

The Debt of Nations Revisited Lecture 1

Excessive debt in rich nations: what happens when sovereigns, banks and households deleverage at the same time?

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See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures

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13 December 2011



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1. What is debt and why does it matter?

- Debt: fixed commitments by issuer, except for default
 - Index-linked debt
 - Exchange-rate linked debt
 - Convertible debt (CoCo)
- Equity: limited state-contingent instrument ; share in profits or losses; fully loss-absorbing without need for insolvency/bankruptcy procedures
 - Limited liability means equity has debt-like features for limited liability corporations – when profits are bad
- Leverage: exposure to change in value of an asset without owning it
 - Debt
 - On balance sheet
 - Off balance sheet
 - Through options/derivatives
 - Margin
 - Embedded leverage
 - mezzanine tranches of mortgage securitizations (which themselves have embedded leverage) purchased by CDOs which, in turn, issued senior and subordinated tranches, creating embedded leverage on leverage in the subordinated tranches. Some of these CDOs became the underlying securities in CDOs squared. Exposures to rising mortgage delinquency rates were magnified for CDOs squared investors. Sometimes, these highly leveraged CDO-related instruments were acquired by investment vehicles that were themselves highly leveraged.
 - Leverage through options can be unbounded – infinite, e.g. writing (issuing) a call option on a stock

The Modigliani – Miller Theorem

Are the production and investment decisions of the firms influenced by their financial structure?

- **'Old' View:**
 - Debt is less risky than equity and therefore cheaper
 - If a firm substitutes debt for equity, it will reduce its cost of capital and increase the firm's value
- **Modigliani-Miller (MM, 1958) Proposition 1:** *The value of a firm is the same regardless of whether it finances itself with debt or equity.*
- **Assumptions:**
 - *perfect and frictionless markets*
 - *no transaction costs – including no contract (re-)negotiation and enforcement costs and no bankruptcy costs*
 - *no default risk (implied by complete markets)*
 - *no distortionary taxation*
 - *Households, investors and firms borrow at the same interest rates.*
- Extended to public sector financing (debt neutrality and neutrality of everything)
- Both Old View and MM are wrong/misleading: at least MM is interesting

In the real world leverage matters...

Why does MM fail in practice?

- Incomplete markets and costly bankruptcy
 - Equity (economic capital) = unconditional loss absorption capacity reduces risk of bankruptcy
- Failures of home-made leverage: limited liability for corporations only
 - Average return on equity during good times \neq risk-adjusted return to equity
- (Distortionary) taxes; interest-deductibility for corporate profit tax; mortgage interest deductibility in the US
- Asymmetric information & agency problems
 - Debt finance can raise or lower the value of the firm
 - Remuneration of corporate executives through stock options can increase distortionary effects of leverage
 - Debt finance may be privately optimal even if it does not increase the value of the firm, let alone the social benefit
 - Importance of collateral and non-collateralisability of human wealth
- *Irrational exuberance/euphoria* leads households, corporates, banks and governments to underestimate the risks associated with debt
- *Stability begets instability* by lulling investors into a false sense of security (Minsky view of 'Great Moderation').

Additional reasons for Modigliani-Miller failure for public finance

- Taxes and transfers (even lump-sum) and government borrowing can redistribute income and wealth between heterogeneous agents
 - Old and young; current and future generations
 - Liquidity-constrained and permanent-income constrained households
- Uniqueness of currency & base money (legal tender, irredeemable)

→ One way or the other, there is now too much debt and too little equity in the (advanced industrial) world

→ Even when the acute financial crises (involving the banking, shadow banking, household and government sectors) that started in late 2007 are over, the advanced economies will face at least a decade of deleveraging, unless they choose to restructure debt instead

Pop Modigliani Miller: all finance concerns *inside* assets and liabilities

“We owe it to ourselves”

- Who are ‘we’? Redistribution effects of price changes on ‘inside’ assets matter
 - Domestic residents vs. foreigners
 - Tax payers & beneficiaries of public spending vs. bondholders
 - Young vs. old
 - Current generations vs. future generations
 - Liquidity-constrained vs. permanent income-constrained
 - Rich vs. poor
 - Nearly insolvent vs. ‘super-solvent’
 - Limited liability vs. unlimited liability
 - Households & non-financial corporates vs. FIs and SIFIs
 - Well-informed vs. ill-informed
 - Optimists v. pessimists
- Decentralised market economies often lousy at ‘netting’ chains of gross claims
 - The strong protection of property rights (and the legions of lawyers and accountants dedicated to that purpose) that is an economic plus in normal, orderly terms, may be a negative during disorderly, abnormal extraordinary times.

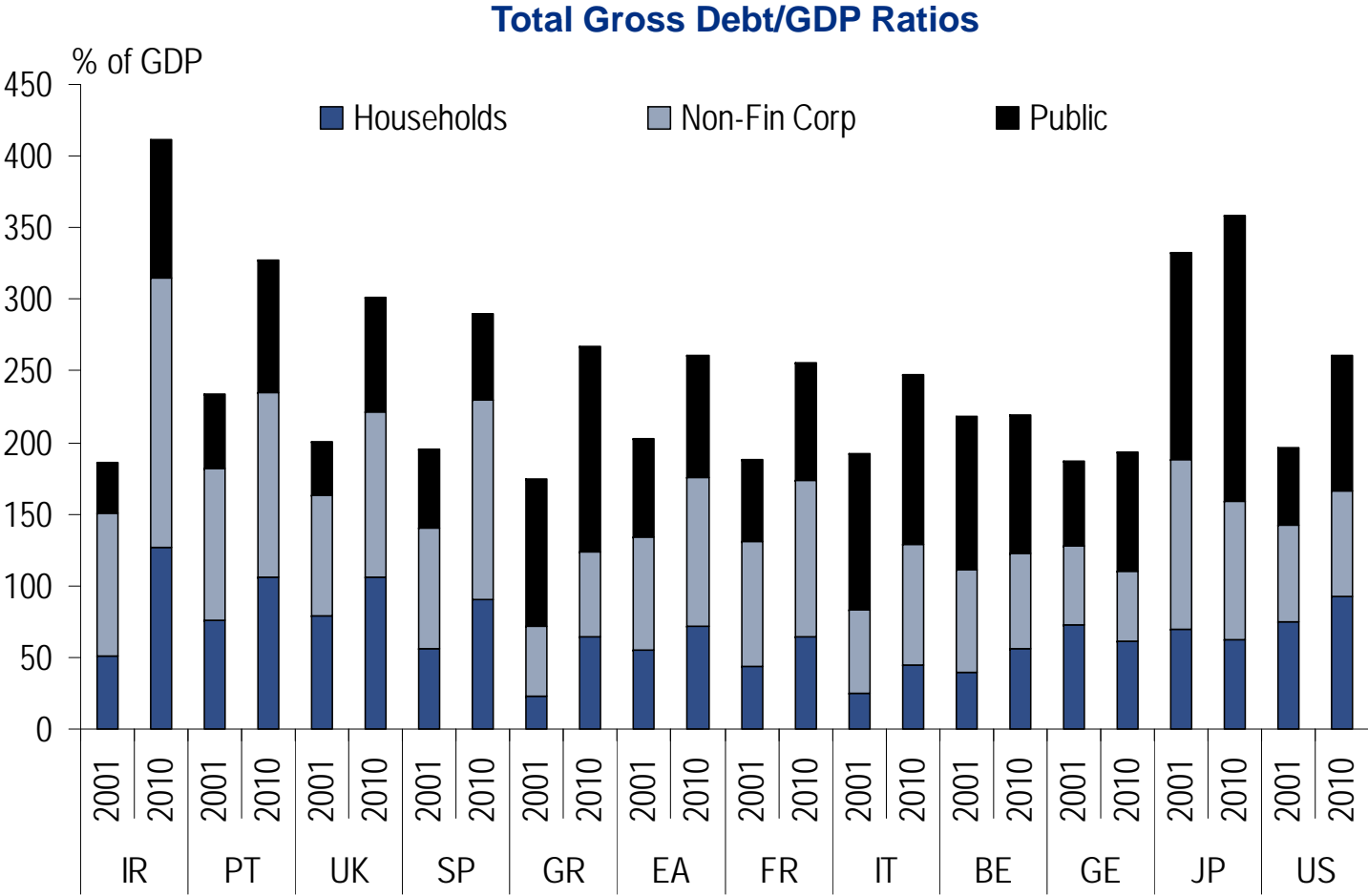
The last decade has seen large increases in debt levels

Increase in total gross debt in most rich countries conceals large differences across countries and across sectors

- **Common trend in industrial countries – total debt has risen strongly between 2001 and 2010**
- **But increases in leverage coexisted with large differences**
 - Across countries:
 - Ireland' total non-financial gross debt more than doubled from 186% of GDP to 411, while Belgium's remained almost unchanged (from 218% of GDP to 219%).
 - Across sectors:
 - Debt increases were of similar size, on average, in public sector (average increase of 29% of GDP), for households (23%) or non-financial corporations (21%)
 - BUT: differences within sectors but between countries were rather large
 - Increases in public debt much larger in Japan (56% of GDP), UK (42%) or US (40%) than in the euro area (17%). Within EA countries, the biggest increase was in Ireland (60% GDP)
 - For household debt, the increase in UK was also very large (27% of GDP) followed by the EA (72% of GDP on 2010 vs 55% in 2001). Household debt in Japan fell by 7% of GDP
 - For NFC, debt increased by 32% of GDP in the UK and 24% in the EA. Japanese NFC debt fell by 23% of GDP

The last decade has seen large increases in debt levels

Total debt has increased in virtually all rich countries over the past decade – in many countries, very strongly

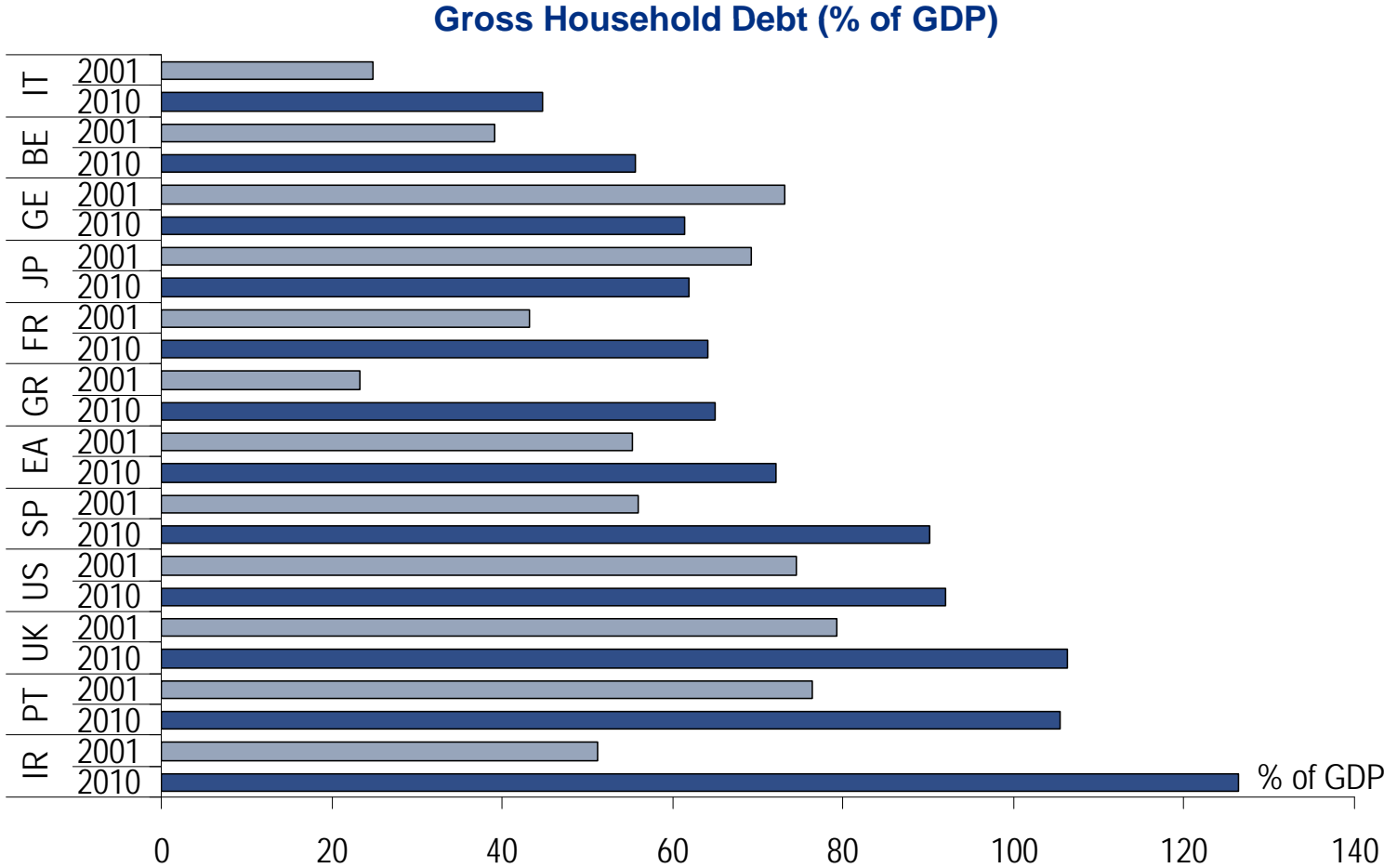


Note: Public refers to the general government. Excludes financial sector
 Source: EUROSTAT for EU countries, IMF and national sources for others



The Household Sector

HH debt has risen almost everywhere – apart from Germany and Japan



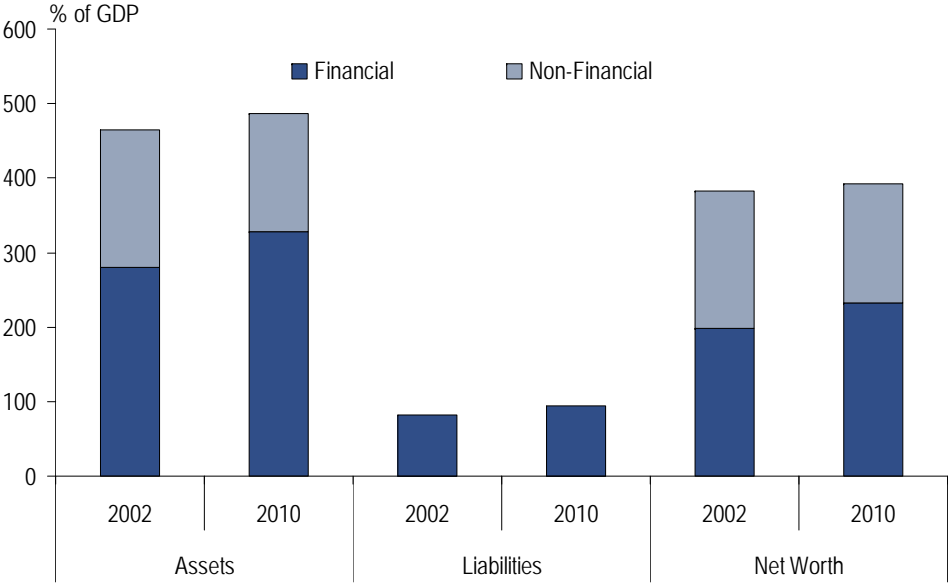
Source: EUROSTAT for EU countries, IMF and national sources for others



The Household Sector: Net Worth

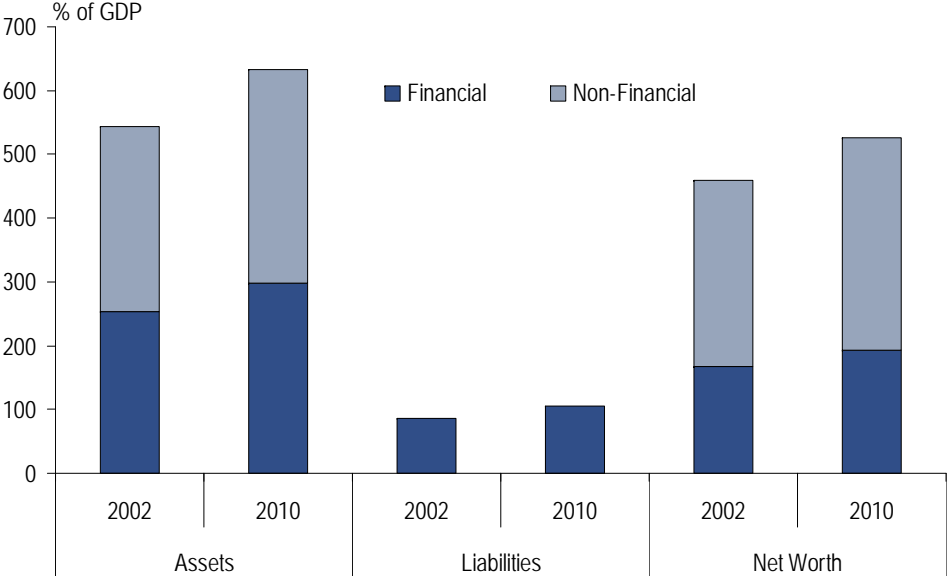
HH debt has risen almost everywhere – apart from Germany and Japan

US Household Net Worth (%GDP)



Source: Bureau of Economic Analysis, Federal Reserve, and CIRA

UK Household Net Worth (%GDP)



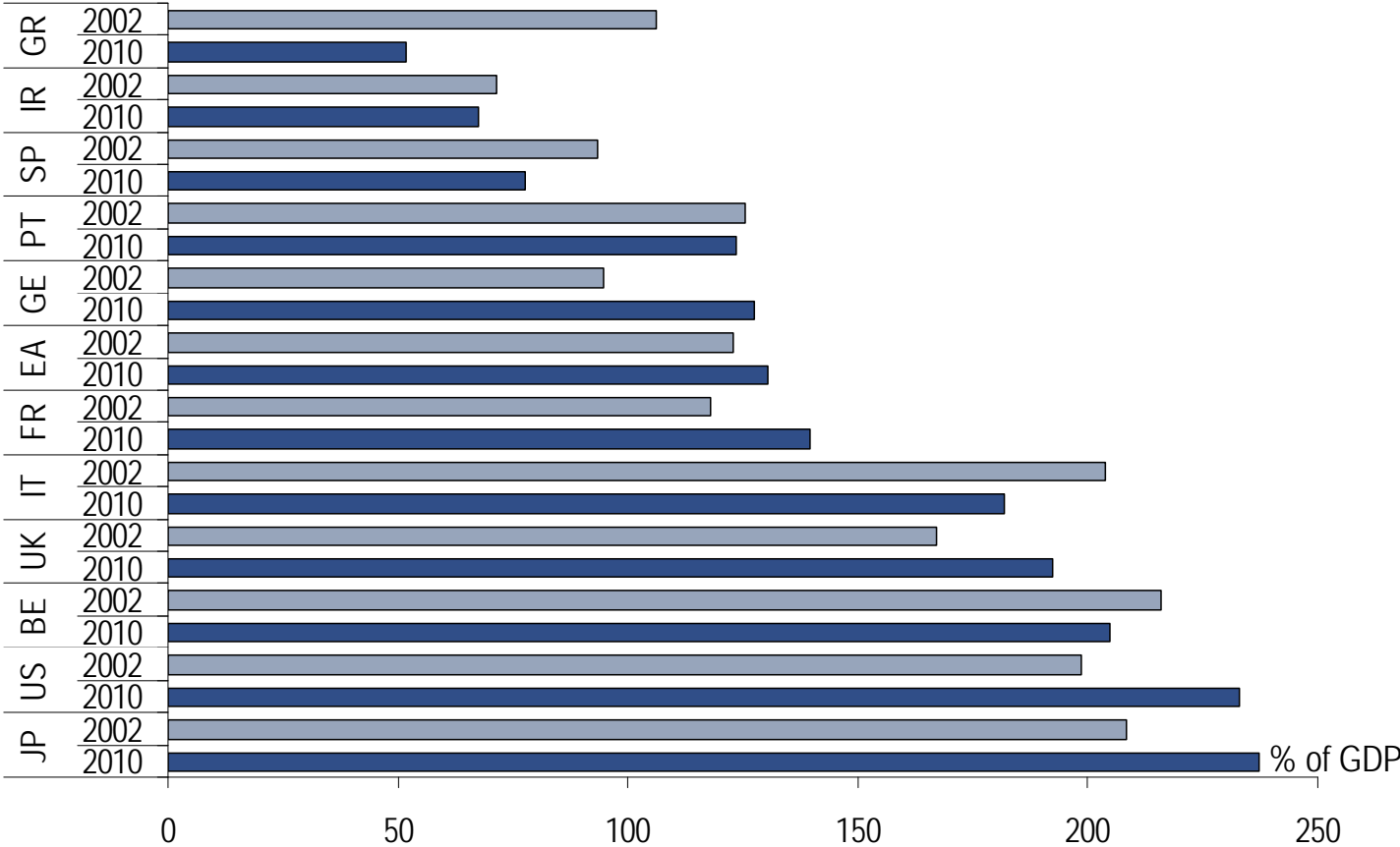
Source: Bank of England, Office of National Statistics, and CIRA



The Household Sector: Net Worth

HH net worth rose in many countries between 2002 and 2010, but fell in Belgium, Italy, Greece, Spain and Ireland

Household Financial Net Worth (% of GDP)



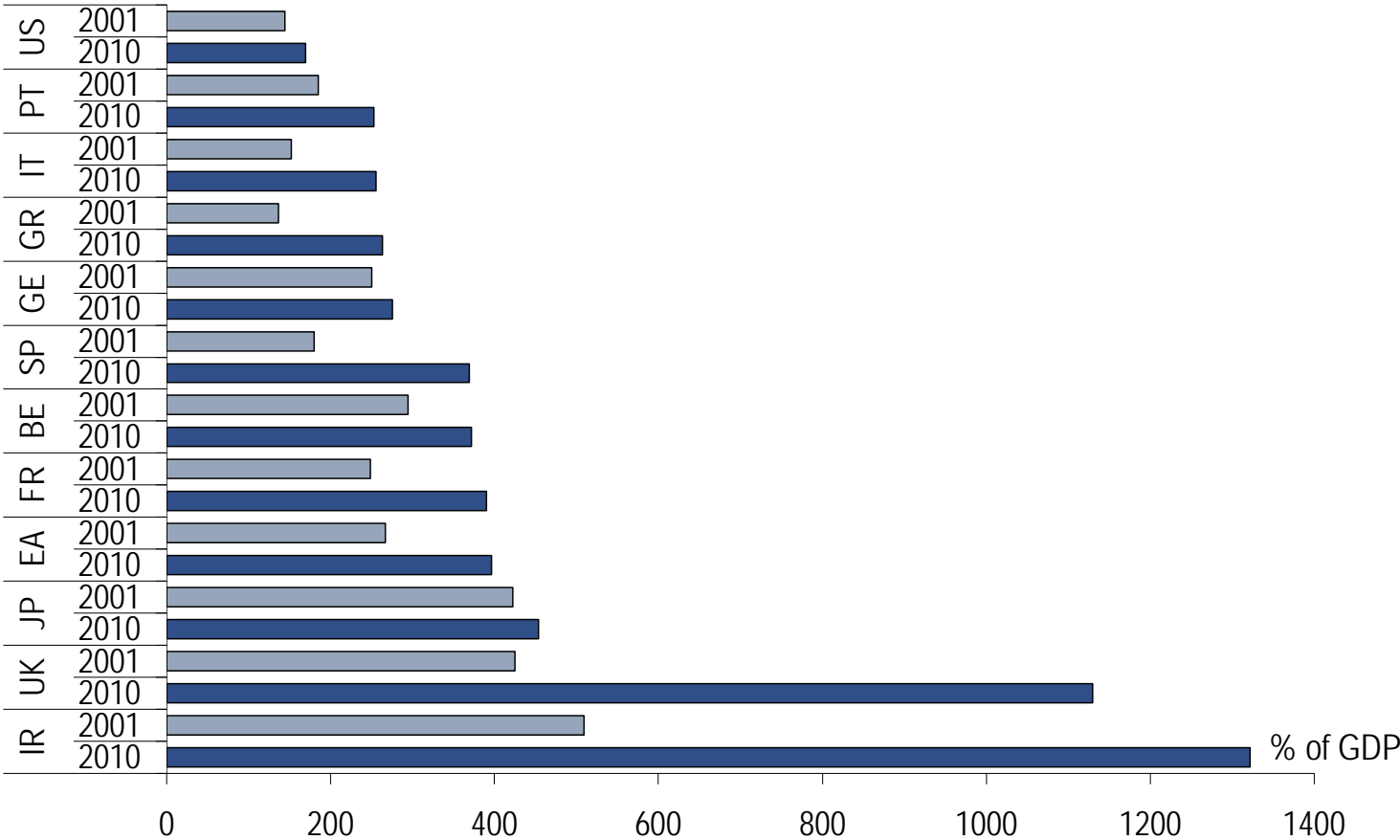
Source: EUROSTAT for EU countries, IMF and national sources for others



Total Financial Sector

Debt levels in the financial sector rose strongly in many countries, and exploded in Spain, Ireland and the UK

Gross Total Financial Sector Debt (% of GDP)



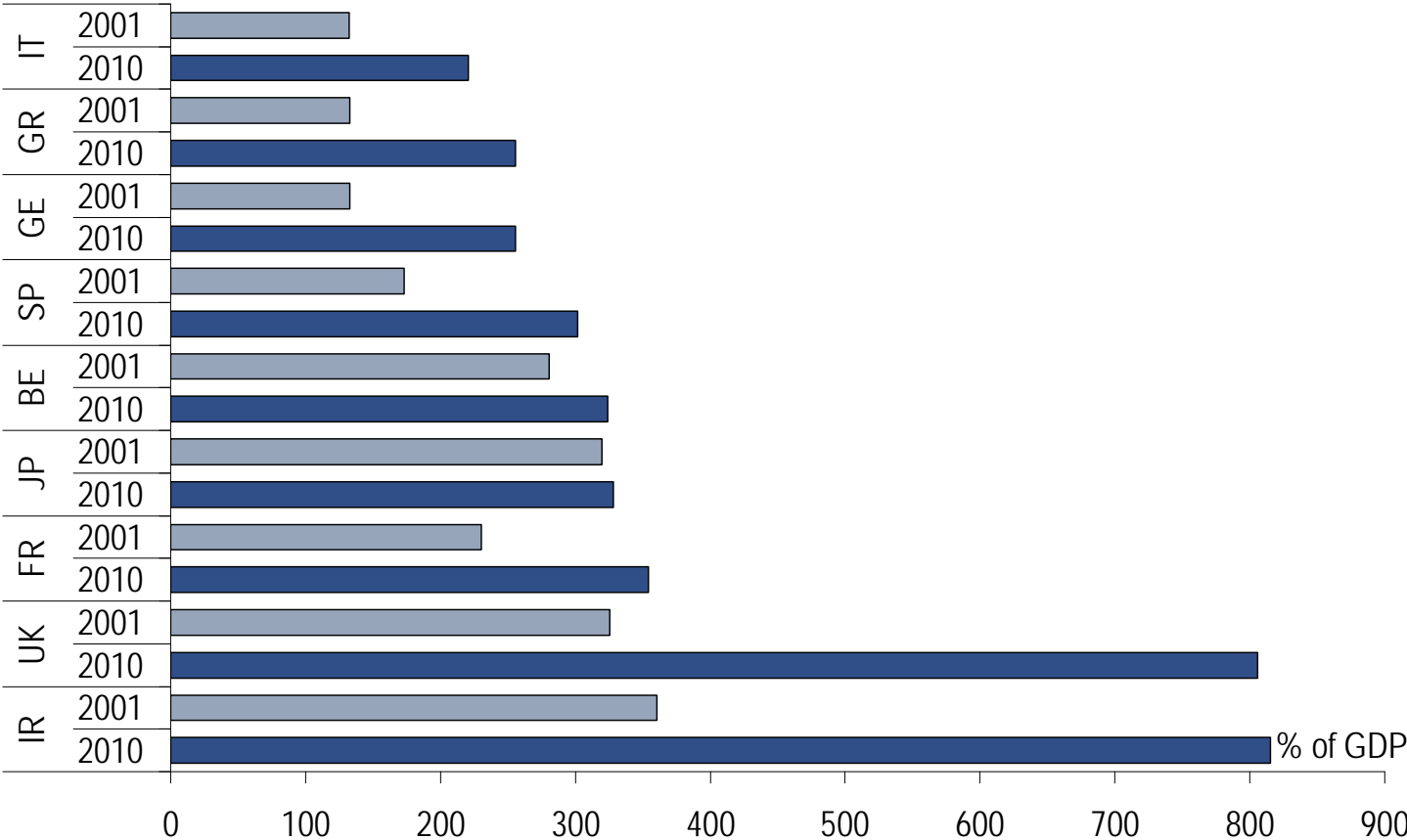
Note: Gross debt includes securities other than shares, loans, other accounts receivable/payable and currency and deposits
 Source: EUROSTAT for EU countries, IMF and national sources for others



Monetary Financial Institutions (MFIs)

...with much of the increase originating in the banking and shadow banking sectors

Gross Monetary Financial Institutions Debt (% of GDP)

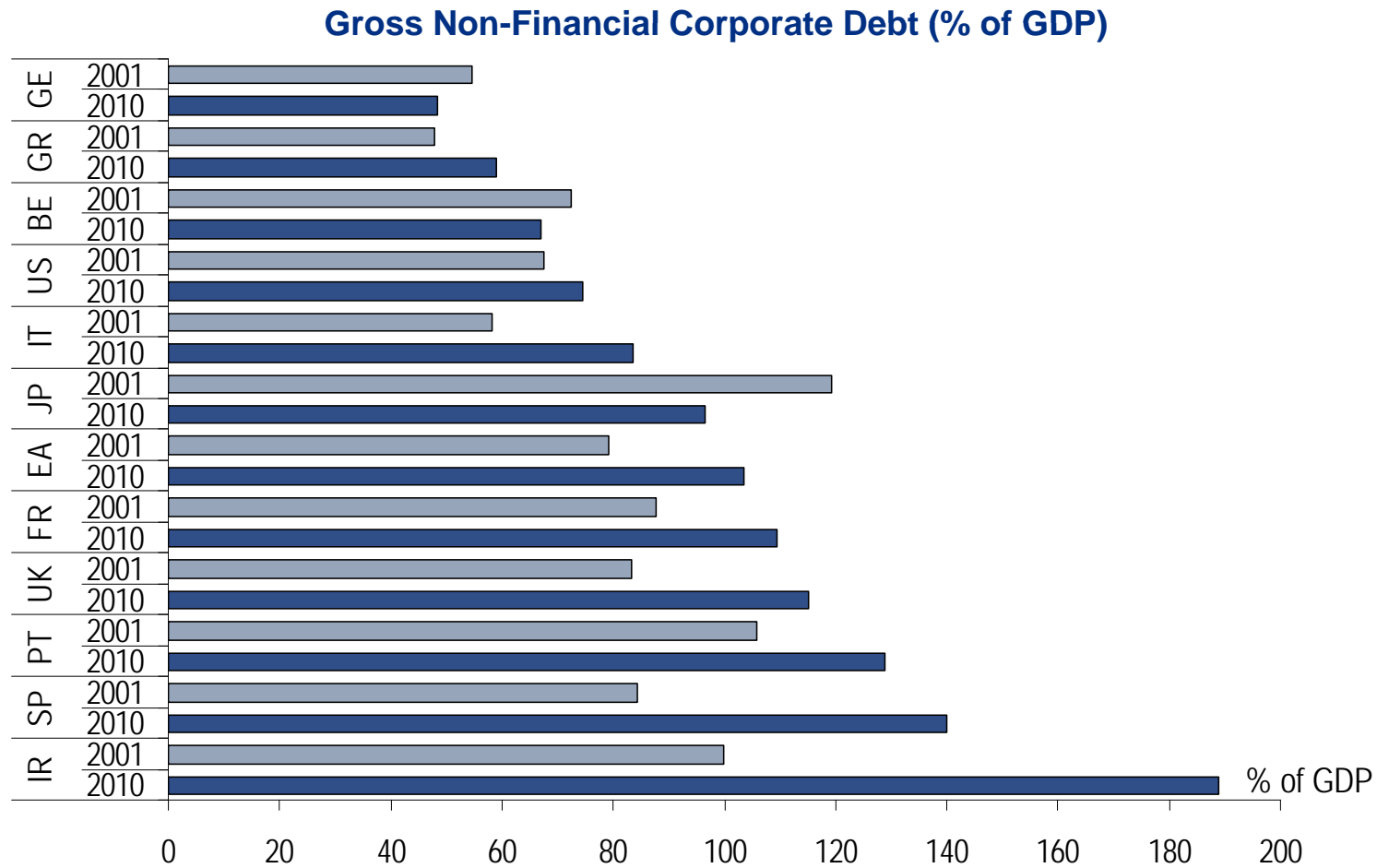


Note: MFIs includes the national central bank. Gross debt includes securities other than shares, loans, other accounts receivable/payable and currency and deposits
 Source: EUROSTAT for EU countries, IMF and national sources for others



Non-financial corporate sector

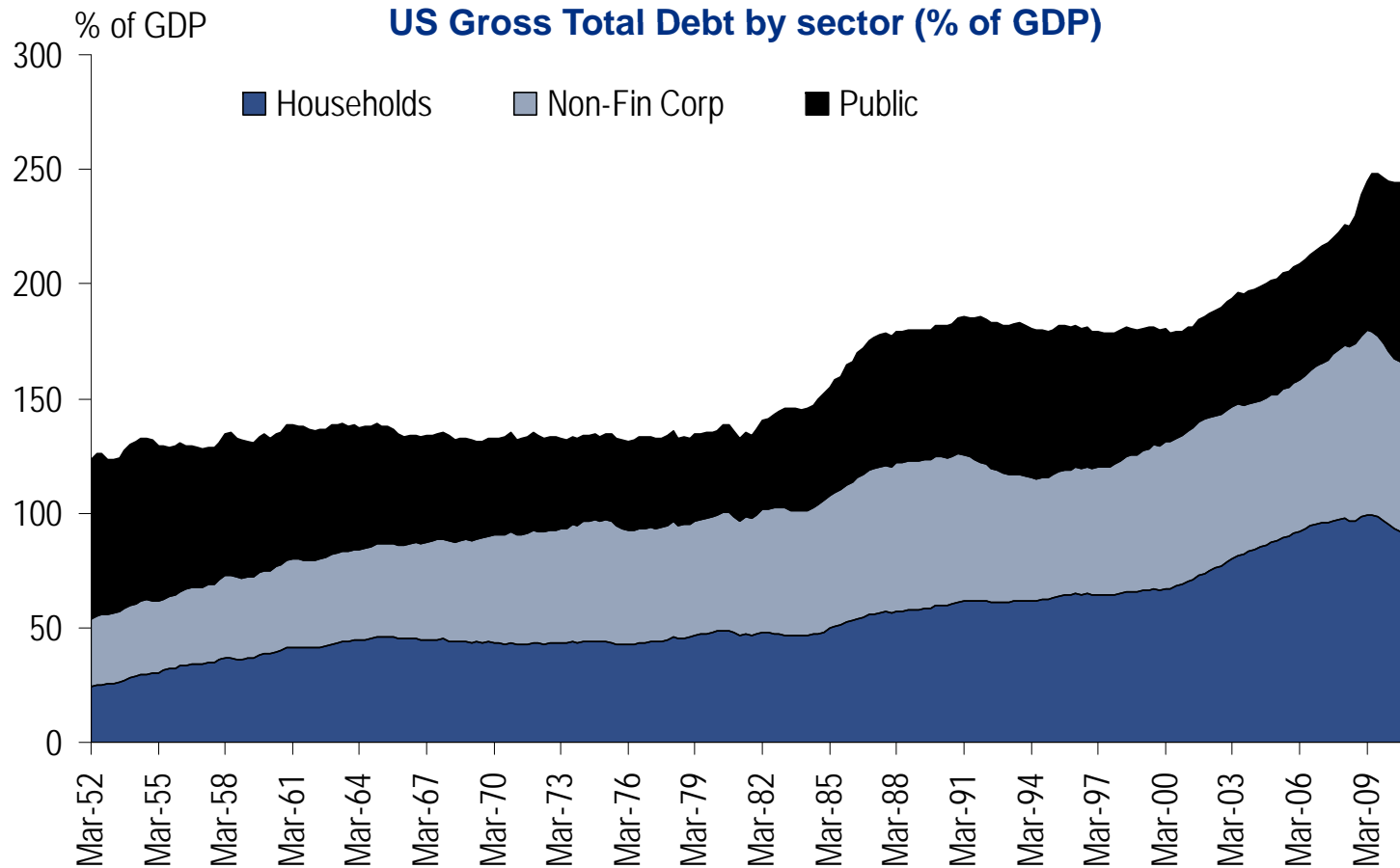
Debt of corporations has risen much less than in other sectors, except in Ireland and Spain!



Source: EUROSTAT for EU countries, IMF and national sources for others

US - Historical Patterns

In the US, until 1980s, total nonfinancial debt was rather stable

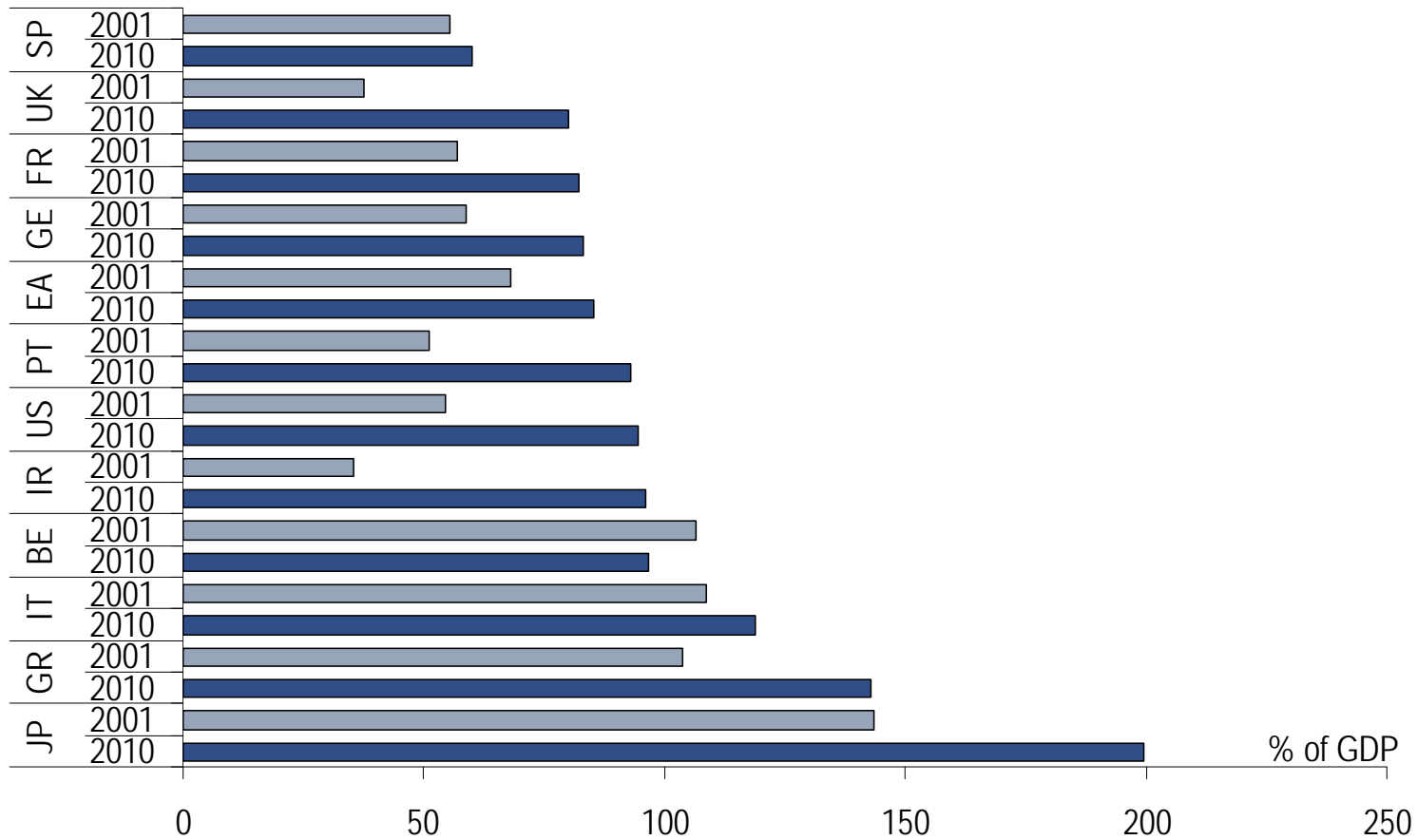


Note: Excludes financial sector
Source: Federal Reserve Board

Gross government debt

Government debt in industrial countries has soared in recent years

Gross General Government debt (% of GDP)

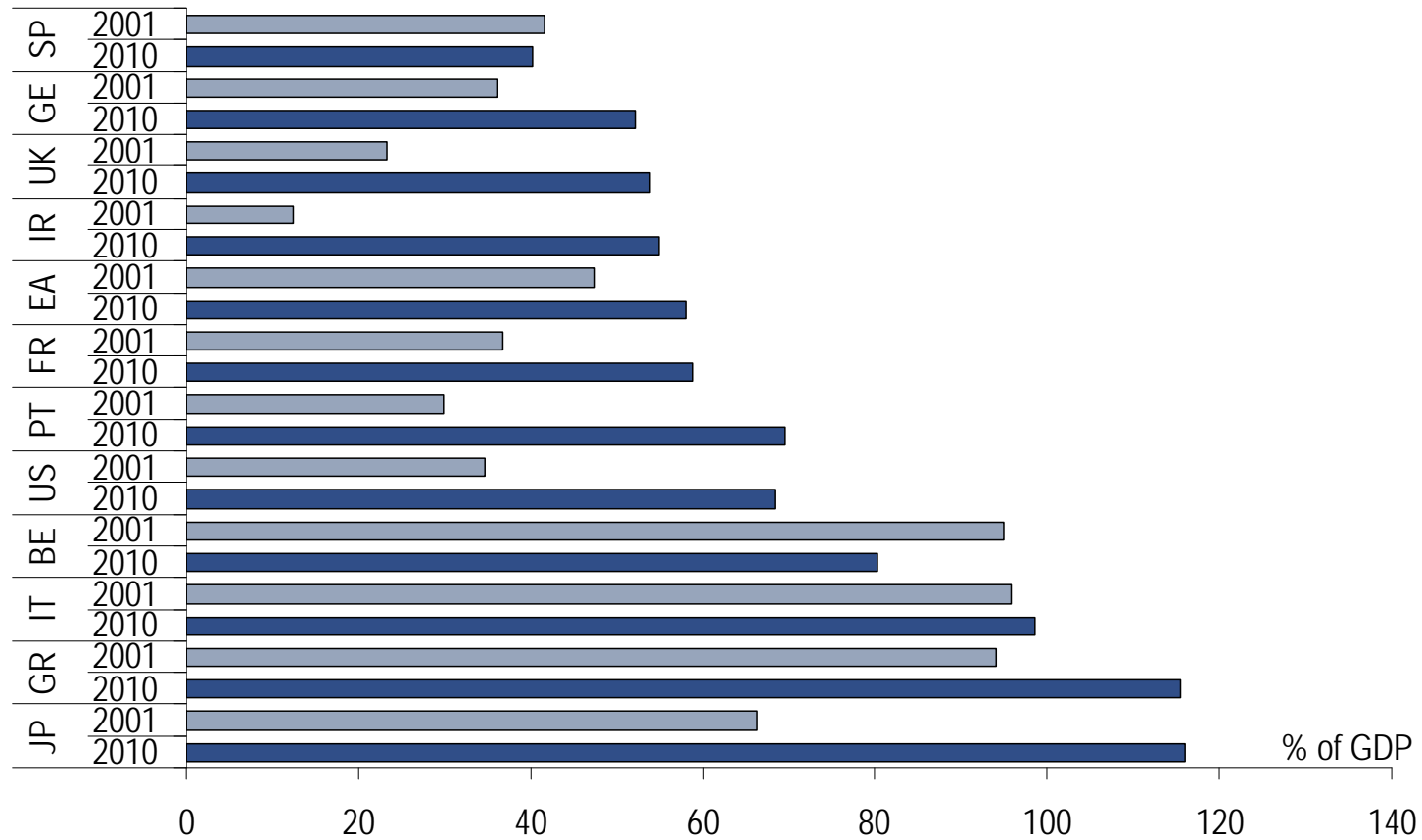


Source: EUROSTAT for EU countries, IMF and national sources for others

Net government debt

...both in gross and in net terms, though net debt in Spain is just back to 2001 levels and has fallen in Italy and Belgium

Net General Government debt (% of GDP)

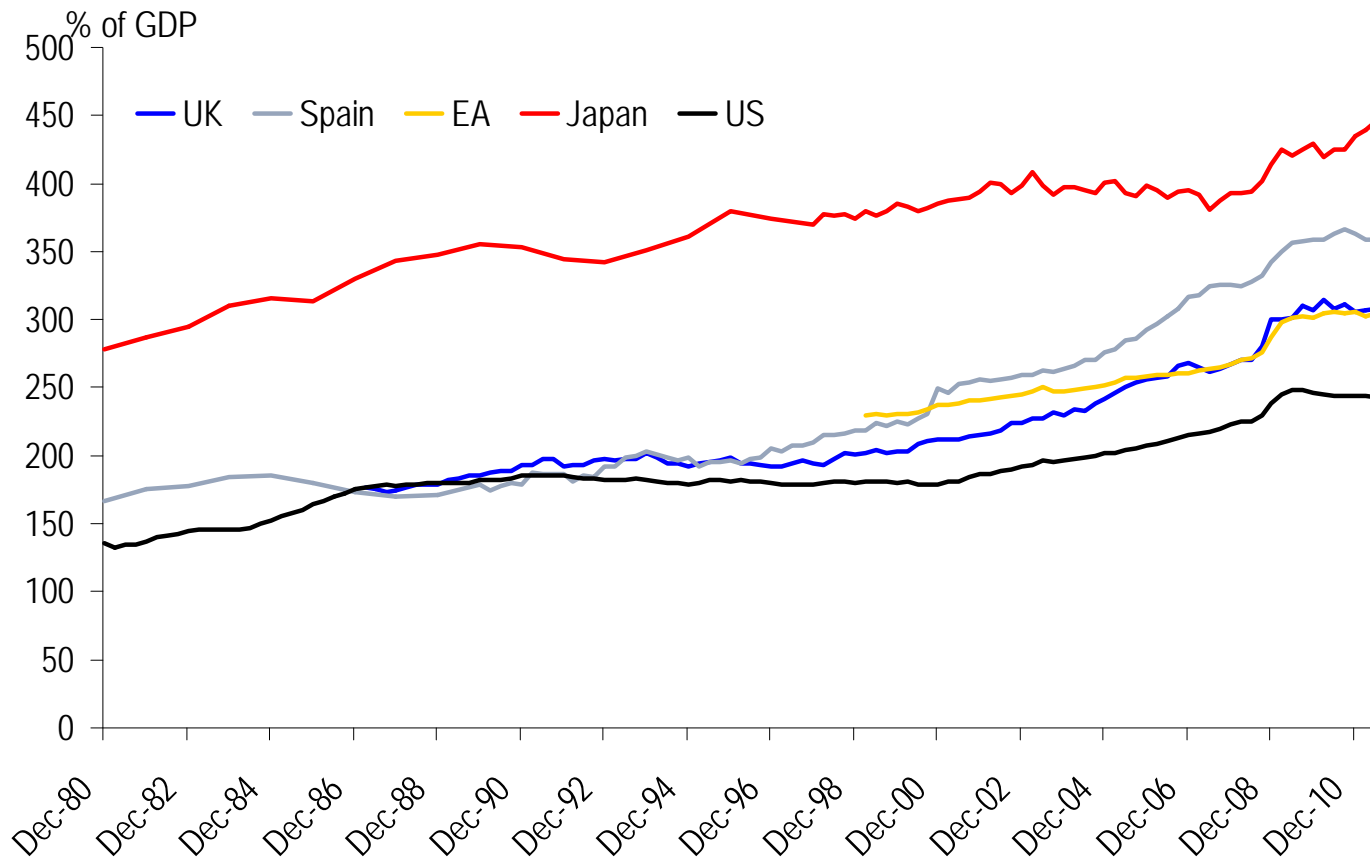


Note: Net debt includes all financial liabilities minus all financial assets of general government
Source: OECD

Historical Patterns

Total debt increases started long before 2000

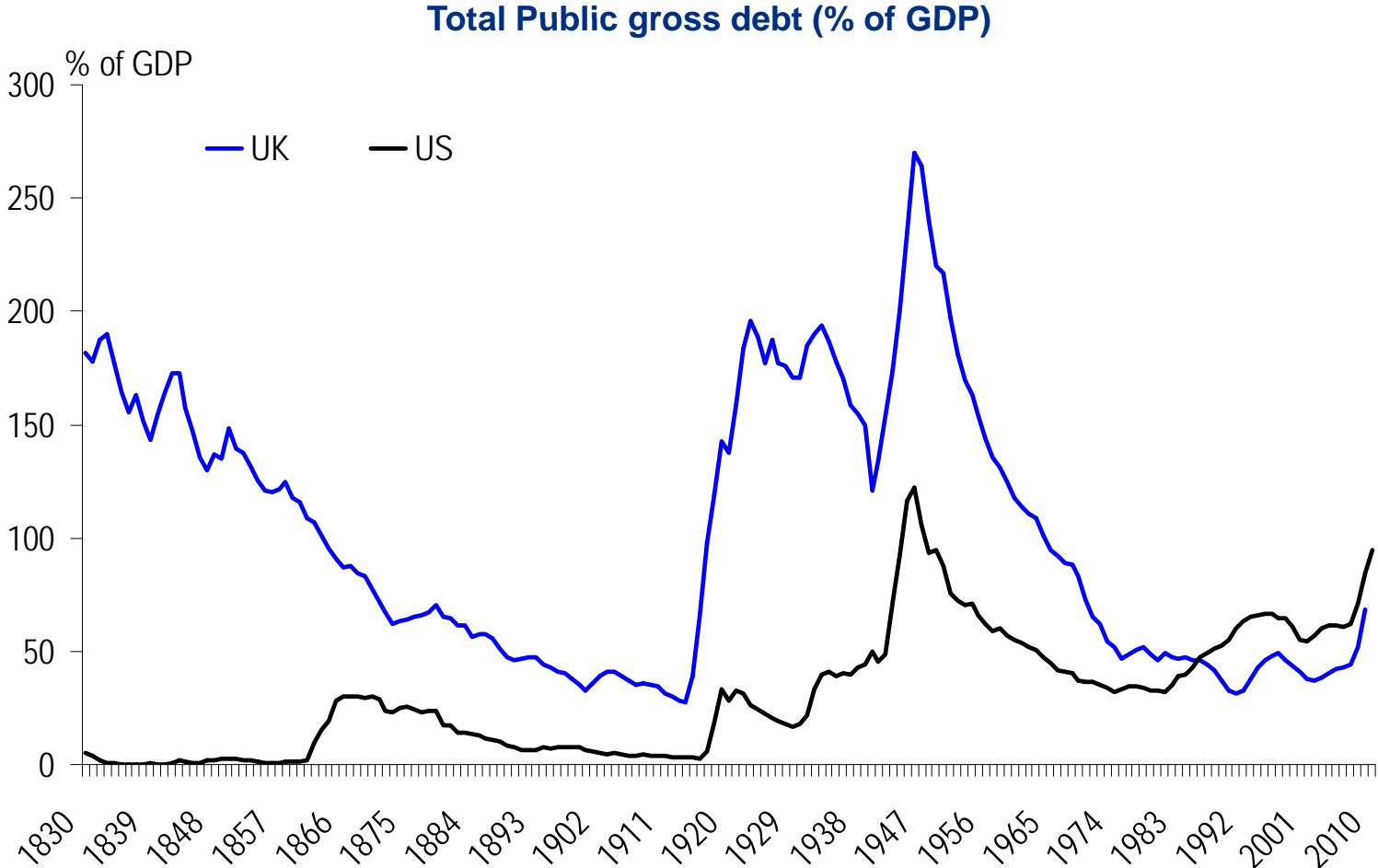
Total Gross Non-financial debt (% of GDP)



Source: EUROSTAT for EU countries, IMF and national sources for others

Historical Patterns – Long-term public debt in US and UK

Public debt at all time highs except for war times



Note: General government gross debt
Source: IMF



Main drivers of increases in leverage

- Asset price increases
 - House prices increased strongly in many countries; residential real estate purchases often highly leveraged, often encouraged by mortgage interest subsidies
- Regulatory liberalisation, domestic and international
 - Abolition of 'Regulation Q' in 1980 and the Glass-Steagall act in 1999 in the US, 'Big bang' financial liberalisation in London in the 1980s, EU Single market
 - Regulatory arbitrage within countries (between banks and other financial institutions) and across borders
- Financial 'Innovations' (weapons of mass destruction?) often mainly driven by regulatory and tax arbitrage
 - Securitisation of assets from mortgages, to car loans, to student loans to credit card debt to receivables
- 'Savings glut' in fast-growing EMs and strong portfolio preference among EM investors for 'safe' assets (advanced economy sovereigns), leading to low risk-free rates
- The 'Great Moderation' lulling market participants into a false sense of security – risk spreads unprecedentedly low; search for 'yield' ("gotta make my benchmark")
- The black hole theory of risk trading: belief that risk when traded away was gone forever
- EMU in Europe led to convergence of borrowing rates across EMU member countries
- The crisis itself: increased public debt due to
 - Revenue losses
 - Stimulus packages
 - Bail-out costs

What brought about the fiscal New Normal and what does it look like?

- Boundaries between private & sovereign losses/gains & exposures are fluid & driven by politics
 - the new AE problem: Migration of bad assets of private entities to the public sector – bailouts
 - the old EM problem: Migration of good assets of private entities to the public sector – expropriation
- Reasons for loss of fiscal virtue in advanced economies
 - Return to the historical norm?
 - Erosion of tax administration & tax compliance (social capital erosion).
 - Demographic developments (hardly unexpected, however)
 - Political choice mechanisms that create public spending commitments which are inconsistent with/decoupled from matching revenue commitments
 - Role of political polarisation, especially in US.
 - Only markets left to enforce the government's intertemporal budget constraint – and the markets often failed to do so (US) or did so too late (Euro Area)
- The New Normal: No more absolutely safe sovereigns; G7 AAA soon only in history books

Fiscal support from the beginning of the crisis

Fiscal cost of bank bail-outs is likely to vary strongly across countries – but to remain sizable

Selected Advanced Economies: Financial Sector Support* (Percentage of 2011 GDP unless otherwise indicated)

	Direct support	Recovery	Net direct support
Belgium	5.7	0.3	5.4
Ireland	40.6	2.6	38
Germany	13.2	0.8	12.4
Greece	5.8	0.4	5.4
Netherlands	14	8.8	5.1
Spain	3	0.9	2.1
United Kingdom	6.7	1.1	5.7
United States	5.1	2	3.1
Average	6.8	1.8	4.9
In \$US billions	1722	452	1270

Sources: Country authorities; and IMF staff estimates

*Accumulated financial support from the beginning of the crisis (2008) till Jun-11

Note: Fiscal outlays of the central government, except for Germany and Belgium, for which financial sector support by subnational governments is also included.

Cumulative since the beginning of the crisis—latest available data, ranging between end-December 2010 and end-July 2011.

For Ireland, direct support does not include asset purchases by the National Asset Management Agency (NAMA), as these are not financed directly through the general government but with government-guaranteed bonds.

For Germany, direct support includes the estimated impact on public debt of asset transfers to newly created government sector entities (11¼ percent of GDP), taking into account operations from the central and subnational governments.

For Spain, direct support includes total capital injections by the FROB until end-July as well as projected capital injections for Banco CAM (¼ percent of GDP).

Size of Fiscal Stimulus Packages in response to the crisis

Size of fiscal stimulus also varied strongly by countries, but was high, on average, and highly coordinated

Absolute size of fiscal packages (revenue and spending measures)

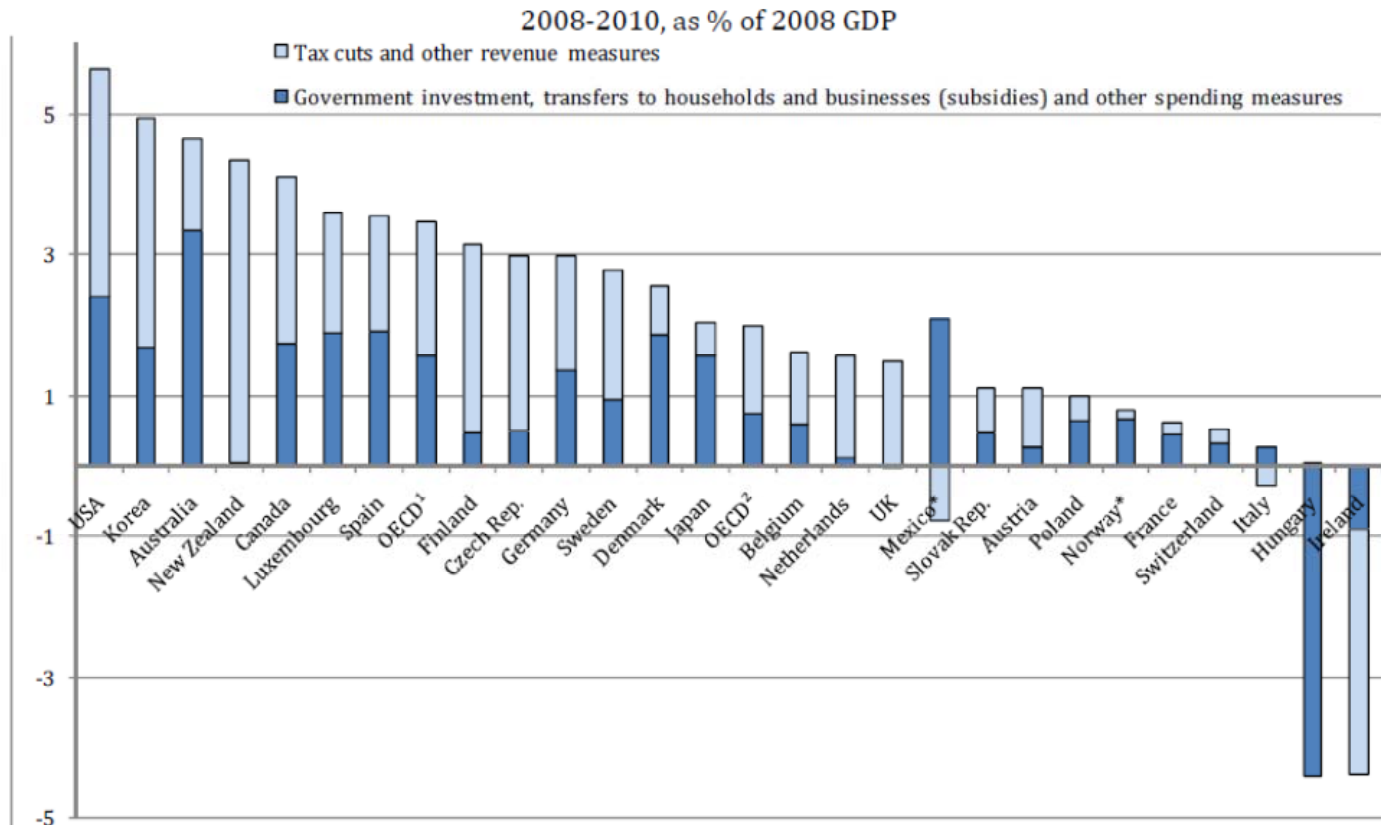
For period 2008-2010, in absolute USD millions

Country	Fiscal Package (Mill US\$)
US	804,070
Germany	107,789
Japan	99,992
Canada	61,551
Spain	56,754
Australia	45,673
Korea	42,667
UK	38,003
France	18,568
Netherlands	13,367
Sweden	13,109
Denmark	8,668
Finland	8,575
Belgium	8,016
Czech Republic	6,500
New Zealand	5,404
Poland	5,145
Austria	4,600
Switzerland	2,486
Luxembourg	1,968
Portugal	1,963
Slovak Republic	35

Sources: OECD "Policy responses to the economic crisis", June, 2009

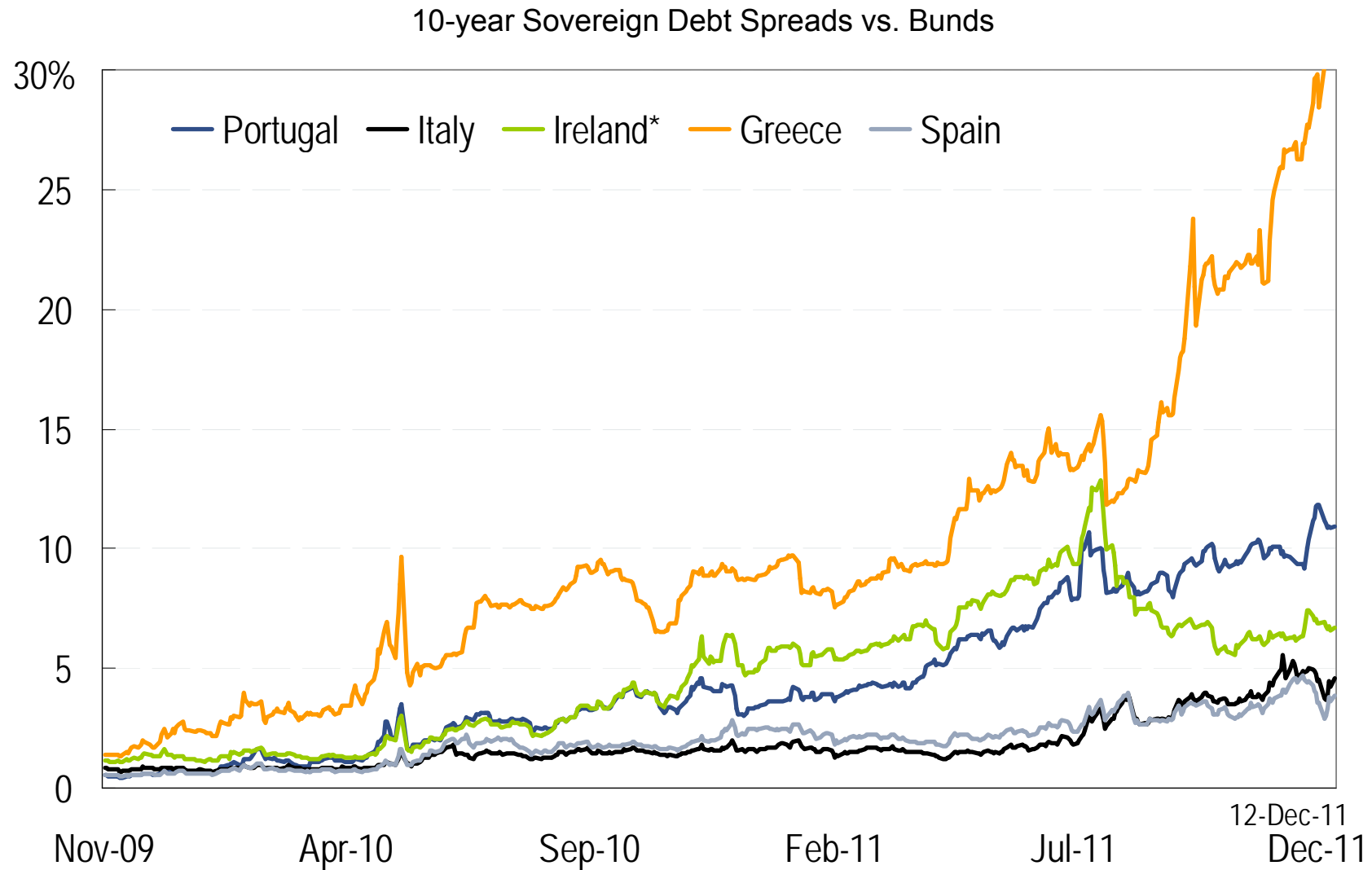
Fiscal measures during the crisis

Figure 5. The size of fiscal packages (revenue and spending measures)



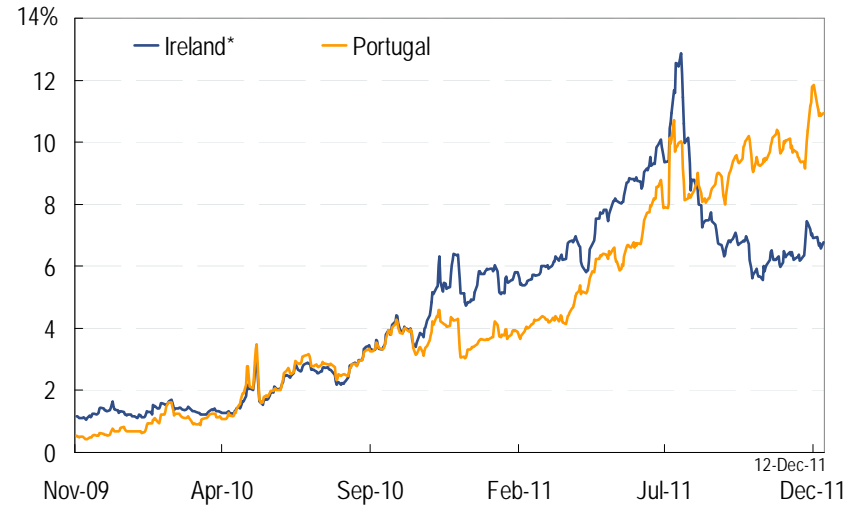
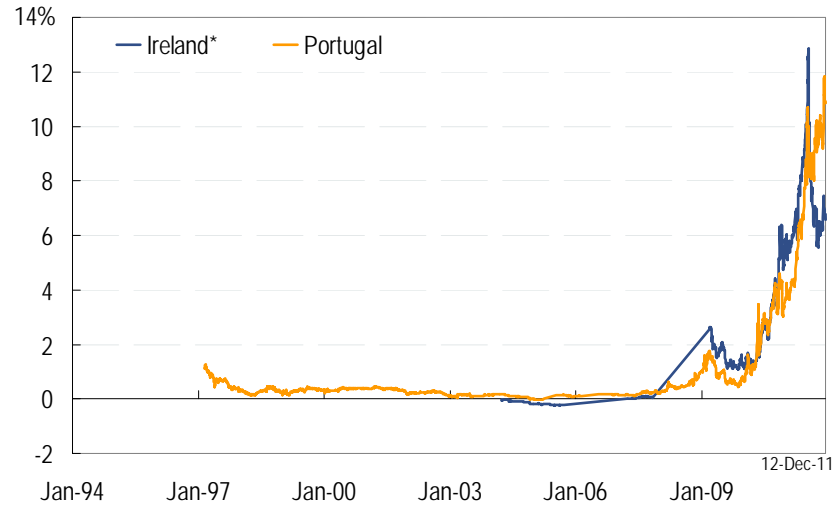
1. Weighted average of the above countries excluding Greece, Iceland, Mexico, Norway, Portugal and Turkey. 2. Simple average of above countries except Greece, Iceland, Mexico, Norway, Portugal and Turkey. *No data available for 2010. *Note:* This information is based on information up until 24 March 2009. The figures include only discretionary fiscal measures in response to the financial crisis. Estimates provided here do not include the potential impact on fiscal balances of recapitalisation, guarantees or other financial operations. They also exclude the impact of a change in the timing of payment of tax liabilities and/or government procurement, a popular measure in several countries. When applying the accrual principle, such measures are not reflected as part of the stimulus packages. Still, they affect fiscal balances measures on a cash basis and may have an impact on the economy. See also footnote 4. In the case of Mexico and Norway no data are available for 2010.

Concerns about public debt make orderly debt reduction more difficult to achieve

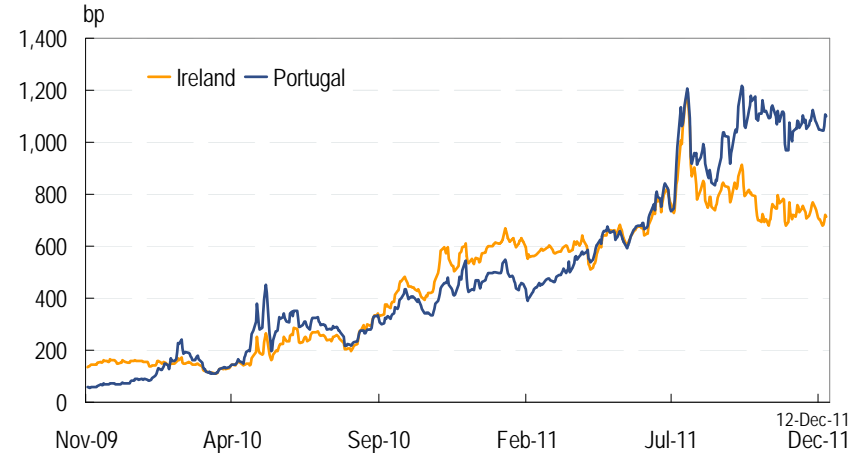
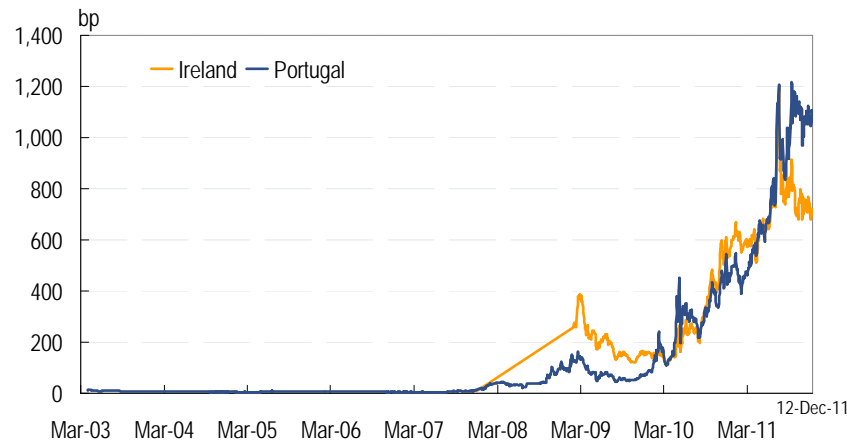


Ireland and Portugal have diverged somewhat...

10-year Sovereign Debt Spreads vs. Bunds



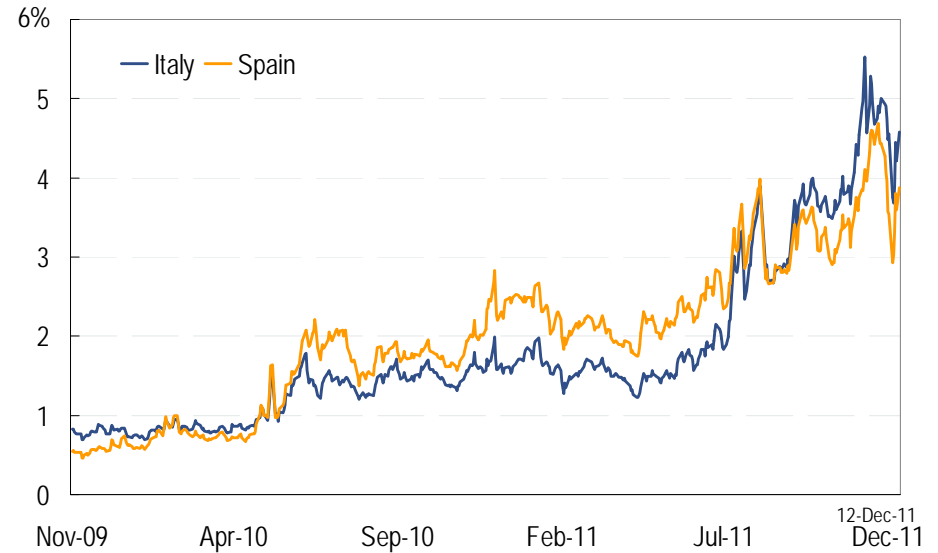
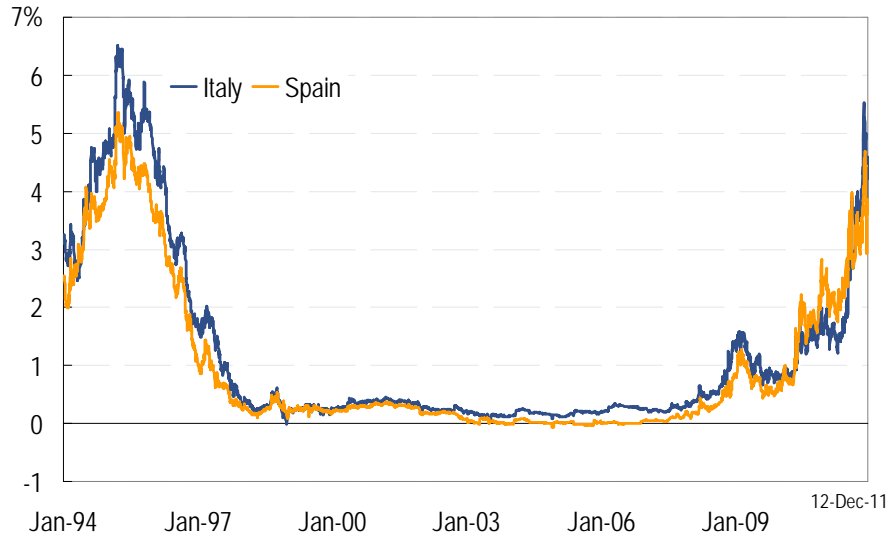
5-year CDS spreads



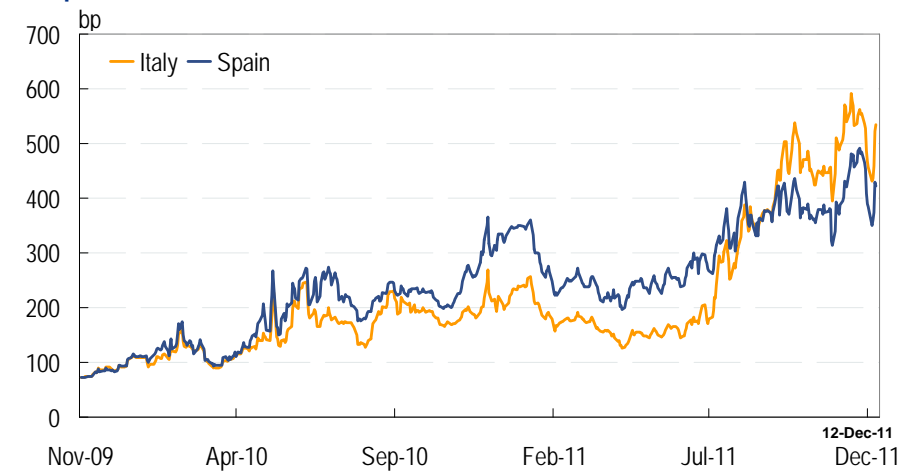
Note: * 9-year bond yields for Ireland
Source: Bloomberg

while Italy and Spain are playing catch-up

10-year Sovereign Debt Spreads vs. Bunds

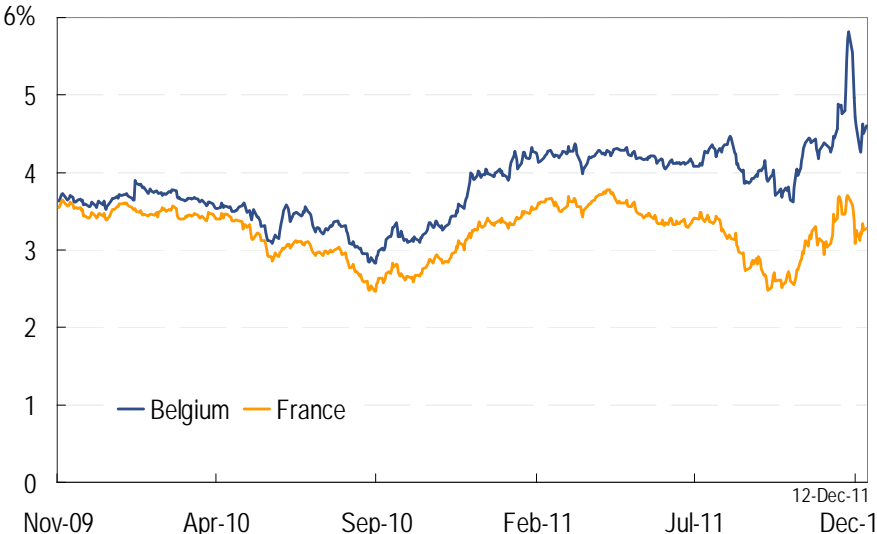


5-year CDS spreads

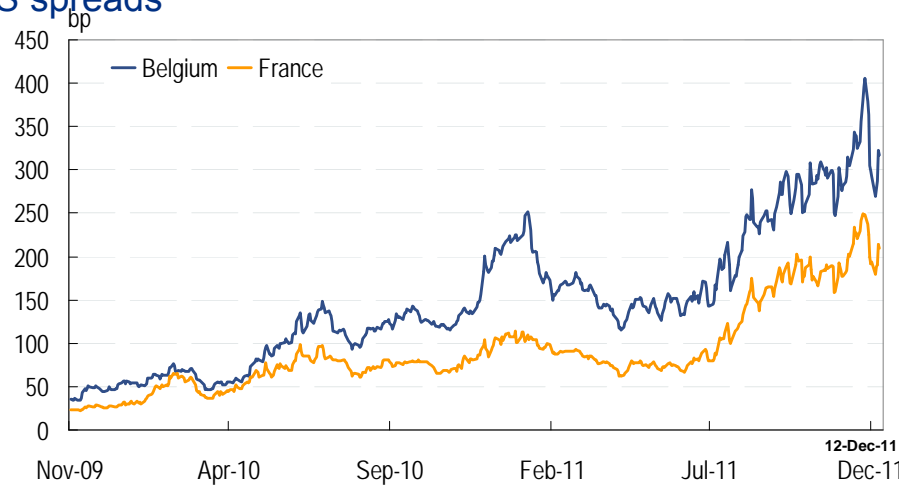
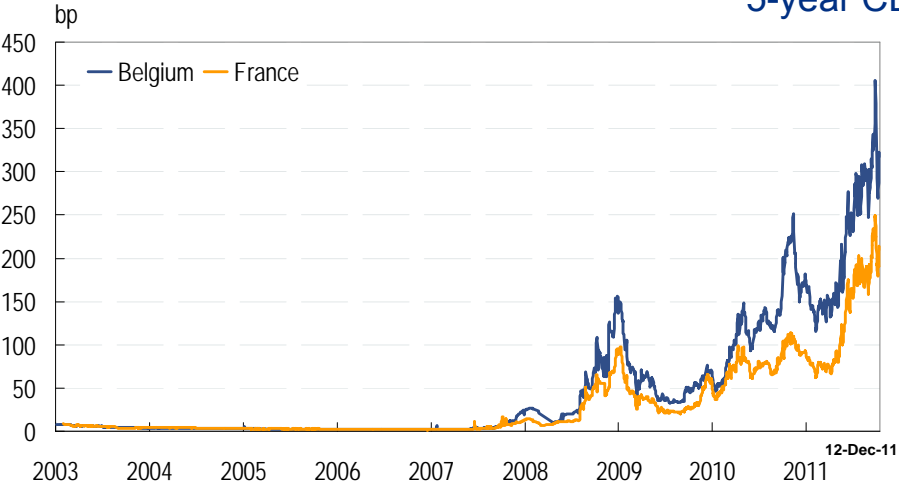


and the markets get concerned about ever-more countries

10-year Sovereign Debt Yields

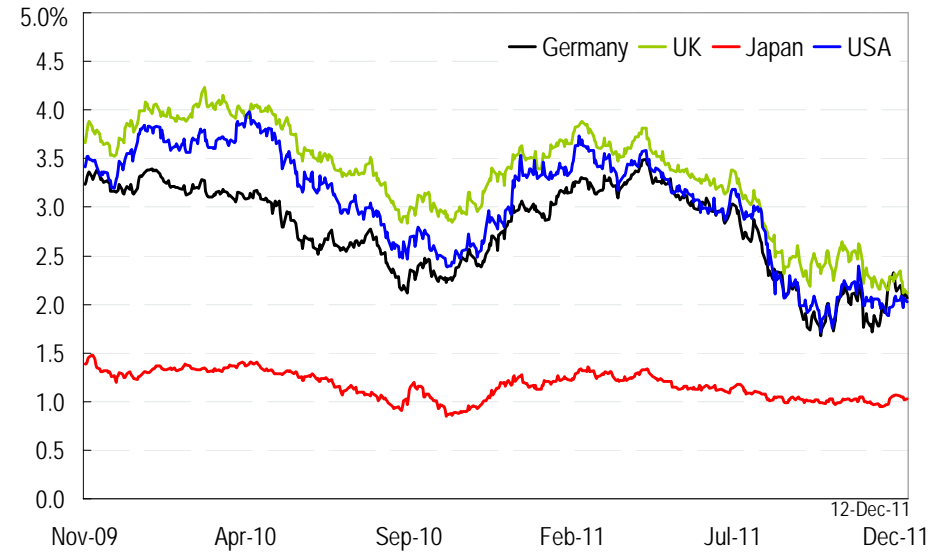
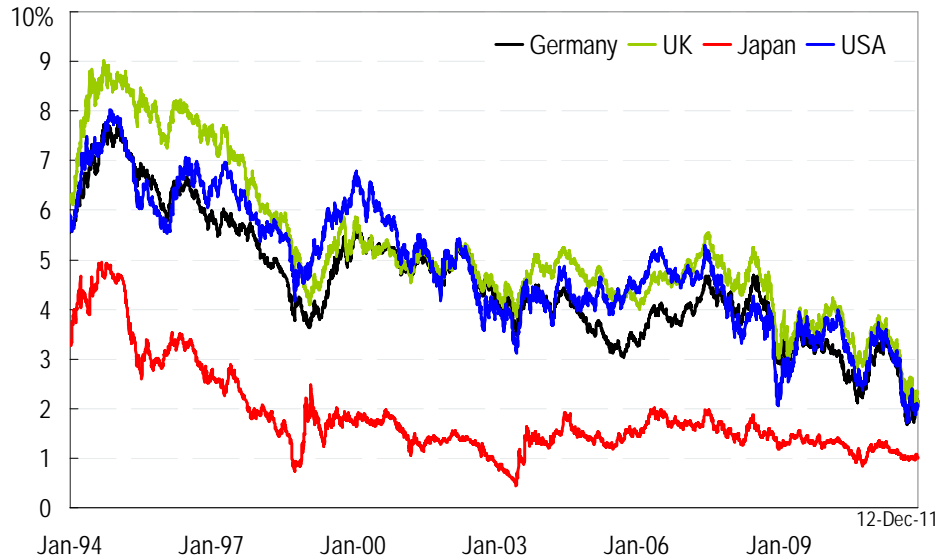


5-year CDS spreads

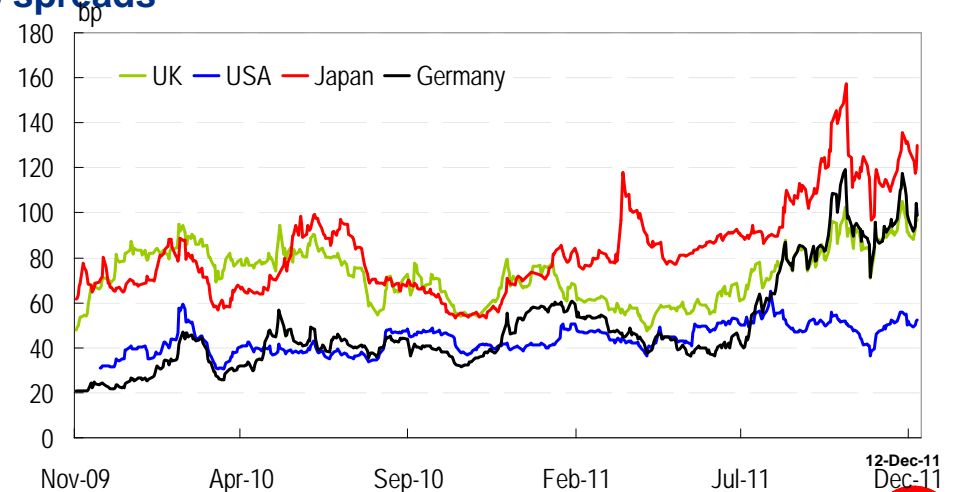
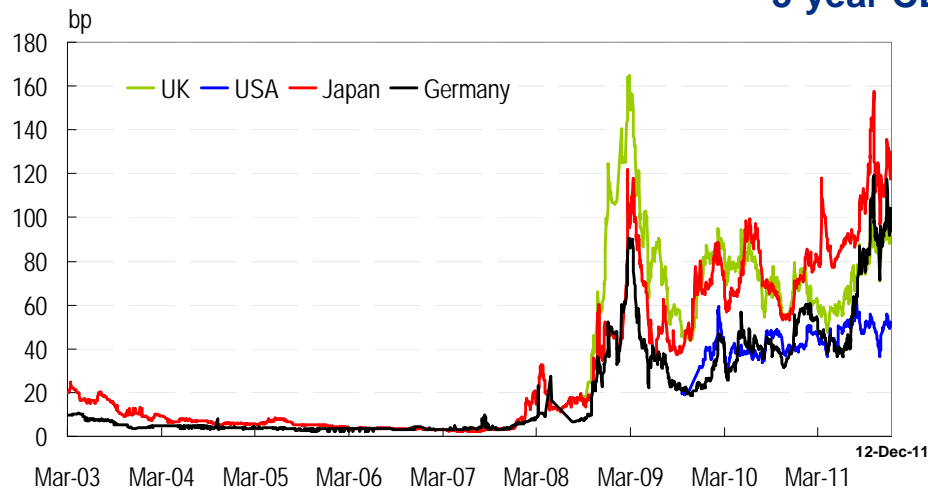


Others benefit – sometimes despite fiscal unsustainability – Japan, US

10-year Sovereign Debt Yield



5-year CDS spreads



The arithmetic of fiscal sustainability

Stabilising debt: primary surpluses and the 'snowball'

$$\Delta d = -s + \left(\frac{r - \gamma}{1 + \gamma} \right) d$$

- s is the augmented general government primary (non-interest) surplus as a share of GDP
- r the effective real interest rate on the public debt
- γ the growth rate of real GDP
- d the public debt to GDP ratio at the beginning of a period then

The arithmetic of fiscal sustainability: Italy's challenge

Stabilising government debt in Italy will be challenging, complying with SGP rules on debt requires heroic efforts

$$\Delta d = -s + \left(\frac{r - \gamma}{1 + \gamma} \right) d$$

- **Italy's challenge under the proposed enhanced S&G Pact**

- General government structural deficit 0.5 percent of GDP
- 1/20th of the gap between the actual general government debt-to-GDP ratio and the 60% of annual GDP ceiling under the S&G Pact to be eliminated each year.
- Italy's current general government gross debt to GDP ratio is 120 percent.
- The growth rate of real GDP is, if we are lucky, 0.5 percent
- Even if the effective real interest rate on Italy's sovereign debt is only 3.0 percent, it would have to run a primary surplus in the first year of the new S&G pact of 6 percent of GDP.
- If growth rate of real GDP and real effective interest rate remain the same, that required primary surplus would slowly come down over the next 20 years.
 - After 10 years, the required primary surplus would still be 5.2% of GDP.
- And these numbers are optimistic
 - Italy needs serious structural reform to achieve even 0.5% sustained growth of real GDP
 - Interest rate could well be higher if ring-fencing of the EA periphery is unsuccessful

How to reduce public debt over time?

- A lower interest rate on the public debt
 - Financial repression (especially effective if nominal interest rate controls are combined with high inflation)
- A higher growth rate of GDP – not an instrument, unfortunately
- Fiscal pain: an increase in taxes or a cut in public spending
- Increased recourse to revenues from central bank
 - Seigniorage/ anticipated inflation tax
 - Unanticipated inflation tax
- Default/restructuring
- A bailout: a current transfer payment from abroad or a capital transfer from abroad
- If debt levels are unsustainable, they will not be sustained!
 - Orderly vs disorderly deleveraging

Fiscal austerity: is it effective and is it necessary?

Fiscal austerity is painful

- Markets discipline unsustainable sovereigns
 - Apparent exceptions to bond market vigilantes disciplining unsustainable sovereigns: US and Japan
 - But note: even Germany has 5-year CDS spreads at 100 bps and ‘failed auction’. Japan 5-years sovereign CDS spread > 100 bps
- Fiscal austerity depresses activity in the short and medium term
 - Expansionary contractionary fiscal policy (Alesina et. al.)?
 - Anticipated future tightening through asset market effects can be expansionary today – ‘confidence effects’.
 - Fear of future disruptive/destructive tightening can be contractionary today
 - Confidence effects can be present even if tightening is immediate
 - More likely if public debt and deficit high (unsustainable)
 - Minsky neutrality: fiscal tightening through tax increases when household debt is high and households are in ‘deleveraging mode’; with consumption at ‘social/habitual subsistence level’, higher taxes on households only reduce household savings

Fiscal austerity: is it effective and is it necessary?

Fiscal austerity is not generally 'self-defeating', even in a recession

- Empirically,
 - the multiplier is positive
- BUT:
 - There is no Keynesian Laffer curve: fiscal tightening does not depress activity to the point that it increases the deficit
- Unless you have another instrument for stimulating demand (monetary policy, helicopter money, supply-side reforms that raise animal spirits), when faced with an unsustainable fiscal situation, the only choices are **austerity** or **default/restructuring**
 - 'Growth' is not a policy instrument and therefore not a policy alternative to austerity
 - Austerity will eliminate unsustainable fiscal deficits even without growth, if and only if it can be supported politically for long enough – you can be poor, but solvent.

Alternatives to austerity

Conventional monetary policy and even conventional unconventional monetary policy does not have much left to offer to stimulate demand

- Expansionary monetary policy:
 - in EA, 100 bps left, plus QE
 - In US and Japan, only QE left
 - In UK, 50 bps left, plus QE
- Helicopter money
 - Cash transfers to households or public spending on infrastructure financed permanently by increasing the monetary base
 - Always raises real output and/or prices
 - Conditions right in Japan, EA and US; possibly in UK
 - Politically infeasible in Japan, EA and US. Possible in UK
- Debt restructuring for sovereigns
 - Traditional: maturity extension and/or 'haircuts' to interest rates or principal
 - Conversion of existing debt into GDP growth warrants or floating rate debt with interest rate indexed to growth rate of nominal GDP

How to deleverage in the private sector?

$$S_i - I_i \equiv \sum_{j=1}^N P_i (\Delta A_i^j - \Delta L_i^j)$$

S_i : Saving by agent i , $i = 1, \dots, M$

I_i : Investment by agent i

P_i : Price of asset/liability i

A_i^j Gross stock of financial asset j held by agent i

L_i^j Gross stock of financial liability j held by agent i

How to deleverage in the private sector?

We can look at private deleveraging in an analogous way to deleveraging in the public sector

- Gross deleveraging: asset sales or running down loans possible with proceeds used to pay down debt
 - In depressed and illiquid markets, distressed asset sales likely to depress values, causing adverse feedback loops
- Net deleveraging: requires financial surpluses by deleveraging entities, i.e. raising saving &/or reducing capital expenditure
 - for households and firms, raising revenues (incomes) is not generally available as a significant option
 - Focus on reducing spending/costs
 - For closed systems, $\Sigma S = \Sigma I$ and ‘paradox of thrift’ likely to make net deleveraging painful, unless there is *ex-ante* desire to leverage up by other sectors
- A lower interest rate on the outstanding debt
 - Mostly exogenous to the deleveraging entity (financial repression is not a private sector instrument).
- A higher growth rate of nominal GDP (for nominal debt)
 - Not a choice variable for private entities
- Bailout from the government, foreign governments or central bank
- Default/restructuring of debt

How to deleverage in the private sector?

Gross deleveraging and net deleveraging have different implications

Therefore:

Gross deleveraging does not require any change in either the flow of saving or the flow of investment spending by any individual agent. It can be achieved with

$$\sum_{j=1}^N P_i \Delta A_i^j = \sum_{j=1}^N P_i \Delta L_i^j < 0$$

Even gross deleveraging does require coordination across agents of sales and purchases or lending and borrowing, as planned transactions in individual assets and liabilities must be matched.

Also, in a closed system:

$$\sum_{i=1}^M (S_i - I_i) \equiv \sum_{i=1}^M \sum_{j=1}^N P_i (\Delta A_i^j - \Delta L_i^j) \equiv 0$$

Net deleveraging, $\sum_{j=1}^N P_i (\Delta A_i^j - \Delta L_i^j) > 0$, for some agent i does require either an increase in saving

or a decrease in investment by deleveraging sector.

In a closed system, who will be leveraging up - ex ante or ex-post?

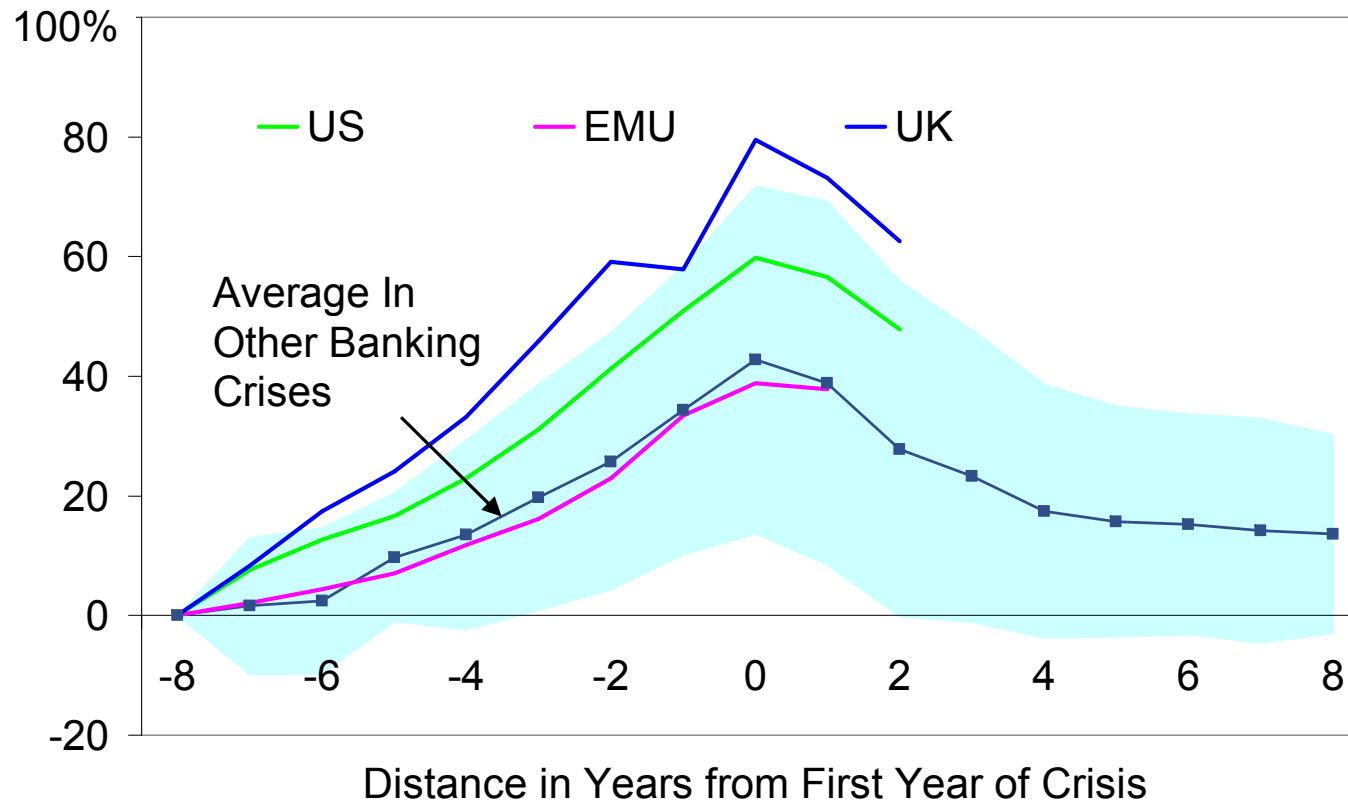
Deleveraging by running financial surpluses

- If 2 out of 4 or 3 out of 4 sectors in a national economy try to engage simultaneously in net deleveraging, recession is likely, because sectors wishing to engage in net deleveraging *ex-ante* unlikely to be matched by sectors wishing to leverage up *ex-ante*.
- US, UK, Ireland, Spain, Portugal, Greece, Netherlands: sovereign, banks, households
- Germany, France, Italy: sovereign and banks.
- EA key issue: bank insolvency issues throughout EA/EU cannot be addressed until sovereign solvency issues in periphery are solved
- Insolvent and near-insolvent banks cannot fund themselves
- Tight financial conditions (no bank funding through markets) reinforces activity-depressing effect of fiscal austerity

Financial crises and deleveraging: the Reinhart-Rogoff story

Financial crises tend to be followed by years of private sector deleveraging

Change in Gross Private Debt/GDP Ratios compared to Previous Major Systematic Banking Crises Around the World, 1980-2011



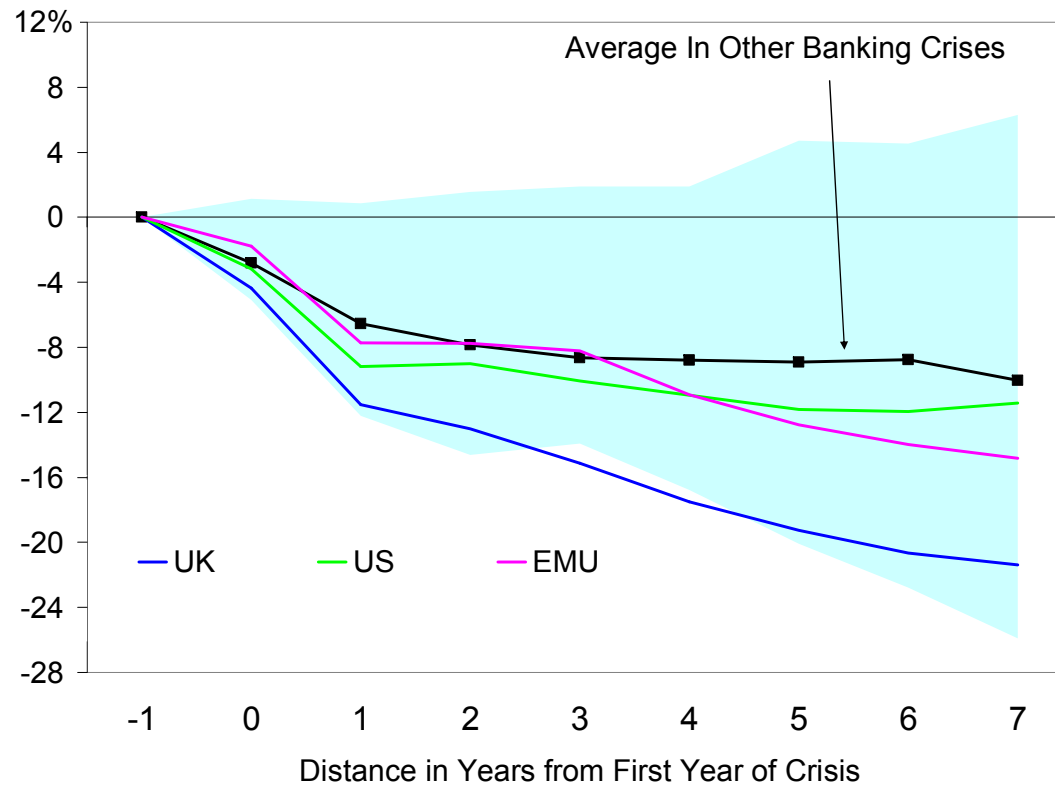
Note: Gross private debt includes total domestic credit to private sector (World Bank data) and cross border lending to the nonbank private sector by foreign banks (BIS consolidated banking data). Average is computed using sample of 12 banking crises as defined in "Debt Reduction after Crises", BIS, September 2010, with five crises excluded due to data limitations. Shaded area corresponds to historic average plus or minus 1 standard deviation.

Sources: US Federal Reserve, Eurostat, ONS, BIS, IMF, World Bank and Michael Saunders, "What's the damage? Debt and growth in deleveraging", CIRA Global Economic Outlook and Strategy, November 2011

Financial crises and growth: the Reinhart-Reinhart story

Weakness in GDP growth following a financial crisis tends to be severe and protracted...

Output Loss (Real GDP Per Head Vs. Pre-Crisis Trend) Compared to Output Losses After Previous Banking Crises, 1970-2011



Note: Pre-crisis trend calculated over 1998-2005. Shaded area denotes interquartile range of historic losses
Source: IMF, DataStream and Michael Saunders, "What's the damage? Debt and growth in deleveraging", CIRA Global Economic Outlook and Strategy, November 2011.

Deleveraging by debt restructuring

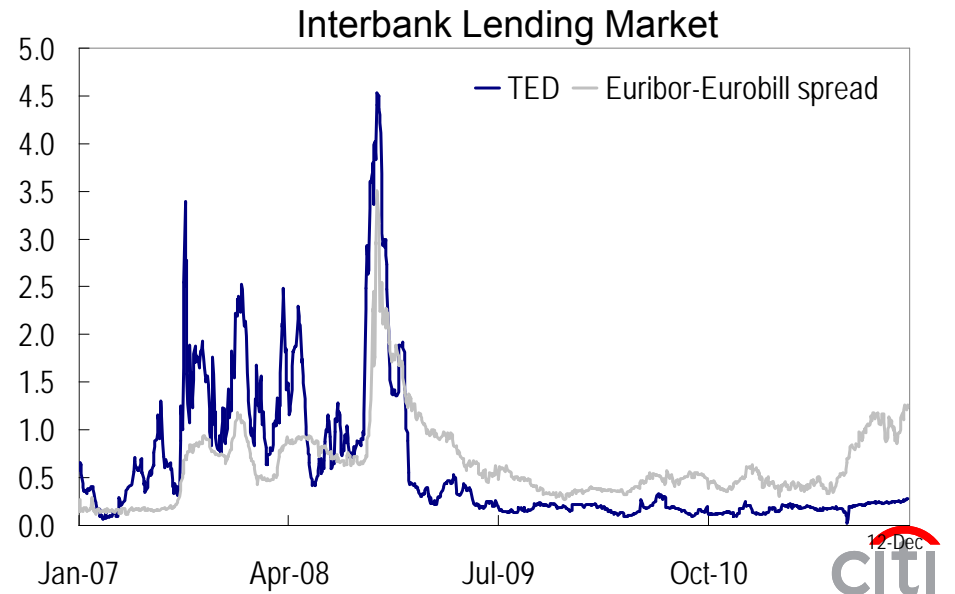
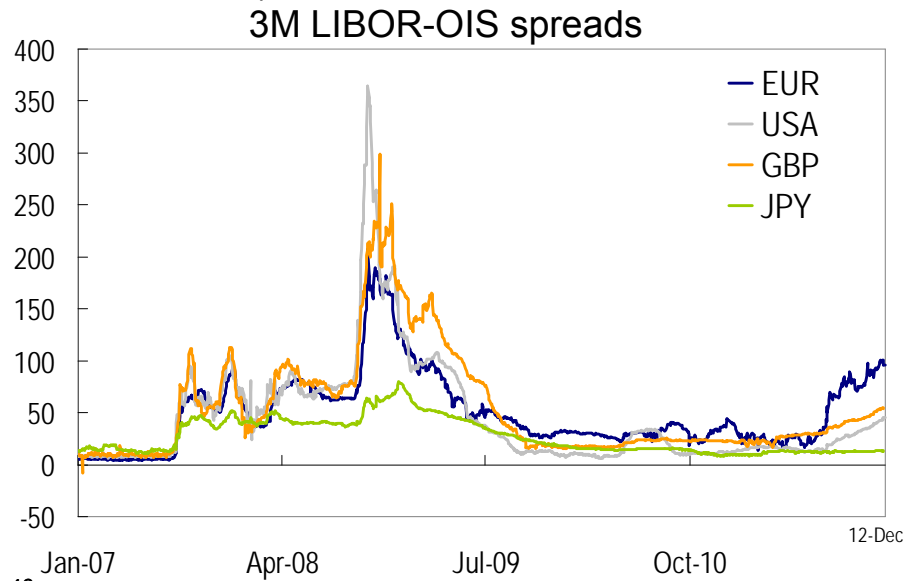
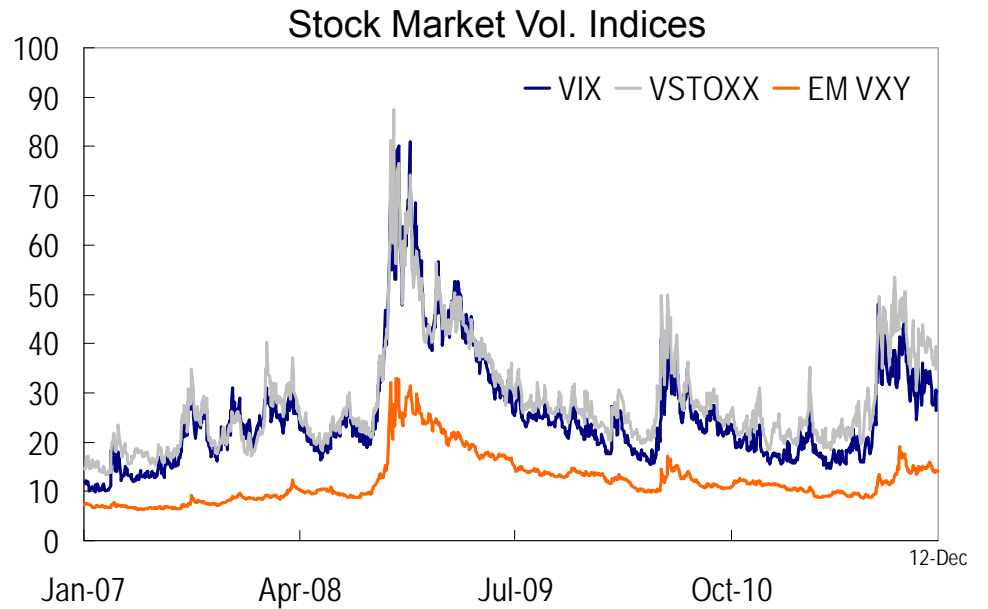
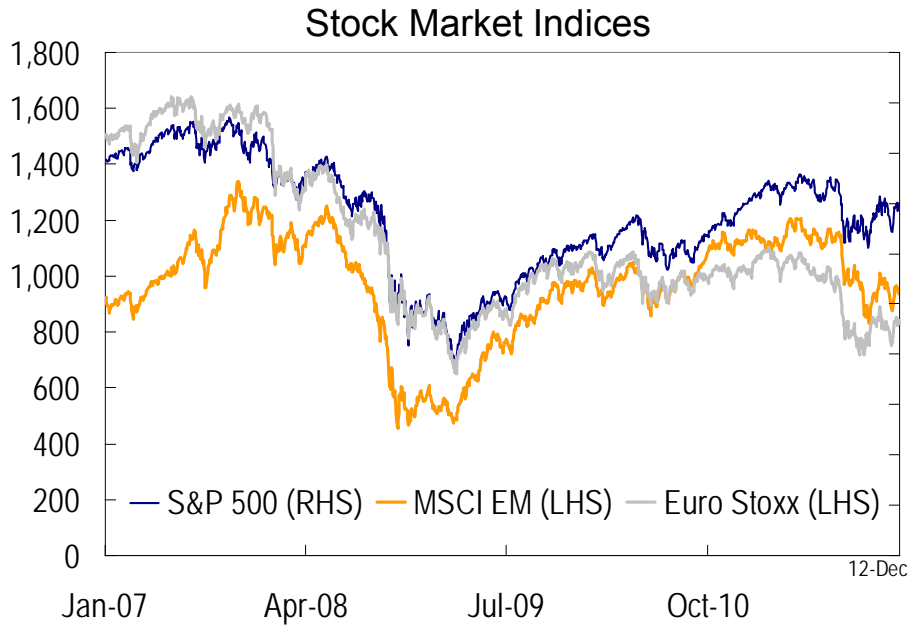
- **Islamic finance for all:** equitisation of debt
 - **Households**
 - Option of existing mortgage debt conversion ex-post into Islamic mortgages
 - New residential mortgages along Islamic mortgage principles
 - No non-recourse mortgages
 - **Non-financial corporates**
 - Bankruptcy/insolvency through ordinary corporate insolvency procedures
 - **Banks & other SIFIs need restructuring ‘at speed of crises’**
 - Write-downs of unsecured debt (subordinated, junior or senior)
 - Mandatory conversion of debt into equity
 - Leverage ratio ceilings
 - RWA only if easily externally verifiable risk-weights
 - Requires special resolution regimes (orderly resolution regimes) with preventive intervention and prompt corrective action, including bridge-bank construction and all-powerful administrators/conservators
 - **Sovereigns**
 - Conversion of existing debt into GDP growth warrants or floating rate debt with interest rate indexed to growth rate of nominal GDP

The political economy of restoring debt sustainability

- Problem: these measures all involve re-assignments/violations of existing property rights
 - If expected to be repeated, they could have serious adverse incentive effects
 - If viewed as a once-and-for all regime change, there will be no such adverse incentive effects.
- Resolving unsustainable debt problems (especially if it involves 2 or more sectors) poses a three-fold challenge
 1. Coordination, including netting of claims across sectors, firms, households and national boundaries
 - Markets are often reasonably good at this, as long as the contingencies could be foreseen and planned for.
 2. Redistribution (debt restructuring *is* redistribution from creditors to debtors) and re-assignment of property rights
 - This is deeply political – perceived as zero-sum by the participants
 3. Designing and implementing/enforcing appropriate incentives over time (moral hazard is just one example).
 - Both market and non-market (political or administrative) mechanisms do badly at allocating resources and enforcing commitment over time.
 - External enforcement of contracts through courts and other legal institutions becomes more costly and less effective the longer the duration of the contract. Laws and regulations change; jurisdictions, even nations vanish.
 - Market institutions, political and public administration institutions become less effective at designing and enforcing commitments over time, the longer the horizon/duration of the commitments
 - Self-enforcing commitments over time may not support very good outcomes
- Resolution of the debt problems will require political innovation as well as the reform of budgetary institutions, labour market institutions and product markets institutions.

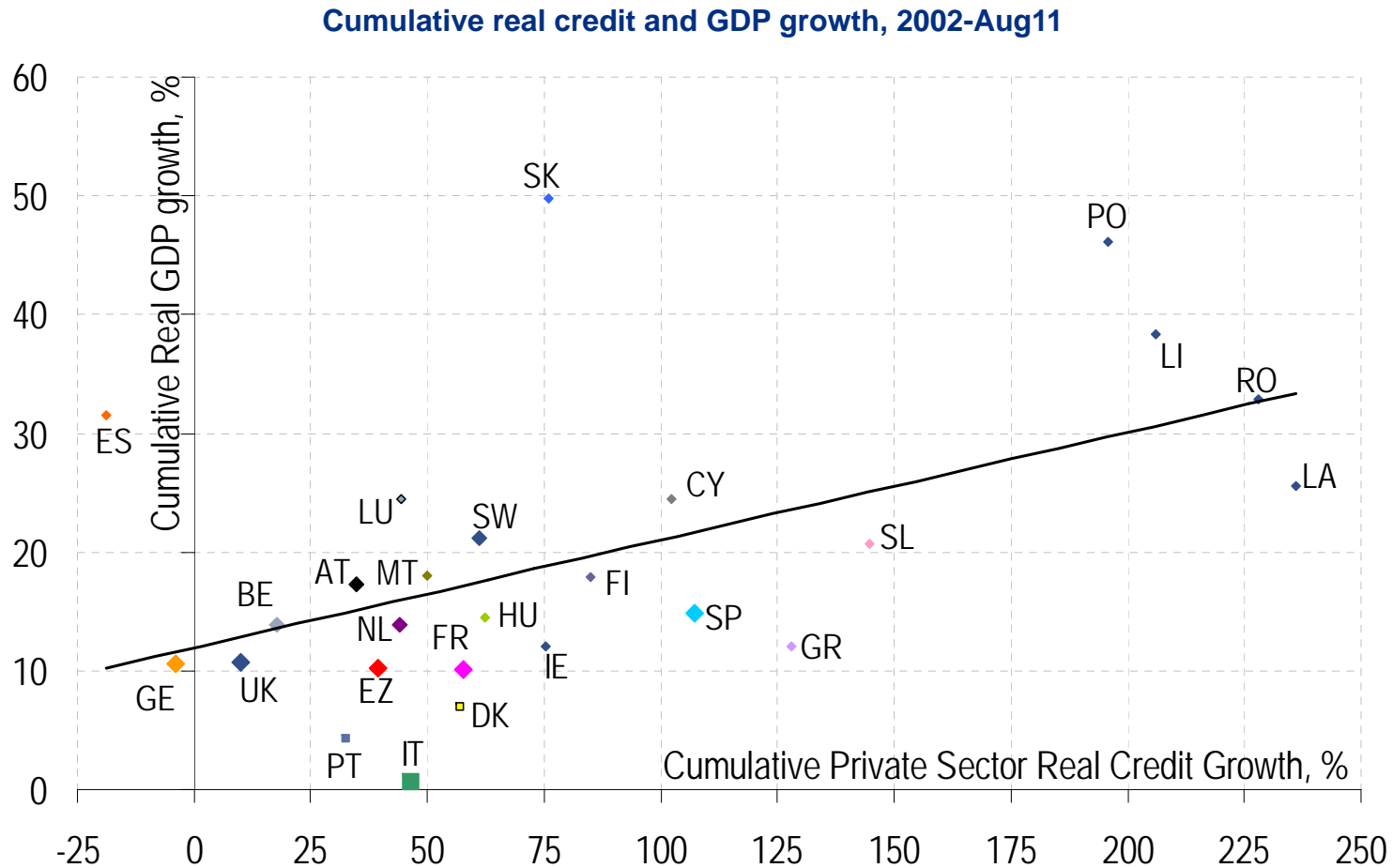
Appendix

Financial Market Stress Indicators



Output growth and credit growth grow hand in hand

...but it is not clear which way the causation runs



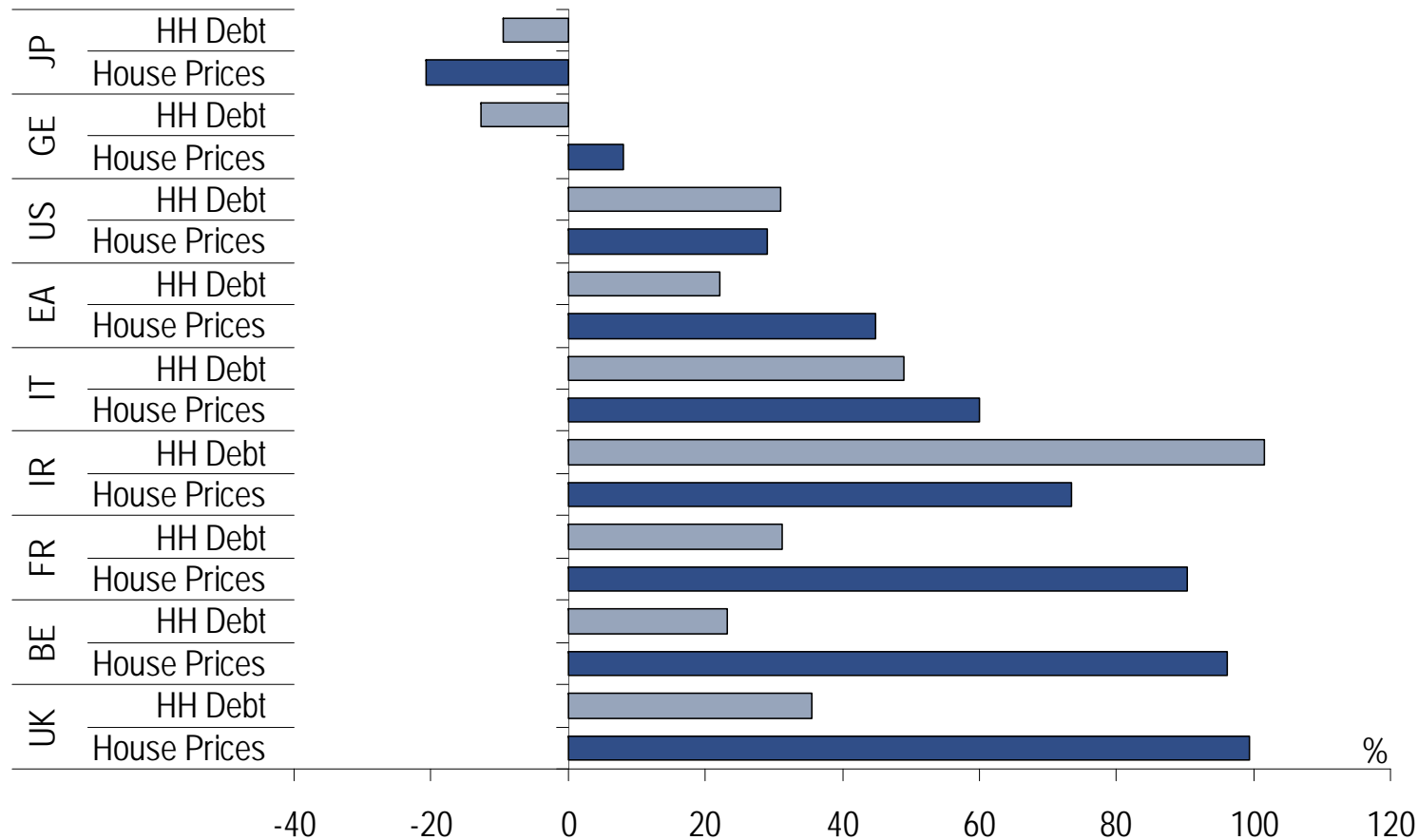
Source: ECB, Eurostat, *Euro Weekly - Credit Matters: Recession Ahead*, 21 Oct, CIRA.

Note: Total private sector credit includes MFI total loans to households, total loans to non-financial corporate, loans to other financial corporations and loans to the insurance sector. Nominal values are deflated by CPI (NSA, 2005=100)

Household debt and house prices

Countries with larger increases in house prices also saw larger increases in household debt

Cumulative household gross debt growth vs. house price growth, 2001-2007

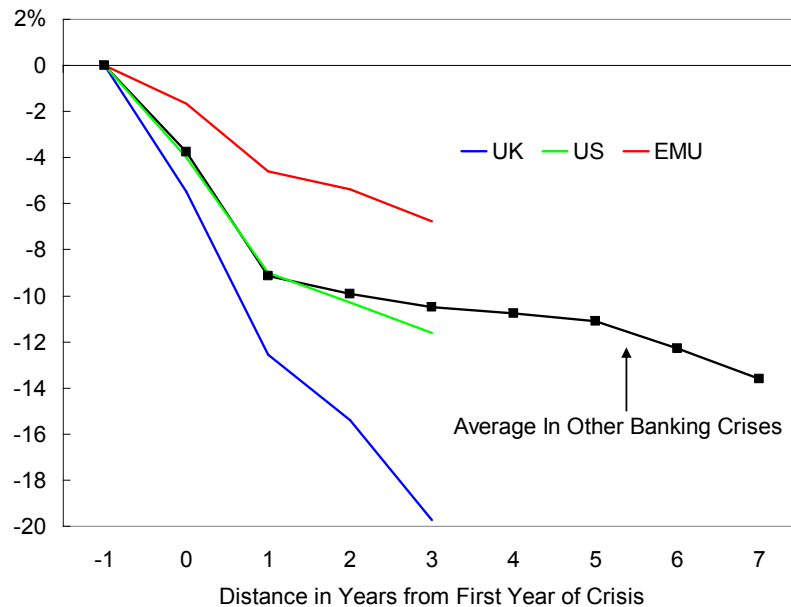


Note: for both variables values represent cumulative growth between 2001 – 2007. For house prices: US (Price index of new 1-family houses sold), Japan (urban land price index), and for other countries (house price index for main metropolitan areas)
 Source: ECB, Eurostat, Census Bureau, Halifax, National Statistics Offices, National Central Banks and CIRA.

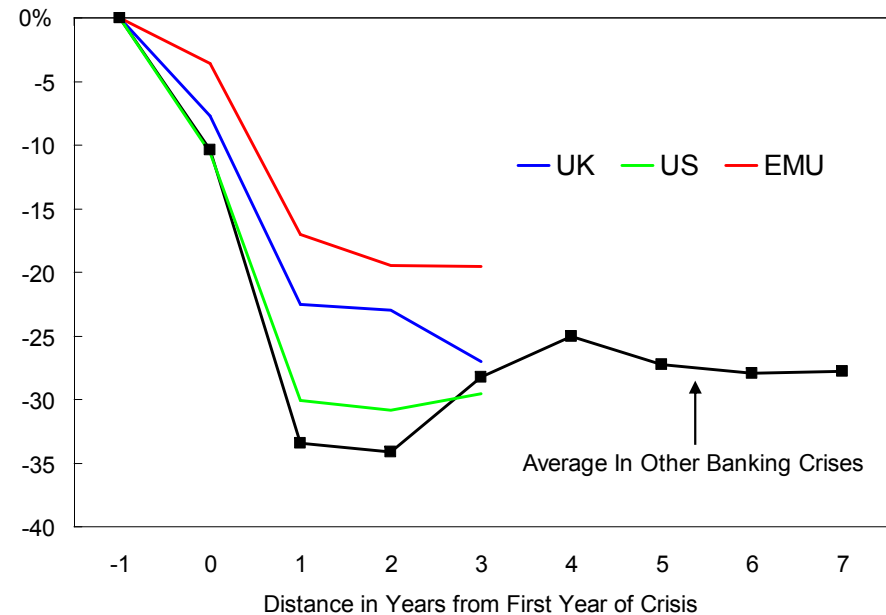
Financial crises and consumption and investment

as both consumption and investment fall

US, UK, EMU – Deviation of Real Consumer Spending Per Head from Pre-crisis trend, 2007-11



US, UK, EMU – Deviation of Real Investment Spending Per Head from Pre-crisis trend, 2007-11



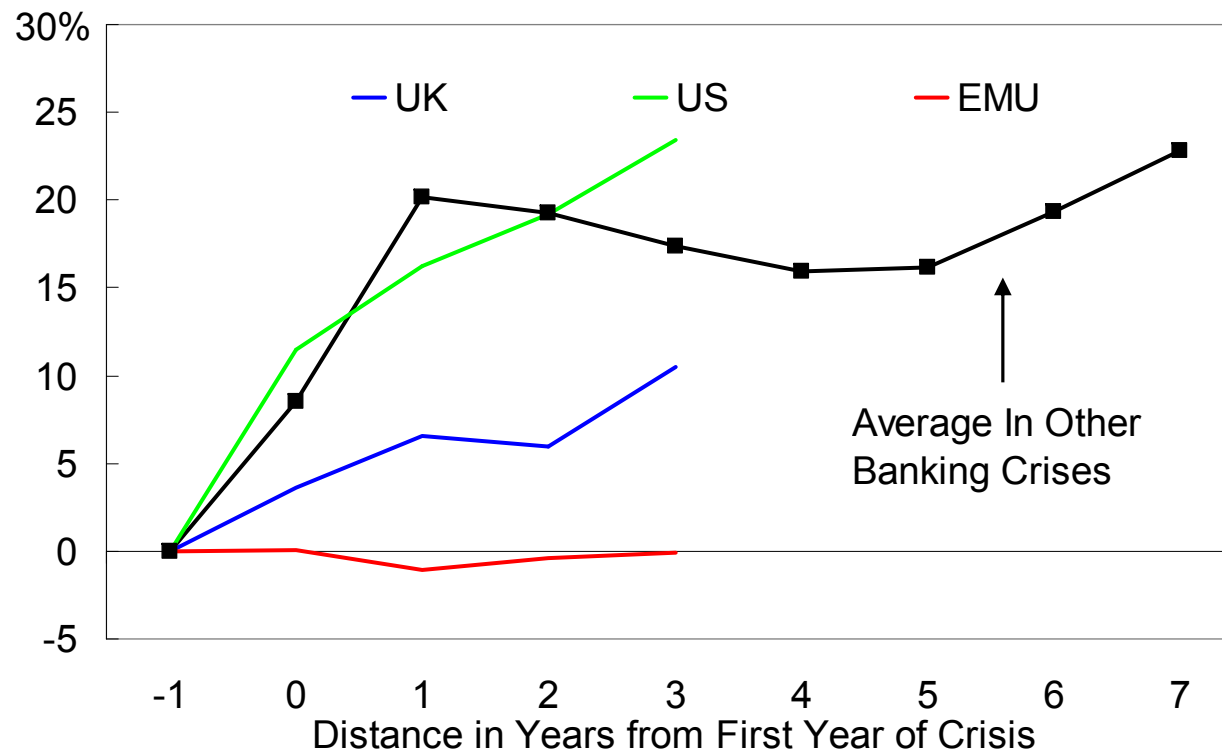
Note: pre-crisis trend calculated over 1998-2005. The figure for year 3 is the average of Q1 and Q2 2011 for the UK and EMU, Q1-Q3 for the US. Values for real investment spending correspond to private investment for the US, and total investment for the UK and EMU.

Source: IMF, DataStream, Michael Saunders, "What's the damage? Debt and growth in deleveraging", CIRA Global Economic Outlook and Strategy, November 2011

Financial crisis and real net exports

while the government and net exports cushion the output fall

US, UK, EMU – Deviation of Real Exports Less Imports Per Head from Pre-crisis trend, 2007-11



Note: pre-crisis trend in exports and imports are calculated separately over 1998-2005 and show the gap between their cumulative growth. The figure for year 3 is the average of Q1 and Q2 2011 for the UK and EMU, Q3-Q3 for the US.

Source: IMF, DataStream and Michael Saunders, "What's the damage? Debt and growth in deleveraging", CIRA Global Economic Outlook and Strategy, November 2011.

Private and public sector deleveraging

- Impact of private sector deleveraging could be more painful this time
 - Sovereigns in many industrial countries are heavily indebtedness and therefore unlikely to be able to pick up the slack
 - In some countries, notably the US, some hope remains that private and public sector deleveraging can occur sequentially rather than contemporaneously
 - Since relatively large share of the world economy is affected, countries are unlikely to be able to export their way out of weakness