Lecture 10: Intermediate macroeconomics, autumn 2012

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Literature: ***Mankiw, Chapters 16-17***
EEAG Report, Chapters 1-2 and 4
Calmfors (2012)
Calmfors and Wren-Lewis (2013)

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Topics

- **Modigliani's life cycle hypothesis**
- **Ricardian equivalence**
- **Deficit bias**
- **Government debt dynamics**
- **The European debt crisis**
- **Government default**
- **Fiscal rules**
- **Fiscal councils**

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Franco Modigliani's life cycle hypothesis

R = Remaining years of work

Y = Annual income

W = Wealth

T = Remaining years of life

$$C = (W + RY)/T$$

$$C = W/T + RY/T$$

$$T = 50,\ R = 30 \Rightarrow C = W/50 + 30/50Y = 0{,}02W + 0{,}6Y$$

$$MPC_W = 0{,}02$$

$$MPC_Y = 0{,}6$$

$$T = 21,\ R = 1 \Rightarrow C = W/21 + 1/21Y \approx 0{,}05W + 0{,}05Y$$

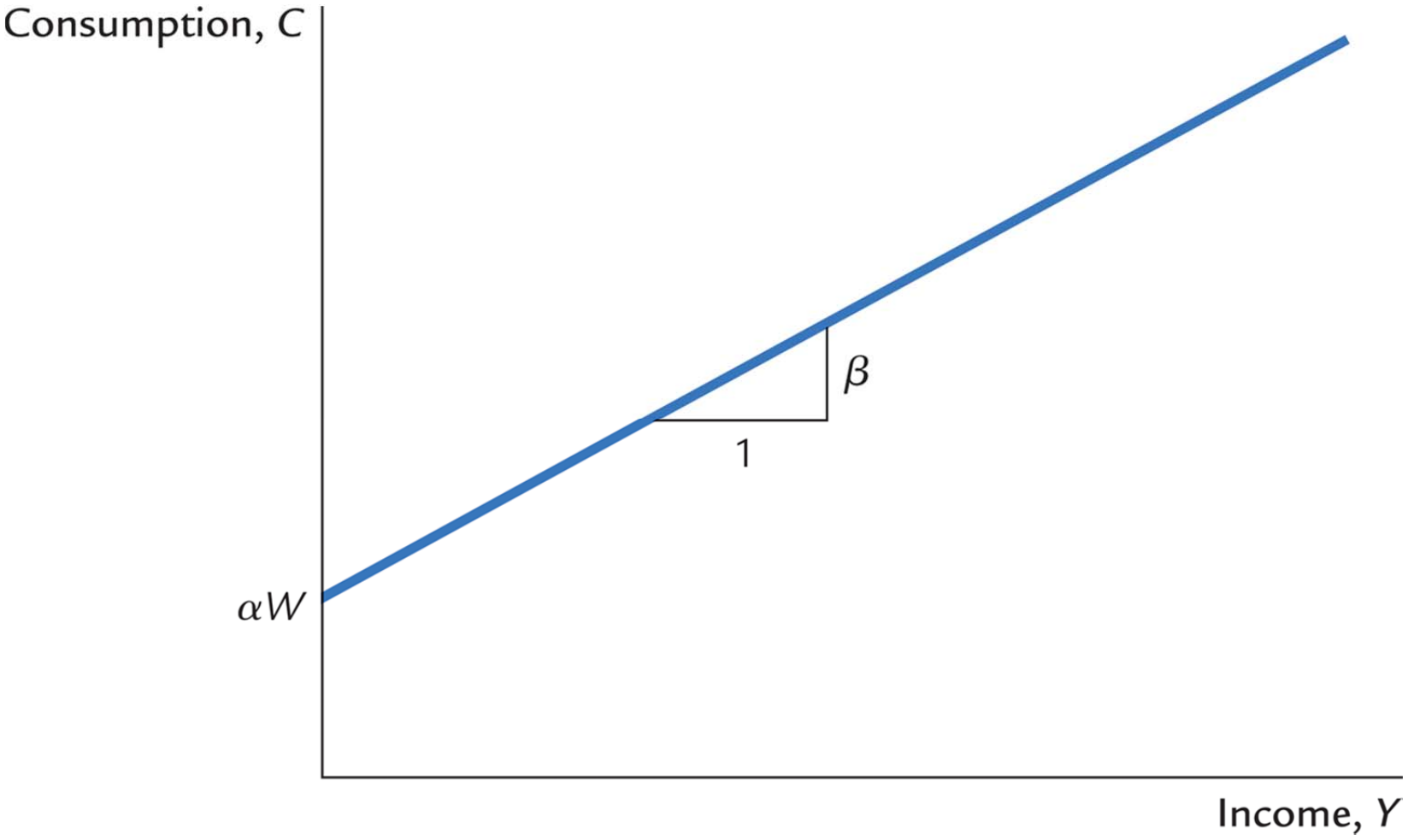


Figure 17.10 The Life-Cycle Consumption Function
Mankiw: Macroeconomics, Seventh Edition

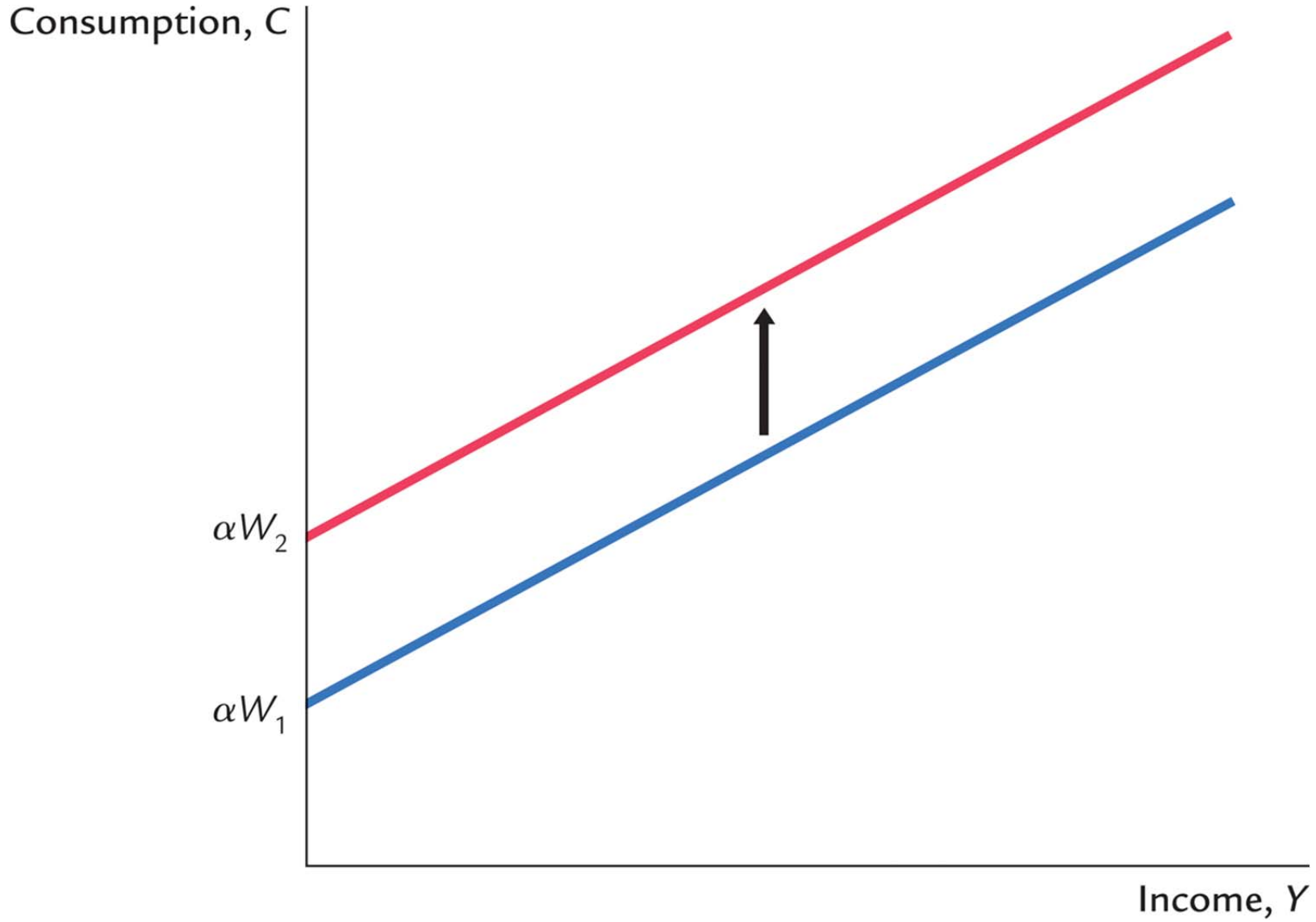


Figure 17.11 How Changes in Wealth Shift the Consumption Function
Mankiw: Macroeconomics, Seventh Edition

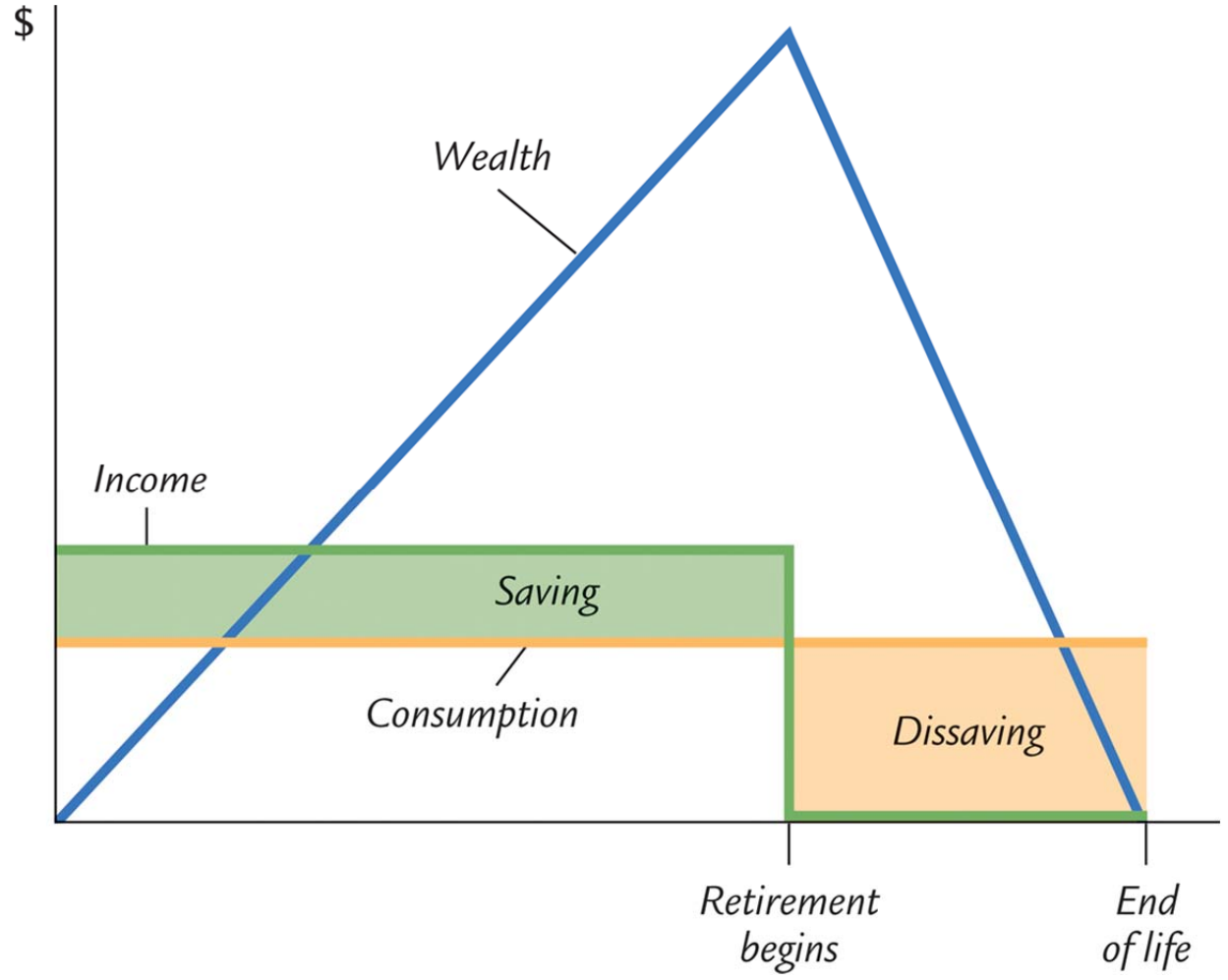


Figure 17.12 Consumption, Income, and Wealth Over the Life Cycle
Mankiw: Macroeconomics, Seventh Edition

Aspects of consumption

- **Changes in asset prices (shares, houses) nowadays play a large role for the development of private consumption**

- **Risks of "boom-bust cycles" – sudden "asset price reversals" tend to reinforce cyclical variations**
  - **property price bubble in Sweden, Finland and the UK in the 1980s and "asset price deflation" in the early 1990s**
  - **similar developments in Japan in the 1980s, after that prolonged recession (depression)**
  - **worldwide boom in stock prices in the late 1990s, then stock price falls when the dotcom bubble burst**
  - **significant falls in house prices and of stock prices have played a large role in the current recession (US, UK, Ireland, Spain)**
  - **process of debt deflation: when asset prices fall, the value of collateral falls and banks contract credit, which leads to further falls in asset prices.**

Asset prices and central bank policy

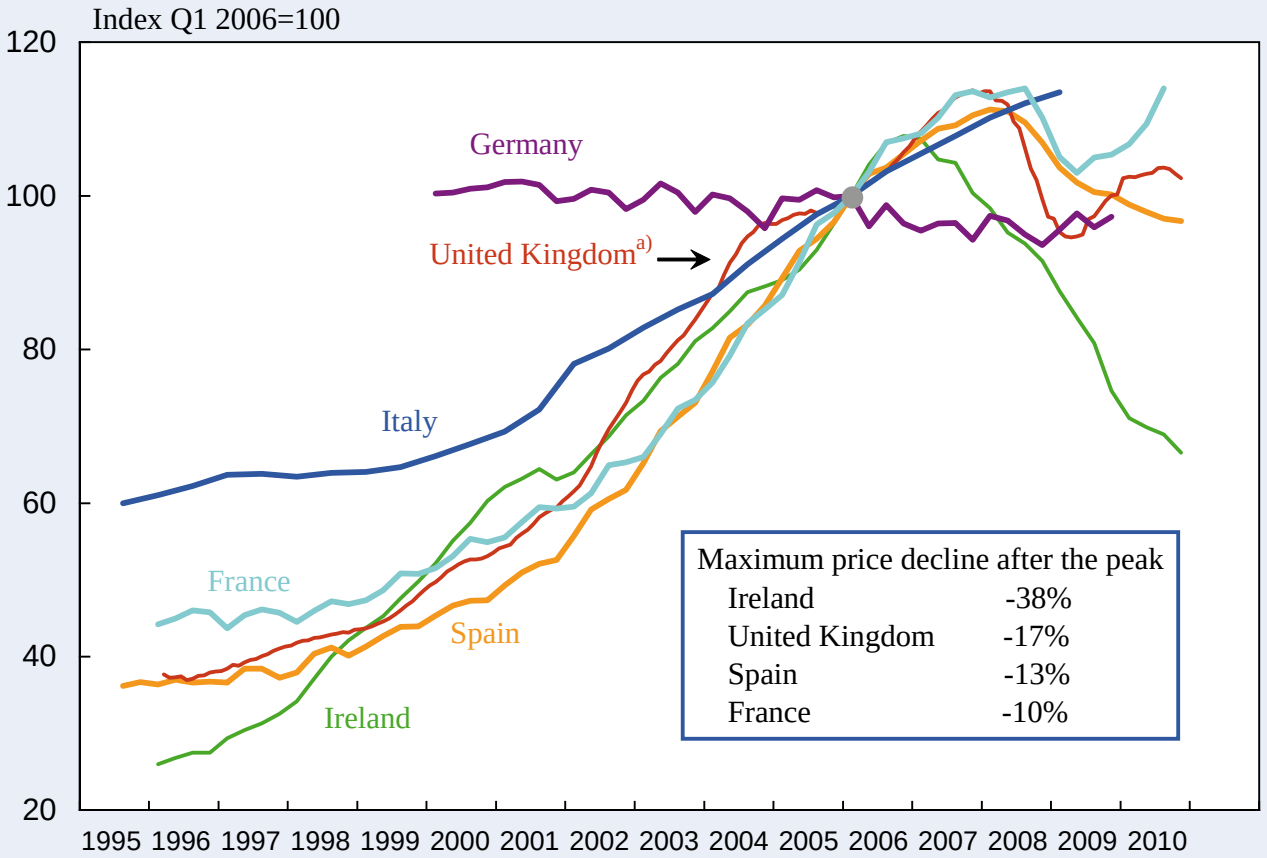
- **Difficult problem for central bank interest rate policy: Should they just have inflation targets for the CPI or should they also try to counteract large swings in asset prices?**

- **If asset prices rise too much, they may later fall a lot and make it impossible to avoid a deep recession and deflation (since the nominal interest rate cannot become negative: Japan earlier and many countries now).**

- **Are central banks better than financial markets in identifying asset price bubbles?**

- **Need for more instruments?**
  - **variations in capital adequacy ratios (equity capital relative to outstanding loans)**
  - **higher capital adequacy ratios on average**
  - **loan-to-value ratios**
  - **amortisation requirements**

House prices



a) England and Wales.

Source: Land Registry, *House Price Index*; The Economic and Social Research Institute; Irish Economy, *Permanent TSB/ESRI House Price Index*; European Central Bank, *Statistical Data Warehouse - Residential property price indicator*; Federal Statistical Office, *GENESIS database (*Wiesbaden 2010); Banca d`Italia, *Statistical Appendix - Economic Bulletin no. 53*, July 2009; INSEE France, loaded with EcoWin, 20 January 2011.

Ricardian equivalence

- **Normally we expect a tax cut to raise the real disposable incomes of households and therefore to raise private consumption**

- **Alternative view: Ricardian equivalence (David Ricardo – famous British 19th century economist who did not really believe in the theory he formulated)**

- **With a given path for government consumption, a tax cut today does not change life income because the tax cut must me financed by future tax rises that exactly offset the rise in income today. Hence private consumption does not change.**

Assumptions behind Ricardian equivalence

1. **Forward-looking households.**
2. **Households understand the intertemporal government budget constraint.**
3. **Lower taxes today do not imply lower future public consumption.**
4. **Households are not credit constrained.**
5. **The current generation cares for future generations.**

Ricardian equivalence in the Fisher two-period model

G = government consumption
T = tax
D = government budget deficit

Period 1

$$D = G_1 - T_1$$

Period 2

$$T_2 = (1 + r)D + G_2 = (1 + r)(G_1 - T_1) + G_2$$

The government budget constraint in present-value terms

$T_1 + T_2/(1 + r) = G_1 + G_2/(1 + r)$

Present values of taxes and expenditures must be equal.

Tax cut in period 1: ΔT_1

Tax rise in period 2: $(1 + r)\Delta T_1$

Present value of future tax rise: $(1 + r)\Delta T_1/(1 + r) = \Delta T_1$

The tax cut thus has no effect on life income of individuals and thus no effect on their consumption.

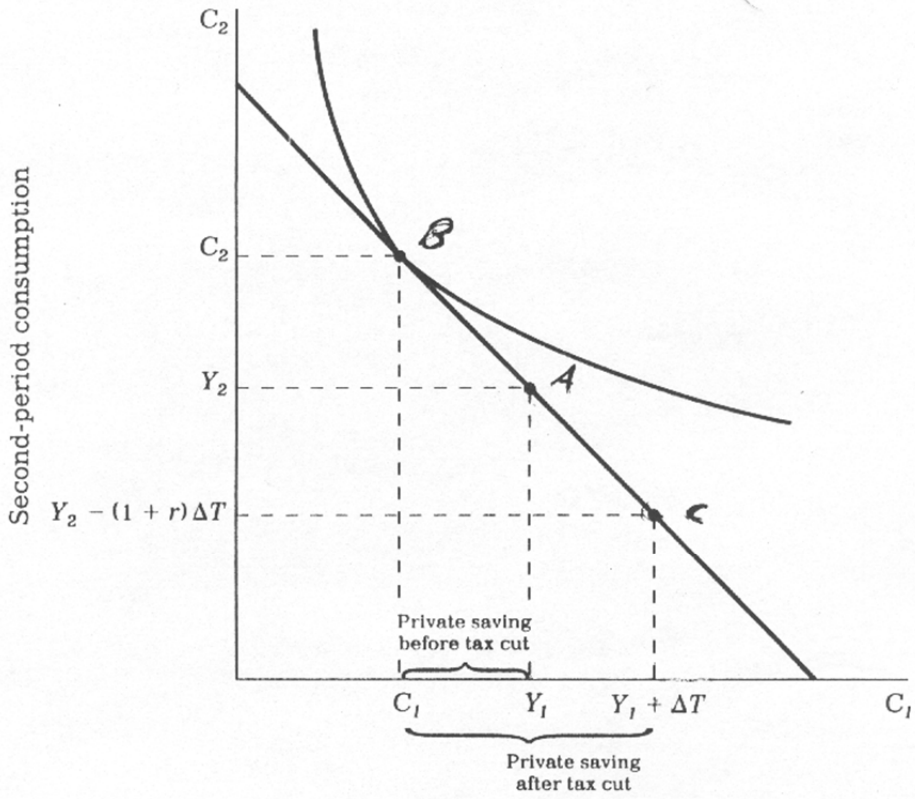


Figure 16-1 **A Debt-Financed Tax Cut in the Fisher Diagram.** A debt-financed tax cut of ΔT raises first-period income. Yet if government purchases are unchanged, then the government budget constraint requires that second-period taxes be raised by $(1 + r)\Delta T$. Because the present value of income is unchanged, the budget constraint is unchanged, and the consumer chooses the same consumption as before the tax cut. Hence, Ricardian equivalence holds.

With Ricardian equivalence a tax cut does not affect the government budget constraint

Tax cut in period 1: ΔT_1 Tax rise in period 2: $\Delta T_1(1+r)$

$$C_2 = -(1 + r)C_1 + (1 + r)Y_1 + Y_2$$

Disposable income in period 1: $Y_1 + \Delta T_1$

Disposable income in period 2: $Y_2 - (1 + r)\Delta T$

Substitutions give:

$$C_2 = -(1 + r)C_1 + (1 + r)Y_1 + (1 + \mathrm{r})\Delta T_1 + Y_2 - (1 + r)\Delta T_1 =$$

$$= -(1 + r)C_1 + (1 + r)Y_1 + Y_2$$

- The whole tax cut is saved to pay for future tax rise
- This type of fiscal policy does not change private consumption
- Hence tax cuts are ineffective as a stabilisation policy tool under Ricardian equivalence

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**

Deficit bias: Inherent tendency to accumulate government debt

- **Myopia**
- **More popular to lower taxes and increase government expenditure in recessions than to raise taxes and reduce expenditure in booms**
- **Incumbent governments try to favour their constituencies when in power**
  - **restricts the possibilities of future governments to favour their constituencies**
- **Common-pool problems**
  - **various interest groups try to elicit favours without consideration of the cost for others**

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)

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

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

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

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

Divide by Y_t

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

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:

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

Government debt dynamics cont.

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

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

Thus:

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

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

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

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

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

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

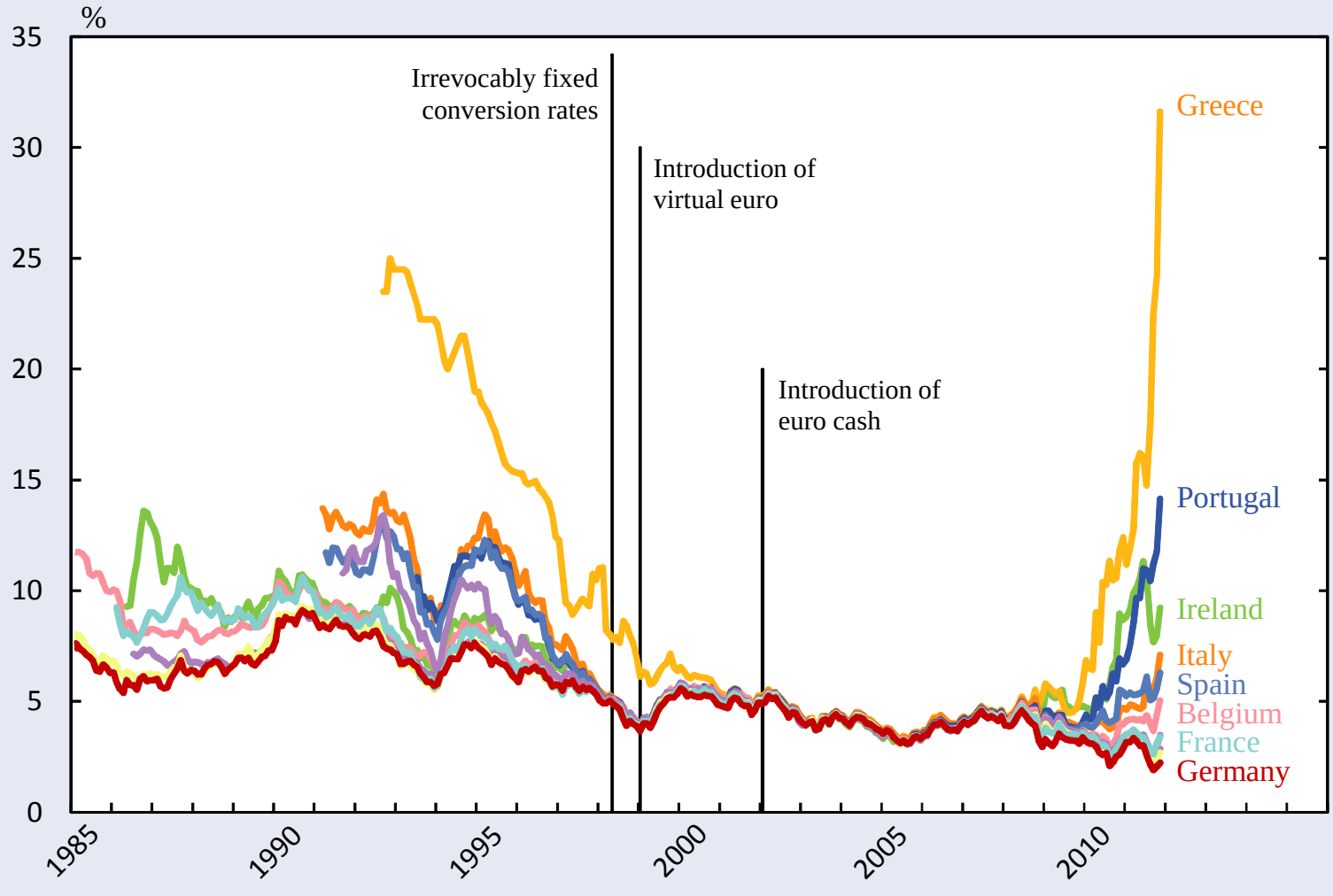
$$b_t - b_{t-1} \approx (r - g)b_{t-1} + pd_t$$

- **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.**

Public finances 2011

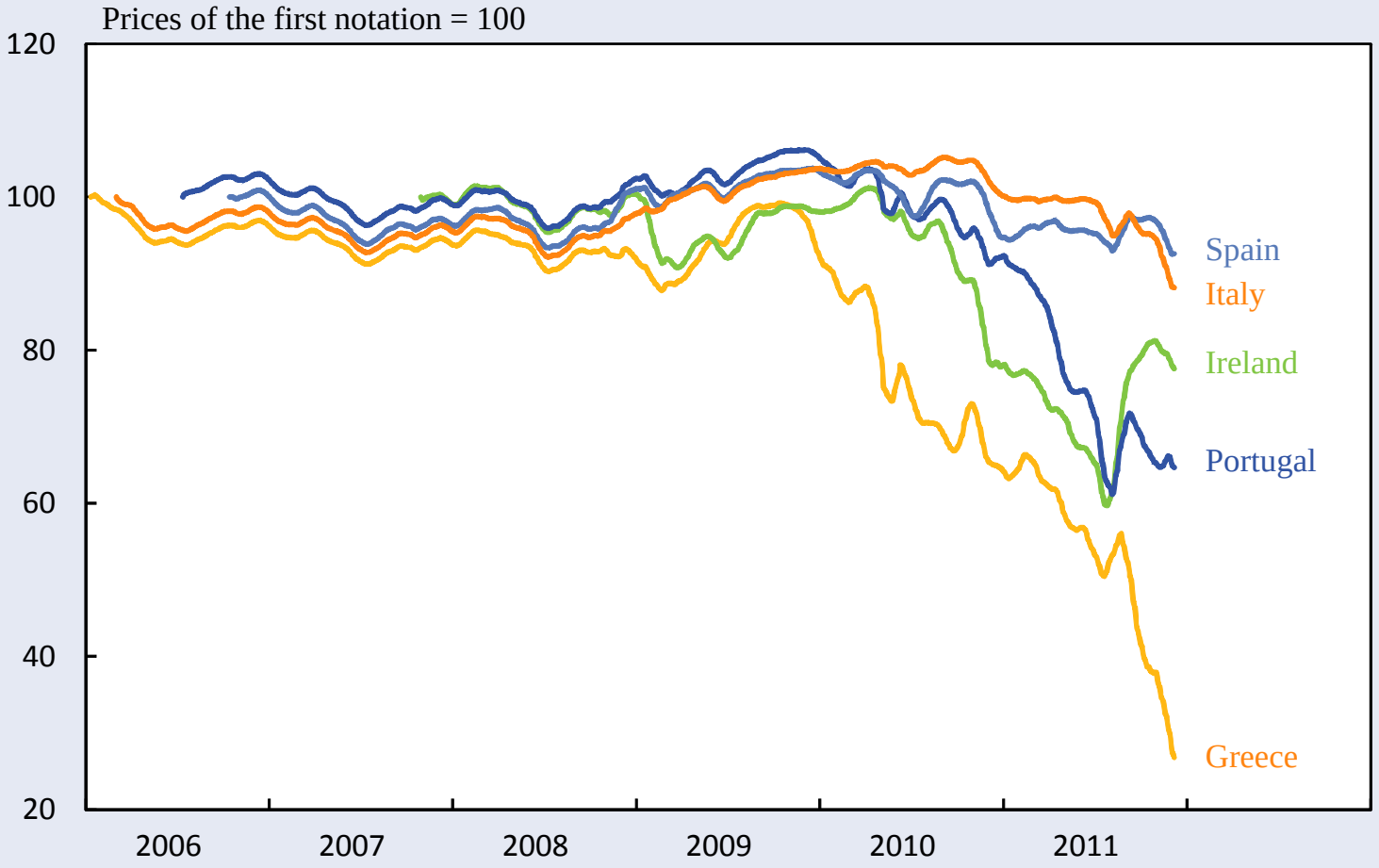
	Government net lending (per cent of GDP)	Consolidated gross government debt (per cent of GDP)
Greece	9.1	165.3
Ireland	-13.1	108.2
Italy	-3.9	120.1
Portugal	-4.2	107.8
Spain	-8.5	68.5
Belgium	-3.7	98.0
France	-5.2	85.8
Germany	-1.0	81.2
Sweden	0.3	38.4

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

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

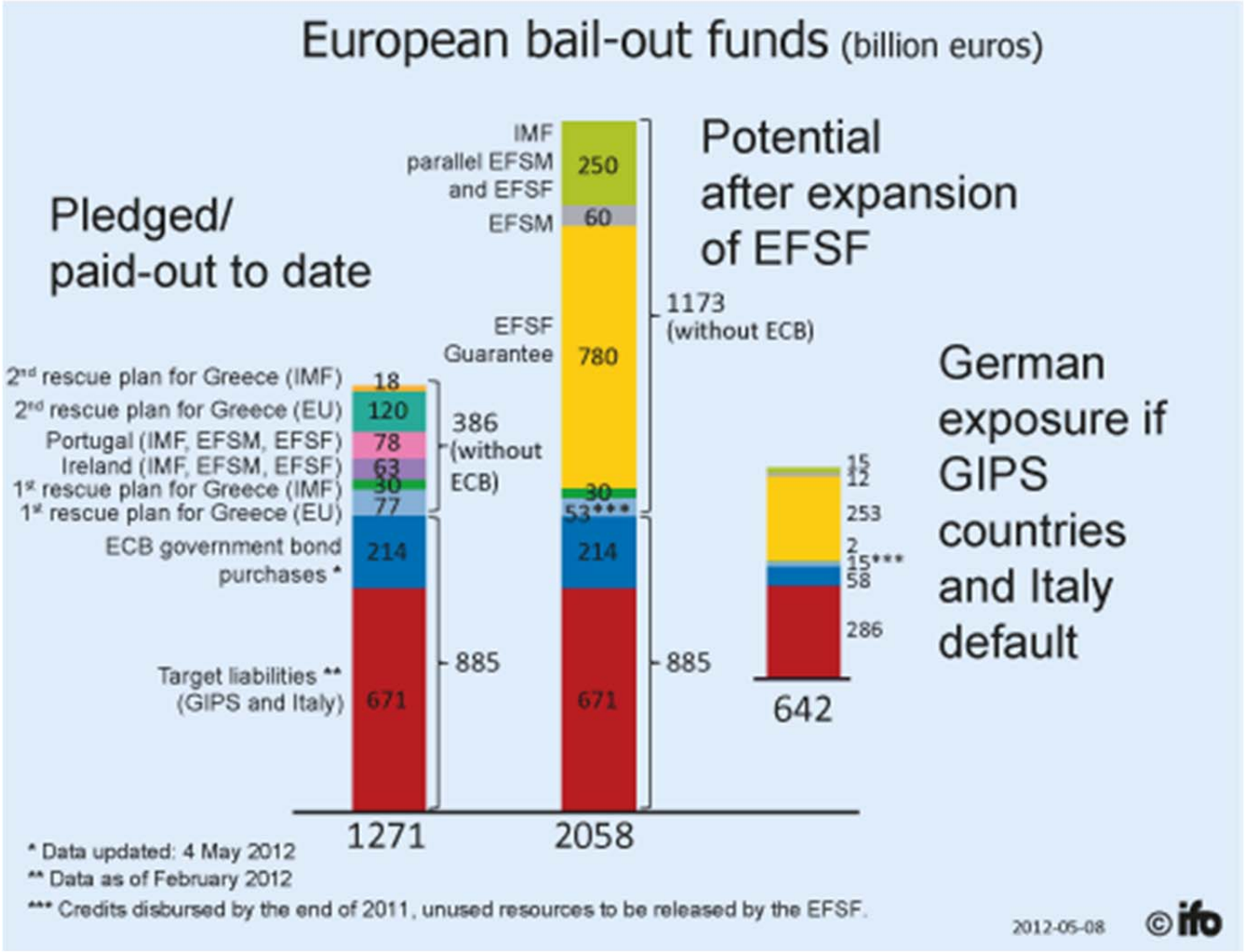
$$b_t - b_{t-1} = [0.10 - (-0.04)] \times 160 + 2.8$$

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

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

Handling of the euro crisis

- **Rescue package from other Eurozone countries (and IMF)**
  - **Greece 1 and 2**
  - **Ireland**
  - **Portugal**
  - **Spain**
  - **Cyprus**
- **European Financial Stability Facility (EFSF) to be replaced by the European Stability Mechanism (ESM) – the rescue funds borrow in financial markets (with guarantees from solvent Eurozone countries) and then lend to the crisis countries.**
- **The largest support packages have come from the European Central Bank (ECB)**
  - **Bond-buying programme**
  - **Liquidity provision (loans to banks in crisis countries against bad collateral in the form of government bonds from these countries)**
- **Violation of no-bail-out clause in the TFEU (Treaty on the Functioning of the European Union)**
- **Moral hazard problems**
  - **Weaker incentives for fiscal discipline with bail-outs**
- **Government and bank defaults are likely**
  - **capital losses for the rescue funds and the ECB**
  - **these capital losses will be borne ultimately by tax payers in the solvent Eurozone countries (Germany, Finland, the Netherlands etc.)**
- **Large political risks with the rescue programmes**
  - **political resentment against conditionality (fiscal austerity) for crisis countries**
  - **political resentment against the costs of the bail-outs in solvent countries**


European bail-out funds (billion euros)
Pledged/ paid-out to date
Potential after expansion of EFSF
German exposure if GIPS countries and Italy default
2nd rescue plan for Greece (IMF)
2nd rescue plan for Greece (EU)
Portugal (IMF, EFSM, EFSF)
Ireland (IMF, EFSM, EFSF)
1st rescue plan for Greece (IMF)
1st rescue plan for Greece (EU)
ECB government bond purchases *
Target liabilities ** (GIPS and Italy)
18
120
78
63
30
77
214
671
386 (without ECB)
885
IMF
parallel EFSM and EFSF
EFSM
EFSF Guarantee
250
60
780
30
53***
214
671
1173 (without ECB)
885
15
12
253
2
15***
58
286
642
1271
2058
* Data updated: 4 May 2012
** Data as of February 2012
*** Credits disbursed by the end of 2011, unused resources to be released by the EFSF.
2012-05-08
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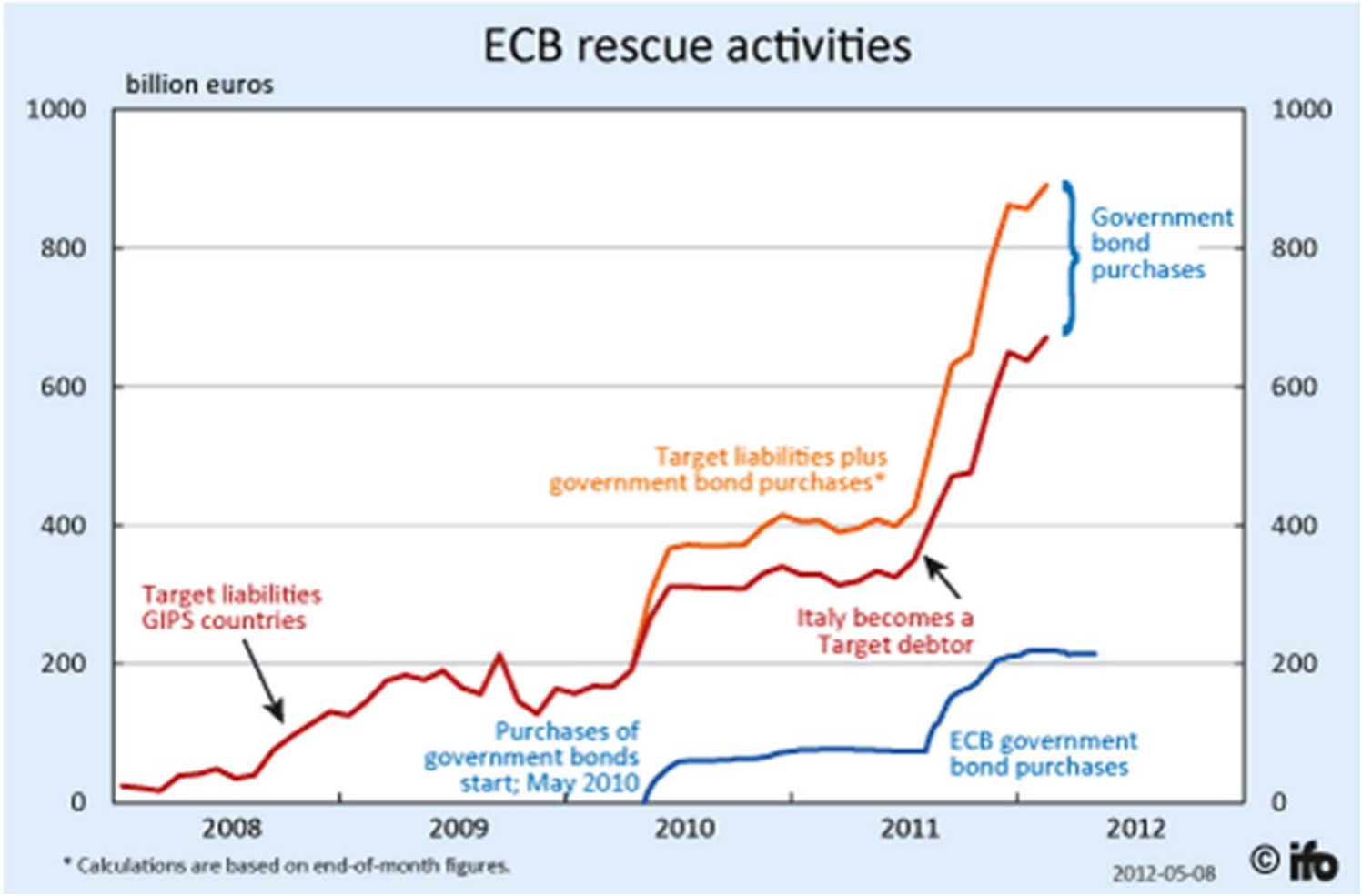
ECB rescue activities
billion euros
1000
800
600
400
200
0
2008
2009
2010
2011
2012
Government bond purchases
Target liabilities plus government bond purchases*
Target liabilities GIPS countries
Italy becomes a Target debtor
Purchases of government bonds start; May 2010
ECB government bond purchases
* Calculations are based on end-of-month figures.
2012-05-08
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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".**

EU fiscal rules were not applied

- 45 breaches out of 177 possible cases before 2008
- Yet no sanctions were applied
- Excessive deficit procedures against Germany and France were broken off in 2003-2005
- Watering down of the Stability Pact in 2005 to ex post justify the treatment of Germany and France

  - extended deadlines to correct excessive deficits

  - deposits (fines) after seven (nine) years instead of after three (five)

Table 1 Breaches of the stability pact

	99	00	01	02	03	04	05	06	07	08	09	10
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 three per cent of GDP, or a gross government debt exceeding 60 per cent of GDP that is not falling (or both). A grey field indicates that the country, at the time, was not an EU member state.
Source: ECB.

Problems with the fiscal rules

- Atomic bomb character – very harsh sanctions from the start when applied
- Pecuniary sanctions worsen deficit problems
- Sanctions only in the case of violations of deficit criterion, not in the case of violations of the debt criterion
- Each step in the excessive deficit procedure required a qualified majority in favour in the Ecofin Council
- Ministers reluctant to punish their peers
- No rules on fiscal policy in booms
- Insufficient monitoring of quality of statistics
- Disconnect between fiscal policy discussion at European and at national levels

Reforms of EU economic governance

- Changes in the Stability Pact
  - new regulations
- New fiscal compact
  - intergovernmental treaty

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Summary of reforms

- Earlier and more graduated sanctions
  - both in the stability pact's preventive and corrective arms
  - interest-bearing deposits, non-interest-bearing deposits and fines up to 0.2 per cent of GDP
- Operationalisation of the criterion that government debt in excess of 60 per cent of GDP shall be "sufficiently diminishing"
  - excess shall be reduced each year by 1/20
- Reversed qualified majority in the excessive deficit procedure

Summary of reforms cont.

- National budget balance rules to be written into national constitutions (law)
- Automatic national correction mechanisms if budget balance rule is violated
- European Court of Justice to monitor the establishment of national budget balance rules
- Common principles on public finance statistics
- Broader macroeconomic surveillance with an **excessive imbalance procedure**

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Remaining problems

- Steps in the excessive deficit procedure still require **political** decisions
- Sanctions are still pecuniary
- European Court of Justice does not monitor adherence to the rules (only imposition of national budget balance rules)
- Balanced budget requirement is for the structural budget balance (the cyclically adjusted budget balance)
- No clear criteria in the excessive imbalance procedure

Remaining problems cont.

- Do voters accept the reforms?
- Are they fully aware of them?
- Will there be new political negotiations on them?
- What is the credibility of the new rules?
- The bail-outs being undertaken represent Treaty violations

  -moral hazard

  - why should fines work as deterrents if you can borrow to pay the fines and then have someone else pay?

Comparison with Sweden

Europe

- Strict formal rules on fiscal targets
- Automatic correction mechanisms
- Sanctions

Sweden

- Flexible rules
- No automatic correction mechanisms
- No sanctions
- Transparency and qualified public debate
  - information given and required by the government
  - monitoring institutions

Political consensus on budget discipline and fiscal framework in Sweden

- Top-down budget process
- Fiscal surplus target of one per cent of GDP
- Central government expenditure ceiling
- Local government budget balance requirement
- Reformed pension system
- Monitoring institutions with substantial independence
- Government calculations of the annual **scope for reforms**
- **Fiscal culture likely to be much more important than formal rules**

  - cf Greece and Sweden

Problems with the rules approach

1. Insufficient legitimacy for European rules
2. Conflict between **simplicity** and **flexibility**

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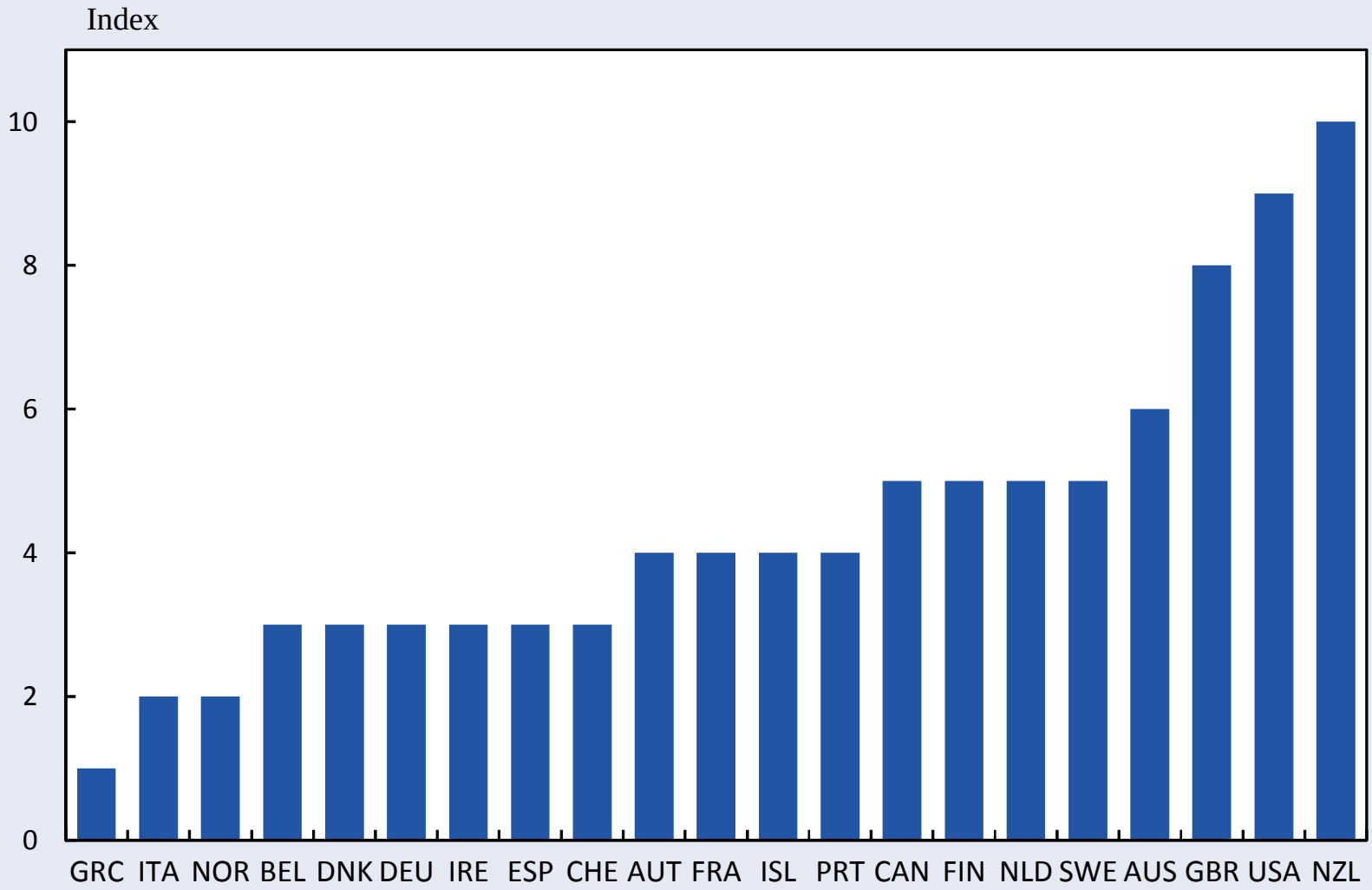
The Alt-Lassen index of fiscal transparency in OECD economies



Source: Lassen (2010).

Independent fiscal institutions

- Fiscal committees with decision-making powers
- Fiscal watchdogs or fiscal councils

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Earlier existing fiscal watchdogs

- Central Planning Bureau (CPB) in the Netherlands (1947)
- Economic Council in Denmark (1962)
- Sachverständigenrat in Germany (1963)
- Congressional Budget Office (CBO) in the US (1975)
- Public Sector Borrowing Requirement Section of the High Council of Finance in Belgium (1989)
- Staatsschuldenausschuss in Austria (1997)

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Recently established fiscal watchdogs

- Fiscal Policy Council in Sweden (2007)
- Parliamentary Budget Office (PBO) in Canada (2008)
- Fiscal Council in Hungary (2008)
- Fiscal Council in Slovenia (2010)
- Office for Budget Responsibility in the UK (2010)
- Fiscal Advisory Council in Ireland (2011)
- Fiscal Policy Council in Portugal (2012)
- Fiscal Policy Council to be established in Australia (2012)
- Fiscal Policy Council to be established in Slovakia (2012)

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Potential contribution of a fiscal council

1. Alleviate informational problems
   - increase accountability of politicians
2. Complement to a fiscal rule
   - increase reputation cost of violating the rule
3. Alleviate the conflict between simplicity and flexibility
   - evaluate when simple rule can be broken
   - monitor adherence to more complex rule

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Tasks of a fiscal council

- Forecasts
- Ex ante and ex post analysis of fiscal sustainability and the adherence to medium-term fiscal targets
- Analysis of stabilisation policy
- Evaluation of fiscal rules
- Costing of individual government proposals
- Breadth of remit: employment, growth, income distribution etc.
- Normative recommendations on policy?

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Viability of a fiscal watchdog

- Natural to get into conflict with government at times
- Time inconsistency problem for government

  - ex ante incentives to set up fiscal watchdog

  - ex post incentives to restrict its activities or even close it down

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Examples of government pressures

- Venezuela – PBO closed down
- Hungary – Fiscal council in effect dismantled
- Canada – budget cut for PBO
- Sweden – threat of budget cut
- Greece – firing of head of PBO

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Lines of defence

1. Building a reputation
   - but it takes time
   - and requires a sophisticated political debate
2. Formal provisions
   - guarantees against firings
   - resourcing
   - long-term budget
3. International evaluations
   - quality control
   - but also defence against politically motivated critique

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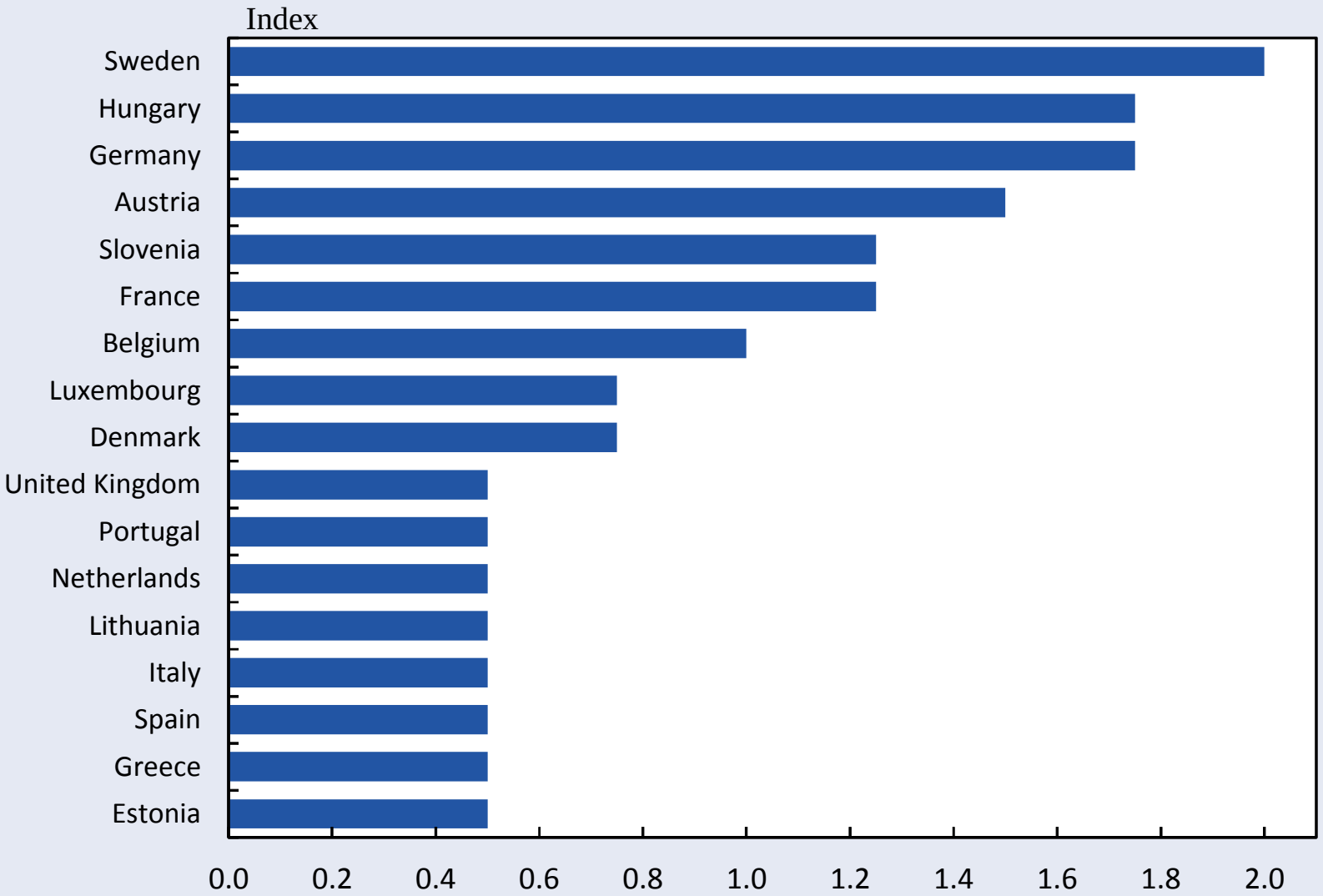
The strength of fiscal watchdogs in EU member states in 2009



Source: European Commission (2011).