# Sovereign debt problems in the Euro Area:

## are there lessons for India?

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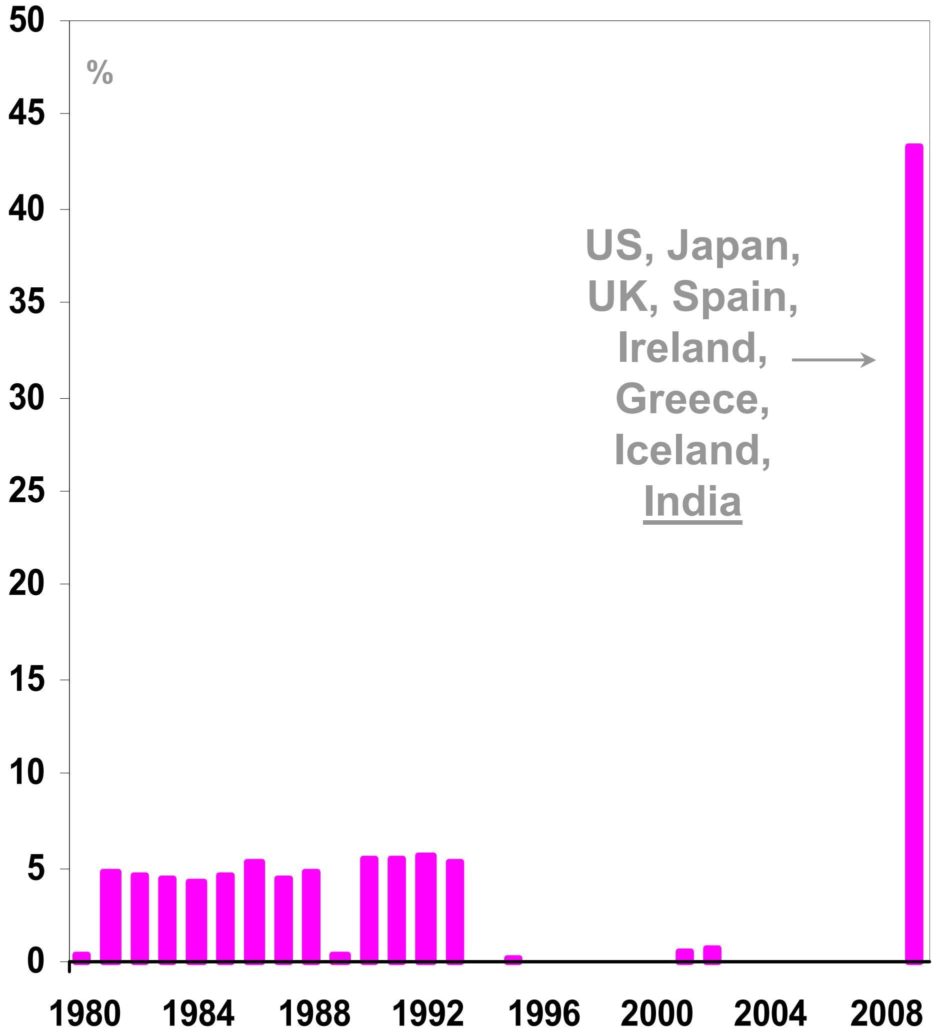
*** This presentation was prepared on 11 July 2010**

# Putting Euro Area Sovereign Debt Crisis in Perspective

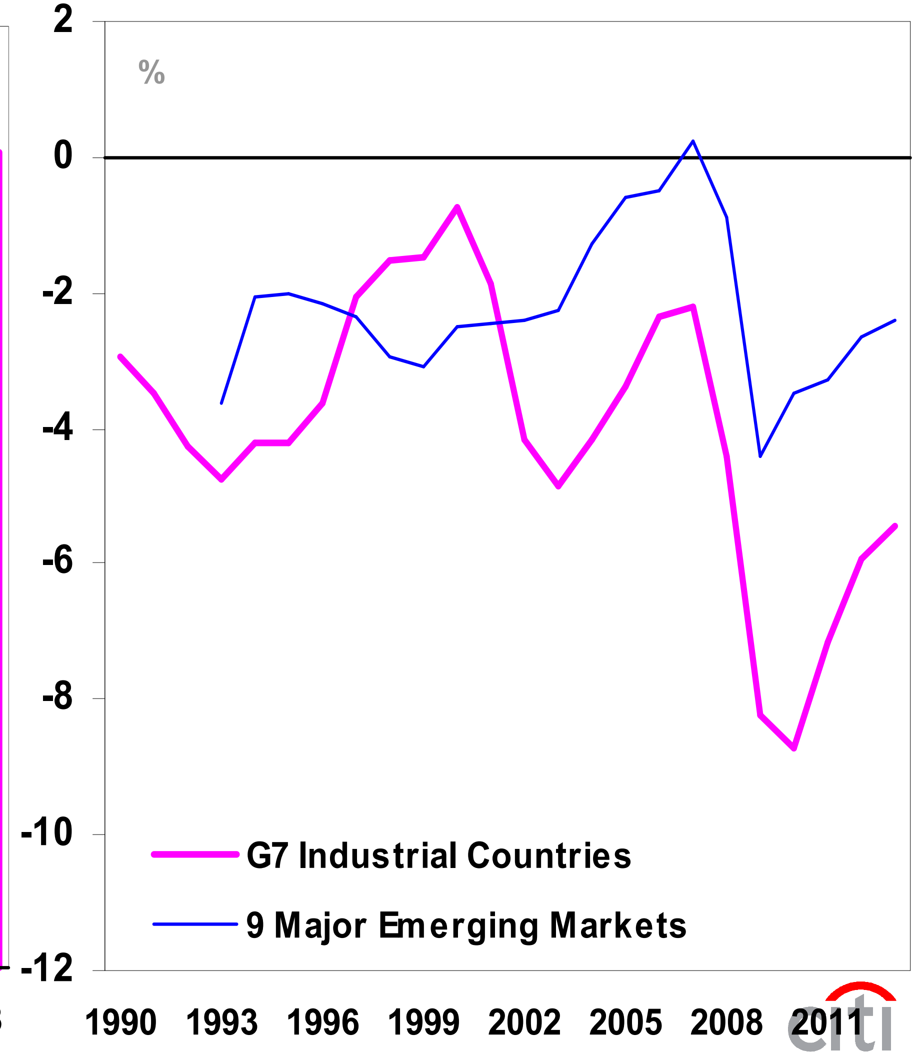
- Fiscal unsustainability afflicts most advanced industrial countries
  - Not just a problem of Greece
  - Not just a problem of EA Periphery (Greece, Portugal, Spain, Ireland, Italy)
  - Not just an EA problem
    - Fiscal position of EA *'on average'* better than that of UK, US and Japan
  - In Euro Area banking sector fragility more serious threat to recovery than sovereign debt crisis per se
  - Threat & reality of EA sovereign debt restructuring both contributes to risk of EA banking crisis and impedes effective response

# Unprecedented Fiscal Deterioration Across Industrial Countries

**Pct of Global GDP In Countries With Fiscal Deficit of 10% of GDP Or More**




**Fiscal Balances in Industrial Countries and Emerging Markets as Pct of GDP**

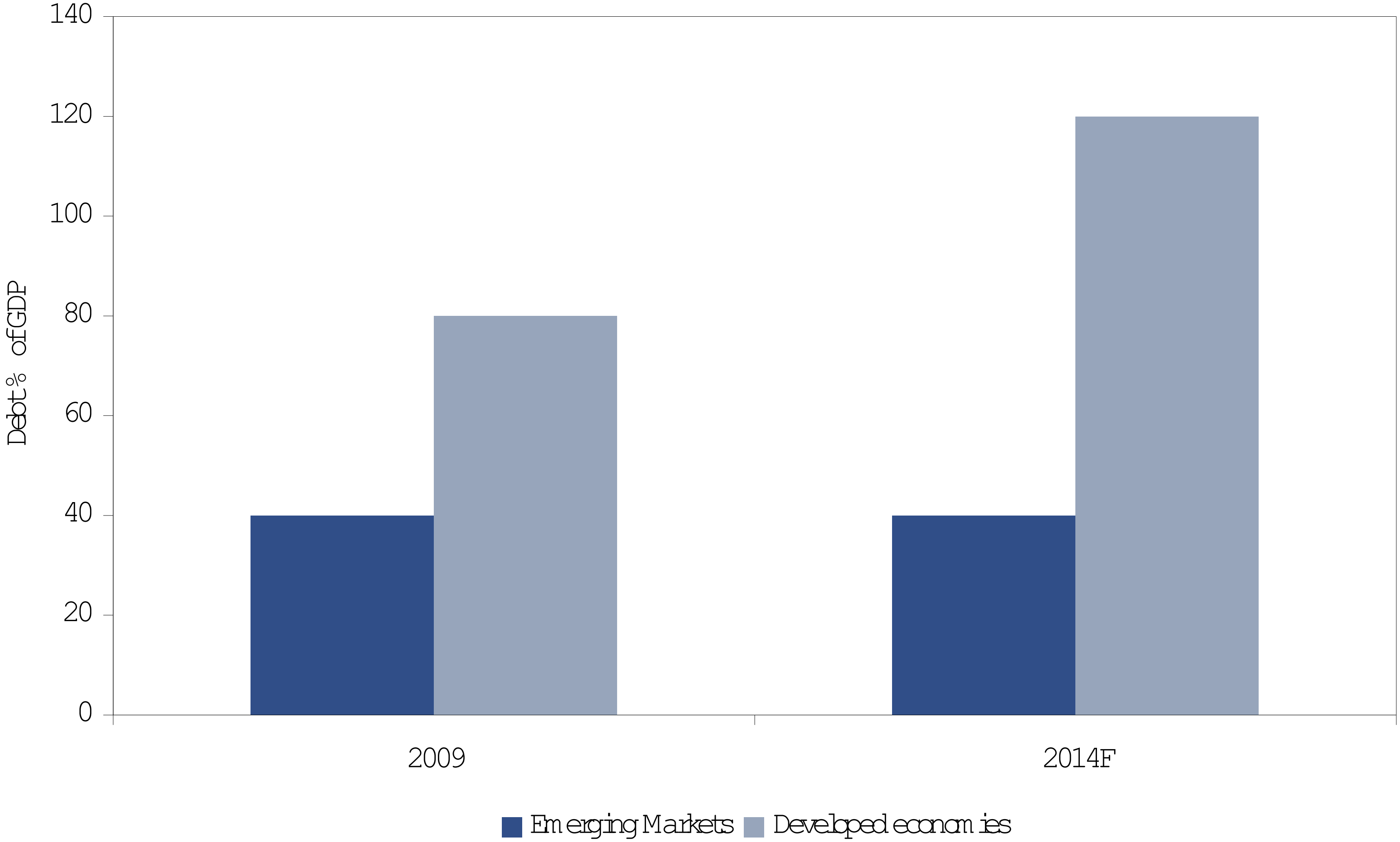





Source: IMF and CIRA

# Debt/GDP ratios: is "risk-free" shifting to emerging markets?

**Public debt/GDP in 20 emerging economies and 20 developed economies**






Source: IMF, Citi Investment Research and Analysis

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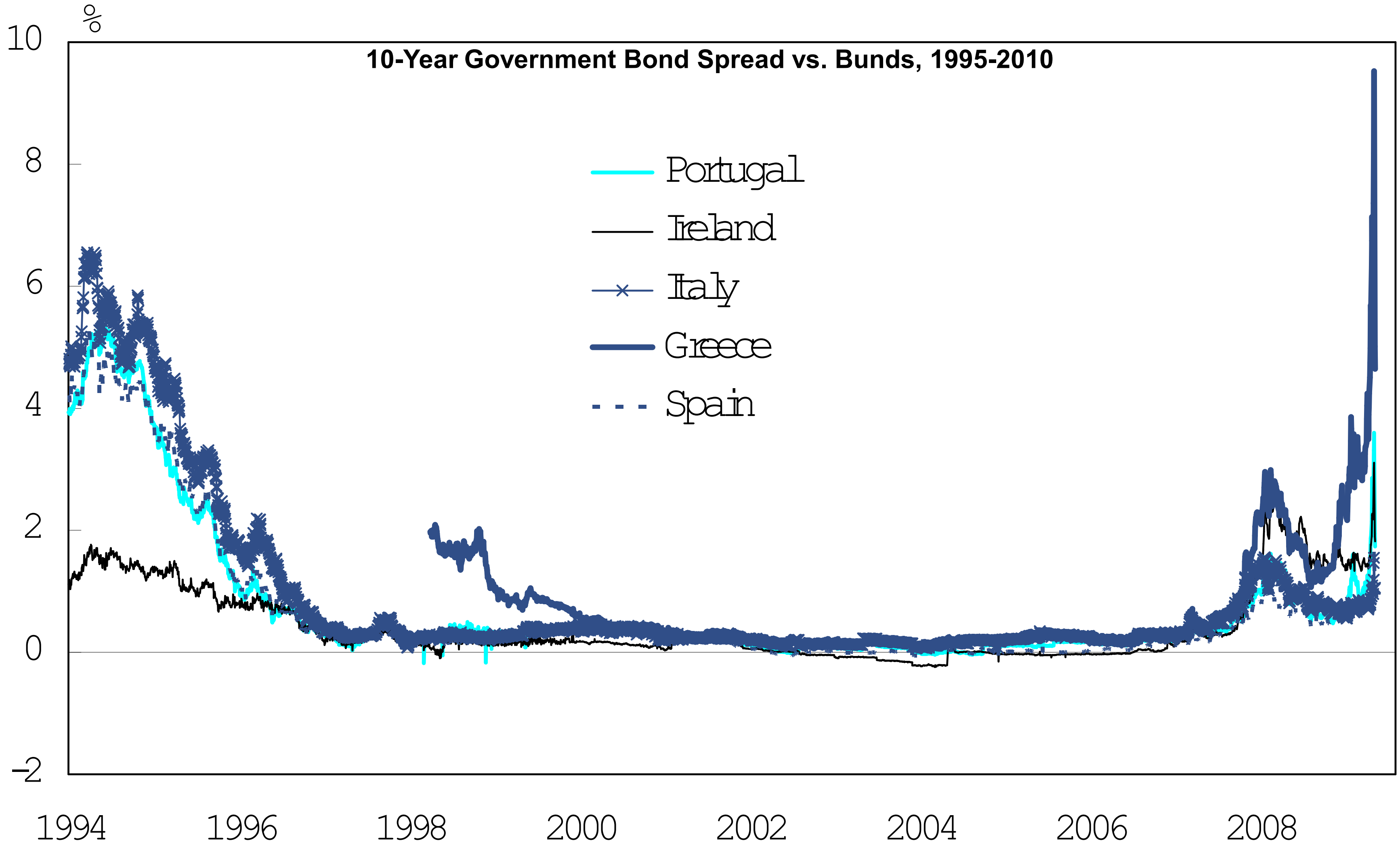
# Eurozone fiscal problems are long-standing




- Inflation and exchange rate depreciation driving spreads over Bunds before EMU
- A lull from 1999/2001 to 2007
- Sovereign default risk driving spreads over Bunds in EMU after 2007

Source: Datastream

# Things are bad as regards fiscal sustainability, and not just in Greece ……

Selected Countries - Fiscal Data for 2009

| | Gross Debt | Net Debt | Budget Balance | Structural Balance | Cyclically Adjusted Primary Balance |
|---|---|---|---|---|---|
| | % of Nominal GDP | | | | |
| Australia | 15.9 | -5.7 | -4.0 | -2.4 | -1.1 |
| Canada | 82.8 | 28.6 | -4.8 | -3.2 | -2.4 |
| Czech Republic | 46.5 | -0.3 | -5.9 | -4.2 | -3.2 |
| Denmark | 45.3 | -3.9 | -2.7 | 0.5 | 0.5 |
| Euro area | 81.8 | 51.7 | -6.1 | -3.8 | -1.1 |
| Austria | 72.9 | 38.1 | -3.4 | -3.4 | -1.2 |
| Belgium | 101.2 | 81.3 | -6.0 | -3.3 | 0.4 |
| Finland | 43.7 | -52.1 | -2.2 | 1.4 | 0.8 |
| France | 84.5 | 53.1 | -7.5 | -6.6 | -3.7 |
| Germany | 77.4 | 50.2 | -3.3 | -2.0 | 0.3 |
| Greece | 114.9 | 86.1 | -13.6 | -10.4 | -6.0 |
| Ireland | 65.8 | 24.9 | -14.3 | -8.7 | -8.2 |
| Italy | 123.6 | 97.4 | -5.3 | 3.0 | 1.9 |
| Luxembourg | 18.2 | -44.6 | -0.7 | -0.5 | -1.1 |
| Netherlands | 71.4 | 30.9 | -5.3 | -3.6 | -1.9 |
| Portugal | 83.8 | 55.6 | -9.4 | -5.6 | -2.8 |
| Slovak Republic | 36.7 | 7.2 | -6.8 | NA | NA |
| Slovenia | NA | NA | -5.9 | NA | NA |
| Spain | 59.3 | 33.2 | -11.2 | -6.6 | -5.6 |
| Hungary | 85.2 | 58.8 | -4.0 | -1.6 | 2.3 |
| Iceland | 117.6 | 35.4 | -15.7 | -15.3 | -6.5 |
| Japan | 189.3 | 96.5 | -7.4 | -6.5 | -5.6 |
| Korea | 33.2 | -34.5 | -1.8 | NA | NA |
| New Zealand | 27.0 | -14.7 | -1.2 | 0.7 | -0.2 |
| Norway | 59.9 | -140.4 | 9.6 | -4.4 | -7.0 |
| Poland | 58.1 | 25.7 | -7.1 | -6.8 | -4.7 |
| Sweden | 52.7 | -16.7 | -0.5 | 1.4 | 1.4 |
| Switzerland | 44.4 | 9.9 | -0.7 | -0.2 | 0.3 |
| United Kingdom | 71.0 | 46.9 | -11.5 | -9.2 | -6.8 |
| United States | 83.9 | 56.4 | -11.2 | -8.9 | -7.3 |

Sources: Eurostat, OECD and Citi Investment Research and Analysis

# Internal transfer harder when external transfer required also

Selected Countries - Net International Investment Position, (2000-2008) and Current Account (2009)

| | 2000 | 2008 | 2009 |
|---|---|---|---|
| | Net International Investment Position | | Current Account Balance |
| | % GDP | | |
| Switzerland | 114.08 | 121.47 | 8.7 |
| Norway | 20.44 | 52.27 | 13.8 |
| Japan | 24.81 | 50.60 | 2.8 |
| Belgium | 61.19 | 31.44 | -0.3 |
| Germany | 3.27 | 25.30 | 4.8 |
| Netherlands | -15.34 | 10.44 | 5.2 |
| UK | -9.69 | 6.88 | -1.3 |
| Finland | -148.83 | -4.18 | 1.4 |
| Sweden | -23.96 | -5.83 | 6.4 |
| Denmark | -14.39 | -8.49 | 4.0 |
| Austria | -19.54 | -14.43 | 1.4 |
| France | 8.90 | -18.06 | -1.5 |
| Italy | 3.58 | -20.23 | -3.4 |
| USA | -13.37 | -24.02 | -2.9 |
| Turkey | -37.03 | -27.13 | -2.3 |
| Slovenia | -11.85 | -30.76 | -0.3 |
| Czech Republic | -8.95 | -38.31 | -1.0 |
| Poland | -32.21 | -46.09 | -1.6 |
| Romania | -22.49 | -50.11 | -4.4 |
| Slovakia | -20.90 | -53.10 | -3.2 |
| Ireland | -15.02 | -55.24 | -2.9 |
| Lithuania | -35.12 | -60.40 | 3.8 |
| Greece | -38.79 | -69.75 | -11.2 |
| Estonia | -48.86 | -72.39 | 4.6 |
| Croatia | -24.95 | -72.50 | -5.6 |
| Latvia | -29.67 | -75.55 | 9.4 |
| Spain | -32.33 | -75.60 | -5.1 |
| Portugal | -39.87 | -91.89 | -10.1 |
| Bulgaria | -34.84 | -98.58 | -9.5 |
| Hungary | -69.94 | -106.19 | 0.4 |
| Iceland | -55.69 | -215.77 | 3.8 |

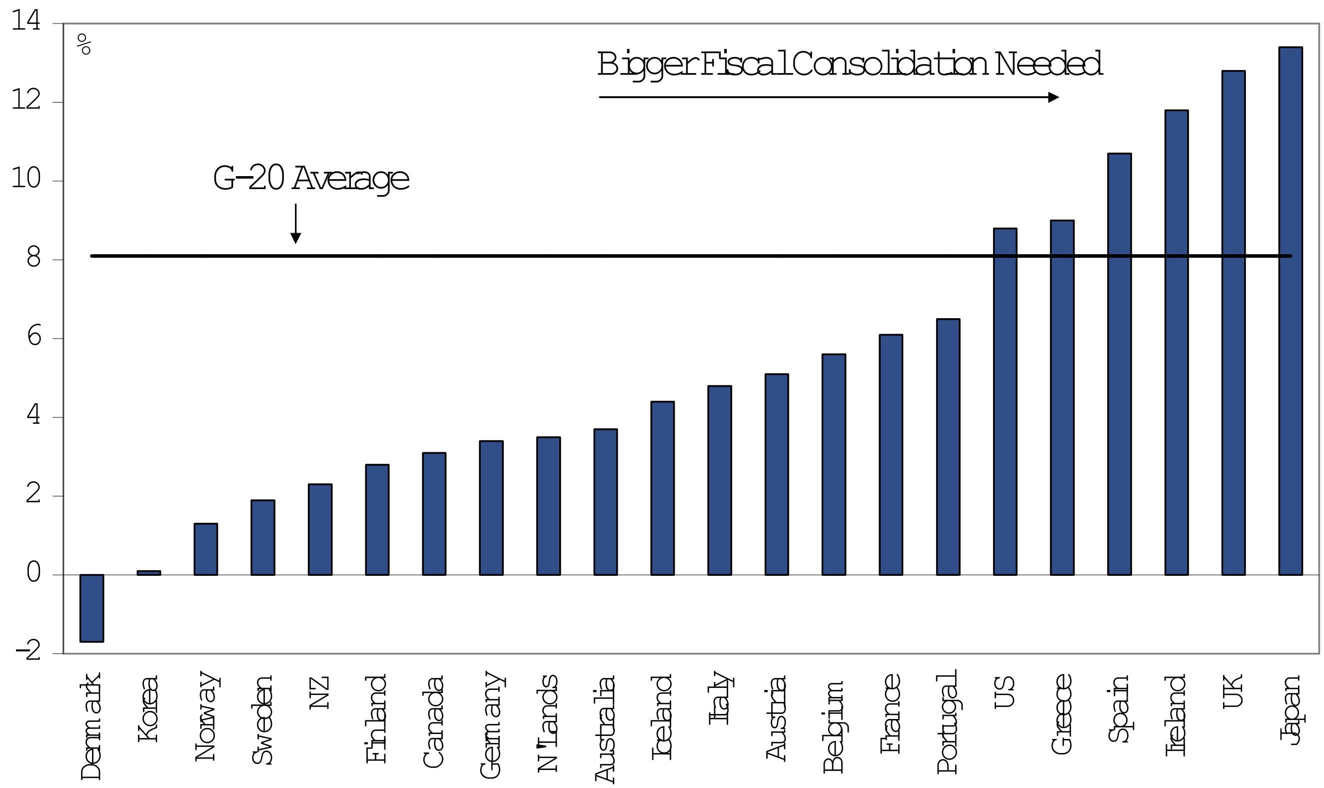
Note: Current Account for Belgium, Croatia, the Czech Republic, Hungary, Norway, Poland, the Slovak Republic, Slovenia, Sweden and Switzerland as of 2008. Source: Haver

# First lesson for India

- To consider fiscal-financial sustainability consider not just public sector accounts but also
- Private sector accounts
  – Financial sector
  – Non-financial corporate sector
  – Household sector
- Reasons
  – Private financial wealth can be tax base and means for future private funding of current public spending programmes
  – Future private losses can be socialised
- Examples: Spain vs. Japan or Italy

# Massive Challenge to Return to Fiscal Sustainability

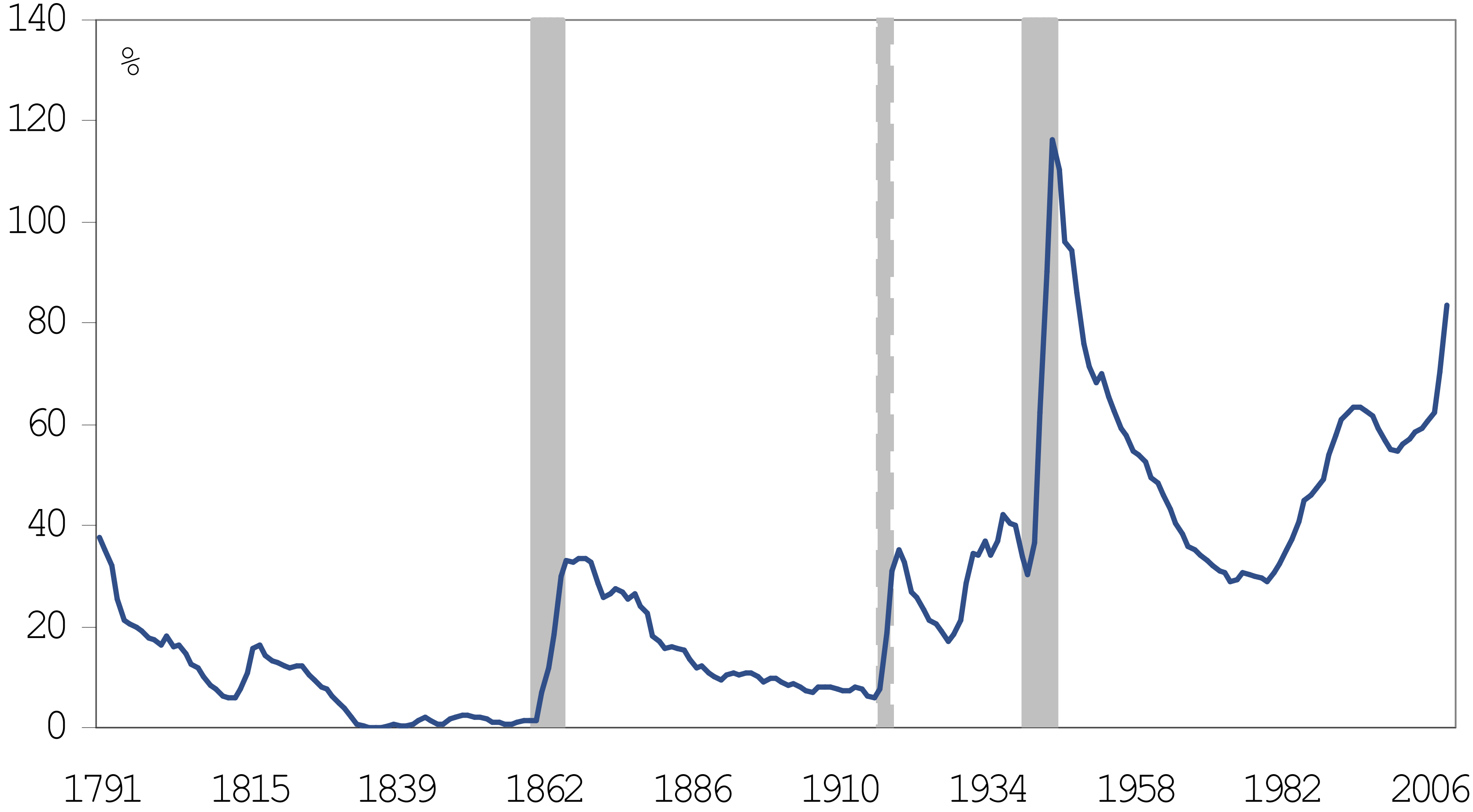
**Advanced Economies – Fiscal Tightening (% of GDP) Needed between 2010 and 2020 to Achieve 60% of GDP Public Debt Ratio by 2030**




Note: Primary balance (assumed to improve gradually during 2011-20 and then maintained constant until 2030) improvement needed to stabilise debt at end-2011 level. Japan's target public debt ratio is 80% of GDP. Sources: IMF and Citi Investment Research and Analysis

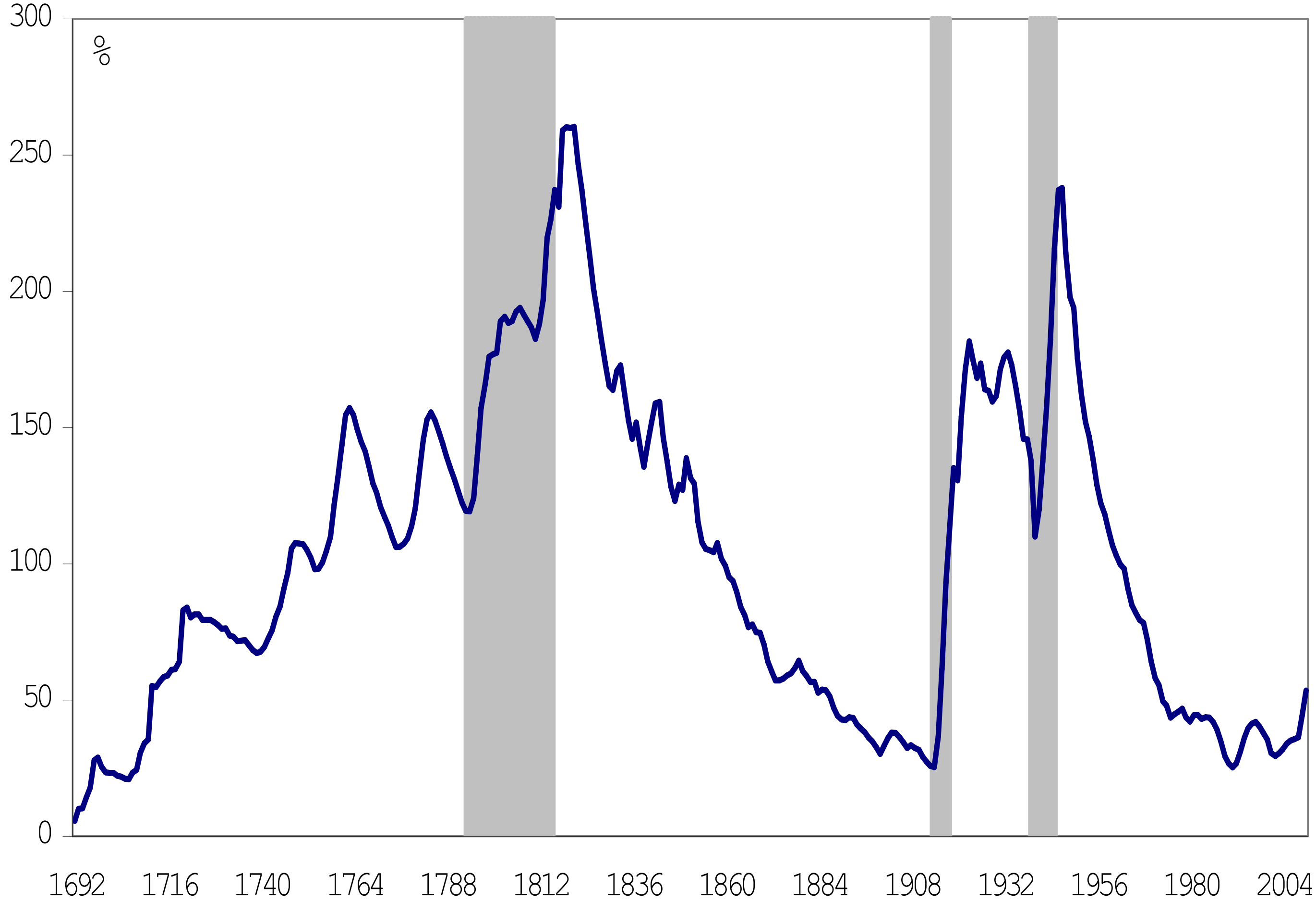
# Public debt explosions used to be a wartime thing...

**US – Treasury Debt (% of GDP 1790-2009)**




**Note: Shaded areas represent American Civil War (1861-1865), World War I (1917-1918) and World War II (1941-1945). Sources: US Nominal and Real GDP 1790-2009: Louis D. Johnston and Samuel H. Williamson, "What Was the U.S. GDP Then?" Measuring Worth, 2009. URL: http://www.measuringworth.org/usgdp/ US Treasury securities outstanding: US Treasury and Citi Investment Research and Analysis**

# UK - Net Public Debt (as % of GDP), 1692-2009




Note: Shaded areas represent Napoleonic Wars (1793-1815), World War I (1914-1918) and World War II (1939-1945). Sources: www.ukpublicspending.co.uk and Citi Investment Research and Analysis

# The arithmetic of debt burden reductions in the US

- How did the US reduce Treasury debt to GDP ratio from 121.20% of GDP in 1946 to 31.67% of GDP in 1974?
- Arithmetically, of the 89.53 percentage points reduction in the public debt burden:
  - Inflation accounted for 52.63 percentage points
  - Real growth accounted for 55.86 percentage points
  - Interaction between real growth and inflation accounted for 1.55 percentage points
  - And Federal surpluses accounted for -20.51 percentage points
    - There were surpluses in individual years (1947, 1948, 1949, 1951, 1956, 1957, 1960, 1969)
    - The only surpluses since 1969 have been the four years 1998-2001

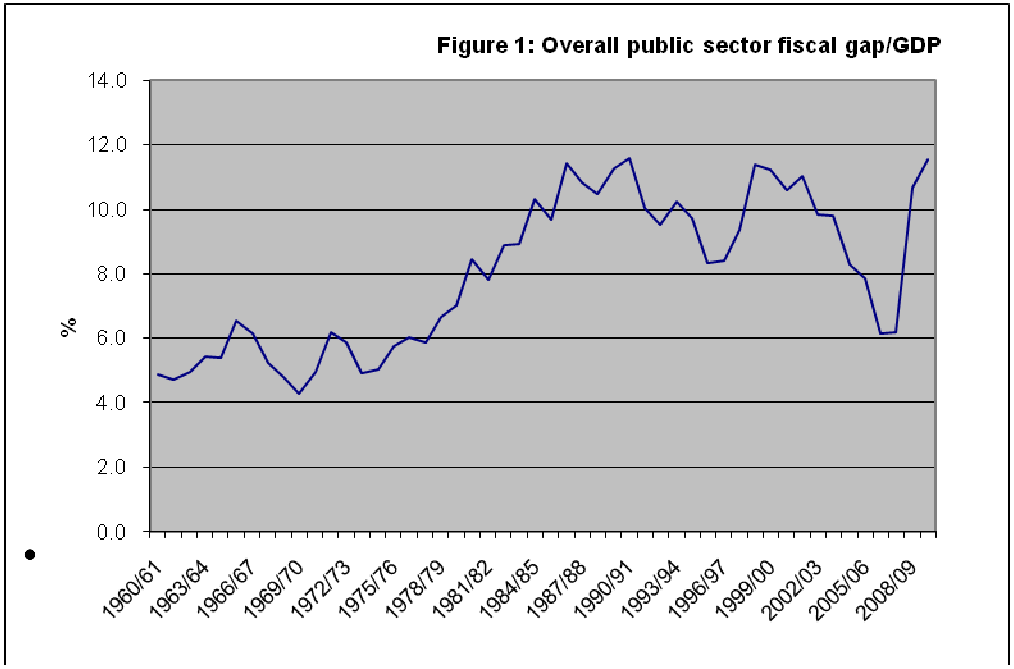
# The arithmetic of debt burden reductions in the UK

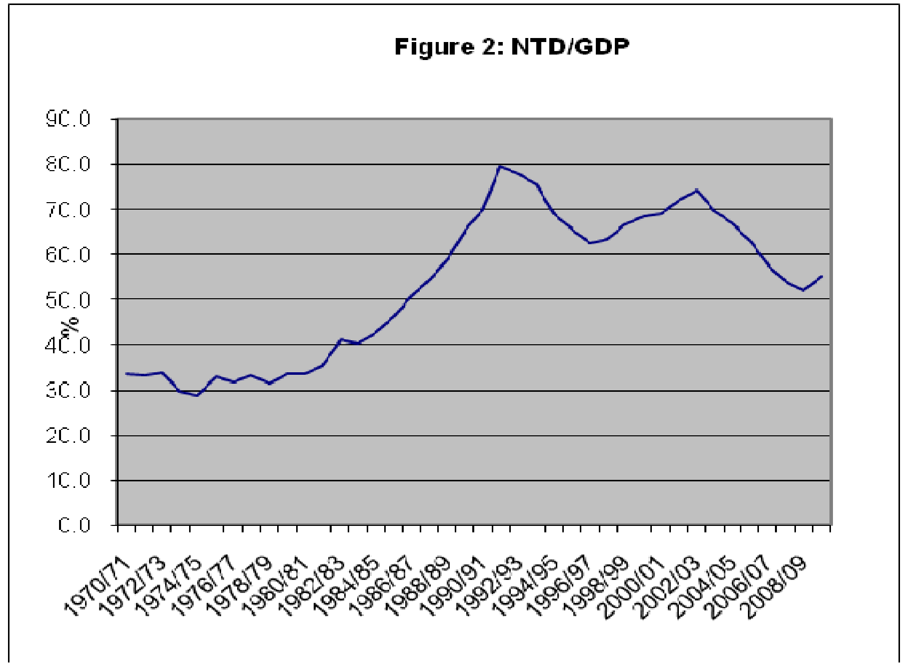
- How did the UK reduce the Net National debt to GDP ratio from 237% of GDP in 1947 to 25% of GDP in 1991?
- Arithmetically, of the 212 percentage points reduction in the public debt burden:
  - Inflation accounted for 228 percentage points reduction
  - Real growth accounted for 98 percentage points reduction
  - And deficits accounted for 124 percentage points increase.
  - (Interaction term accounted for 10 percentage points reduction)
- Beware of mechanical interpretations of these numbers: only unanticipated inflation reduces the real burden of servicing nominal debt!

# Sovereign indebtedness as a constraint on future bailouts

- Surviving cross-border financial institutions may consider themselves <u>too big to fail</u>
- Because of the worsening public finances, they are more likely to be <u>too big to save</u>
- Political willingness to engage in another rescue in the next 5 to 10 years likely minimal
- The new inconsistent quartet
  1. Small open economy
  2. Large, internationally exposed banking/financial sector
  3. Own minor-league currency
  4. Limited fiscal capacity
- Ergo: the 'Iceland problem': will only large countries (with large fiscal capacities) be able to support large cross-border banks?

# India's 'supply-side miracle' has allowed it thus far to stay out of trouble despite a persistent lack of fiscal discipline....

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- **Quasi-fiscal use of capital controls and financial repression:**
  - **Sharply negative real interest rates act as a tax on government bond holders**
  - **This tax will only continue to reduce the government's cost of borrowing if capital controls and mandatory investment in government debt by financial institutions are continued.**
- **Both monetary and fiscal policy far 'behind the curve', as is evident from strongly overheating economy.**
- ***Sign*** **of monetary and fiscal policy measures right (3 increases of 25bps in Repo Rate in 2010; a sharp reduction in fuel subsidies), but *magnitudes* far too small (Bank Rate 6.00%, Repo Rate 5.50%, Reverse Repo Rate 4.00%): 300-400 bps increases in policy rates needed, and 3-4 % of GDP worth of budgetary tightening each of the current and next year).**

- **How important are the Fiscal Responsibility and Budget Management Act & similar legal frameworks?**

**Not very important at all, unless the Union Government and the States can make mutually binding agreements, that can ultimately be enforced by the Courts**

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# Historical record of sovereign default/restructuring/rescheduling

- Sovereign defaults are quite common
  - External debt
    - 1900 -2009
      - Argentina (1951, 1956, 1982, 1989, 2001)
      - Brazil (1902, 1914, 1931, 1937, 1961, 1964, 1983)
      - Mexico (1914, 1928, 1982)
    - 1945-2009
      - India (1958, 1969, 1972)
      - Indonesia (1966, 1998, 2000, 2002).
      - Poland (1981)
      - Romania (1981, 1986)
      - Russia (1991)
      - Turkey (1978, 1982)

# Historical record of sovereign default/restructuring/rescheduling

- Default on domestically-held sovereign debt less common than default on foreign-held debt.
  - Abrogation of the gold clause by the US in 1933
  - Consolidation of most UK World War I debt into a perpetual annuity in 1932
  - German monetary reform in 1948
  - Croatia (1993-1996, war w. Serbia)
  - Kuwait (1991; Iraqi invasion)
  - Russia (1998-1999)
  - Ukraine (1998-2000)
  - Argentina (1982, 1989-1990 & 2002-2005)
  - Brazil (1986-1987, 1990)

Escape from serial defaulter status is possible (Brazil)!

# How big a deal would be a sovereign default in an advanced industrial country?

- Countries don't go bust, but banks lending to sovereigns can go out of business.

  *"Countries don't go out of business....The infrastructure doesn't go away, the productivity of the people doesn't go away, the natural resources don't go away. And so their assets always exceed their liabilities, which is the technical reason for bankruptcy. And that's very different from a company."* Walter Wriston, Citicorp Chairman

- Recovery rates following sovereign defaults often are reasonably high (notable exceptions, Russia Tsarist debt, Cuba Batista debt, Argentina 2002/3 default)

- Sovereign debt instruments generally limited and simple (give or take a few derivatives to fool Eurostat; plain vanilla bonds and loans, some guarantees, securitised future revenues, interest rate swaps, currency swaps

- CDS written on government debt generally much smaller than cash market

- Private' cost of sovereign default: exclusion from capital markets; sanctions & attachment of sovereign assets abroad
  - Individually rational default when debt is large, primary deficit small & little or no likely future need for access to capital markets

- External or Social costs
  - Financial stability externalities
    - Contagion
    - Concentrated exposure to sovereign of systemically important financial institutions
  - 'Rule of law' externalities

# Recovery rates following recent sovereign defaults

Selected Countries - Stylized facts about sovereign debt negotiations in 1998-2007[1]

| Country | Year of default | Defaulted debt ( $ billions) | Defaulted debt (% of GDP) | Recovery rates (%) | Increases in spreads |
|---|---|---|---|---|---|
| Ex post-default- | | | | | |
| Russia | 1998 | 72.709 | 26.80 | 35 | 69.97 |
| Ecuador | 1999 | 6.604 | 39.60 | 40 | 7.73 |
| Ecuador | 2000 | 0.346 | 2.50 | 100 | 18.72 |
| Ivory Coast | 2000 | 15.600 | 148.30 | 59 | 16.84 |
| Argentina | 2001 | 82.268 | 30.60 | 37 | 20.30 |
| Grenada | 2004 | 0.297 | 68.00 | 60 | 14.69 |
| Moldova | 2004 | 0.145 | 9.80 | 42 | NA |
| Pre-emptive- | | | | | |
| Pakistan | 1998 | 1.627 | 2.70 | 70 | 35.87 |
| Ukraine | 1998 | 1.271 | 3.90 | 72 | 34.05 |
| Ukraine | 2000 | 1.064 | 3.40 | 60 | 47.85 |
| Moldova | 2002 | 0.040 | 2.40 | 94 | NA |
| Dominica | 2003 | NA | NA | 71 | NA |
| Uruguay | 2003 | 5.744 | 51.30 | 71 | 11.54 |
| Dominican Republic | 2005 | 1.622 | 5.60 | 95 | 25.78 |
| Belize | 2006 | 0.242 | 19.90 | 76 | 2.59 |

Notes: [1] We list only export-default and preemptive negotiation episodes in 1998-2007. We exclude the cases of swap agreement or delay in payment such as Venezuela in 1995, 1998 and 2005, Peru in 2000 and Paraguay in 2003. Sources: Asunoma (2009), Table 1 and Citi Investment Research and Analysis

# 6 exits, including 4 policy exits, from unsustainable public debt

1. Fiscal pain:

   Ensure that present value of future primary (non-interest) government surpluses is at least equal to face value of the outstanding debt

   Problem: fear of sovereign default raises sovereign borrowing rates (see 5-year CDS rates or 10-years spreads over Bunds). Can create explosive debt-deficit spiral

2. Default (moratorium, stand-still, rescheduling, restructuring, …, repudiation)

3. Inflation
   - Real value of monetary base eroded by both anticipated and unanticipated inflation
   - Real value of servicing nominal interest-bearing debt only reduced by inflation surprises (unanticipated inflation tax)
   - Issuing TIPs & foreign-currency denominated debt are a credible commitment against choosing an inflationary solution

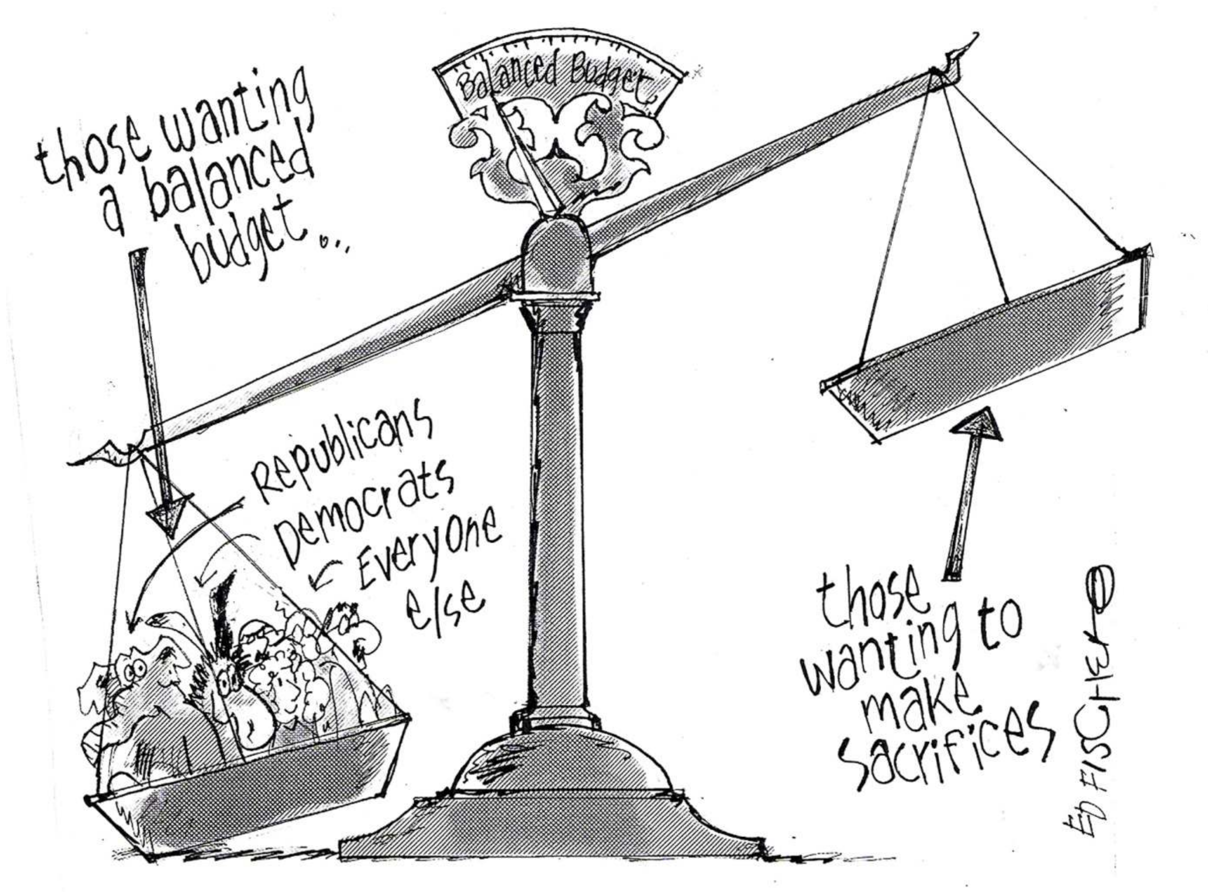
4. Bailout ((1), (2) or (3) for someone else ...)

   ****************************************************************************************

5. Lower interest rate on the public debt

6. Growth

# In rich countries sovereign default matter of won't pay not can't pay




Source: www.cartoonstock.com

## Political issue: inability to agree on fiscal burden sharing formula

# Which country might choose which solution?

- Growth is (unfortunately) not a policy instrument over the time horizon over which fiscal consolidation is required
- Neither is a lower interest rate (unless it is a quasi-fiscal policy measure – stuffing the banks with government debt at below-market interest rates)
- Fiscal pain
  - Requires social and political cohesion/solidarity, willingness to engage in fiscal burden sharing
  - Requires political system capable of swift, radical action
- Default
  - Last resort
  - Weak governments/government institutions
  - Little social cohesion, political polarisation
  - Earlier defaults (serial defaulters)
- Inflation
  - Domestic-currency-denominated debt (preferably long maturity and held abroad)
  - A pliable central bank (Fed less independent of Executive and Legislative branches of government than Bank of England, which is in turn less independent than the ECB).

# Rescue Facility for Greece, European Financial Stabilisation Mechanism (EFSM) European Financial Stability Facility (EFSF) & IMF

**Euro Area - €80bn**

**Intergovernmental**

**International Monetary Fund – €30bn**

**For Greece**

**€110bn over 3 years**

**European Union - €500bn**

**(administered by European Commission)**

**supranational €60bn**

**(EFSM)**

**intergovernmental €440bn**

**(EFSF)**

**International Monetary Fund – €250bn**

**€250bn or at least half of EU contribution**

**€750bn over 3 years**

**For EU members**

**Funded by EU bonds (EC)**

**Available immediately**

**For EA members**

**Funded by Special Purpose Vehicle (SPV)**

**Preferred creditor status = no other obligation is senior to it**



Source: IMF and CIRA

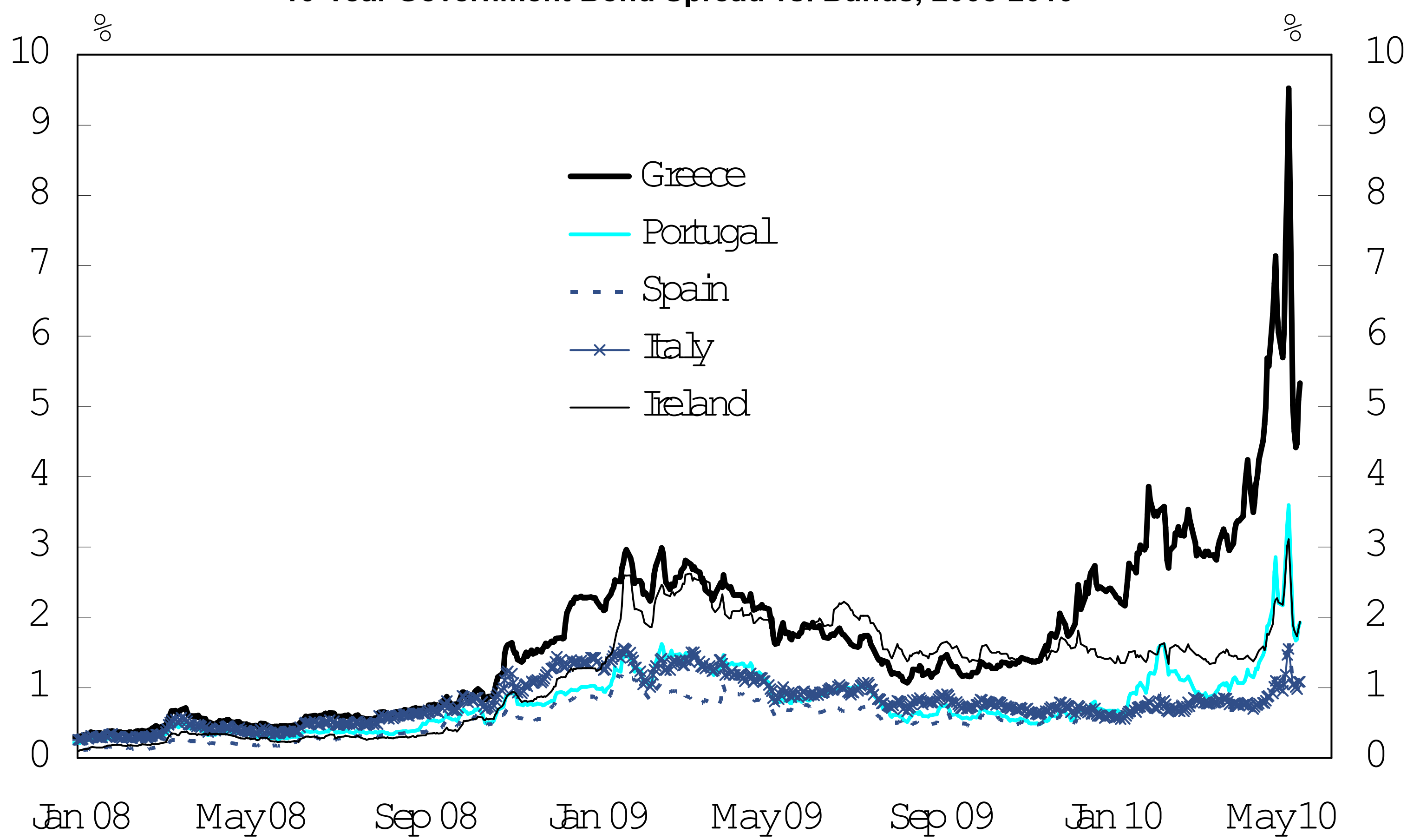
# Other distinctive features of the rescue package

- EU/IMF loans are expensive
  - Financing conditions – Risk of snowball effect from excessively high interest rates (Greece: 300-400 bps over swap rate).
- ECB has done most of the heavy lifting thus far
  - May 3: All Greek government debt securities accepted as a collateral
  - May 8-9: Re-introduction of currency swaps with other major central banks
  - Restored 3M and 6M collateralised loan facility (3M at refi rate; 6M indexed to weekly money market rate); full allotment
  - Security Markets Programme:
    - purchase wider range of private securities outright (beyond covered bonds).
    - Purchase government securities outright (secondary market)
  - Fig leaves for ECB's outright government securities purchases (€60 bn thus far):
    - Not QE: purchases are sterilised through auctions of 1 week fixed term deposits
    - Not government deficit financing but financial-stability-restoring interventions in disorderly debt markets
    - Temporary holding operation pending activation of full €750 bn loan facility
    - Not substitute for determined, deep and credible fiscal tightening in member states


Source: IMF, Citi Investment Research and Analysis

# ECB: Purchase of Sovereign Debt or Multiple Sovereign Defaults?

**10-Year Government Bond Spread vs. Bunds, 2008-2010**




**•Sovereign default risk driving spreads over Bunds in EMU after 2008**

**Source: Datastream**

# ECB Actions that weakened ECB credibility

- Opposition to
  1. Involvement of IMF in EA rescue actions
  2. Asymmetric collateral eligibility criteria for different EA sovereigns
  3. Outright purchases of sovereign debt
- Ambiguous attitude towards second round of EA stress tests for banks, supposedly coordinated by Committee of European Bank Supervisors

Was followed by cave-in on (1), (2) and (3). This has undermined ECB credibility & reputation. New ECB President to be nominated May-June 2011 to start in October 2011.

- Correct actions, bad & damaging presentation.
- €60 bn outright purchases so far.  How much is enough? Stock of Peripherals' sovereign debt €2.8 trillion

# Are the Facilities big enough? Even if banks need to be recapitalised in countries with fiscally challenged sovereigns?

**Financing need of €471.3bn for 5 Peripherals in 2009 with combined ESM and Greek facility would last less than 2 years.**

**Euro Area Periphery General Government Deficits and Debts, €bn, 2009**

| | General government deficit (€bn) | General government debt (€bn) |
|---|---|---|
| Greece | 32.3 | 273.5 |
| Portugal | 15.4 | 125.9 |
| Ireland | 23.4 | 104.7 |
| Spain | 117.6 | 559.7 |
| Italy | 80.8 | 1,760.8 |
| **Total Periphery** | **269.5** | **2,824.5** |

# More on ECB's ability to engage in quasi-fiscal actions & act as Gosbank

- How much can the ECB do?
- Can the ECB go broke?
- What remains of central bank independence?

# Conventional Balance Sheet of Central Bank

<table>
<tr><th>Assets</th><th colspan="2">Liabilities</th></tr>
<tr><td>L(T): Loans to the private sector (including repos) secured against Treasury securities</td><td rowspan="2">$M_0$: Monetary base</td><td>C: Currency</td></tr>
<tr><td>L(P): Loans to the private sector (including repos) secured against private securities.</td><td>BOD: Bank overnight deposits/reserves with central bank</td></tr>
<tr><td>T: Treasury securities (bought outright)</td><td rowspan="4">L: Non-monetary liabilities of the central bank</td><td>BTD: Bank term deposits with central bank</td></tr>
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<tr><td>L: Unsecured loans to the private sector</td><td rowspan="2">CBB: Central banks bills and bonds</td></tr>
<tr><td rowspan="2">X: Central bank foreign exchange reserves</td></tr>
<tr><td colspan="2">W: Conventional Net Worth or Equity</td></tr>
</table>

# ECB Conventional Balance Sheet

| ECB - Balance Sheet of the Consolidated Eurosystem as of 14 May 2010 and 3 August 2007 | | | | | |
|---|---|---|---|---|---|
| Assets (EUR millions) | | | Liabilities (EUR millions) | | |
| | 14-May-10 | 03-Aug-07 | | 14-May-10 | 03-Aug-07 |
| Gold & forex reserves | 501,658 | 318,261 | Banknotes in circulation | 805,040 | 645,004 |
| Collateralised loans to banks | 806,663 | 448,009 | Bank reserves | 527,411 | 189,747 |
| Debt held outright | 449,575 | 107,268 | Non-monetary liabilities | 653,834 | 292,058 |
| Other assets | 305,046 | 284,437 | Financial net worth | 76,657 | 68,314 |
| **Total assets** | **2,062,942** | **1,195,123** | **Total liabilities** | **2,062,942** | **1,195,123** |

Note: "Debt held outright" includes public and private debt securities held for monetary policy purposes, including those resulting from the Covered Bonds scheme and the government debt purchases of the Securities Markets Programme announced on May 10. It also includes a small amount of sovereign debt securities held not for monetary policy purposes. Totals/sub-totals may not add up, due to rounding.
Sources: ECB and Citi Investment Research and Analysis

# Comprehensive Balance Sheet of Central Bank

## (intertemporal budget constraint)

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<tr><td>S: Present value of future seigniorage (interest saved by issuing monetary base liabilities)</td><td colspan="2">E: present value of future cost of running the central bank</td></tr>
<tr><td rowspan="2">X: Central bank foreign exchange reserves</td><td colspan="2">T: present value of future net payments to the Treasury</td></tr>
<tr><td colspan="2">V: Comprehensive Net Worth or Equity</td></tr>
</table>



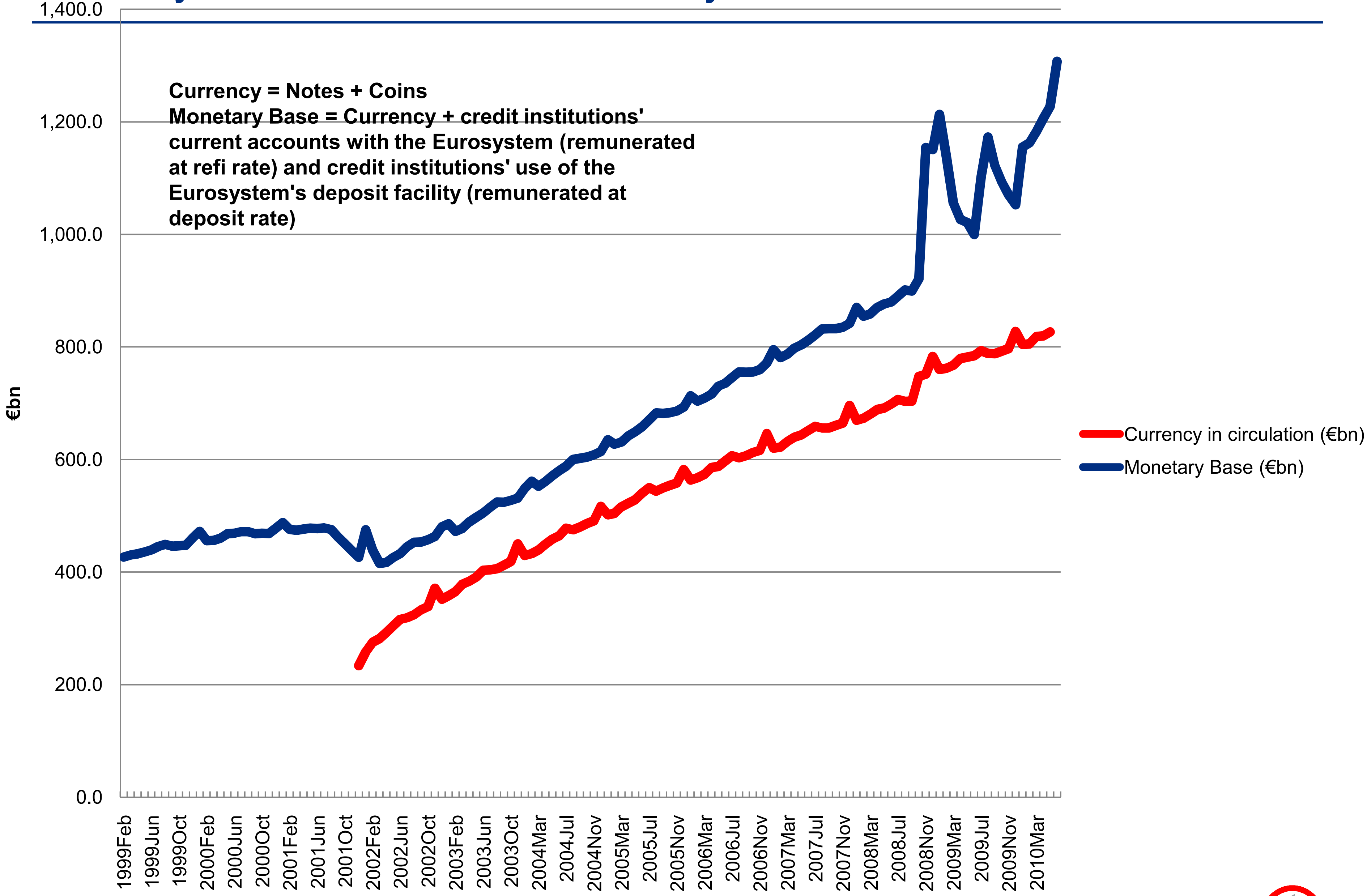
31

# Can central banks go broke?

- Central bank's conventional equity, *W,* need not be positive, but its comprehensive net worth, $V = W + S - E - T$ , must be positive, lest it either is at risk of failing to meet its financial obligations, or will have to raise *S* and thus future inflation to restore solvency.
- Restoring solvency even through seigniorage may be impossible if the exposure of the central bank is to foreign currency assets or index-linked assets.
- In that case only a low or negative realisation of *T* can restore central bank solvency

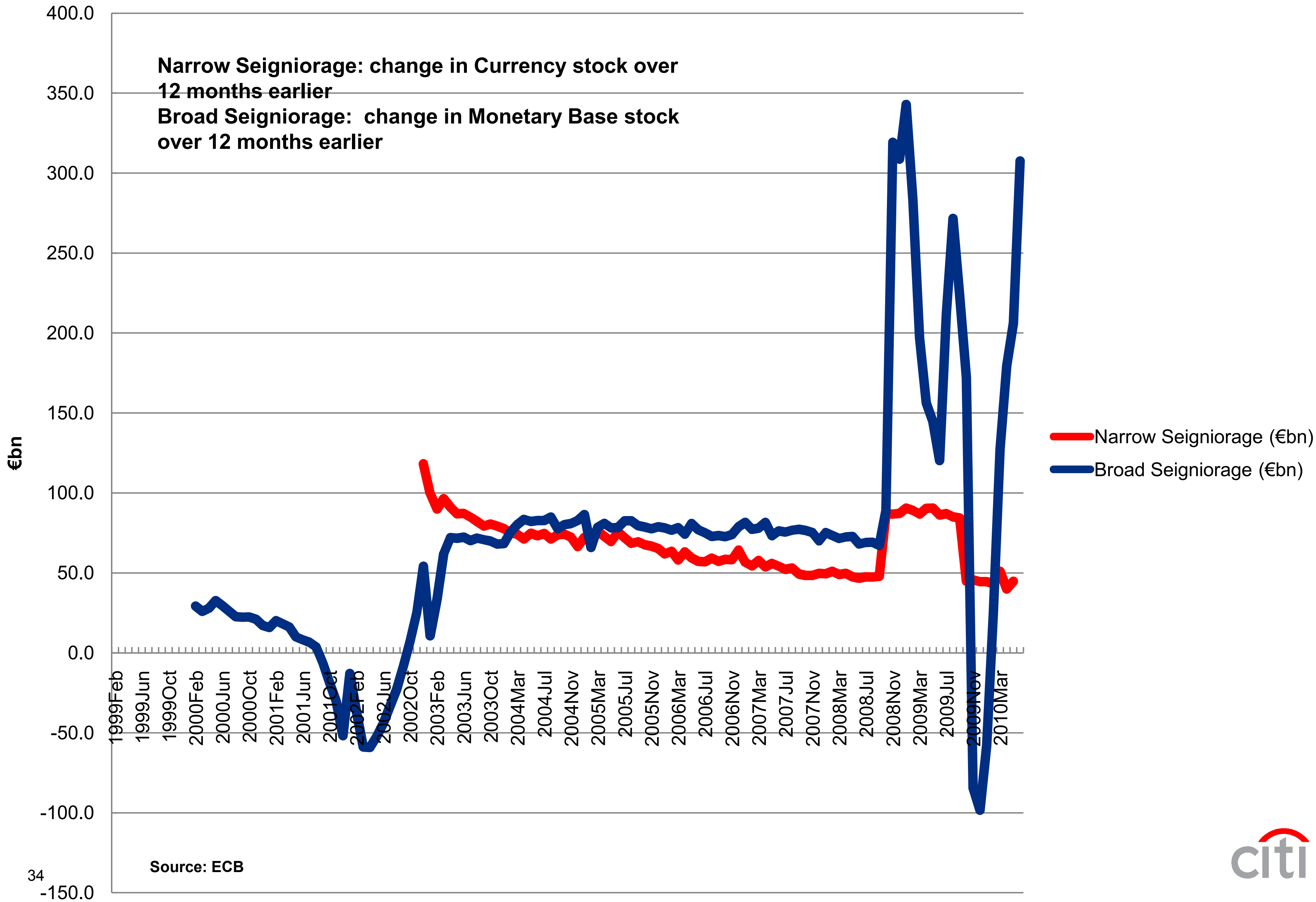
- Eurosystem:
  - W = €77 bn
  - $S - M_0$ = more than €1.2 trillion at 2.0 percent inflation, 1.0 percent real GDP growth per annum and a short nominal interest rate of 5.0 percent. This means that comprehensive net worth or equity of the Eurosystem is well over €2.0 trillion. Higher but still reasonable growth rates of nominal GDP and/or lower discount rates can raise these figures to well over €6 trillion.
  - V could be >>>> €2 trillion

# Currency in Circulation & Monetary Base in Euro Area 1999-2010




Source:ECB

# Narrow and Broad Seigniorage in the Euro Area 1999-2010



# Some seigniorage arithmetic:

•

$$E_t \sum_{j=t}^{\infty} \mathrm{I}_{j,t} \left( M_j - (1+i_j^M) M_{j-1} \right) \equiv E_t \sum_{j=t}^{\infty} I_{j,t} \left( \frac{i_{j+1} - i_{j+1}^M}{1+i_{j+1}} \right) M_j - \left(1+i_t^M\right) M_{t-1} + \lim_{N\to\infty} E_t I_{N,t} M_N \qquad (1)$$

**$I_{j,t}$ is the stochastic nominal discount factor between period *j* and period *t***
**$E_t$ is the expectation operator conditional on information at time *t***
**$M_j$ is a monetary aggregate at the end of period *j***
***i is the short nominal interest rate on non-monetary financial instruments***
***$i^M$ is the short nominal interest rate on money.***

**Assume that** $\lim_{N\to\infty} E_t I_{N,t} M_N = 0$

**Also, for currency, $i^M = 0$**

$$E_t \sum_{j=t}^{\infty} \mathrm{I}_{j,t} \Delta M_j \equiv E_t \sum_{j=t}^{\infty} I_{j,t} \left( \frac{i_{j+1}}{1+i_{j+1}} \right) M_j - M_{t-1} \qquad (2)$$

***PDV(ΔM) = S - $M_0$***

# A currency or base money demand function

**Let**

$$\frac{M}{P} = kY^{\alpha} e^{-\beta(i - i^M)}$$

$$k, \alpha, \beta > 0$$

- ***P*** **is the general price level**
- ***Y*** **is real GDP**
- **Let α = 1  and β  = -2**
- **for currency, $i^M$ = *0***

- ***Question:*** **what would money demand be with *i* = 0.04 or *i* = 0.045 instead of *i* = 0.01 ?**

- **Assume the entire reduction in real money demand would come from a reduction in the nominal money stock.**

- **Answer: M would be €779 bn (if *i*=0.04) or €771 (if *i* =0.045) bn instead of the current €827 bn.**

# How deep are the non-inflationary pockets of the ECB/Eurosystem?

- Assume the growth rate of real GDP, *g*, is 0.01 or 0.015
- Assume the inflation rate, *π*, is 0.02
- Assume the short nominal interest rate, *i*, is 0.04 or 0.045

$$PDV(\Delta M) = \left( \frac{1+i}{(1+i)-(1+\pi)(1+g)} \right) \big( (1+g)(1+\pi) - 1 \big) M_0$$

where $M_0$ = €779 bn if i = 0.04, $M_0$ = €771 bn if i = 0.045 and $M_0$ = €763 bn if i = 0.05

| Present discounted value of future seigniorage | | | |
|---|---|---|---|
| | i=0.04 | i=0.045 | i=0.05 |
| π=0.02; g=0.01 | €2,497bn | €1,644bn | €1,222bn |
| π=0.02; g=0.015 | €6,085bn | €2,932bn | €1,924bn |

- So even in the most conservative case, the true capital of the Eurosystem is not €77bn but well over €2 trillion. A loss of that magnitude need not threaten price stability!
- And we are assuming that required reserves and other overnight deposits don't generate any seigniorage!

# The growing unaccountable power of the ECB

- ECB/Eurosystem
  - Ultimate source of liquidity for Euro Area
  - Growing regulatory and supervisory functions
    - European Systemic Risk Board has 33 voting members, 16 of which are from the Eurosystem
  - Growing quasi-fiscal role
    - Making quasi-fiscal transfers to under-capitalised & possibly insolvent banks
    - Making quasi-fiscal transfers to illiquid and possibly insolvent sovereigns
      - Through terms on which (sovereign) collateral is valued
      - Through terms on which sovereign debt is purchased outright in secondary markets
  - ECB least accountable/transparent/open of leading central banks
    - Zero substantive accountability (no sanctions for incompetence)
    - Very (& unnecessarily) limited formal accountability
      - Provision of comprehensive information and transparency on fully array of policy actions (valuations of illiquid assets and collateral; what is bought when, from whom and at what price/on what terms).
      - Provision of comprehensive information and transparency on procedures and decision-making processes (no minutes, no aggregate or individual votes).
      - Even the meaning of the price stability objective is not clear!

# What remains of central bank independence?

- ECB’s relatively high degree of target and instrument independence derives from the fact that it faces 16 national treasuries/ministries of finance, rather than from the protections provided by theTreaty.
- Expanded financial stability role will reduce the degree of operational and target independence of the ECB.
- Expanded quasi-fiscal role (quasi-fiscal transfers/subsidies to sovereign and banks) will inevitably make ECB more ‘political’ .
- As ECB is actively and explicitly engaged in (re)distributional policies as well as in a much wider range of macroeconomic and financial stabilisation policies, checks and balances will increasingly be applied by the European Parliament, by the Council and by the Commission.
- Lesson that India’s RBI has know for a long time: there is no such thing as an independent central bank.

# More on EFSF

- Where does the EFSF get funds in a hurry? ∃ only one source: ECB/Eurosystem
  - **EFSF is limited liability company**
    - ECB could purchase its debt outright under Securities Markets Programme: outright purchases of covered bonds (€56.56 bn out of €60 bn facility used) and, since 9 May 2010, private and public debt instruments.
    - EFSF could be made eligible counterparty in Eurosystem's monetary policy operations
  - **EIB (co-manager with EC of EFSF)**
    - debt: joint and several guarantee of its 27 EU member-state shareholders
    - EIB can have loans up to two and a half times capital.
    - 1 April 2009, EIB's subscribed capital more than EUR 232bn.
    - 7 May 2009 - EIB becomes eligible counterparty in Eurosystem's monetary policy operations (effective 8 July 2009)
    - Governing Council of European Central Bank (ECB) made European Investment Bank (EIB) eligible counterparty in Eurosystem's monetary policy operations on 8 July 2009.

# What is lacking to turn EFSF + EFSM into 'minimal fiscal Europe' necessary to prevent defection from EA by fiscally solvent nations?

- EFSF ought to be made permanent
- EFSF + EFSM amount should be increased to ≥ €2tn
- Stronger prevention:
  - toughen up SGP; Ecofin inspection of national budgets before national parliamentary approval
  - Constitutional structural balanced budget provisions a la Germany
  - Mandatory non-interest-bearing deposits in response to pro-cyclical behaviour during boom (likely to be as ineffective as it was in 2005 when France and Germany killed SGP)
- Conditionality tough, credible and enforced rigorously
  - Sanctions:
    1. Sovereign Debt Restructuring Mechanism as precondition of access or in response to non-compliance
    2. No new loans + accelerated repayment in case of wilfull non-compliance with conditdionality
    3. Government debt of non-compliant countries not acceptable collateral at Eurosystem
    4. No access to EU Structural & Cohesion funds
    5. Suspension of voting rights in Eurogroup, Ecofin and ECB Governing Council
    6. Expulsion from Euro Area

# What is the EFSF meant to be?

1. A liquidity facility or mutual fiscal insurance facility for illiquid but solvent EA sovereigns
2. A transfer/subsidy facility from fiscally strong to fiscally weak (insolvent) EA sovereigns
3. A recapitalisation fund for decapitalised/insolvent EA banks

TARP (Troubled Asset Relief Program) started off as a fund for providing market liquidity for illiquid securities held by US banks that would be solvent if the markets for these securities were liquid

TARP ended up as a fund for recapitalising insolvent US banks.

Greek €110 facility includes €10 earmarked for recapitalising Greek banks.

# What's wrong with the EA banking system?

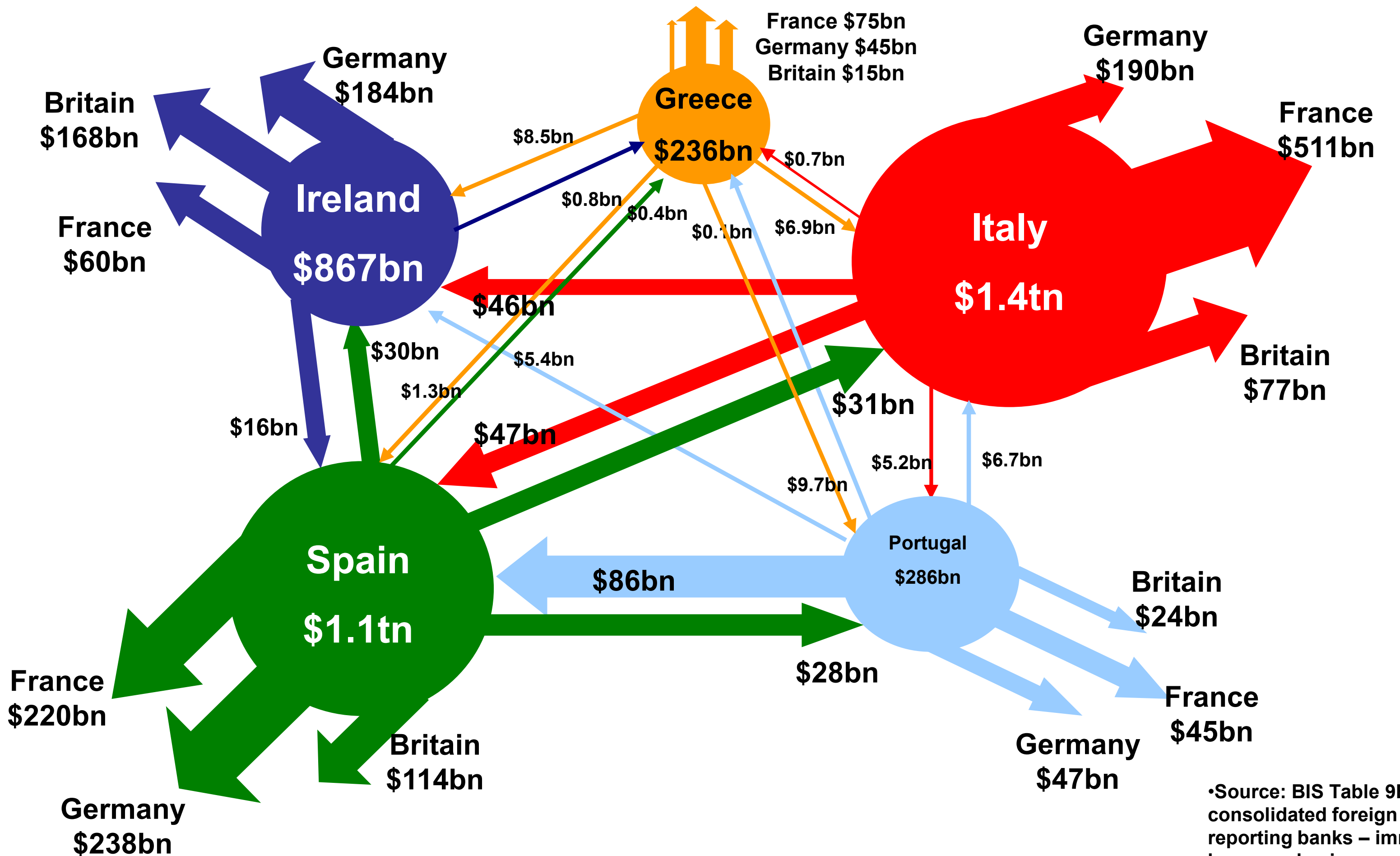
- Non-transparent
  - Avoiding mark-to-market for dodgy assets
  - Previous stress tests pro-forma only.  Methodology and individual bank results not in public domain, and performed by national regulators/supervisors who had condoned past lack of transparency and under-capitalisation
- Over-leveraged
- Under-capitalised
- Regulatory capture

And all that even before the financial crisis reached the sovereign stage

Now: highly concentrated exposure of Euro Area banks to P5 sovereigns.

# Euro Area Sovereign Debt Crisis Inextricably linked to Euro Area/EU Banking Crisis Risk

*•Foreign bank ownership of European debt (sovereign+private), Dec09*




•Source: BIS Table 9B, consolidated foreign claims of reporting banks – immediate borrower basis, provisional data for Dec09. Visualization by Bill Marsh, New York Times.

# Wider implications of the EA sovereign debt crisis

Wider implications

- Possible sovereign risk contagion to
  - Eastern Europe (only Hungary & Romania in bad fiscal position; contagion through banks?)
  - UK and Japan
  - US
- Widespread fiscal tightening will lower European growth and weaken euro
  - Fiscal multipliers smaller when initial fiscal position unsustainable
  - Fiscal multipliers smaller when households highly leveraged (‘Minsky-neutrality’)
- If EA banking crisis is not prevented, double-dip in EA virtually certain
- Even if EA banking crisis is prevented,
  - Loss of credibility & price stability reputation of ECB weaken euro
  - Extended period of monetary & credit easing and weaker euro mitigate activity-depressing effect of fiscal tightening & export it to US and EMs

# Unfinished business in the EA's response to the financial crisis

- Concern about new stress tests, especially for second-tier listed banks and unlisted, especially publicly owned banks.
  - Results of stress tests out on July 23?
  - EFSF not operational till end-July at earliest.
  - National bank recapitalisation facilities (SoFFIN, FROB, Greek €10 bn fund).
  - ECB/Eurosystem.
- Are we witnessing a Sargent & Wallace game of 'chicken' between the ECB/Eurosystem and the 16 national fiscal authorities about who will pick up the tab for recapitalising the banks and/or who will provide (quasi-) fiscal transfers to possibly insolvent or borderline solvent national fiscal authorities?
- Will a continuing quasi-fiscal role of the ECB/Eurosystem and/or the unavoidable transfer-Europe/subsidy-Europe features of the Facilities drive Germany and possibly other EA members out of the EA and the EU?

# Likely scenario

- Near-certain:
  - Greek sovereign disorderly default off table for 3 years; no need for Greek sovereign to fund itself in market for 3 years (financing program of €110bn)
  - By 2011/12 (despite early success with stabilisation programme): restructuring (maturity lengthening + NPV haircut (30-40%)); quite likely following non-compliance with conditionality
- Material risk 1: other Peripheral sovereigns forced into EFSF. Restructuring with NPV haircuts not inevitable for other Peripherals. Maturity lengthening may suffice (Spain, Portugal, Greece, Italy, Belgium, Austria)
- Material risk 2: EA banking crisis (Spain, Greece, Germany, France, Ireland, Belgium, Netherlands, Austria).
  - Serious stress tests are key for vast majority of banks (results by 23 July? Is 91 banks enough?)
  - If stress tests are credible (both methodology & individual bank results in public domain; serious sovereign debt impairment shocks considered), banking crisis can be avoided; immediate recapitalisation of banks (if necessary by sovereigns, Facilities or ECB) required. Can banks be recapitalised to fund real economy adequately?
    - If so, low growth (1.0 -1.5 % per annum), but no double dip & no stagnation.
    - If not, Japanese outcome likely (multi-year stagnation)
    - If banks re-capitalised adequately, public control of lending decisions likely to accompany significant/majority public ownership of EA banks
    - Euro Area fiscal authorities more likely to have to put money into banks in next few ears than to extract extra money from banks. Mr Schäuble has already earmarked receipts of €7bn from a financial transactions tax. He is likely to be disappointed.


Source: IMF, Citi Investment Research and Analysis

# Appendix A-1

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