Economic Policy 2011-2012
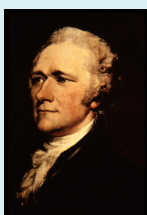
Chapter 3
Budgetary policy

"A national debt, if it is not excessive, will be to us a national blessing."

Alexander Hamilton, 1781

"Votre Directeur des finances, sire, vous induit en erreur. Dès que l'Etat emprunte des sommes dont ses revenus actuels ne peuvent même pas payer les intérêts, l'impôt existe, soit qu'on le déclare ou non. Il faudra donc imposer réellement un jour, pour se procurer le gage de l'emprunt fait aujourd'hui."

Mirabeau, 1787

Outline

3.1 Issues
- Concepts and measurement
- Debt/deficit dynamics
- Complications
- Lessons from history

3.2 Theories
- Demand-side effects
- Public debt sustainability
- Supply-side effects
- Fiscal policy spillovers

3.3 Policies
- Rules and principles for fiscal policy
- Fiscal policy in the European Monetary Union
- Fiscal policy in times of crisis

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Concepts & measurement

Fiscal policy = budgetary policy ≠ tax policy

Budget balance concepts

- **Central** government /**general** government
- **Total/primary** balance
- **Headline/structural** balance
- **Automatic** stabilisers/**discretionary** policy
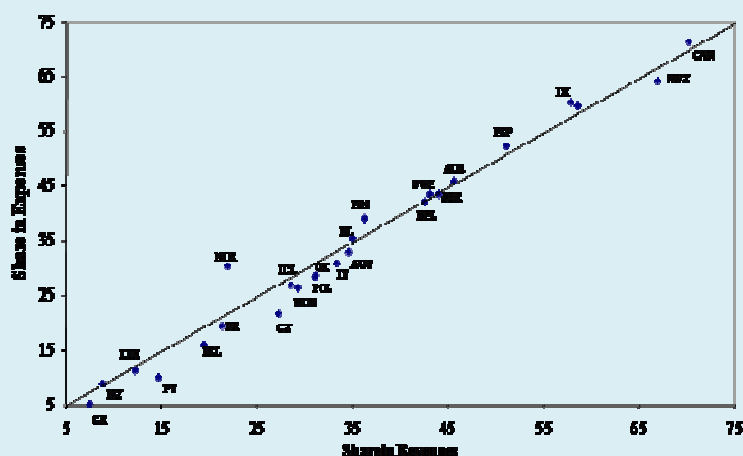- **Underlying** balance

Debt issues

- Stock and flow
- Debt-deficity dynamics
- **Gross** debt / **net** position
- Financial/ **implicit** liabilities

pisani-ferry september 2011
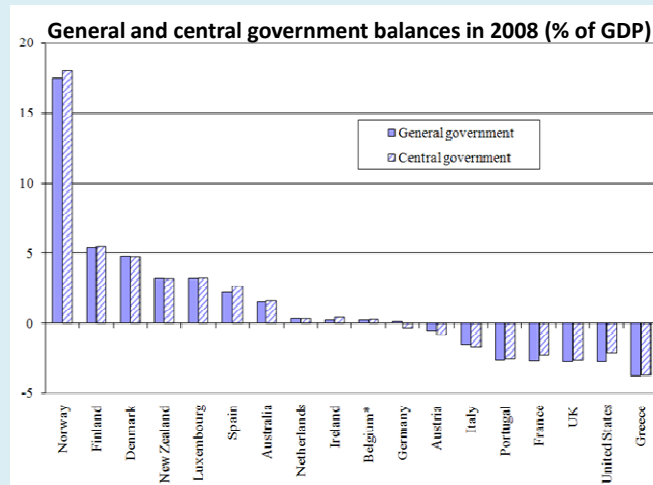
5

Which government?
Situations are diverse…

Ratios of local to general revenues and expenditures (2005)

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..but in most cases it is the central goverment which incurs debt

General and central government balances in 2008 (% of GDP)

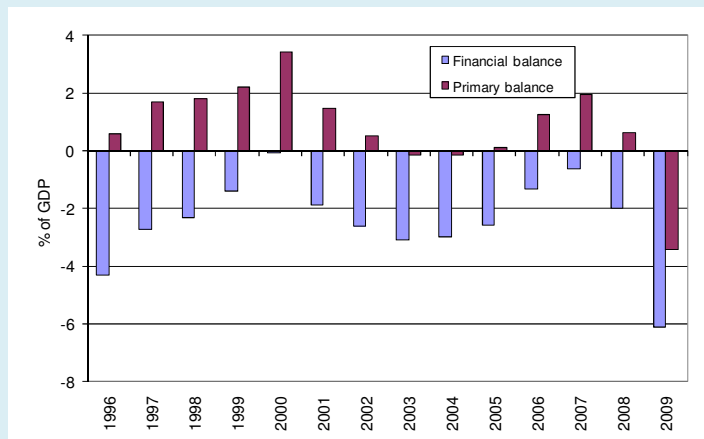pisani-ferry september 2011

Source: IMF

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Definitions

- Financial balance (aka net lending) =
  primary balance - net interest payments (on the debt)

- Financial (aka headline) balance =
  cyclical balance + cyclically-adjusted balance =
  cyclical balance + structural balance

- Financial balance =
  cyclical primary balance + structural primary balance -
  interest payments on the debt

- Financial balance =
  cyclical primary balance + one-off operations + underlying
  primary balance – net interest payments (on the debt)

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Financial and primary balances of the euro area

Source: OECD *Economic Outlook*

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Why measure structural deficits?

- Headline balances do not distinguish discretionary impulses from automatic stabilisers, they are therefore misleading indicators of the stance of fiscal policy

- To base policy on headline balances leads to wrong decisions

- Hence the structural (cyclically-adjusted balance)

$$s^* = s - \varepsilon(y - \bar{y})$$

where ε is an estimated elasticity $\varepsilon = \dfrac{ds}{dy} > 0$

- In recent years policy principles have increasingly relied on structural concepts and indicators (e.g. 2005 reform of the European Stability and Growth Pact)

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This is important because deficit variations are mostly driven by cyclical fluctuations

Annual changes in budget balances in the euro area, 1991-2009
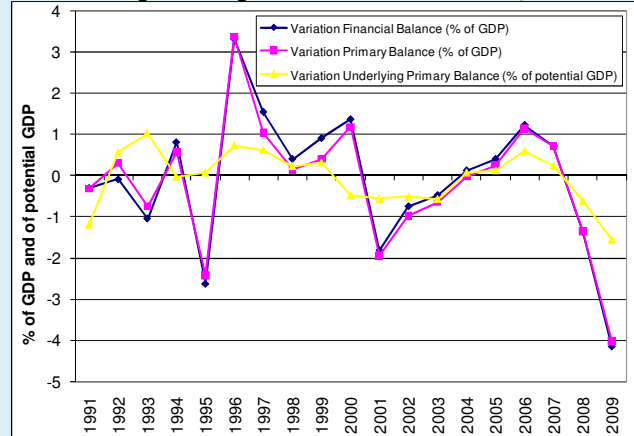
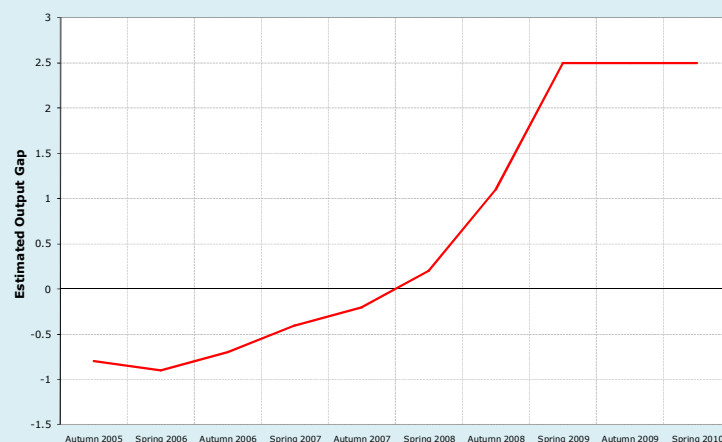pisani-ferry september 2011   Source: OECD Economic Outlook   11

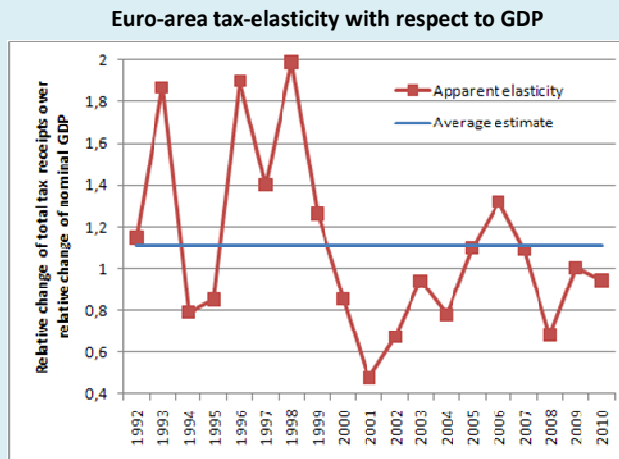# Problems (1): Output gap is measured with considerable uncertainty

Evolution of Commission estimate of 2007 output gap for the euro area

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Problems (2): Tax elasticities are not time-invariant

Euro-area tax-elasticity with respect to GDP

Source: AMECO (April 2009)

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Implications

- Structural balances still in use in policy
  - EU in 2005 moved from focus on headline deficit to focus on structural deficits
  - German "debt brake" and British "fiscal mandate" are both based on the structural balance
- But new body of research highlights that they provide very unreliable indicators for policy assessment, proposes alternative approaches based on examination of actual tax and expenditures decisions
  - See examples in Romer and Romer (2010), IMF (2010)

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Debt-deficit dynamics

- Public debt is a stock whereas deficit is a flow
- Basic stock-flow equation:

$$B = (1+i)\ B_{-1} + D$$

- where D is the primary deficit and B is the public debt
  - (Note: this neglects capital income e.g. from state-owned companies, on forex reserves. In practice generally negligible but not always – think of China!)
- But:
  - Alternative concepts of debt (net/gross, financial/implicit)
  - Stock-flow adjustments because of non-deficit increasing debts (because of e.g. nationalisations, call of guarantees, debt write-offs), valuation effects (important for foreign-currency debt)… and creative accounting

- In practice stock-flow adjustments are biased

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Simple but important relations

- Let us define:
  - *d:* primary deficit as a percentage of nominal GDP,
  - *b:* debt ratio as a percentage of nominal GDP,
  - *n:* nominal growth rate (growth in volume + inflation),
  - *g:* the real growth rate,
  - π : the rate of inflation, and
  - *r:* the real interest rate, we have:
- Hence n = g + π, r = i - π.

- The stock-flow equation implies:
$$b = \frac{(1+i)}{(1+n)} b_{-1} + d \cong (1+i-n)b_{-1} + d \cong (1+r-g)b_{-1} + d$$
- or, equivalently:

$$b - b_{-1} = b_{-1}\left(i - n\right) + d = ib_{-1} + d - nb_{-1}$$

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Implications

- The debt ratio can remain constant in spite of permanent deficits
  - Ex: with 80% debt ratio, 2% growth and 2% inflation, the debt-stabilising deficit is 3.2% of GDP

- If the real interest rate exceeds the growth rate (r > g), debt stabilisation requires a **primary surplus**

- There can be « deficits without tears » but only if growth is high enough
  - In the 1970s many European countries had stable debt ratios in spite of high deficits,
  - But in the 1980s the rise in world interest rates forced them to move into primary surplus territory

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Example: Greece et al.

|		Persistent primary surplus needed from 2015 onwards to stabilise the debt/GDP ratio at its 2015 level [% GDP]				Persistent primary surplus needed from 2015 onwards to reduce the debt/GDP ratio from its 2014 level to 60 percent by 2034 [% GDP]			
		[a]	[b]	[c]	[d]	[a]	[b]	[c]	[d]
			Deviation from baseline				Deviation from baseline		
	Scenario	Baseline	Three policies	100 bps lower mkt yields	Three poli-cies + mkt reaction	Baseline	Three policies	100 bps lower mkt yields	Three poli-cies + mkt reaction
Greece	Optimistic	3.7	-1.3	-1.0	-2.1	8.4	-1.8	-0.8	-2.4
Greece	Cautious	10.5	-2.7	-1.0	-3.4	14.5	-3.0	-0.9	-3.6
Ireland	Optimistic	0.7	-0.5	-0.6	-1.0	3.7	-0.8	-0.4	-1.1
Ireland	Cautious	3.3	-0.8	-0.5	-1.2	6.1	-0.9	-0.4	-1.3
Portugal	Optimistic	1.2	-0.1	-0.7	-0.7	2.9	-0.1	-0.6	-0.8
Portugal	Cautious	4.1	-0.1	-0.7	-0.8	5.8	-0.1	-0.7	-0.8
Spain	Optimistic	0.5		-0.6		1.6		-0.6	
Spain	Cautious	2.7		-0.7		3.8		-0.7	

Table 1: Assessment of alternative policies

Source: Bruegel. Note: Column [d] is not the sum of columns [b] and [c] because the marginal impact of policy measures is smaller when market interest rates are lower.

pisani-ferry september 2011   Source: Darvas et al. (2011)   18

Exemple : France and the US

Debt dynamics: France and the US, 1990-2009
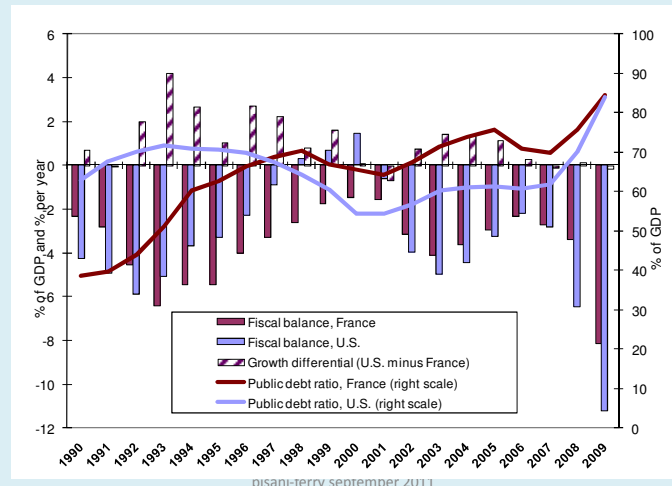
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Complications

- Most policy discussions (e.g. in the EU) focus on the ***gross financial*** debt of governments
- However goverments:
    - Hold assets (see e.g. controversy over Greek state asset disposal)
    - Have off-balance sheet liabilities
        - Present value of unfunded pensions benefits
        - Cost of insurance (the state is the insurer of last resort), e.g. through the provision of guarantees
    - Recent developments show a large banking system creates a large implicit liability

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Example (1): Pensions

US federal government balance sheet on September 30, 2008 (USD billion)

Assets		Liabilities	
Cash and other monetary assets	424.5	Federal debt securities	5 836.2
Securities and investment	79.6	Other liabilities	6 342.0
Other assets	1 470.6	of which: federal employee and veteran benefits payable	5 318.9
		Net position	-10 203.5

Source: US Treasury

US federal non-debt liabilities (mostly pensions) are larger than debt liabilities

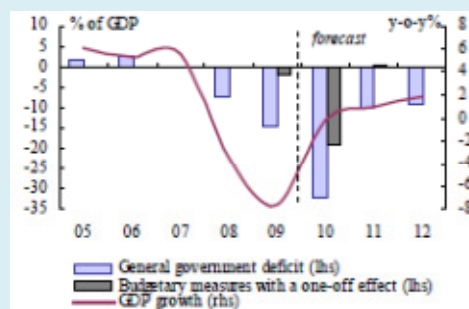pisani-ferry september 2011   21

Example (2): Irish bank rescue

Ireland: Government deficit and one-off measures, 2005-2012

- The cost of rescuing banks (capital injections into ailing banking groups) resulted in one-off increases in the deficit and the debt ratio amounting to 2% of GDP in 2009 and 19% in 2010.
- Total cost now estimated 40% of GDP
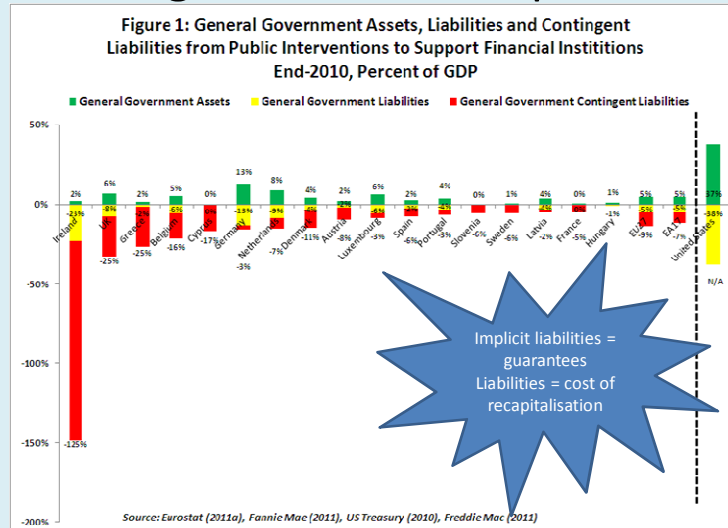- The corresponding implicit liability was not accounted for prior to the crisis

Source: ECFIN forecast November 2010

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Example (3): Impact of 2008-2010 banking sector rescue operations

Source: Kierkegaard (2011) on the basis of Eurostat and US data
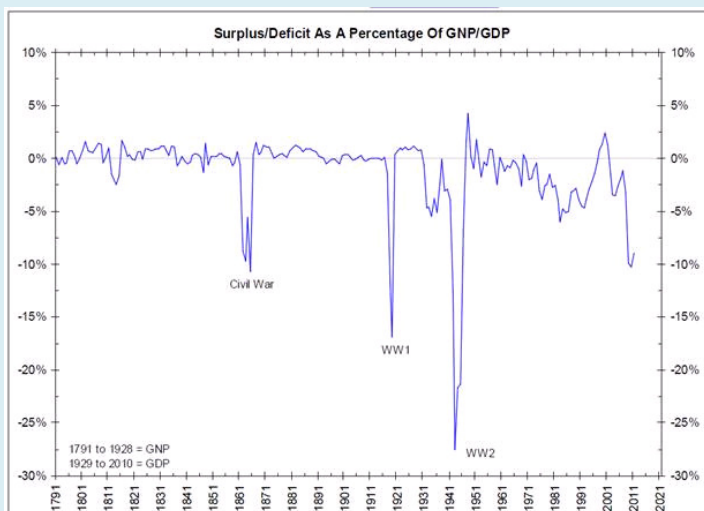

Lessons from history

- Key question is how high public debt can be before a country defaults. There is no strict economic limit (provided citizens are willing to pay taxes for a high primary surplus, a country can service its debt)

- History does not provide clear answer either. In history debt ratios have reached 200% of GDP or more. However defaults at lower debt level were common before the 19th century and they remain common in developing and emerging countries.

- Reinhart, Rogoff and Savastano (2003) and Reinhart and Rogoff (2010) claim:
  – That 'debt intolerance' can sets in at low levels of debt-to-GDP ratios ;
  – That debt has negative consequences on growth already when the debt ratio reaches 90% (60% in emerging economies)

- A specific issue is how large public debt can be for a country that is part of a monetary union. De Grauwe (2011) argues that debt in a monetary union is akin foreign-currency debt (more on this in Part 3)
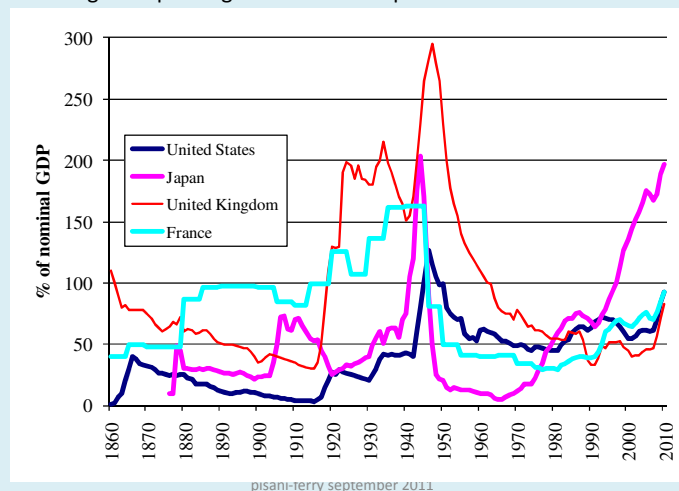
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Large deficits are mostly the results of wars and crises

The US case

Surplus/Deficit As A Percentage Of GNP/GDP

Source: Bianco Research

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Public debt ratios can reach high levels

Long term public gross debt developments in selected countries

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European countries were serial defaulters until the 20th century

Table 2. The Early External Defaults: 1300-1899			
Country	Years of default 1300-1799	Years of default 1800-1799	Number of defaults
Africa			
Egypt, *1831*		1876	1
Tunisia		1867	1
Europe			
Austria	1796	1802, 1805, 1811, 1816, 1868	6
England	1340, 1594*		2
France	1558, 1624, 1648 1661, 1701, 1715 1770, 1788, 1797	1812	10
Germany			6
Hesse		1814	1
Prussia	1683	1807, 1813	3
Schleswig- Holstein		1850	1
Westphalia		1812	1
Greece, *1829*		1826, 1843, 1860, 1893	4
Netherlands		1814	1
Portugal	1560	1828,1837,1841.1845 1852, 1890	7
Russia		1839, 1885	2
Spain	1557, 1575, 1596, 1607, 1627, 1647	1809,1820,1831, 1834, 1851, 1867,1872,1882	14
Sweden		1812	1
Turkey		1876	1

pisani-ferry september 2011 Source: Reinhart and Rogoff   27

Since 1970 advanced countries have been in deficit

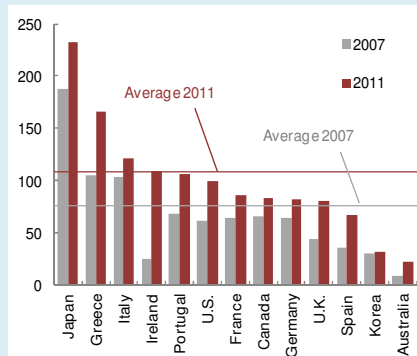**Public expenditure and receipts in the OECD countries**
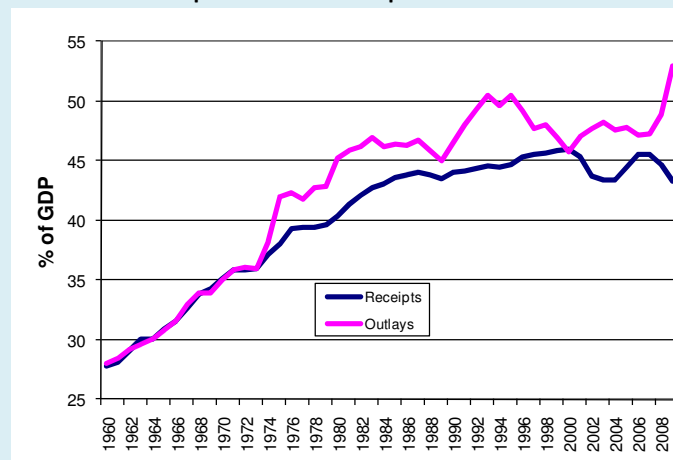
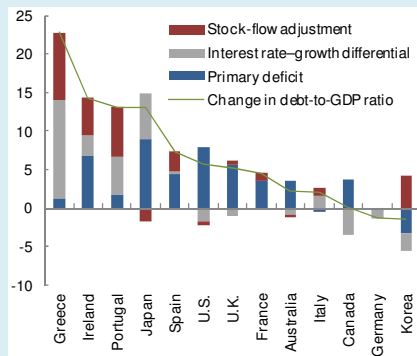pisani-ferry september 2011   Source: OECD   28

The crisis has considerably added to the debt burden

Advanced Economies: General Government Gross Debt
(Percent of GDP)

Advanced Economies: Decomposition of 2011 Debt Accumulation
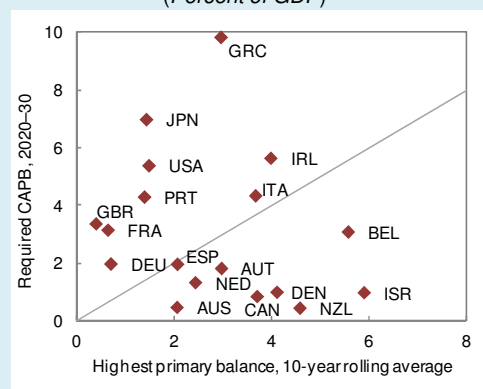*(Percent of GDP)*

Source: IMF Fiscal Monitor, Sept. 2011

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Unprecedented fiscal gaps in advanced economies

Cyclically Adjusted Primary Balance that Needs to Be Maintained in 2020–30 to Achieve Debt Target by 2030
(*Percent of GDP*)

Note: debt target: 60% of GDP in 2030 if debt is higher in 2012, otherwise stabilisation at 2012 level.
Source: IMF Fiscal Monitor Sept. 2011
pisani-ferry september 2011   30

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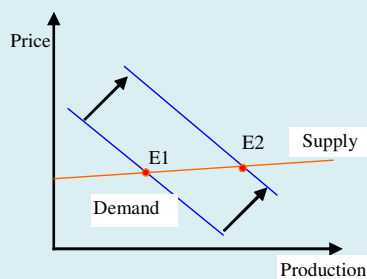- Fiscal policy in times of crisis

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Demand-side effects

- Keynesian multiplier (for beginners)
- Closed-economy limits
  - Slope of supply curve
  - Crowding-out
  - Ricardian equivalence
- Open-economy limits
  - Exchange rate crowding out

Effect of an expansionary fiscal policy

Price

E1   E2   Supply

Demand

Production

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Neoclassical closed-economy objections

- Distinguish objections:
  a) Supply rigidity (AS curve)
  b) Financial crowding out (LM curve)
  c) Expectation of future taxes
- Note that (b) and (c) are contradictory
- Note that (a) and (b) are empirical matters while (c) is based on theory

- Why 2009-10 conditions were favourable :
  a) Excess supply
  b) Supportive monetary policy (zero bound)
  c) Very low long-term rates

price | supply | demand | production
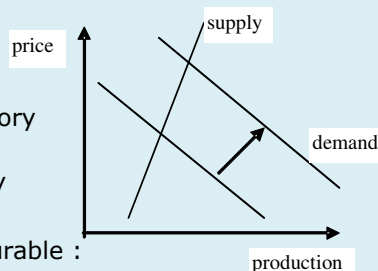
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Ricardian equivalence

- Assume households leave infinitely, have full access to financial market

- Basis: household intertemporal optimisation:
  - Max $U(t) = \sum_0^\infty \frac{u(C_{t+i})}{(1+\rho)^i}$ where ρ is the discount rate
  - Subject to budget constraint $\sum_0^\infty \frac{Y_{t+i} - T_{t+i}}{(1+r)^i} = \sum_0^\infty \frac{C_{t+i}}{(1+r)^i}$
- Results in $u'(C_{t+i}) = \lambda \left(\frac{1+\rho}{1+r} \right)^i$
  - Consumption depends on *permanent* income
  - Consumption grows at constant rate (is constant if $\rho = r$).

- Bond-financed public spending leaves household budget constraint unchanged, therefore does not affect consumption

- See Barro (1974) revisiting Ricardo (1817)

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Ricardian equivalence (cont'd)

- Important result, but several caveats
  - Rational expectations
  - Unproductive public spending
  - Perfectly functioning credit markets
  - Infinitely-lived households
- Remove one and deficit neutrality goes
- Empirical evidence does not confirm full Ricardian equivalence, though partial effects are found

Public deficit and household savings rate in Japan, 1970-2009
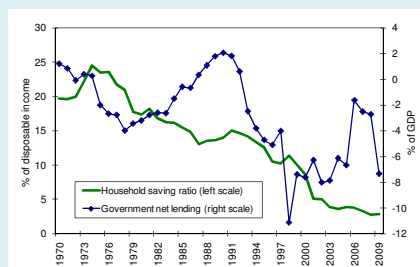
Open-economy aspects

- Mundell-Flemming: fiscal policy effectiveness depends on exchange-rate regime (and capital mobility)

**Short-term effectiveness of budgetary policy**

	High capital mobility	Low capital mobility
Floating exchange rates	Ineffective or not very effective	**Effective**
Fixed exchange rates	**Effective**	Not very effective

Mundell-Flemming: Floating Exchange Rates

- Assume perfect capital mobility and static expectations
- Internal balance determined by i=i* and money market equilibrium
- Good market equilibrium determines the exchange rate
- Budgetary policy only impacts the exchange rate
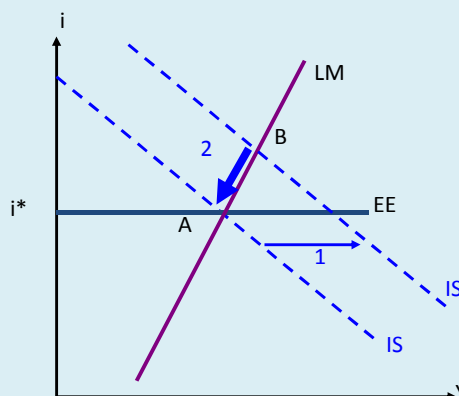- Monetary policy is ineffective
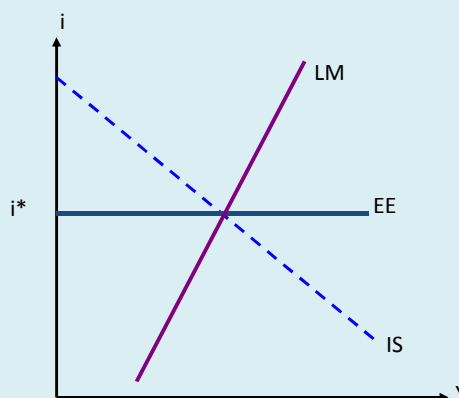
Budgetary expansion

- IS moves to IS'
- But at point B the higher interest rate induces capital inflows
- Exchange rate appreciation moves the IS' schedule back to IS

Mundell-Flemming: fixed exchange rates

- Internal balance determined by i=i* and goods market equilibrium
- Variations in the stock or reserves make money supply endogenous
- Budgetary policy is very effective (no crowding out)
- Monetary policy is ineffective
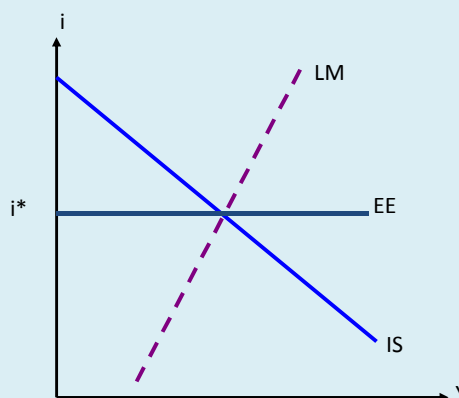
Budgetary expansion

- Governement demand moves internal balance from A to b
- But higher interest rate at B drives capital inflows
- Forex reserves grow, thereby moving the LM curve to the right
- Budgetary policy is therefore super-effective

Sustainability

- **Solvency**: a borrower's ability to face its commitments
- **Sustainability**: policy course is compatible with future solvency
- Rather clear for private agents, less so for governments because (a) they post no collateral and (b) they enjoy monopoly power to tax citizens

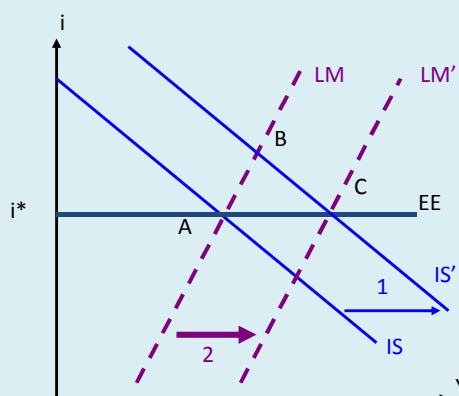 *"Debt can almost always be serviced in some abstract sense, through additional taxation and through the diversion of yet more domestic production to exports to generate the revenue and foreign exchange needed to service the debt. But there is a political and social, and perhaps moral, threshold beyond which policies to force these results become unacceptable."*
  J. Boorman, IMF (2002)

- Example: Ceaucescu in the 1980s
- Sustainability is forward-looking and depends on a assumptions of future policy

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How to define sustainability?

- In a finite-horizon model terminal condition is simply that net wealth at t = T is 0

- Not true in an infinite-horizon model: you can keep on being in debt yet remain solvent

- Need to exclude Ponzi (aka Madoff) games

- Therefore sustainability condition is that the present value of terminal debt is zero

- It is called the *transversality condition*

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The transversality condition

- Debt accumulation: $db/dt = (r - g) b + d$

Hence the debt ratio $b_t = b_0 e^{(r-g)t} + \int_0^t d_s e^{(r-g)(t-s)} ds$

And its present value at t = 0 $b_t e^{-(r-g)t} = b_0 + \int_0^t d_s e^{-(r-g)s} ds$

- **Transversality condition** $\lim_{t \to \infty} b_t e^{-(r-g)t} = 0$

- It implies

Initial debt	$b_0 = - \int_0^\infty d_s e^{-(r-g)s} ds$	Present value of future surpluses

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Empirical implementation

- Let $d = x + h - t$
  where x: expenditures, h: transferts, t : taxes

- Sustainability implies: $\tau* = (r - g) \left[b_0 + \int_0^\infty (x_s + h_s) e^{-(r-g)s} ds \right]$

- $t * - t$ is the **tax gap**. A positive tax gap implies policy is unsustainable

- Blanchard (1984) provides a model of slow tax adjustment where too high a tax gap results in default
- Ostry et al. (2010) provide empirical implementation

- *Tax* gap is a misnomer. There can be either higher taxes or lower spending in the future.

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Sustainability indicators:
the European Commission approach

|	Required adjustment given the initial budgetary position (IBP)		Required adjustment to reach debt to GDP ratio of 60% in 2060 (DR)		Required adjustment due to long-term changes in the primary balance (LTC)
S1=	Gap to the debt-stabilising primary balance	+	Additional adjustment required to reach a debt target of 60% of GDP in 2060	+	Additional adjustment required to finance the increase in public expenditure due to ageing up to 2060
S2=	Gap to the debt-stabilising primary balance	+	0	+	Additional adjustment required to finance the increase in public expenditure due to ageing over an infinite horizon

Source: Commission services

Source: European Commission (2009)

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Situation in 2009
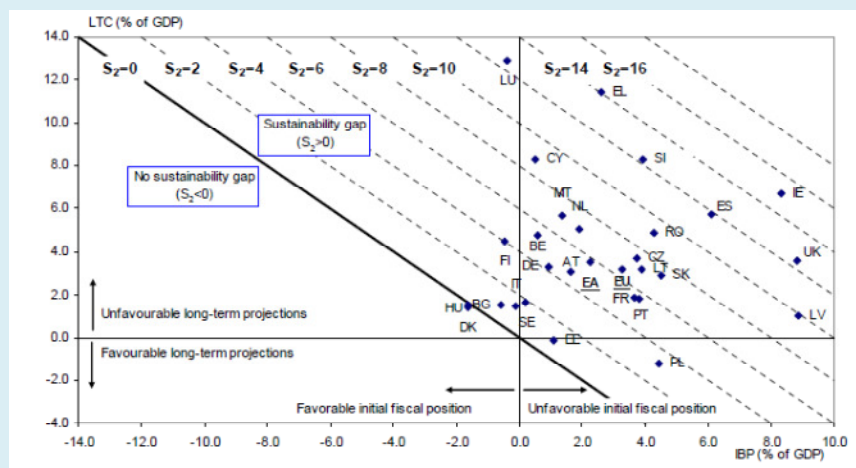
Source: European Commission (2009)

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Medium term implications

- " For several countries, the required primary balance is so large that it is socially and politically unrealistic to reach and sustain; they are well above the largest primary surpluses ever recorded in any EU Member State"

  European Commission (2009)

Table III.1.3:   Required primary balance (% GDP)

	Structural primary balance	Required primary balance	Increase in age-related expenditure
	2009	average 2011-2015	between 2010 and 2060
BE	0.7	5.9	5.9
BG	1.1	2.3	3.2
CZ	-2.9	4.6	6.3
DK	2.8	1.9	1.0
DE	0.6	5.0	5.1
EE	-0.6	0.3	-0.1
IE	-7.6	7.2	8.7
EL	-0.9	12.7	16.0
ES	-5.2	6.4	8.0
FR	-2.7	2.8	2.1
IT	2.0	3.4	1.6
CY	0.2	8.9	10.7
LV	-8.1	2.2	1.3
LT	-3.1	4.2	6.0
LU	1.2	13.6	16.2
HU	3.1	3.5	3.3
MT	-0.2	6.3	9.2
NL	0.0	6.5	6.7
AT	-0.2	4.5	4.0
PL	-3.1	1.1	-1.2
PT	-2.4	3.0	2.8
RO	-3.7	5.4	8.5
SI	-3.3	8.4	12.5
SK	-3.7	4.0	5.5
FI	2.1	5.5	5.4
SE	0.9	3.1	2.4
UK	-7.8	4.5	4.8
EU27	-2.0	4.5	4.4
EA	-0.9	4.9	4.8

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Measuring the fiscal space: the Ostry et al. (2010) approach
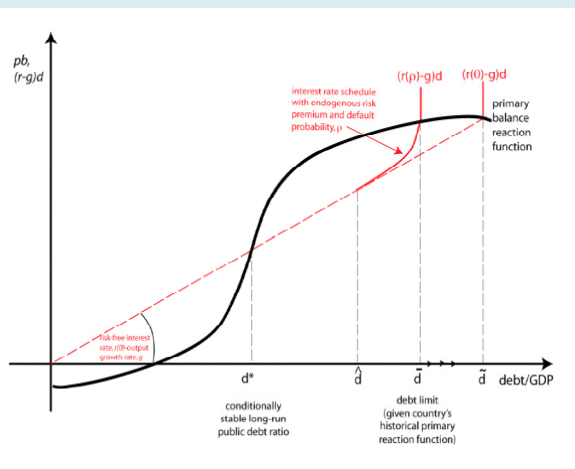
- Empirical estimates result in assessing đ between 150 per cent and 200 per cent of GDP, depending on countries

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The special case of EMU countries

- Crisis illustrates budgetary vulnerability of euro-area members:
  - Greece, Ireland, Portugal
  - Spain, Italy
- Why?
- Key differences with stand-alone countries
  - Central bank cannot come to the rescue
  - Therefore borrowing in euros is analytically equivalent to borrowing in foreign currency
  - Subject to self-fulfilling crises: Italy solvent at 3 per cent interest rate, insolvent at 8 per cent interest rate

On the agenda

- Limitations of standard indicators
  - Deterministic
  - Ignore contingent liabilities
  - Ignore market reactions
  - Ignore non-linearities
- Need for better indicators to measure policy risk, assess probability of default

Supply-side effects

- Budgetary policy has also supply side effects through both taxes and spending
- Direct effects positive for (most) tax cuts, negative for (some) spending cuts
- Permanent spending cuts also signal lower taxes in the future, thereby they have supply-side effects
- Composition of fiscal adjustments matter
- Implications for sustainability

Supply-side effects of a tax cut
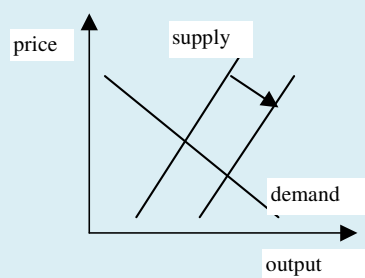
Threshold effects

- Fiscal expansion when the budgetary situation is unsustainable signals future reversal, can even bring it forward
- Therefore fiscal expansion can provide a stimulus below a certain deficit/debt threshold, and be contractionary above the threshold
- Sutherland (1997) presents a model along these lines
- There is some (disputed) evidence of expansionary fiscal contractions

Summary effects of fiscal contraction

	Hypotheses	Mechanisms	Effect of a fiscal contraction
Neo-Keynesian Models	Short-medium term horizon Flexible supply conditions	Partial financial crowding-out Absence of non-linearities *KEYNESIAN*	Recessionary
Ricardian equivalence	Intertemporal budget constraint Consumers with infinite horizon Rational expectations	Crowding-out one for one of private consumption by public consumption Neutrality of the deficit *NON KEYNESIAN*	Neutral
Neoclassical models with composition effects	Neo-Ricardian Framework Fiscal distortions The composition of the adjustment depends on the initial conditions (debt level…).	Super-crowding-out due to supply-side effects *ANTI-KEYNESIAN*	Expansionary (if poor initial conditions, i.e. high debt)
Keynesian models with threshold effects	Keynesian rigidities Consumers with finite horizon Probability of "stabilization" grows with the debt	Keynesian mechanism under standard conditions Inversion of the effects under poor public finance situation *KEYNESIAN or ANTI-KEYNESIAN*	Recessionary if debt is low Expansionary if debt is high

Fiscal policy spillovers

- Cross-country effects of fiscal policy a major policy issue
  - Demand spillovers through goods markets
  - Interest-rate spillovers through capital markets
  - Asset markets spillovers
  - Insolvency contagion in time of stress
  - (Tax policy spillovers)
- Justify common frameworks for coordination (G20) and discipline (EU)

Standard spillovers through product and capital markets

- Standard framework for analysis: Mundell-Fleming model
  - Price rigidity
  - Static expectations
  - Perfect capital mobility (can be tweaked)
  - Floating or fixed exchange rates
- Insight: spillovers depend on relative integration of products and capital markets, exchange rate regime
  - Fixed exchange rate: fiscal policy affects neighbours through product market ('positive' spillover from higher demand for goods) and capital markets ('negative' spillover from higher interest rate, given the central bank's reaction function). Aggregate effect can be either positive or negative
  - Floating exchange rates: increase in aggregate demand distributed to partners through exchange-rate appreciation.

Le modèle

- 2 pays de même taille (notés avec et sans *)
- Comportements identiques
- Prix fixe, sous-emploi keynésien
- Formalisation ultra-simplifiée inspirée de Mundell-Fleming
- Écrit en log-linéaire
- Se concentre sur les interdépendances

Les équations

Deux équations standard IS-LM

(1) $y = \gamma(g + b) - ki$ $y^* = \gamma(g^* - b) - ki^*$ (IS)

(2) $m - \theta t = \alpha y - \beta i$ $m^* + \theta t = \alpha y^* - \beta i^*$ (LM)

Détermination de la balance courante

(3) $b = \mu(y^* - y) - \sigma e$

Balance des paiements

(4) $b + \phi(i - i^*) + t = 0$

ou $i = i^*$ si $\phi = \infty$ (parfaite mobilité)

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Les variables

- y production
- g dépense publique (exogène)
- m offre de monnaie (exogène)
- i taux d'intérêt
- b solde courant
- e taux de change
- t interventions sur le marché des changes

en logs, en écart à situation de référence

7 variables endogènes (2 x 2 + 3),

6 équations + choix du régime de change

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La résolution

- La technique de résolution exploite la symétrie du modèle
- On fait un changement de variables (transformation d'Aoki) pour introduire :

$$X = \frac{x + x^*}{2} \quad \text{variable "somme", et}$$

$$\underline{X} = \frac{x - x^*}{2} \quad \text{variable "différence"}$$

On a évidemment:

$$x = X + \underline{X} \quad \text{et} \quad x^* = X - \underline{X}$$

- Le modèle en X est un modèle du « monde », le modèle en X̲ un modèle des écarts entre pays

La détermination de l'output agrégé

On se place d'abord en <u>changes fixes, parfaite mobilité</u>

Le modèle somme donne :

$$Y = \gamma G - kI$$

$$M = \alpha Y - \beta I$$

- C'est un IS-LM standard d'économie fermée.
- La production agrégée est déterminé par le policy-mix global

$$Y = \left(1 - \frac{\alpha k}{\alpha k + \beta}\right)\left(\gamma G + \frac{k}{\beta} M\right)$$

Les écarts entre pays (changes fixes)

Le modèle différence donne :

$$\underline{Y} = \gamma\underline{G} + \gamma b$$
$$\underline{M} = \alpha\underline{Y} + \theta t$$
$$b = -2\mu\underline{Y}$$

- L'écart entre les deux pays est donc fonction des seules politiques budgétaires

$$\underline{Y} = \frac{\gamma}{1 + 2\gamma\mu}\underline{G}$$

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Choc budgétaire asymétrique (changes fixes)

- Le multiplicateur est augmenté dans le pays qui relance

$$y = \left(1 - \frac{\alpha k}{\alpha k + \beta} + \frac{1}{1 + 2\gamma\mu}\right)\gamma g$$

- Le multiplicateur croisé est de signe ambigu en raison de deux effets d'entraînement contraires :
  - positif par le marché des biens
  - négatif par le marché des capitaux

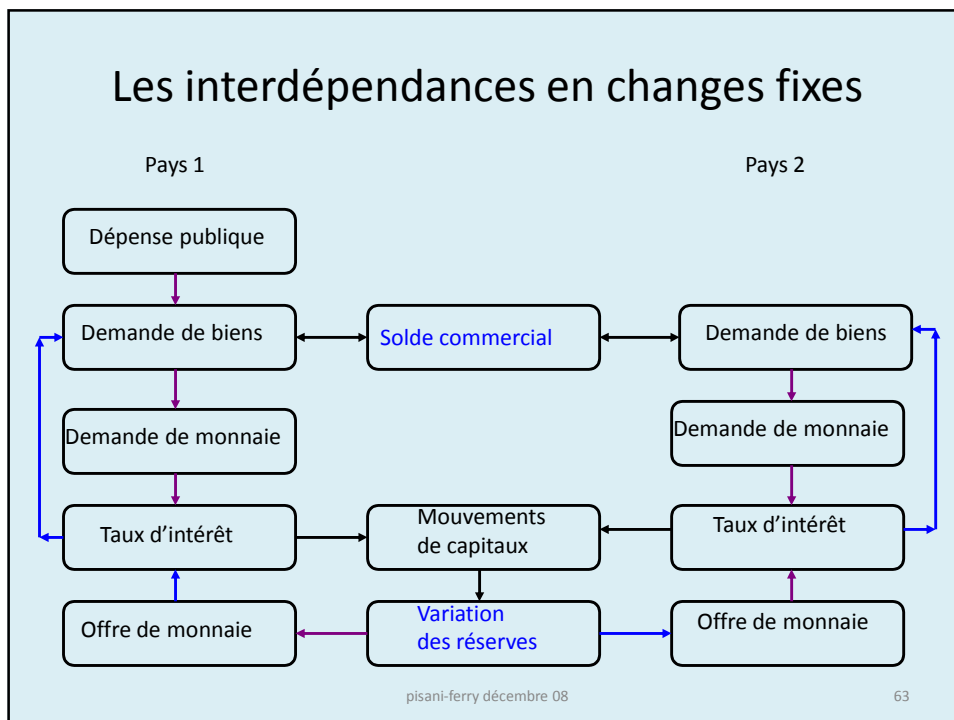$$y^* = \left(1 - \frac{\alpha k}{\alpha k + \beta} - \frac{1}{1 + 2\gamma\mu}\right)\gamma g$$

- Il peut être négatif (si $\alpha k > 2\beta\gamma\mu$)

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Les interdépendances en changes fixes

Pays 1   Pays 2

```
┌─────────────────────┐
│  Dépense publique   │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐      ┌──────────────────┐      ┌─────────────────────┐
│  Demande de biens   │◄────►│ Solde commercial │◄────►│  Demande de biens   │
└─────────────────────┘      └──────────────────┘      └─────────────────────┘
          │                                                      │
          ▼                                                      ▼
┌─────────────────────┐                              ┌─────────────────────┐
│ Demande de monnaie  │                              │ Demande de monnaie  │
└─────────────────────┘                              └─────────────────────┘
          │                                                      │
          ▼                                                      ▼
┌─────────────────────┐      ┌──────────────────┐      ┌─────────────────────┐
│   Taux d'intérêt    │─────►│   Mouvements     │◄────►│   Taux d'intérêt    │
└─────────────────────┘      │   de capitaux    │      └─────────────────────┘
          │                  └──────────────────┘                │
          ▼                           │                          ▼
┌─────────────────────┐      ┌──────────────────┐      ┌─────────────────────┐
│  Offre de monnaie   │◄─────│    Variation     │      │  Offre de monnaie   │
└─────────────────────┘      │   des réserves   │      └─────────────────────┘
                             └──────────────────┘
```

Les changes flottants

On reste en parfaite mobilité

Le modèle somme ne change pas.

Le modèle différence donne :

$$\underline{M} = \alpha \underline{Y}$$

$$\underline{Y} = \frac{\gamma}{1 + 2\gamma\mu}(\underline{G} - \sigma e)$$

Seule la politique monétaire détermine les écarts d'output

Les politiques budgétaires déterminent le taux de change

Choc budgétaire asymétrique (changes flottants)

- Choc budgétaire asymétrique (g, 0)
- L'écart des productions reste inchangé

$$(\mathbf{Y} > 0, \underline{Y} = 0)$$
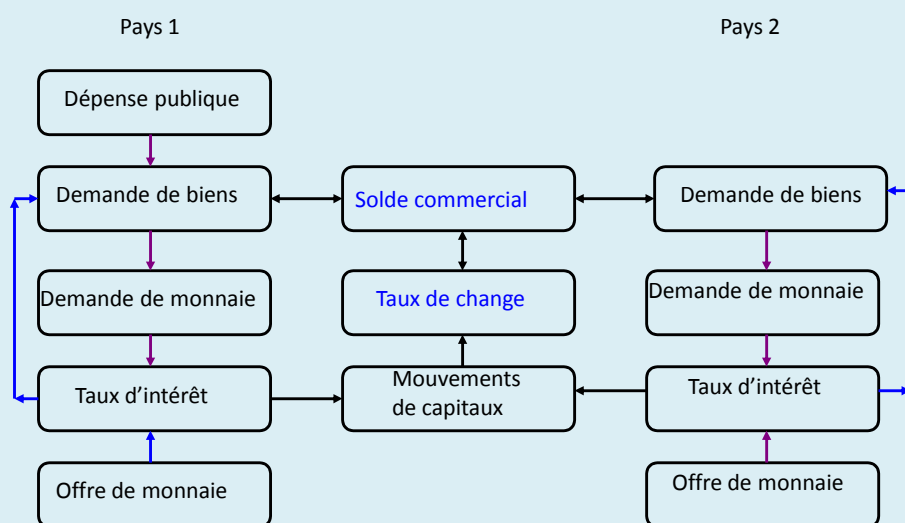
- Le change du pays qui relance s'apprécie

$$e = \frac{1}{\sigma}\underline{G}$$

- Il en résulte que la relance budgétaire se diffuse intégralement aux deux pays

Les interdépendances en changes flottants

Pays 1   Pays 2

Les interdépendances en l'absence de mobilité

- On peut utiliser le modèle avec $\phi = 0$
- En changes fixes,
  - les effets d'éviction ne se transmettent pas au voisin,
  - le multiplicateur croisé est positif.
- En changes flottants,
  - la balance commerciale est toujours à l'équilibre,
  - la reprise reste cantonnée au premier pays,
  - il y a donc isolation parfaite des conjonctures

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Synthèse

	Changes fixes		Changes flottants	
	mobilité	pas de mobilité	mobilité	pas de mobilité
dy*/dg	?	+	+ (= dy/dg)	0
de/dg			app	dép
dy*/dm	+ (= dy/dm)	+	-	0
de/dm			dép	dép

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Asset market spillovers

- Less standard, more important channel of transmission through:
  - Correlation of bond prices
  - Correlation of equity prices
  - Cost of funding of global banks
- As fiscal policy affects domestic bond and equity prices, spillover can be important if financial markets are integrated internationally
- These channels are ignored in standard macro models as there is no good theory to account for them
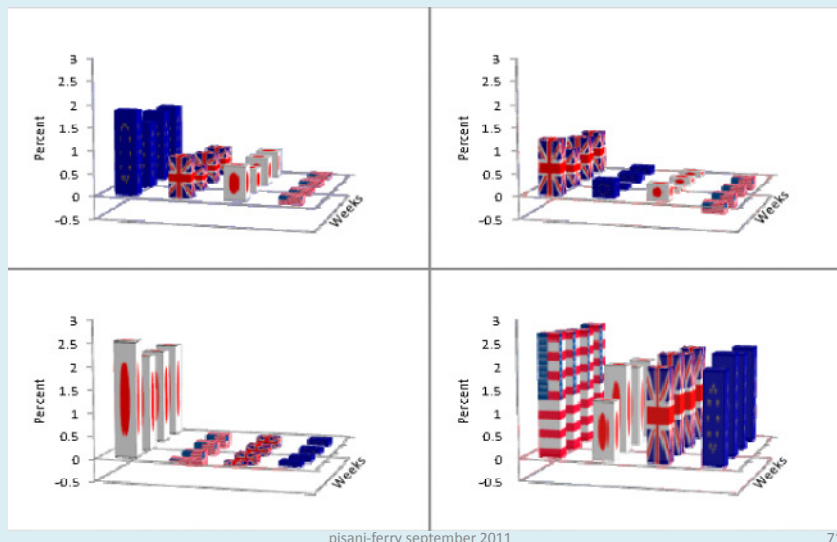
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IMF estimates of impact of shock to bond yields
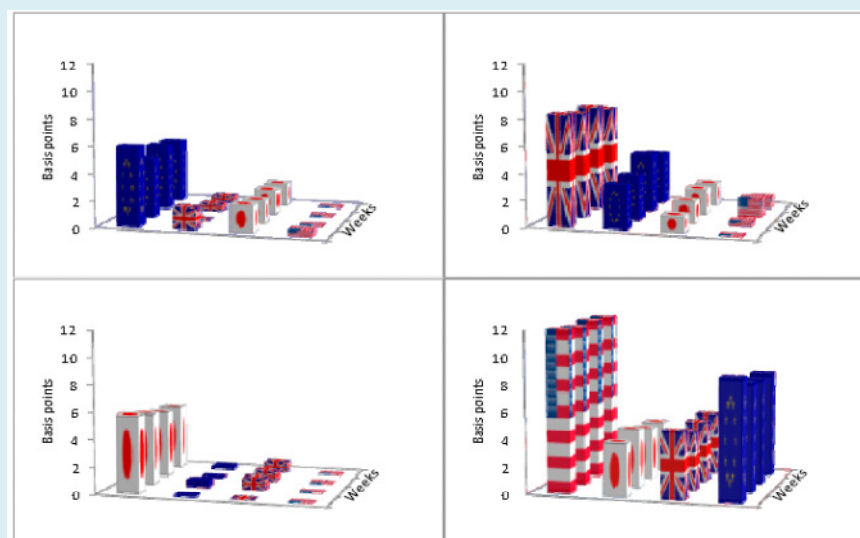
IMF estimates of impact of shock to equity prices

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Implications for US fiscal spillovers
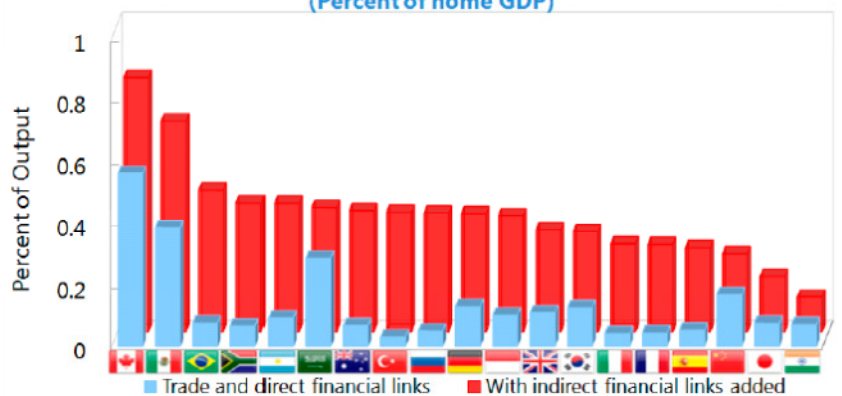
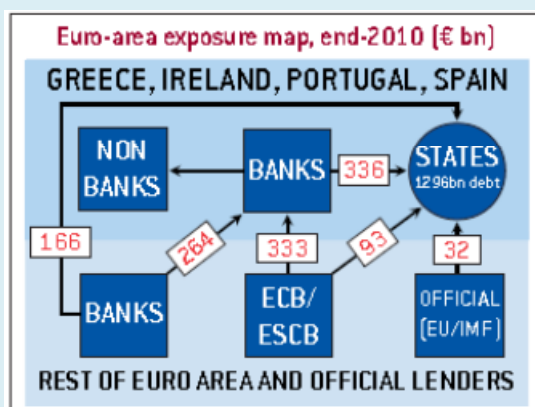pisani-ferry september 2011   Source: IMF US spillover report, 2011

Debt crisis contagion

- Euro-area crisis highlights spillovers from default threats
- Channels :
  - Bank fragility
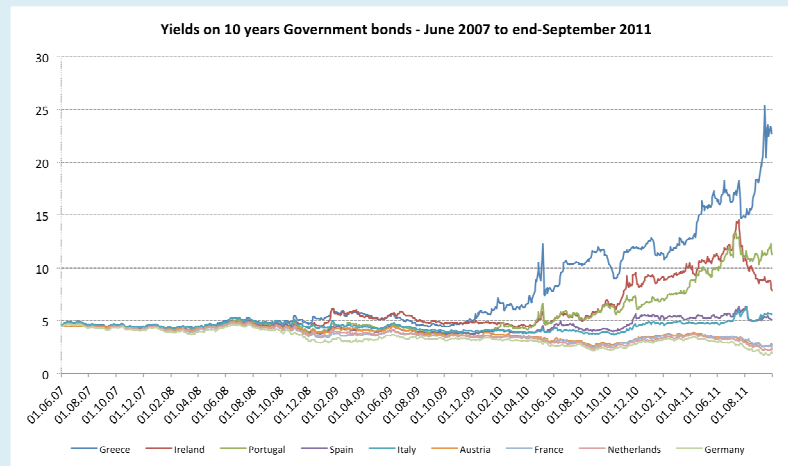 - Sustainability assessment
  - ECB response

Debt exposure

Source: Darvas et al. (2011)

Peripheral spreads highly correlated

Yields on 10 years Government bonds - June 2007 to end-September 2011

Greece · Ireland · Portugal · Spain · Italy · Austria · France · Netherlands · Germany

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Effects on banking system

Interbank market

Banks deposits with ECB

Spread 3-month Euribor-EONIA Swap Index, January 2007 to October 2011

Use of ECB Deposit Facility - EURmn (June 2007 - October 2011)
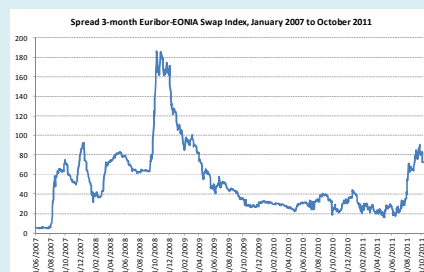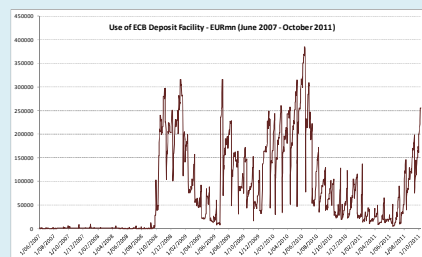
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3.1 Issues
- Concepts and measurement
- Debt/deficit dynamics
- Complications
- Lessons from history

3.2 Theories
- Demand-side effects
- Public debt sustainability
- Supply-side effects
- Fiscal policy spillovers

3.3 Policies
- Rules and principles for fiscal policy
- Fiscal policy in the European Monetary Union
- Fiscal policy in times of crisis

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Rules and principles

- Budgetary policy is traditionally discretionary
- However increasing reliance on rules to:
    - Improve predictability
    - Address political failures
    - Improve credibility vis-à-vis markets
    - Enforce coordination
- European Stability and Growth Pact (SGP, 1997) an example among many
- Current discussions in Europe
    - Strengthening of Pact
    - National fiscal rules and institutions

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More and more rules
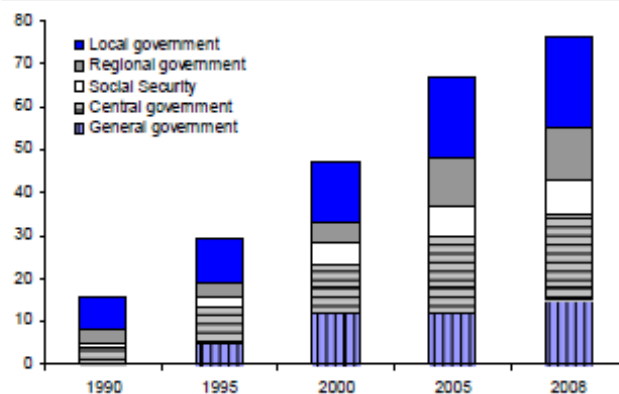
Source: ECFIN, public finances in EMU 2009

What is a good rule?

The good rule according to Kopits and Symansky (1998):
- *a clear definition,*
- *transparent public accounts,*
- *simplicity,*
- *flexibility – in particular regarding the capacity to react to exogenous shocks–,*
- *policy relevance in view of the objectives pursued,*
- *capacity of implementation with possibility of sanctioning non-observance,*
- *consistency with the other objectives and rules of public policies,*
- *accompanied by other effective policies*

Many rules in practice

- Headline deficit rules (*à la* SGP)
- Golden rule (Germany before reform)
- Structural deficit rules (Germany after reform*)*
- Debt rules (UK under Blair/Brown)
- Spending rules (France)

Enforcement very uneven

Example: The British 1998-2008 rule RIP

- Two planks
  - Golden rule (no borrowing for current spending)
  - Sustainable investment rule (debt ratio 40% over the cycle)
- Two problems:
  - Who determined what is the cycle?
  - How were contingent liabilities taken into account?

UK debt ratio

Source: oECD
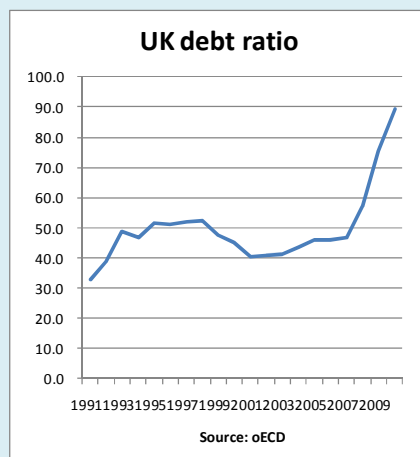
Example: The new German rule

Figure 3: Core structure of the new budget rule

	structural component	maximum 0.35 % of GDP
- /+	cyclical component	cyclical adjustment analogous to the SGP
- /+	balance of financial transactions	analogous to the SGP
-	(when appropriate) obligation to reduce debits of the control account	if threshold of 1 % of GDP is exceeded; max. 0.35 % of GDP per year; in upswing
=	maximum permissible net borrowing	

Exception for natural disasters and emergency situations (only possible with a parliamentary majority of 50 % of the members of the Bundestag plus one, and binding amortisation plan)

Source: BMF

Fiscal policy in EMU

- Art 125 of Treaty (avoidance of excessive deficit)
- Stability and Growth Pact (SGP, 1997 reformed 2005) is the basis for implementation of Art 125
- Two planks
  - Preventive arm
    - Medium term objective (MTO)
    - Stability programmes
  - Corrective arm (Excessive Deficit Procedure – EDP):
    - Advance warning
    - Recommendation to correct excessive deficit within given time frame
    - Eventual sanctions

- Has had some effect on national policies but has not prevented problems
  - Enforcement (Greece)
  - Focus on deficit, not on debt (Italy)
  - Neglect of contingent liabilities (Spain, Ireland)

New mechanism (six-pack)

- Fiscal arm
  - Prevention
    - Mandatory reduction of structural deficit by 0.5 point per year, until structural balanced is reached
    - Limits on primary spending growth unless financed by permanent revenues
    - Deposit required if country does not deliver on commitments
  - Correction
    - Debt criterion in addition to deficit criterion (reduction by $1/20^{th}$ of excess to 60% of GDP)
    - Earlier sanctions
    - Reverse QMV for decision
- Non-fiscal arm
  - Excessive imbalances procedure

What's the rationale?

- Economic externalities
  - [Savings/investment – not convincing as euro area is financially open economy]
  - Financial cost of debt default
  - Economic cost of bail-out (pressure on ECB)
- Political economy
  - External discipline as substitute to domestic discipline

How effective?
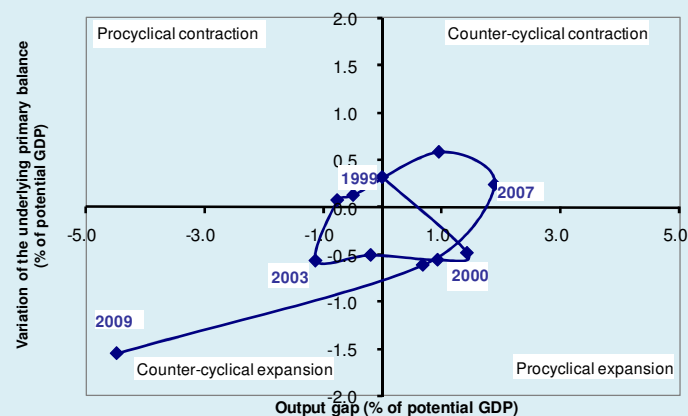
French stability programmes: targets and outturns

Source : Rapport Guillaume [2007].
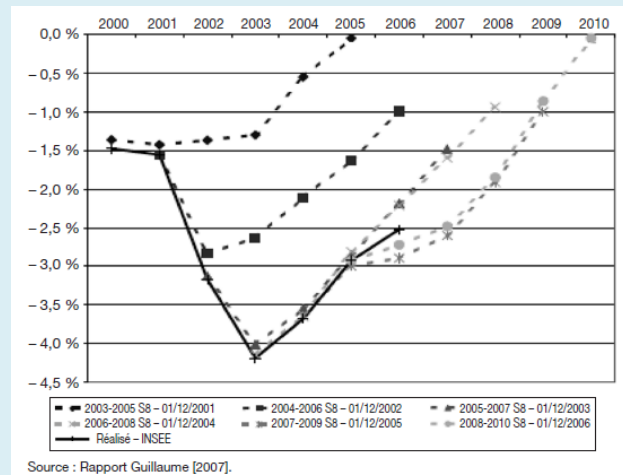
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How stabilising?

The stance of budgetary policy in the Euro area

Source: OECD

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Why EMU is fragile

National banking systems

Fiscal union

Lender of last resort

Strict no-monetary financing

Financial union

Budgetary decentralisation

Debt intolerance level is lower and need for resolution regime higher in "financial union"
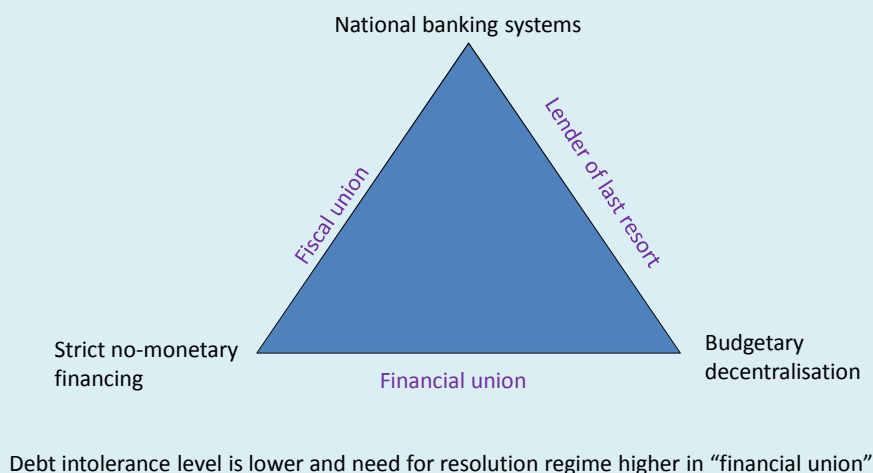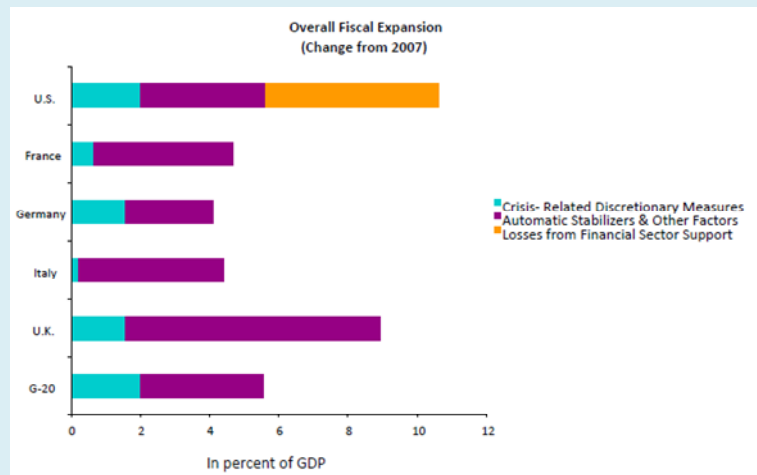
Fiscal policy in times of crisis

- 2009 stimulus because of:
  - Risk of depression
  - Ineffectiveness of monetary policy (transmission through financial system clogged , in addition to zero bound)
- Exceptional effectiveness of fiscal policy because of:
  - Generalised excess supply
  - Excess savings and flight to safety resulting in ultra-low bond rates
  - Focus of agents on short-term horizon
  - Symmetric character of shocks, therefore gains from coordinated action

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Evidence on stimulus

Overall Fiscal Expansion
(Change from 2007)

Crisis- Related Discretionary Measures
Automatic Stabilizers & Other Factors
Losses from Financial Sector Support

In percent of GDP

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Source: IMF

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What about 2011?

- Fiscal space dramatically reduced in several euro area countries because of concerns over:
  - Sustainability (Portugal, Greece)
  - Implicit liabilities (Ireland)
  - Trust (Greece)
  - Macro conditions (Spain)
  - Multiple equilibria (Italy)
- Most countries moving towards budgetary consolidation in 2011
- Ideal policy combines improvement of intertemporal balance through reforms (e.g. pensions) and limited fiscal contraction in the short term
- However many countries have no choice but to consolidate aggressively now.

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