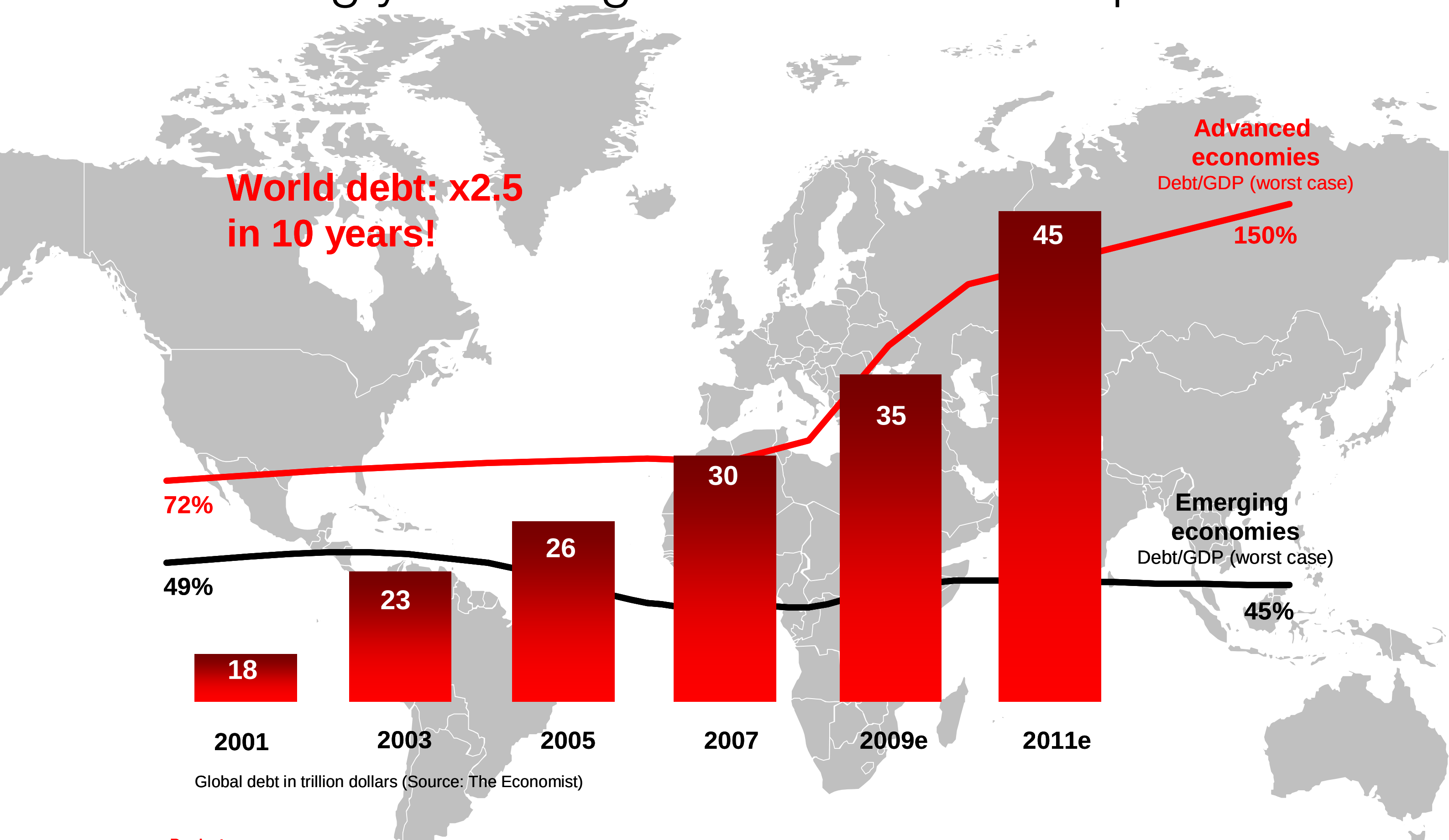
Worst-case debt scenario

Protecting yourself against economic collapse



Global debt in trillion dollars (Source: The Economist)


Product manager
Daniel Fermon
(33) 1 42 13 58 81
daniel.fermon@sgcib.com


Global Head of Research
Patrick Legland
(33) 1 42 13 97 79
patrick.legland@sgcib.com


Macro Strategy
Benoît Hubaud
(33) 1 42 13 62 04
benoit.hubaud@sgcib.com


Sector Research
Fabrice Theveneau
(33) 1 58 98 08 77
fabrice.theveneau@sgcib.com


Commodities
Frédéric Lasserre *
(33) 1 42 13 44 06
frederic.lasserre@sgcib.com


Global Asset Allocation Strategy
Alain Bokobza
(33) 1 42 13 84 38
alain.bokobza@sgcib.com


Rates & Forex Strategy
Vincent Chaigneau
00 44 207 676 7707
vincent.chaigneau@sgcib.com

Sell Dollar

Buy Government bonds

Cherry pick Equities and Commodities

This document is based on an extreme worst-case scenario and does not reflect SG's central scenario.

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Report completed on 13 October 2009

Thanks to Benjamin Sigel and Nicolas Greilsamer for their assistance in preparing this report

The worst case debt scenario

Hope for the best, be prepared for the worst

SG's central scenario is for a slow global recovery…

Much has been written about the credit crisis, the government stimulus response, the mountains of debt and the possible resulting emergence of a new world order, but as yet no-one can say with any certainty whether we have in fact yet escaped the prospect of a global economic collapse. Perhaps 'global economic collapse' is too strong a term. There are degrees of collapse, from severe interruptions in the pace of progress to a scenario more like a global economic meltdown, with unthinkable consequences. Happily we are more sanguine. But while we believe the greatest danger is past, we also recognise that the price of our salvation has yet to be paid in full.

Our central economic scenario assumes a slow recovery for the global economy, but with government debt at all-time highs, in this report we spend some time taking a hard look at the downside risks. Using debt as the key variable we also draw up two alternative economic scenarios (bull and bear) and consider the implications for strategic asset recommendations. In particular we focus on strategies for those who believe we may be set for a Japanese-style (non) recovery.

…but we think it wise to consider the risks of a Japanese-style (non) recovery as well

A Japanese-style recovery implies persistent government debt, economic anaemia, low interest rates and weak equity markets. We would not qualify expanding government debt as a bubble. But we do believe it represents a threat to future economic growth, constraining governments' freedom to spend and potentially requiring tax increases, which could in turn hold back consumption. The inevitable – and lengthy – period of deleveraging which lies ahead could lead to weak or even negative GDP growth, substantially affecting asset class performance. This is the thesis underpinning the bear scenario on debt discussed in this report.

Under this bear scenario (worst case), we combine a quantitative and qualitative screening approach, crossing top-down fundamental analysis with the results given by our econometric model, to draw up a series of recommendations, as summarised in the table below.

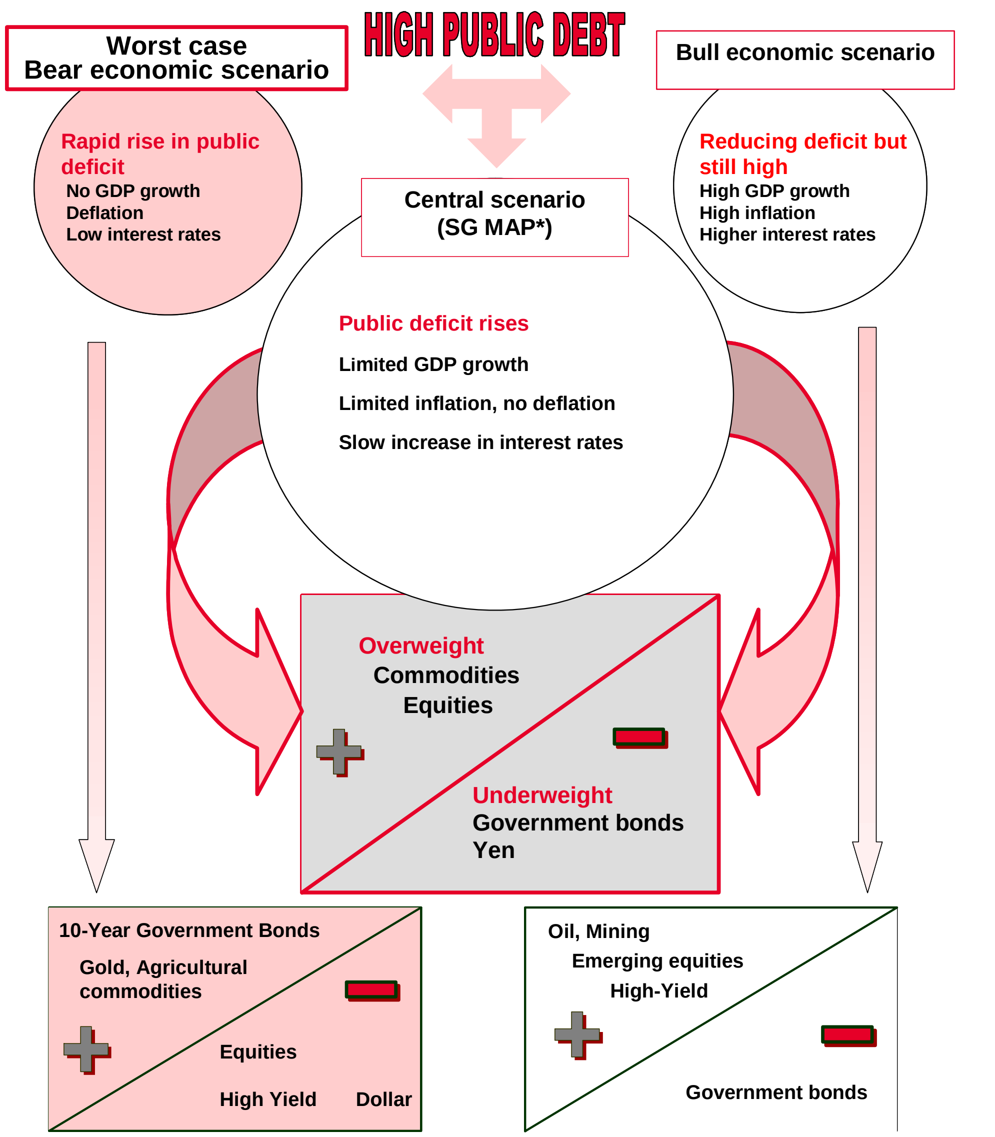
Key recommendations under a bear (worst case) debt scenario

Asset class		Bear debt scenario (12 m)	Bear scenario comments
Currencies	Dollar	-	Future dollar worries stemming from US debt funding imbalance
Fixed income	Government bonds (10Y)	+	10 YR bonds should perform well as long-term rates decline
	Investment Grade (5-7Y)	=	Lower government yields should offset wider credit spreads
	High Yield (3-5Y)	-	Stay away from high-yield cyclicals as high risk aversion will heavily penalise these bonds
Equities	Indices	-	Risk of a double bottom for equity markets as observed during past crisis
	US	-	Penalised by the weakness of the economy but benefiting from US corporates' global positioning
	Europe	-	Very fragile recovery. European companies penalised by a strong euro
	Emerging markets	=	Difficult trade conditions should subdue any increase in domestic consumption
Commodities			
	Oil	-	Short-term demand to fall, bringing Brent down to $50 per barrel
	Mining	=	Mainly dependent on Chinese growth, with discrepancies between mining stocks
	Agricultural	+	Good trend in some agricultural products given lack of supply. Looks defensive

Source: SG Research

How to position for our bear scenario

- **Sell the dollar** as a declining dollar could provide a means to reduce global imbalances.
- **Positive on fixed income** as rates would fall in a Japanese-style recovery. Prefer defensive corporates (telecom, utilities) which have the lowest risk of transitioning into high-yield and should perform well in a more risk averse environment.
- **Sell European equities** as markets have already priced an economic recovery in 2010**e**. Under a bear scenario, this optimism could be dashed once restocking is over and fiscal stimulus (especially for the auto sector) has dried up.
- **Cherry pick commodities** given the diverse nature of this asset class. Agricultural commodities would probably fare best, but are difficult to forecast given high exposure to weather conditions. Mining commodities (particularly gold) are also a hedge against a softening dollar and could be favoured by persistently strong demand from emerging markets, particularly China.



Source: SG Cross Asset Research, SG Global Asset Allocation * SG MAP = SG Multi Asset Portfolio

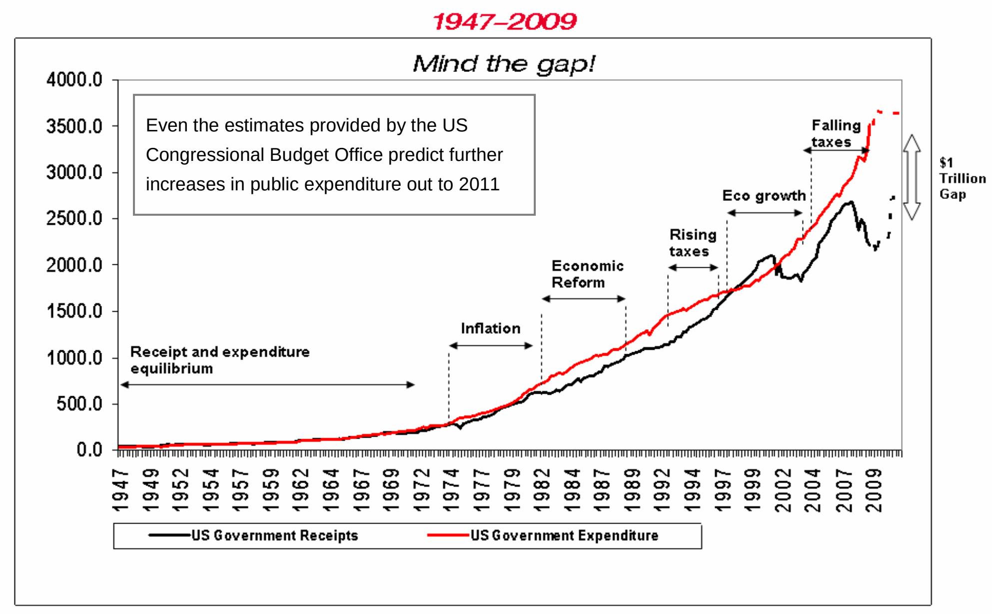
Analogies with Japan's lost decade & investment ideas

Debt explosion in 2009

Debt is a key issue for the US: with population ageing burdening a smaller workforce, government spending is set to increase considerably

With US government debt approaching 100% of GDP by 2010e, signs of a constrained recovery are becoming apparent as the $787bn stimulus package takes effect. Government receipts are falling, while expenditure is at an all-time high

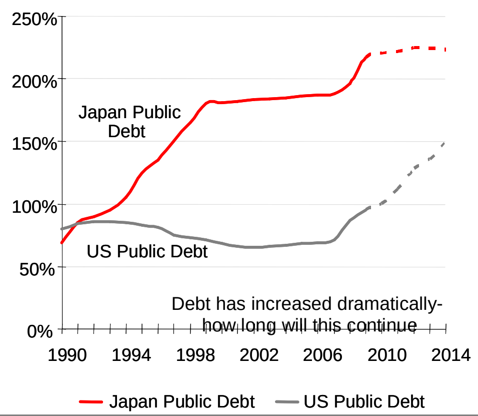
US debt explosion (US$bn)

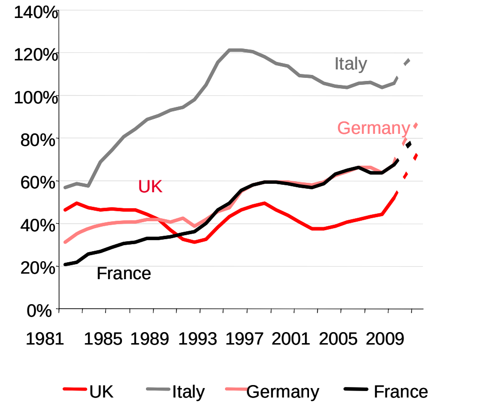


source: Congressional Budget Office, SG Cross Asset Research

Further transfer of debt from the private sector to the state and rising healthcare costs, particularly for ageing baby boomers, are among the factors behind soaring US public debt. These poor demographics and the complexity of the current crisis serve as reminders that we may not have escaped the prospects of a 'lost decade', implying years of sub-par economic growth ahead. The US is not the only country facing such a gloomy outlook for public finances. In Europe also, public debt to GDP should exceed 100% within a few years.

Public debt as % of GDP





Source: SG Cross Asset Research, FMI

The problem facing governments is that if they cut off the fiscal stimulus too soon, we could fall back into recession, but if the gap is not closed rapidly, there would be a risk of high inflation and high interest rates by 2011. Taking an extreme view, US debt could result in a collapse in the dollar as large US debt holders reduce their exposure and inflation rises as a result. We do not see this as a likely scenario over the next 12 months as debt is currently an issue in practically all developed countries, so no other currency could realistically replace the dollar at the moment.

The current economic crisis displays compelling similarities with Japan in the 1990s

A return to recession would bring echoes of Japan's 'lost decade'. As highlighted in the following chart, there are striking similarities between that period and the decade starting with the dotcom crisis in 2000/2001 and ending with the current crisis seen in the US from 2007.

Taking a different perspective, we can see that the current crisis has its roots in the dotcom crisis at the beginning of this decade. Combining these two crises, as shown in the chart on our right, brings back memories of Japan…

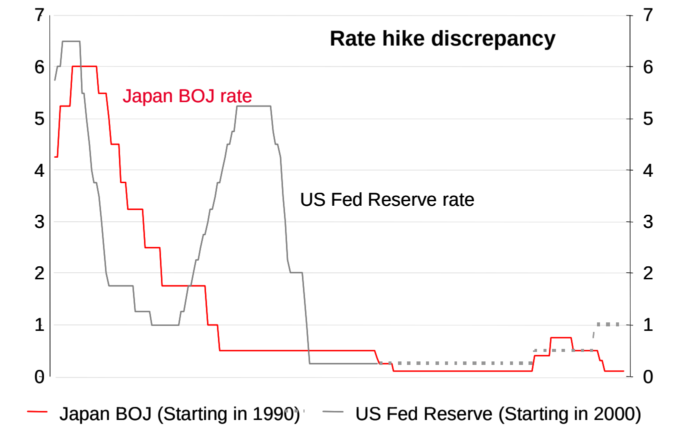
Counting the similarities

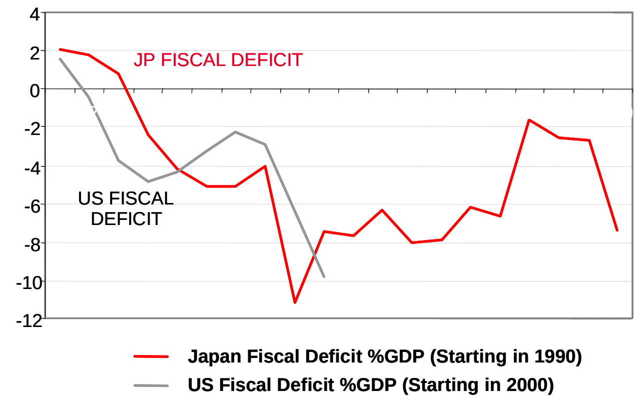
	Japan Lost Decade 1990	US 2007–Present	US 2000/2001	US New Millennium crisis
Ballooning public debt	XX	xx		XX
Banking Crisis	XX	xx		XX
Property bubble	XX	xx		XX
Corporate debt crisis	XX		xx	XX
High valuations going in	XX		xx	XX
Stock market crash	XX	x	x	XX
Low Interest Rates	XX	x	x	XX
Slow government reaction	xx			

Source: SG Cross Asset Research

In the following chart we shift forward Japan's rate hikes and debt deployment trends by 10 years to compare these with the US experience, underlining the huge risks ahead if the US continues to make full use of unconventional measures to support the economy.

Shifting forward Japan's interest rates and debt by 10 years suggests a similar story



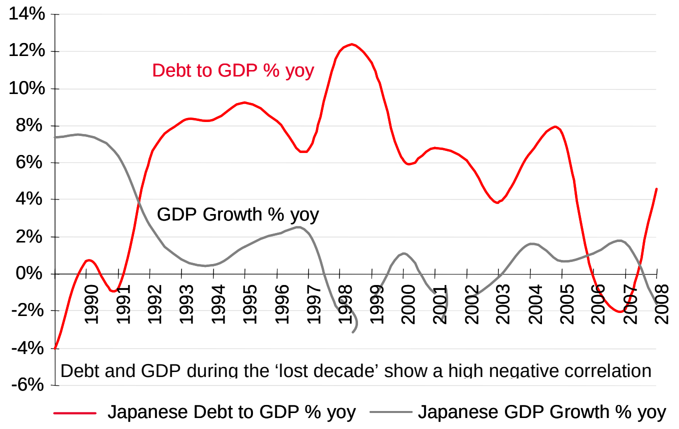


Source: SG Cross Asset Research

In a normal downturn, debt would naturally be reduced by higher receipts, stemming from a return to normal GDP growth. Looking at Japan, we can see that when debt started to narrow in 2006, GDP was slow to increase as consumption was impaired by lower government spending. The boom at that time in western economies was the only factor which alleviated some of the pressure on the Japanese economy.

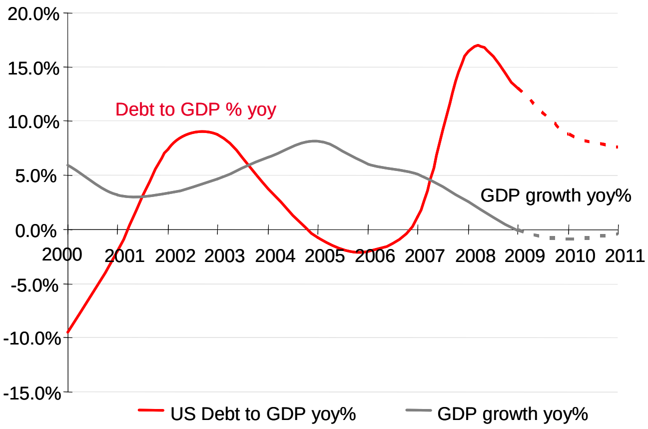
In our bear scenario, much like Japan, debt is the main constraint on US GDP growth. And as shown below, reducing the excessive debt burden is likely to stall economic activity under that scenario. Thus, given the hefty public debt constraint, our pessimistic scenario would see a repeat of Japan's 'lost decade', this time with the US experiencing zero growth and fighting a battle against deflation, with debt continuing to weigh on the economy.

Debt's toll on GDP during Japan's 'lost decade'…



Source: OECD, SG Cross Asset Research

And the US is heading in the same direction!

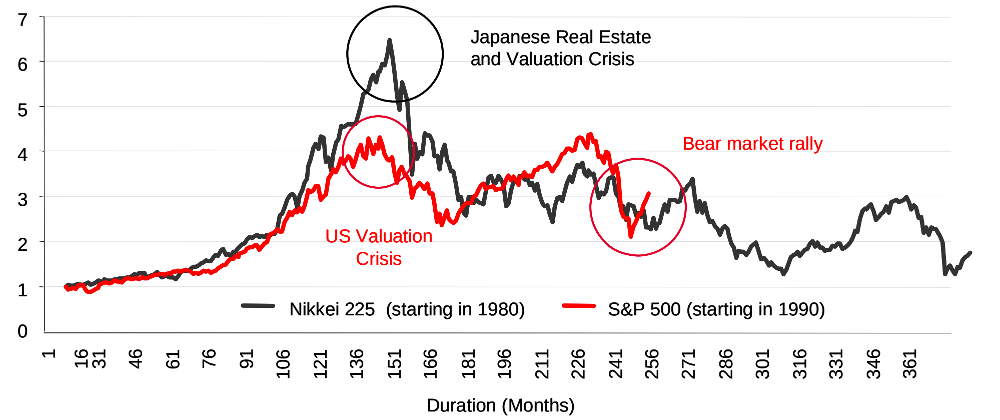


Source: SG Cross Asset Research, IMF International Statistics

End of market rally for equities? Look at Japan!

If we accept the idea of a two-stage crisis (taking as our starting points 2000/01 + 2007/08), we have probably reached a situation similar to that of Japan in the 1990s. This analogy would suggest that we are now exiting a bear market rally, which was fuelled by restocking and fiscal stimulus. If the fiscal incentives boosting auto consumption are reduced, "normal" consumer spending will be unable to pick up the running so long as unemployment remains depressed.

Comparing the S&P today to the Nikkei in Japan's lost decade

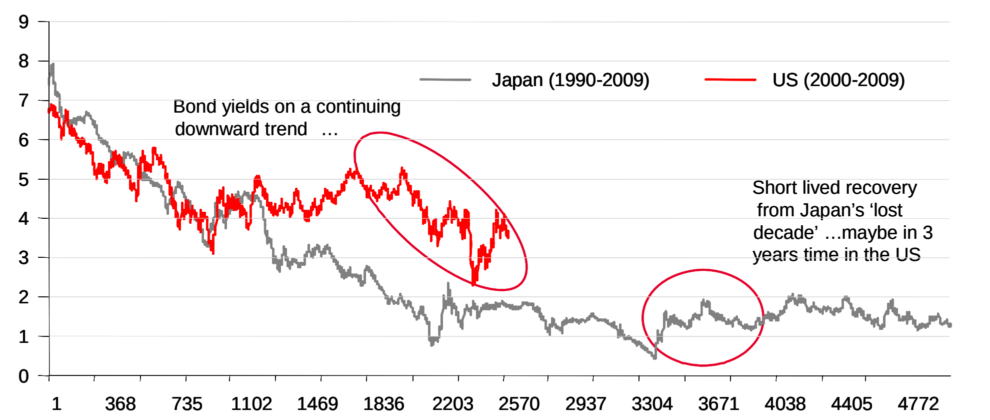


Source: Datastream, SG Cross Asset Research

Worried about inflation? Japan suggests deflation more of a risk

With unemployment peaking, it seems illusory to expect inflation in the coming 12 months and hence a higher risk of increasing bond yields. The bond market suggests the real risk is one of deflation, again calling to mind the Japanese scenario.

Comparing Japanese and US 10YR bond yields



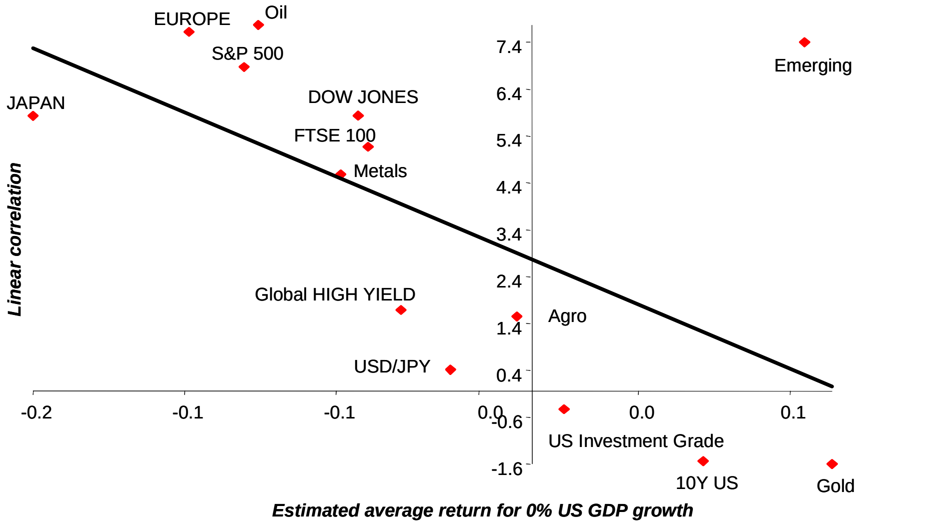
Source: Datastream, SG Cross Asset Research

Stress-testing performance by asset class under a bear scenario

We have developed a quantitative approach to assess the return for different asset classes on the assumption of zero US GDP growth for the next two years due to high debt. Our model provides clear guidelines for investment under the bear scenario, with fixed income naturally benefiting, followed by some commodities, whereas equity markets and the dollar suffer.

Gold, government bonds and the yen are the best placed assets in the bear scenario

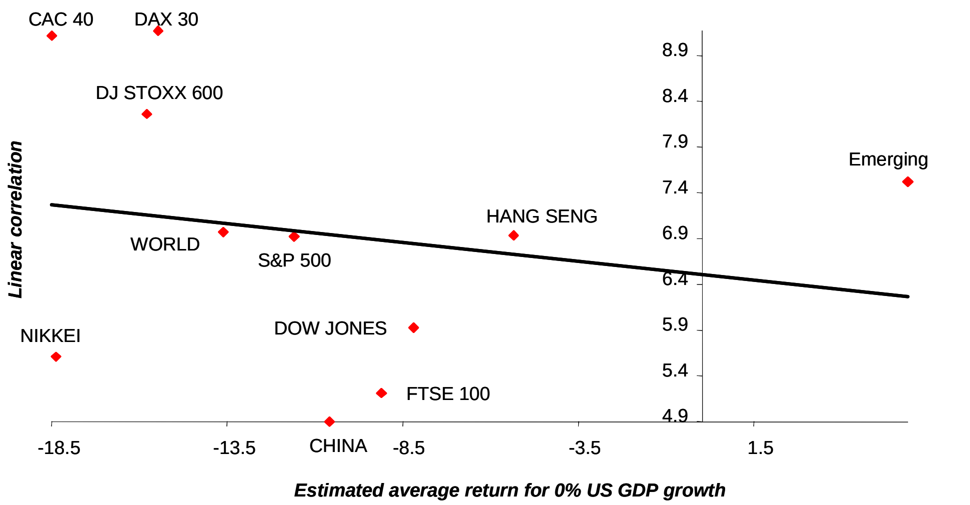
Estimated correlation with US GDP by asset class



Source: SG Cross Asset Research, Datastream, MSCI Inc.

With equities proving highly correlated to US GDP, the indices expected to suffer most under our zero GDP growth model are those with the greatest GDP correlation. The emerging market indices (the Indian Sensex and Asia's Hang Seng and Shenzen) have historically outperformed US GDP. This suggests that the emerging market indices have a high linear correlation to US GDP. Surprisingly, it is the Dow Jones and the FTSE that are the Western indices least sensitive to US GDP. However, despite their previous high correlation, we find the emerging markets have recently decoupled from the US and going forward we expect this to continue.

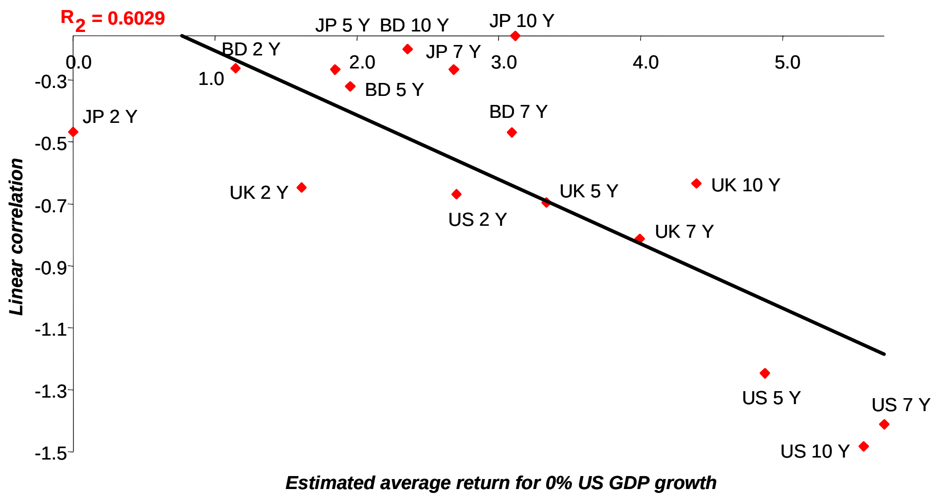
Estimated correlation with US GDP among equity indices



Source: SG Cross Asset Research, Datastream, MSCI Inc.

Seeking refuge in the largest government bond issues has historically proved beneficial during periods of market stress. Investment grade bonds would also be expected to perform well under the scenario, although there is a slight risk of some bonds transitioning to lower class ratings. High yield bonds, however, would be hard hit under our model, with default rates peaking.

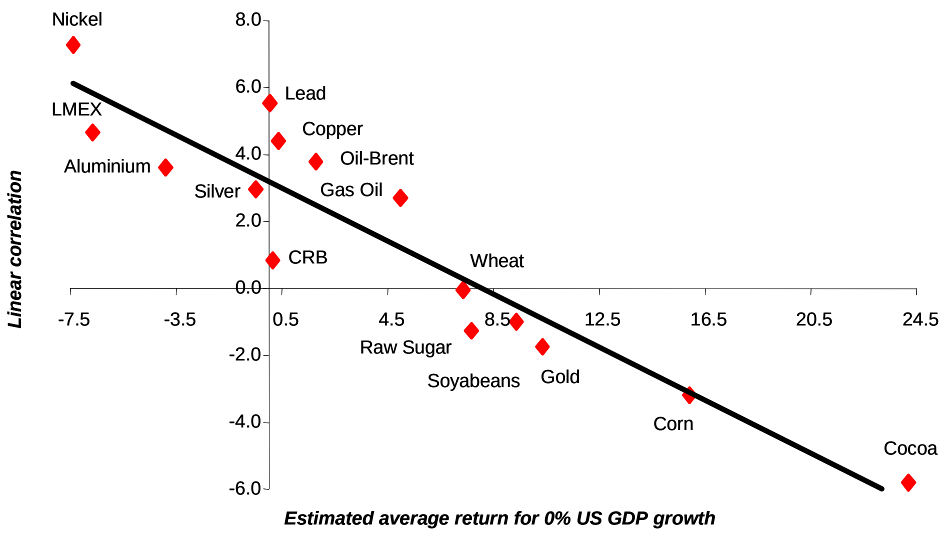
Estimated correlation with US GDP within fixed income & credit



Source: SG Cross Asset Research, Datastream

Commodities are less sensitive to GDP. Opportunities could still arise, with gold and agricultural commodities likely to prove resilient if attractively priced.

Estimated correlation with US GDP within commodities



Source: SG Cross Asset Research, Datastream, MSCI Inc

How to invest under a bear scenario

Having considered the similarities and differences between the current situation in the US and Japan's lost decade, we summarise below the investment implications of a bear scenario for debt, showing 12-month recommendations by asset class and sub sector under market stress conditions. This list was obtained using a quantitative and qualitative screening approach, which combines top-down fundamental analysis crossed with the results given by our econometric model. We also indicate the investment recommendations under SG's central scenario (SG Global Asset Allocation Research, Multi Asset Portfolio).

Key recommendations under a bear debt scenario and under SG's central scenario

Asset class		Bear debt scenario (12m)	SG MAP	Comments under a bear scenario
Currencies	Dollar	-	N	Future dollar worries stemming from US debt funding imbalance
Fixed income	Government bonds (10Y)	+	UW	10 YR bonds should perform well as long-term rates decline
	Investment grade (5-7Y)	=	N	Lower government yields should offset wider credit spreads
	High yield (3-5Y)	-	NA	Stay away from high-yield cyclicals as high risk aversion will heavily penalise these bonds
Equities	Indices	-	OW	Risk of a double bottom for equity markets as observed during past crisis
	US	-	N	Penalised by the weakness of the economy but benefiting from US corporates' global positioning
	Europe	-	N	Very fragile recovery. European companies penalised by a strong euro
	Emerging markets	=	UW	Difficult trade conditions should subdue any increase in domestic consumption
Commodities			OW	
	Oil	-		Short-term demand to fall, bringing Brent down to $50 per barrel
	Mining	=		Mainly dependent on Chinese growth, with discrepancies between mining stocks
	Agricultural	+		Good trend in some agricultural products given lack of supply. Looks defensive

Source: SG Cross Asset Research, SG Global Asset Allocation Research and MAP Multi Asset Portfolio (UW = Underweight, N + Neutral, OW = Overweight)

Focusing on roots to forecast consequences

If we truly are in a bear market rally, albeit a long one, with equities diverging from the underlying factors, then understanding the fundamentals will help us avoid disappointing outcomes when markets converge with economic reality.

Flashback to the origins of the economic crisis

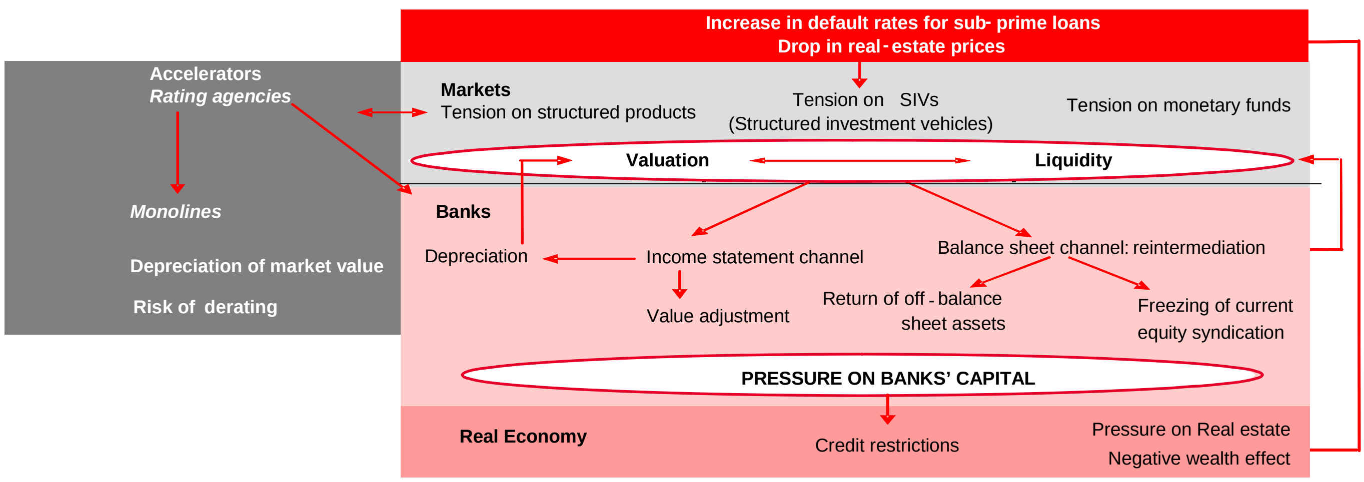
The global recession which started in 2008 stemmed directly from US financials and households being excessively leveraged on loss generating underlying property assets. Demonstrating the severity of the global crisis, in April 2009 the IMF estimated the total cost of the global crisis at slightly over 4 trillion dollars in nominal terms.

The depth of the economic crisis has been attributed to a number of factors:

The crisis spread from sub-prime to prime households and from toxic to healthy assets

- Complex debt securitisation mixing toxic assets with healthy assets, with credit ratings which downplayed the risks of such products.
- A massive increase in defaults by sub-prime households led to a global decrease in house prices and therefore bank collateral, prompting a deterioration in bank balance sheets and a necessary deleveraging by these institutions to contain the damage.
- Forced deleveraging amplified drops in real estate and securitised asset prices, with a confidence crisis leading to a liquidity crisis.
- The crisis spread from sub-prime to prime households and from toxic to healthy assets.
- The liquidity and confidence crises started to contaminate the rest of the US economy and spread to other economies due to globalisation and the interconnectedness of financial institutions in global markets.

A three-step crisis: markets, banks, real economy

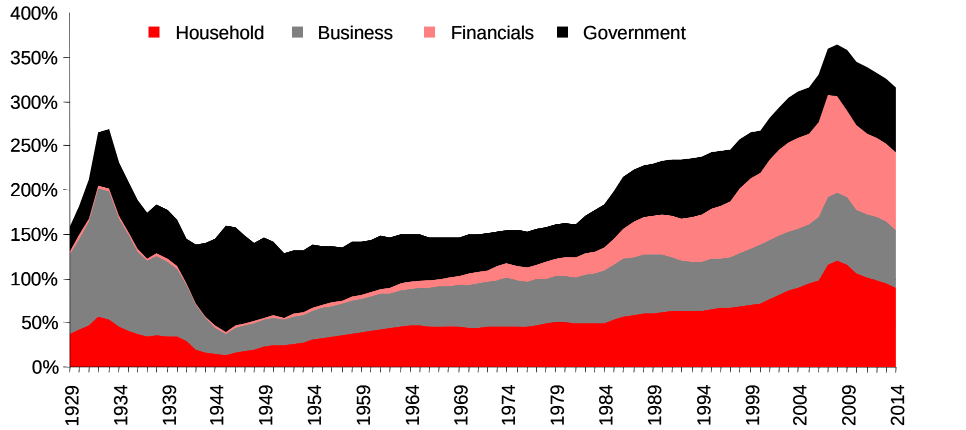


Source: SG Cross Asset Research, Banque de France

Governments bailing out the financial system, but at what price

At the end of 2008, the ratio of total debt to GDP had risen to over 350% in the US and should only stabilise in 2009. We have now reached a point where the developed economies, particularly the US, appear to have no option but to deleverage.

Historical and projected breakdown of US debt by category



Source: SG Global Strategy, Bloomberg , US Federal Reserve

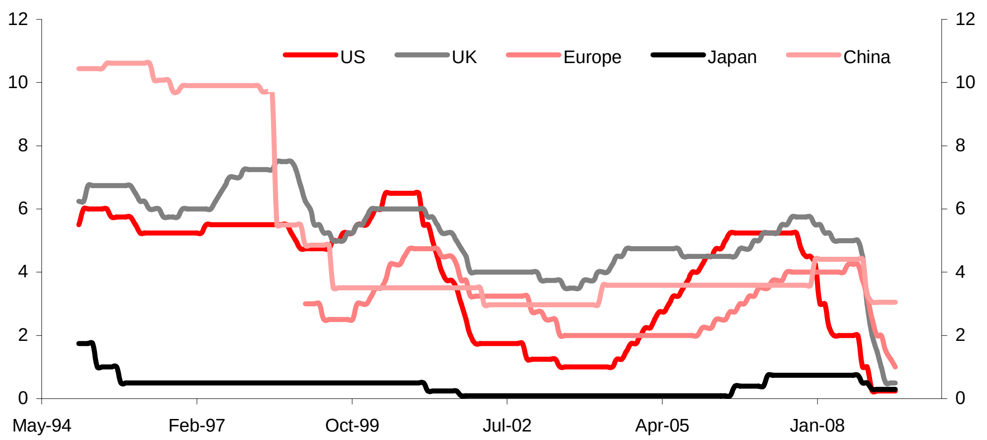
Central bank and government intervention has shifted the debt burden from financial institutions to governments in a drive to quell the financial crisis and revive an ailing global economy, provoking an explosion in public debt. The resulting huge liquidity injections left the markets with little alternative but to rally!

Rapid central bank and government intervention to revive the economy

The depth of the crisis stemmed from a bubble created by an extended period of low interest rates, and followed by an unprecedented increase in interest rates!

A typical economic cycle shows that slowdowns come after a rise in interest rates. An "appropriate" decrease in interest rates brings mechanical support for consumption and future corporate investments and economic development. In the current crisis, central banks have cooperated to implement a broad range of measures to stimulate the global economy and avoid a collapse in the financial system.

Unprecedented decrease in interest rates by the main central banks



Source: SG Economic Research, SG Cross Asset and Hedge Fund Research, DataStream

In theory, the unorthodox monetary policy unveiled during the crisis is not without risk, as quantitative easing should be inflationary – except that for the moment the printing of money by western economies has been used only to replace the credit destroyed. The continued fall in corporate borrowing reflects a net repayment of debt, as demand continues to be very weak.

With bank lending still in decline, QE and stimulus are essential to sustain a recovery, but at a considerable cost…

It has now been a year since the implementation of quantitative easing. Going forward, we see central banks gradually cutting back on these measures, although it is still too early to eliminate quantitative easing entirely.

Along with the sharp cut in interest rates, governments launched stimulus packages to replace forgone private expenditure. This global stimulus package was vital to revive an ailing economy and compensate for a decrease in corporate and household spending, acting as an automatic stabiliser.

Stimulus plan

Country	US$bn	As % of national GDP
US	787	6
China	586	15
Europe	298	2
Japan	154	3
Latin America	149	4
Emerging Asia	52	2
CEE	23	2
Russia	20	1
Total		**3% of global GDP**

Source: SG Cross Asset Research, FactSet

Total stimulus, which represents 3% of global GDP, is set to generate excessive public debt levels, implying a need for deleveraging for years to come (see SG Economic Research report dated 21 September 2009).

Counting on a comeback for the US consumer

While the transfer of debt from financials and households to governments did not solve all our economic woes, it probably saved the economic system, rescuing the financial system from the possible domino effect of one bank's bankruptcy leading to another.

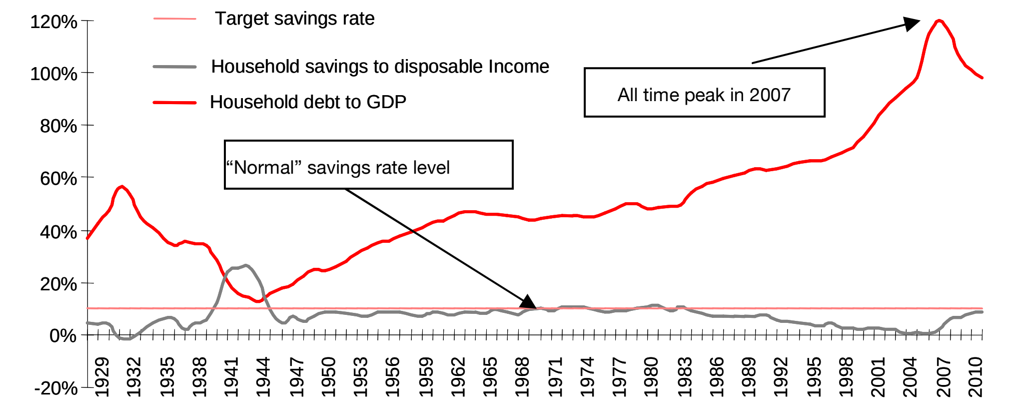
Consumers hesitating between saving and spending

The household deleveraging needed after years of excessive consumption is seeing previously overvalued properties find their equilibrium as spending and borrowing move towards normalised levels. Finding a new equilibrium for output is also necessary, as we believe that production could further cut excesses as we seek a new balance for supply and demand. Reducing the output gap, therefore, is not necessarily a good sign or an objective, as previous output was largely the product of a consumption bubble.

Paying down debt will be a lengthy process, accentuated by an unemployment rate set to surpass 10% in 2010

Total US consumer debt now stands at about 130% of disposable income (105% of GDP). Prior to the 20-some year long credit boom, it averaged 60%-70%. In order to get back to those levels – assuming they reflect some sort of equilibrium – consumers would have to pay down an amount of debt equal to 65% of disposable income. To achieve that in just two years would require a jump in the savings rate above 30%. That is close to impossible. What if the savings rate stabilises at 7%, which is near current levels? Assuming that all the savings are used to pay down debt, and that nominal income remains stagnant, it would take over nine years to reduce debt/income ratios to the levels seen in the 1980s.

Household debt to GDP



Source: SG Economic Research, Bureau of Economic Analysis

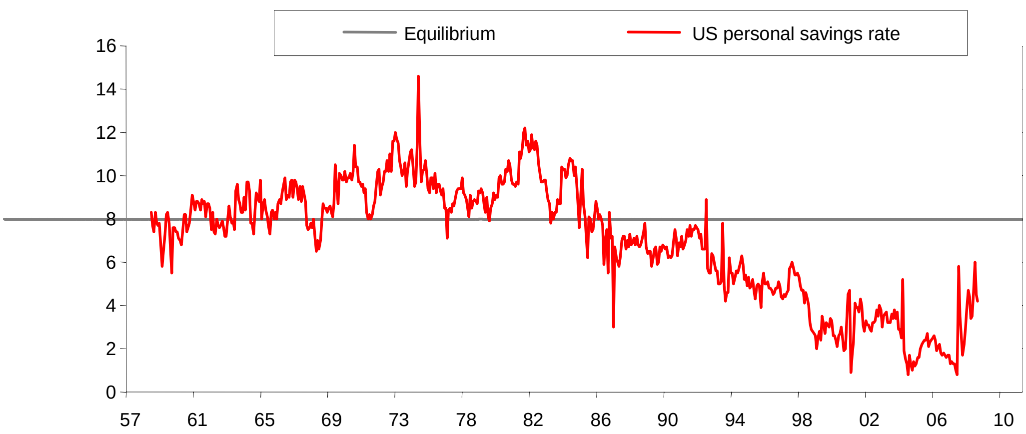
In the US, although higher than a year ago, the saving rate is well below 10% – the average observed in developed countries – with Japan and Italy peaking at 15% of disposable income.

With credit reducing and low interest rates forcing consumers to deleverage, we believe stabilisation has started to occur as consumers pay down their debt.

Although low interest rates should normally increase the demand for credit, this has not been the case up to now and demand for credit is unlikely to rise as long as unemployment remains so high (currently 9.7% in the US, expected to rise above 10% by next year). Household debt gives less cause for concern once property markets stabilise, as the collateral put up against house values stops eroding in value. Stabilising prices is the first step needed before we see a reduction in foreclosures, as homeowners tend to become more delinquent as house prices fall. We therefore do not see household debt as a problem as long as rates remain low and real estate valuations stop falling.

If US consumers increase the savings rate to 8%, the average observed in the past 50 years, this would severely impact consumption and hence the global economy.

US personal savings rate could rise to 8% to reach an equilibrium level

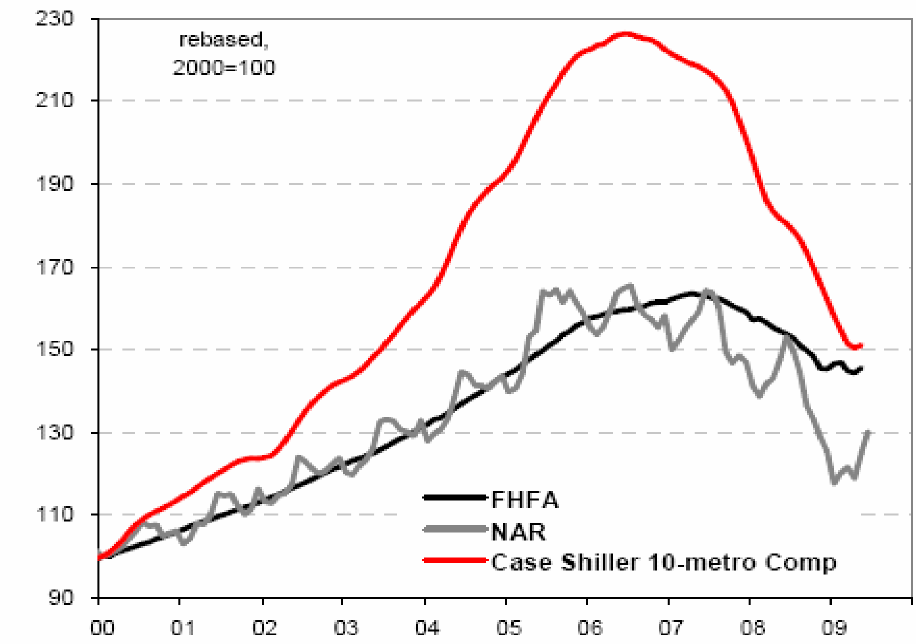


Source: SG Cross Asset Research, Datastream

Better news for the US property market

Confirmation of a bottoming in the US housing market could support a further improvement in consumer confidence and could, in the medium term, help to relax lending policies which have damaged liquidity in the real estate sector throughout the recession.

US home price indices



Source: SG Economic Research, Global Insight

Supply is still increasing, eliminating the boost from new home sales. We can also expect that once there is a rise in home prices, homeowners who have held off selling their homes at depressed prices could flood the market with further supply, pushing prices down.

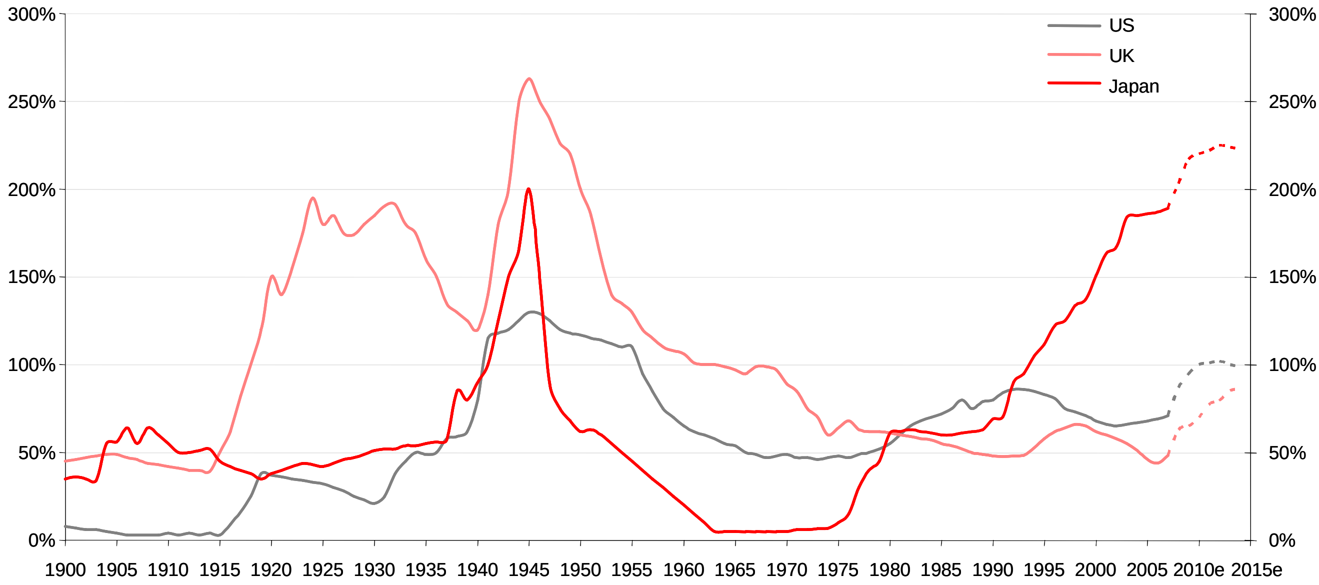
The US government's tax incentives for first time homebuyers have helped boost lower-priced property sales. The non-refundable tax credit worth $8,000 is set to expire in November 2009, though prolonging it and making it more widely available could stimulate recovery in a market with tainted fundamentals linked to excess debt.

Counting on governments to survive debt mountains!

Mechanically, the fiscal stimulus measures and depressed economic environment take deficits to unprecedented levels

As we can see in the chart below, apart from during World War II, when debt shot up in countries such as the UK to 250% of GDP, the developed world has never before experienced such high public debt. These unprecedented levels of government debt also coincide with high liabilities linked to demographic transition due to population ageing. The consequence is that government spending in developed economies cannot last forever and high public debt looks entirely unsustainable in the long run.

Public debt/GDP - 1900/2015e



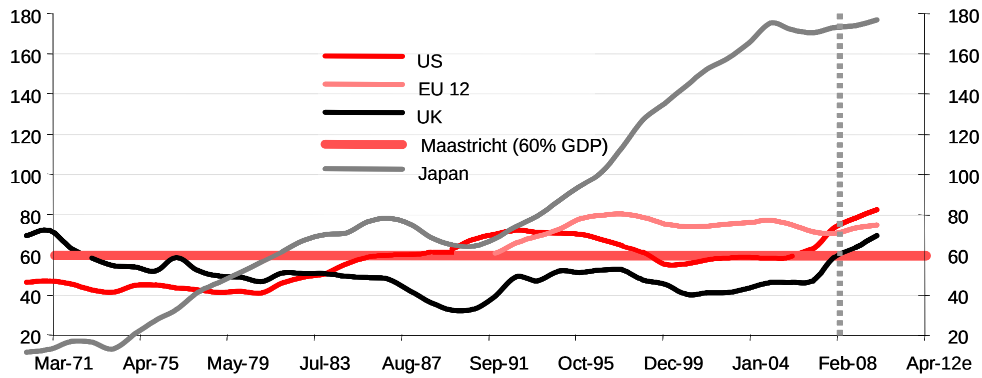
Source: SG Cross Asset Research, IMF

Contrary to developed countries where stimulus plans only brought a halt to the economic meltdown, emerging markets' stimulus plans, specifically China's, are working very well. Debt is not a problem for emerging markets as debt/GDP is below 50% in most countries (apart from India where it stands at 80%). The most visible success of these plans has been in China which returned to an 8% growth estimate for 2009, and is driving the recovery in commodity prices. But, emerging market economies may no longer be prepared to finance the western world's exponential debt, particularly that of the US, as borne out by recent declarations from Chinese officials.

Developed countries' governments face unprecedented public debt levels and this will determine their future fiscal policies.

We have almost reached a point of no return for federal debt, where a beginning to the end of the crisis now looks crucial to give governments a chance to cut back their debt load. Depending on the scenario used, we could expect public debt to GDP to reach historical records in most western countries, well above the 60% Maastricht rule (see chart below).

Historical and projected breakdown of debt



Source: SG Cross Asset Research, Datastream

In 2009, public debt has been ballooning out of proportion as EU member states reach the 90% public debt to GDP level. The issue with excessive public debt levels as we exit the recession is the deterioration of sovereign risk, and its adverse affect on debt servicing, as debt could spiral once concerns over sustainability are factored in. Debt targeting needs to be a fundamental approach for governments as we come out of the recession, and should be in line with monetary and fiscal policy. But cutting all public costs at once in an attempt to reduce debt to an unattainable level of 60% could have serious implications, jeopardising growth and the recovery. The exit plan being discussed now in the US has already highlighted the priority of debt reduction.

Once the economy rebounds, however, the estimates of capital destroyed are likely to be revised, as less risk averse investors rush back into undervalued assets. The capital injected into the money supply and the assets added to the Fed's balance sheet must be drained off by the government in order to avoid inflation.

We conclude that while the deleveraging process appears to be under way for households and financials – and corporates, specific cases apart, are relatively untouched – it is clearly the governments who are at risk of not being able to continue their support for the economy. For now the level of debt is not a major concern, so long as rates remain low and emerging markets continue to buy developed countries' debt. But the key question is: *will* emerging markets continue to buy developed countries debt? This raises the question whether the dollar is safe as a reserve currency.

The painful task of removing the excess debt

Even a bull scenario points to debt to GDP of around 90% for Europe and 85% for the US in 2011, as it would take 4-5 years to reduce debt adequately. However, in each of the three economic scenarios, public debt is far above the 60% target set by the Maastricht treaty, raising concerns on the effectiveness of EU legislation.

Public debt forecasts under three different scenarios

Debt to GDP

Bear scenario

Year	2010e	2011e
US	115%	125%
Japan	250%	270%
Eurozone	110%	125%
UK	95%	105%
BRIC	60%	70%
China	40%	50%

Central scenario

Year	2010e	2011e
US	98%	100%
Japan	229%	232%
Eurozone	100%	105%
UK	65%	74%
BRIC	38%	38%
China	22%	21%

Bull scenario

Year	2010e	2011e
US	90%	85%
Japan	210%	200%
Eurozone	95%	90%
UK	95%	90%
BRIC	45%	40%
China	30%	30%

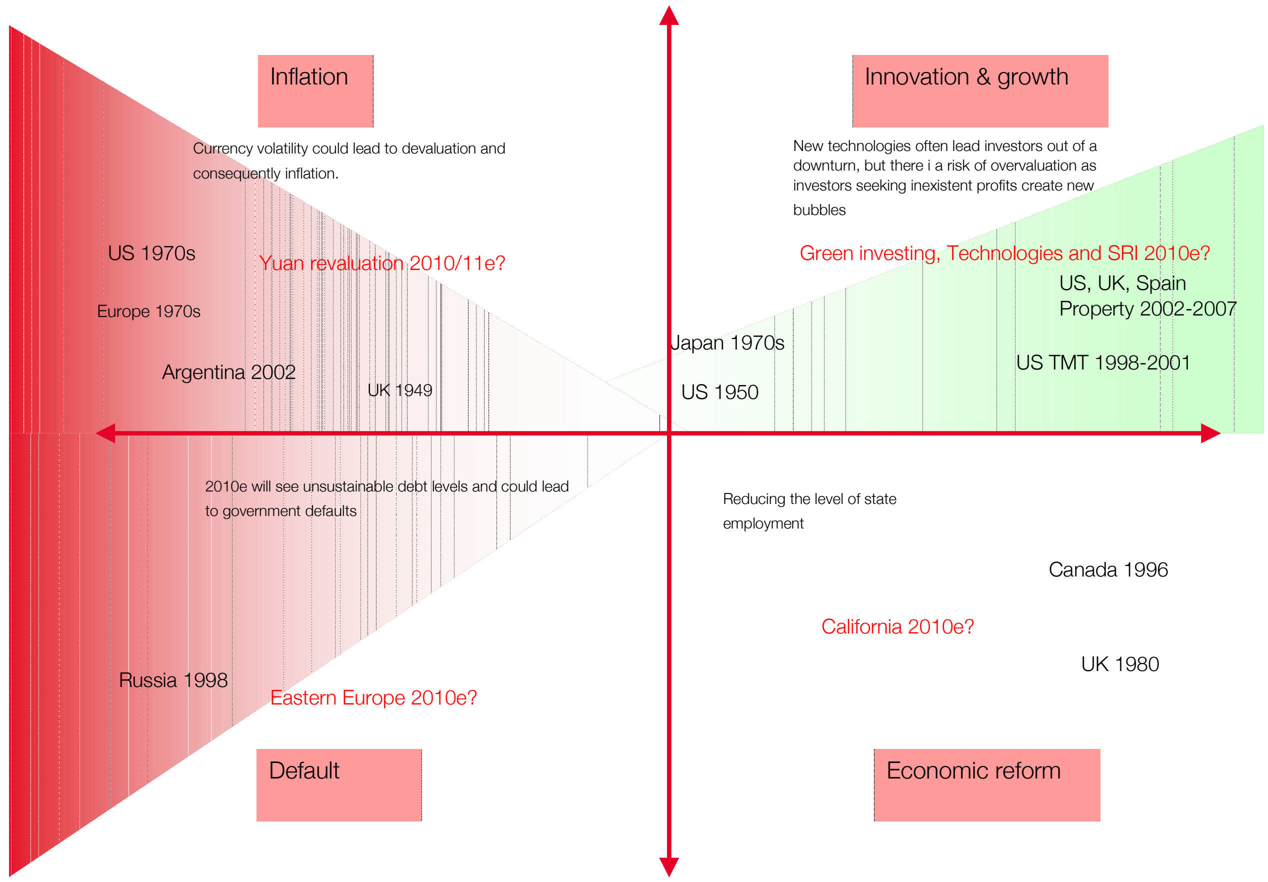
Source: SG Economic Research

In order to deal with the excessive levels of debt, governments will have to implement new fiscal policies. However implementing these too early could aggravate the recovering economy, and too late could lead to a sovereign debt crisis and affect growth prospects. So timing is key.

Governments: choose the route to debt reduction

Past history shows a number of roads to debt reduction, including innovation and growth in the 1945-50 post-war period, inflation in the 1970s and economic reform in the 1980s UK setting. Low interest rates can help the process, easing the debt servicing burden. The higher the debt burden, the more interest rates have to come down – but considering the current low interest rates, debt servicing could not be eased much further!

Debt reduction options



Source: SG Cross Asset Research

Innovation and growth is the golden ticket

The main interest in future innovation is through green technologies. This booming industry is a prime source of growth according to our SRI experts.

Past history clearly suggests that innovating for growth could be the best way to get out of the crisis. But it would need a new technology driver – perhaps as in the green revolution (see our SRI team's March 2009 reports on green development and new energies).

Energy efficiency should be the biggest beneficiary of the €3 trillion per year green market which is expected to double in the next decade. Global energy needs are expected to grow 50% by 2030. Energy efficiency allows us to use current capacity more efficiently with up to €3 in cost savings for every €1 invested – with all of the technologies and processes available today. And far from being over-exploited, we have yet to really begin reaping the "lowest hanging fruit".

Economic reform – Yes we can!

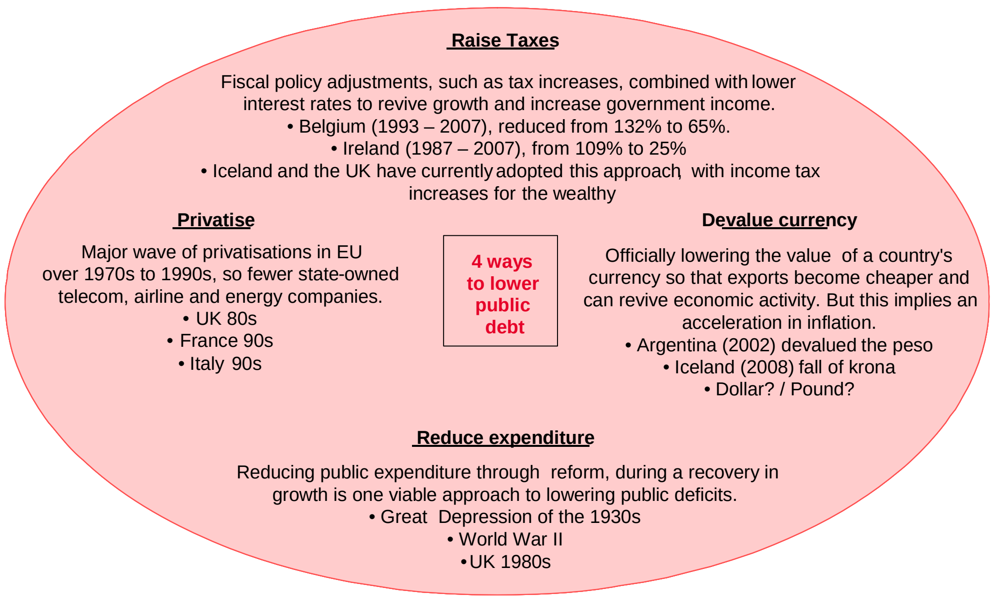
The UK and the US, pressed by global concern over public finances, have now made it clear that spending has become more limited and reforms should be expected in the future

Reducing public costs, such as for military and civil service posts in a stable job market, could allow federal savings. Going into its 1990s recession, Sweden had a more far reaching social welfare model than in any other country. Through reform, they were able to cut costs, while maintaining an acceptable social model. Economic reform tends to be delayed as the economy prospers, but even as the economy grows coming out of the recession, withstanding the temptation to increase expenditure or maintain it as revenues increase will be vital.

The graph below highlights a number of proactive options to reduce public debt. We would not be surprised to see a combination of these used coming out of the recession.

All these options are likely to be implemented, but there is little room for innovation when it comes reducing public debt.

Economic reform: how to reduce debt to GDP ratio



Source: SG Cross Asset Research

The financial crisis has taken its toll on currencies, with some weakening and others having to devalue. The benefits of a cheaper currency are not necessarily a quick fix, however, as devaluing, according to the Marshall-Lerner condition, is only successful in having an impact on the trade balance if prices are elastic. In the short term, however, prices tend to be inelastic, and tend to converge further on in time. This J-curve effect is even more pronounced during a crisis as the cheaper currency is not exploited because of reduced discretionary consumption, but the upside for economies with weak currencies, such as Iceland and the UK, should help ease the recovery. A weakening dollar will also help boost US exports, and reduce the punishing trade deficit.

A last resort… sovereign defaults

Extreme debt levels could call for extreme reactions from governments, although this particular option would be disastrous

Although it is the last survival option in the bag, sovereign borrowers may have to default; and could do so with limited strings attached as they are not subject to bankruptcy courts in their own jurisdiction, and would hence avoid legal consequences. One example is North Korea, which in 1987 defaulted on some of its government bonds and loans. In such cases, the defaulting country and the creditor are more likely to renegotiate the interest rate, length of the loan, or the principal payments. During the 1998 Russian financial crisis, Russia defaulted on its internal debt, but did not default on its external Eurobonds.

Further back in history, European countries frequently defaulted – Spain did so 13 times in the Middle Ages. The damage to the country's economy can be harsh as it will suffer from higher interest rates and capital constraints in the future. But remember that all major economies apart from the US have a long history of sovereign defaults.

Inflation – a lesser evil

Inflation could provide the easiest escape from debt contingencies

Looking at past recessions, a quick conclusion is that moderate inflation often carries an economic recovery. In a situation where the euro and the yen increase sharply against the dollar, we could face similarities to the great depression, suggesting Europe and Japan would not recover in the next two years. Devaluing, and letting inflation play its role would help recovery and reduce public debt!

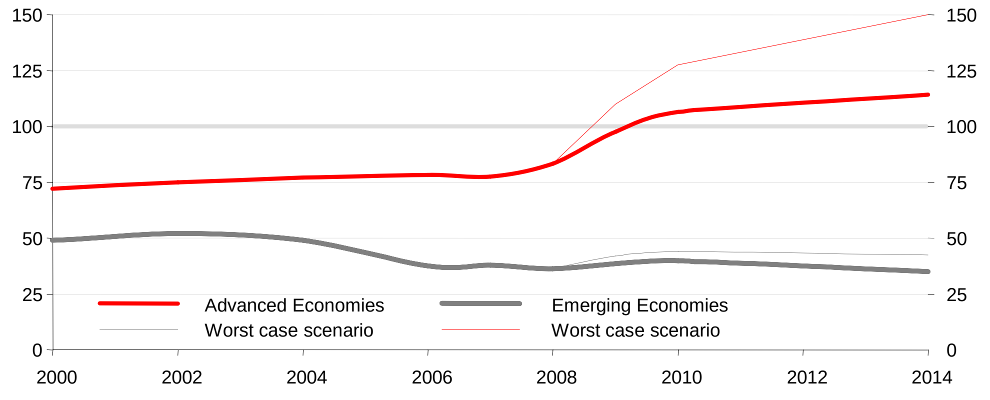
The perils of inflation are widely known, but a reasonable dose could help evacuate excessive debt, and be a quick fix for unemployment. However, quick reversals could lead to the unwanted effects of inflation: stagflation, hyper inflation, revaluation. Though it certainly makes things more difficult for the savers of the world or those who are living on a fixed income, for the US, with an $11 trillion public deficit, and half of its publicly traded debt issued outside of the US, inflation would play the role of a necessary evil. Thus as the lesser of two evils, inflation could avoid an otherwise painful deleveraging process at unsustainable costs. But the interest rate hikes needed to control the inflation would hurt the average consumer as debt servicing costs would surge.

So while most economists would agree that resorting to inflation would be a semi-sound approach towards rapidly cutting public debt, they are also quick to point out that current conditions are unlikely to see any inflation for the next several quarters.

Indebted developed economies can't compete with debt "free" emerging markets

The imbalance in funding between foreign buyers of US treasuries and the US is leading to a transfer of wealth spurred by the current crisis. This imbalance is not the problem, but the consequence of an emerging leader in Asia is worrisome for the US.

Debt/GDP ratio is very worrisome for advanced economies (%)



Source: SG Cross Asset Research, IMF Forecasts

Transferring power and responsibility to emerging economies

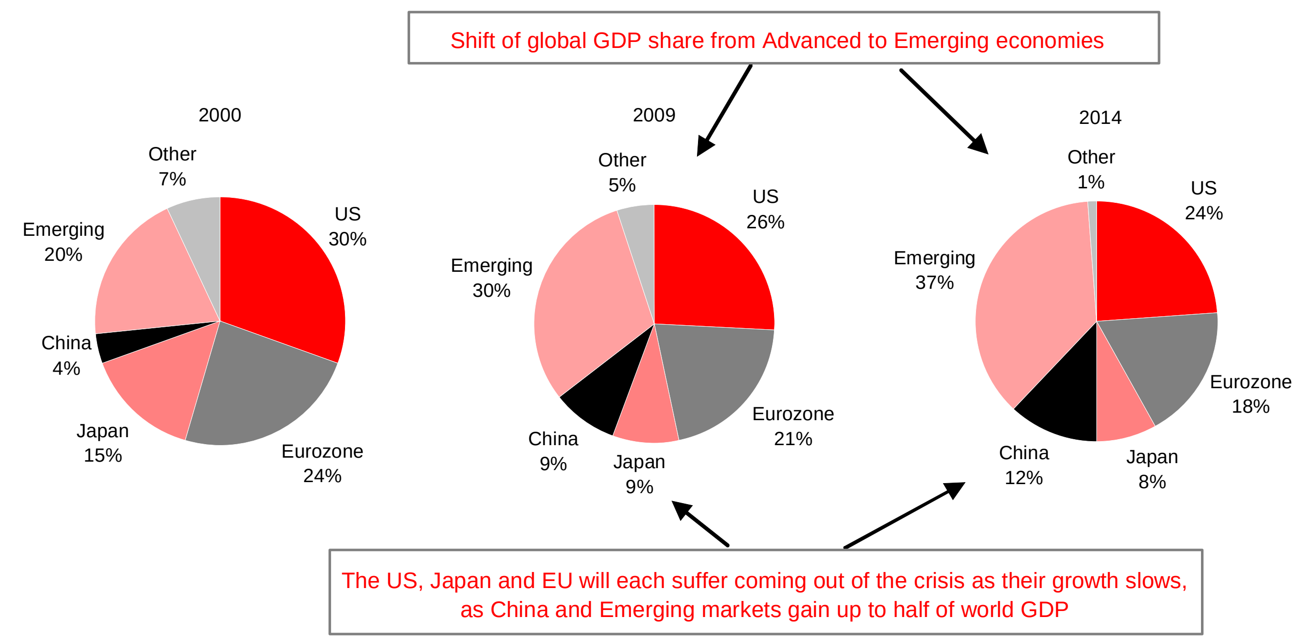
Starting behind in the race, China is now leaping ahead, but the potential growth is still huge

This crisis could have arguably just turned into a US recession had it not been for globalisation. And exacerbating the situation, excessive US debt (the US being the world's most leveraged economy) is supported by a flawed balancing act of global funding, whereby emerging markets, notably China, finance the US economy as it consumes excessively. This imbalance in funding, with a flow from the emerging economies to the advanced economies, helped spur the current crisis.

What we are now witnessing is the rapid development of emerging markets and particularly China as a major player in the economic environment. Between 2000 and 2009, China has gained an extra 5pp share of global GDP; more than doubling its world share in the space of nine years. Already in 2009, China's achievements appear clear, as it looks set to claim the title as the world's second largest economy after the US and just ahead of Japan. As we see China lead the way out of the recession by boosting its domestic infrastructure, we are noticing a growing trend in the transfer of wealth from advanced economies to emerging economies.

Going forward, we expect frustration at the risks taken by the US to shift China's focus towards supporting its own economy first and foremost. This change in the global funding balance would force the US to deal – painfully – with its own debt problem, yet the end result could lead to a sounder global economic model.

Transfer of wealth: global GDP share per major economy



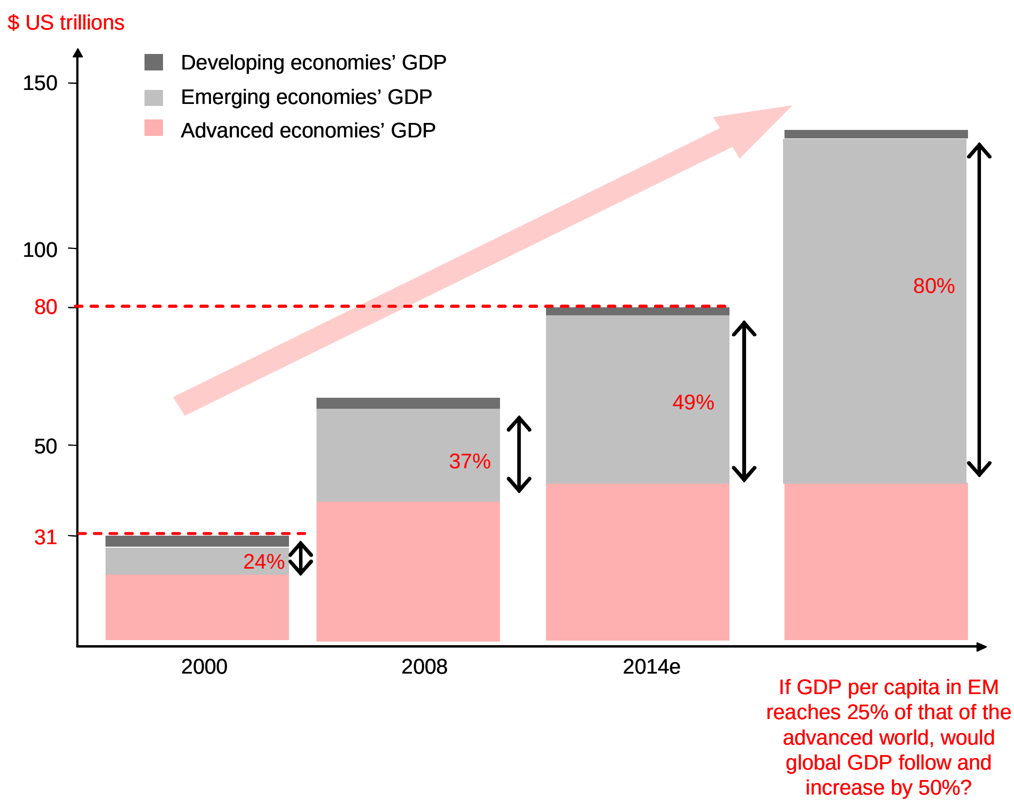
Source: SG Cross Asset Research, World Economic Outlook

The transfer of wealth from advanced economies, such as the US and Japan, to emerging economies such as China is clearly shown above. According to the IMF, the contribution of emerging markets to global GDP will increase from 24% to 50% by 2014. If we assume that emerging market GDP per capita increases to 25% of that of developed countries then global GDP, with the shift shown above in emerging markets' weight, would increase by 50%!

With changing dynamics, China and other emerging markets could represent the majority of global wealth by the second half of the next decade

One reason rates were kept low during Greenspan's tenure as chairman of the Fed is that inflationary risks were submerged by exporting countries' falling production costs. China, which based its growth model on low priced exports and a weak currency, put pressure on the US to lower production costs, pushing US wages lower due to intensifying competition. Expectations that low rates would prompt US inflation in 2003 therefore never materialised, partly because of China's supply-side deflation. In today's context however, if China revaluates the yuan, inflation could gather pace in the West. Furthermore, with demand surging (China became the single largest car consumer in 2009!), China could eventually become a net importer and push up commodity prices as we exit the recession.

GDP forecasts 2014e

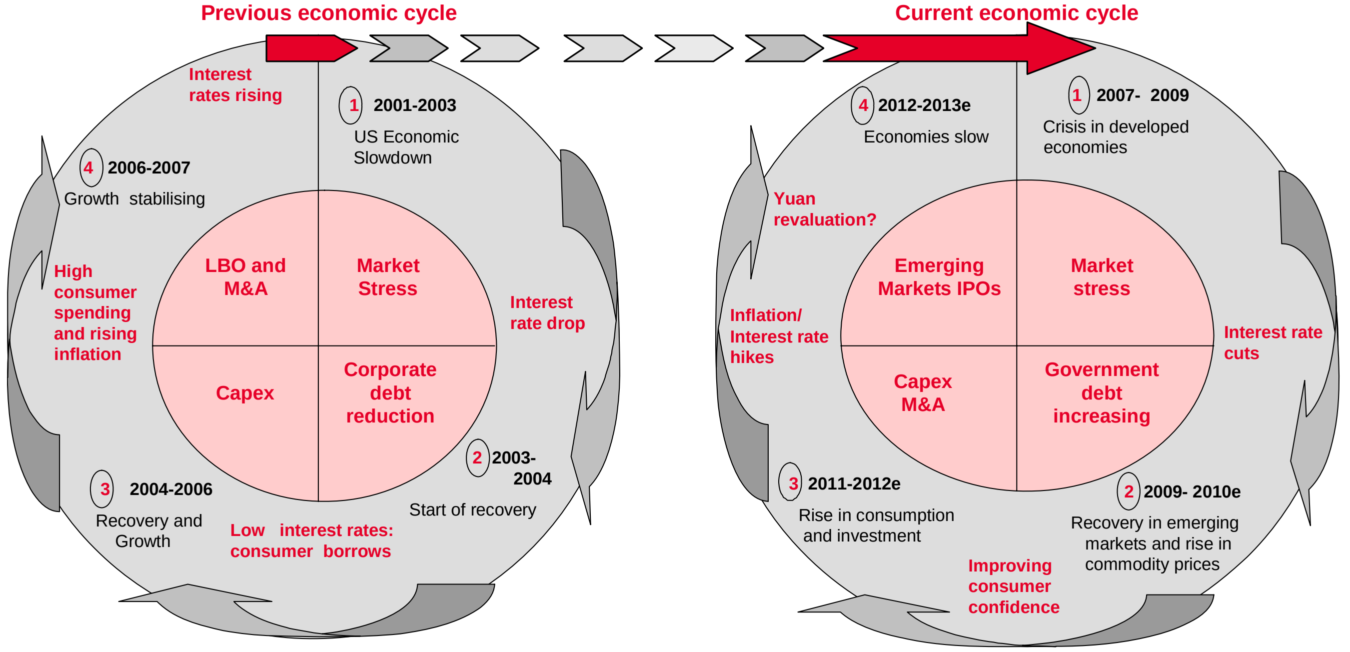


Source: SG Cross Asset Research, FMI, World Economic Outlook

Heading towards a new economic cycle

As governments in developed economies struggle to find new ways to reduce their debt, emerging markets – particularly China – are more concerned about the value of the dollar, inflation imported by high commodity prices and internal political troubles. Thus we could now enter into a new economic cycle where the economic recovery will be short lived in developed countries. The lag in advanced economies' recovery is highlighted below, and in SG's central scenario.

Previous and current economic cycle



Source: SG Cross Asset Research

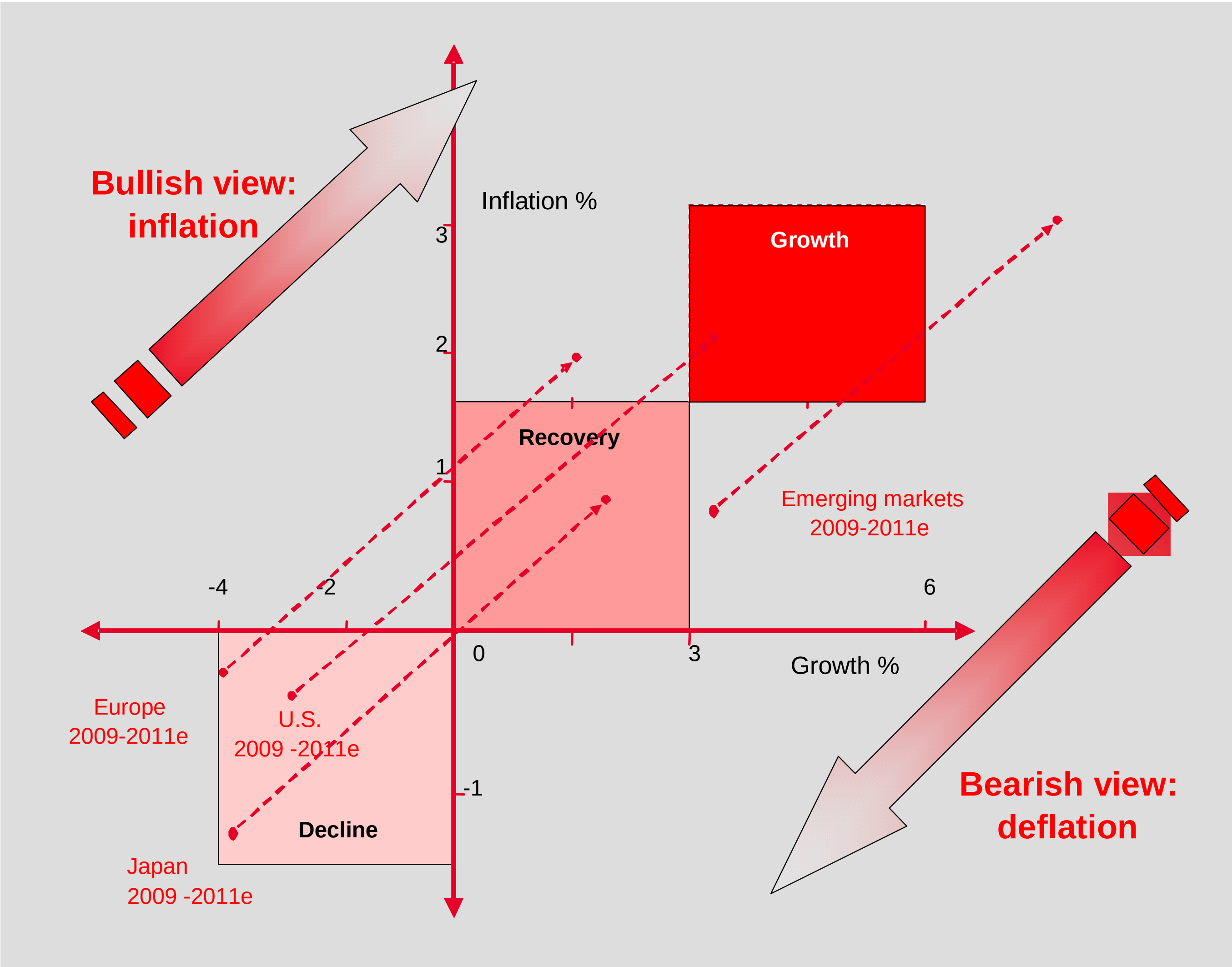
Fixing these global imbalances will take time, and eventually questions over a revaluation of the Yuan will come into play, as exports start increasing again. This could become more likely than ever as China will be paying high dollar premiums for its commodity imports.

Having discussed the fundamentals of the crisis, the current debt problem and the emergence of China as a global leader, we now consider three scenarios, and their impact on asset classes.

Three economic scenarios, one constraint: debt!

Past crises, including the explosion of the dotcom bubble, have had greater repercussions on developing economies. In this the first global recession, with, as mentioned, significant transfer of wealth towards emerging markets, it is evident that the advanced economies' economic model is flawed – and fundamental problems stemming from the lack of income parity and population demographics are preventing a consumption-led recovery. Given the debt problems the Western world is facing, we have focused our research on the different economic scenarios for the next two years and their implications for asset class allocation.

Three scenarios – Decline, recovery or growth?



Source: SG Cross Asset Research

Bear scenario

Our bear scenario suggests we would enter a deflationary spiral as high unemployment and low consumption drive prices ever lower. A second round of home foreclosures in the US would lead to further write-downs on bank balance sheets, and even more government public deficits as the debt transfers from financial institutions to the state through more rescue packages.

Under this scenario, the central banks would adopt a method such as that used by the Japanese in 1990, reducing interest rates to 0% to battle with deflation, and they would continue using unorthodox monetary policy such as quantitative easing to replace capital destruction. Avoiding depression is the focus here, though a long and arduous recession can be expected under the bear scenario. But keep in mind that more public debt will reduce room for manoeuvre, as well as being a source of future problems. In other words, the consequence, as with the other two scenarios, is high government deficits.

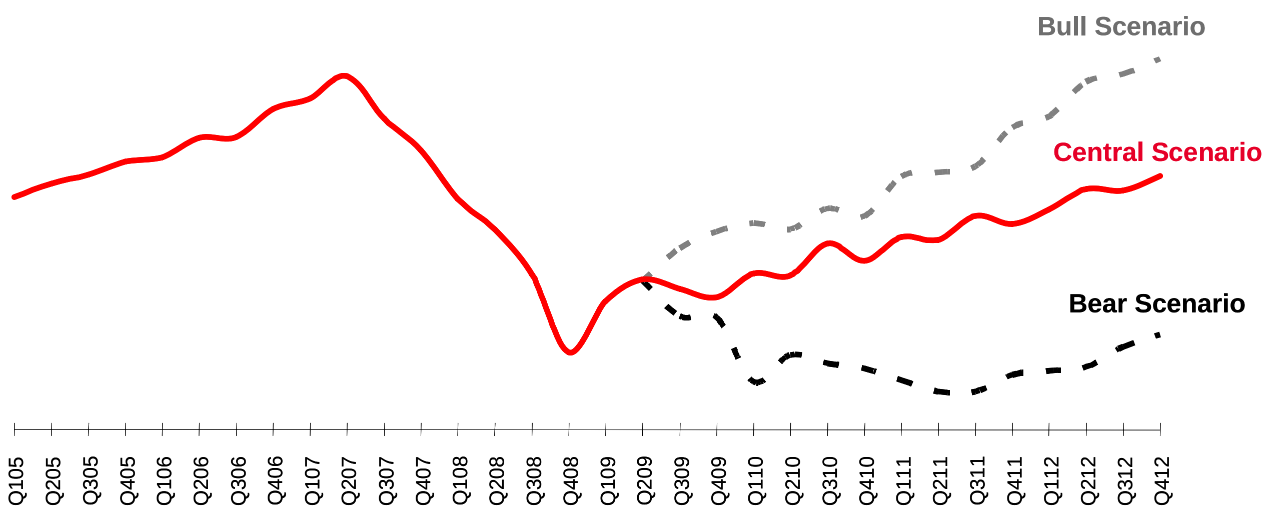
Central scenario

Our central scenario sees a stabilisation in 2009, with several corrections in financial markets as economic 'green shoots' exaggerate the good news factor from beating expectations. The current deleveraging of financials looks set to have strong and long lasting implications on macroeconomic indicators as GDP growth will likely be limited due to continued balance sheet tightening and restrictions on lending. High levels of unemployment are continuing to take a toll on consumer finances and investment sentiment. But we may see a stabilisation in unemployment figures, and further improvements could confirm that the worst is behind us. However, even as we come out of the recession, governments will be carrying excess debt rescued from financials.

Bull scenario

Under our bull scenario, we would see a rapid recovery following the rapid descent, combined with inflation as we come out of the recession. The US and emerging markets would return to growth in 2010, leaving Europe to recover shortly thereafter. The combination of growth and inflation would help reduce debt by between 5% and 10% per year. Even under our bullish scenario, debt would be hard to handle, with interest rates dictating how much debt to erase, but also the cost of servicing the debt. This is why we believe there is no easy road to recovery.

Back to growth by 2012e!



Source: SG Cross Asset Research

Bottom-up approach: worst-case debt scenario

Bear scenario

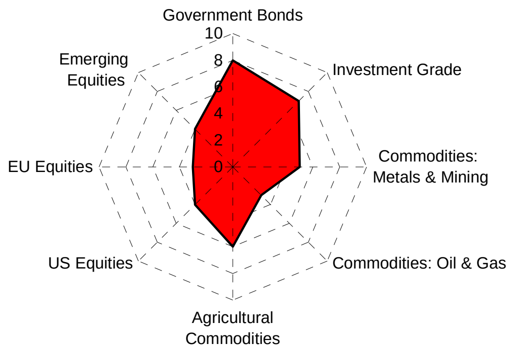
Lengthy deleveraging, and slow recovery over five years

Economic forecasts for a Bear scenario recovery

	GDP growth		Inflation		Interest rates ST		Interest rates LT		Debt/GDP	
Year	10e	11e	10e	11e	10e	11e	10e	11e	10e	11e
US	0%	0%	-1%	-1%	0%	1%	2%	2%	115%	125%
Japan	-1%	-1%	-2%	-3%	0%	0%	1%	1%	250%	270%
Eurozone	-1%	0%	-1%	-2%	0%	1%	2%	2%	110%	125%
UK	1%	1%	0%	0%	0%	1%	2%	2%	95%	105%
BRIC	3%	3%	1%	1%	4%	4%	5%	5%	60%	70%
China	5%	4%	2%	2%	5%	5%	5%	5%	40%	50%

Source: SG Economic Research

Bear scenario recommendation



Source: SG Cross Asset Research

Overview of Bear scenario

Economic growth in Emerging economies and China would be unable to offset negative GDP growth in developed economies, as their share of global demand is not large enough yet (Chinese consumers represent only 15% of global demand). The outcome would instead be determined by the capacity of the governments of developed countries to deleverage while trying to limit the negative impact that this would have on consumer demand and sentiment, these being key factors in determining the length of time needed to recover.

Household wealth would be severely affected by further declines in property and equity markets, which would negatively impact consumption; hence the strong similarity to a Japanese-style deflationary crisis.

Interest rates (long and short term) would remain low as central banks battle deflation in housing and equity markets, and as a generalized deleveraging is implemented by all economic agents. Corporates would not benefit from low interest rates as weak sales forecasts would be negative for capex spending.

Transfer of liabilities from household to state: implementation of a massive global government stimulus plan coupled with unprecedented monetary policy in order to stimulate the global economy. Furthermore, with governments having absorbed the banking system's liabilities, public debt would be at record high levels. The stimulus plan would have a limited impact given weak consumer sentiment and a lag between the implementation of the plan and the actual effect on the economy.

Implications of Bear scenario recovery for the global economy

Unemployment would reach record levels, which would contribute to a further deterioration of the economy via a drop in active population and payrolls, and hence in consumption. The latter would contribute to strong deflationary pressure.

Protectionism would put the global economy at risk as stimulus plans would have a national impact. International trade would thus not benefit from these measures, thus slowing down the recovery.

Consumption: rising unemployment, a depletion of households' wealth, and declining consumer sentiment would put a brake on consumption. Though the recovery in capital expenditure or private investment tends to lag the recovery in consumption, this would be particularly so in a household deleveraging environment. In the face of lower final demand, non-financial corporations would be highly reluctant to expand capacity. To the extent that the US housing bubble has financed a consumption bubble, it could well be the case that there is considerable excess capacity globally that will need to be eradicated as consumption returns to a new, lower, post-bubble equilibrium.

Fiscal implications: government debt having reached record high levels, an increase in fiscal pressure would be inevitable in order to finance a long and painful period of deleveraging. This would further slow down the recovery and would suggest a Japanese-style recovery for the global economy.

Fixed Income & Credit under a Bear scenario

Key recommendations

Opportunities	Short term (12M)	Long term (3Y)	Comments
Fixed Income	+	+	Sharp disappointment in growth - very supportive for government bonds
Investment Grade	=	+	Lower government yields should balance wider credit spreads
High Yield	-	-	Total returns are likely to be strongly negative in the short term, and negative in the medium term

Source: SG Credit Research, SG Rates & FX Strategy

Vincent Chaigneau
00 44 207 676 7707
vincent.chaigneau@sgcib.com

Implications of a Bear scenario on Government Bonds

Needless to say, an even sharper disappointment in growth would prove highly supportive to bonds. An ever wider output gap would make deflation fears even more likely. Our economists already expect EMU core inflation to fall to 0.8% by spring 2010 (central scenario) and possibly more in 2011. Weaker growth would imply even lower core inflation trends further down the road. This also applies to the US, where the failure to start closing the output gap in 2010 would surely push core inflation to much lower levels than in 2003 (1.2% for CPI).

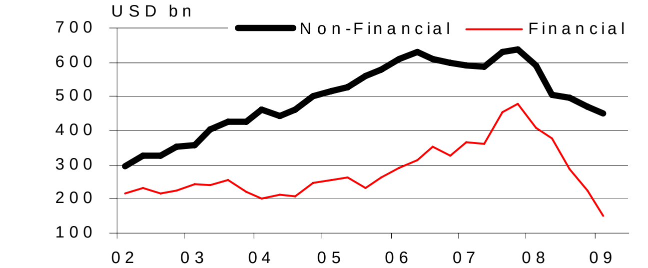
The move would likely be facilitated by an increase in the Fed's Quantitative Easing programme (i.e. the US$300bn Treasury programme would be increased). It would be harder for the ECB to embrace a pure QE policy, so expect Bunds to lag Treasuries in such a scenario. Of course, in a dire economic scenario fiscal deficits stay large, and government bond issuance reaches new records. A lot of the slippage has been financed through bills in 2009, and this cannot continue forever (excessively high rollover ratios – already around 40% in the US in 2010 – would not be prudent). So surely the failure to reduce deficits would push gross issuance to new highs? Would that inflate bond yields? Not quite.

Forecasting returns on Government Bonds in a Bear scenario

It is not hard to imagine that 10y Treasury yields could fall back to the record lows of early 2009, at close to 2%. There is very little evidence that rising government net issuance causes bond yields to increase in the developed world. The reality is that following ten years of excess leverage, global net issuance is sure to slow. This has already started to happen in the US, (left-hand chart below), although net issuance from the government has exploded. In periods of weak economic growth, private issuance sector tends to fall, while public debt issuance rises. Meanwhile, demand for government bonds would increase as the economy disappoints and mutual funds would buy more as they adjust to supply (government bonds take a bigger share of the total bond outstanding). Regulatory pressures would also force banks to hold more liquid and safe assets, and that includes government bonds.

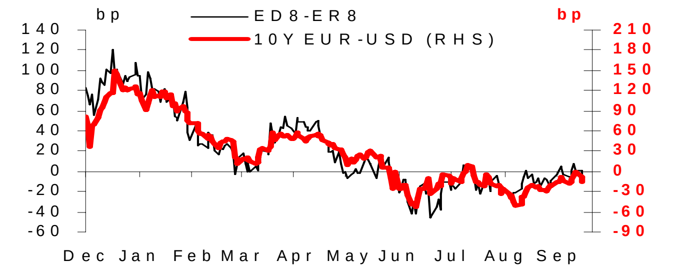
All in all, expect bond yields to go much lower in this bearish economic scenario. Ten-year JGBs fell all the way down to 0.40% in mid-2003. Even without falling to such lows, expect Treasuries to generate turbo-charged returns. A drop in 10y UST over the coming 12 months would imply total return of 15% if achieved over 12 months but +28% if achieved over the coming 6 months.

Quarterly total net debt issuance is slowing



Source: SG Rates & FX Strategy

US Corporate Credit spreads



Source: SG Rates & FX Strategy

Investment Grade Credit under a Bear scenario

Guy Stear
00 331 42 13 40 26
guy.stear@sgcib.com

Suki Mann
00 44 20 7676 7063
suki.mann@sgcib.com

Implications of a Bear scenario on Investment Grade Bonds

Credit spreads in general, and spreads of investment grade corporate bonds in particular, react to three economic factors. The first is economic growth, which affects corporate profits and, by extension, defaults. The second is corporate leverage, which determines how sensitive companies are to the first factor. The third is government bond yields, which influence demand for the extra yield provided by corporate bonds over government issues. Government yields also influence the total return on investment grade corporate bonds because the return on corporate bonds depends on the movement in government yields as well as the change in the spread. And over the past 50 years, changes in government yields have contributed twice as much to corporate bond returns as changes in credit spreads. So the drop in government bond yields under the bear scenario would certainly support investment grade bonds. Unfortunately for credit investors, under this same scenario, both economic growth and corporate leverage would be strongly negative factors for credit markets. Corporate leverage has declined, and is relatively low at present, but leverage is normally negatively correlated with economic growth. If GDP contracts in Europe by 3% over each of the next two years, then debt as a percentage of assets is likely to rise back to the peaks seen in early 2008.

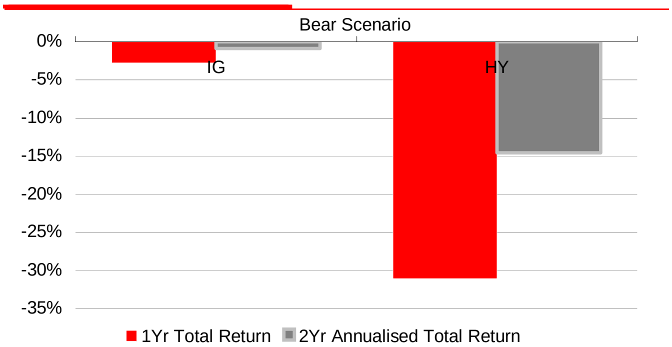
Forecasting returns on Investment Grade Bonds under a Bear scenario

We measure the relative impact of low interest rates and weak GDP growth on corporate bond spreads and returns using our econometric model. Under the bearish scenario, we would expect investment grade spreads to widen by just over 300bp. This is slightly greater than the projected decline in government bond yields, so corporate yields should rise some 70bp.

In addition to the change in yield, the total return on 10yr credit bonds will depend on the level of investment grade defaults and loss rates, the amount of bonds which transition to high yield, and the carry. Assuming investment grade defaults of 1.5% per annum (just below the absolute historic peak, in the late 1930s), transitions of 3%, a 35% recovery rate, and taking yield spread levels of 5%, the projected total return would be around -2.8% for 10yr corporate bonds over a one-year time horizon. Over a two-year time frame, however, the annual loss should shrink to less than 1%, as carry would go some way towards offsetting the capital loss.

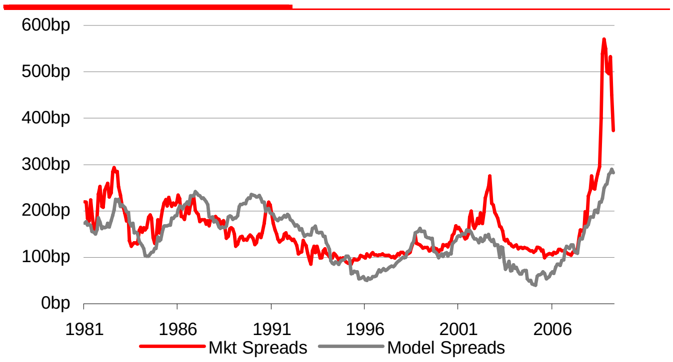
We would expect short-dated bonds to lose more money, as the spread curve should flatten under a bearish scenario so the capital loss outweighs the positive effect of carry.

IG & HY return forecast in bear scenario



Source: SG Credit Research

Model forecast spreads vs market spreads



Source: SG Credit Research

High Yield Credit under a Bear scenario

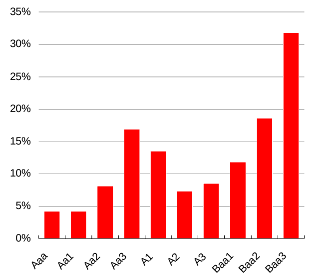
Guy Stear
00 331 42 13 40 26
guy.stear@sgcib.com

Suki Mann
00 44 20 7676 7063
suki.mann@sgcib.com

Implications of a Bear scenario on High Yield Bonds

The impact of a sharp slowdown in growth would be more devastating on the high yield market than on the investment grade market, for two reasons. First, high yield companies have lower interest rate coverage ratios than investment grade companies. They are therefore more likely to go bankrupt if a decline in GDP growth leads to a decline in corporate profits and a decline in corporate cash flow. During the 1930s in the US, for example, 12-month trailing defaults peaked at over 15%, vs a much more modest 1.6% for investment grade companies.

1-year probability of transition to HY by ratings class



Source: SG Credit Research

Second, high yield spreads are more volatile than investment grade spreads (largely because default rates are also more volatile). This means, however, that changes in government bond yields influence the yields on high yield bonds far less than investment grade yields. While changes in government yields typically dictate two-thirds of the total return on investment grade credit, they dictate less than a third of the return on high yield bonds. While the outlook for the total return on investment grade bonds is broadly neutral under a bearish scenario, the outlook for high yield bonds is clearly more negative.

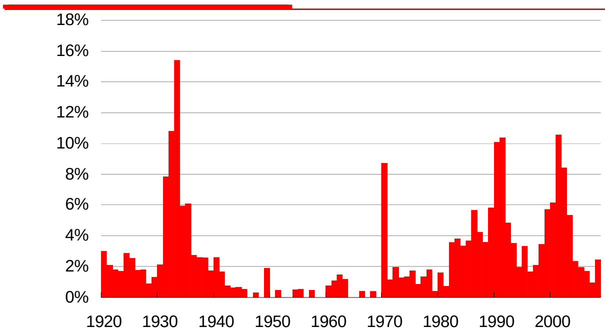
Forecasting returns on High Yield Bonds under a Bear scenario

We have adapted the econometric model used for investment grade bond forecasts to the high yield market. The model uses very similar inputs, although we do not need to worry about the risk of bonds transitioning to another sector.

When we plug in the fundamental assumptions of the bear scenario, we find that high yield spreads should widen by almost 1,200bp from current levels, to 22%, or 2% above the peak seen in mid-March 2009. This widening is clearly going to dwarf the tightening of government bond yields. But worse is to come. Under the bearish scenario, defaults could total 13% per annum over the next two years, even after rising in 2009. And the recovery rate, which does appear to be positively correlated with GDP growth, could be as low as 25%, which is below the 26% trough for junior subordinated debt in the 2001-2002 credit cycle.

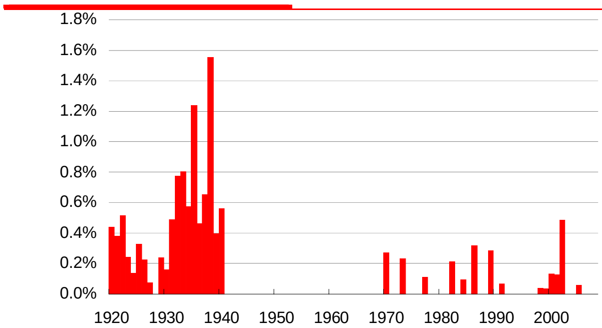
Putting these results together suggests that under the bearish scenario, high yield bonds could generate a total return of -31% in 2010, and -14.5% in 2011. Again, we would expect losses in the short end to be bigger than losses at the front of the curve, as the yield curve would flatten or even invert in a bearish economic environment.

Moody's High Yield defaults



Source: SG Credit Research, Moody's

Moody's Investment Grade defaults



Source: SG Credit Research, Moody's

Equity Strategy under a Bear scenario

Key recommendations

Opportunities	Short term (12M)	Long term (3Y)	Comments
European Equities	-	-	Very long and fragile recovery would imply high volatility on European indices
US Equities	-	=	A fall in the dollar against the euro could help US exporters
Emerging Equities	-	-	Emerging markets would count on a rapid recovery and be disappointed
Japanese Equities	-	-	Japanese companies would suffer from low export demand and high yen

Source: SG Equity Strategy Research

Claudia Panseri
00 331 58 98 53 35
claudia.panseri@sgcib.com

Charlotte Lize
00 44 20 7762 5645
charlotte.lize@sgcib.com

Implications of a Bear scenario on Equities

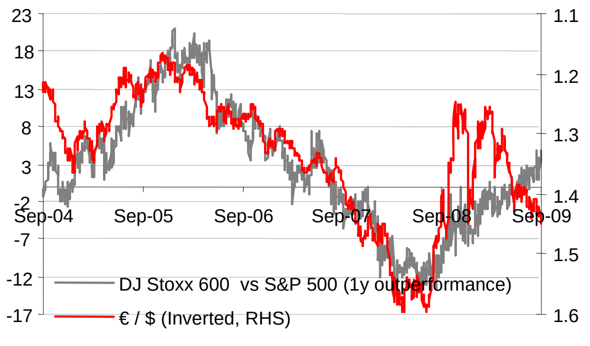
Despite positive economic signals, we should not exclude the possibility of a double bottom, as has been the case in most of the past recessions. In a context of weak consumption where the economy remains supported by government interventionism prices would come under even more pressure, creating an environment of stagdeflation.

Consumption levels could be a catalyst for this second bottom after several quarters of recovery. If positive economic signals continue to hit the headlines over the next few quarters, central banks and governments could be less supportive and start to prepare their exit strategy. However, for this exit to succeed, the private sector would have to take over from government in providing this assistance. Are consumers and companies ready for this? We believe not.

The combination of high saving rates and high unemployment rates could prevent consumption from recovering and providing needed support to the economy. Moreover, companies have seen profits increase, thanks mainly to cost savings and a pause in the destocking. However, as demand remains weak and production levels low, it should be some time before companies are ready to embark on investment and development programmes.

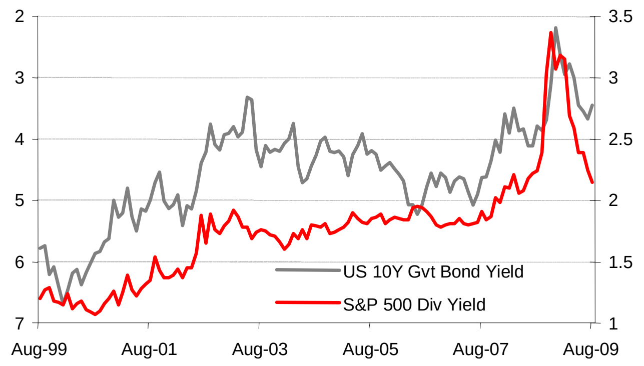
Most of the emerging economies and China in particular are built around exports to the US and Europe. It is therefore difficult to envisage a recovery in emerging markets without demand recovering in the US and Europe. Furthermore, regardless of whether the economy bottoms again, we expect the US dollar to remain weak versus the euro, which should provide some support to US exports.

Weak USD could penalised European markets



Source: SG Equity Strategy Research, Datastream

Low rates favourable for dividend yields



Source: SG Equity Strategy Research, Datastream

Forecasting returns on Equities under a Bear scenario

Under the worst-case scenarios, equity markets would experience a double bottom, as seen in the previous crisis. It would be unreasonable to expect a recovery in emerging markets without some kind of support from the developed countries and especially from the US. As the dollar would be weak under such a bear scenario, we would prefer US equities to European and Japanese equity.

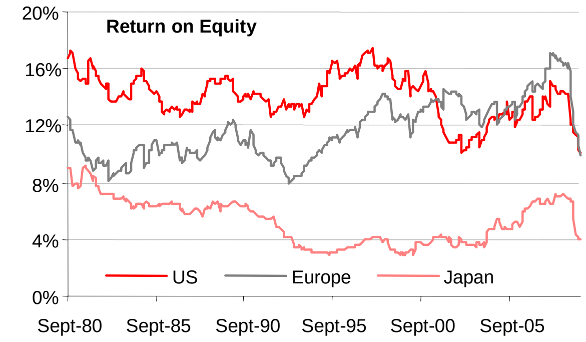
Markets across the globe have overplayed the “V-shaped recovery” scenario. Looking at Price/Earning ratios, valuation levels are now close to or above their pre-crisis levels; Japan is 9% above its January 2007 level and the US is 2.2% higher, whereas Europe is 7.0% below. Should expectations on the pace and timing recovery prove overly optimistic, disappointment would ensue, along with a sharp correction in equity markets in general.

Deflation is one of the main threats weighing on equity markets, a threat that would increase if economic signals drop again. As illustrated by the Japanese economy, periods of deflation result in a weak return on equities, with a direct correlation to Price-to-Book valuations. Consequently, if deflation fears were to materialise we could expect worldwide ROEs to remain low, while US and Europe Price to Book values could converge towards Japanese levels.

Protecting portfolios in this bearish scenario, particularly from the inherent deflationary spiral (involving further drops not only on real estate markets but particularly on equity markets), would require taking a defensive stance on portfolios by going long on defensive sectors such as utilities, food & beverages, and pharmaceuticals, which would be the least affected by the downturn, and taking short positions on cyclical sectors such as technology, auto & parts, and travel & leisure, as these would be hit the hardest.

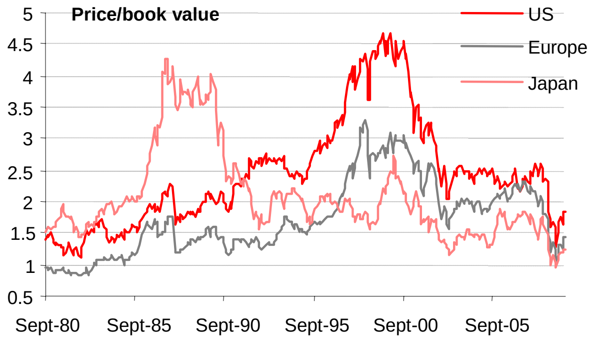
Cyclical sectors would be hit not only by a drop in equity markets but furthermore by a decline in global demand due to a decrease in consumer buying power. Thus, the most profitable strategies would involve focusing on defensives rather than cyclicals and on value stocks rather than growth stocks.

Deflation could drag ROEs further down



Source: SG Equity Strategy Research, Datastream

US and Europe to converge with Japan levels



Source: SG Equity Strategy Research, Datastream

Oil & Gas under a Bear scenario

Key recommendations

	Short term (12M)	Long term (2Y)	Comments
Oil	-	-	Short-term demand would fall and OPEC spare capacity would increase, pushing down **WTI** to $50 per barrel
Gas	=	-	High volatility put aside, Nat Gas prices would have room to increase **slightly in 2010, before plummeting in 2011**

Source: SG Commodities Research

Michael Wittner
00 44 207 762 5725
michael.wittner@sgcib.com

Laurent Key
00 1 212 278 5736
laurent.key@sgcib.com

Implications of a Bear scenario on Oil & Gas and forecast returns

Oil fundamentals would become significantly more bearish. In line with the economy, global demand would continue to contract in 2010 and 2011. On the other side of the equation, weaker crude prices would lead to a reduction in upstream investment in both non-OPEC and OPEC oil fields. This would result in lower non-OPEC supply and OPEC capacity. However, the cut in OPEC output to match reduced demand would outweigh the decrease in capacity. The net result would be higher OPEC spare capacity in 2010 vs. 2009. In 2010 and 2011, spare capacity would be much higher under the bear scenario than under the central case, and prices much lower.

Non-fundamentals are neutral/moderately bearish. Investment flows are somewhat weaker, due to high levels of risk aversion, which is bearish for oil. On the other hand, higher OECD debt levels could push up long-term inflation expectations, which would be bullish for oil.

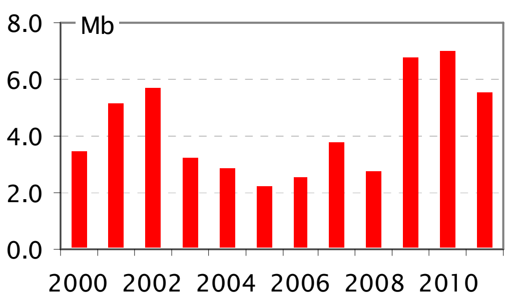
Bear scenario WTI price forecast: $61/bbl in 2009, $50/bbl in 2010, $60/bbl in 2011.

A further contraction of the US economy for 2010 and 2011 would result in two more years of a natural gas supply glut. The current issue with US NG production – i.e. steady output despite low prices – would still be present due to: a) decreasing marginal production costs; b) the current high medium- and long-term prices along the curve, allowing producers to hedge 2010 and 2011 output against a bear scenario.

US natural gas demand would fall on average over 2010-2011 by 1 bcf/d vs 2009 levels - which were already down 0.5bcf/d versus 2008: due to crisis-related belt-tightening, next heating season's demand should remain in line with the 2009 level even though the coming winter is expected to be colder than normal. Industrial demand, getting better by end-2009, would stay below pre-crisis levels, coming back to 2009 levels during the dip of 2011.

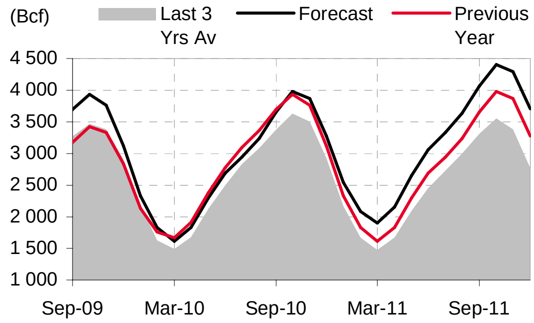
Bear scenario NG price forecast: $3.8/MMBtu in 2009, $4.1/MMBtu in 2010, $2.3/MMBtu in 2011

OPEC Crude spare capacity



Source: I EA, SG Commodities Research

2009, 2010 and 2011NG inventory forecasts



EIA, BentekEnergy, LLC, SG Commodities Research

Metals & Mining under a Bear scenario

Key recommendations

	Short term (12M)	Long term (2Y)	Comments
Gold	+	+	Should outperform commodity benchmark as gold would be sought out as a hedge against dollar risk
Copper	=	-	Slower demand from China, due to high build up of inventory
Aluminium	=	+	High supply could weigh on short-term prices, although Aluminium prices could also benefit from a weakening dollar
Nickel	=	+	Weak demand would push prices down, but plant closures would provide support in the longer run
Lead	+	=	Limited mine supply would provide some room for prices to increase

Source: SG Commodities Research

David Wilson
00 44 207 762 5384
david.wilson@sgcib.com

Implications of a Bear scenario on Metals & Mining and forecast returns

Gold: under the bear scenario, the markets would remain nervous about fiscal imbalances and the timing, or effectiveness of exit strategies, raising fears of stagflation. This would point to sustained investment in gold, although perhaps not enough to push long-term prices higher given weak fundamental demand. On a relative basis, gold would be expected to outperform, being a hedge against dollar risk.

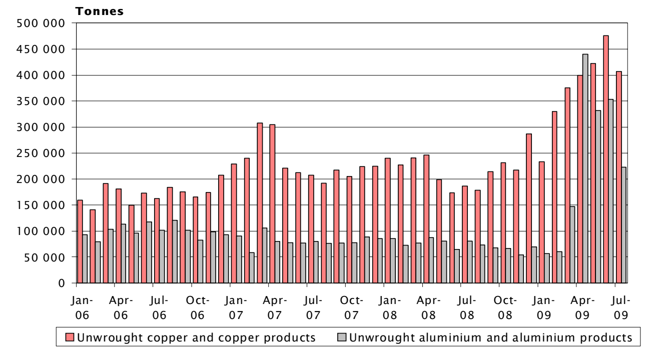
Copper: monthly Chinese copper imports continue to slow dramatically after July 2009 peak, as consumption is met from inventory built in H1. As a result of slower Chinese demand growth, and lack of a pick up in US/European/Japanese consumption, LME inventories would build up significantly, effectively weighing on prices through 2010. However, we would not expect a return to the last lows of 2008, as investors look to base metals and copper in particular as an effective dollar hedge.

Aluminium: LME stock levels continue to surge as Chinese smelters restart and are already at record highs of close to 4.5 million tonnes, continue to grow going forward. With a dramatic level of oversupply expected, price pressure is expected to force production cutbacks at European- and North American-based smelters. As with copper, a revisit of low levels seen in Q1 2009 would not be expected as dollar hedging investment flows would provide some support.

Nickel: a restocking driven pick-in stainless steel production would slow as underlying demand would remain weak. Further LME stock builds would be expected as stainless producers scale back production. Further project delays and closures at high-cost ferronickel plants would be expected to give the market a floor at $14,000/t.

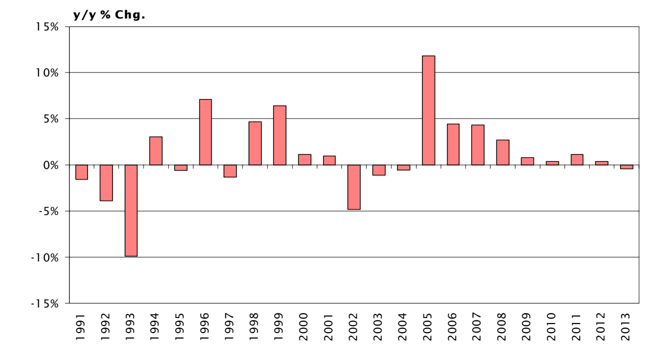
Lead/Zinc: lead consumption would be driven by counter cyclical demand for replacement lead acid batteries, while the limited mine supply outlook would also be expected to be supportive. Chinese zinc smelter restarts would push the zinc market further into surplus, with construction sector demand expected to remain subdued.

Chinese Copper/Aluminium imports



Source: SG Commodities Research

Lead mine supply growth



Source: SG Commodities Research

Agricultural commodities under a Bear scenario

Key recommendations

Opportunities	Short term (12M)	Long term (3Y)	Comments
Grains	=	=	A drop in demand for meat would reduce demand for feed grain (50% of global production)
Sugar	+	+	Although prices are high, there is still room for an increase, due to low supply and steady LT growth drivers
Softs (Cocoa/Coffee)	+	=	Cocoa is well equipped to perform strongly, but a drop in buying power would affect demand in the LT
Livestock	-	=	New demand in emerging markets set to fade under a bear scenario

Source: SG Commodities Research

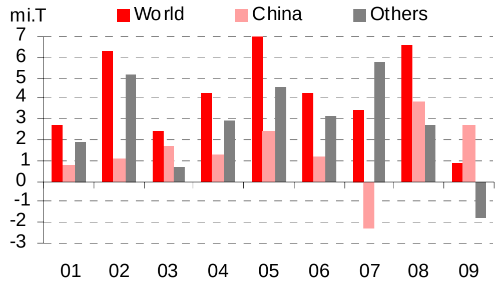
Emmanuel Jayet
00 33 1 42 13 57 03
emmanuel.jayel@sgcib.com

Implications of a Bear scenario on Agricultural commodities

Grains (corn, wheat, soybean): under this scenario, consumer demand for human food would continue to grow, but at less than its already low average rate, while industrial demand (for sweetener syrup, starch, etc.) would be flat at best. The biggest impact of the bear scenario would be on demand for meat: against a backdrop of continuing recession and mounting unemployment, consumers would cut down significantly on purchases of this relatively expensive food item. Meat consumption might continue to grow in some BRIC countries – particularly in China – but more slowly than before, due to subdued economic growth. And increases in China would no longer offset decreases elsewhere, resulting in a drop in global consumption of meat. This would have a significant impact on global grain demand, as around half of world grain production is used as feed and because of the conversion factor (2 to 5+ kilogrammes of grains are required to produce 1kg of meat). In this case, supply constraints would ease considerably until 2011.

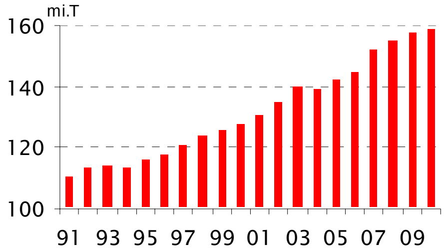
Sugar: growth in sugar consumption has been slow but steady for many years and should not suffer too much in a bear scenario. Sugar might even benefit from the weakening competitiveness of certain artificial sweeteners. And there should not be too much of a challenge from grain syrup, despite the likely drop in corn prices, because of structural trends in consumer preferences. On the supply side, with the next Indian season hit by the bad start to the monsoon and not enough Brazilian production to fill the gap, the coming season will almost certainly see another year of deficit. Longer term, Indian production might recover but the country seems to find it increasingly difficult to meet its growing domestic needs. And although Brazil has the potential to increase production, an ongoing recession would mean a lack of financing for the construction of new mills. So production growth in Brazil would be hampered by the economic climate and its impact on the availability of financing for new sugar projects. Tight fundamentals would therefore continue.

China drives annual increases in meat production



Source: USDA, SG Commodities Research

World sugar consumption since 1991



Source: USDA, SG Commodities Research

Softs (cocoa, coffee): Demand for cocoa and coffee would clearly be affected in a bear scenario. These two markets have recently seen dynamic growth, mostly driven by emerging markets where consumption of coffee and chocolate consumption is neither traditional nor widespread – for example in Eastern Europe, Russia, Asia and Brazil. A continuing recession and decreasing consumer purchasing power might eventually lead these consumers to give up their new-found habits, which could then take some time to reacquire. The recession would not particularly affect supply, and future production would still be mostly driven by natural cycles and weather, but the overall picture would be one of more than sufficient supply.

Livestock (cattle and hogs): consumer demand for meat would suffer further if the recession were to continue. Barring the potential impact of the swine flu outbreak, demand for beef would drop more than that for pork, as beef is the most expensive type of meat. However, in both cases production could decrease accordingly, although with the traditional significant time lag, which means that a period of oversupply would eventually shift to a more balanced market.

Forecasting returns on Agricultural commodities under a Bear scenario

Within the agricultural complex, sugar seems to be the best placed to weather a lasting period of weak consumer demand. Sugar prices have already soared and are now at record levels, a situation which clearly does not provide the best entry point for investment. However, given the current outlook, sugar prices still have room to increase further. Cocoa is also relatively well-equipped to perform fairly strongly in the coming year, with cocoa prices expected to continue in their current range over the next few months.

All other agricultural markets would suffer from confirmation that the global recession is here to stay. Grains in particular could return to their pre-surge levels, down by as much as 50% from their current levels, if demand for animal feed continued to weaken.

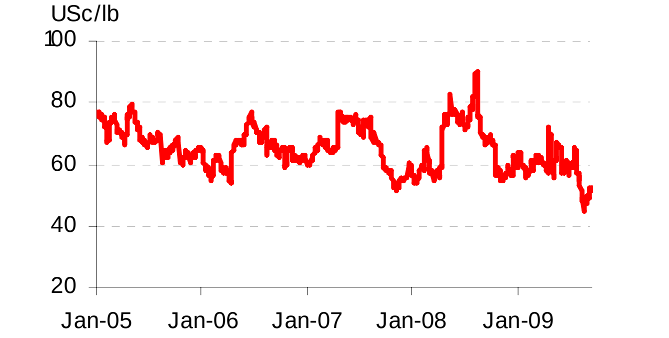
Over the long period, sugar is still well-placed over a longer timeframe, as enough new sugar mills could not be built in Brazil in the next three years if financing remains tight over the next two. Livestock prices may rebound towards the end of the three-year period, as production would by then have had time to adapt to weak demand and the economic background would have begun to improve.

All other agricultural markets would still suffer to some extent from heavy supplies at the end of the period.

Sugar prices already at record highs on strong fundamentals (Nybot, 1st nearby)

Source: Reuters, SG Commodities Research

Lean hog prices (CME, 1st nearby)



Source: Reuters, SG Commodities Research

Appendix
Bottom-up approach: central and bull scenarios

Central scenario

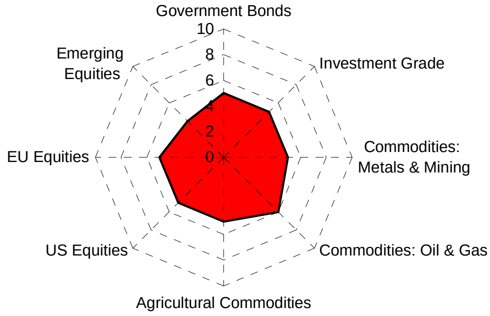
Back to potential economic growth in three years

Economic forecasts for our central scenario recovery

	GDP Growth		Inflation		Interest rates ST		Interest rates LT		Debt level/GDP	
Year	10e	11e	10e	11e	10e	11e	10e	11e	10e	11e
US	2.3%	3%	1.8%	2.0%	0.3%	1.5%	4.5%	5.0%	98%	100%
Japan	1.3%	1.5%	-0.3%	1.5%	0.1%	1.0%	2.0%	3.0%	229%	232%
Eurozone	0.5%	1.5%	1.2%	2.0%	1.0%	1.5%	4.0%	5.0%	100%	105%
UK	1.3%	1.7%	1.4%	2.5%	0.6%	2.0%	4.4%	5.5%	65%	74%
BRIC	6.7%	6.2%	3.3%	3.9%	5.5%	7.0%	6.0%	8.0%	38%	38%
China	9.5%	8.5%	0.8%	2.0%	3.0%	5.0%	8.0%	9.0%	22%	21%

Source: SG Economic Research

Central scenario recommendation



Overview of central scenario

Economic growth Growth would be moderate, as the effect of the past crisis has durable implications, such as a lengthy deleveraging process for households which puts downward pressure on consumption. Our scenario assumes a slow and lengthy recovery process for the global economy, but a relatively early recovery for the US due to the scale of the stimulus plan and rapid government action; however, we expect a slower recovery for the European economies and strong growth for emerging markets due to low debt and social liabilities.

Interest rates Long- and short-term interest rates would stay low in the absence of a credible alternative to stimulate the economy, regardless of high debt levels.

Household wealth Real estate and equity prices would recoup some of their losses but would broadly remain flat due to excess housing inventory for the former, and weak corporate earnings for the latter. Thus household wealth would not return to previous levels and would contribute to deleveraging by households in 2012/13 to compensate for capital depletion.

Transfer of liabilities An increase in debt to GDP ratios during the crisis to compensate for decrease in household consumption; governments would have limited room for manoeuvring to counter the effect of a lengthy period of deleveraging.

Implications of our central scenario recovery for the global economy

Unemployment, lower income growth and slow improvement in consumer sentiment coupled with high saving rates would prevent any surge in employment levels. Given that the recovery in capital expenditure and private investment lags the recovery in consumption, especially in a household deleveraging environment, unemployment would hit peak in 2010.

Consumption Slow improvement in consumer sentiment and moderate job creation would lead to an increase in consumption, thus the economy would come back to slow growth in 2010.

Business cycle & international trade Moderate economic growth would imply fewer corporate defaults than during the worst of the crisis. But weak consumption and high unemployment due to the effects of the past crisis would lead to a flat and lacklustre business cycle.

Fiscal implications Governments would have to increase taxes to finance the increase in debt to GDP ratios. When combined with consumer deleveraging, this would slow down economic recovery and the resolution of governments' medium- long-term structural problems.

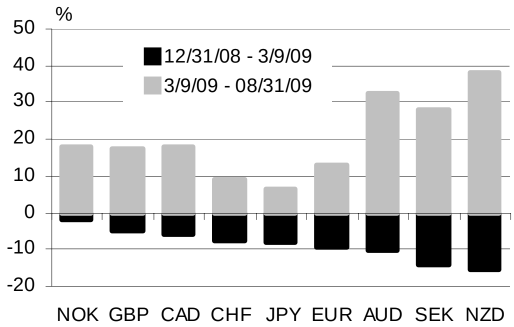
Currencies - Protracted dollar weakness

Key recommendations

Opportunities	Short term	Long term	Comments
Dollar	=	-	Imbalanced funding of deficit and fading dominance imply MT $ weakness
Euro	-	+	EUR/USD could see profit-taking in late 2009, but would rally to 1.50-1.60 in 2010
Sterling	-	+	GBP attractive from a long-term valuation basis, but still at risk in 2009
Emerging	=	+	EMFX greatly dependant on risk appetite for now, but has value longer term

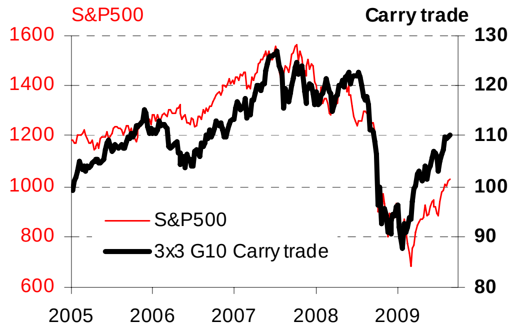
Source: SG Rates & FX Strategy

Dollar highly sensitive to risk appetite



Source: SG Rates & FX Strategy

3x3 G10 carry trade



Source: SG Rates & FX Strategy

Vincent Chaigneau
00 44 207 676 7707
vincent.chaigneau@sgcib.com

Past implications of risk appetite on Currencies

The risk rally and the easing of the funding crisis have depressed the dollar index from 89 on March 9 (lows in equities) to 76.30 currently. The dollar had previously rallied from a low of 72 in mid-2008. Why the dollar rally during the crisis? Three forces were at play:

- **Race to the bottom**: many central banks cut rates dramatically in H2 2008, catching up with earlier Fed easing.
- **Flight-to-quality:** in periods of risk aversion, repatriations from EM markets towards the US tend to support the dollar.
- **Funding crisis**: we documented this factor extensively at the turn of 2008-2009. The liquidity crisis was particularly acute in USD, given that European banks, in particular, had problems financing their heavy holdings in US assets (e.g. MBS). The scarcity effect led to a richening of the USD in FX space as banks and investors were willing to protect their dollar liquidity. To support this we noted a strong correlation between the basis swap dynamics and EUR/USD.

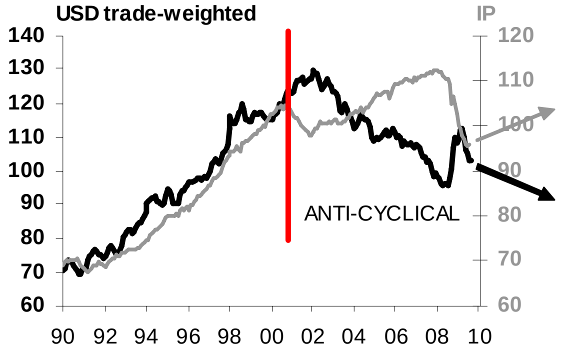
Those factors have vanished over the past few months, leading to a bearish reversal of the USD (left-hand chart). Meanwhile, the rise in the appetite for risk since March has led to a revival of the famous carry trade (borrowing in low-yield currencies whilst investing in high-yield currencies). To a large extent the FX forecasts depend on the risk environment. The bearish economic scenario would depress risk assets, helping the dollar to recover. A strong recovery would leave the dollar ever weaker, unless the US economy outperforms in the process, leading to a quicker and bolder reversal of the US rate policy (unlikely in our view).

Forecasting returns of our Central scenario on Currencies

We assume a small dollar recovery into late 2009 if the profit taking emerges on the risk rally. Going forward, however, the central scenario implies a further weakening of the US dollar. As the left-hand chart below shows, the dollar has been counter cyclical since 2001. Assuming that this trend is maintained for now, a shallow but progressive recovery would push it lower. Importantly, the funding of the US trade deficit appears increasingly difficult (right-hand chart).

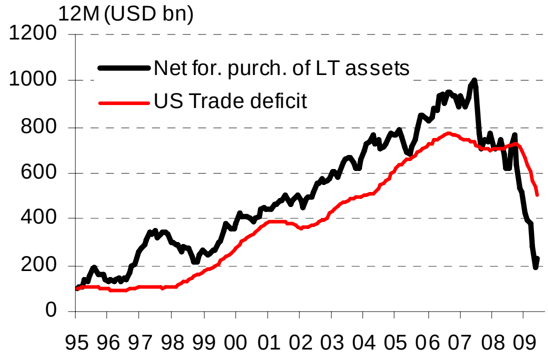
Foreign purchases of long-term assets have dropped far quicker than the trade deficit. Worse, whilst the purchases of corporate bonds, agency bonds and equities have collapsed, Treasury purchases have been resilient. Historically, such bias towards funding through Treasuries has proved negative for the dollar. We expect EUR/USD to rise towards 1.50 in 12 months, with the risk being clearly skewed to the upside in our central scenario.

The US dollar has been counter-cyclical since 2001



Source: SG Rates & FX Strategy

Net foreign purchases of US long-term assets have dropped more rapidly than the trade deficit



Source: SG Rates & FX Strategy

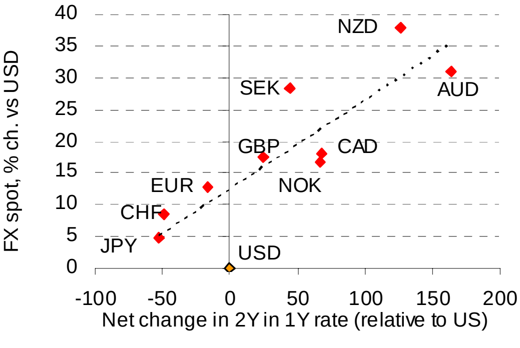
The FX forecasts advertised below assume a decent appetite for risk in 2010, in line with the central scenario. Beyond the risk factor, a number of factors affect the forecasting process. Typically, the right-hand chart below indicates that rates have continued to be an important driver of currency performance over the past few months. On that basis the outlook is brighter for AUD and NOK (where rates hikes are more likely) than GBP or NZD. We also use SG commodity forecasts as inputs in the FX forecasting process. The one-year prediction also depends on our EER estimates (Equilibrium Exchange Rates), which for instance indicate that the yen and NZD are the most overvalued currencies within G10.

SG forecasts

	31-Aug.	Dec.	Mar.	June	Sept.
USD/JPY	94	92	95	100	110
EUR/USD	1.43	1.38	1.42	1.45	1.5
EUR/GBP	0.878	0.9	0.89	0.87	0.85
EUR/CHF	1.52	1.51	1.53	1.55	1.58
EUR/NOK	8.64	9.00	8.80	8.60	8.30
EUR/SEK	10.15	11	10.7	10.3	10
USD/CAD	1.092	1.15	1.12	1.08	1.05
AUD/USD	0.832	0.75	0.78	0.82	0.88
NZD/USD	0.684	0.6	0.62	0.64	0.67

Source: SG Rates & FX Strategy

Change in forward rates – a key driver of currency performance since 9 March



Source: SG Rates & FX Strategy

Fixed Income & Credit under a Central scenario

Key recommendations

Opportunities	Short term	Long term	Comments
Fixed Income	+	=	10yr Treasuries should deliver a 13% total return over the next six months
Investment Grade	+	+	Carry should prove decisive over the forecast period, given slightly higher than average default levels
High Yield	+	+	While defaults may remain above historic averages, carry should be enough to offset this

Source: SG Credit Research, SG Rates & FX Strategy

Vincent Chaigneau
00 44 207 676 7707
vincent.chaigneau@sgcib.com

Implications of a Central scenario on Government Bonds

We are often asked about the ‘surprising’ resilience of government bonds in summer 2009. This tells us something about 2010, in our view:

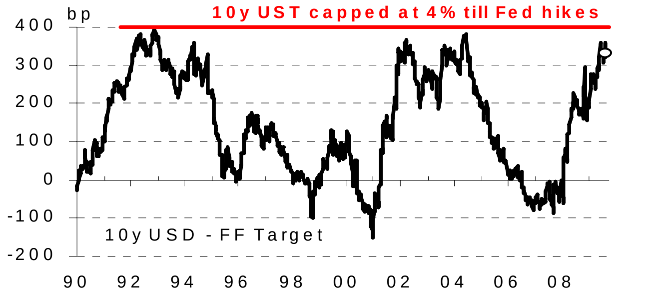
Economic slack: concerns about the sustainability of the recovery are unlikely to vanish anytime soon. In our central scenario, the recovery proves shallow. In that context, the global output gap would not close rapidly. Global economic slack still poses a deflation threat, which - although it is not the central scenario – needs to be computed in risk-based fair value analysis. US and EMU core inflation rates have dropped below 1.5% and are still falling.

Carry does matter: 10y Treasury yields briefly hit 4% in spring 2009, the Fed funds – 10y UST slope was approaching the highest levels ever recorded over the past 20 years (left-hand chart below). Investors effectively get much higher returns in long bonds than in money markets, and outflows from money market funds were a key factor behind the simultaneous rally in bonds and equities over summer 2009. In EUR too, riding along the yield curve generates unprecedented carry (right-hand chart below).

Forecasting returns on Government Bonds under a Central scenario

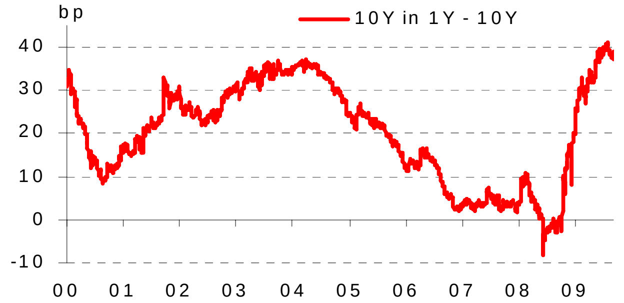
We still expect 10y bond yields to trade below their forwards in 12-months’ time. The expected returns are much stronger over the 6-month horizon: if 10y Treasuries fall to 2.85% as we expect 10y Treasuries to deliver an annualised return of 13% over the period. We would expect Treasuries, and to a lesser extent Gilts, to outperform Bunds (and JGBs) over that period. The forward 3-month curves are slightly steeper, which gives a larger potential for a more dovish re-pricing. The 10y Note-Bund spread has also been very directional over the past six months, i.e. Treasury yields fall quicker in a rally. Our forecasts still imply a 10% annualised total return in 10y Bund over the next 6 months. We expect 10y Treasuries to be trading below 3% by spring 2010. Looking beyond this, bond yields should rise slowly, as hopes about a slow but sustained recovery get stronger.

10y Treasury yields already very high



Source: SG Rates & FX Strategy

Fantastic carry along the EUR curve



Source: SG Rates & FX Strategy

Investment Grade Credit under a Central scenario

Guy Stear
00 331 42 13 40 26
guy.stear@sgcib.com

Suki Mann
00 44 20 7676 7063
suki.mann@sgcib.com

Implications of a Central scenario on Investment Grade Bonds

In some important ways, the central scenario is a very attractive one for the investment grade credit markets. A relatively slow economic recovery should be accompanied by a higher than normal level of defaults. But defaults are normally minimal in the investment grade credit world, and both the mode and median of investment grade defaults over the past eighty years has been zero.

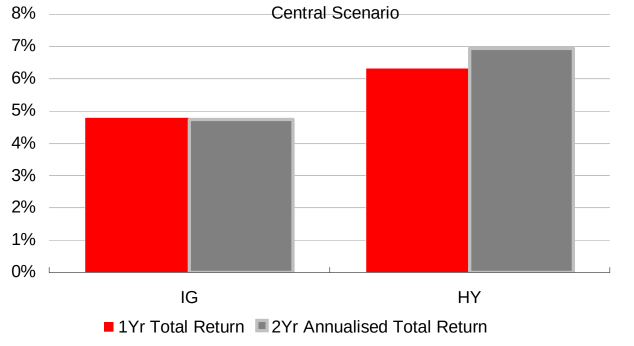
As noted earlier, the recovery rate on investment grade credits is marginally cyclical, but under a slow growth/low inflation central scenario, we think the recovery rate will tend to be close to the 40% historically experienced.

Demand for credit should be sustained under this scenario. While the required yield levels of insurance companies will drop under a period of low interest rates, pension funds may well continue to aim for annual returns of 5-7%, well above the 3-4.5% yield range targeted under this scenario. On balance, then, even if the gadarene spread tightening seen over the summer of 2009 slows, this scenario should be a positive one for investment grade credit.

Forecasting returns on Investment Grade Bonds under a Central scenario

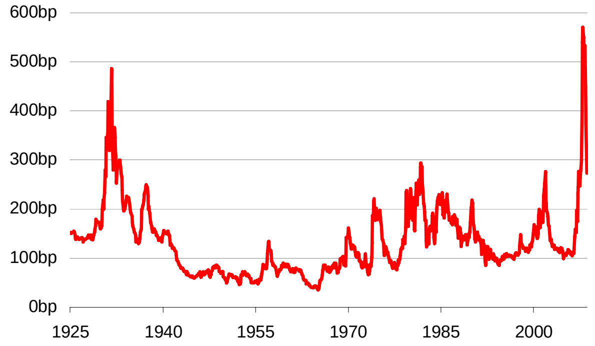
Under this scenario, we would expect defaults to stay around 1.0% per annum. While this is well above the 0.17% long-term average, growth is also expected to be below the long-term average under this scenario for at least the next two years. Importantly, the transition rate to high yield should also be a reasonably high 1.4%, slightly above the thirty-year average for the investment grade sector. As we note later on, we expect high yield defaults to also be fairly high under this scenario, so the high transition rate would contribute to the overall loss from defaults, which we put at 70bp. As noted above, we expect spreads to narrow slightly under this scenario; we expect government bond yields to rise marginally, and the two effects would largely cancel one another out. Carry then becomes the critical determinant of performance, and should be enough to generate returns of more than 4.5% over both the one- and two-year time horizons.

IG & HY return forecast in bull scenario



Source: SG Credit Research

US Corporate Credit spreads



Source: SG Credit Research

High Yield Credit under a Central scenario

Guy Stear
00 331 42 13 40 26
guy.stear@sgcib.com

Suki Mann
00 44 20 7676 7063
suki.mann@sgcib.com

Implications of a Central scenario on High Yield Bonds

A relatively weak level of GDP growth over the medium term is likely to have two deleterious effects on high yield bonds. First, it is likely to keep default levels relatively high. Although defaults are unlikely to hover around the 10% annual rates seen in the last three economic crises, they could end up hovering on a relatively high plateau, somewhere above the 4% average levels seen during the mid 1990s.

We also suspect that recovery rates could turn out to be rather low under this economic scenario. Admittedly, there is much less industry concentration than there was at the turn of the century, and this means it should be easier to find buyers of assets from bankrupt companies, since not all companies will be selling the same types of assets to buyers spoilt for choice. Still, we think it makes sense to posit a recovery rate in the bottom half of the 25%-45% range seen over the past two economic cycles.

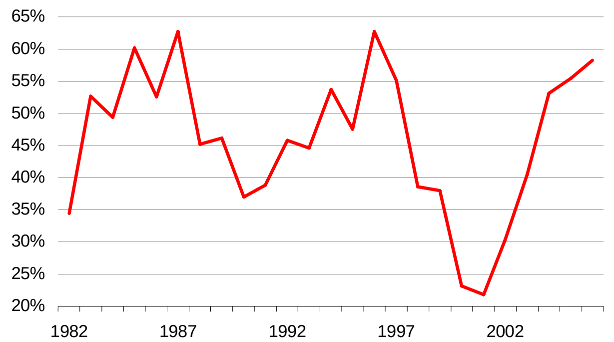
This in turn suggests that high yield spreads should not recover to anywhere near the trough levels seen in 2007. Even with relatively low government bond yields, and an increasingly confirmed European investor base for high yield, we find it difficult to see spreads moving decisively below the 10% level under the central scenario. Uncertainty about whether low growth could become no growth – with a concomitant increase in default rates – should be enough to keep high yield spreads in the top half of their traditional trading range.

Forecasting returns of High Yield Bonds under a Central scenario

If we assume a 6% speculative grade default probability over the investment time horizon, and posit a recovery rate of 30%, then the expected loss from defaults under this scenario will be 4%. On balance, we think it is unlikely that spreads will move significantly from the current 1000bp under this scenario, though of course they will trade in a range around this point. With government yields seen rising by slightly over a quarter of a percentage point, this will leave high yield bond yields marginally above current levels over the next two years.

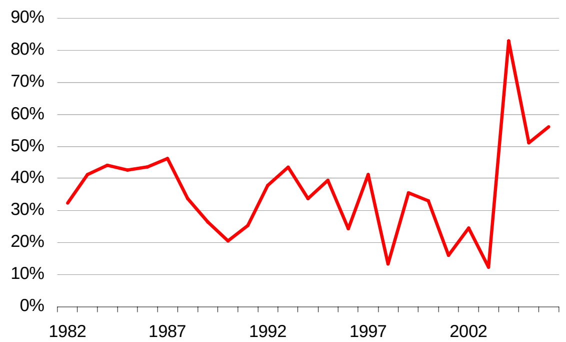
So carry will again we decisive under this scenario. Current spreads are still wide, and wide enough to offset even a relatively historically high level of defaults. Under this scenario, we expect high yield bonds to yield slightly more than 6% over a one-year time horizon, and an annualised return of almost 7% over a two-year period.

Recovery rate on senior unsecured bonds



Source: SG Credit Research

Recovery rates on subordinate bonds



Source: SG Credit Research

Equity Strategy under a Central scenario

Key recommendations

Opportunities	Short term	Long term	Comments
European Equities	+	=	Close to our September index targets
US Equities	+	=	Uncertainties on consumption put US index recovery at risk
Emerging Equities	=	+	Emerging still positive over the long run
Japanese Equities	+	+	May benefit from export recovery

Source: SG Equity Strategy Research

Claudia Panseri
00 331 58 98 53 35
claudia.panseri@sgcib.com

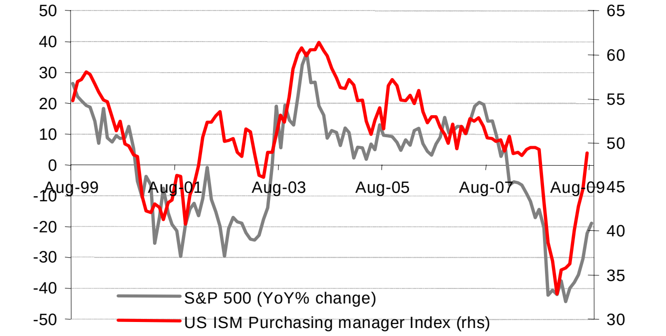
Charlotte Lize
00 44 20 7762 5645
charlotte.lize@sgcib.com

Implications of a Central scenario on Equities

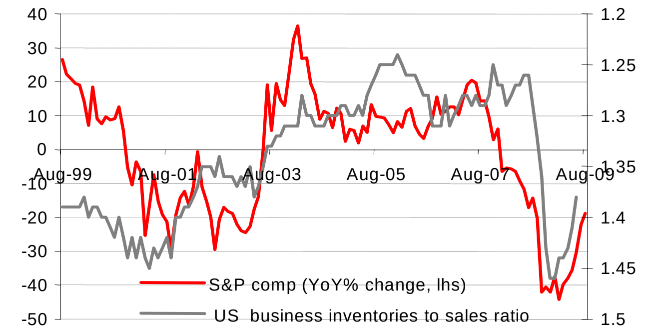
Despite macro economic indicators being back in more optimistic territory, we continue to see the current "V-shaped recovery" expectations as at risk and believe economies could have to deal over the next couple of years with anaemic growth rates. Few features of today's environment lend support to this "U-shaped scenario". Recovery will be possible only with the support of the private sector, and in other words, industry and consumption. However, we believe it will take some time before seeing a sustainable improvement of both indicators. After two quarters (Q3 & Q4 08) of massive production cuts, some restocking has been observed over H1 09. It has contributed to artificially boost economic activity, giving a strong source of support to companies' Q1 & Q2 earnings. However, we believe this could be short-lived, especially considering the threats that are still weighing on the demand momentum. Despite positive signals from the macro front, the employment levels remain very low and no improvement is to be expected for at least another two years. Making the situation worse is the current deleveraging observed both among companies and households. With depressed employment data and high saving rates, there seems no prospect of any strong recovery in demand in the medium term and this should cap growth momentum.

However, this time, the nature of the crisis and the monetary response by central banks are very different than in the previous recessions, and long-term interest rates should therefore remain low for a while. At the last FOMC meeting, the Federal Reserve started to prepare investors for an end to its housing-debt purchases, while keeping interest rates near zero, reflecting an economy pulling out of a recession with little momentum. FOMC members discussed extending the end date of the agency and mortgage-backed bond programmes. The move would be aimed at avoiding disruptions in housing credit at a time when recovery prospects are clouded by rising unemployment and slowing wage gains. Central bankers paid "particular" concern to the job market, signalling that the FOMC may need to see a peak in the unemployment rate before it begins withdrawing monetary stimulus. In this context, even if we do not expect any material change in governments' strategies in the near term, we believe that positive economic signals could lead to expectations of a change in monetary policies.

Demand recovery will be key for markets



Restocking artificially boosted consumption



Source: SG Equity Strategy Research

Forecasting returns on Equities under a Central scenario

SG Global Equity Index targets

Index	Current	Dec-09	Mar-2010	June-2010	Sept-2010e
Dow Jones	9344	8800	9800	11000	9900
S&P 500	1003	950	1050	1200	1100
Nikkei	10187	10100	10700	12000	11200
DJ Stoxx 600	231	220	240	280	250
CAC40	3554	3400	3780	4100	3700
DAX 30	5301	5000	5560	5700	5500
FTSE100	4797	4500	5050	5200	5000

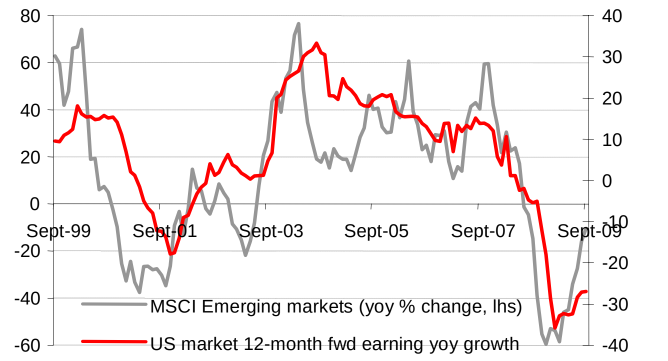
Source: SG Equity Strategy Research

Positive economic signals and hopes of a "V-shaped" recovery should buoy equity markets for another two quarters or so. However, with weak economic growth and the absence of any consumer recovery, there is still much uncertainty on the potential for continuing upside. We therefore believe that the risk of increased volatility and performance dispersion is on the rise. Indeed, while some sectors – Telco, Pharma, Utilities – remain attractive, the most cyclical ones now stand above their mid-cycles multiples.

In a nutshell, we expect the positive momentum in equity markets to continue over the next six months, supported by improvement of macro data. However, we do not exclude a strong risk of correction over the period due to valuation mismatches between sectors. With no support from developing countries, the emerging markets' recovery should remain limited and not strong enough to give the expected support to economies worldwide.

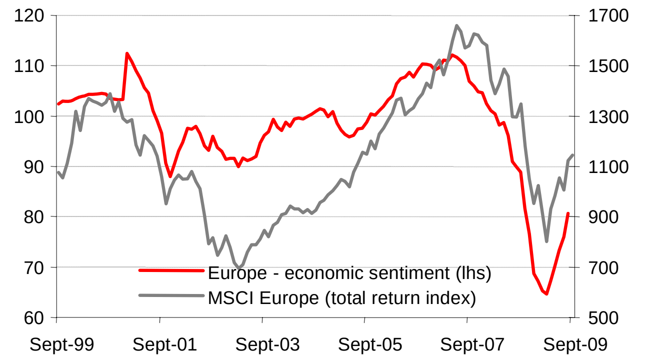
We remain more cautious for the second part of 2010 as, in our view, equity markets will lack positive catalysts to sustain their momentum. Additionally, as previously explained, positive signals on the beginning of 2010 and anticipation of a change in monetary policy could drag inflation and long-term rates up and add another load of pressure to equity markets.

Weak support from emerging markets could limit earnings recovery in OECD



Source: SG Equity Strategy Research, Datastream

Equity return should stay weak as economic indicators may not improve materially



Source: SG Equity Strategy Research, Datastream

Equity volatility under a Central scenario

Key recommendations

	Short term	Long term	Comments
Equity Volatility	=	-	Downward trend is engaged for long-term volatility but the pace of the low vol regime might be chaotic

Source: SG Equity Derivatives Research

Vincent Cassot
00 33 1 42 13 59 55
vincent.cassot@sgcib.com

Implications forecasting of a Central scenario on Equity Volatility

The main consequence of the central scenario (moderate growth, earlier recovery for US vs European economies, strong growth for emerging markets, low interest rates, flat and lacklustre business cycle, etc.) argue in favour of a general decrease of the volatility observed on equity markets.

Long-term view: over the coming two the three years, we clearly expect a downward trend: all the long-term metrics point to a general decrease in equity volatility. In particular, the powerful relation between rates and equity volatility, that we used extensively to forecast the rise in 2007, now indicates that the switch to a medium vol regime is engaged. Fed rates have reached a bottom in December 2008, so assuming a 30-month lag, the 1Y S&P500 realised vol could reach a bottom in early 2011. As a consequence, short-term implied volatilities could enter the low regime sooner, possibly in mid-2010.

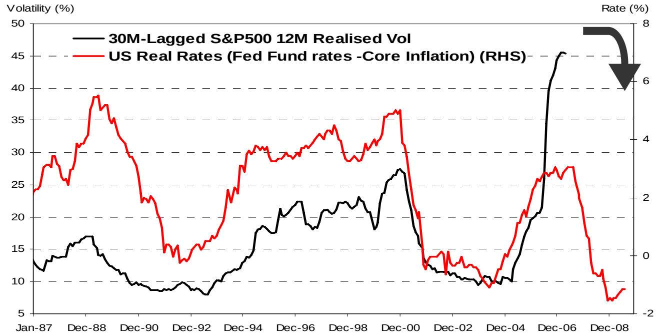
Furthermore, the exit from the recession in the US means the beginning of a new business cycle. Historically, the start of the cycle goes hand in hand with a decrease in equity vol. The pace of the decrease could be relatively moderate if the start is "flat and lacklustre" as our central scenario assumes.

Moreover, our US economist recently pointed out that in the last two jobless recoveries employment gains were a big trigger for a downward movement in volatility. Basically, markets need to see employment gains cement the recovery before risk premiums can extend their declines. More precisely, the decisive point is breaking through the final floor to the low vol regime (i.e. to go below 20%).

Short-term view: the tricky part is to guesstimate the pace of the decrease. The short-term volatility is widely driven by the flow on index options. It seems that most of the natural long players are now correctly hedged, with protections effective for a 10% to 20% market drop. So if future equity market turbulences were limited to that range [-10% to -20%], we would not expect a massive rush on Put options and thus no major increase in implied volatility level.

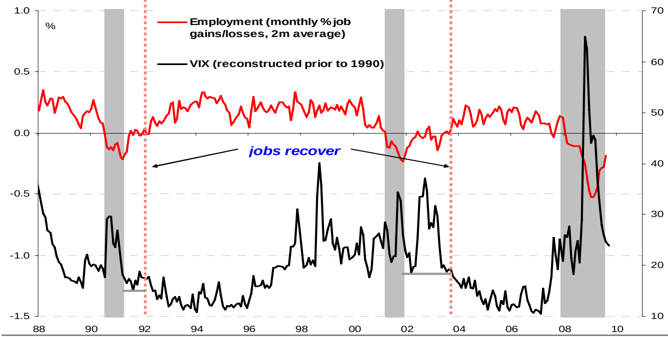
If any strong decoupling appears between emerging and developed (US & Europe) equity markets, then there might be a convergence between volatility levels. The normal 10pt to 15pt vol premium between BRIC and SPX, for example, could tighten significantly as was the case in Q2 2007.

US rates and the 30-month lagged SP500 vol



Source: SG Equity Derivatives Research

Job recovery signals final drop for equity vol



Source: SG US Economists

Oil & Gas under a Central scenario

Key recommendations

Opportunities	Short term	Long Term	Comments
Oil	+	+	Global demand to grow and spare capacity to fall over the next two years, with prices averaging around $100 in 2011
Natural Gas	+	=	Boosted supply to match demand over next two years, though prices could spike in 2010 with an unusually cold season

Source: SG Commodities Research

Michael Wittner
00 44 207 762 5725
michael.wittner@sgcib.com

Laurent Key
00 1 212 278 5736
laurent.key@sgcib.com

Implications of a Central scenario on Oil & Gas and forecast returns

Oil fundamentals gradually improve: as the economy slowly recovers, global demand should resume its growth in 2010 and 2011, though at a pace somewhat below trend. Under our central scenario, with non-OPEC supply eroding and OPEC maintaining output restraint, OPEC adopts the patient strategy of letting demand growth do the job of reducing inventories and rebalancing the market. Growth in OPEC crude supply to meet global demand would cut OPEC spare capacity in 2010 and especially in 2011, which is bullish for prices.

Non-fundamentals are bullish: investment flows are fairly consistent, due to risk appetite, which is bullish for oil. Also, with OECD debt/GDP ratios remaining stubbornly high, long-term inflation expectations continue to be an issue for the market, again bullish for prices.

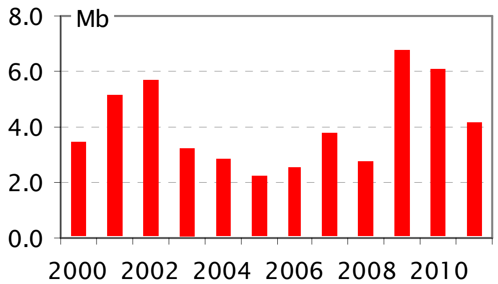
Central scenario WTI price forecast: $61/bbl in 2009, $82.50/bbl in 2010, $101/bbl in 2011.

Recent new drilling technologies for shale gas extraction have boosted US natural gas output: potential reserves may provide enough gas for a century's worth of consumption. For this reason – and with no plan to build liquefied natural gas (LNG) export facilities - the US natural gas market should remain disconnected from global LNG markets. So rising demand for Chinese and Indian LNG imports – expected for the central and bullish scenarios – will not affect US natural gas supply for the next two years.

Under a central scenario, US natural gas demand will not return to pre-crisis levels before the end of 2011. With ample supplies after Winter 2009/2010 (even after further production cuts), slowly recovering demand will weigh on prices. Prices should sit below the current market implied forward curve for 2010 and 2011 deliveries.

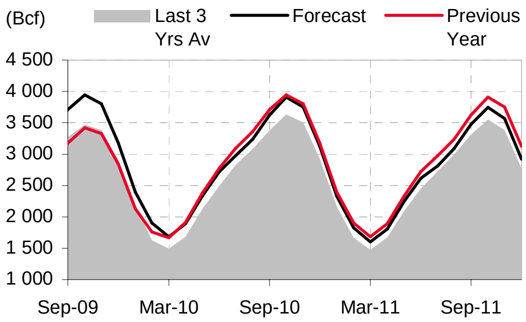
Central scenario NG price forecast: $3.8/MMBtu in 2009, $4.5/MMBtu in 2010, $5/MMBtu in 2011.

OPEC Crude spare capacity



Source: IEA, SG Commodities Research

2009, 2010 and 2011 NG inventory forecast



BentekEnergy, LLC, SG Commodities Research

Metals & Mining under a Central scenario

Key recommendations

Opportunities	Short term	Long term	Comments
Gold	=	-	Slow recovery should reduce the rush to hedge against inflation
Copper	+	+	Copper demand to recover as China continues to buy, and other markets' stocks are exhausted
Aluminium	-	=	Large surpluses to weigh in on slow pick-up in demand
Nickel	=	=	Demand to be met by increasing Chinese nickel production
Lead	+	+	Rally should continue during 2009, with good growth prospects ahead due to limited supply

Source: SG Commodities Research

David Wilson
00 44 207 762 5384
david.wilson@sgcib.com

Implications of a Central scenario on Metals & Mining and forecast returns

Gold: slow recovery improves market confidence and thus reduces the purchase of gold as a risk hedge; longer term it may even see some reduction in market length. This reduction investment activity would not be offset by recovering physical demand as the latter would take a lot longer than the former and the equilibrium gold price would have to come down.

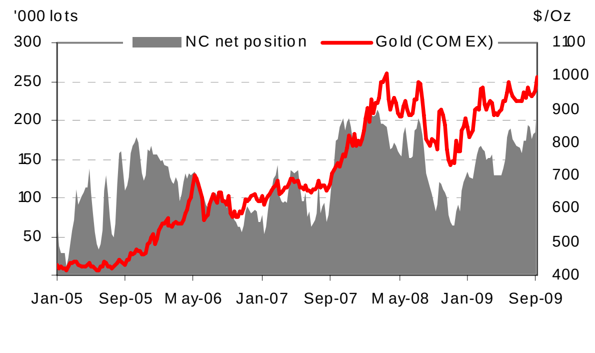
Copper: there is clear evidence that real and apparent Chinese demand is recovering, and indications that the destocking phase in other major markets is now over, with a restocking drive expected to begin in Q4 and into 2010. The copper market is expected be in surplus by 220,000 tonnes in 2009, providing very little coverage in the event of further production losses, moving to deficit in 2010. The outlook for mined copper production remains limited, with an expectation of growth averaging 3% p.a. out to 2013, pointing to a severely supply constrained market going forward. Rally begun Q1 2009 is expected to extend into 2010.

Aluminium: large surpluses are projected for 2009 as production cuts unwind. Prospects for a sustained price rally in 2009 will be limited by substantial stock builds, as a slow demand recovery outside China is outweigh by production pick up.

Nickel: recovery in capacity utilisation rates at stainless steel mills in Europe, USA and China boosts nickel demand by Q4 2009, accelerating through 2010. However, the re-emergence of flexible nickel pig iron production in China presents an effective cap on prices rallies. Expect nickel to settle in a $20-25,000/t range

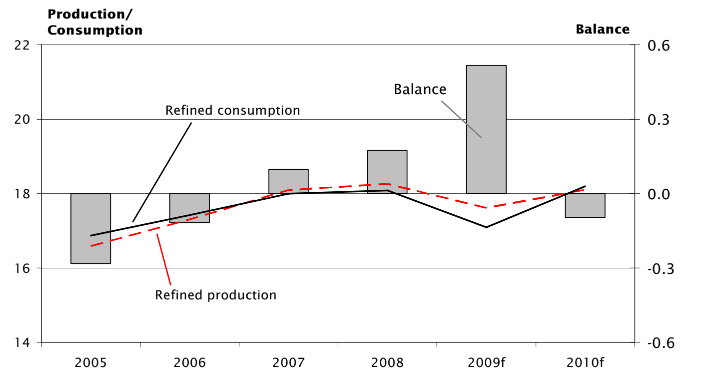
Lead/Zinc: lead continued to rally on a pick up seasonal lead acid battery demand in Q3/Q4 of 2009. Limited mine production growth will see the concentrate market constrained, limiting refined production going forward. Zinc benefits from restarting steel capacity boosting zinc demand for galvanizing. However, significant idled capacity overhanging the market limits upside in 2010.

Gold net non-commercial position on COMEX



Source: SG Commodities Research

Copper demand/supply balance



Source: SG Commodities Research

Agricultural commodities under a Central scenario

Key recommendations

Opportunities	Short term	Long term	Comments
Grains	+	+	Should perform well, driven by decreasing stocks and increasing in biofuel demand
Sugar	+	+	Best placed commodity with steady growth ahead
Softs (Cocoa/Coffee)	=	+	Strained Cocoa production in Ivory Coast should lead to robust prices
Livestock	+	=	As meat consumption would recover from current weaknesses, prices would be squeezed in 2010

Source: SG Commodities Research

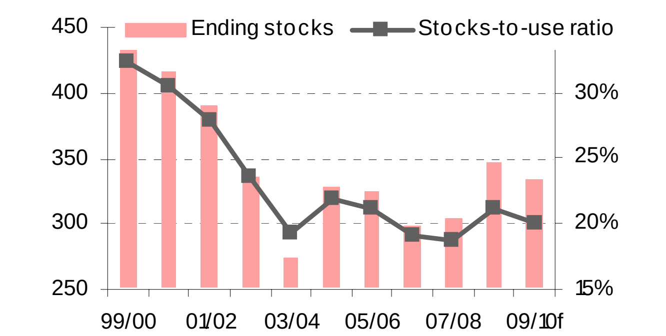
Emmanuel Jayet
00 33 1 42 13 57 03
emmanuel.jayel@sgcib.com

Implications of a Central scenario on Agricultural commodities

Grains (corn, wheat, soybean): under this scenario, demand for human food consumption and for industrials (sweetener syrup, starch, etc.) would grow steadily closer to the long-term average rate. In early 2010, meat consumption in the Americas and Europe would recover from its weakness, and it would increase significantly in Asia - in China in particular - thanks to a return to a brisk rate of growth. Overall, the meat sector would trigger a clear recovery in grain demand, as around half of world grain production is used as feed and because of the conversion factor (2 to 5+ kilograms of grains are required to produce 1kg of meat). This would not have a great impact in the year ahead, given the time lag with which meat production adapts to changing demand. However, it would lead to a return of the structural trend of tighter markets within a three-year timeframe.

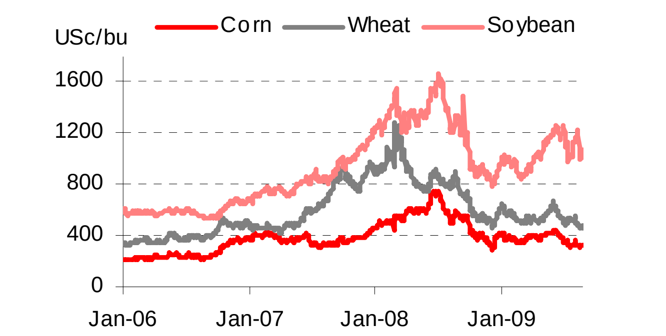
Sugar: sugar consumption growth has been slow but steady for many years, and this long-term trend would not be impacted in a scenario of slow economic recovery. With the next Indian crop hard hit by the bad start to the monsoon and Brazil's potential hampered over the entire period by the current marked investment slowdown, sugar fundamentals are strong for the year to come and should remain so in the following season.

Structural decrease in world stocks of grains, Mt



Source: USDA, SG Commodities Research

How long a respite between 2008 peak and next surge? (CBOT, 1st nearby)



Source: Reuters, SG Commodities Research

Softs (cocoa, coffee): cocoa and coffee demand growth has lost momentum, especially in areas where consumption is not traditional, such as Eastern Europe, Russia and Asia. A slow recovery scenario would help to stem the downward trend but would probably not be sufficient to produce a brisk upturn in growth. As potential for a significant increase in supplies seems limited in the short term, markets could remain balanced to reasonably tight over the next three years. There is even an upside price risk for cocoa, as in the Ivory Coast, the leading producer, the sector appears to be an inexorable decline.

Livestock (cattle and hogs): as discussed in the grains paragraph above, a slow recovery scenario would see meat consumption recovering from its current weakness in the Americas and Europe in the first half of 2010 and growing more significantly in Asia, especially in China. By this time, production would have fallen further to adapt to weak demand, which means that livestock markets should be squeezed some time in 2010, before finding a new balance by the end of the three-year period.

Forecasting returns on Agricultural commodities under a Central scenario

Short-term recommendation (12 months)

Within the agricultural complex, sugar is the best-placed commodity, as it has both strong fundamentals and a relatively clear outlook (though sugar prices have already risen sharply). Grains could regain some of the ground lost and perform relatively well as the next 12 months unfold. Livestock markets may rebound sharply towards the end of the 12-month period, as supply could be squeezed after a long and difficult period of reduction in order to adapt to the current weak demand environment.

Cocoa and coffee seem less well-equipped to weather the coming 12-month period, although cocoa fundamentals seem balanced for the year ahead.

Long-term recommendation (3 years)

Longer-term, grains should perform better than the other agricultural markets, as over this period the structural trend of decreasing stocks will have returned to the fore. Cocoa could also be in tight supply as there is no clear potential for a significant production increase in the medium term, particularly given the declining trend in the Ivory Coast, the biggest producer.

While sugar and livestock markets could remain tight over the next two years, they might find a new balance during the final year of the three-year period thanks to an adequate increase in production, which would lead to an easing of prices.

Corn prices (Cbot, 1st nearby)

Source: USDA, SG Commodities Research

Soybean prices (Cbot, 1st nearby)

Source: Reuters, SG Commodities Research

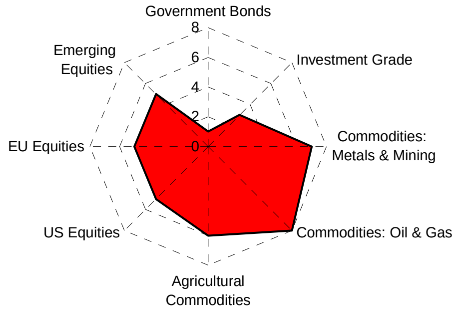
Bull scenario

Strong boom one year out

Economic forecasts for a bull scenario recovery

	GDP Growth		Inflation		Interest rates ST		Interest rates LT		Debt level/GDP	
Year	10e	11e	10e	11e	10e	11e	10e	11e	10e	11e
US	5%	5%	4%	5%	2%	6%	5%	7%	90%	85%
Japan	3%	3%	2%	3%	1%	3%	3%	5%	210%	200%
Eurozone	3%	3%	2%	4%	2%	5%	5%	7%	95%	90%
UK	3%	3%	3%	5%	2%	5%	5%	8%	95%	90%
BRIC	7%	9%	4%	9%	4%	8%	9%	10%	45%	40%
China	9%	10%	4%	10%	3%	7%	6%	9%	30%	30%

Bull scenario recommendation



Source: SG Economic Research

Overview of bull scenario

Economic growth Growth would be strong as steep recessions are usually followed by sharp upturns, as was the case with the dotcom bubble recovery. Aggressive central bank rate cuts and government injections of cash into the economy induce strong recoveries. Such a policy mix is seen as effective in stimulating consumer confidence: the global economy surges as sharply as it plunged, and returns to post-crisis growth levels due to the success of stimulus plans.

Interest rates Long-term interest rates would pick up and hit pre-crisis levels in 2011 as concerns on inflation accelerating due to growth overshooting would force the central banks to increase rates to avoid the economy overheating.

Household wealth Real estate and equity markets having bottomed and being at very low valuation levels, there would be buying opportunities and strong price reflation, which would have a positive impact on consumer wealth, consumption, and corporate profits.

Transfer of liabilities Strong economic recovery would prompt a decrease in debt to GDP ratios and in household debt. So the initial sovereign debt burden stemming from the cost of stimulus measures would gradually decrease.

Implications of our bull scenario recovery for the global economy

Unemployment would decrease sharply as the stimulus measures and rate cuts take effect and consumption picks up. The US should see the strongest job creation and recovery given the size of the stimulus package, and the dynamism of the economy.

Consumption Strongly improved consumer sentiment as well as decreased deleveraging and unemployment, helped by lower savings rates, would lift consumption back to pre-crisis levels.

Business cycle & international trade Stimulus measures and policy mix would achieve their full potential, decreasing unemployment and mechanically increasing consumption. Emerging markets would benefit in turn given their dependence on exports towards developed economies. Increased international trade would enhance the economic recovery and act as a catalyst for global economic growth.

Fiscal implications Economic recovery would naturally increase tax revenues, thus stabilising debt levels and enable governments to deleverage without having to increase taxes. This would be positive for consumption.

Fixed Income & Credit under a Bull Scenario

Key recommendations

Opportunities	Short term	Long term	Comments
Fixed Income	-	-	Inflation to erode value of government bonds
Investment Grade	-	+	Government bond yield increases would offset the positive effect of spread tightening in the short term
High Yield	++	++	Strong positive capital gains due to spread tightening and high carry

Source: SG Credit Research, SG Rates & FX Strategy

Vincent Chaigneau
00 44 207 676 7707
vincent.chaigneau@sgcib.com

Implications of a Bull scenario on Government Bonds

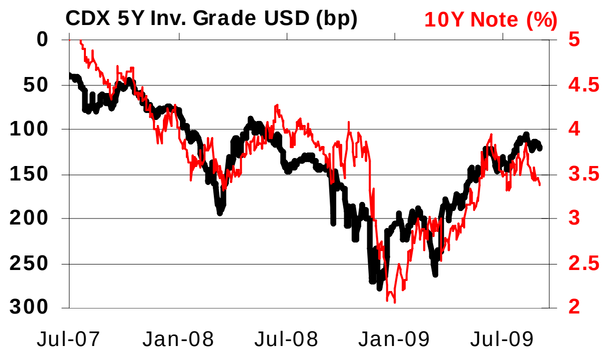
Inflation expectations have changed radically over the past months. Between the end-December 2008 and end-July 2009, US long-term inflation expectations literally took off, chalking up the greatest surge ever seen over a comparable period. The yield on 10-year government bonds gained more than 150bp, despite the implementation of the Fed's buyback plan. Gold, the traditional inflation hedge has also followed an inflation-expectation fuelled rally, standing now above $1,000 per ounce. This is bad news for our traditional government bonds which have benefited til now from drops in core inflation to provide the best value in 20 years (inflation-linked bonds would naturally continue to perform strongly under this scenario).

Forecasting returns on Government Bonds under a Bull scenario

With money market rates lingering at record low levels, investors are hunting for higher returns, boosting the equity rally, whilst maintaining the solid performance of bonds. This is reminiscent of mid-2003, when 10y Treasuries approached 3% whilst the Fed cut its target to 1% and core inflation dropped to 1.5%. Money market rates are nearly 100bp lower now, and we do expect 10y Treasuries to break below 3% again over the next six months. If inflation kicks in by 2010 under this scenario, demand for government bonds would shrink.

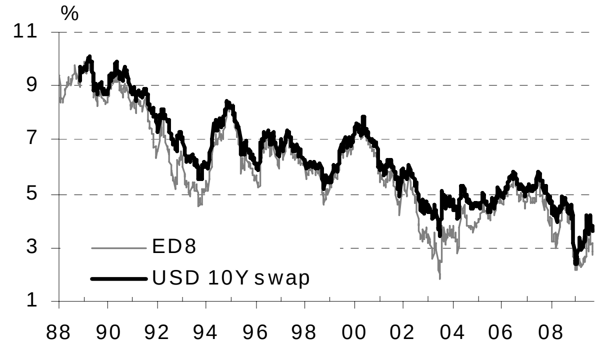
There is no doubt that bonds deliver poor returns in this scenario. As the right-hand chart below shows, US 10y yields tend to track medium-term expectations about the Fed very closely. If the economy bounces back powerfully, investors will price a reversal of the Fed's rate policy. This is especially true since the Fed has placed the rate that they pay on bank reserves at the centre of its exit strategy. Raising those rates would push money market rates to the upside, causing a sharp rise in forward 3-month rates. In this scenario, 10y Treasuries can easily rise to 4.75% over the coming year, which would imply a total return of -6% over the period.

Treasuries no longer suffering from credit spread tightening



Source: SG Rates & FX Strategy

10y USD (wap) closely tracking 8th Eurodollar futures



Source: SG Rates & FX Strategy

Investment Grade Credit under a Bull scenario

Guy Stear
00 331 42 13 40 26
guy.stear@sgcib.com

Suki Mann
00 44 20 7676 7063

Implications of a Bull scenario on Investment Grade Bonds

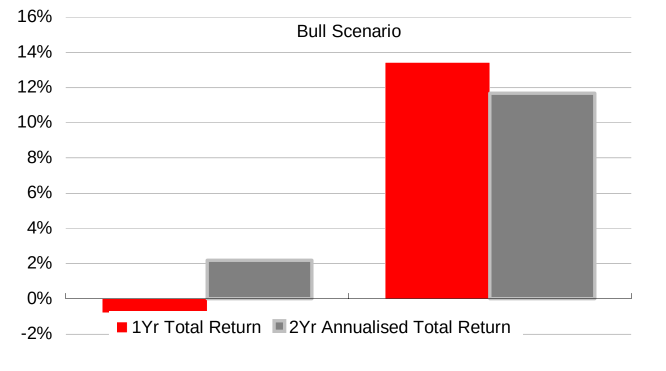
Three factors in the bull case could have an important impact on credit spreads, including investment grade spreads. First, stronger economic growth will tend to boost corporate profits, reducing the probability of default. But second, stronger economic growth will also drive yields higher, and indeed yields in the eurozone are expected to rise to 5% and 7% in 2009 and 2010 under this scenario. And finally, while higher inflation is theoretically good for creditor companies (because it reduces the real value of their debt), the practical impact tends to be far more mixed. In part this is because companies have to refinance at higher yields, but it is also in part because inflation is not uniform, and uncertainty about relative prices tends to weigh on credit spreads. It's worth noting that credit spreads were wide during both the mid 70s and the late 70s/early 80s peaks of inflation, though it is difficult to disentangle the inflation impact from the real growth impact.

Forecasting returns on Investment Grade Bonds under a Bull scenario

On balance, we would expect stronger economic growth under the bull scenario to drive credit spreads back to the 120bp area, despite higher inflation uncertainty. This represents a 90bp tightening from current levels, but it would be more than offset by the 3% widening in government bond yields.

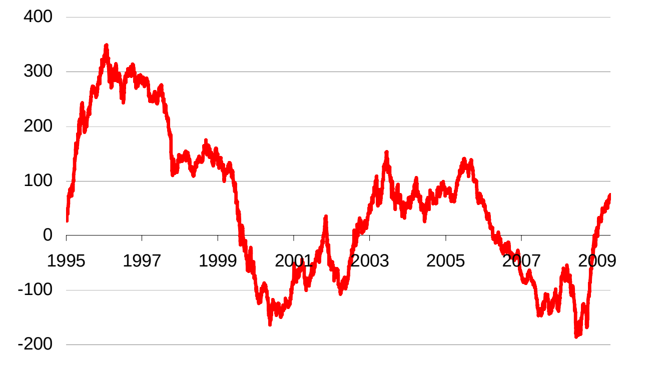
The default level should drop back to around 0.2%. This is still above the 0% trough levels, but we consider it justified given the inflation uncertainty. The recovery rate would rise to at least 40% under this scenario, and the transition rate to high yield would be a relatively low 1%. While the transition rate is relatively difficult to forecast with certainty, it is worth noting that the overall credit loss is relatively insensitive to this transition rate, under this scenario. On balance, the loss from defaults would be quite negligible. Unfortunately, the yield of just over 5% would not be enough to offset the negative effect of the widening in government yields in the short term. Investors who hedged their interest rate risk could expect to earn more than 5.5%; unhedged investors would, by contrast, lose around 1%. Over a two-year period, however, the positive effect of carry and low defaults would offset the rise in government yields, leading to an average 2% capital gain.

IG & HY return forecast in bull scenario



Source: SG Credit Research

SG shortfall model



Source: SG Credit Research

High Yield Credit under a Bull scenario

Guy Stear
00 331 42 13 40 26
guy.stear@sgcib.com

Suki Mann
00 44 20 7676 7063
suki.mann@sgcib.com

Implications of a Bull scenario on High Yield Bonds

If high yield bonds performed worse than investment grade bonds under a bear scenario, they should, logically, perform better under a bull scenario. And indeed, we think they would. But be careful. While the inflation risk premium discussed in the previous section will have relatively little impact on investment grade spreads, it should have a bigger impact on high yield spreads. As a result, it looks unlikely that the level of high yield spreads could fall back to the 275bp levels seen in the halcyon days of early 2007 under this scenario.

Similarly, the unequal impact of inflation should probably keep high yield defaults above the 2.5% average and 1.75% median levels seen over the long term. Admittedly, default rates stayed below 2% for most of the late 1970s, but we think the 3-5% defaults of the early 1980s may be a more realistic parallel.

Forecasting returns on High Yield Bonds under a Bull scenario

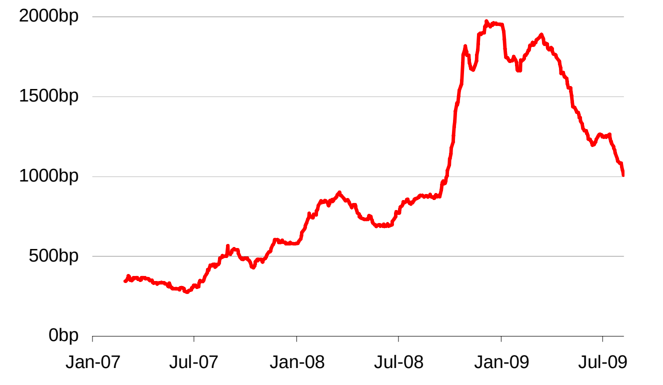
We assume that the rate of defaults in high yield would drop back to 3%, with a 40% recovery rate, under the bull scenario. This gives us a fairly modest loss from defaults of 2% per annum. In 2010, we would look for spreads to tighten back to the 650bp area and stay there. As mentioned above, this is below the trough levels of 2007.

Still, the 350bp spread tightening will be more than enough to offset the 3% rise in government bond yields, even before factoring in the positive carry from current spread and government bond yield levels. Under the bull scenario, as a result, we would expect high yield bonds to generate some 13% returns in 2010, and well over 11% in 2010, with the high level of carry still supporting yields.

iBOXX IG. Credit spreads to benchmarks

Source: SG Credit Research

iBOXX HY Credit spreads to benchmark



Source: SG Credit Research

Equity Strategy under a Bull scenario

Key recommendations

Opportunities	Short term	Long term	Comments
European Equities	+	=	Until interest rates increase, European equities should be supported by a positive newsflow
US Equities	+	=	Long-term fear of inflation but ST recovery should continue
Emerging Equities	=	+	Benefit from the recovery of the US economy along with domestic dynamism
Japanese Equities	=	+	Large trade surplus should sustain Japanese equities

Source: SG Equity Strategy Research,

Claudia Panseri
00 331 58 98 53 35
claudia.panseri@sgcib.com

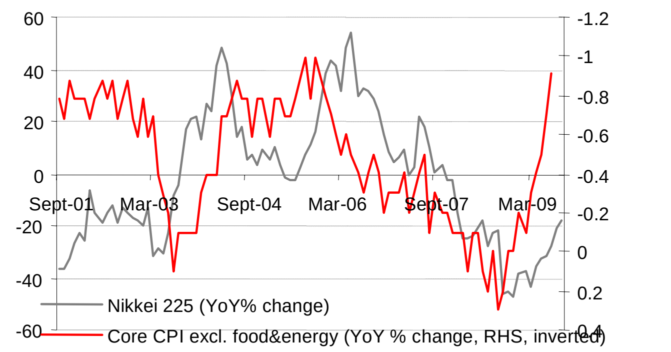
Charlotte Lize
00 44 20 7762 5645
charlotte.lize@sgcib.com

Implications of a Bull scenario on Equity

The difference between the bull and central scenarios lies in two fundamental economic pillars, which are inflation and interest rates - key factors for the sustainability of the recovery. As under our central scenario, we expect positive economic signals to provide some support to equity market momentum over the next two quarters. However, under the bull scenario, the combination of slow recovery expectations and shy economic signals could be enough to force economic players (companies and central banks in particular) to adopt a more cautious stance over the medium term. In concrete terms, this would mean central banks postponing their exit strategy and maintaining interest rates at very low levels to avoid inflation fears. With private sector savings on the rise, companies and government would have to be very active for the recovery to be sustainable and to fill the hole in households' consumption. For companies, this means renewing with expenditure and being able to find the right balance between deleveraging and capital spending. Governments would have to remain supportive and stick with their dis-saving policy. If governments and companies manage to provide some extra support as weak private consumption continues to pressure prices, this could be quite positive for the global economy and equity markets in particular with the favourable combination of shy but sustainable recovery, no inflation and low interest rates.

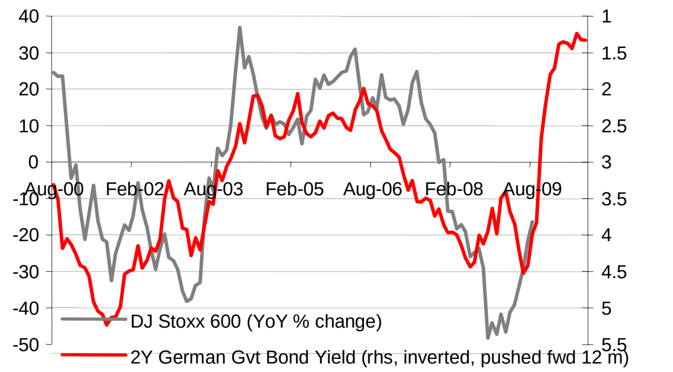
Secondly, should the expected "V-shaped recovery scenario" materialise over 2010 and 2011 and prove sustainable, we believe it could also create an unfavourable structural environment for equity holders. Indeed, if the economy were to recover more rapidly than previously anticipated by governments, central banks would probably speed up their exit strategy, bringing interest rates toward their pre-crisis levels and creating an inflationary environment. As shown on the bottom left graph, high inflation would have a negative impact on equity markets.

High inflation would put equities recovery at risk!



Source: SG Equity Strategy Research, Datastream

Low rates preserve a favourable environment for equities



Source: SG Equity Strategy Research, Datastream

Forecasting returns on Equity under a Bull scenario

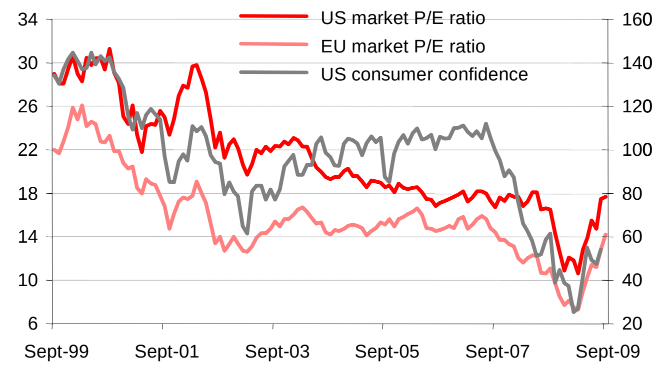
Just as in our central scenario, we remain confident that the near-term momentum of equities should be on the upside, driven by positive signals from the macro front. The difference with our central scenario should come around mid 2010, when the situation will depend on monetary policies as well as the pace of recovery in economic activity. If central banks, adopting a “wait-and–see” policy, are able to contain inflation fears and maintain low rates and if companies can compensate for the high private saving rates, then equity markets could see a longer-than-expected upward trend. In this situation, contrary to our central scenario, we could see equity indexes and valuations continuing to improve beyond the mid-2010 limit that we have set in our previous scenario.

The impact on emerging equities would also be different in a bull case scenario compared with our central scenario. In our view, the return to growth of developed countries could further boost emerging economies and support the outperformance versus other equity classes, whereas in the central case we argued that the recovery of emerging economies has been over played and will lack support in the medium term. From central to bull scenario we would therefore switch Global emerging equities from underweight to overweight.

During the rally, we have seen a strong outperformance of low quality stocks, suggesting a reversal is imminent. This underperformance by high-quality stocks, or ‘glamour stocks’, has been extreme in the last six months - just as it was extreme in the opposite direction back in March. Looking at this trend and valuations of high-quality stocks, we can deduce that lower-quality stocks would underperform vs. high-quality assets over the next six months in the bull scenario. In the long run however, cyclicals should continue to outperform.

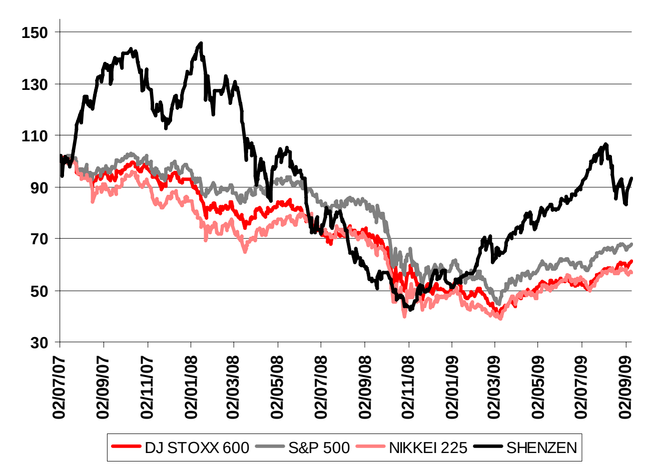
However, a rapid recovery could also put the equity class at risk in the longer run. Indeed, higher interest rates and inflation on the upside would create an adverse environment for equity holders.

Valuation levels to continue their recovery as confidence improves



Source: SG Equity Strategy Research, Datastream

Main indices’ performance since beginning of crisis



Source: SG Equity Strategy Research, Datastream

Oil & Gas under a Bull scenario

Key recommendations

Opportunities	Short term	Long term	Comments
Oil	+	+	Rapid growth in global demand should sharply cut spare capacity, pushing crude prices to $125 in 2011
Gas	=	+	Growing demand to constrain supply in 2011, spurring a sharp price rise

Source: SG Commodities Research

Michael Wittner
00 44 207 762 5725
michael.wittner@sgcib.com

Laurent Key
00 1 212 278 5736
laurent.key@sgcib.com

Implications of a Bull scenario on Oil & Gas and forecast returns

Oil fundamentals become significantly more bullish: fuelled by rapid economic growth, demand growth accelerates to 2 mb/d a year (+2.4%) in 2010-2011. Higher crude prices drive increased upstream investment in non-OPEC and OPEC oil fields, resulting in gains in non-OPEC supply and OPEC capacity. Despite this, sharp increases in OPEC crude output cause rapid declines in OPEC spare capacity in 2010-2011 – much lower than in the central case. This revives fears that "peak oil" supply can't keep up with demand. This is strongly bullish for prices.

Non-fundamentals are very bullish: investment flows are strong, due to high risk appetite, hedging against inflation, and the perceived "one-way bet upward" on oil prices. Geopolitical risks also increase, as "petro-states" such as Russia and Iran become more aggressive again.

Bull scenario WTI price forecast: $61/bbl in 2009, $90/bbl in 2010, $125/bbl in 2011 ($100-150/bbl range). Daily prices above $150 become self-limiting, due to the price impact on demand (demand destruction) and the likely negative impact on underlying economic growth.

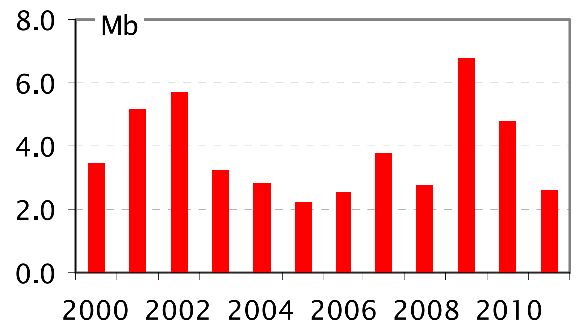
An expected 7% (4 Bcf/d) rise in US natural gas demand between 2010-2011 would be mainly fuelled by NG residential demand. Industrial demand to increase by 1 bcf/d, but should remain below pre-crisis levels. Electricity generation gas burn to increase by 0.5 bcf/d versus 2009 levels - due to less coal-to-gas switching mechanisms.

Ample supplies (see below) would disconnect the US market from bullish Asian and European markets. In reaction to rising NG demand and prices (with improved GDP), producers would increase their output from shale plays, which would keep NG prices from rising in line with WTI prices during 2010. Tighter yoy inventory levels in 2011 may spur a sharp price rise.

LNG imports will be needed if environmental constraints keep producers from meeting demand. The US market would then be lifted in order to attract tankers sold versus an oil prices-based formula in Asia and Continental Europe.

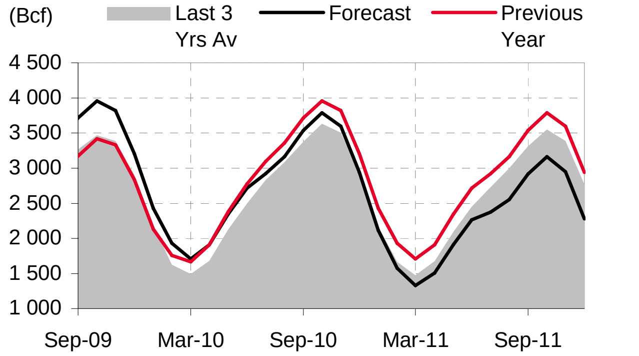
Bull scenario NG price forecast: $3.9/MMBtu in 2009, $5/MMBtu in 2010, $9.5/MMBtu in 2011

OPEC Crude spare capacity



Source: IEA, SG Commodities Research

2009, 2010 and 2011NG inventory forecast



BentekEnergy, LLC, SG Commodities Research

Metals & Mining under a Bull scenario

Key recommendations

Opportunities	Short term	Long term	Comments
Gold	+	+	Strong demand for inflation hedging and physical purposes should outweigh increasing supply
Copper	+	+	Surging Chinese consumption for copper should see the metal outperform
Aluminium	=	=	Higher consumption should reduce inventory build up
Nickel	=	+	Pick up in steel production could present nickel with supply difficulties
Lead	=	+	Pick up in demand could outpace production, as auto production drives lead prices higher

Source: SG Commodities Research

David Wilson
00 44 207 762 5384
david.wilson@sgcib.com

Determining the implications of a Bull scenario on Metals & Mining and forecast returns

Gold: investors continue to use gold as a hedge against inflation while recovery in economic conditions spurs a rapid improvement in physical demand. Scrap return tempers rises from time to time, but gold remains positive. Project finance and higher contango may increase mine hedging, but not in enough volume to contain price increases

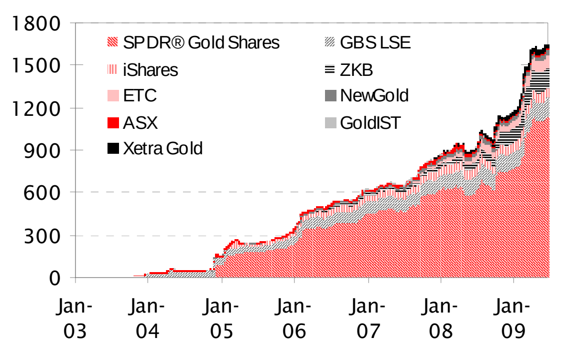
Copper: surging Chinese consumption, plus fast recovering European/US/Japanese demand pushes copper market into significant deficit into 2010 and 2011, with limited supply-side reaction expected. Copper would also benefit from investment flows as an inflationary hedge.

Aluminium: significant pick up in consumption outside China on the back of rapid recovery, with a reversal of the 2009 build up in visible inventory. Rising energy costs add to upward price pressure. However, significant growth in Chinese smelting capacity ensures that the market remains well supplied.

Nickel: pick-up in global stainless steel production pushes the nickel market into deficit in Q1 2010. With the cancellation and postponement of a number of large nickel projects due to technical difficulties, supply response in the medium term would be reliant on high cost nickel pig ion production in China to prevent significant deficits.

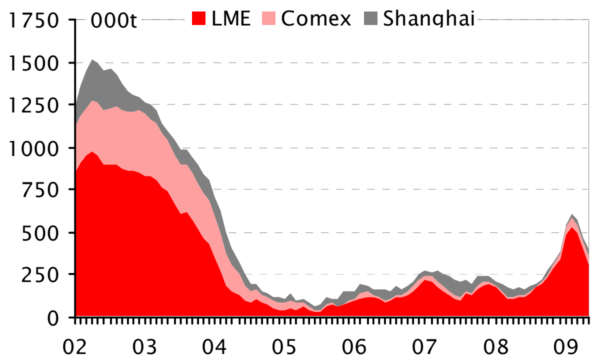
Lead/Zinc: as with other base metals, supply tightness very quickly becomes an issue going forward, due to a relative lack of new mine supply. Zinc, being construction focused, benefits from a swift recovery in steel industry demand, while a pick up in auto production drives lead.

Gold holdings in Exchange Traded Funds



Source: SG Commodities Research

Exchange copper stocks



Source: SG Commodities Research

Agricultural commodities under a Bull scenario

Key recommendations

Opportunities	Short term	Long term	Comments
Grains	+	+	Increase in demand for feed grain and biofuel would boost grain prices, outperforming other agricultural commodities
Sugar	+	-	ST fundamentals strong, but an increase in investments in Brazil would affect prices after the investments mature (2Y)
Soft (Cocoa/Coffee)	=	+	Cocoa fundamentals are positive for the long term
Livestock	+	=	An increase in buying power would induce an increase in demand for meat in US, Europe and emerging markets

Source: SG Commodities Research

Emmanuel Jayet
00 33 1 42 13 57 03
emmanuel.jayel@sgcib.com

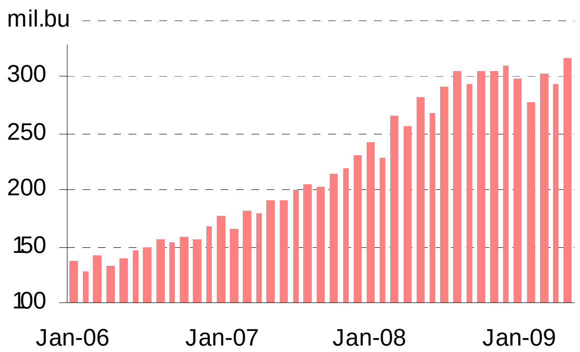
Implications of a Bull scenario on agricultural commodities

The bull scenario for agricultural commodities looks much like the central scenario, with similar levels of consumer spending for food. Indeed, the higher level of GDP growth in the bull scenario is not driven by consumers but by the more rapid and stronger recovery of investments. And agriculture is probably not a sector that would benefit the most from this.

Grains: grain production mainly relies on family businesses, and production expansion is driven by grain prices and the wealth of these families. The ongoing trend of large investments in agricultural land by states and large corporates, particularly in Africa, could gain some momentum in the bull scenario, but not necessarily a significant amount. In other words, grain production in the bull scenario would be similar to that in the central scenario. On the demand side, demand for human food products would be similar to that in the central scenario, as the bull scenario would not entail increased consumer spending on food. However, demand from the biofuel sector, to produce fuel-ethanol and biodiesel, would be much higher as biofuels would regain competitiveness, as well as political support, from higher crude oil prices.

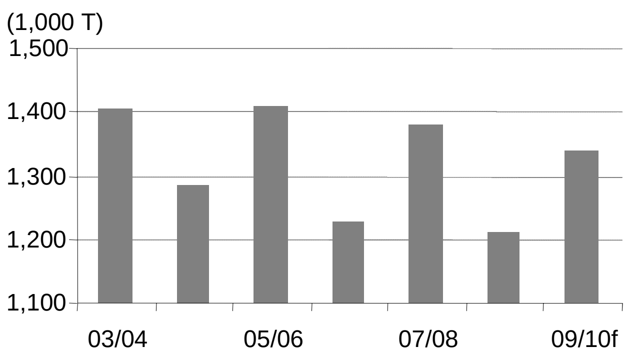
Sugar: higher investment levels could well mean that sugar production would eventually increase more significantly than in the central scenario. In Brazil in particular, a large share of production is controlled by corporates. These companies would invest more in expanding sugar cane area and building new sugar mills in a bull scenario. However, the impact on production would not necessarily be significant within the timeframe of this study, as it takes at least two years to get a new sugar mill and its sugar cane fields up and running. So the impact of the bull scenario on the sugar market might be similar to that discussed for the central scenario, though increasing supplies might weigh more on prices at the very end of the three-year period.

US corn use in ethanol: biofuel demand invigorated



Source: RFA, SG Commodities Research

Cocoa production in leading producer Ivory Coast



Source: ICCO, Reuters, SG Commodities Research

Softs (cocoa, coffee): in the case of cocoa, a stronger investment environment would not result in higher production of cocoa beans, which primarily rely on family-type businesses in western Africa and Indonesia. However, such an environment could lead to a more rapid increase in processing capacity (grinding and pressing), resulting in increasing demand from processing plants and therefore tighter markets than in the central scenario. As with sugar, building new facilities however takes time and this variation from the central scenario would occur only at the very end of the three-year period considered. For coffee, the impact of the bull scenario is expected to be similar to that of the central scenario.

Livestock (cattle, hogs): the rebound in meat consumption would be similar to that in the central scenario, but a stronger financing environment would spur increased investment in production capacity for hogs. Again, given the time required to actually increase production, this would have an impact only at the very end of the three-year period.

Forecasting returns on agricultural commodities under a Bull scenario

Short-term recommendation (12 months)

In the bull scenario, short-term recommendations are identical to those of the central scenario, as fundamentals would be exactly the same (as long as the bull scenario entails identical consumer spending on food to that in the central scenario). Sugar benefits from strong fundamentals and a relatively clear outlook, but prices have already risen sharply. Grains could regain some lost ground and perform relatively well as the coming 12 months unfold, and livestock markets might rebound sharply toward the end of the period from a supply squeeze following a long period of decreasing production to adapt to weaker demand.

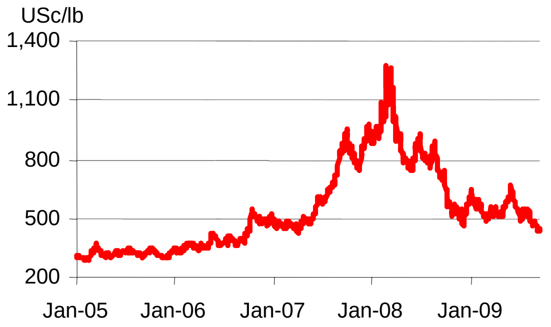
Softs (cocoa and coffee) should underperform other agricultural markets, although cocoa fundamentals are well balanced for the year ahead.

Long-term recommendation (3 years)

Long-term recommendations in a bull scenario are also similar to those in the central scenario, with grains and cocoa as outperformers while sugar and livestock underperform.

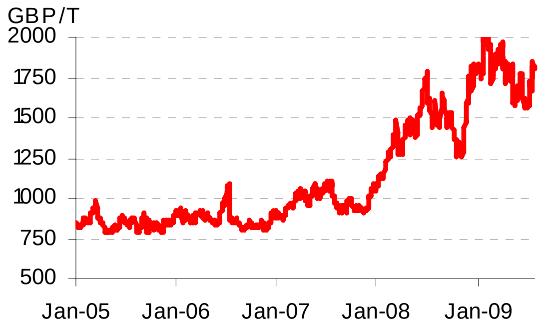
The main differences from the central scenario are a still more bullish case for grains (due to higher demand for biofuels) and for cocoa (thanks to higher processing capacity) and a slightly more bearish case for sugar and livestock (from higher investment in production capacity).

Wheat prices (Cbot, 1st nearby)



Source: RFA, SG Commodities Research

Cocoa fundamentals tightening over time (Euronext, 1t nearby)



Source: Reuters, SG Commodities Research

SG Macro Strategy Group

Patrick Legland
Global Head of Research
Paris
+33 (0)1 42 13 97 79
+33 (0)6 76 86 52 22

Benoit Hubaud
Deputy Head of Global Research
Head of Macro Strategy Group
Paris
+33 (0)1 42 13 61 08
+33 (0)6 07 12 12 00

Macro

Global Economics

Benoit Hubaud
Head of Macro Strategy
Global Chief Economist
Paris
+44 20 7676 7168
+33 (0)6 07 12 12 00

Global Asset Allocation

Alain Bokobza
Deputy Head of Macro Strategy
Head of Global Asset Allocation Strategy
Paris
+33 (0)1 42 13 84 38
+33 (0)6 80 27 22 51

Global Strategy

SG Alternative View

Albert Edwards
Head of Global Strategy
London
+44 20 7762 5890
+44 78 2490 6433

Quant

Cross Asset Quantitative Research & Modelling

Julien Turc
Head of Cross Asset Quant Research
Paris
+33 (0)1 42 13 40 90
+33 (0)6 24 84 46 62

Strategy

Commodities

Frédéric Lasserre
Head of Commodities
Deputy Head of Macro Strategy
Paris
+33 (0)1 42 13 44 06
+33 (0)6 08 50 58 74

Rates & Forex

G10 & Emerging Markets

Vincent Chaigneau
Head of Rates & Forex Strategy
Deputy Head of Macro Strategy
London
+44 20 7676 7707
+44 79 1763 5101

Credit Strategy

Suki Mann
Head of Credit Strategy
London
+44 20 7676 7063
+44 79 1722 0971

Equity Strategy

Claudia Panseri
Head of Equity Strategy
Paris
+33 (0)1 58 98 53 35
+33 (0)6 32 98 74 14

Equity Quant Strategy

Andrew Lapthorne
Head of Equity Quantitative Research
London
+44 20 7762 5762
+44 78 2589 3230

Equity Derivatives Strategy

Vincent Cassot
Head of Equity Derivatives Strategy
Paris
+33 (0)1 42 13 59 55
+33 (0)6 30 93 71 02

SOCIETE GENERALE
Cross Asset Research