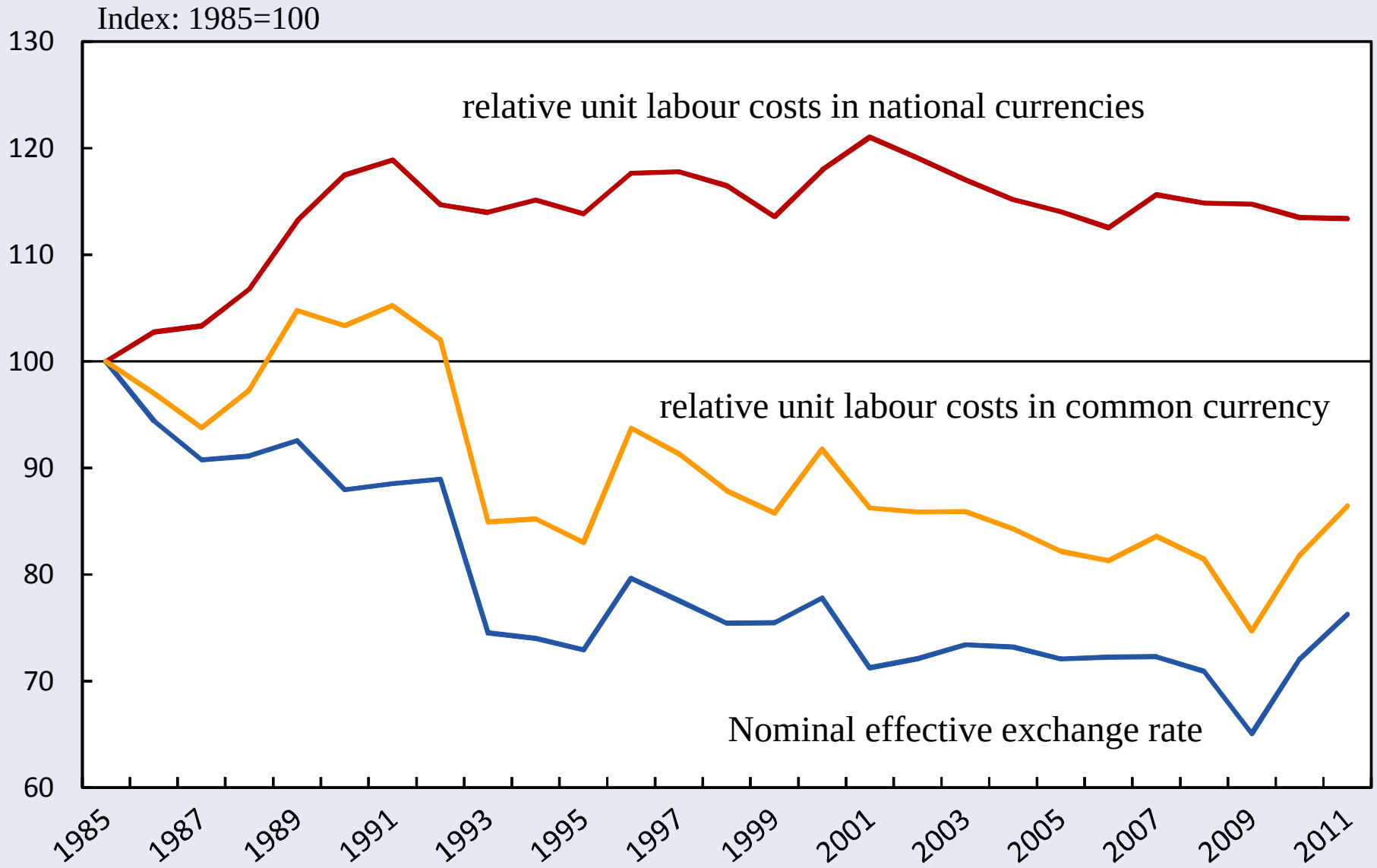


Source: Reuters EcoWin, last accessed on 13 January 2012.

Need for growth in order to achieve large improvements in fiscal balance

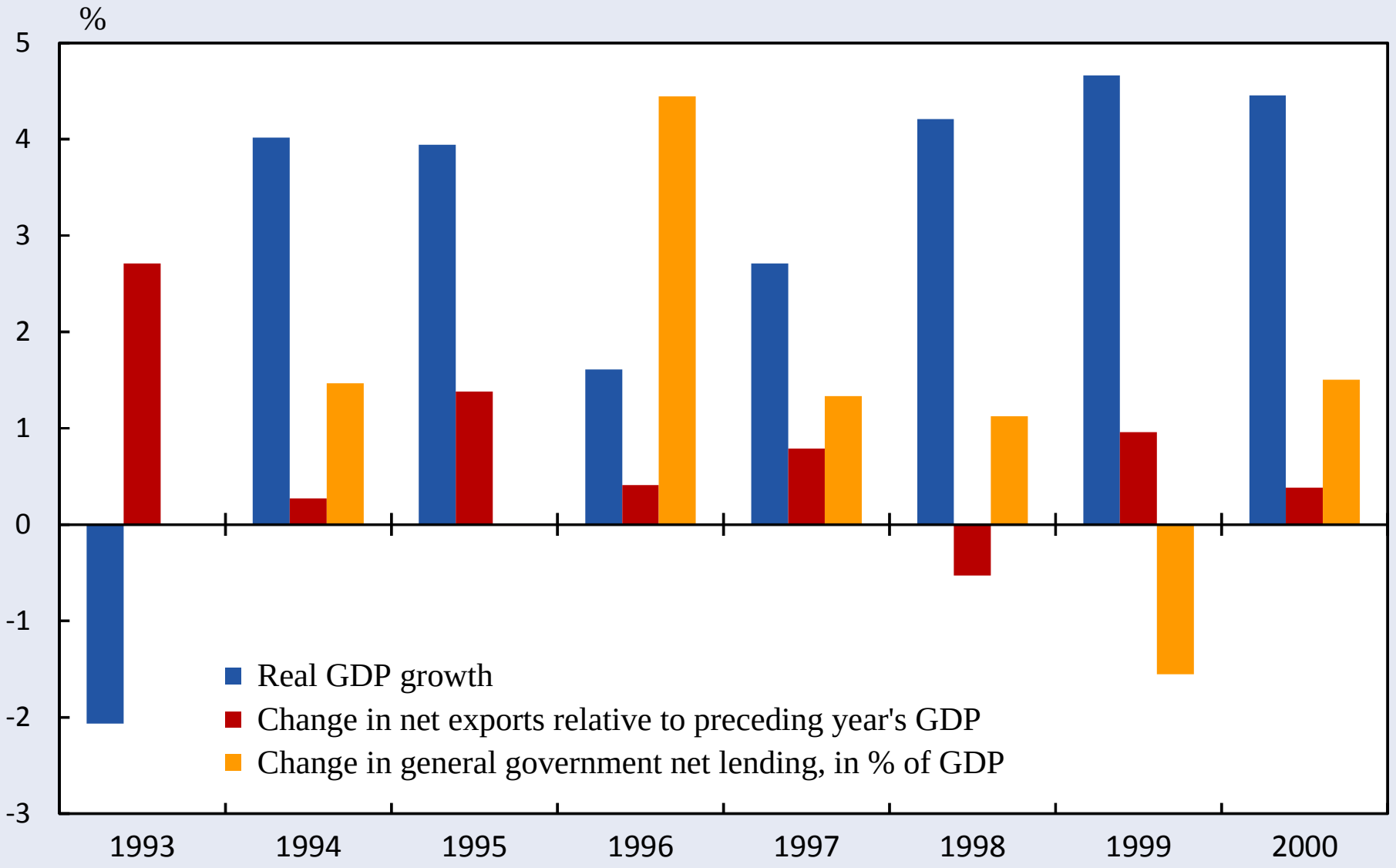
- This can only be achieved through real exchange rate depreciation stimulating net exports
- Sweden did this in 1992 through large nominal exchange rate depreciation after the changeover to a floating exchange rate
- This allowed net exports and GDP to grow strongly at the same time as there was fiscal consolidation
- The problem of the euro countries is that they have no currency of their own that can depreciate

Nominal exchange rate and relative unit labour costs vis-à-vis EU-15 for Sweden



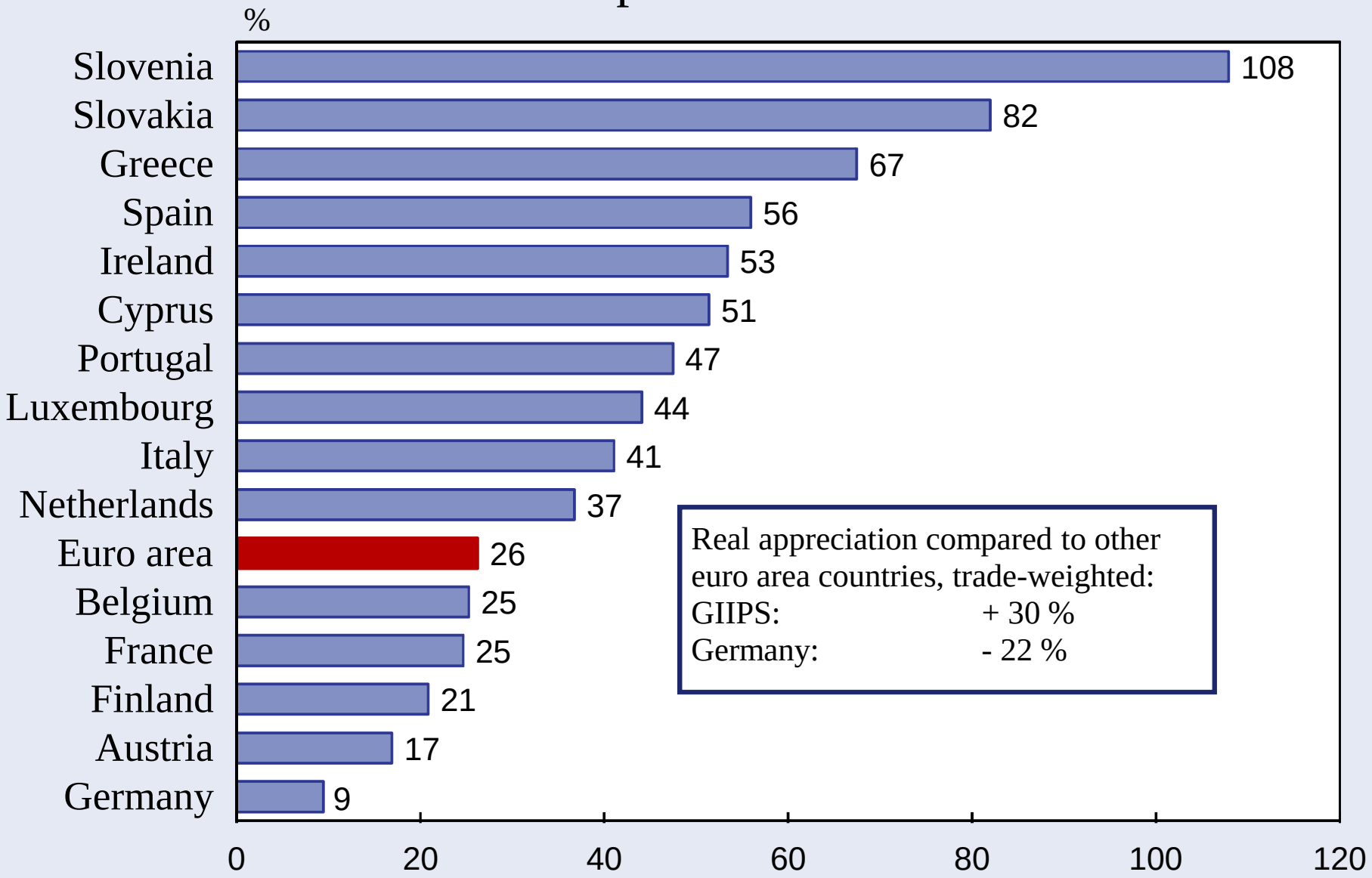
Sources: Ameco and own calculations.

Fiscal consolidation, GDP growth and change in net exports in Sweden, 1993-2000



Sources: Ameco and own calculations.

Price developments 1995-2008



Note: Price change and exchange rate realignments (before May 1998).
Source: Eurostat, Database, *Economy and Finance, National accounts,GDP and main components - Price indices*; Ifo Institute calculations.

Real exchange rate

Usually measured by relative unit labour cost

Q = output, L = labour input, W = wage cost, Q/L = labour productivity, E = nominal exchange rate

Unit labour cost = $WL/Q = W/(Q/L)$

Relative unit labour cost = Domestic unit labour cost/Foreign unit labour cost = $(W/(Q/L))/(W^*/(Q^*/L^*)) = (W/W^*) \times (Q^*/L^*)/(Q/L)$ if E = 1 (as is the case in the Euro area)

Cumulative change 2009-2011 relative to Euro area (absolute values in paranthesis)

	Relative wage cost	Relative productivity	Relative unit labour cost
Greece	-8,1 (-2,3)	-5,8 (-4,5)	-2,3
Ireland	-10,4 (-4,6)	7,2 (8,5)	-17,6
Italy	-0,1 (5,7)	-1,0 (0,3)	0,9
Portugal	-0,7 (5,1)	1,0 (2,3)	1,7
Spain	-0,6 (5,2)	6,1 (7,4)	-6,7

Consequences of sovereign defaults

- Long discussion of whether or not Greece should default
- Not formal default but there will be ”voluntary” write-down of Greek soverign debt (as well as lengthening of maturities and reduction of interest rates)

  - Reduction of net present value of 75 per cent

Consequences of sovereign defaults cont.

- Capital losses for lenders (banks, insurance companies, pension funds etc.)
- Fears that this will trigger new financial crisis

  - banks stop lending to each other

  - banks could go bankrupt
- The advantage is that the defaulting country's interest burden is reduced
- If debt is written down to zero, it is enough for the defaulting country to have a zero primary deficit

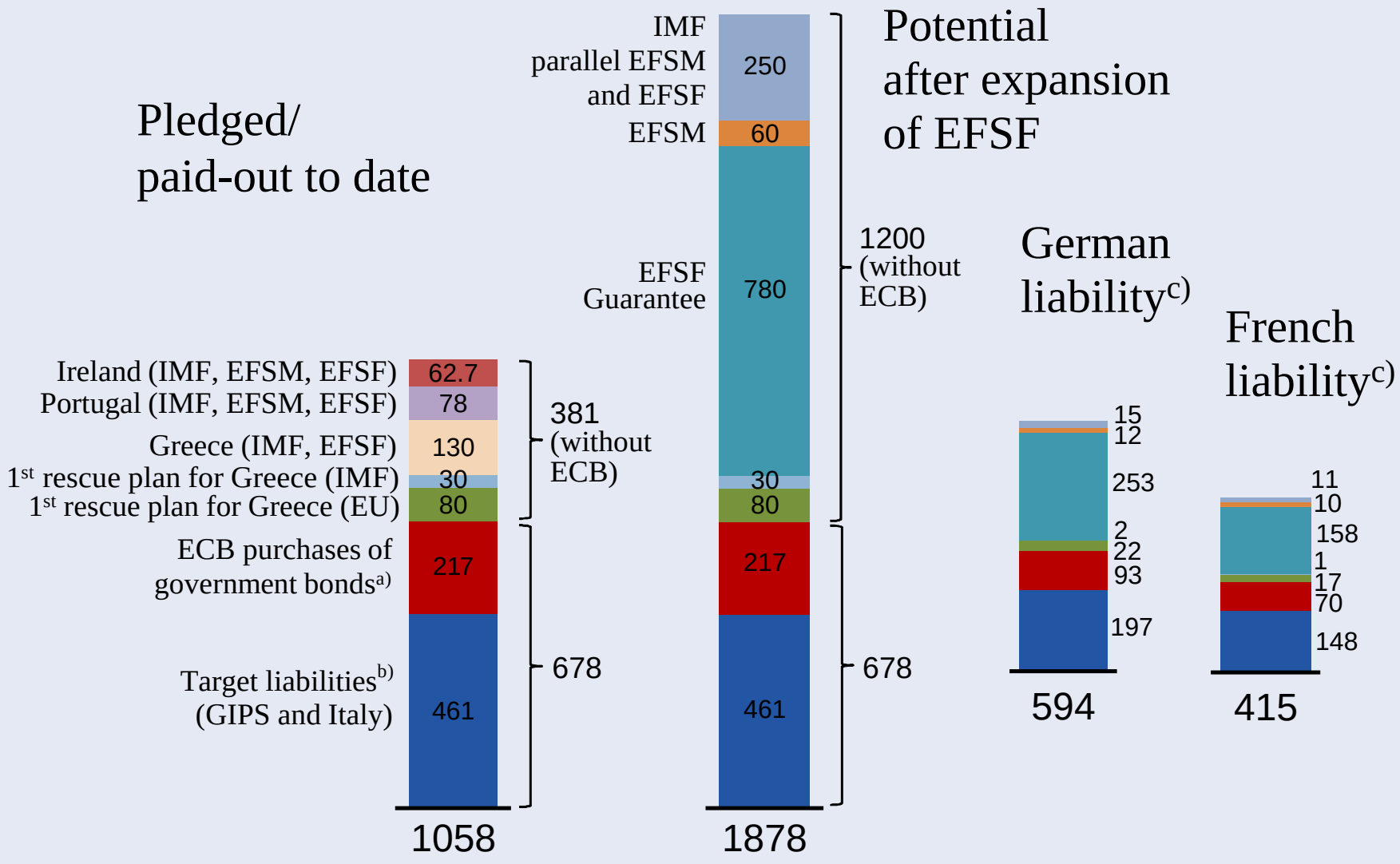
  - tax revenues need only cover other government expenditure but not any interest payments

  - also necessary since defaulting country likely to be shut out from international capital markets

European rescue packages (EFSF = European Financial Stability Facility)

- Two rescue packages for Greece
- Ireland and Portugal
- ECB has bought the crisis countries' government bonds in the secondary market and accepted them as collateral for large loans to the banks in the crisis countries
- Violation of EU's *no-bail-out clause*
- Process where official debt substituted for private debt: in the end this may lead to large costs for tax payers in the countries footing the bill
- Official aid granted with tough conditionality
- The main threat against the euro is a tax payer revolt in the EU countries footing the bill and a political revolt against the harh conditionality of rescue loans in the crisis countries

European bail-out funds
(billion euros)



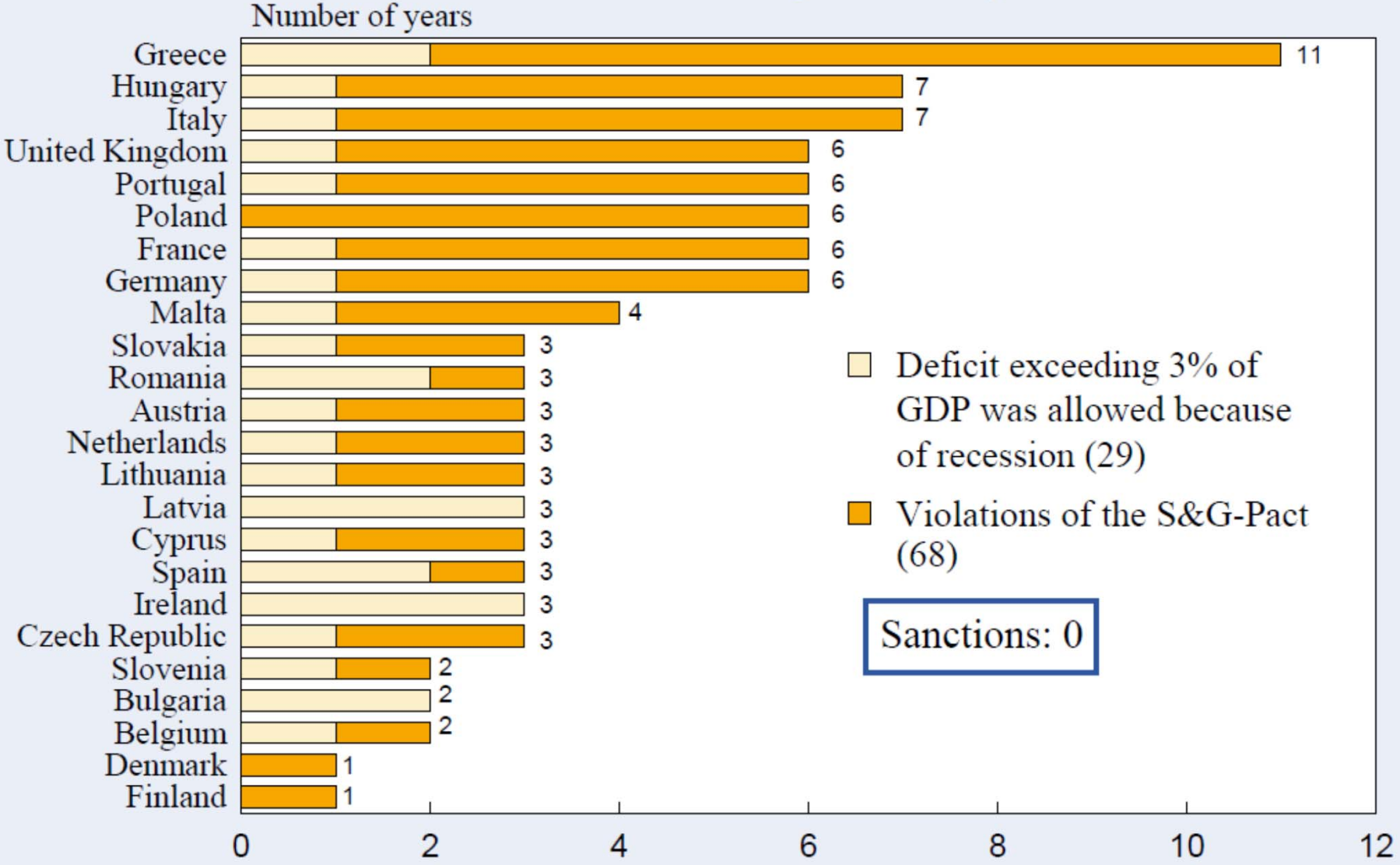
a) Data updated: 17 Jan. 2012. - b) End of October 2011. - c) In case of a GIIPS default and a loss of collateral.

Violation of EU fiscal rules (stability pact)

- Maximum 3 per cent of GDP in government deficit
- Maximum 60 per cent of GDP in government debt; if higher the debt should be falling at a satisfactory pace
- Medium-term fiscal objectives of “surplus or close to balance”.

Member states with excessive deficits

since 1999 or from year of entry



Without excessive deficit: Sweden, Luxembourg and Estonia.

Source: Eurostat, Database, *Economy and Finance, National accounts - GDP and main components; Government statistics- Government deficit/surplus, debt and associated data* ; European Economic Forecast Autumn 2010, Annex Table 37; Ifo Institute calculations.

Table 1. Breaches of the Stability Pact

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Austria	x		x			x				x	x	x
Belgium										x	x	x
Bulgaria											x	x
Cyprus						x					x	x
Czech Republic							x				x	x
Denmark												x
Estonia												
Finland												x
France				x	x	x	x		x	x	x	x
Germany	x			x	x	x	x			x	x	x
Greece		x	x	x	x	x	x	x	x	x	x	x
Hungary						x	x	x	x	x	x	x
Irland										x	x	x
Italy			x		x	x	x	x		x	x	x
Latvia										x	x	x
Lithuania										x	x	x
Luxemburg												
Malta						x				x	x	x
Netherlands					x						x	x
Poland						x	x	x		x	x	x
Portugal			x			x	x	x		x	x	x
Romania										x	x	x
Slovakia								x			x	x
Slovenia											x	x
Spain										x	x	x
Sweden												
UK					x	x	x			x	x	x

Note: The crosses show that a country has a government deficit exceeding 3% of GDP, or a gross government debt exceeding 60% of GDP that is not falling (or both). A grey field indicates that the country, at the time, was not an EU Member State.

Sources: ECB.

Recent decisions to strengthen the rules

- earlier sanctions
- more emphasis on debt criterion
- semi-automatic sanctions: qualified majority to stop
- sanctions (reversed qualified majority)
- European semester
- broader macroeconomic surveillance
- stronger national fiscal framework

New European fiscal compact: intergovernmental agreement

- Balanced budget rules to be written into national law (preferrably constitutions)
  - Maximum 0.5 per cent of GDP in structural deficit (unless deep downturns)
  - Automatic correction mechanisms in case of violations
  - European Court of Justice can fine member states who do not institute these rules (but not violations)
- Reversed qualified majority in all steps of Excessive Deficit Procedure
- Special monitoring of member states receiving official aid

Unclear what the fiscal compact will achieve

- More common decision-making necessary with large support programmes to handle moral-hazard problems
  - states
  - lenders
- But still political decisions on sanctions
  - Will politicians punish their peers?
- Binding rules with strong enforcement mechanisms and automatic correction mechanisms perhaps less important than fiscal transparency and qualified economic-policy debate

The Swedish fiscal framework

- Top-down budget process
- Fiscal surplus target: government net lending of 1 per cent of GDP over a business cycle
- Ceiling for central government expenditures set three years ahead
- Balanced budget requirement for local governments
- Defined contributions instead of defined benefits in pension system
- Monitoring of the government budget
  - Fiscal Policy Council (Finanspolitiska rådet)
  - National Institute of Economic Research (Konjunkturinstitutet)
  - Office of Budget Management (Ekonomistyrningsverket)
  - National Audit Office (Riksrevisionen)

Fiscal framework

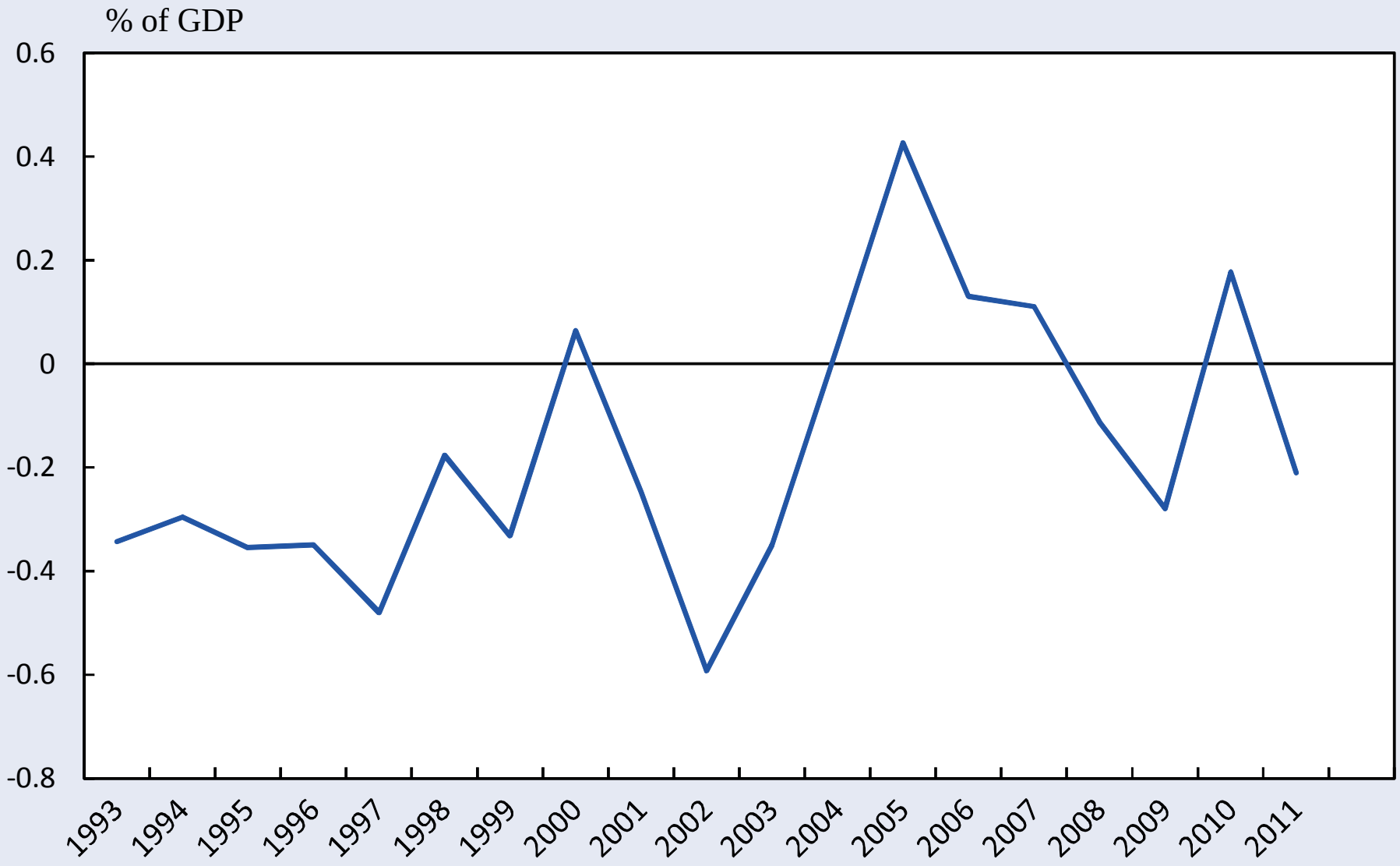
Europe

- Strict formal requirements of budget balance
- Automatic correction mechamisms
- Sanctions: deposits and fines

Sweden

- Flexible rules
- No automatic correction mechamisms
- No sanctions
- Transparency and qualified economic-policy debate

Net lending of local governments in Sweden

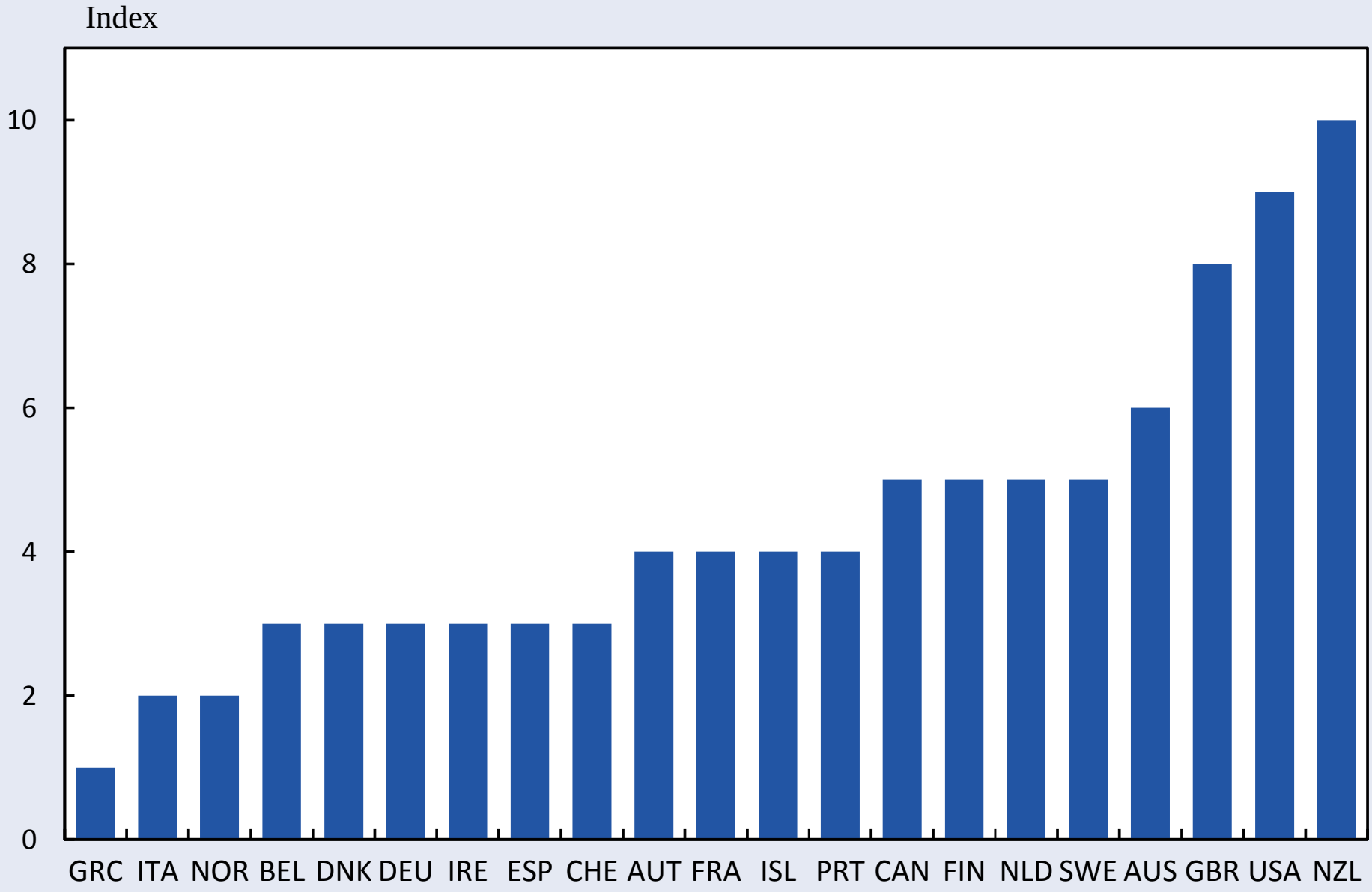


Note: There is a two-tier system of local governments: municipalities and counties. A few counties are amalgamated into regions.
Sources: Ameco, National Institute for Economic Research in Sweden, own calculations.

International comparisons

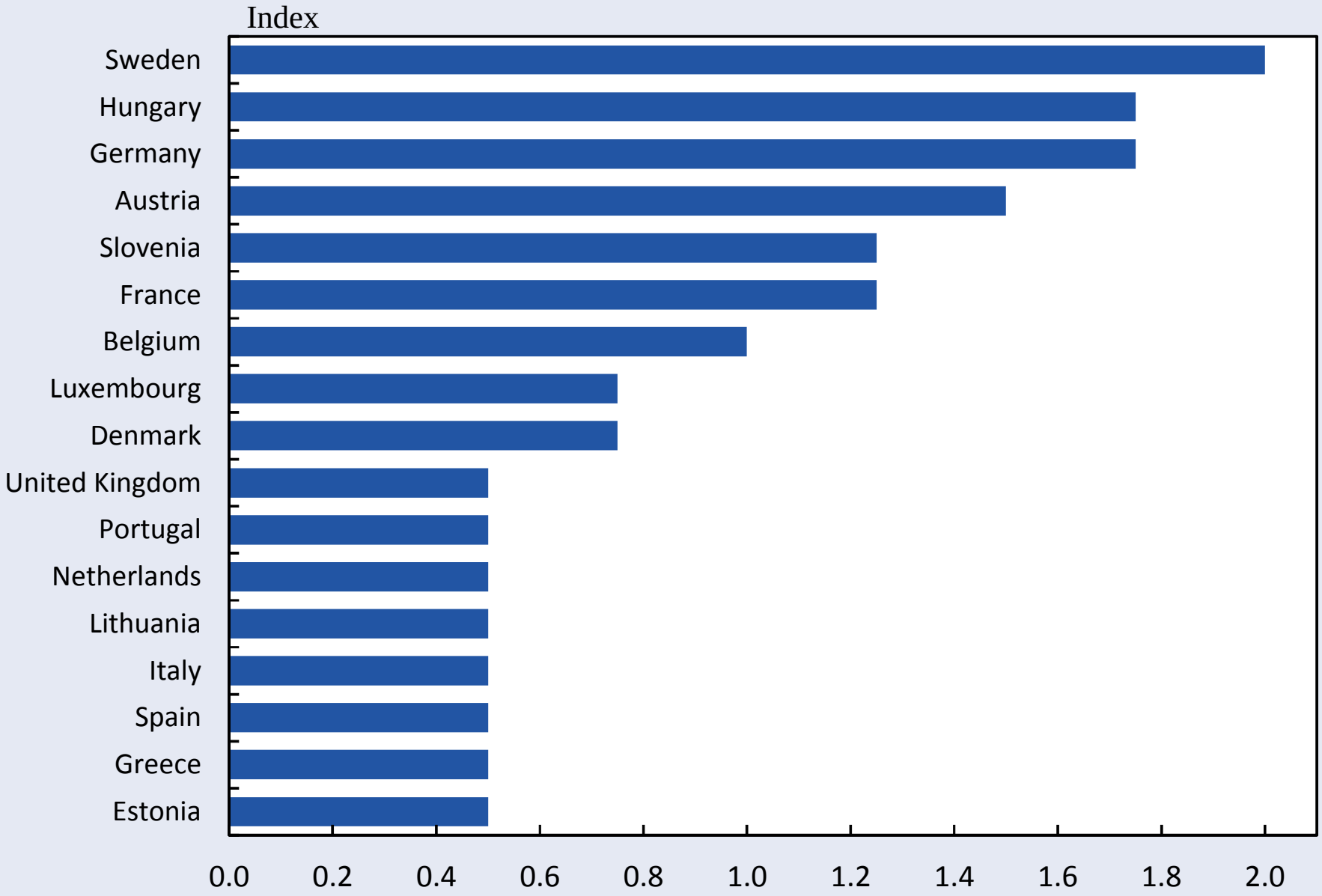
- Different evaluations of the strictness of the Swedish fiscal rules
- But Sweden always comes out high in terms of fiscal transparency
  - information required and provided as well as monitoring
- Evaluations of the adherence to the fiscal targets
- Sustainability calculations
- Calculations of the *Scope for reforms*
  - sum of tax cuts and government expenditure increases that can be decided and that are consistent with surplus target

The Alt-Lassen index of fiscal transparency in OECD economies



Source: Lassen (2010).

The strength of fiscal watchdogs in EU member states in 2009



Source: European Commission (2011).

Trends towards establishing independent fiscal watchdogs (fiscal councils)

- Earlier fiscal watchdogs in the Netherlands, Denmark, Germany, the US, Belgium and Austria.
- Recently established ones in Sweden (2007), Canada (2008), Hungary (2009), Slovenia (2009) and UK (2010).
- Fiscal councils are now being established in Australia, Slovenia, Ireland and Portugal.

European examples of lack of transparency

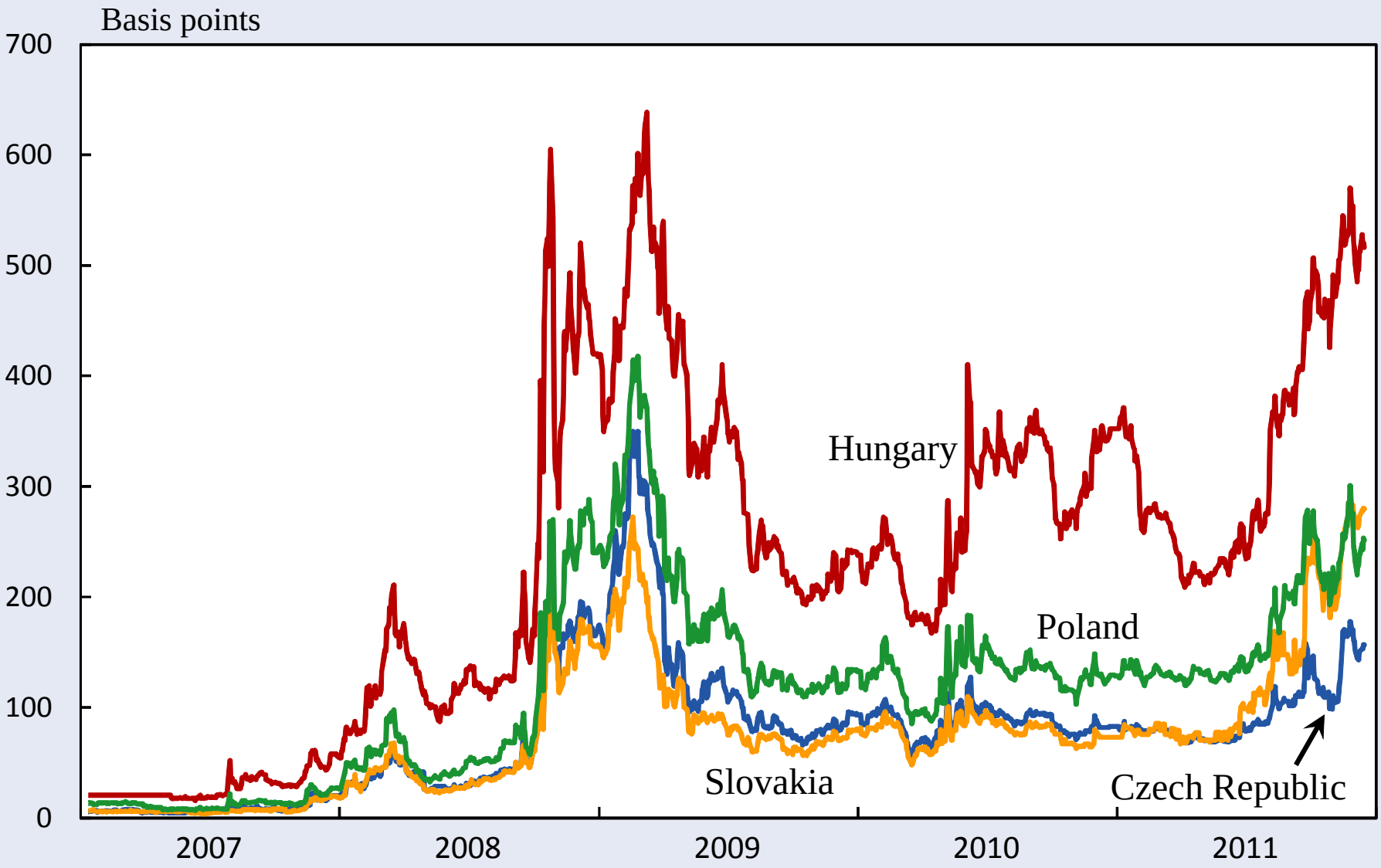
Hungary

- Election cycles
- Debt ceiling of 50 per cent of GDP in constitution
- Fiscal surplus 2011
- Arbitrary methods
  - private pension savings confiscated
  - selective tax rises for foreign-owned companies
  - banks forced to write down loans
- Independent fiscal council abolished

Greece

- Budget office set up in 2010
- Declared incompetent by Finance Ministe 2011
- Head forced to resign
- Legal process started against head of new Statistical Office (correcting debt/deficit figures) for ”unpatriotic behaviour”

Sovereign credit default swaps
5-year maturity



Source: Datastream, last accessed on 17 December 2011.