

November 2012

Why good gardeners should take credit

Strong growth requires more than just liquidity

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

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Green shoots

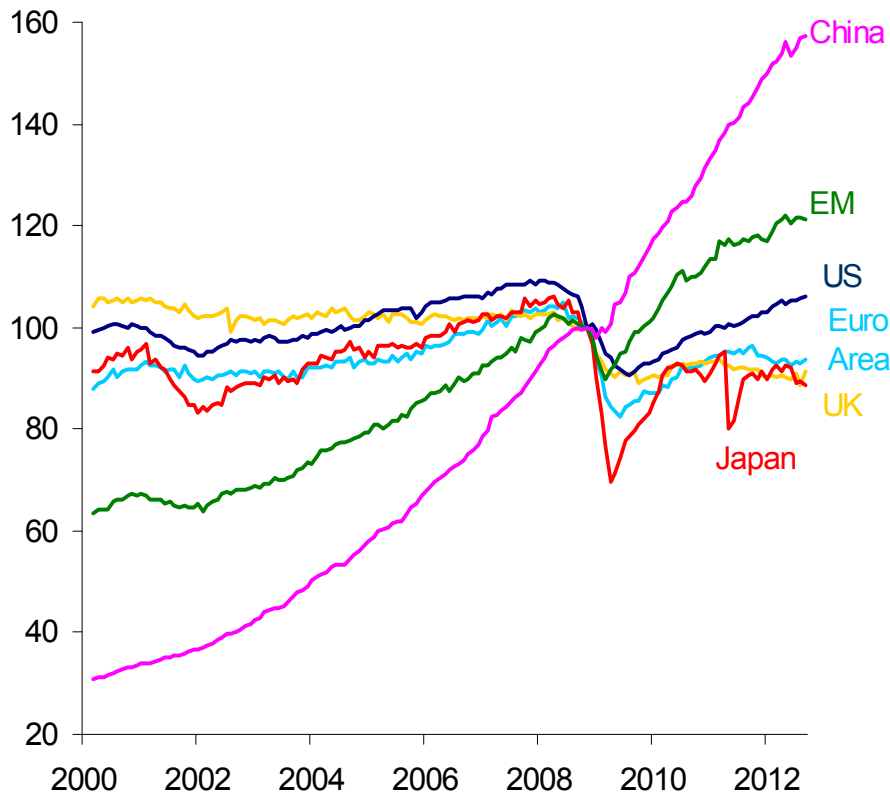
Barren soil

What happens when you add more fertilizer

Signs of new life

Plant in motion

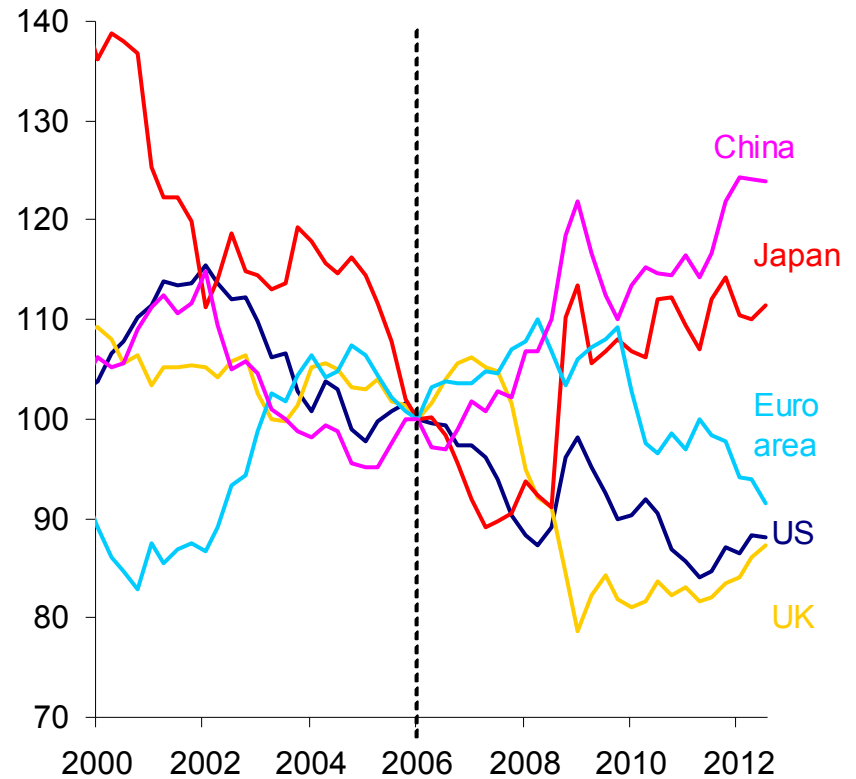
Industrial production (ex construction), Sep08=100



Source: Haver Analytics.

Global rebalancing

Broad real effective exchange rates, Q1-06=100



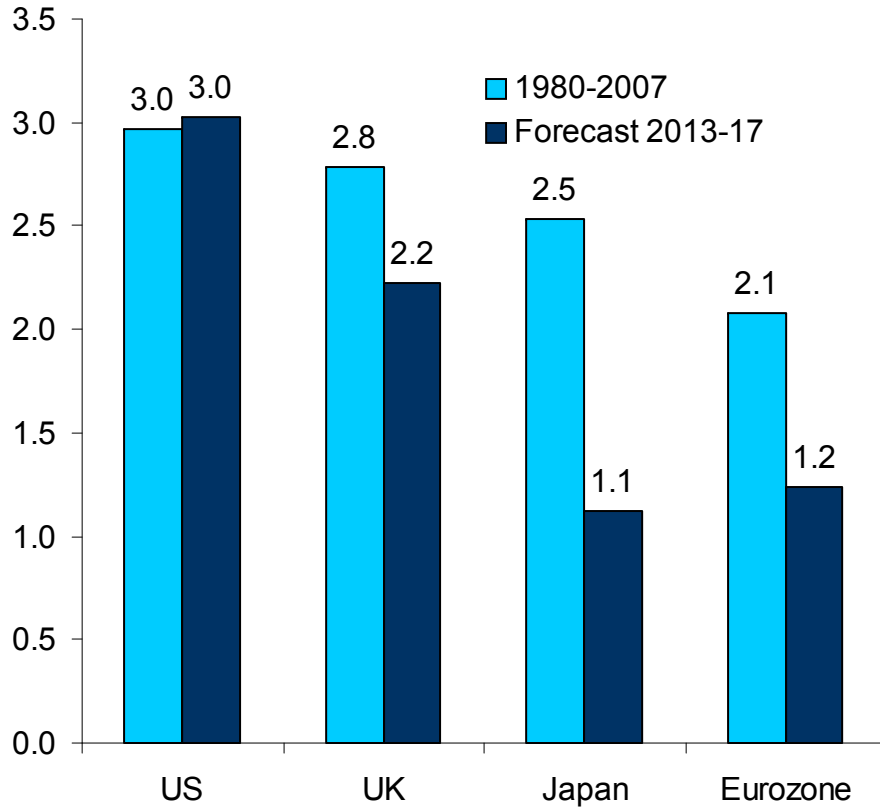
Source: BIS, Haver Analytics.

The end of winter in sight?

Natural regeneration

Provided you have growth...

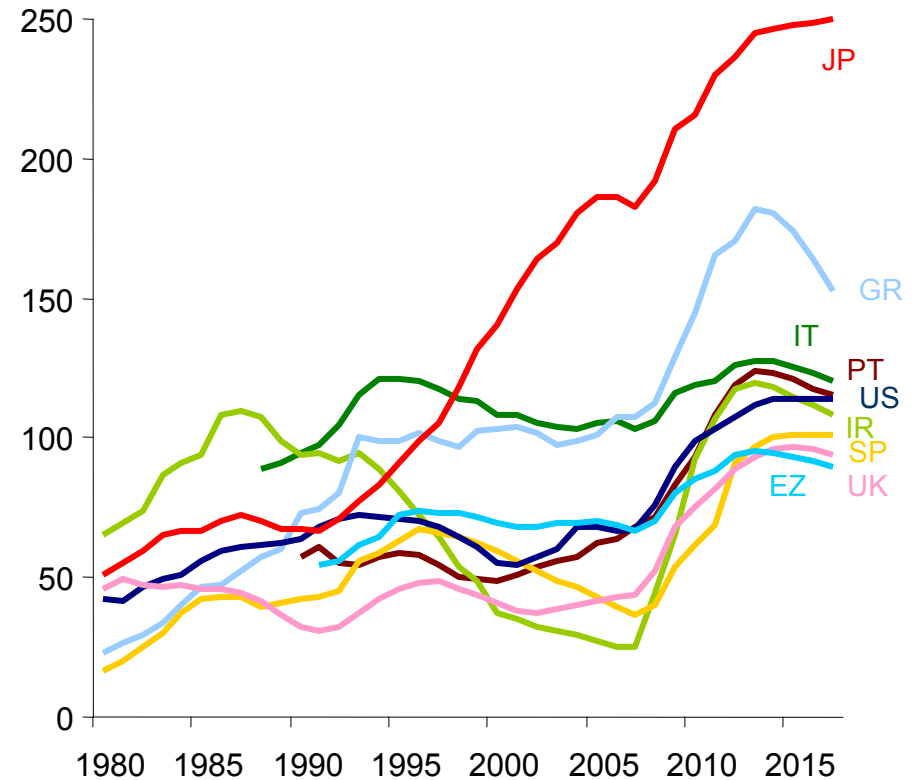
Average growth in real GDP, %



Source: IMF. Eurozone average is since 1992.

...the debt crisis should be nipped in the bud

General government debt with IMF forecasts, % GDP



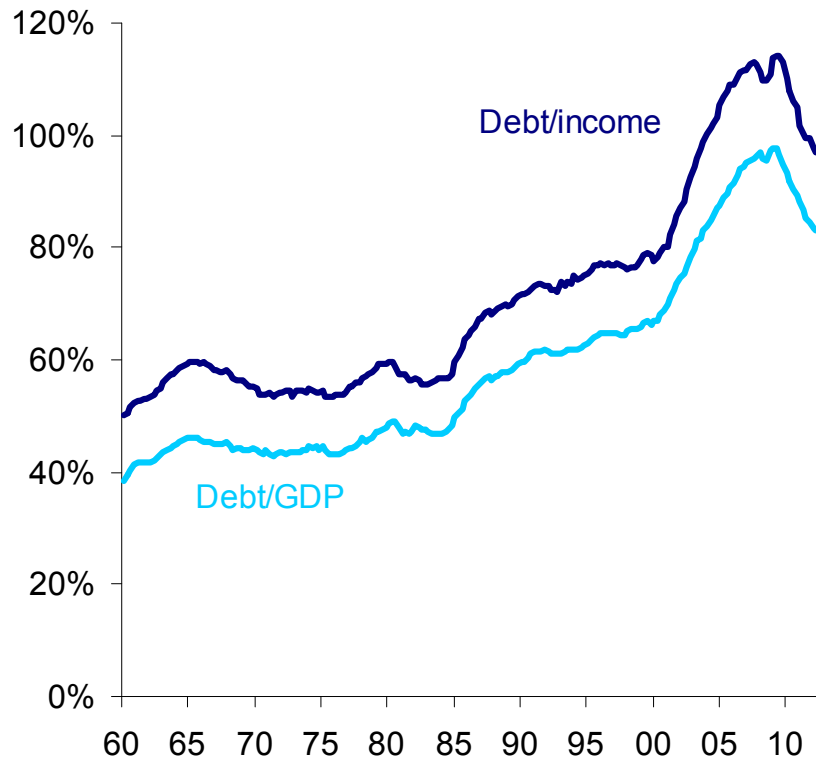
Source: IMF, Haver Analytics.

Growth can be a powerful force

Dealing with the weeds

Nearly back on track?

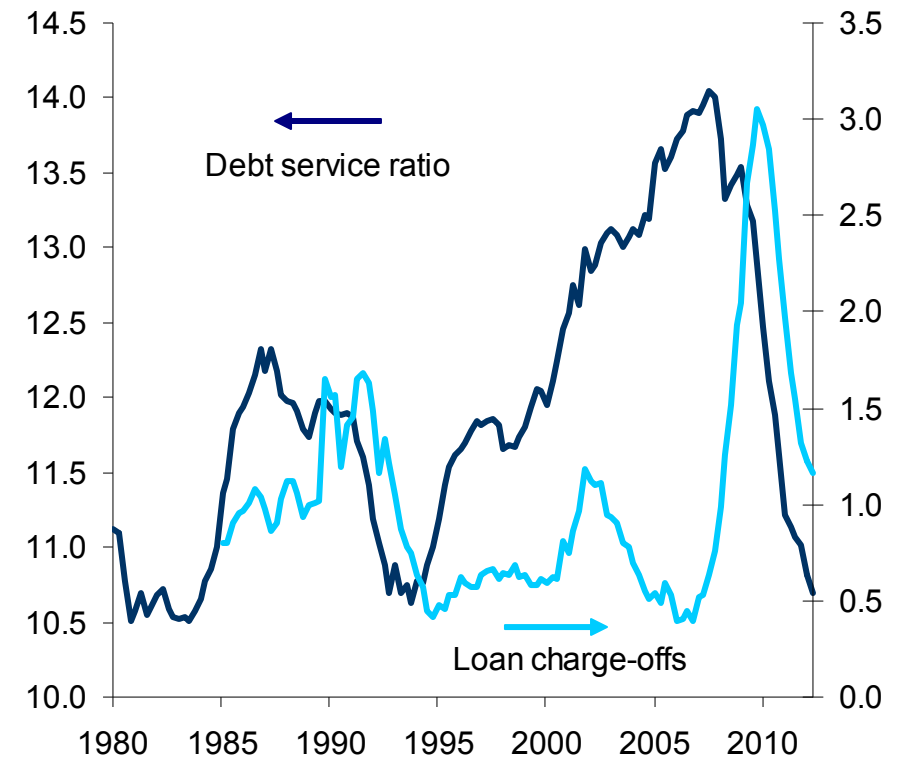
US household debt ratios, %



Source: Haver Analytics.

Down to earth again

US household debt service (% disposable income) and bank loan charge-offs (% outstanding loans)



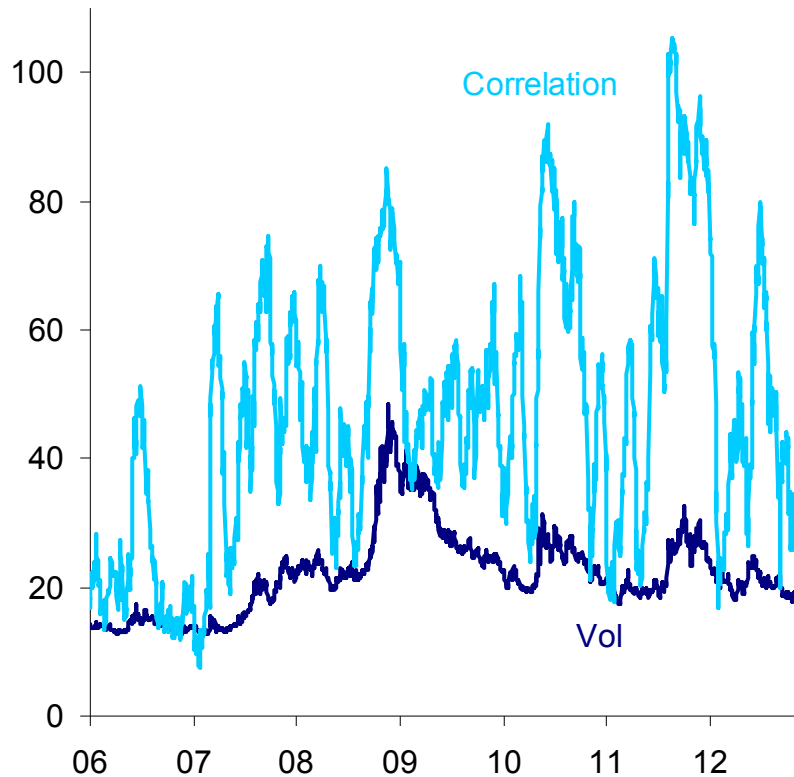
Source: Haver Analytics.

Much painful work has been done

Lifting the frost forecast

Macro risks lowest since 08

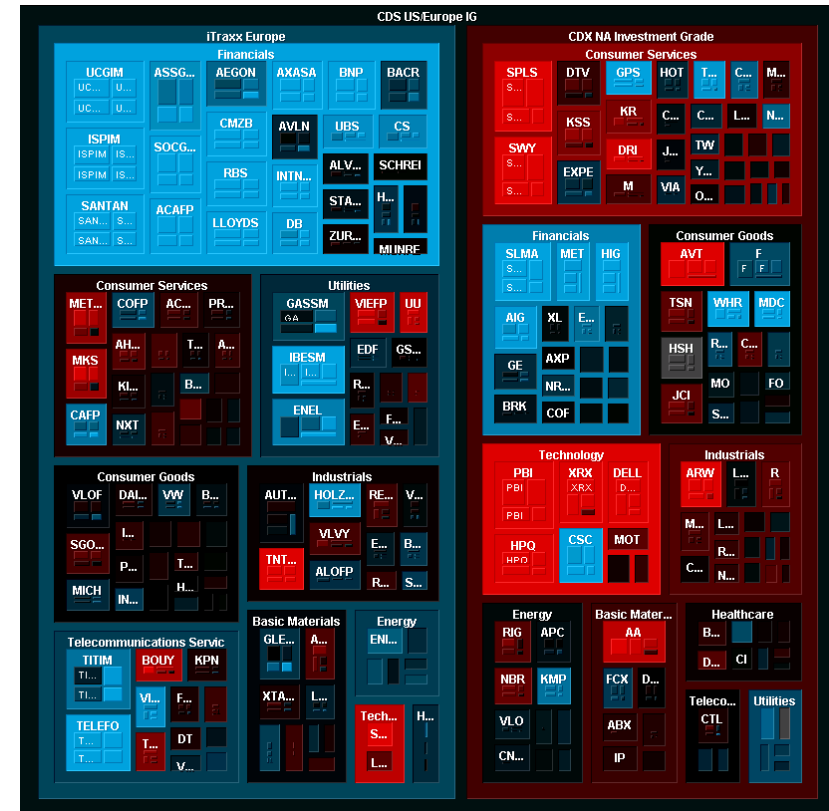
S&P 500 12m implied volatility and realized 1m correlations, %



Source: Bloomberg.

A return to idiosyncratic risk?

CDS 6m changes (blue= tighter, red = wider)



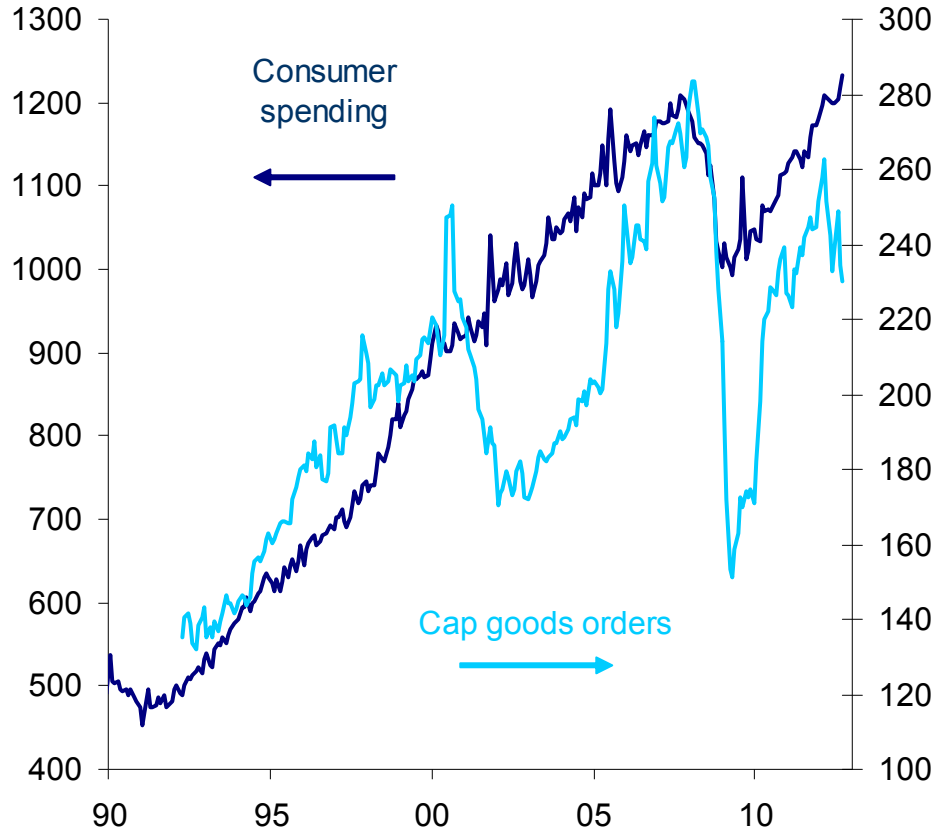
Source: https://www.citivelocity.com/citiportal/#go/CREDIT_INT_HEATMAP.

Systemic risks seemingly contained

Fertilizer working its magic

Every rose has the odd thorn

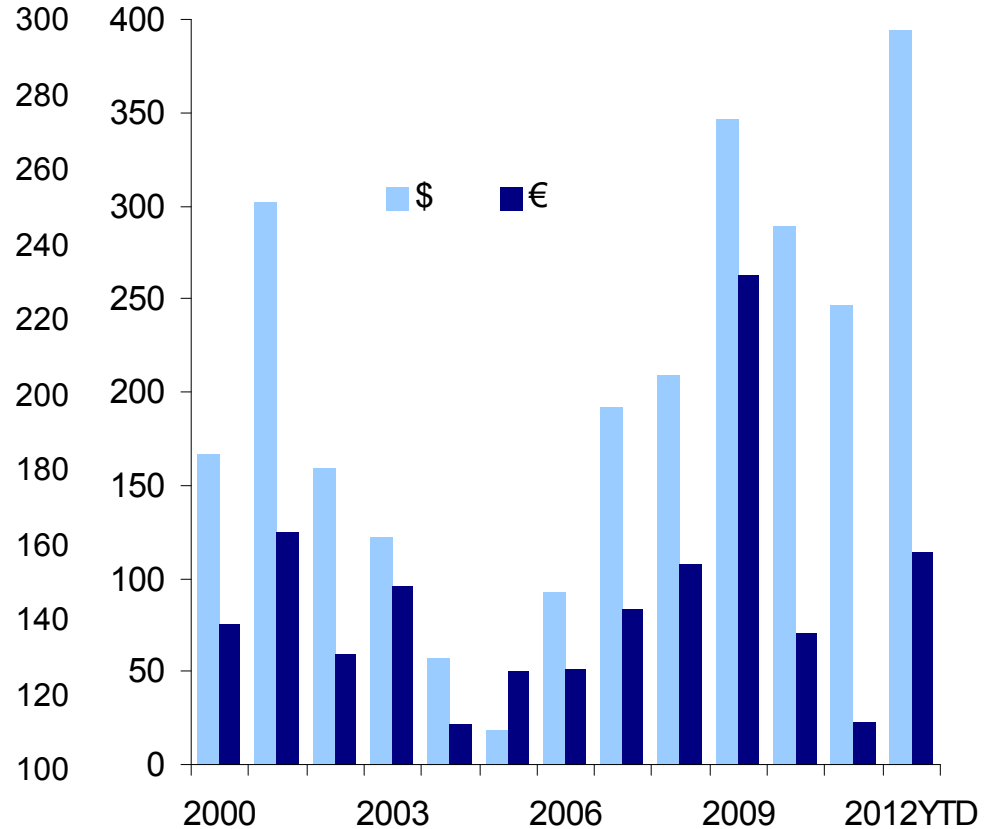
US consumer durable goods spending (\$bn, SAAR) vs capital goods orders (rolling 3m, \$bn)



Source: BEA, Haver Analytics.

A bumper crop of bond issuance

Net corporate bond issuance, non-financials, \$bn



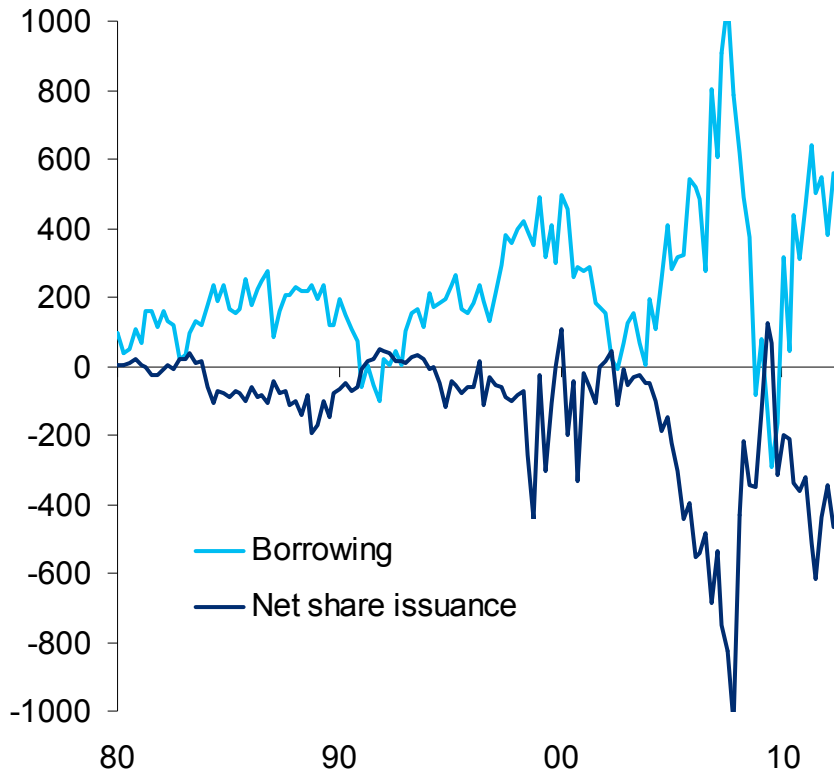
Source: Dealogic, Citi Research.

Low interest rates finally taking effect?

The return of the leverage cycle?

Just like normal

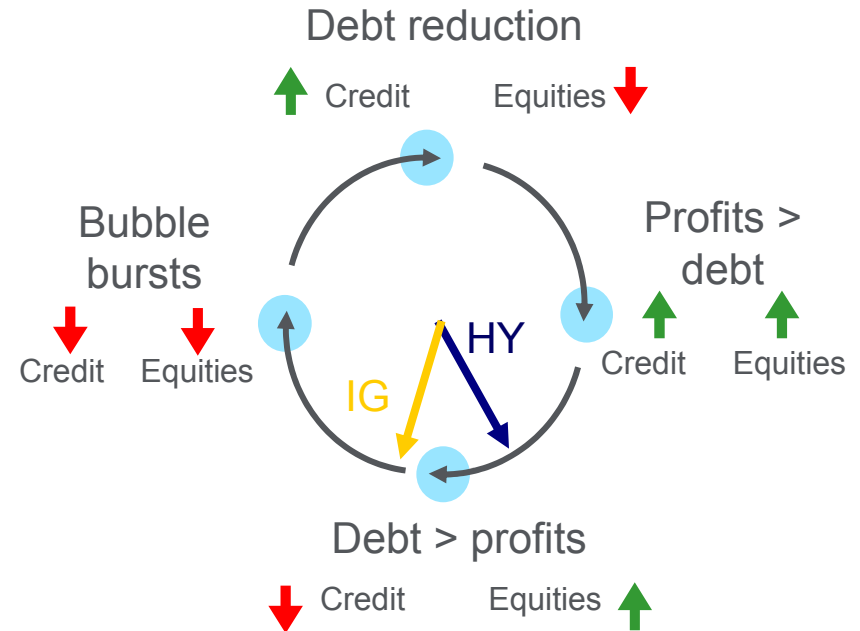
Net issuance of debt and equity, US nonfin corp, \$bn (annualized)



Source: Federal Reserve.

The leverage clock

Close to a wake-up call?



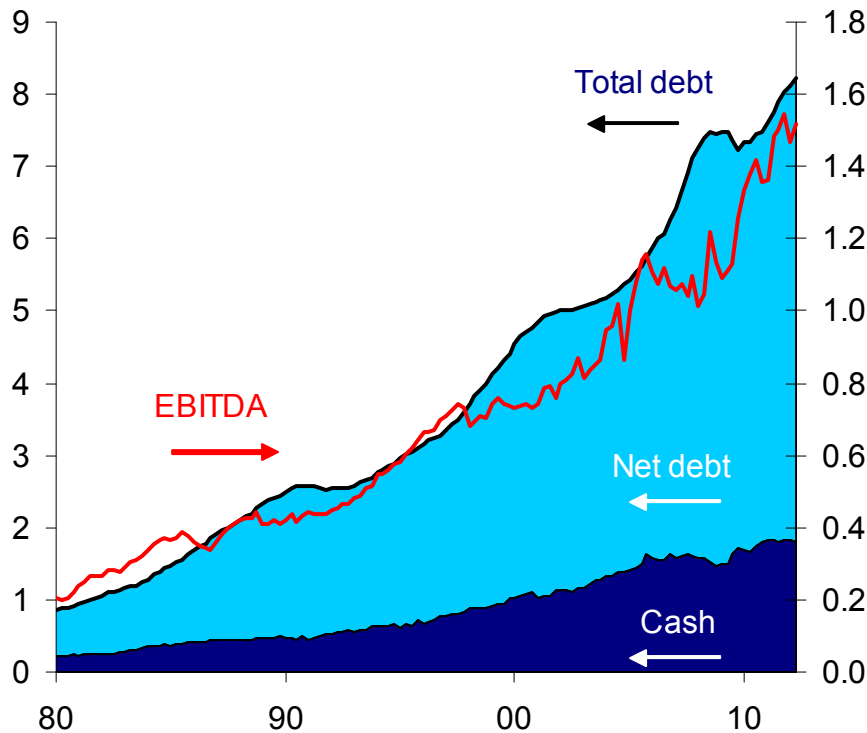
Source: Citi Research.

Shareholder-friendly activity seemingly on the increase

Corporate releveraging

Rising debt, peaking profits

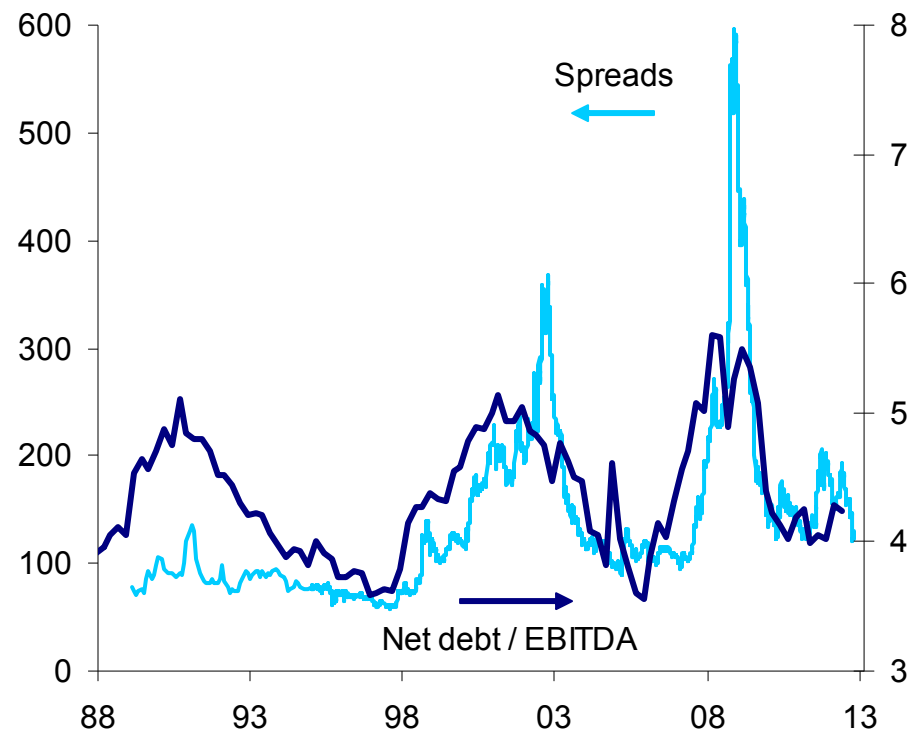
US non-financial corporate leverage stats (\$tn, SAAR)



Source: Federal Reserve Flow of Funds, Haver Analytics.
Note: EBITDA is "Internal funds + IVA".

Spreads down, leverage up

Nonfin corp spreads to Treasuries (bp) vs leverage



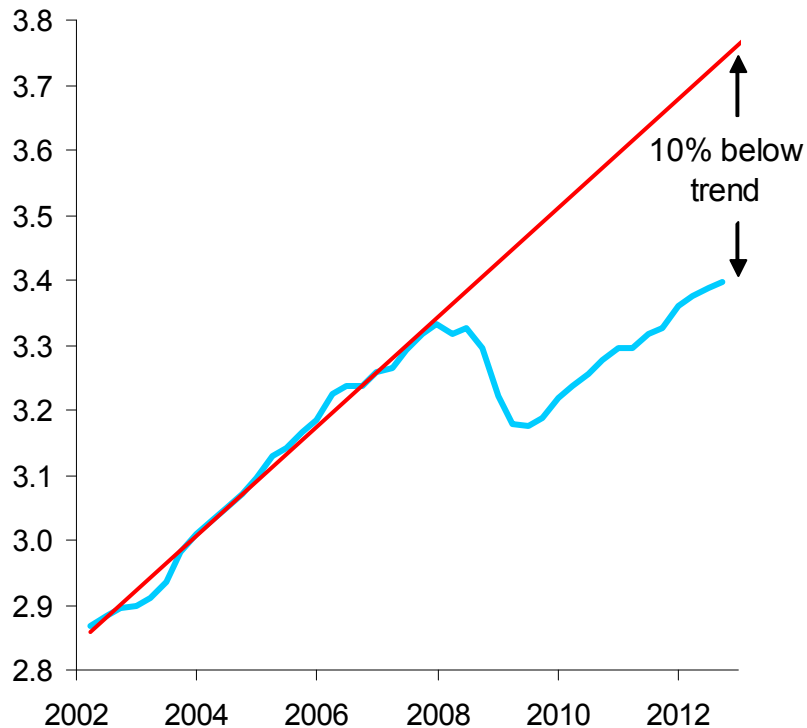
Source: Federal Reserve Flow of Funds, Haver Analytics.
Note: EBITDA is "Internal funds + IVA".

Once established, can become invasive

If at first you don't succeed...

Stunted growth

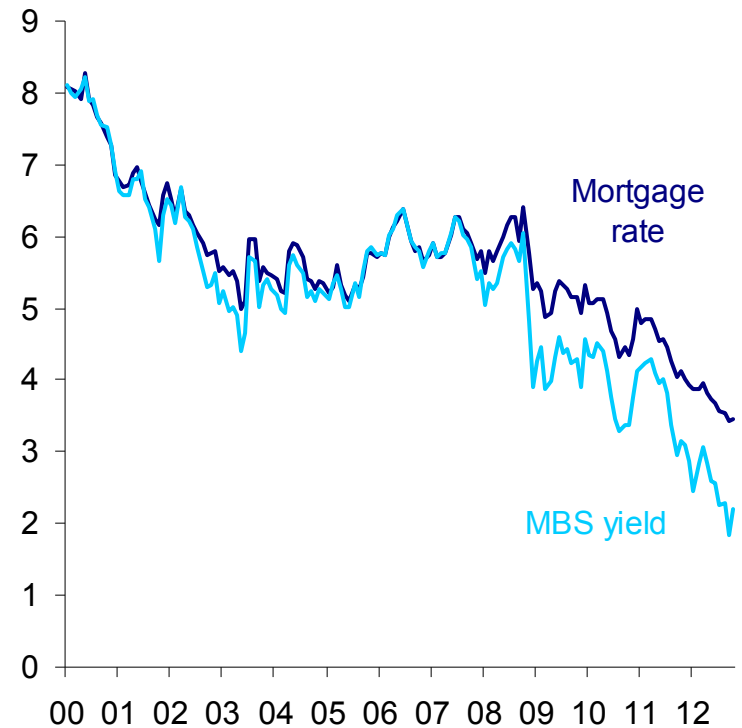
US real GDP vs trend (\$tn at 2005 prices)



Source: Haver Analytics.

So much for pass-through

US primary rates for conforming borrowers vs MBS yields received by investors, %



Source: Haver Analytics.

Pour on more liquidity!

Agenda

Green shoots

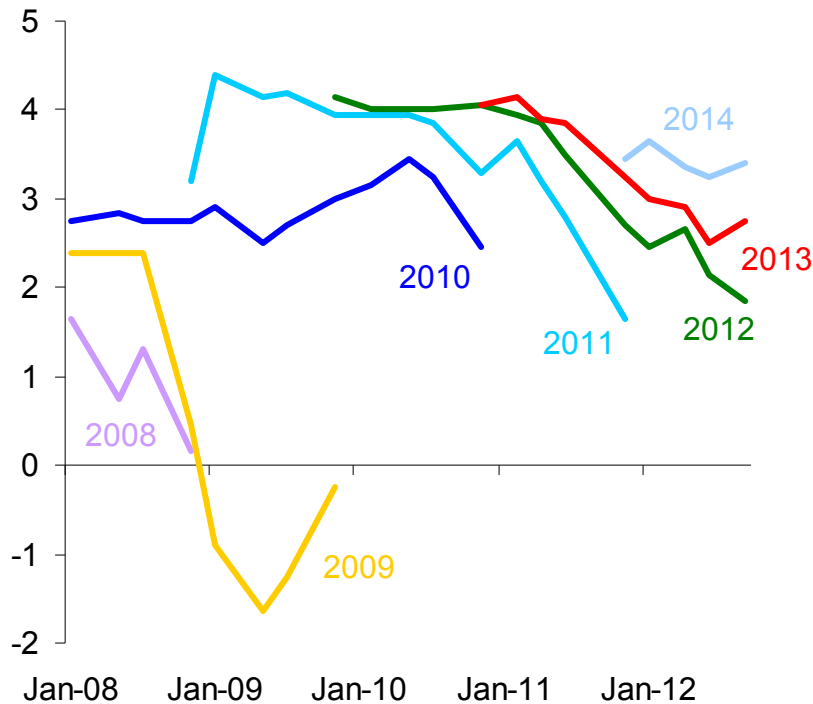
Barren soil

What happens when you add more fertilizer

Maybe next year the harvest will come good

Recovery lies just around the corner...

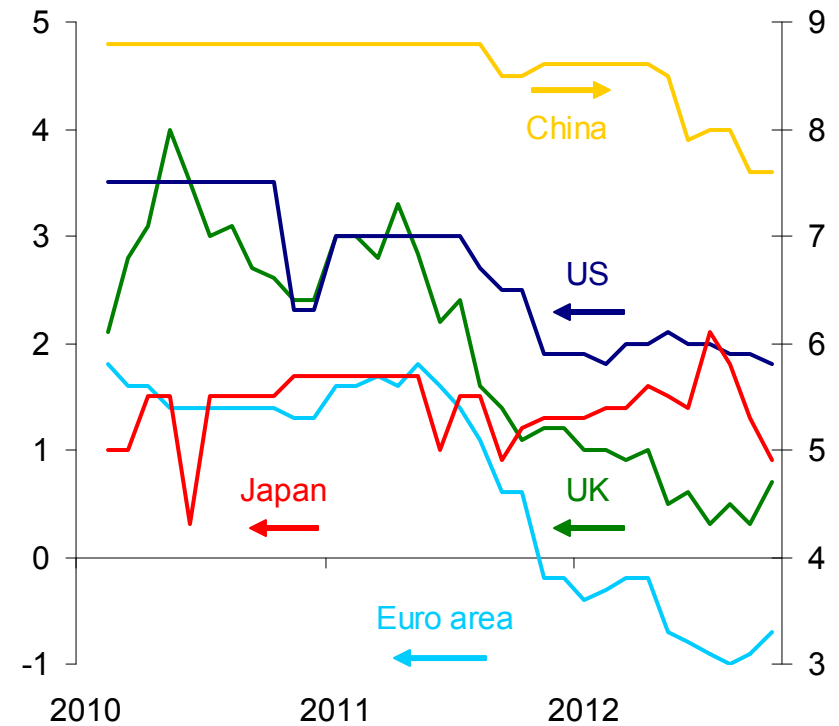
FOMC real GDP forecasts by month of forecast, %



Source: Federal Reserve, Haver Analytics.

...and seems intent on staying there

Citi 2013 real GDP forecasts by month of forecast, %



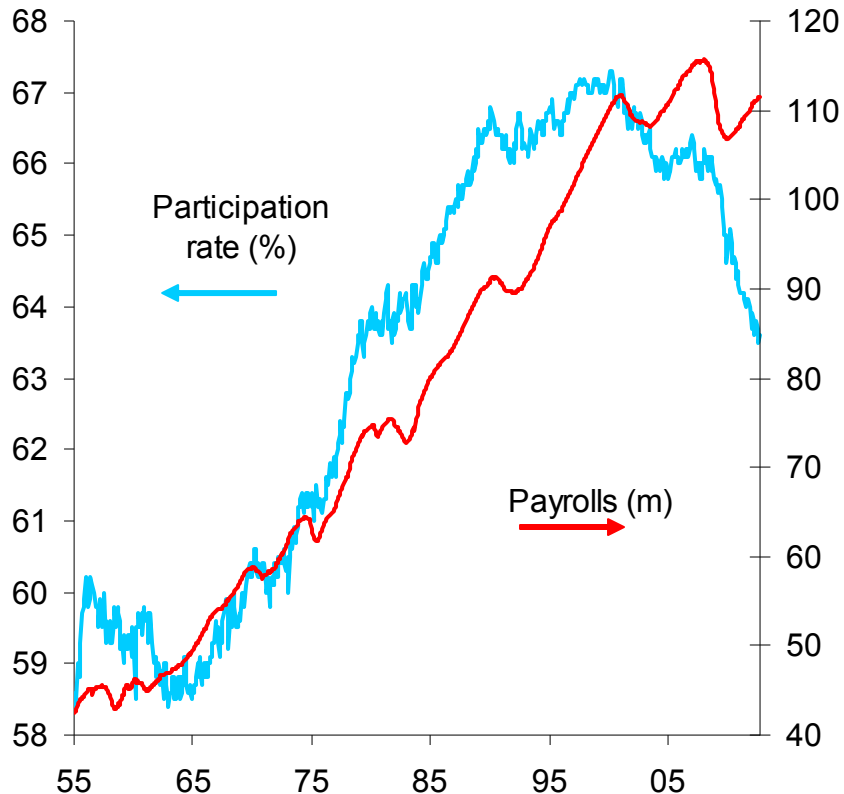
Source: Citi Research.

Not just disappointing, but disappointing vs consensus

Why aren't plants taking on more nutrients?

Employment on hold since 2000

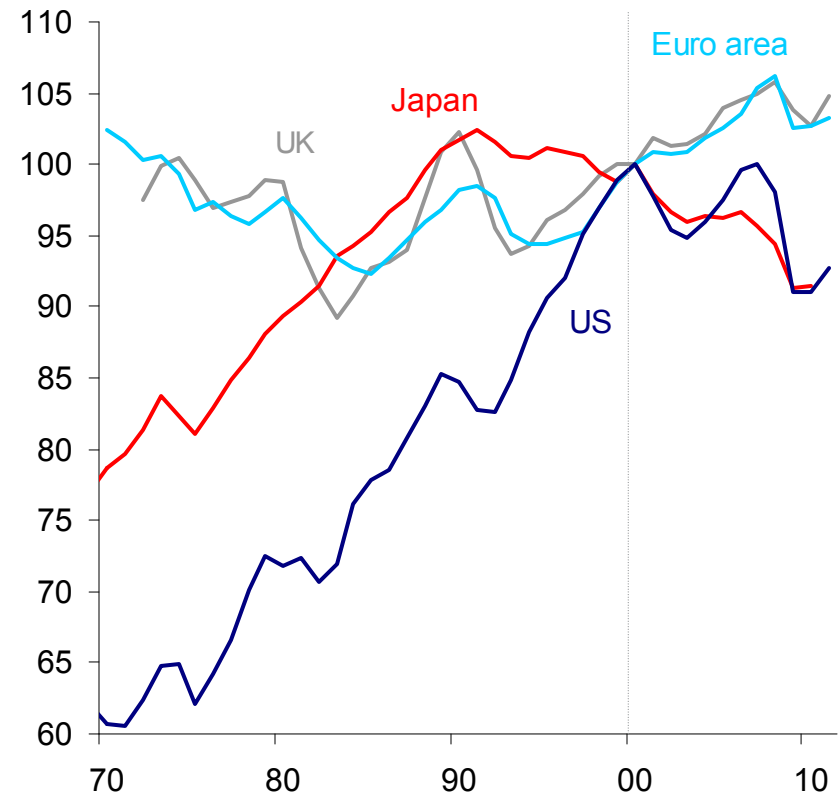
Civilian labour force participation rate vs total private payrolls



Source: Bureau of Labor Statistics, Haver Analytics.

It isn't just the US, either

Aggregate hours worked (Index, 2000=100)



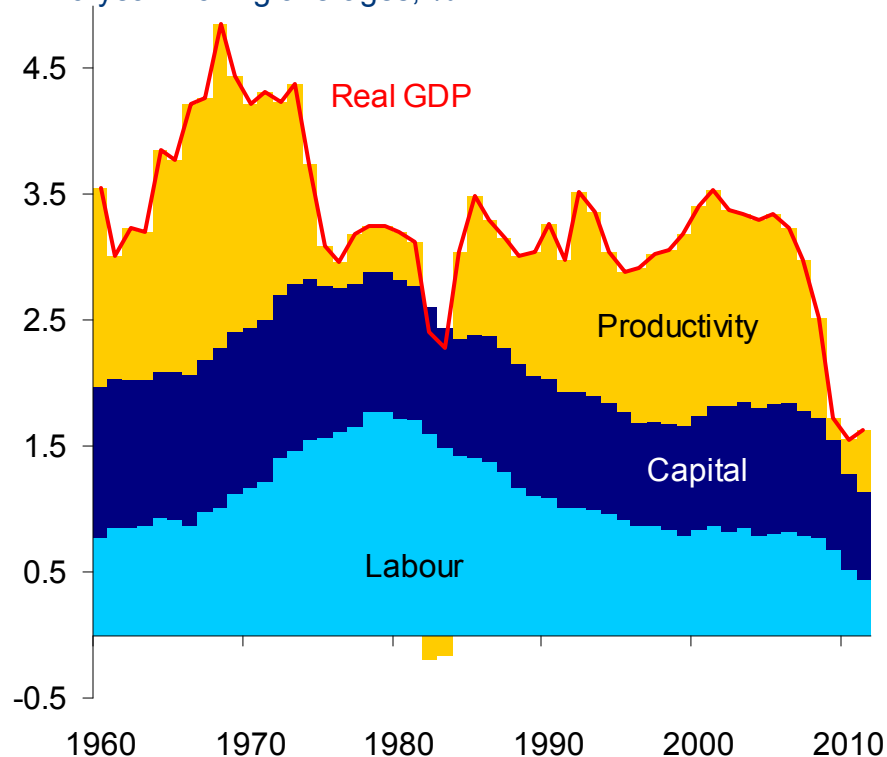
Source: Haver Analytics. See [Assessing Japan's Long-Term Performance: Implications for the United States and the Euro area](#), N. Sheets, Aug 2012.

Companies stopped hiring some time ago

The intensive growth model reaching its limits

Decomposing real GDP

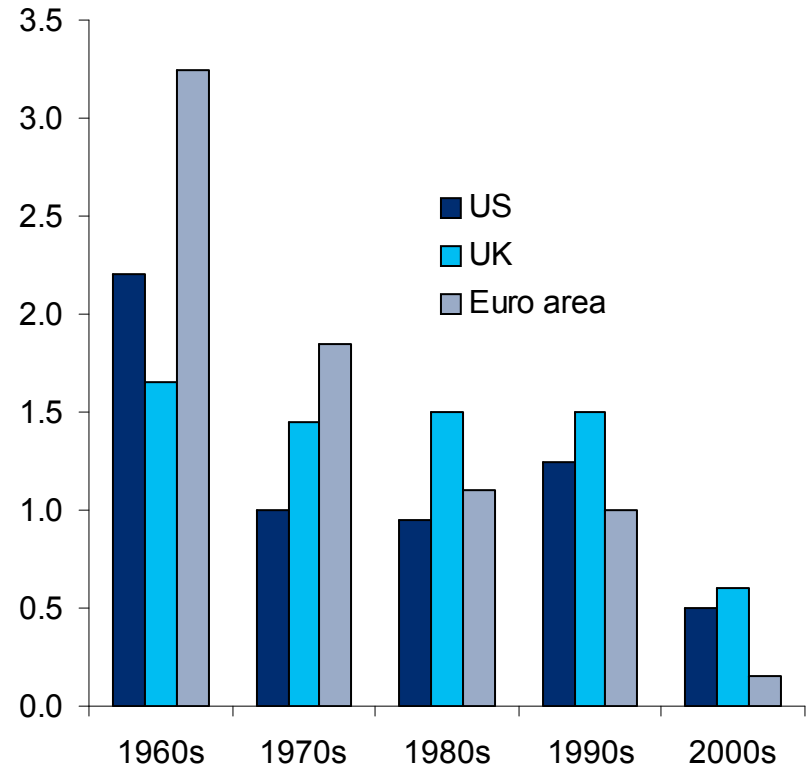
US total factor productivity vs labour and capital inputs,
10-year moving averages, %



Source: Citi Research. See [Assessing Japan's Long-Term Performance: Implications for the United States and the Euro area](#), N. Sheets, Aug 2012.

The 1990s productivity blip

Total factor productivity, ratios



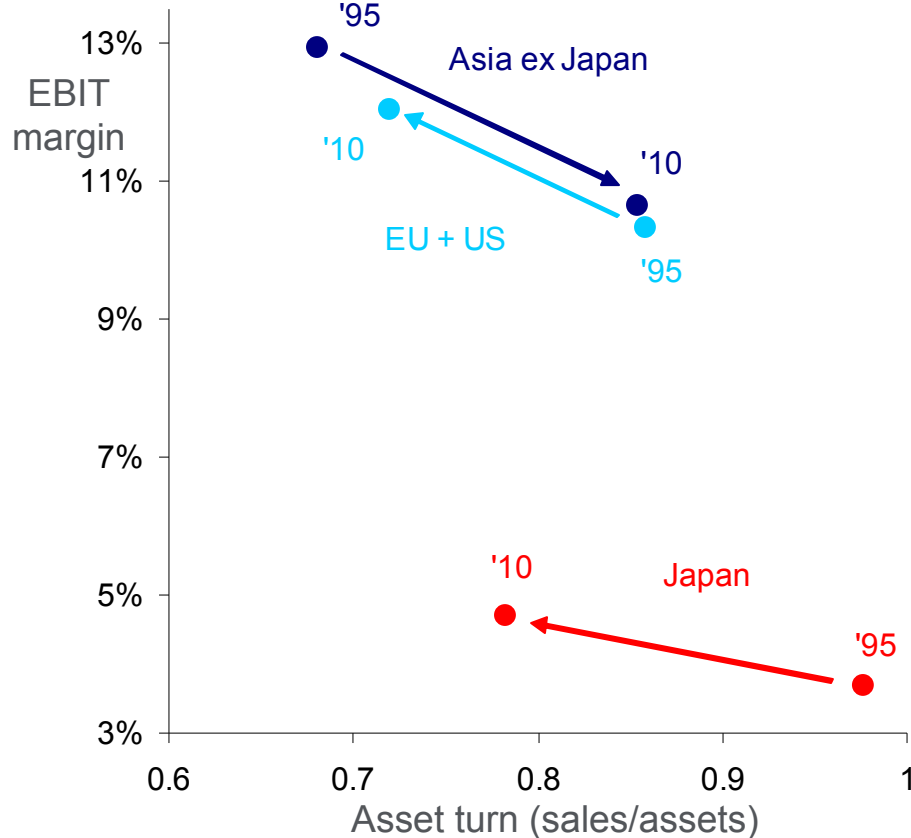
Source: "Fostering Growth in Europe Now", Barkbu, Rahman, Valdes et al, IMF, June 2012.

Companies can't figure out how to make use of more inputs

So what *are* successful companies focused on?

“Corporate margin improvement”

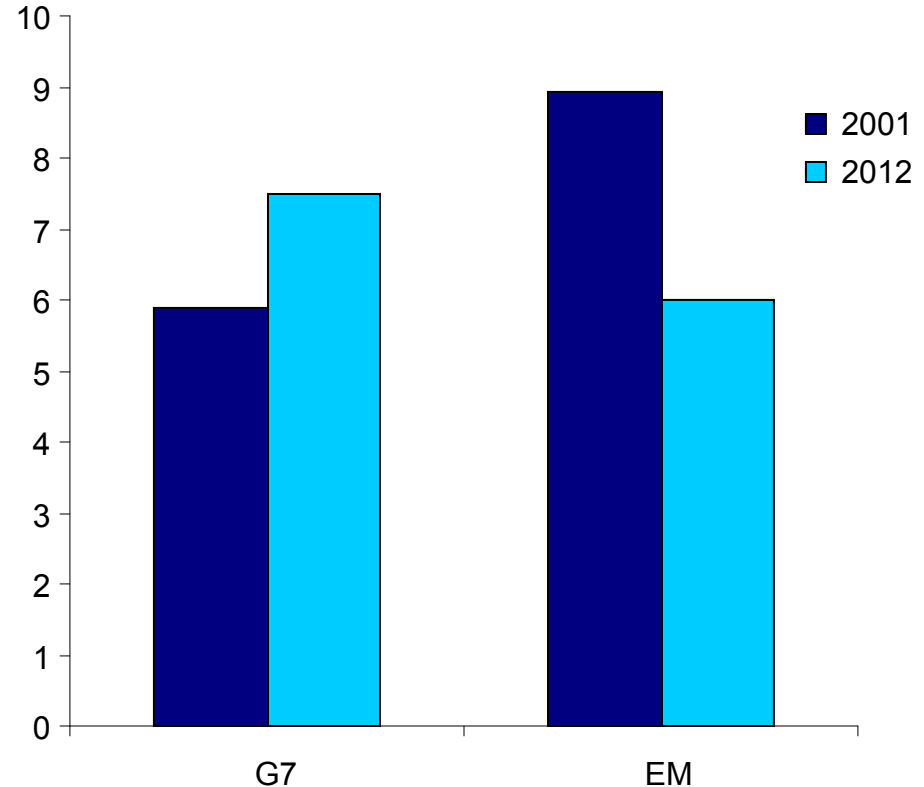
Margins vs sales/assets



Source: [Asset-light over capex-heavy](#), A. Cattley, Apr 2012.

Also known as firing people

Unemployment rate (%)



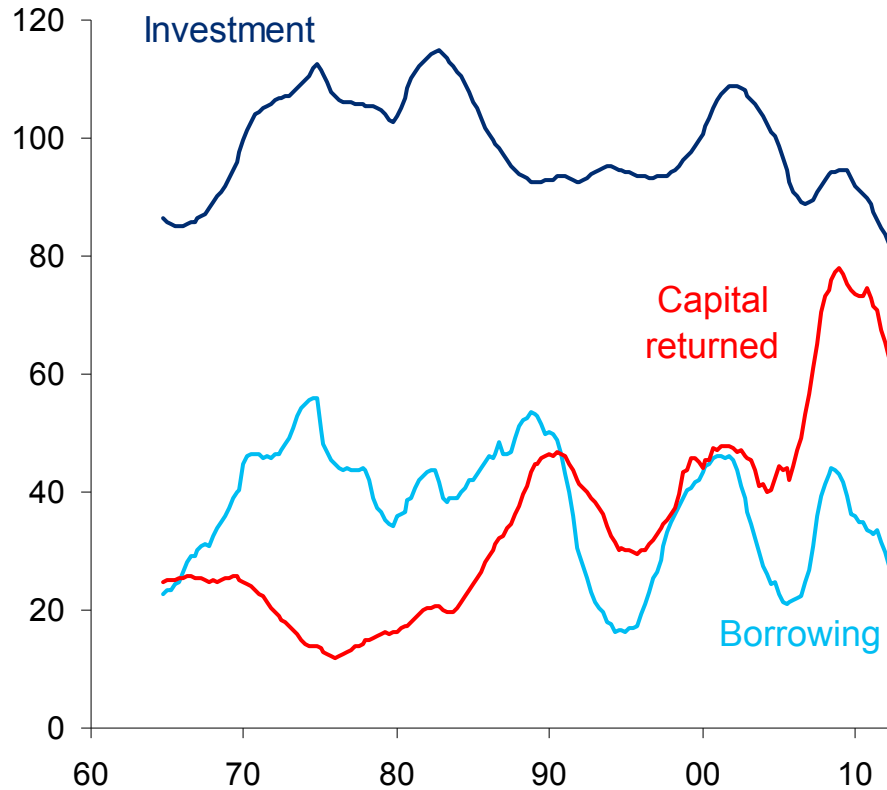
Source: IMF, Haver Analytics.
“EM” is median of a 15-country sample.

Don't produce more; produce more efficiently

Too much capital chasing too few opportunities

Profits no longer invested in the business

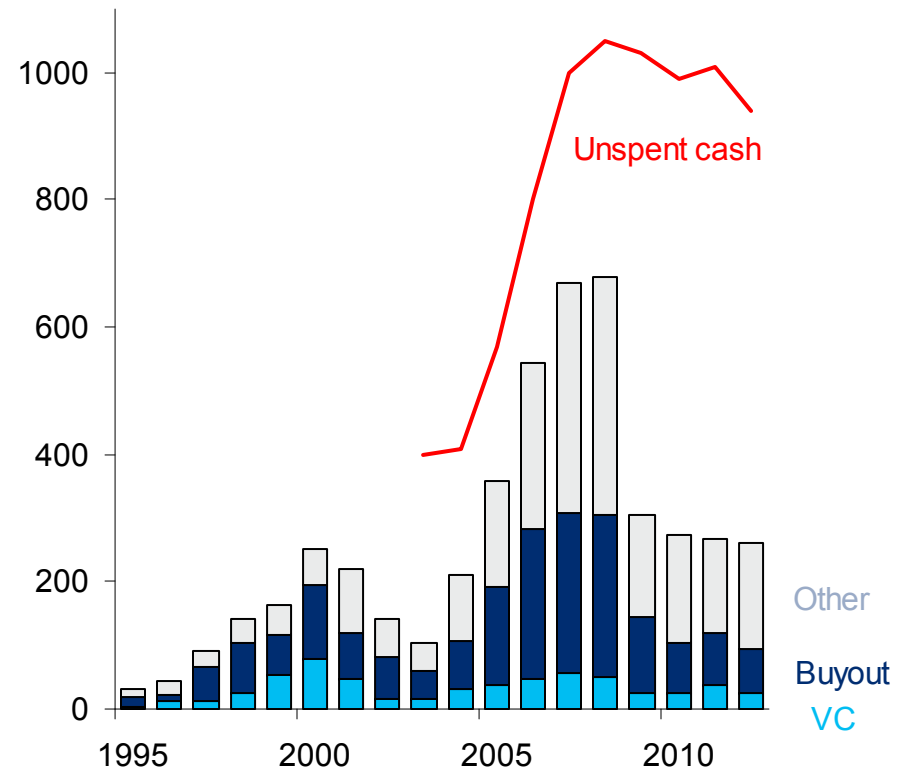
Borrowing and use of capital, US non-fin corp, % profits, 5y avg



Source: Federal Reserve Flow of Funds, Haver Analytics.

PE: better at raising money than spending it

Private equity global funds raised vs cumulative cash pile, \$bn



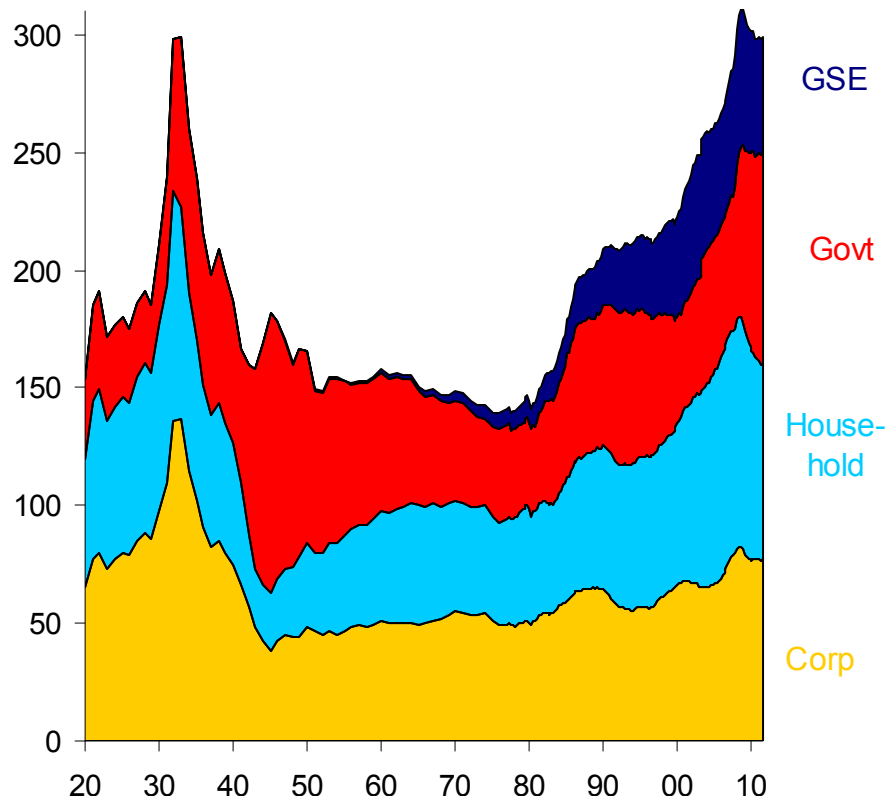
Source: Dealogic, Preqin, Bain Capital.

Cash is being returned to shareholders at a record rate

Why all the corporate caution?

When molehills become mountains

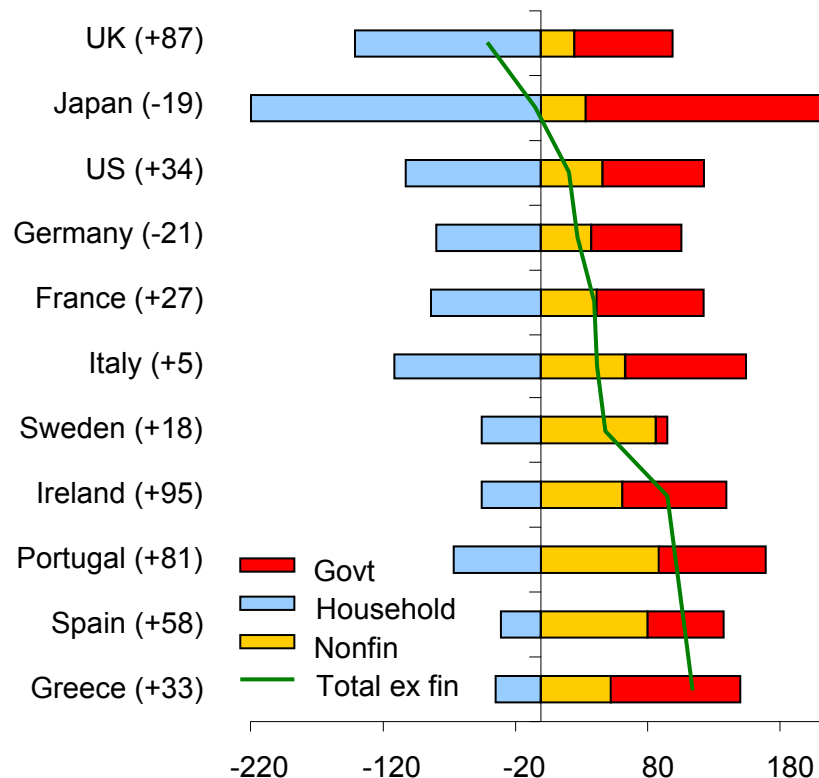
US debt by sector (ex financials), % GDP



Source: Federal Reserve Flow of Funds, *Historical Statistics of the United States*, S. Carter et al.

Inhospitable terrain (spot the improvers)

Net debt* across non-financial sectors by country
(+ change since 2000), % GDP



Source: National accounts, Haver Analytics.

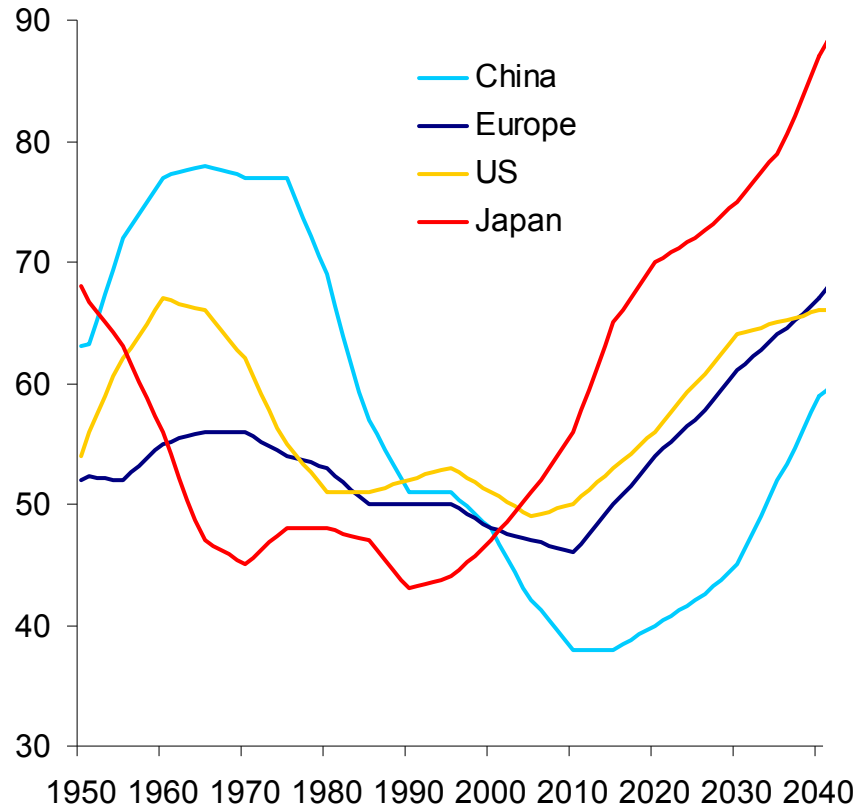
* Debt minus fixed income assets (inc. pensions) across households, governments, and non-financial corporates. See *How much debt is too much debt?*, M. King, Sep 2010.

Deleveraging has barely begun

No wonder the plants are exhausted

Vieilles vignes – or simply ageing rootstock?

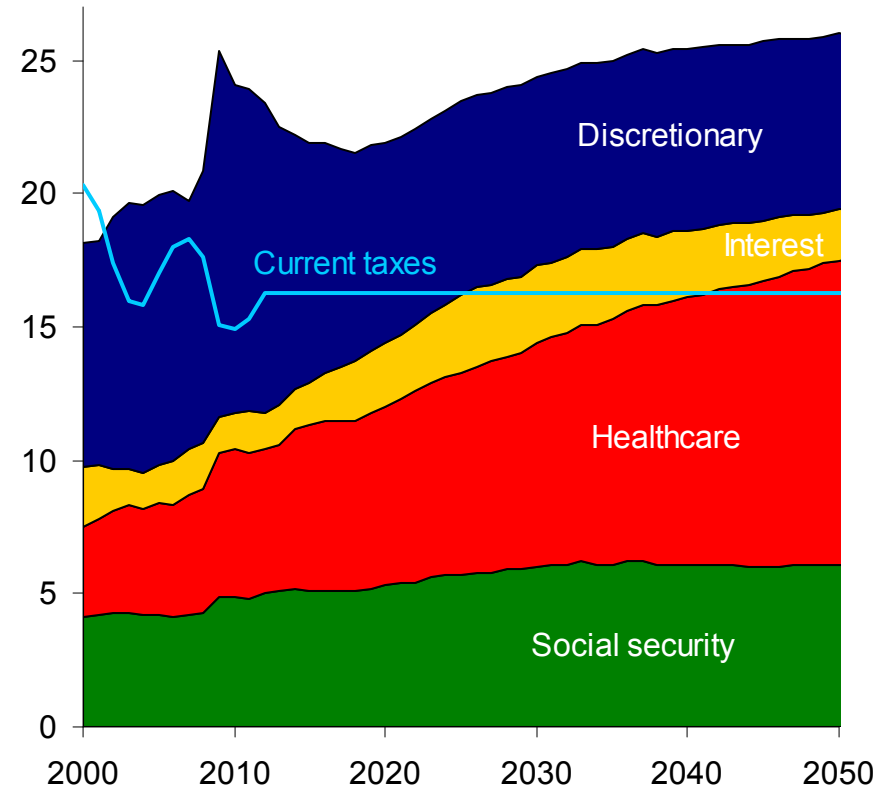
Dependency ratios (<15 and >64 per 100 population)



Source: United Nations, Haver Analytics.

A \$60tn problem

US govt spending and revenues, % GDP



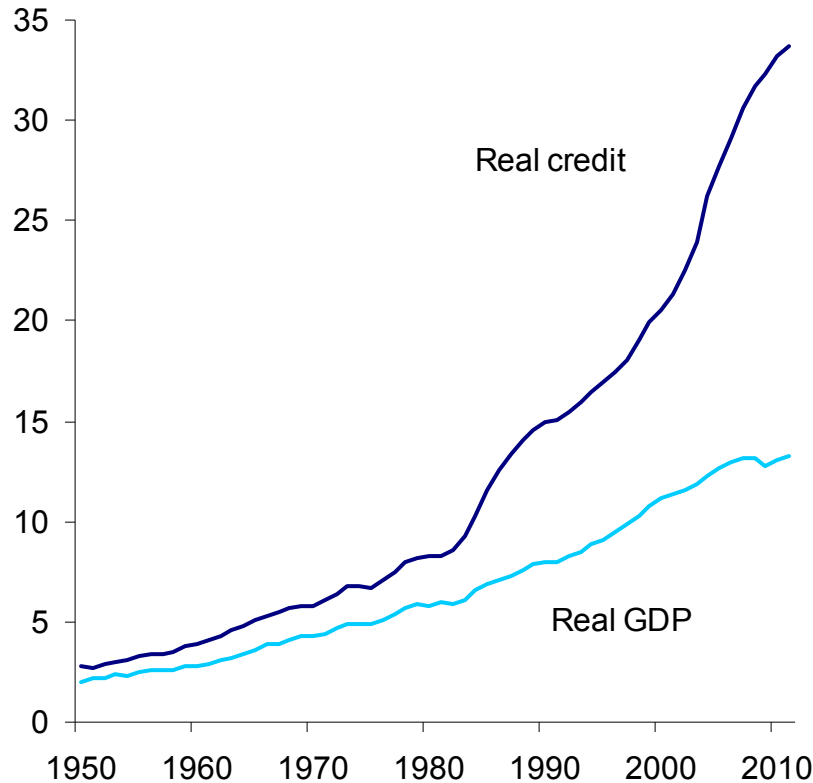
Source: Congressional Budget Office, Citi Research.

Ageing populations mean much higher costs

Surveying the landscape

A vigorous climbing perennial

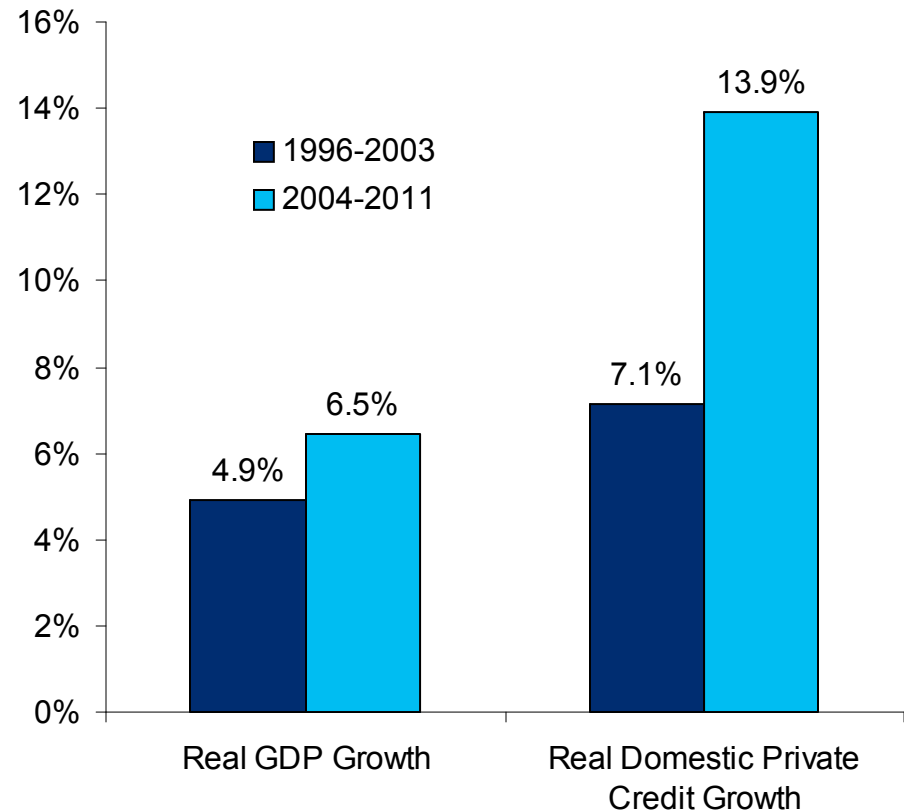
US real nonfinancial (public plus private sector) credit vs real GDP, \$tn (chained at 2005 prices)



Source: Haver Analytics, Citi Research.

Is the grass really greener in EM?

Real annual credit and GDP growth in emerging markets, 1996-2011



Source: IMF, Haver Analytics. GDP-weighted average for 21 countries.

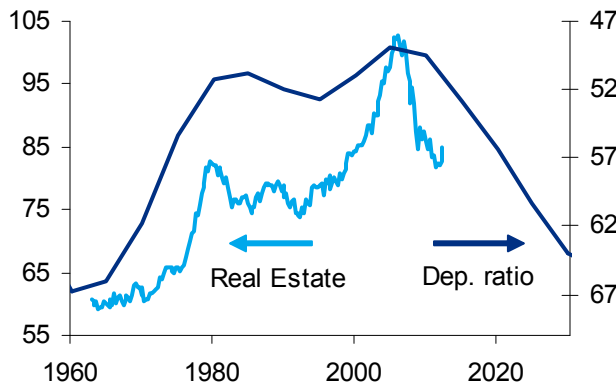
Debt was the biggest input of all

Estate in need of maintenance

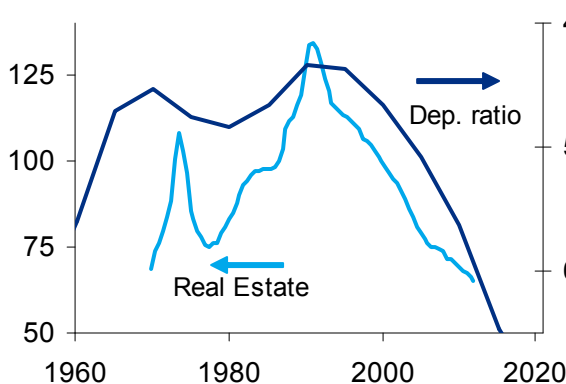
Last year's canes seldom bear fruit

Real house price indices vs dependency ratios

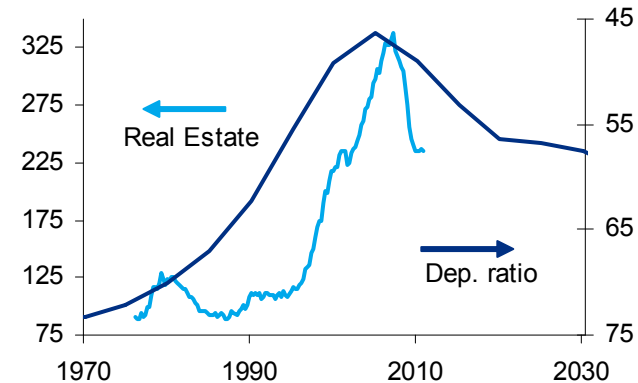
US



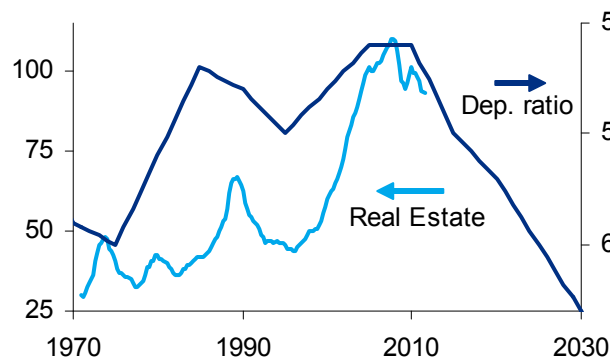
Japan



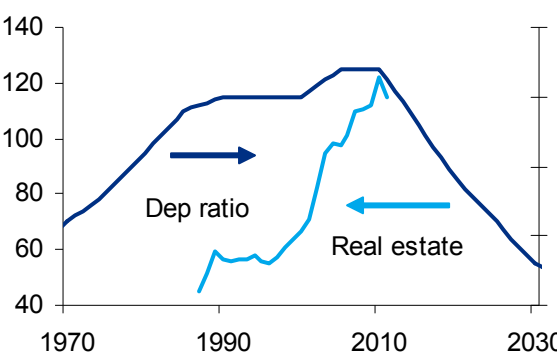
Ireland



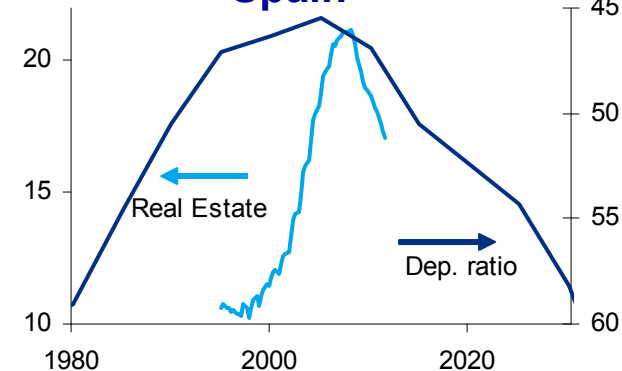
UK



Australia



Spain



Source: UN Population Database, US Census Bureau, Japan Real Estate Research Institute, UK FT House Price Index, Swiss National Bank. See *Ageing and asset prices*, E. Takats, BIS, and *Population Ageing, Macroeconomic Crisis and Policy Challenges*, K. Nishimura, BoJ.

Is recent weakness just blackspot, or blight?

Green shoots...

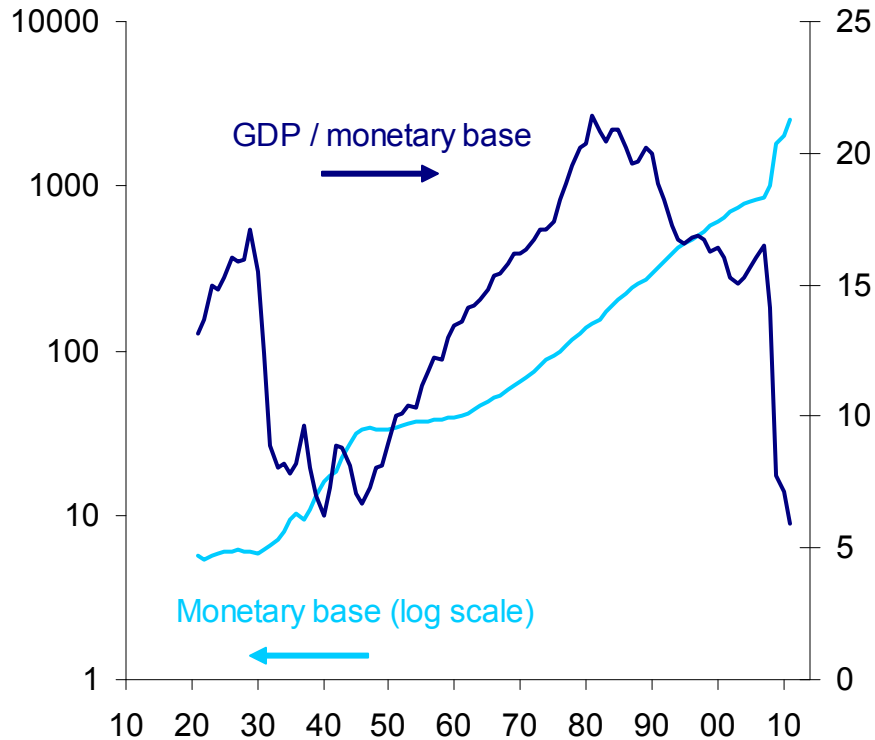
...on barren soil

What happens when you add more fertilizer

Money is like manure

Seed money – now going to pot?

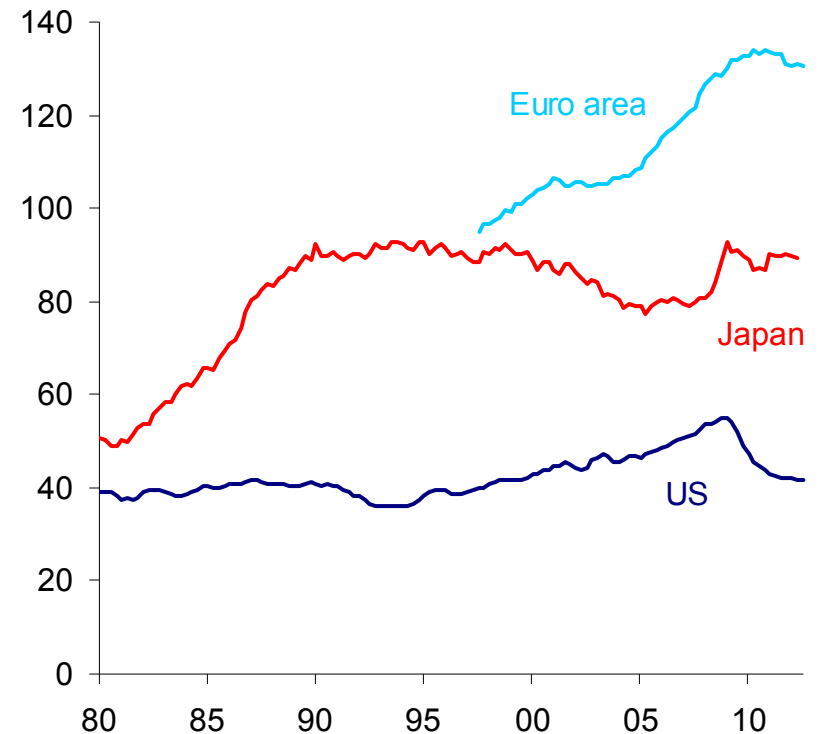
US monetary base (\$bn) vs velocity (ratio to nominal GDP)



Source: Federal Reserve Bank of St Louis, Haver Analytics, Citi Research.

Stuck in a vegetative state

Bank holdings of loans, % GDP



Source: ECB, Federal Reserve, BoJ, Haver Analytics.

It only works if you spread it around

Perfectly willing to lend...

Going organic...

Effect of Basel III on capital charges for US banks

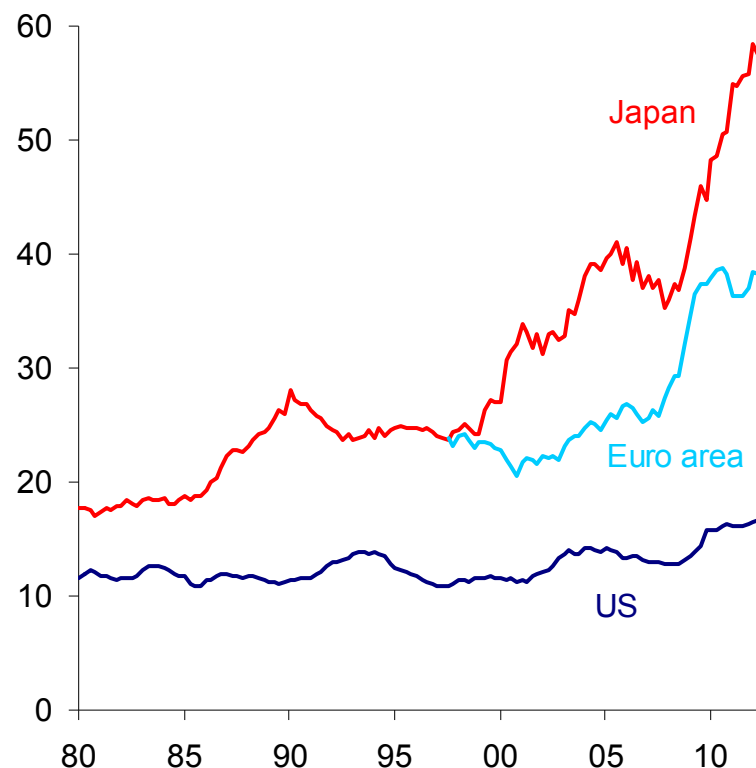
	Haves	Have Nots
Credit Cards	-20% FICO > 700	+75% FICO < 700
1st Mortgage	-50% FICO > 700	+400% FICO < 700
Corporate Loans	-25% Investment grade	+100% HY

Source: Citi.

Note: >40% of all consumer FICO scores are under 700.

...means only the purest breeds survive

Bank holdings of securities, % GDP



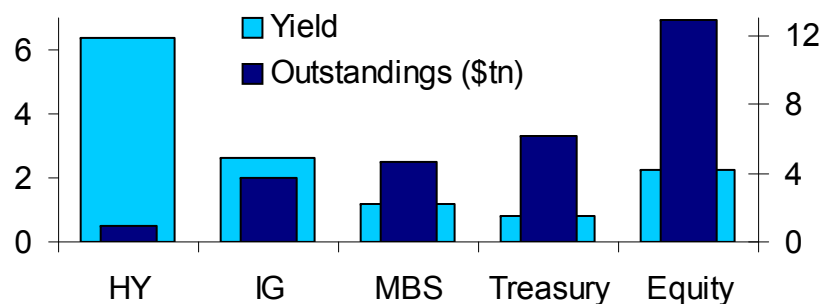
Source: ECB, Federal Reserve, BoJ, Haver Analytics.

...provided it doesn't entail any risk

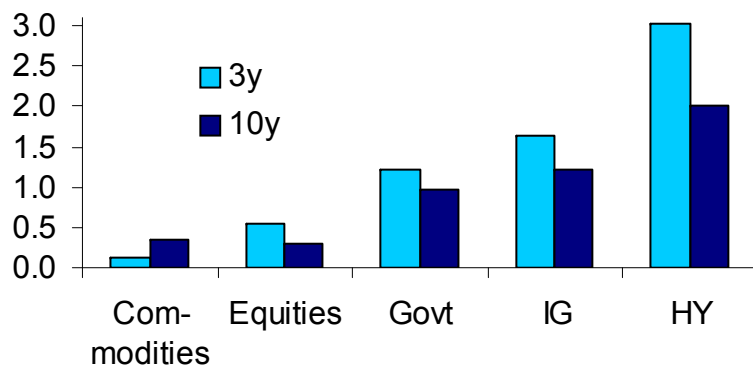
Insufficient yield from your spread product?

That greenhouse looks too small...

Index yields (%) and mkt caps (\$tn)



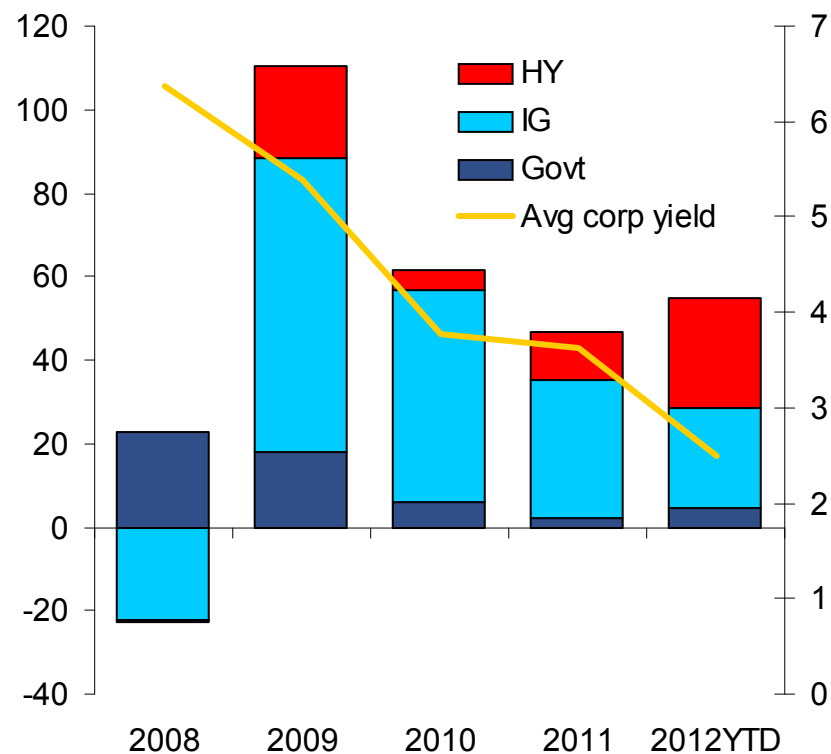
Sharpe ratios by asset class



Source: Citi Research, Yield Book.

...for all the plants we want to grow

Net US mutual fund inflows, annual, \$bn



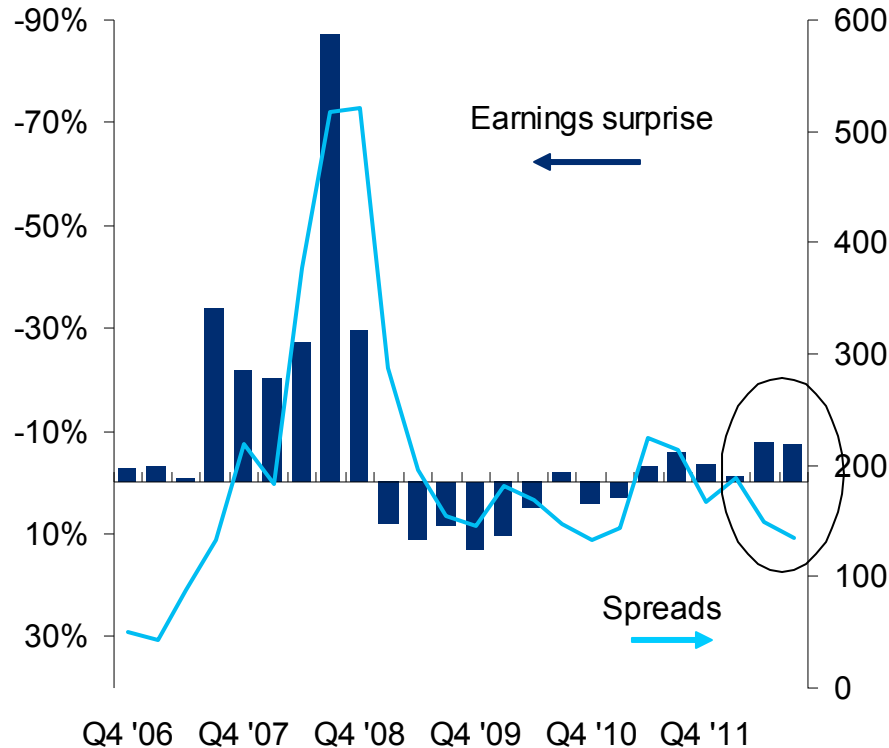
Source: ICI, Haver Analytics. "Govt" excludes MBS.

Just buy a higher yielding variety!

Forced growth is unnatural

Earnings surprised; spreads not

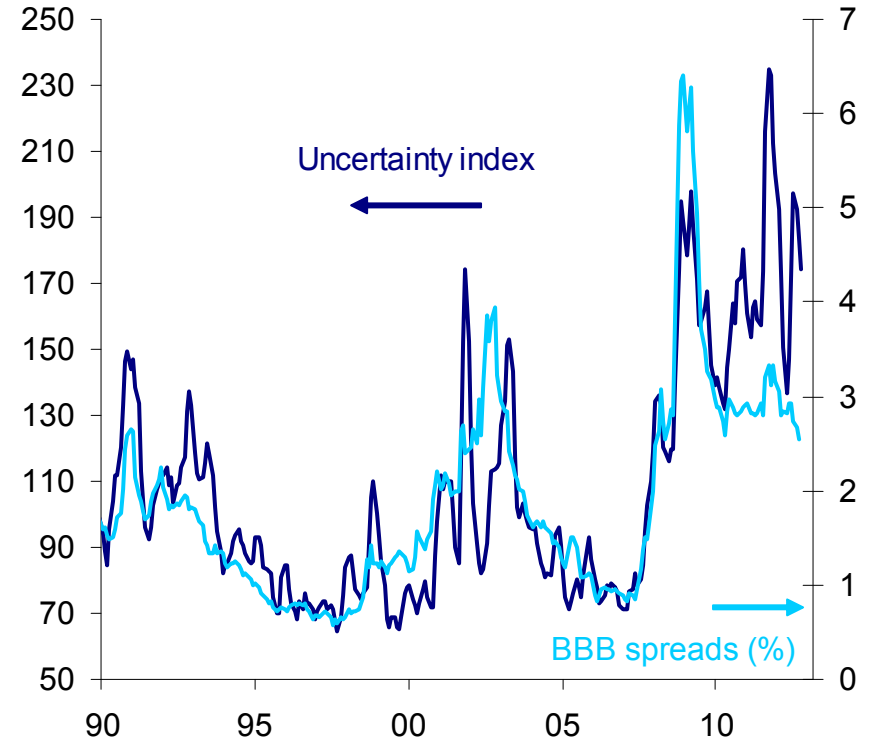
Earnings surprise vs start-of-quarter expectations (%), corp spreads (bp)



Source: Citi Research, Bloomberg.

Policy uncertain; spreads not

Econ Policy Uncertainty Index vs BBB spreads (%)



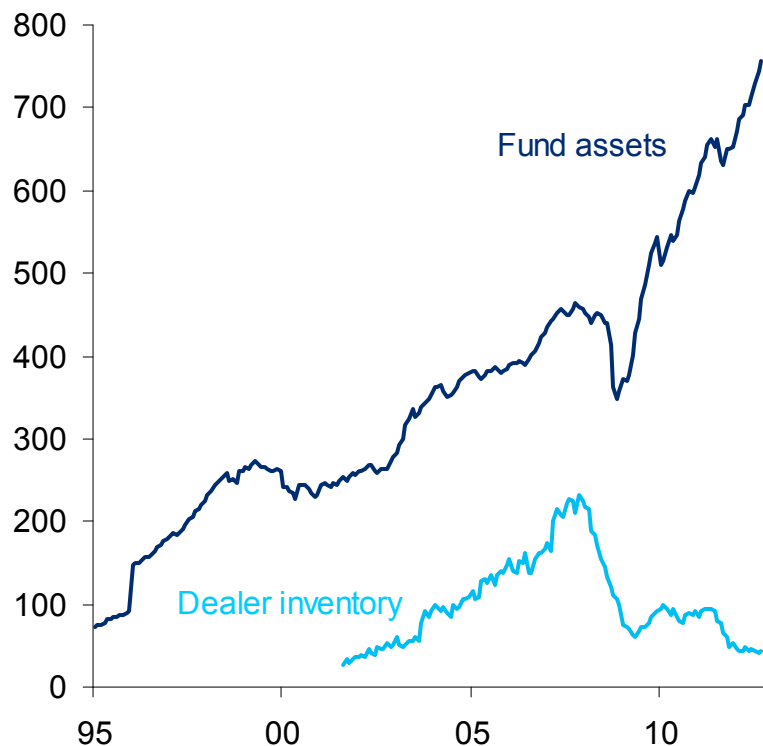
Source: Citi Research, Haver Analytics, "Measuring Economic Policy Uncertainty", Baker, Bloom & Davis. Uncertainty index based on frequency of news references to uncertainty, expiring tax codes and disagreement among economic forecasters.

Expect some strange mutations

Waterlogged soil...

Beautiful branches; unsafe roots

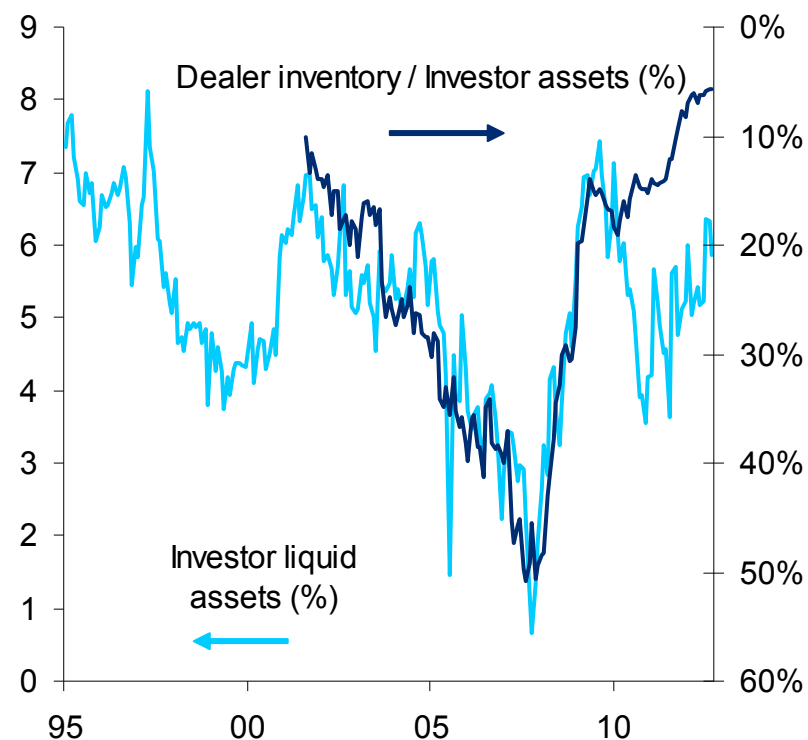
US credit mutual fund assets vs dealer inventory
(\$bn, IG+HY)



Source: ICI, NY Fed, Bloomberg, Haver Analytics, Citi Research.

Sitting uncomfortably

US credit mutual fund liquid assets (% total) and total assets relative to dealer inventory, IG+HY



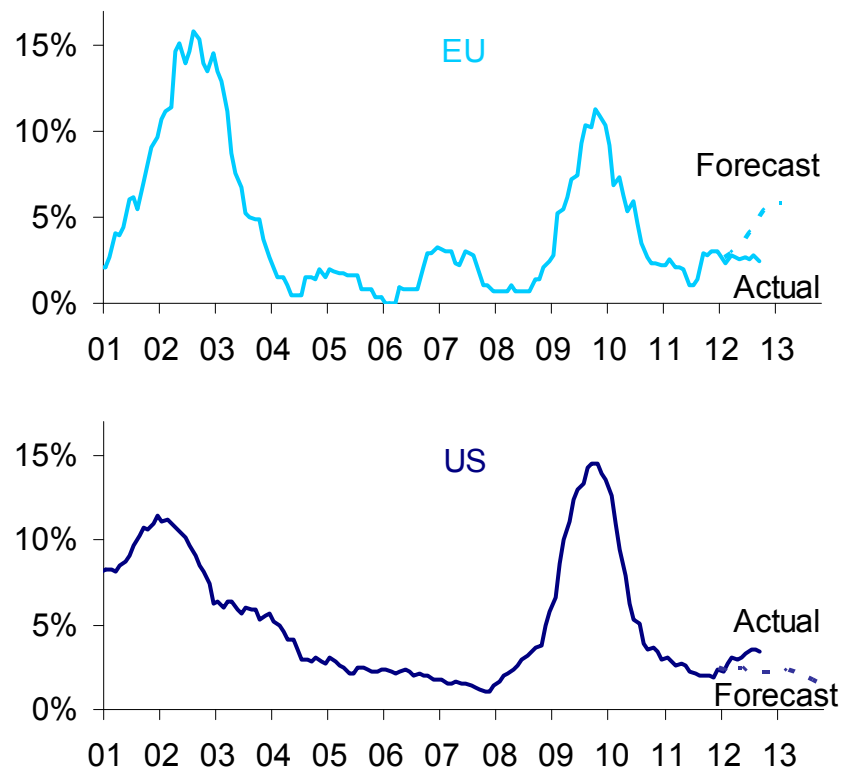
Source: ICI, NY Fed, Bloomberg, Haver Analytics, Citi Research.

...can be extremely hard to turn over

A garden awash with liquidity...

Interfering with nature?

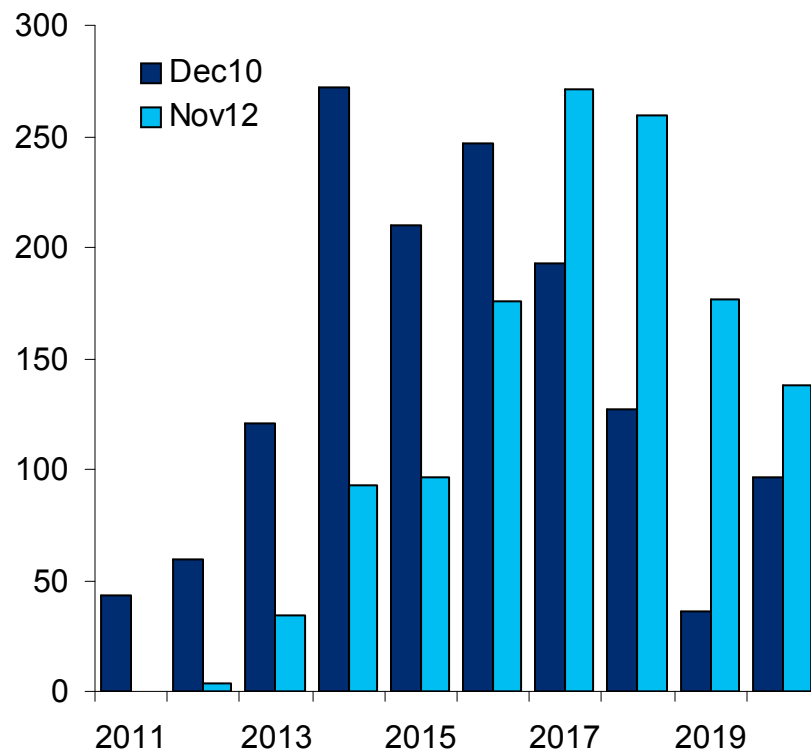
HY default rates with start-of-year forecast, %



Source: Citi Research. See *Default Rates to Climb Rapidly in Q3 & Q4*, M. Hampden-Turner, May 2012.

Liquidity moves the maturity mountain

US loan + bond maturities, \$bn



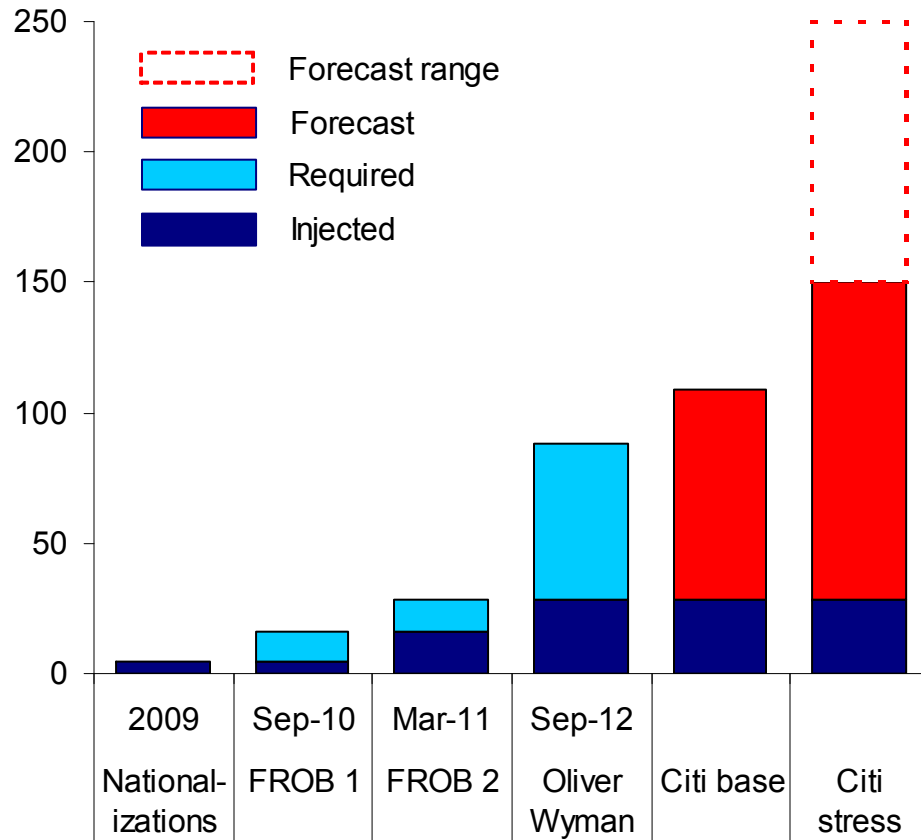
Source: S&P LCD.

...helps weeds as well as plants

The root of the problem

A constant game of catch-up

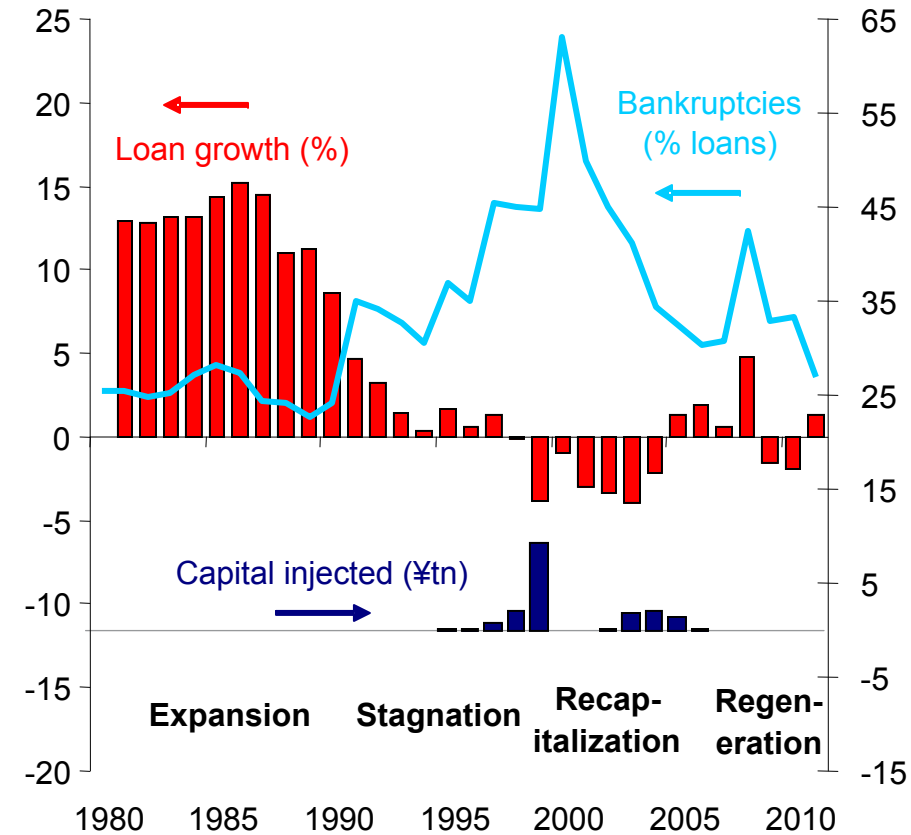
Spanish bank recapitalization needs, \$bn



Source: Citi Research, Bank of Spain. See *Spanish Banks – Recapitalization Ahead*, I. Moreno, Jun 12 and *What's Next for Spain and Italy?*, W. Buiter, Jun 12

Without capital, loans can't be written off

Japanese bank loan growth and capital injections vs corporate bankruptcies



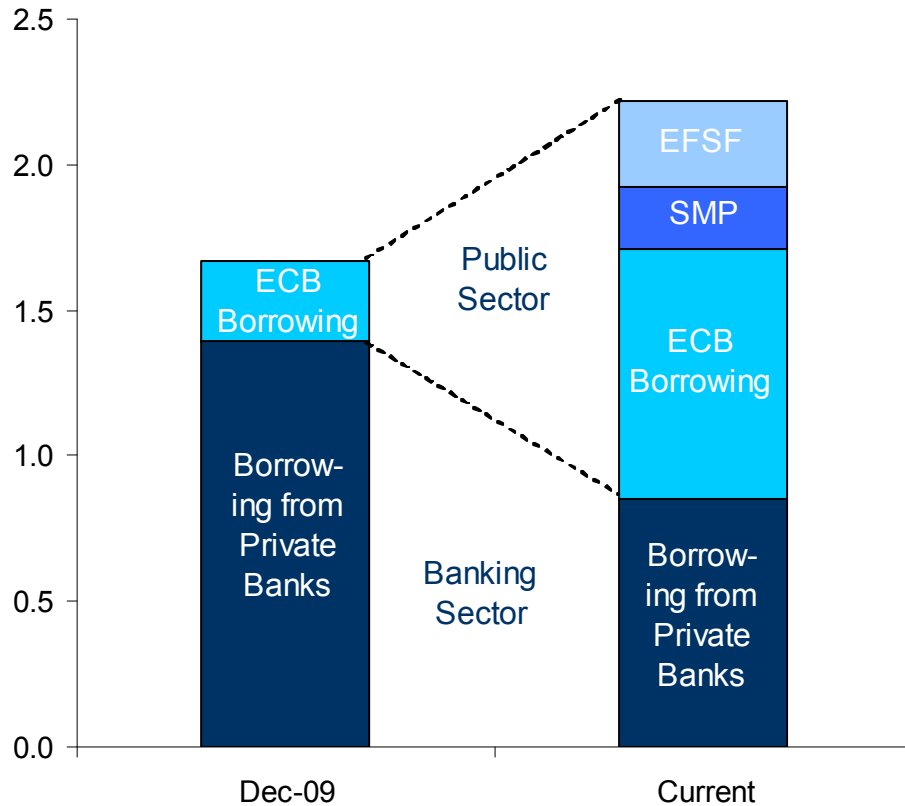
Source: Citi Research, Haver Analytics, Asian Development Bank Institute.

Short cuts just lead to stagnation

Problems contained, not resolved

One bad apple spoils the bunch

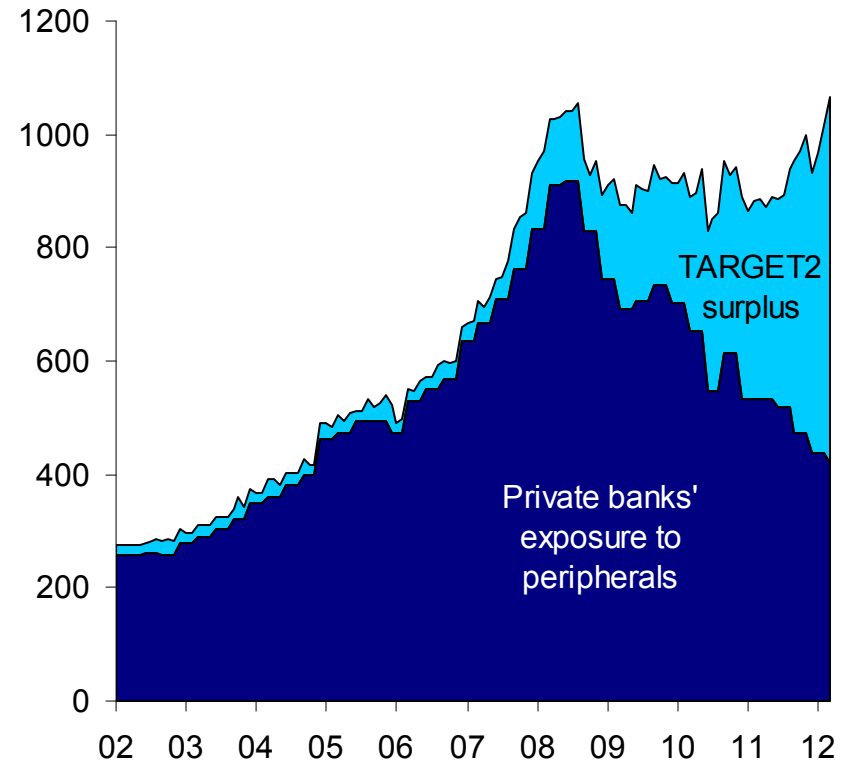
Euro area exposures to peripherals (€tn)



Source: IMF.

Mutating, not reducing

Germany's exposure to peripherals (€bn)



Source: BIS, Bundesbank.

Weeds not pulled have a tendency to grow

Which crops to plant?

Gardeners' home truths

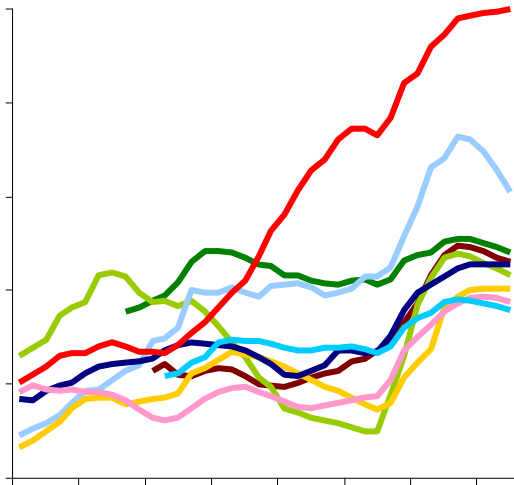
Investment implications

Fertilizer does work, but can cause scorching	Be long overall, but watch for temporary setbacks as gap to fundamentals becomes ever more pronounced
Use modern hybrids to boost yields, but don't expect miracles!	Expect strong demand for lower-rated credit, HY and alternatives. But low yields ultimately require higher savings rates
GM crops may be unpopular, but thrive in harsh conditions	Better to use structured credit to boost yields than to take ever more risk in cash
Remember phylloxera: graft high-yielding varieties onto solid rootstock for greater disease resistance	Barbell between safe and very risky assets to hit a given yield target
Clear moon? Frost soon! Make hay while the sun shines	Even with an overall grind tighter in spreads, expect periodic setbacks from systemic risk. Point forecasts significantly understate the risks

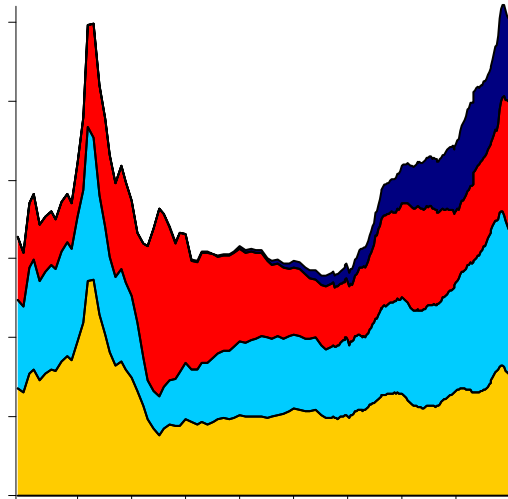
Enjoy the liquidity, but beware a change in climate

Conclusion

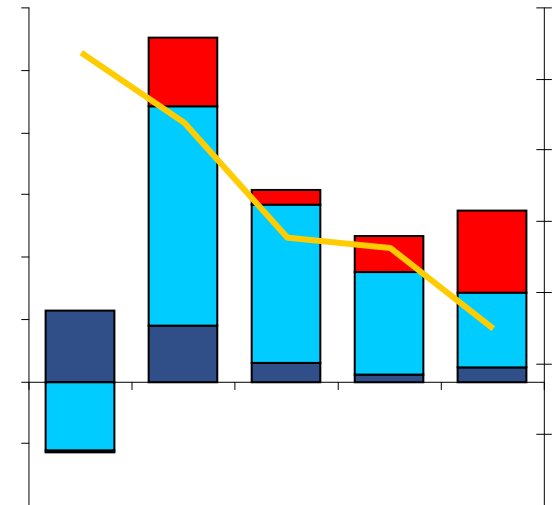
Spring *might* be in the air...



...but the ground is full of weeds



Fertilizer works – but may burn a hole in the ground



If you want strong growth,
you need to clear the ground first

Appendix A-1

Analyst Certification

The research analyst(s) primarily responsible for the preparation and content of this research report are named in bold text in the author block at the front of the product except for those sections where an analyst's name appears in bold alongside content which is attributable to that analyst. Each of these analyst(s) certify, with respect to the section(s) of the report for which they are responsible, that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc and its affiliates. No part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendation(s) or view(s) expressed by that research analyst in this report.

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