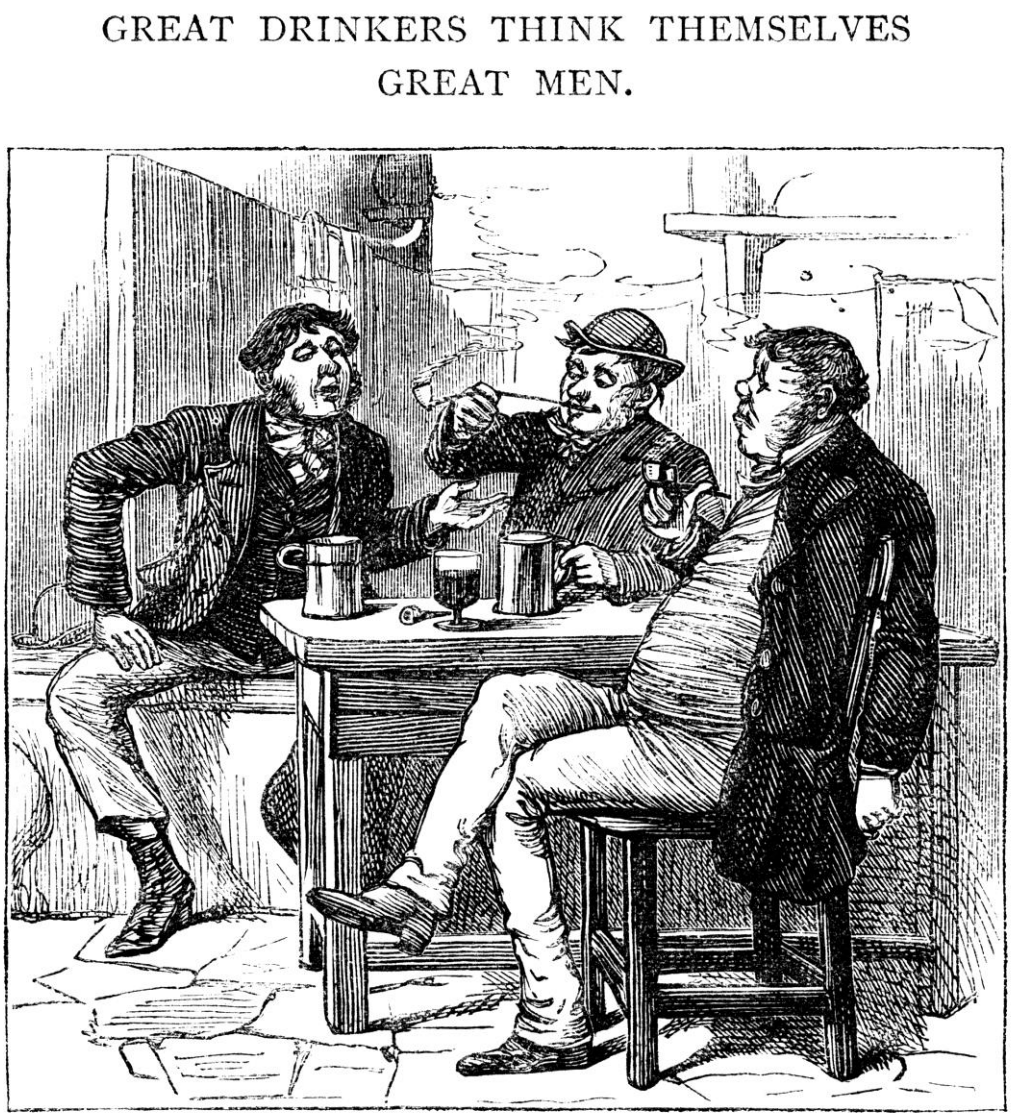
SOCIETE GENERALE
Cross Asset Research

GLOBAL STRATEGY
January 2013

SPECIAL REPORT

Cred and Credulity

A collection of Popular Delusions essays from 2009 to 2012



Getty images/Linda Steward

Dylan Grice
(44) 20 7762 5890

Cred and Credulity

A collection of Popular Delusions essays 2009-2012

Cred and Credulity

Oscar Wilde once said that "if one cannot enjoy reading a book over and over again, there is no use in reading it at all." With this in mind, re-reading pieces I wrote over the years during my time at Société Générale produces mixed feelings.

On the one hand, I feel what I understand many writers feel when looking back over previous work: embarrassment verging on despair. Some of the turns of phrase, the attempted literary flourishes, and even the choice of punctuation (I seem to have a thing for commas) leave me shaking my head and wondering what on earth I was thinking. My prose fails the Wilde test.

But on the other hand, many of the ideas still sound OK. Writing about a subject is the best way to educate yourself about it, and when I flick through past work I remember how much they taught me, if no one else. Mainly they taught me that I didn't know very much. But they also taught me that most other people didn't know much either. Thus, some key themes which stand out include the illusory control of policy makers, the presumed knowledge of those looking to them to actively do good, the ease with which we fool ourselves, and how best to protect capital in the face of such unavoidable uncertainty.

However, something I found very striking was just how transient conclusions are, even those reached with a high degree of conviction at the time. For example, I used to write frequently about valuation screens and put a lot of thought into how best to calculate the 'intrinsic value' of equity markets. I became more bullish of Japan after its earthquake, and of the Eurozone when the currency looked like it might unravel in September 2011. I did so mainly on the grounds that those markets were 'cheap'. But by 2012 I came to think that much of what I thought I knew about 'value investing' was at the very least misguided and probably plain wrong. Thus, while today China looks 'cheap' and Russia especially so, I personally wouldn't invest there.

Nevertheless, Charlie Munger once wrote to a celebrated friend entering retirement "The accolades are fine, but it's the journey that counts." So I've included pieces which were significant to me in my own intellectual journey, and will let readers come to their own conclusions about which pieces are cringeworthy today and which are not. I hope you enjoy them.

Dylan Grice
London
January 2013

Valuation/Portfolio construction

What's the point of macro? (15/06/2010)

Most people would see the macro strategist's role as timing macro events … switching between defensives and cyclicals, adjusting duration, risk-on/risk-off trades, and so on ... the only problem is that most of us are rubbish at seeing macro events coming, let alone timing them, as our evolutionary programming blinds us to events which are forecastable (and many are not even that). Perhaps we should embrace our limitations by accepting that 'outlier events' are actually quite regular, and use macro research to aid in the search for appropriate insurance strategies.

■ A few weeks ago I mapped out a strategy that was based on the idea that since global banks' solvency was so dependent on government bond holdings, central banks would have no option but to quantitatively ease in the face of future government funding crises.

I argued that such funding crises could provide opportunities to buy cheap risk assets before liquidity/QE-induced rallies and that some value was beginning to emerge, but also that that value still wasn't extreme enough to go all in.

■ As usual, I received some interesting feedback – some favourable, some not (one pm said my 'deflation-begets-inflation' view was a "dog's leg" forecast). But one client asked why I bothered looking at valuation at all. Surely my extreme macro views trumped such considerations? "I just don't understand how you can separate your … economic research from your stand-alone valuation tools." I thought this was a brilliant question because it gets to the heart of a permanent tension between macro and micro: what should the relationship between top-down macro and bottom-up valuation be?

■ At the risk of oversimplifying what our more macro-focused clients do every day I'd characterize pure macro-focused managers as being less concerned with valuation. For a start, the traditional macro instruments such as commodities and currencies are difficult to value. But by far the biggest macro market – the bond market – is largely priced off central bank perceptions of what the economy is doing, and risk assets tend to be priced off those bond markets. Since mispriced assets can become even more mispriced depending on the macro climate and central banks' reading of it, timing is everything and for such managers an understanding of the 'big picture' is far more important than valuation.

■ But at the opposite end, where the pure value hunters reside, Warren Buffett has said that even if he knew the Fed's exact interest rate moves two years in advance it still wouldn't make any difference to how he would invest today. Indeed, most value investors shun macro completely and focus entirely on bottom-up valuations. They view recessions as good times to buy and have little confidence in anyone's ability to predict them. But they don't really care because they know recessions occur frequently enough and they are patient enough to wait. So why bother with macro?

At last year's *Value Investing Congress,* David Einhorn neatly reconciled the top-down versus bottom-up investment philosophies. He was describing his Damascene conversion following a foray into a high quality US homebuilder just before the housing bubble burst:

> *"At the May 2005 Ira Sohn Investment Research Conference in New York, I recommended MDC Holdings, a homebuilder, at $67 per share. Two months later MDC reached $89 a share, a nice quick return if you timed your sale perfectly. Then the stock collapsed with the rest of the sector. Some of my MDC analysis was correct: it was less risky than its peers and would hold up better in a down cycle because it had less leverage and held less land. But this just meant that almost half a decade later, anyone who listened to me would have lost about 40% of his investment, instead of the 70% that the homebuilding sector lost.*
>
> *"I want to revisit this because the loss was not bad luck; it was bad analysis. I downplayed the importance of what was then an ongoing housing bubble. On the very same day, at the very same conference, a more experienced and wiser investor, Stanley Druckenmiller, explained in gory detail the big picture problem the country faced from a growing housing bubble fueled by a growing debt bubble. At the time, I wondered whether even if he were correct it would be possible to convert such big picture macro-thinking into successful portfolio management. I thought this was particularly tricky since getting both the timing of big macro changes as well as the market's recognition of them correct has proven at best a difficult proposition. Smart investors have been complaining about the housing bubble since at least 2001. I ignored Stan, rationalizing that even if he were right there was no way to know when he would be right. This was an expensive error.*
>
> *"The lesson that I have learned is that it isn't reasonable to be agnostic about the big picture. For years I had believed that I didn't need to take a view on the market or the economy because I considered myself to be a "bottom-up" investor. Having my eyes open to the big picture doesn't mean abandoning stock picking, but it does mean managing the long-short exposure ratio more actively, worrying about what may be brewing in certain industries, and when appropriate, buying some just-in-case insurance for foreseeable macro risks even if they are hard to time."*

I think most people would agree with this very reasonable hybrid approach: use macro analysis to avoid economic turbulence by managing your portfolio's "*long-short exposure ratio"* more, and bottom-up analysis to maintain a value bias to the holdings within your portfolio.

But there is still a problem with the applicability of this philosophy: your ability to 'actively manage' your portfolio's beta is a function of your ability to accurately call the market's short-term direction *correctly on average* over time. But just because most of us *think* we are reasonably competent at calling such short-term moves doesn't mean we are. In fact, the reality is that we're appalling at it.

The future is wild, but our forecasts are mild

One problem is that many of the big moves we're supposed to "trade around" are fundamentally unpredictable (Taleb's Black Swans) and no amount of research will predict such events. Perhaps a more important thought is that we're simply not hardwired to see and act upon the big moves that *are* predictable (Taleb's Grey Swans).

To see why, it's important first to understand the nature of those big "outlier" moves. Benoit Mandlebrot, the inventor of fractal geometry, distinguished between uncertainty that is *"mild"* and that which is *"wild."*[1] For in a sample from a population that is only *mildly* random, extreme occurrences won't change the estimated characteristics of the population. To use Taleb and Mandlebrot's example[2], imagine taking 1000 men at random and calculating the sample's average weight. Now suppose we add the heaviest man we can find to the sample. Even if he weighed 600kg – which would make him the heaviest man in the world – he'd hardly change the estimated average. If the sample average weight was similar to the American average of 86kg, the addition of the heaviest man in the world (probably the heaviest ever) would only increase the average to 86.5kg.

With mild distributions, extreme outliers are insignificant to our understanding of the likely weight of someone randomly chosen from the population. The insignificance of such outliers makes the uncertainty around people's height, blood pressure or IQ so mild that fairly accurate probabilities can be judged using the well-known Gaussian "bell curve" distribution. The bell curve is usually referred to as the *normal* distribution because it has known and convenient properties, yielding safe and predictable probabilities, and we like to think that safe and predictable is *normal*.

But it's not actually that normal. There are plenty of very important variables which are more "wildly" random and in which outliers make a transformative difference. For example, suppose instead of taking the weight of our 1000 American men, we took their wealth. And now, instead of adding to the sample the heaviest man in the world we took one of the wealthiest, Bill Gates. Since he'd represent around 99.9% of all the wealth in the room he'd be massively distorting the measured average so profoundly that our estimates of the population's mean and standard deviation would be meaningless. If wealth distribution was mild this would never happen. But it's not. So it does. If weight was wildly distributed, a person would have to weigh 30,000,000kg to have a similar effect!

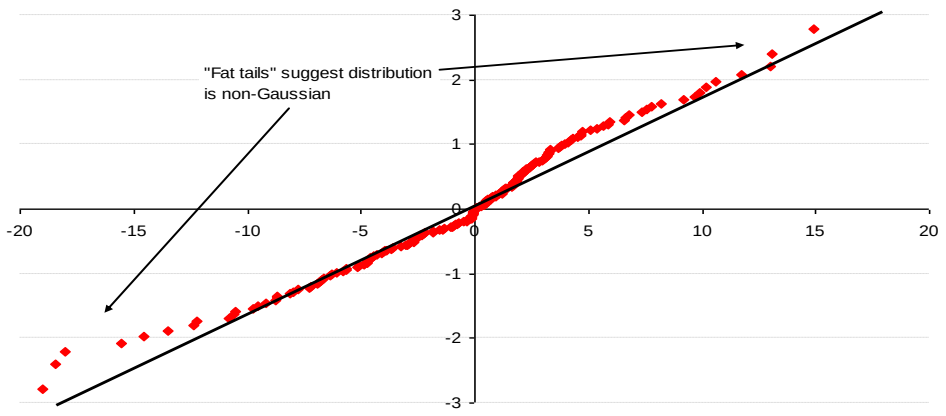
The simplest way to see if something is mildly random – if it follows a Gaussian distribution – is through a QQ plot. You plot the variables of the series you're interested in on one axis with manipulations of the same variable (which ensures it is *Gaussian by construction)* along the other, and if the scatter plots a neat diagonal line, your distributions roughly match and your variable is likely normally distributed. If it doesn't you may have a "wildly" random variable on your hands.

The following chart shows a QQ plot of three-month changes in various dollar exchange rates from mid-2006 to the present. Simply eyeballing the data shows that we can't draw a neat straight line through the scatter plot, suggesting the data is non-Gaussian (more rigorous statistical tests show this to be true) and the "fat tails" are clearly visible. It has been known for some time that financial market variables were not mildly random, but LTCM demonstrated just how dangerous assuming away wild randomness could be.

[1] See *"The (Mis)behaviour of markets: A Fractal View of Risk, Ruin and Reward"* by Benoit Mandlebrot. In the *"Black Swan"* Taleb drew a similar distinction between Mediocristan and Extremistan

[2] See "Mild vs Wild Randomness: Focusing on those Risks that Matter" by Benoit Mandelbrot and Nassim Taleb

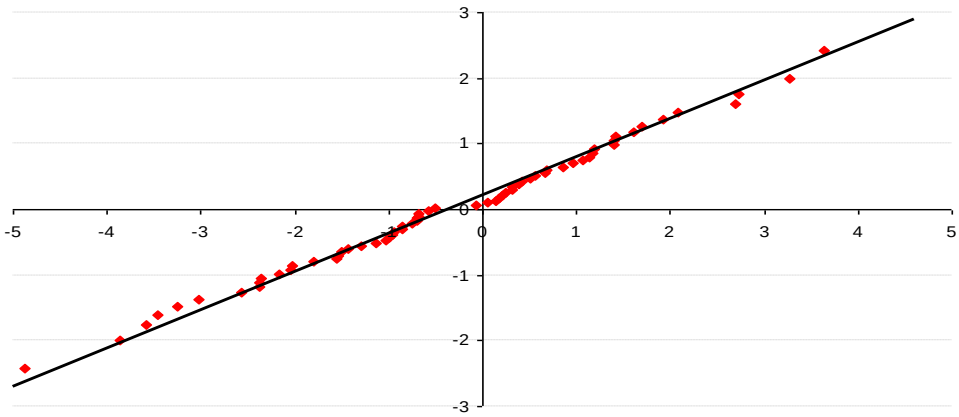
Wildly random exchange rate changes: a QQ plot of 3m % changes in various USD rates



Source: SG Cross Asset Research

Now take a look at a similar plot below, only this time of *forecast* 3m changes (I calculated these using Bloomberg's history of quarterly forecasts relative to the 3m forward rates prevailing at the forecast date). Contrast the near perfect diagonal straight line below to the poorly fitting one above. Forecasts are mildly distributed along Gaussian lines (more formal statistical tests show this to be true). Thus, even though we know changes in financial market variables are non-Gaussian, our *expectations* of those changes remain Gaussian. We see the world in which we live as mild even though we know it's wild.

Mildly random expectations: QQ plot of *expected* 3m % exchange rate changes



Source: SG Cross Asset Research, Bloomberg

Why we all think we're great traders

I was dumbstruck in a recent meeting I did with Albert when one of the attendees, who was a well known tech bull in the late 1990s, dismissively claimed (with a *completely* straight face) that Albert's call to overweight bonds relative to equities in 1999 was *"pretty **consensus** at the time really."* This was a time when the tech mania was in full swing, when adding "dot com" to the end of a company name was enough to double its share price *that day*, when the Nasdaq was trading at a PE in excess of 50x, and when Jim Cramer was telling investors in his hedge fund that PE ratios were redundant because none of his favourite stocks even had earnings

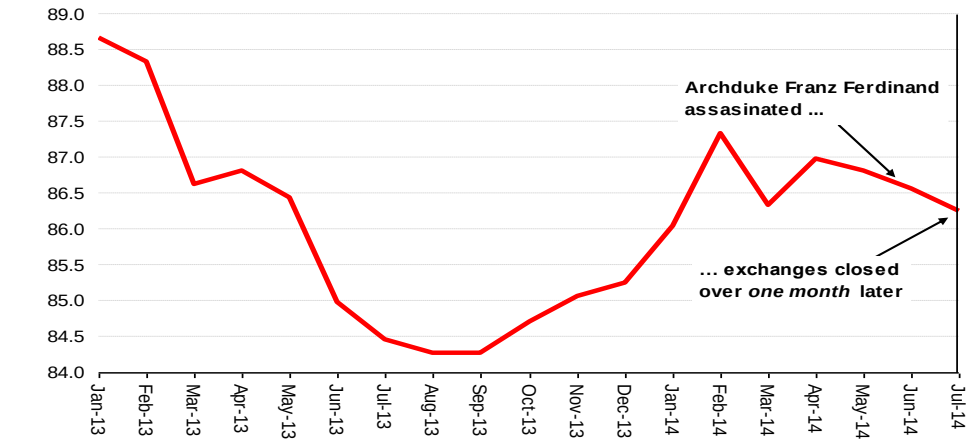
"*so we won't have to be constrained by that methodology for quarters to come*."[3] Yet Albert's call to sell stocks and buy government bonds at this time was "*pretty consensus"!*

Niall Ferguson has given a brilliant example of how such "selective memory" can permeate the collective psyche. In his book "*War of the World*", his fascinating interpretation of the 20th century's rolling conflicts, he shows that pretty much any narrative of WW1 will painstakingly show how all the warning signs of an impending conflict were there and how *inevitable* the war must have seemed at the time. Germany and France almost came to blows in 1911 over Morocco in the Agadir crisis, a European arms race was in full swing as Russia committed in 1912 to rebuilding its military, and the Kaiser's determination to surpass Britain's naval supremacy was intensifying the armaments build-up in Germany and the UK. Indeed, at Germany's Imperial War council meeting of 1912, von Molkte even argued (*now* famously) for an immediate attack on Russia since war with her was *"unavoidable, and the sooner the better."* The march to war was clearly on, wasn't it ....

Well yes, with hindsight perhaps, but no-one realised it at the time. The now familiar historical notion is that a tension was slowly building up between the European powers and that this reached such a fever-pitch that by 1914, when Archduke Franz Ferdinand was assassinated in the Balkans, Europe was a like a barrel of gunpowder just waiting for a spark. But as Ferguson shows in his book, this notion is in fact *highly* dubious. It implies that everyone knew how significant the above events were *at the time*, which they did not.

Or at least, the bond market didn't. The chart below shows German bond prices (which were considerably *higher* than they had been a year earlier) had *barely budged* following the assassination of the Archduke, which ultimately triggered the "war to end all wars"!

The German bond market didn't see the Archduke's assassination as a war trigger



Source: SG Cross Asset Research

The classic study on hindsight bias was done by Fischhoff and Beyth[4] who asked their students to estimate probabilities for possible outcomes during Nixon's visit to China in 1972 before it occurred (for example, *"what is the probability that the USA will establish a permanent diplomatic mission in Peking, but not grant diplomatic recognition"*). What the subjects didn't know was that they would be later asked to recall those probabilities. But when they did, between two weeks and six months after the visit, they recalled that their

[3] *"Winners of the New World"* by Jim Cramer, speech given at the 6th Annual Internet and Electronic Commerce Conference and Exposition, 29 Feb 2000

[4] See "*I knew it would happen*" Baruch Fischhoff and Ruth Beyth (1975)

estimate of events that did happen was much higher than their actual estimate had been, and likewise that their estimate of events that had not transpired had been much lower.

This hindsight bias helps explain our inability to see outliers. If you were perfectly rational in forecasting returns, an unexpectedly positive or negative number would widen your volatility estimate. But if you "*knew it all along*" you wouldn't accept that the return was unexpected. Your estimate of potential price volatility would be unchanged and you'd continue to disregard the possible outlier events as too unlikely because your forecast range would remain too narrow. This was actually evident when I put the data together for the QQ charts above. The standard deviation of the *actual* exchange rate changes was 5.7%; that for the *forecasts* was only 1.8%.

This over-confidence bias is well documented. In spelling tests, subjects who mark answers they're "100% certain" of are only correct 80% of the time. Where an error of 0% is expected, one of 20% occurs. But hindsight bias contributes to this natural pre-disposition towards overconfidence because if you think you predicted past events accurately, you'll think you can predict future events too.

If you ask a class of students how many expect to finish in the top 50%, come the end of the year around 80% will put their hand up. Similarly, I've been amazed at the number of clients who've told me they think "*buy and hold is dead*" and that "*these markets have to be traded.*" For traders in the market, the odds are considerably worse than students in exams. Performance data typically show that around 70-80% of active managers underperform the indices[5] while studies of brokerage accounts show similar odds for individual traders.

There is absolutely nothing wrong with "trading these markets" if that's what you love doing and it's what you're good at. But the evidence clearly shows that the *vast majority* of us aren't. Worse, the vast majority of those who *think* they are good at it aren't either, and they will be competing against traders who are. So my advice to anyone about to embark upon Einhorn's path of using macro to *"actively manage your long-short exposure."* is to think long, hard and honestly about what your sphere of competence actually is. Otherwise, the chances are that you'll be making your broker far happier than your investors.

So what is the point of macro research?

So if our confidence in our forecasting ability is for most of us more likely to be reflecting a cruel trick of our evolutionary development than any real ability, is macro research completely redundant? I don't think so. In fact, I agree with the second part of David Einhorn's conclusion in the excerpt above, of "*when appropriate, buying some just-in-case insurance for foreseeable macro risk".*

At this year's Berkshire Hathaway conference, Charlie Munger said that while most people and firms do whatever they can to avoid large losses, Berkshire Hathaway is designed to take them. *"That's our edge"*, he said. When asked about his successor at the helm of Berkshire, Buffett said that the most important thing his successor at Berkshire must be able to do is "*to think about things which haven't happened before.*" Most insurance companies lose money on their underwriting operations but make money on the float. Berkshire Hathaway makes profits on both. They haven't been able to do this because they've been better at predicting the future than the competition – they openly admit to not even trying – but because their whole approach is grounded in a) the understanding that "outlier" events happen every few years,

[5] See for example Standard and Poors SPIVA Scorecard results here

and b) being patient enough to hold capital in preparation for deployment when such "outliers" inevitably arise.

There are two broad approaches to a more insurance-based approach. The first and most simple is the *avoidance of the purchase of overvalued assets.* Ensuring an adequate margin of safety against the unknown and unknowable future – rather than trying to predict it – is the central philosophy behind Ben Graham's concept of value investing and one of the simplest differences between investment and speculation. It's as important today as it has always been and is why a careful and prudent analysis of valuation is so important. *This* is why I spend what some might think is an unusual amount of time on equity valuation for a macro strategist.

The second approach is to focus on the "grey swans" - the tail risks which *are* predictable - by devoting time to thinking about them and to finding effective and efficient protective insurance should they happen. Most of the research Albert and I write aims in this direction. It is for most of us, I believe, a more fruitful use of macro research than trying to predict various markets' short-term moves. There is a very big difference. Some have interpreted my work on government solvency as a reason to short government bonds, and JGBs in particular. I've actually never suggested doing this. To get it right you have to get your timing right, and … well … see the above on how confident most of us (myself included) should be about that.

But just because you can't predict *when* something will happen doesn't mean you should act as though it *won't* happen. If, for example, you are as worried about the implications of what appears to be widespread public sector insolvency in developed markets as I am, there are numerous insurance products worth considering. *Popular Delusions* is of course a strategy product, and regulatory boundaries preclude me from making too specific recommendations, so I'm going to end by doing something I very rarely do: shamelessly plug my colleagues (look away now if you don't want to be soiled by such unbridled commercialism!).

I think it's fair to say that derivatives is one of SocGen's genuine competitive strengths. We have a world class and award-winning derivatives operation and, as far as I know, compete favourably with any other house on the street. So if you're like most of the clients I talk to and are interested in insuring against any of the scenarios Albert and I have explored in our research (whether an inflation crisis in Japan, the break-up of the euro, a funding crisis in the US, a Chinese hard landing) or indeed any that we haven't, but don't know the best way to do so, let me know and I will put you in contact with the appropriate members of the derivatives team here. Having sat down with them in recent months, seen them work and seen the tail-event hedges that can be squeezed out of the options market I'd be surprised if you *weren't* impressed at what can be done. I certainly have been.

Trying to bullet-proof your portfolio (24/01/2011)

At this time of the year we're supposed to give our predictions for what's in store for the year ahead. The problem is I don't have any. Not because making forecasts is difficult. It isn't. It's just pointless. Instead, I suggest getting in touch with our inner Kevin Keegan, the hapless former England football manager who, facing the sack after a bad run of results famously lamented "I know what's around the corner, I just don't know where the corner is." The more people construct portfolios on the assumption that they can see the future, the greater the opportunity for those building portfolios which are robust to the reality that we can't.

■ One presentation I did just after I'd joined SocGen sticks out in my mind. I said that I no longer felt equity valuations to be consistent with attractive long-run returns. "I don't care about long-term returns," the PM threw back at me, apparently piqued that I'd mentioned the long-term: "My job is to make money for my clients every day." She leaned forward and rapped the table with her index finger when she said "every day." I paused, wished her the best of luck and handed over to Albert ...

■ I do understand how she feels though. The short runs which add up to the long run seem designed to beguile and mislead investors. The ever eloquent Hugh Hendry, fund manager at Eclectica likens it to a "wilderness of mirrors." Regular visits from those two imposters – triumph and disaster – only add to the confusion. Volatility, drawdown, relative performance, client flows all prey on the insecurities lurking deep within, beckoning investors to the comfort of the crowd and the false sanctuary of what everyone else is doing. Thus 'price targets' (a concept entirely distinct from intrinsic value) are in, punchy forecasts for next quarter are in, finding the next hot commodity and/or EM 'play' is in, top ten surprises are in, being contrarian is in (but don't forget to get the timing right).

■ The thing is though, none of it works. Reflecting on the role poisonous political debate might have played in the recent Arizona shootings, my favourite American satirist, Jon Stewart said "I wouldn't blame our political rhetoric any more than I would blame heavy metal music for Columbine. Boy, would it be nice to draw a straight line of causation from this horror to something tangible, because then we could convince ourselves that if we just stop this, the horrors will end. But ... you cannot outsmart crazy. Crazy always seems to find a way; it always has." You can't outsmart crazy. That's the problem.

■ But you can work with it. Franz Kafka exploited his craziness by embracing it: "My peers, lately, have found companionship through means of intoxication – it makes them sociable. I, however, cannot force myself to use drugs to cheat on my loneliness – it is all that I have – and when the drugs and alcohol dissipate, will be all that my peers have as well."

■ In financial markets, craziness creates opportunity. It affects only prices, not values. And one of the craziest afflictions I know of is our faith in our ability to see the future. Indeed, there isn't even an appropriate opposite to the word 'foresight' in the English language. So I'm going to make one up. And rather than build a portfolio based on the pretence we have foresight, let's explore some ideas for building one that is robust to our foreblindness.

Here are some things I think are true:

- developed economy governments are insolvent
- Japan is the highest risk developed market (DM) to an inflation crisis (though it might be Greece)
- there is too much debt around
- China's economic model is biased towards misallocating resources
- every country which has industrialized has experienced nasty bumps on the way
- China and the US are in the early stages of an arms race
- demographic trends suggest more conflict in the oil rich regions of the world
- bottlenecks are developing in key commodity markets
- the only thing central banks are good at is blowing the bubbles that cause the crashes which are used to justify their existence
- market prices only reflect fair value by accident and in passing
- most people don't think these things are important
- they might be right.

Here are some things I *know* are true:

- perceived uncertainty causes emotional discomfort which isn't conducive to good decision making
- all the above situations have the potential to cause significant asset price volatility
- I have no idea when.

What to do? To my mind, the ideal is not to make huge bets on particular events happening because failure of the expected event to materialize will materially endanger your capital. Instead, the ideal is purchase insurance at a price which won't materially pressure the returns from your core portfolio of investments if the event fail to materialize, but will protect capital from significant impairment if it does.

Is such an ideal attainable? By evaluating insurance and using the same valuation discipline you'd apply to anything else, I think it is. So what follows is not a list of recommendations here, or even any suggestions. Everyone should do their own homework. What follows is an illustration of why I think the macro research we've been doing is relevant and can be used to lower portfolio risk. The insurable risks I'm most worried about at the moment are:

- long-term deflation
- a bond market blow-up
- a Chinese hard-landing
- an inflation pick-up
- an EM bubble

The first thing you'll notice is that these aren't all consistent with one another. It's difficult to get a Chinese hard landing and an EM bubble at the same time, for example. But internal consistency is overrated. It's only relevant for point-in-time forecasts, and the assumption underlying this entire exercise is that I haven't a clue if/when any of what follows is going to happen. At the risk of repetition, I'm interested in the possibility of building a profitable portfolio which is robust to my ignorance.

Long-term deflation

According to economists the primary risk faced by economies is that a huge deleveraging spiral becomes self-fulfilling: deleveraging reduces demand, which lowers prices, which

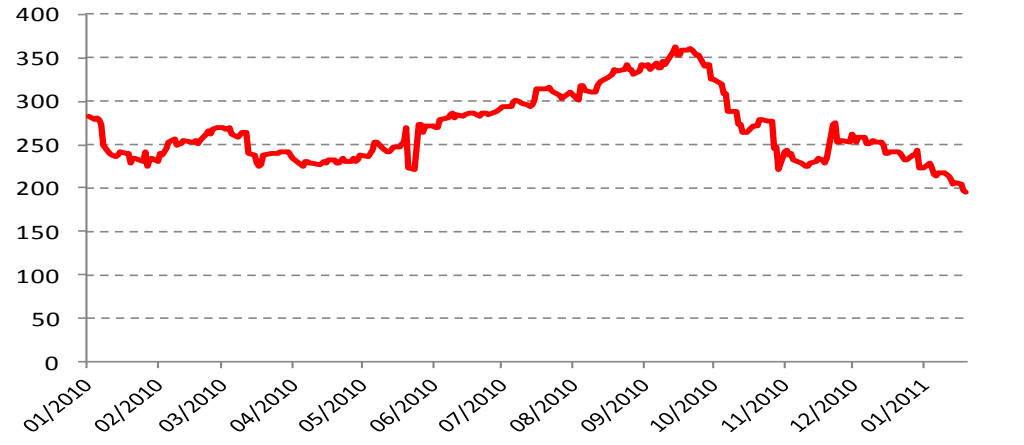
further lowers demand, and so on. The idea was first developed by Irving Fisher in the 1930s to describe the great depression, and has been used to explain the "First Great Depression" of the 1870s and Japan since the early 1990s.

Paul Krugman says everything has changed because we're in a liquidity trap. The fear of prolonged deflation is what keeps poor old Ben Bernanke awake at night. And maybe that's the clue. At our London conference this year, James Montier said that Bernanke was the worst economist of all time. Now, I'm not sure I agree with James on this one because I can't make up my mind, sometimes I think it's the Bernanke, other times I think it's the Krugman. But usually I think nearly all economists to be the joint worst economists of all time. So I have a lot of sympathy with the idea that if the consensus macroeconomic opinion is worried about something, it probably isn't worth worrying about. In fact, if they worry about deflation, I'm going to worry about inflation.

More importantly though, deflation insurance is expensive. The following chart shows the price of 5y 0% US CPI floors to be trading for just under 200bps. The way these floors work is that they provide the owner of the contract with the right to payments equal to the rate of deflation. Since the floors in the chart have a five-year maturity, they entitle the owner to five annual payments. For example, if inflation was -1% in year one, the owner would receive 100bps of the notional value of the contract. If inflation was -1% in year two, he'd receive another 100bps. And if the rate of deflation remained at -1% for years three, four and five, he'd receive 100bp cashflow for each of those annual payments so that over the life of the contract he'd have received a total cashflow of 500bps. So if you're worried by the prospect of CPI deflation, this is the product for you.

And sceptical though I am of the debt deflation hypothesis, Western demographics worry me. Although we don't know what ageing economies look like, we know that the glimpse into the future provided by Japan isn't encouraging. So I do take the scenario seriously and would be happy to put the hedge on at the right price. The problem is, I don't think the price is right. I think this insurance should be sold, not bought.

US 5yr 0% CPI floors (bps)



Source: SG Cross Asset Research

I first wrote about this at the end of September last year[6] when it was trading for 360bps. In crude terms, this meant that the break-even average inflation implied was about -0.7%

[6] See "The search for cheap insurance (and letting the upside take care of itself)", Popular Delusions, 24th September 2010

(360bps/5yrs), which I thought was overpriced. Today, the same product is trading for 200bps, which means as a buyer of this hedge, you'd only make money if inflation averaged below -0.4%. While 200bps is a more realistic price than 360bps, I still don't think it's realistic enough and so I'd still be happy to sell that deflation insurance at current prices.

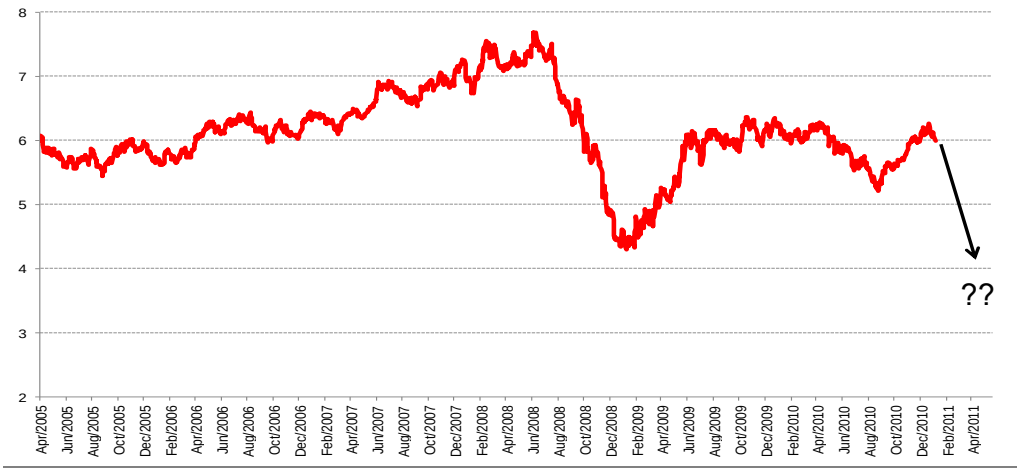
The deflation risk which worries me far more comes from China.

Chinese hard landing

Albert calls China a *'freak economy.'* Certainly, running with an investment to GDP ratio of over 50% doesn't seem normal. Neither does keeping interest rates at 5% when the economy is growing by 15% in nominal terms each year. Such lax monetary conditions have helped land prices rise by 800% in the last seven years, according to NBER economists[7]. And when you come to think of it, more recent examples of real estate inflation fuelled by negative real interest rates – Ireland, Spain, the US – didn't end too well. Jim Chanos says China is a short-seller's dream and that there's not one company he's looked at that passes the accounting sniff test. And if Jim Chanos, who built a very successful business around spotting accounting gimmickry says something like that, my guess is he's right.

Taking a step back though, as far as I'm aware all industrialized countries have experienced financial crashes. It seems a part of the maturing process. Why should China be any different? A credit crisis wouldn't necessarily mean the end of the China story any more than the panic of 1873 meant the end of America's, (though US demographic prospects were considerably more favourable at the end of the 18th century than China's are today …). For the record, I think the Chinese have a bright future. My son is learning Mandarin. But when I look at the numbers I can't help but think there's going to be a crash and that it's going to be quite unpleasant. It's just that my guess as to when it's going to happen is as good as Kevin Keegan's.

Where would Australian swap rates trade if China crashed? (AUD swap rate, %)



Source: Bloomberg

When it does happen though, the Australian economy will be toast and its government bond yields will collapse. During the panic of 2008, AUD 10y swap rates fell around 3% to 4.40%. The panic of 2008 was a 'good crisis' for Australia though. A Chinese crash would be more serious.

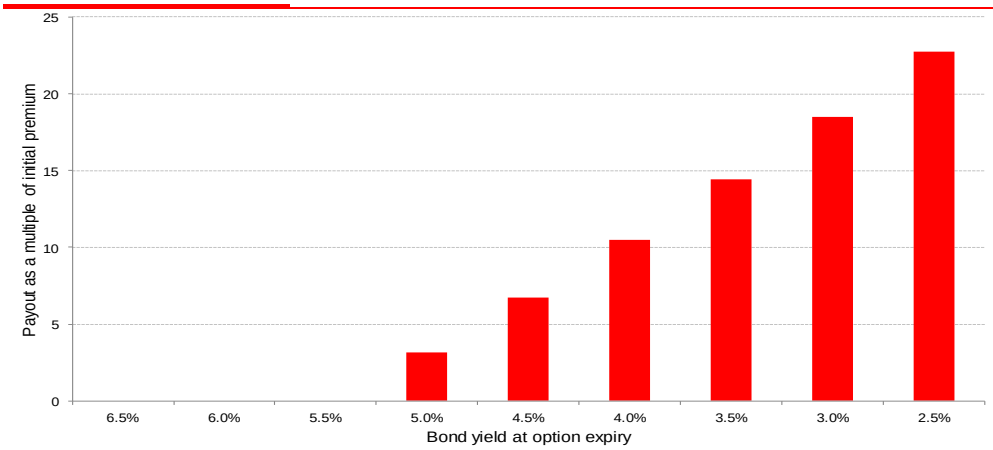
And you can get pretty attractive odds on AUD rates collapsing. The following chart shows the payout available using AUD receiver swaptions prices with a three-year maturity, based on the

[7] See "Evaluating Conditions in Major Chinese Housing Markets", by Jing Wu et al, NBER paper 16189

10y swap rate. Effectively, these are put options that pay out when rates fall below the strike price. The prices I've used here are from Bloomberg based on the swaptions striking at about 5.5% (i.e. 100bp below the current rate of 6.50%)

What's interesting is that at current prices, if Australian swaps were to break their 2008 lows, you'd be making about 10x your premium (for the record, these swaptions are priced at about 120bps, or 40bps per year over three years, which is about the same as the annualized revenue you'd get if you sold the CPI floors discussed above). If swap rates fell by 300bps – as they did during the panic of 2008 – the rate would fall to 3.5% and you'd make nearly 15x your premium. To repeat the point I made earlier, this isn't a recommendation. It's just a starting point (my guess is that you'd find more attractive payouts as you went further out of the money with the strike price, and that capital structures of Australian banks, property companies and levered resource stocks would be worth looking into too).

10x payout available if Australian swap rates break their 2008 lows within three years



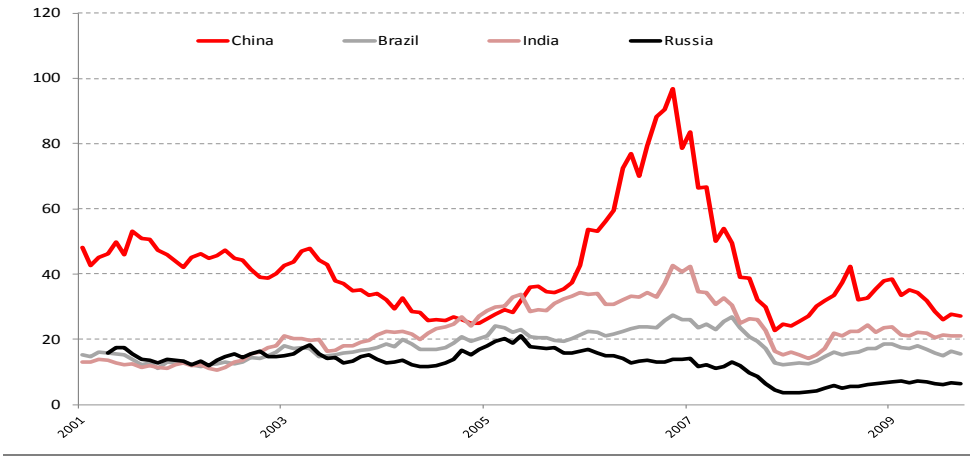
Source: SG Cross Asset Research

Asset bubbles

But what if China doesn't hard land any time soon? My guess is that there will be little to get in the way of an EM bubble – they have a much better story than DMs. They have solvent governments, generally more favourable demographics, lots of scope for income catch-up, etc., etc., … and central banks have historically been very good at keeping monetary policy too loose for too long when coming out of recession (or even when not coming out of recession come to think of it) … and when you add abundant liquidity to a great story, strange things happen to people's sense of perspective. You get bubbles.

Some might say EM is already a bubble. Certainly, Mexico issuing 100-year bonds at 6% last year (*Mexico, 100yrs, 6%* !!!) is closer to irrational exuberance than to irrational despair. But while equity markets from the top down don't look cheap, neither do they look expensive. The chart below suggests a return to the pre-crash valuations would see them double from here.

EMs could double if they were to revisit their pre-crash levels (7yr real CAPE ratios)



Source: GFD, SG Cross Asset Research

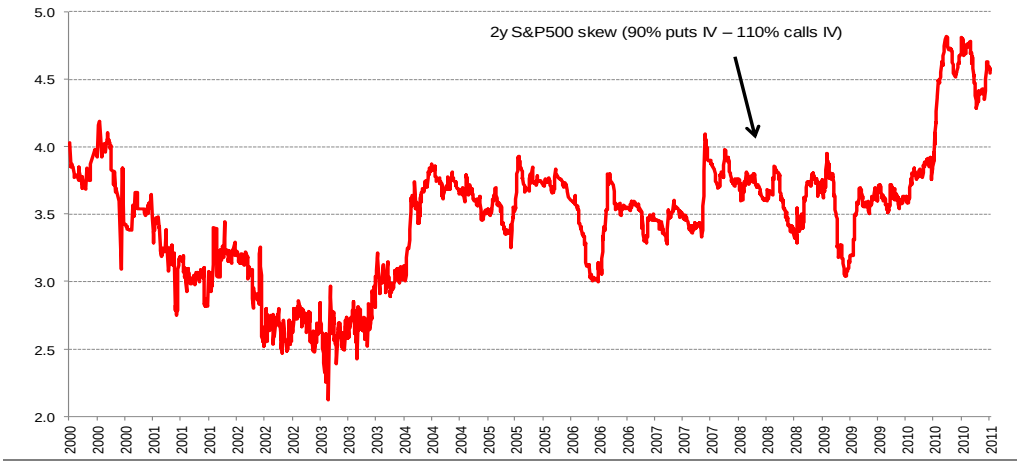
And this might all sound very bullish for EM, but it depends on your perspective. For reasons I won't go into now, but which are probably obvious from what I just wrote about China, I think EM is riskier than it seems. I'm not even sure I feel comfortable valuing EMs yet. So should EMs bubble up, the risk for investors sharing my concern is that they'll be faced with quite a nasty dilemma: do they buy something they don't feel sure is cheap because everyone else is and they're scared of underperforming, or do they stick to their principles and prepare themselves to take on the business and career risk of underperforming their competitors, seeing clients withdraw their funds, and possibly finding themselves out of work?

And the sad reality is that ultimately nearly everyone gets hurt during a bubble. Sceptics get hurt as it inflates, believers get hurt when it bursts. George Soros says when he sees bubbles he buys them. He's been pretty good at selling them at the right time too. But most of us aren't so clever.

It looks different if you treat it as an insurable risk though. One way to hedge the *inflation* of a bubble, rather than its *bursting,* is to buy out of the money call options on the equity indices. Calls are usually cheaper than puts – I think because fear is a more powerful emotion than greed and the tails in equity markets tend to be on the downside. But the following chart shows that that difference (or skew, the difference in implied volatilities between puts and calls) is close to unprecedented highs, at around 4.5 vol points (the chart shows skew for the S&P500 though other equity indices show a similar picture).

In other words, the upside is close to unprecedentedly cheap relative to the downside. If you could get two year call options 30-35% out of the money for 130bps per year you'd be getting good value (of course you could make this zero cost, or even –ve cost by selling puts to fund the purchase, and you could do it in such a way that your downside risk would be similar to that of holding stock, but I'm no derivatives strategist … as usual, if you want to talk about this stuff to people who know more than I do, speak to your SG derivatives salesman, or ask me and I'll put you in touch).

Bubble insurance: 2yr option equity skew close to all time highs



Source: SG Cross Asset Research

Bond market blow-up

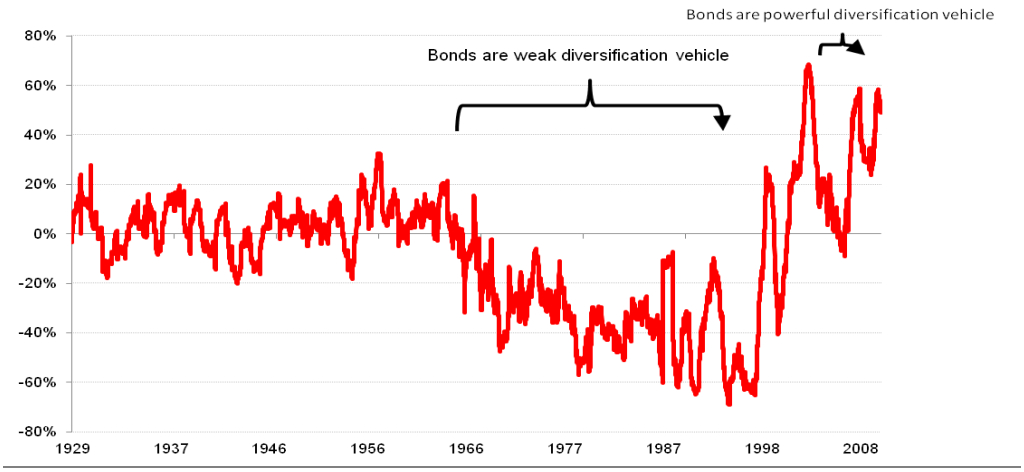
Part of the EMs' 'story' is that unlike DMs, they have solvent governments. I spent a lot of last year (and the year before come to think of it!) worrying about the insolvency of DM governments. And it's not the liabilities, which are visible and on the public sector balance, that is the worry, but the unfunded promises which are off-balance sheet. The fact is that if governments had to account for their finances the same way companies do, they'd be bust. Most investors we speak to about this say they're not worried about this at the moment because it isn't a problem for a few years yet. But I'm not so sure it works that way. I remember people saying Greece would be fine in 2010 because the funding problems wouldn't materialize until 2013. All that happened was that holders of Greek debt looked forwards, iterated backwards and tried to sell first. So 2010 wasn't such a great year for Greek debt after all.

The other thing about Greece (actually, the European situation too) is that there's no point in waiting until something becomes obvious to everyone else. By then, the best prices will have gone. This is one of the problems with finding decent hedges in the eurozone – everyone is aware of the risks. You can argue about whether or not people fully appreciate the dangers of a euro break-up (personally, I'm not convinced it's going to last) but at the moment it's difficult finding insurance against this outcome that won't really hurt your portfolio if the euro situation settles down from here.

One obvious way to hedge against a bond market blow-up is to use the swaptions market as we did in the Australian market to hedge a Chinese crash, only this time buying payer swaps, which are effectively call options on rates. But I thought I'd show you something I think is a bit more interesting: the correlation between the S&P500 and bond yields.

Bonds represent poor value in my opinion, with little margin of safety to protect against the very real risk that governments try to inflate away their debts. But one good reason to continue holding them is that they protect risk asset positions during the 'tails'. The following chart shows that over the last ten years the correlation has been volatile, but positive: when equities have fallen so have bond yields, offsetting losses in the equity portfolio as bonds benefit during 'risk-off' events.

Correlation between S&P500 index and 10y bond yields



Source: GFD, SG Cross Asset Research

When inflation expectations were (probably) around zero (before the 1960s) the correlation between bonds and equities was zero too. But look what happened during the 1960s when inflation expectations broke (this was during the Vietnam war, as the Bretton-Woods system was coming under pressure and as the bear market in bonds was getting into full swing). The chart shows that the correlation went negative. When bond yields rose equities *fell* because government bonds were reflecting the same tensions that were pulling down equity valuations (fear of ever-higher inflation).

As the bond bear market reached its climax in the early 1980s, the correlation remained negative. But as the worm turned, and central banks across the developed world made new and credible commitments to stop printing money, a bond market rally was born. And as inflation expectations began to fall, what was good for the bond market was good for the equity market. Now, falling yields coincided with rising equity prices and so the correlation *remained* negative. But during the last ten years, inflation expectations have been roughly stable and, if anything, slightly biased towards the deflationary side. So what's been good for bonds hasn't been good for equities, and the correlation between yields and equity prices has been positive to reflect that.

The point is this: if governments are insolvent, and the government bond market becomes a source of risk once again (as opposed to the nonsensical "risk-free" description it has somehow obtained in recent years) what's bad for the bond market will be bad for risk assets too. As yields rise, risk assets will fall. The correlation will go negative. Bonds will provide less protection against the tail events than they have done in recent years because they will be a source of the tail event.

And the reason I'm telling you this is because this correlation is tradeable. Any bank with a derivatives operation *must* have an implicit correlation exposure between products they've sold options on. So for derivatives houses, correlation is a by-product in much the same way that molybdenum is a by-product of copper miners. and correlations like this trade in the IDM market. And sometimes that means you can get it for a very good price. I recently heard of a correlation trade between the S&P500 and the US 10y swap rate done at 40 correlation points, which seems a decent enough price to me (of course, selling at 50 points would give you even more margin of safety), although current pricing is at around 30 I believe. Pricing can be volatile though and waiting to sell in the 40-50 range seems sensible to me. It would hedge

risk positions against a regime in which government bonds were seen as the *source* of risk, rather than the reliever of it.

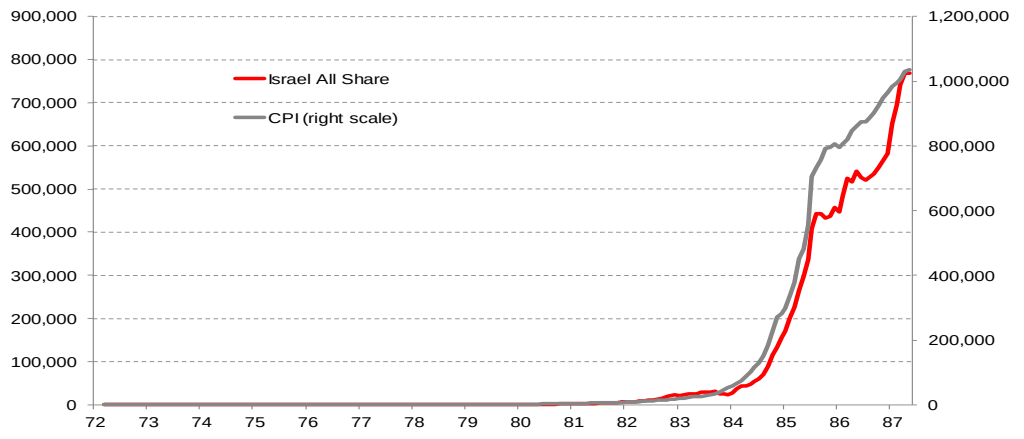
Hyperinflation

Historically, bankrupt governments have used inflation to alleviate their indebtedness. I doubt things will ultimately be different this time. And as regular readers know, I think Japan is the country closest to the edge. All DM governments have the same problems: they've made promises to their electorates which they're unlikely to be able to keep. But while there's time for European and US governments to fix the problem, for Japan I think it's already too late. John Mauldin says the Japanese government debt position is a *"bug in search of a windshield"*. I agree with him.

I've already written too much this week, so I don't want to rehash all the stuff I've already written on Japan and which regular readers will be familiar with.[8] But if you chart past episodes of extreme inflations with how stock markets behaved during the episodes, you invariably find something similar to what happened to Israel in the 1980s.

In Steven Drobny's excellent *"Hedge Funds Off the Record"* (which I consider a must read – almost every interview oozes with profound risk-management wisdom), Steve Leitner talks about buying out of the money call options to hedge against such a hyperinflation. Buying 40,000 strike Nikkei calls with a ten- year maturity, with a payout in a strong currency can be done for around 40bps per year. And to give you an idea of how explosive that asymmetry might be, if Japan was to follow the Israeli experience from here, the Nikkei – currently 10,500 would trade at around 60,000,000 (sixty million). So putting even one-tenth of your notional into that kind of hedge would cost 4bp per year (for reference, the Nikkei currently offers in excess of a 2% annual yield, while some JREITS offer in excess of 4% - I'd argue that 40bp is a bearable burden, and 4bps certainly is).

Israeli stocks rose by a factor of 6,500 during its hyperinflation



Source: GFD, SG Cross Asset Research

[8] See for example "Nikkei 63,000,000? A cheap way to buy Japanese inflation risk", Popular Delusions,15/10/2010

Putting it all together: funding the purchase of insurance

Let's add it all up and see how much it would cost to insure our portfolio. If we were to sell the 5y US CPI floors for 200bps (40bps annualized); buy the 3yr AUD receiver swaption for 120bps (-40bps annualized); buy 2yr 30% S&P500 calls for around 130bps (-65bps annualized) and bought one tenth of our notional on NKY calls for 40bps (-4bps annualised) the net upfront cost would be 90bps (200bps-120bps-130bps-40bps). If we wanted to hedge the risk of bond market turbulence with a correlation product, this would cost nothing upfront because it would be done on a swap basis with the bank. On a roughly annualized basis our cost would be 69bps each year.

Of course, we'd have a maturity mismatch because our hedges would have different time horizons. So we'd have to adjust them from year to year. We'd also be more vulnerable to deflation because we don't think the deflationary hedges offer value. So our portfolio wouldn't quite be bullet-proof because it would be tilted towards inflationary outcomes. But we'd have insurance against deflation with the Australian receiver swaption. And since the correlation swap hedges us against any bond market blow-up which also blows up the equity market, we can feel more comfortable allocating some capital towards bonds we think might offer good value (not that there are many, I'd say maybe about 20-30% in Australian and New Zealand bonds).

I'd put 10% in gold. I'll explain more in another note but for now, although I've said I'm not a fan of plain commodities as investment vehicles because buying commodities was equivalent to selling human ingenuity, I exclude gold from that logic. I prefer to see buying gold as buying into the stupidity of governments, policy-makers and economists, and I'm comfortable doing that.

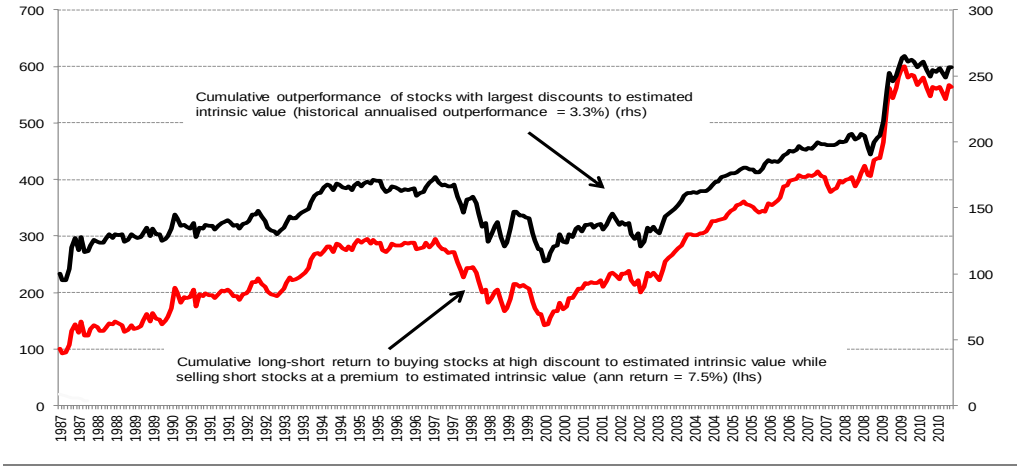
With the exception of Japan (which we'd be hedged against anyway) I'm not so worried about "traditional" CPI inflation any time soon. At the moment, I think the first signpost on the way to that kind of crisis will be via the bond market, which the correlation swap should protect us against. That and my gold holdings would make me comfortable allocating 20%-25% cash. I still think risk assets are generally overvalued and cash is the simplest insurance 'option', whose relative value rises proportionate to the decline in other assets. So let's say I'm 20% in cash,10% in gold, and 20% in mainly Australian and New Zealand government bonds. That leaves just under 50% of my capital for me to put into the equity market (the 69bps per year for my insurance bucket to be precise).

Which equities? I've always thought investing in index funds to be crazy, but nearly everyone does it and it's a part of the craziness we can use to our advantage. The EMH says that market prices are always broadly efficient because all market participants respond to all available information. But around 10% of the market is *explicitly* passive and probably another 50% is benchmarked and therefore *implicitly* passive. In other words, the overriding variable for the majority of equity investors is a company's weight in the index! Intuitively therefore, the prices can't fairly reflect fundamental value, which means that at any point in time, there will be lots of stocks which are mispriced.

The following chart shows two lines. The red line shows the cumulative return to buying stocks in the cheapest decile, while shorting stocks in the most expensive decile (I define value as the discount relative to the estimated intrinsic value – a methodology I've been meaning to write up in detail for several months now but which I will definitely do within the next few weeks). Using a monthly rebalance, the annualized return is 750bps. This shows that there is meaningful alpha in identifying and owning those stocks trading at a discount to intrinsic value. The black line shows the relative outperformance of the top decile against our wider stock universe. (In passing, note that this value strategy underperformed in the late

1990s during the tech bubble, and remember that this is the reason our hypothetical portfolio has out of the money call options.)

There is always relative value



Source: Factset, SG Cross Asset Research

The relative outperformance of this long-only basket has been 330bps. If I expect a stock market return of 5% per year over the coming years, that 330bps outperformance is highly significant. It means we only need to put 60% of our capital into that basket of stocks to generate the same incremental return as a market portfolio would generate. So owning 50% isn't as cautious as it sounds.

In the sort of world in which everything is normally distributed, well behaved, and in which our insurance expires worthless (i.e. the sort of world most economists forecast), we'd still be making decent returns. And while there's no such thing as a truly bullet proof portfolio, we'd have done so with far less embedded risk. Because if any of the scenarios I've explored here come to pass we'd be in a much better position to take advantage of the distressed selling of others.

What we talk about when we talk about love
(17/02/2011)

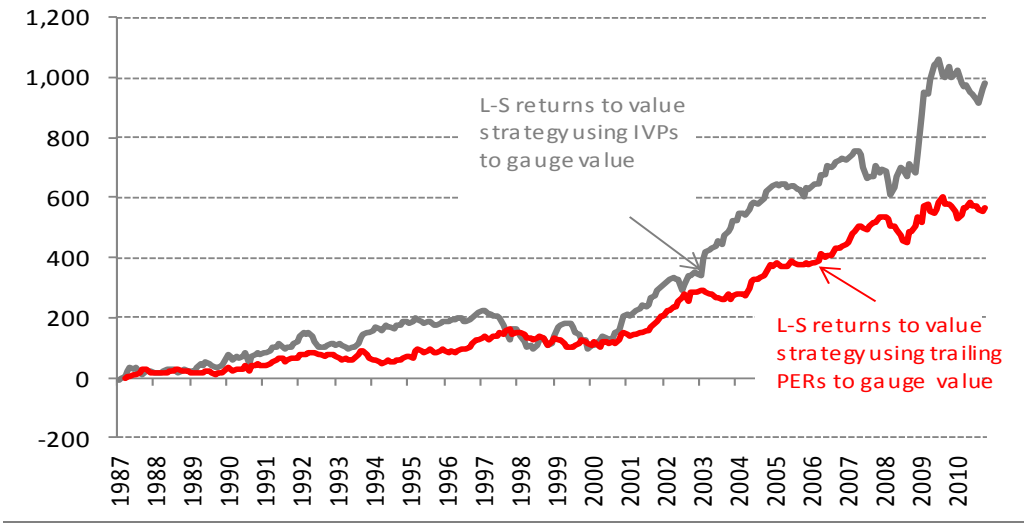
Regular readers know I value equities using a variant of Ben Graham's 'appraisal method' which compares estimated intrinsic value to market price. I call this intrinsic value to price (IVP) and have in the past steered clear of going into any detail on my methodology on the assumption that most clients would find it too boring for words. But the most common request I've received by a distance is for the gory detail behind my intrinsic value estimates. So this week, that's what you're going to get.

▪ Before we start, though, let me be clear about what intrinsic value is not: intrinsic value is not a price target. Price targets are the bane of financial research, limited-information trading 'calls' and meaningless forecasts based on the highly suspect assumption that the future is knowable. Worse, what have price targets to do with value? Does a year-end S&P500 price target of 1600 mean the S&P500 is worth 1600? No more than the South Sea Company was worth £1,000.

▪ Ah, you might say, but who cares what the S&P500 is worth? All that matters is where it will be at the end of the month/quarter/year. And this is great in theory. But it's flawed in practice because there are far fewer people who are capable of knowing where things will trade at the end of the month/quarter/year than there are people who think they're capable of knowing. For most of us, a more realistic way to forecast investment returns isn't to rely on a far-fetched ability to forecast events. It is to buy assets at a discount to intrinsic value that is large enough to compensate for our inability to forecast events. So this week I'm going to go into more detail on how I estimate intrinsic values.

▪ Before I do though, please bear the following chart in mind. It compares the hypothetical returns to two value strategies which buy the cheapest basket of stocks each month while shorting the most expensive. The red line shows the returns when a trailing PE ratio is used to gauge value, the grey one when IVP is used. As can be seen, IVP works better.

The edge in IVP analysis compared to standard PER (cumulative returns)

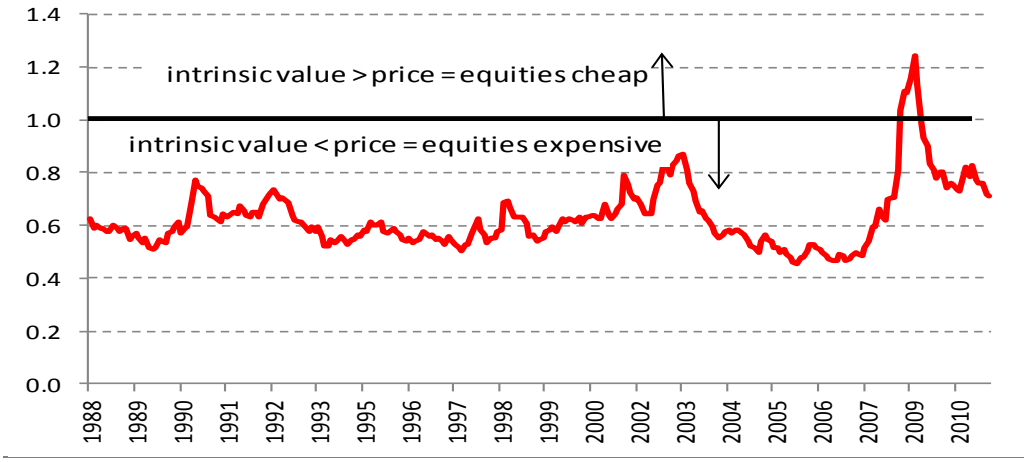


Source: Factset, SG Cross Asset Research

The search for intrinsic value

And to put the cart before the horse, let's just briefly survey some of the IVP output before looking at how intrinsic value is estimated. The following chart shows the ratio of intrinsic value to price for the entire global equity market (FTSE World ex-financials) to be at around 0.7x. This means that for each dollar paid for our global index of equities we're receiving only 70c of intrinsic value, so a 30% decline in share prices would be required to restore fair value.

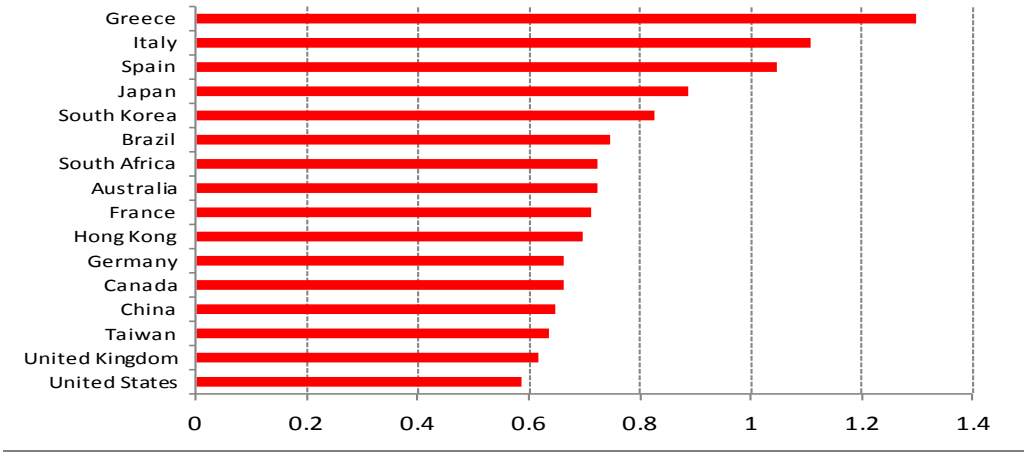
Aggregate IVP ratio for FTSE world ex financials



Source: Factset, SG Cross Asset Research

Of course, this is only the situation in aggregate. The following chart drops down a level and shows IVP by major market. It's interesting that the three markets with intrinsic values higher than current market prices (IVP>1) are eurozone hotspots. Japan is interesting too. Although its IVP ratio is less than 1.0, Japanese corporates generally have net cash surpluses. As we'll see below, the model I use to estimate intrinsic values unfairly punishes Japanese companies in a couple of ways. All else equal, Japan's IVP ratio will be biased downwards. Yet its IVP ratio is among the highest. I intend to investigate soon.

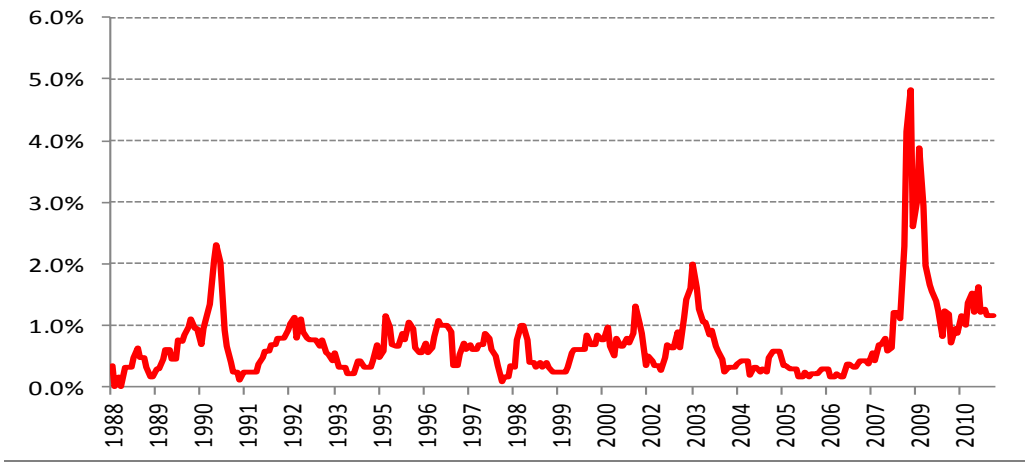
IVP ratio by major market



Source: Factset, SG Cross Asset Research

As for individual stocks, remember that while it's better to buy higher IVP than lower IVP, it's better to buy high IVP on *quality stocks* than plain old high IVP. A few weeks ago I did this by combining the IVP ratio with the Piotroski score (a composite score of balance sheet strength). The chart below shows companies trading at a meaningful discount to intrinsic value (i.e. a minimum IVP ratio of 1.33, giving us a decent margin of safety) *and* which have solid balance sheets on a Piotroski basis. I think of such stocks as 'discounted quality' stocks. Currently, just over 1% of the universe falls into that category.

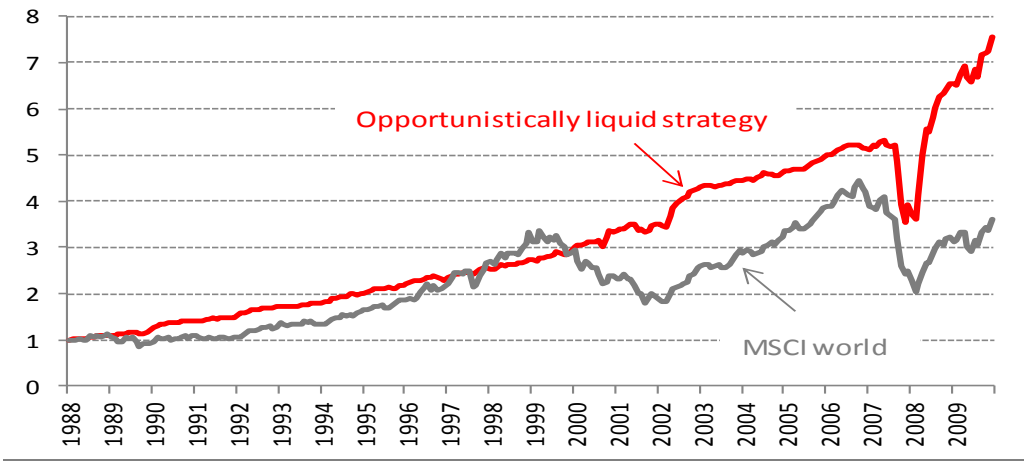
Discounted quality: % of 'quality' stocks trading at a significant discount to intrinsic value



Source: Factset, SG Cross Asset Research

This is enough to work with though. Suppose you *only* bought discounted quality names. You aimed to run a portfolio restricting your universe to at most of 3% of the stocks in the overall universe and allocated your capital equally to them. If you couldn't find any stocks you wouldn't own any. You'd sit on cash. But if you could only find, say, five such stocks, you'd only allocate the capital you'd already set aside for those five stocks, leaving the rest in cash. For example, at the moment the universe has around 2000 stocks in it. Restricting our universe to 3% of that universe means we will hold at most 60 stocks, which is 1.67% of our capital per stock. So if we could only find six discounted quality stocks, we'd only invest 10% of our capital (6*1.67%). I call this 'the opportunistically liquid' strategy. Here's what your return profile would look like compared to the MSCI world.

Cumulative returns to an opportunistically liquid portfolio compared to the MSCI world



Source: Factset, SG Cross Asset Research

And here are the latest 'discounted quality' stock names.

'Discounted quality' names (IVP>1.33; Piotroski f-score =>7)

Company Name	Country	GICS	Mkt cap ($bn)	10y med RoE	Ind mav RoE	BV/ps (loc cur)	Intrinsic value	Price 15/2/11	IVP	Piotroski score
Telkom S.A. Ltd.	South Africa	Integrated Telecomm Services	2,407	26	14	58.3	134.0	34.0	3.9	8
Persimmon plc	United Kingdom	Homebuilding	2,143	20	24	5.4	14.7	4.4	3.3	7
CME Group Inc. (Cl A)	United States	Specialized Finance	20,691	27	22	290	953	309	3.1	7
BlueScope Steel Ltd.	Australia	Steel	3,963	17	17	3.1	5.5	2.2	2.5	8
SK Networks Co. Ltd.	South Korea	Trading & Distribution	2,520	23	15	12,257	28,938	11,400	2.5	8
Charter International plc	United Kingdom	Industrial Machinery	2,073	39	20	3.3	17.7	7.8	2.3	7
Western Digital Corp.	United States	Computer Storage & Peripherals	7,974	39	8	21.9	76.2	34.4	2.2	8
Funai Electric Co. Ltd.	Japan	Consumer Electronics	1,162	11	16	4,167	5,805	2,683	2.2	7
Garmin Ltd.	United States	Consumer Electronics	6,397	28	34	14.2	67.7	33.1	2.0	7
Ricoh Co. Ltd.	Japan	Office Electronics	9,511	10	21	1,341	2,168	1,093	2.0	8
TPV Technology Ltd.	Hong Kong	Computer Storage & Peripherals	1,436	25	8	5.3	9.5	4.8	2.0	7
GameStop Corp. (Cl A)	United States	Computer & Electronics Retail	3,070	12	26	16.7	38.9	20.3	1.9	7
Apollo Group Inc. (Cl A)	United States	Education Services	6,154	49	22	9.4	80.2	43.0	1.9	7
Colgate-Palmolive Co.	United States	Household Products	38,093	99	35	6.5	141.7	78.9	1.8	7
Nongshim Co. Ltd.	South Korea	Packaged Foods & Meats	1,030	13	18	208,858	348,282	200,000	1.7	8
SK Telecom Co. Ltd.	South Korea	Wireless Telecommunication Services	10,470	20	14	154,188	280,818	162,500	1.7	7
Caltex Australia Ltd.	Australia	Oil & Gas Refining & Marketing	3,707	19	18	10.8	23.1	13.7	1.7	7
Novatek Microelectronics.	Taiwan	Semiconductors	1,848	39	16	34.6	146.8	90.9	1.6	7
Dixons Retail plc	United Kingdom	Computer & Electronics Retail	1,271	13	17	0.2	0.3	0.2	1.6	7
PKN ORLEN S.A.	Poland	Oil & Gas Refining & Marketing	6,688	11	18	44.5	69.8	45.9	1.5	7
Next plc	United Kingdom	Department Stores	5,900	134	26	0.7	30.2	20.0	1.5	8
Lowe's Cos.	United States	Home Improvement Retail	34,624	19	26	12.3	36.0	25.1	1.4	7
Inventec Corp.	Taiwan	Computer Hardware	1,666	15	17	13.7	22.0	15.7	1.4	7
Shimamura Co. Ltd.	Japan	Apparel Retail	3,313	12	25	5,073	10,509	7,510	1.4	8
Convergys Corp.	United States	Data Processing	1,735	12	22	9.8	19.0	14.2	1.3	7

Source: FactSet,. SG Cross Asset Research

Estimating intrinsic value: the classic residual income model

Of course, all this begs a question: how is intrinsic value estimated? To answer, think first about how much you should pay for a going concern. The simplest such example would be that of a bank account containing $100, earning 5% per year interest. This asset is highly liquid. It also provides a stable income. And if I reinvest that income forever, it provides *stable growth* too. What's it worth?

Let's assume my desired return is 5%. The bank account is worth only its book value of $100 (the annual interest payment of $5 divided by my desired return of 5%). It may be liquid, stable and even growing, but since it's not generating any value *over and above* my required return, it deserves no premium to book value.

This focus on an asset's earnings power and, in particular, the ability of assets to earn returns in excess of *desired* returns is the essence of my intrinsic valuation, which is based on Steven Penman's residual income model.[9] The basic idea is that if a company is not earning a return in excess of our desired return, that company, like the bank account example above, deserves no premium to book value.

Let's start with Penman's version of the residual income model, which isn't quite the one I use, but it's the right departure point for understanding the modifications I make to it. Let's call it the 'classic' residual income model, and let's illustrate the model using Akzo Nobel. (Note that the Akzo's 2010 final results were released as we were going to print, so what follows is not completely up to date. Since the workings shown below are merely to illustrate the mechanics of the model this shouldn't be important. If you want detail on Akzo Nobel speak to our analyst Peter Clark.)

Intrinsic value estimate for Akzo Nobel using the classic Residual Income Model with IBES forecasts

	2009	2010e	2011e	2012e	2013e	2014e	2015e
(1) Net income [IBES forecast]		3.3	3.8	4.3	4.8	5.5	6.3
(2) Dividend [IBES forecast]		1.4	1.5	1.6	1.8	2.1	2.4
(3) BPS [lagged(3)+(1)-(2)]	33.48	35.40	37.70	40.37	43.34	46.75	50.66
(4) RoE [(1)-lagged(3)]		9.9%	10.7%	11.3%	11.9%	12.7%	13.5%
(5) Residual income [(1)/10%*lagged(3)]		-0.03	0.26	0.50	0.76	1.17	1.63
(6) Discount rate [desired return = 10%]		1.00	1.10	1.21	1.33	1.46	1.61
(7) PV of Residual income [(5)/(6)]		-0.03	0.24	0.41	0.57	0.80	1.01
(8) Sum of residual income [∑(7)]	3.00						
(9) CV of business [2016 resid inc/(0.1-0.05)]							34.16
(10) PV of CV [(9)/(6)]	19.28						
(11) Intrinsic value [(3)+(8)+(10)]	55.76						
(12) Price	48.60						
(13) IVP [(11)/(12)]	1.1						

Source: IBES and FactSet

As can be seen, the model consists of three elements (highlighted in grey in the table). The first is the book value. This is simply the accountants' estimate of the equity value in the business. It will rarely be accurate because the accountants' estimates require certain assumptions which *generally* (though not always) err more on the side of accounting prudence than, say realisable market value. But it's a good place to start. Currently for Akzo Nobel this is €33.48/share.

The second component is the capitalised excess return (residual income) over a 'forecast period' which is presumably the period over which analysts feel comfortable forecasting. Excess returns are calculated by charging net income with the desired return on capital. For 2010, the book value used by operations was €33.48 (i.e. the stated book value at the end of 2009). The desired return on this book value is 10%, which is $3.35. And charging the IBES expected net income of €3.32/share with that gives us an expected excess return in 2010 of -€0.03 (€3.32 – €3.35). These calculations are repeated along line (5) of the table, NPV'd on line (7) and capitalised on line (8). Over the period, Akzo is expected to return in excess of our desired return, and this excess is capitalised at €3.00/share.

[9] For detail on the basics of this model see Chapter 5 of Stephen Penman's snappily titled but highly worthwhile book "Financial Statement Analysis and Security Valuation."

The third component is that of continuing value. We assume that by the end of the forecast period the firm will still be around, and we assume that by then it will be in what Penman calls a *"terminal steady state"* growing in line with nominal GDP. Following Penman for the moment and assuming trend GDP growth of 5% would give us a 2016 residual income of 1.05*1.63=1.71. The perpetuity value of that, assuming 5% growth and a 10% desired return, is 1.71/(0.1-0.05)=€34.16, shown in line (9). And discounting that future continuing value back at 10% gives us another €19.28 to capitalise onto book value.

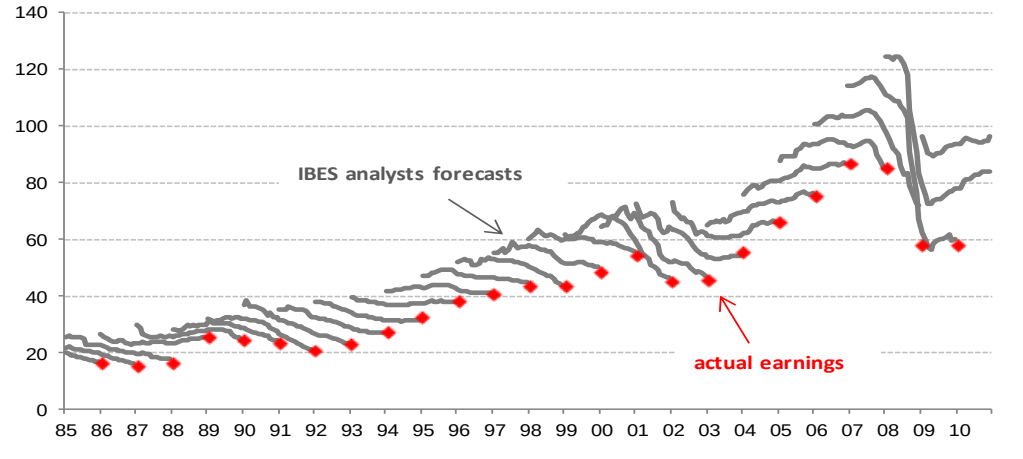
Adding the three components together gives us an estimated intrinsic value of €33.48 + €1.76 + €19.28 = €55.76/share. The price at the time of writing is €48.6/share so the ratio of intrinsic value to price, the IVP ratio, is €55.76/€48.6.1=1.1. Akzo looks cheap ....

Adjusting the model: a modified residual income method

Like any model, the residual income approach has flaws. The first is that it is focused on returns on equity, rather than returns on assets, which has the effect of punishing companies with strong net cash positions – such as those in Japan – whose reported RoEs will be biased down. A second flaw is that by calculating RoE using lagged book value, the numbers include inflation. So companies operating in a higher inflation environment will come out with higher estimated intrinsic values. But these are conceptual problems I'm aware of and am mulling how best to fix (and how best to find the time!).

But there are two more problems I've been wrestling with that I can fix now. The first relates to the second component of intrinsic value, where we capitalise forecast excess returns. In particular, how comfortable are we using IBES forecasts with their well-known biases in estimating those excess returns? The following chart shows that in general analysts start out as being too optimistic about the future. Last year, my colleague and quant guru Andy Lapthorne and his team did a thorough analysis[10] and concluded that on average analysts have been out by about 25%!

Analysts: 'tadpoles'



Source: SG Cross Asset Research, IBES

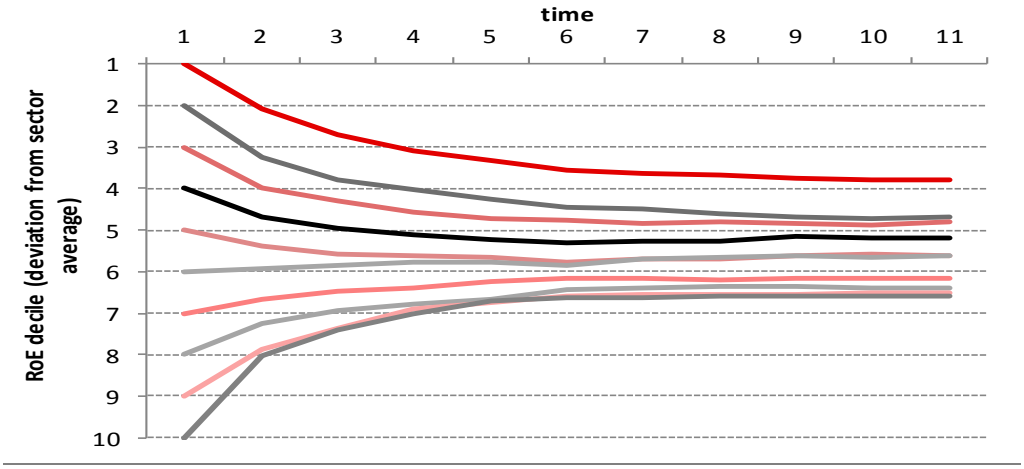
How comfortable are we with a valuation technology that changes with the whims of analysts? If we estimate that a company has an IVP ratio greater than 1.0, are we confident that its intrinsic value is *really* higher than the market price, or are the company analysts just too optimistic? My own back of the envelope work made clear to me that trend extrapolation is a better forecaster than IBES estimates, so the way I've fixed this is to impose the median RoE

[10] See "Dow to 40,000 by 2030? US pension funds certainly seem to think so", Global Quantitative Strategy, 1 April 2010

over the last 10 years on the company, and back out expected net income, dividends, book values and residual income that way.

Of course, a pure extrapolation of historic RoEs can be dangerous. The forces of capitalism work to ensure that companies that enjoy abnormal returns don't enjoy them for long, as the following chart put together by Georgios Oikonomou in our quant team demonstrates. Last week, while I made tea and read the paper, he took my universe of stocks and sorted them into deciles according to RoE deviations from the sector average. He then tracked how those companies' RoE deciles evolved over time. As is clear, companies in the extreme deciles 'asymptote' towards the mean over a ten year period (that is, they tend towards the mean without ever reaching it). So I'm going to assume future RoE is similar to the 10y historical median RoE, allowing for it to tend towards the industry average over time.

Georgios' gorgeous chart: mean reversion of 'excess RoE' for FTSE world stocks since 1986



Source: Factset, SG Cross Asset Research

The other issue I have with the 'classic' residual income model is Penman's treatment of the third element of intrinsic value – that of the continuing value. As Georgios' chart shows, and as we all know, excess returns tend not to persist. So the ability to earn residual income tends not to persist either. So why assume that excess return lasts forever, which is effectively what we just did when we capitalised it using our desired rate less assumed trend GDP growth? What I'll do to fix this is to take the expected residual income at the end of the forecast period, but discount it at a harsh 25% to reflect the long-term risk associated with most companies' competitive position.

Incorporating these more realistic/harsh assumptions into the model now gives us an intrinsic valuation of €63.9/share for Akzo Nobel. The difference now is that the capitalised residual income is higher than it was using the IBES numbers (Akzo has a median return on equity of around 28%, significantly higher than that implied by the IBES forecasts). At the same time, the continuing value is significantly lower, consistent with my assumption that long-term competitive advantages generally don't last.

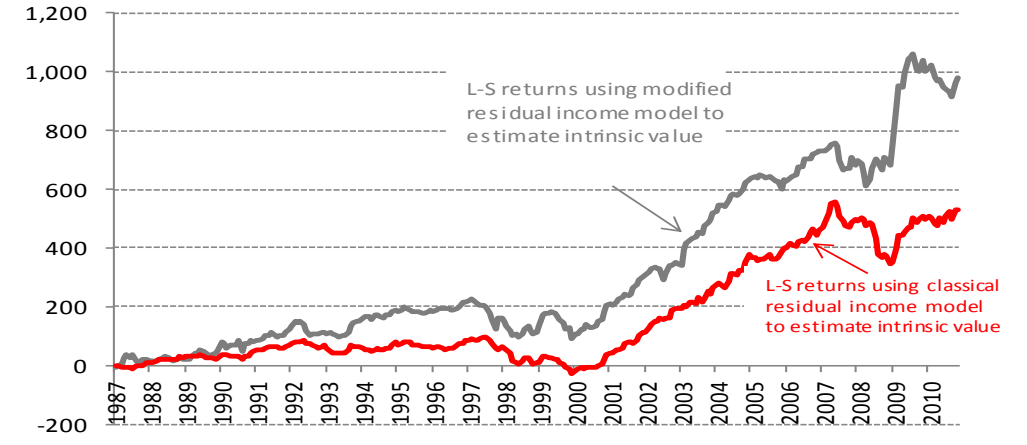
Modified Residual Income estimation of intrinsic value for Akzo Nobel

	2009a	2010e	2011f	2012f	2013f	2014f	2015f
(1) Net income [(4) * lagged(3)]		8.7	9.2	9.6	9.8	9.7	9.4
(2) Dividend [hist ave payout ratio *(1)]		3.5	3.7	3.9	3.9	3.9	3.8
(3) BPS [lagged(3)+(1)-(2)]	**33.48**	38.6	44.1	49.8	55.6	61.4	67.1
(4) RoE [mean reverting 10y historic RoE]		25.9	23.8	21.7	19.6	17.5	15.4
(5) Residual income [(1)/10%*lagged(3)]		5.3	5.3	5.2	4.8	4.2	3.3
(6) Discount factor [req return = 10%]		1.0	1.1	1.2	1.3	1.5	1.6
(7) PV of residual income [(5)/(6)]		5.3	4.8	4.3	3.6	2.8	2.1
(8) Sum of residual income [∑(7)]	**22.9**						
(9) CV of business [2015 resid inc/0.25]							13.2
(10) PV of CV[(9)/(6)]	**7.5**						
(11) Intrinsic value[(3)+(8)+(10)]	**63.9**						
(12) Price	**48.6**						
(13) IVP [(11)/(12)]	**1.3**						

Source: SG Cross Asset Research

Personally, I find the modified residual income model more intellectually satisfying than the classic residual income model. But so what? The proof of the pudding is in the eating and the following chart shows that the adjustments I've made seem to be an improvement. It shows the hypothetical returns from two almost identical strategies, which go long the cheapest decile of stocks while shorting the most expensive, where IVP ratios are used to judge value. One strategy uses my modified residual income method to calculate the IVP, the other uses what I called the classic residual income model, based on IBES forecasts, to calculate the IVP. As can be seen, IVP based on historic financials performs better than that based on analysts' forecasts.

Modified residual income vs classic residual income



Source: SG Cross Asset Research, IBES

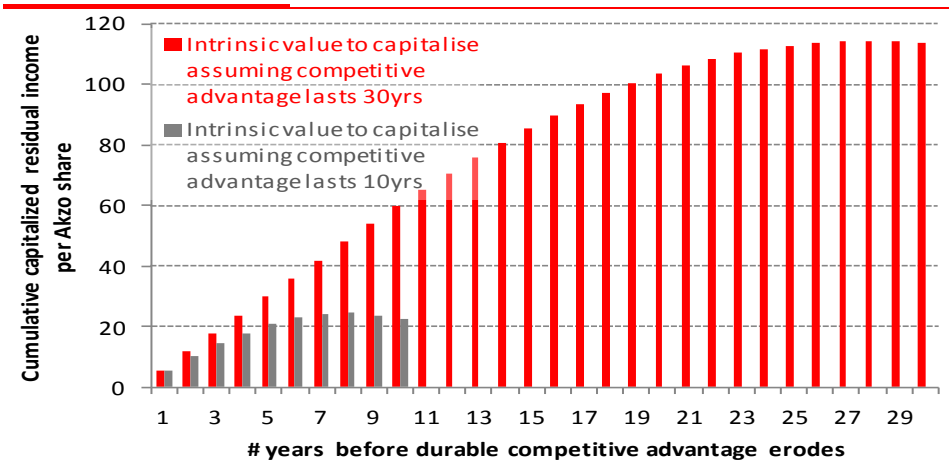
An afterthought … durable competitive advantage

Companies *on average* don't maintain their competitive advantages over time, which is why it's probably a fair assumption to make when screening. But some companies do. For every hundred or so AOLs there's a Coca-Cola. But since my modified residual income method assumes a basic mean reversion, it will miss such companies by apportioning to them less continuing value than they actually have.

Suppose Akzo was to earn the excess returns it's enjoyed over the past 10 years for another 30 years, rather than just for the next 10, as I've assumed. There would be about €113/share to capitalise onto the existing book value of €33.48, which would give an estimated intrinsic

value of around €147/share and a 'fair value' PE ratio would be 44x (=€147/€3.3). The following chart shows the difference the assumption makes. I guess this is what Buffett and Munger understood before anyone else. Genuinely durable competitive advantages are underpriced by the market.

The importance of being durable: intrinsic value and longevity of competitive advantage



Source: SG Cross Asset Research

The case for cash (03/05/2011)

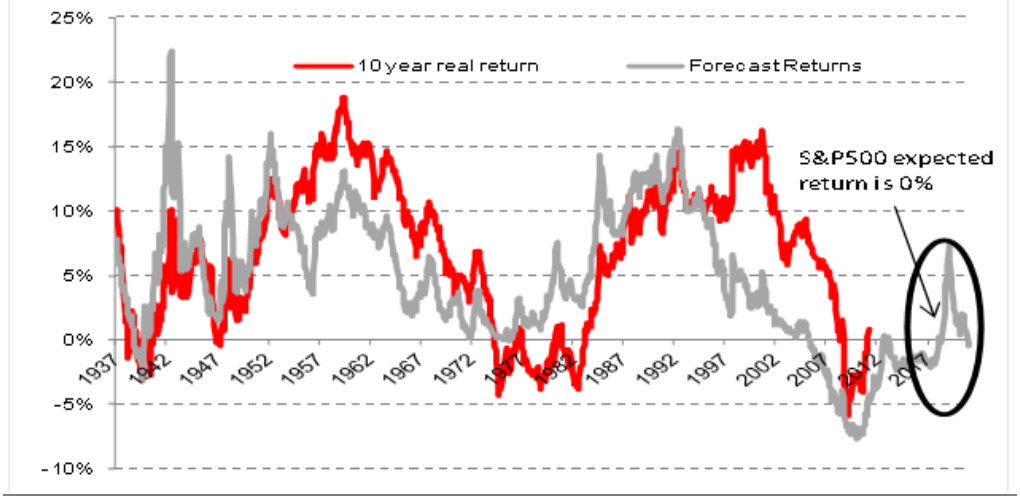
As an asset class, cash doesn't get the attention it deserves. True, it generally has a zero expected real return. But at least there is a near certainty around that expected return. Sometimes that makes it more attractive than the highly uncertain zero expected real returns on offer when alternatives are so overvalued. Now is beginning to feel like one of those times.

▪ Telling investors you find cash an attractive investment is about as big a faux pas as you can make. It might even be on a par with telling your wife her rear end looks big in those new jeans. Just because it might be true doesn't mean you should say so.

▪ Since risk assets should return more than cash over time the bias should be tilted towards owning them in preference to cash. Thus some of our clients are explicitly forbidden to allocate more than 5% of their portfolio to cash, while others with more flexible mandates nevertheless feel philosophically compelled to hold as little cash as possible. They feel that their clients don't pay them to sit in a supposedly 'dead asset'.

▪ But such mandates – perceived or real - effectively push investors towards owning risk assets at virtually any price, which is surely nonsensical. Moreover, the job of the investment manager is not to indiscriminately 'put money to work' but to exercise judgement in allocating it to the highest expected return for a given amount of risk. While that will generally be in risk assets, something which is generally true isn't 'always-and-everywhere' true. On purely valuation grounds, cash will sometimes be the most attractive asset to hold. With the 10y return of the S&P500 forecast to be around 0% (see chart below, which is explained inside), now feels like one of those times.

When equity risk = cash-like returns: expected long term return offered by S&P500 today is 0%



Source: SG Cross Asset Research

Consider the expected return of US stocks today. The S&P500 dividend yield is about 2%. Trend real dividend growth has been about 1% per year. So the expected income from owning the S&P500 here will be just over 2%. For expected capital gain, assume the cyclically adjusted PE ratio (CAPE) which is currently around 23x reverts to its mean multiple of 16x over the next ten years. That gives us a capital loss of just over 2% per year even after factoring in trend real EPS growth around 1.6%. My expected total real return on US equities is therefore around 0%. This is similar to the expected return of cash, only with *much* more risk (the front page chart plots that calculation over time and compares it to realised real returns).

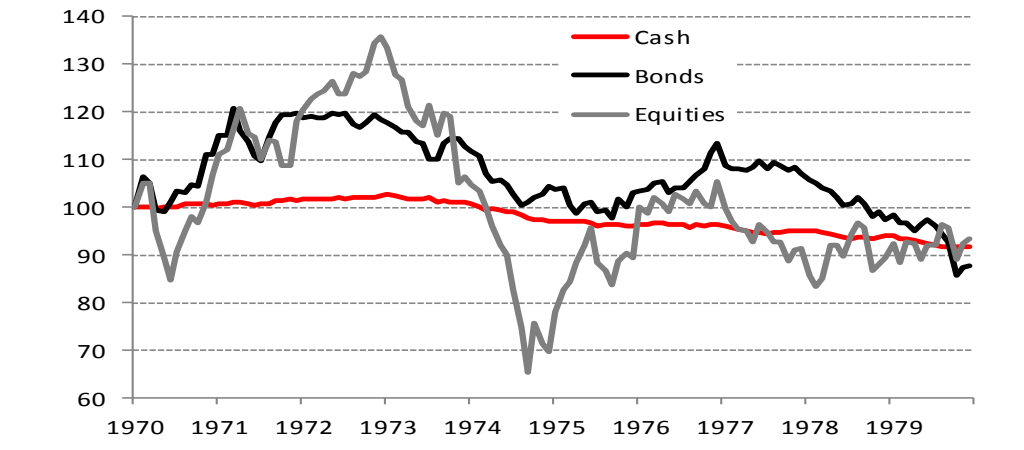
Before I explain, I appreciate this isn't completely fair because I'm focusing on the US market which, thanks to the inflationists at the Federal Reserve, is one of the most expensive in the world. Looking beyond US borders one finds that European, Japanese or EM equity markets aren't as stretched. But for the moment I'm only trying to illustrate a point and the current situation in the US provides an excellent example. So I'll repeat the question: if US equity investors at today's valuations are faced with a long-term return which is not dissimilar to that on offer to holders of cash, why wouldn't they just own cash?

Cash has one important endowment which is too frequently unrecognized: a *hidden optionality* derived from its *relative stability*. In other words, the holder of cash has an effective option to purchase more volatile assets if and when they become cheap. **Thus, a willingness to hold cash when there are no obvious alternatives is the simplest way to *'get long of the tails'*, and therefore the original *'long-vol'* strategy.**

Nevertheless, there is one tail risk you're still short of with cash: extreme inflation. Indeed, many clients today tell us the reason they don't feel comfortable owning cash is because they don't trust central banks to play fair with the value of cash. Regular readers will be aware that I fully share such concerns. But over time, nominal interest rates have generally tracked the rate of inflation, effectively compensating the holder of cash for any ongoing debasement. In the 1970s when inflation was double digit so were interest rates.

The real total return to cash in the 1970s was actually on a par with bonds and equities, though on a risk adjusted basis cash was *much better* than either, because it was more stable. **But note the value of that hidden optionality: *only* the holder of cash had the right to purchase other assets – equities or bonds – whenever their expected returns became attractive.**

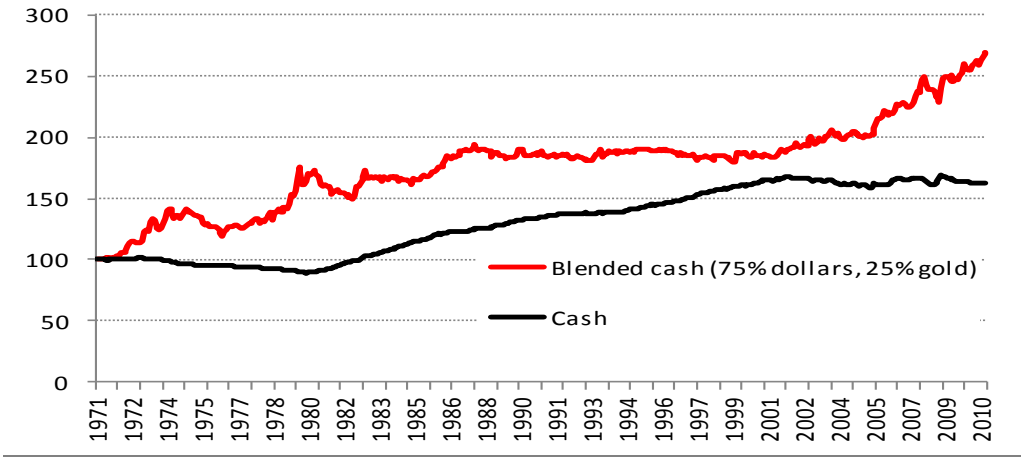
Real $ returns to cash, equities and bonds during the 1970s



Source: SG Cross Asset Research, GFD

Optionality notwithstanding though, the real return on cash was still negative in the 1970s. This is where gold – which I consider as another currency - can be useful. The following chart shows how cash performed following the break-up of Bretton Woods in 1971, where cash is now a *blend* of paper dollars (75%) and gold (25% gold). This blended cash portfolio would have given holder the required stability relative to other assets, *and* protected real purchasing power during the inflation.

Cash and blended cash real $ returns since the breakup of Bretton Woods

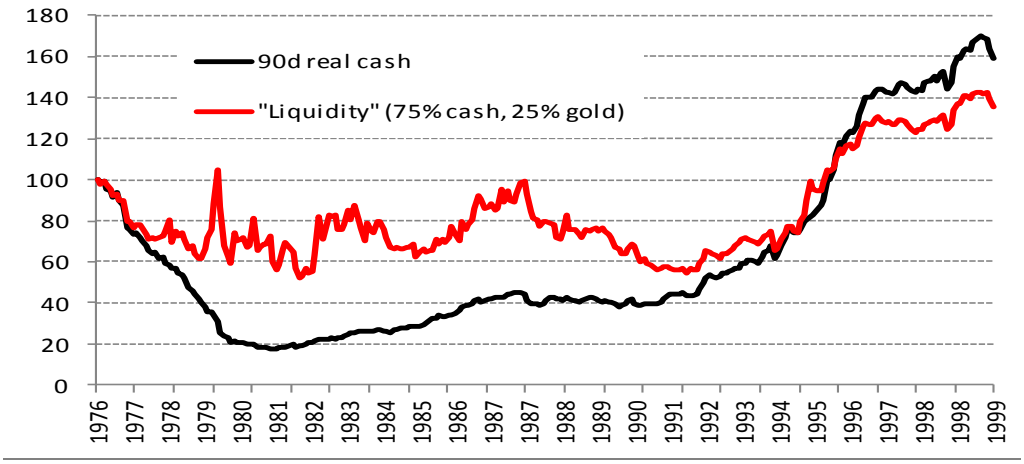


Source: SG Cross Asset Research, GFD

Indeed, if we examine a more extreme inflation than that seen during the OECD in the 1970s – that of Turkey from the late 1970s to the late 1990s - we can see that the same blend (75% paper lira, 25% gold) delivered more purchasing power stability than the pure paper cash alternative, even during the extreme double and triple digit inflationary regimes seen in Turkey.

So maybe that's the best way to really bullet proof your portfolio, and what my friend, fund manager, Tony Deden calls the *'sacred savings'* of your clients: a blend of cash, gold and a willingness to hold them until compelling value emerges elsewhere.

Cash and 'blended cash' real Turkish Lira returns during the extreme Turkish inflation



Source: SG Cross Asset Research, GFD

Turning "minimum bullish" on eurozone equities
(08/09/2011)

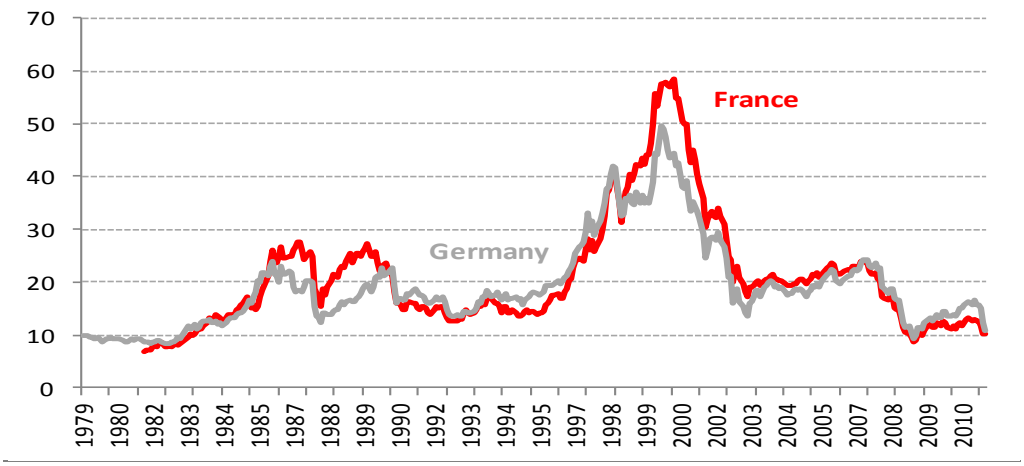
After recent price declines, eurozone markets reflect more accurately some of the downside risks. I'm feeling slightly more bullish. Indeed, I think it now makes sense to look at selective involvement, which I'll detail inside. Nevertheless, the downside implied by what I think remains a plausible worst case scenario is still too big and scary for me to feel comfortable going "maximum bullish". So I'm turning, err … "minimum bullish" for now.

▪ Believe it or not, I remember wondering during the tech bubble of the late 1990s if the parallel political bubble was of Western hubris: Central Banks were omniscient (Alan Greenspan was 'The Maestro'); crazy stock valuations were defended (to a degree) on the basis of a "peace dividend" following the collapse of the Soviet empire; it was assumed – naturally – that capitalist democracies based on our Western model would emerge in its place; one ounce of the "barbarous relic" could be had for less than $300; and the eurozone was finally putting one thousand years of conflict behind it for good, crowning its fifty year project of "ever closer union" with a proud new single currency.

▪ But a decade is a long time. Since then the US has suffered its first attack on home soil since Pearl Harbour; has been lured with its allies into botched wars in the Middle East; has witnessed the rise of the BRICs, led by China; and has fully participated with the rest of the world's 'developed' markets in two complete financial crashes, with a third incomplete one underway; the "barbarous relic" costs nearly $2,000/oz, trading like a levered short ETF on central bank credibility.

▪ So at the unsettling sight of eurozone policymakers squabbling over what to do in the face of lost bond market confidence, market prices are beginning to reflect the logical implication that the single currency may not be as viable a project as eurozone politicians once believed. It is tempting indeed to conclude that we're seeing another milestone along the path of the West's retreat ...

Cheap? Shiller PE ratios for France and Germany at multi-decade lows

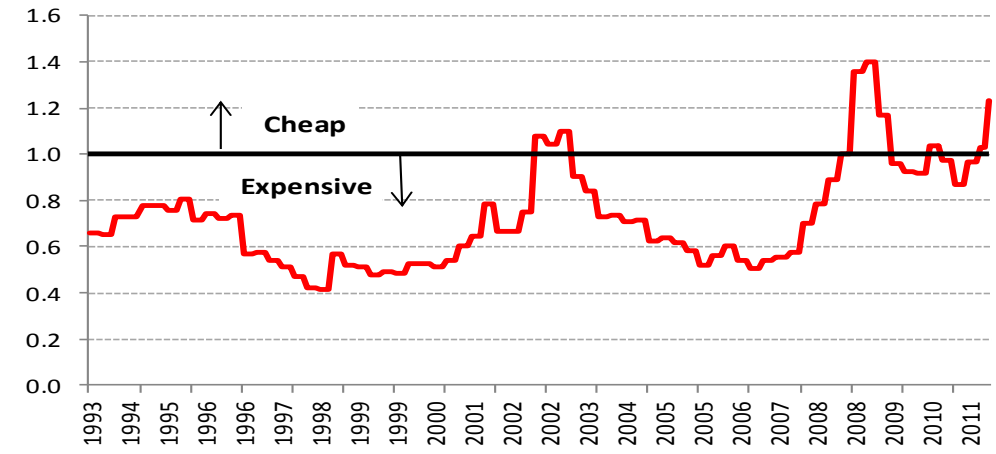


Source: SG Cross Asset Research, GFD

But are we? I wish I knew. Like everyone else, I have my own views, quite strong ones in fact … it's just that I'm not sure if I believe them. And it's so risky to bet on presumed knowledge. Regular readers will know that the focus on these pages is on what we know, and more importantly what we *can* know: valuation trumps vision, reaction trumps prediction. So let's try to focus our attention somewhere we might be able to make some headway.

The first thing we know is that the eurozone, unlike the US, is cheap. The chart on the front page shows Shiller PE ratios for France's CAC40 and the German DAX to be at levels approaching the crash of 2008, and the bear market of the 1970s. Similarly, the IVP (intrinsic value to price) ratio is now higher than anything seen during the tech crash, though not yet at the levels seen in 2008.

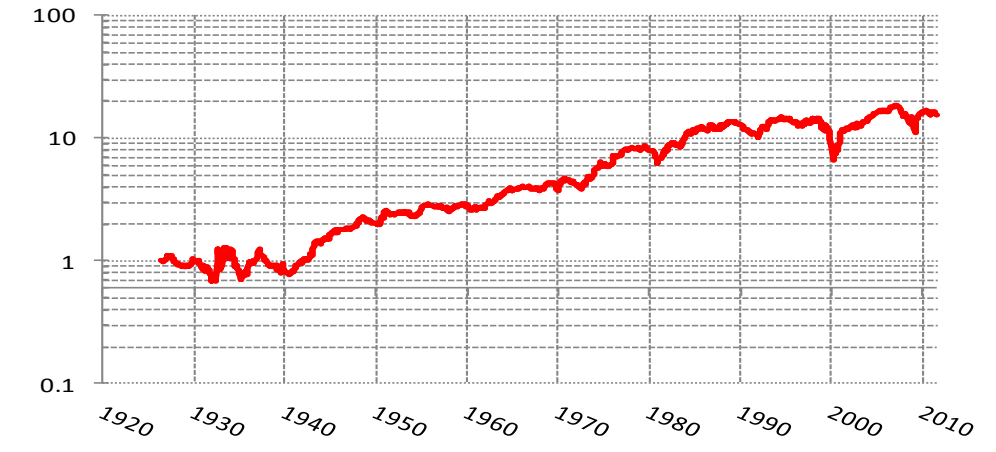
Eurozone IVP ratio now significantly greater than 1



Source: SG Cross Asset Research, GFD

The second thing we know is that buying cheap things is a good way of making returns over time. The following chart shows the cumulative return to a long long-short US portfolio which buys the cheapest decile of stocks (measured on a price to book value basis) while selling short the most expensive. The long-short returns are volatile and can't be relied on in the short run, but over time the outperformance is clear.

Long-run returns to crude long-short value strategy since 1926 (log scale; ann. return c3.2%)

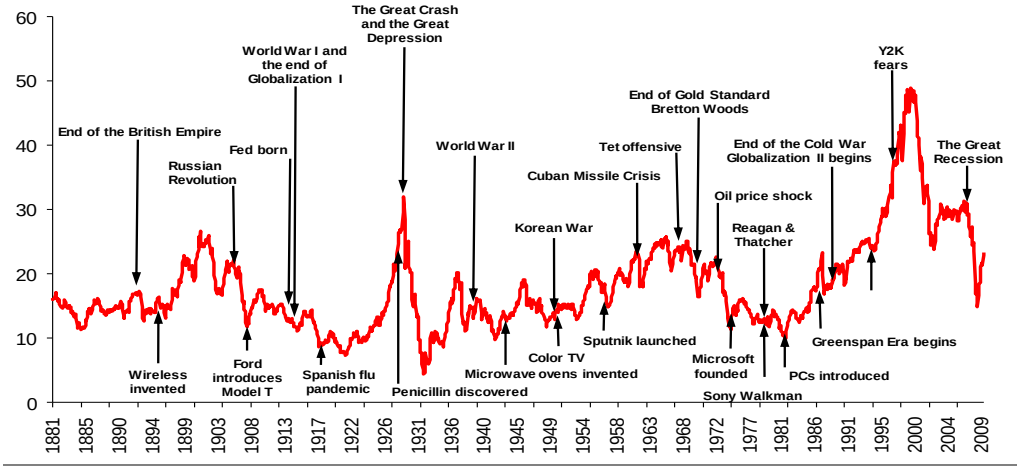


Source: Ken French, SG Cross Asset Research

The thing is, cheap stuff has outperformed expensive pretty much regardless of the macro regime. Indeed, Warren Buffett went so far as to say that if he knew the Fed's actions over the

next two years it would make no difference to his investing actions. At our investment conference in January, GMO's hard-line Graham and Doddite, James Montier, illustrated the point with the following chart. It shows the long run Shiller PE valuation of the S&P500 over the last 100 years, along with annotations of some of the monumental events over the same period (it is worth spending some time thinking about this chart and the events which have unfolded). His point was that while the events are as unpredictable as their implications, the mean reversion of valuations isn't.

The one constant is change: forecasting events isn't as important as understanding value



Source: GMO

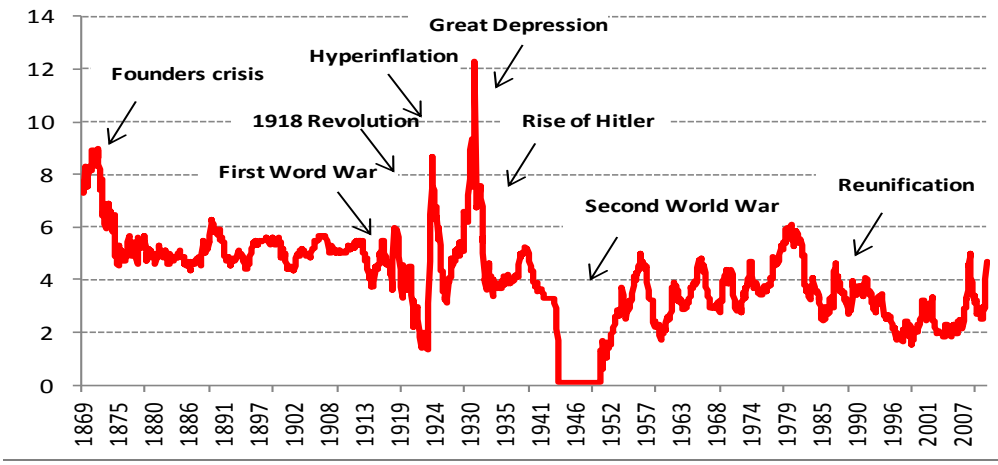
But this is where we get to the nub of an important philosophical investment question: what is the point of macro? I wrote a piece on this last summer[11] in which I argued that rather than predict the future – which is a fool's errand – macro can be used to uncover hidden optionality where possible, which can be used to "protect the tails." But without dwelling on those ideas here (I'll come back to the subject of tail protection in a few weeks' time), there is another use for macro which I didn't explore in that piece but which is pertinent to the eurozone situation today: risk analysis through the exploration of scenarios.

Buffett said that when seeking an investment manager to succeed him at Berkshire, he and Munger were looking for someone who learns not only from things that have happened, but can also envision things that have never happened. This is where macro analysis can help: not in the forecasting of events, but in the fostering of an appreciation of a fuller range of possible outcomes. This is a way of dealing with the problem of induction.

To see why, compare Montier's chart of the S&P500 above, with the following two charts of Germany's DAX over a similar period. The first shows the mean reversion of German valuations (here the dividend yield, and incidentally, *not* especially cheap in this historical context). Note that when WW1 ended in November 1918, the German market yielded 6% and would have looked reasonably cheap. It had rarely yielded so much in the past four decades and would at the very least have been thought to offer reasonable value.

[11] See "What's the point of macro?" Popular Delusions, 15-June-2010

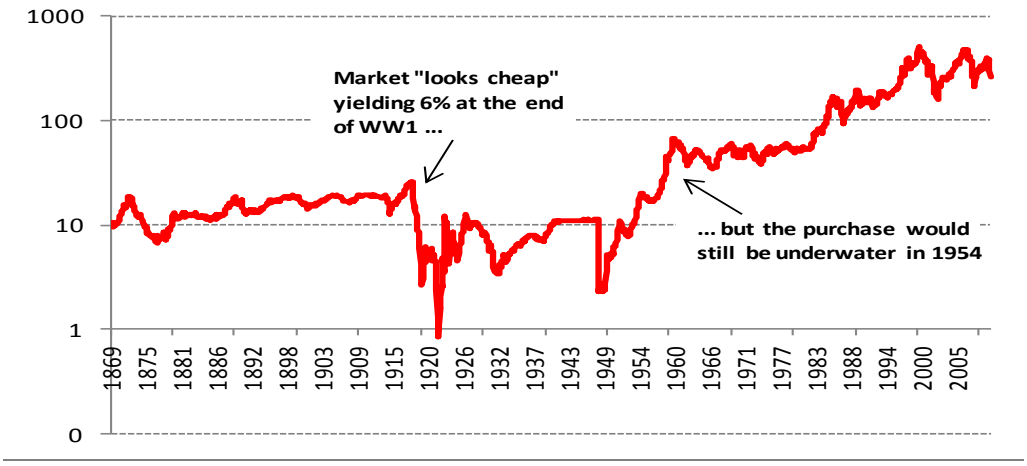
DAX dividend yield



Source: SG Cross Asset Research, GFD

But such an investment would have been catastrophic. Anyone investing then would have still have been underwater in 1954, *36 years* later. The second shows the actual real return for the DAX over the same period.

DAX real total return index since 1869 (log scale)



Source: SG Cross Asset Research, GFD

One of the smartest investors I know (and he's an owner of businesses, not a trader) is an avid and extremely astute follower of macro. But he doesn't follow the big picture to take macro bets. Rather, he uses it to *avoid making them.* Following WW1, Germany's domestic politics were highly volatile. A revolution was underway and showing every indication that it might follow the recently set Bolshevik precedent. Internationally, politics were little more stable, with the French unbending in their desire for revenge for the reparations Germany had inflicted on them after the Franco-Prussian war of 1871. And while the dividend yield of 6% might have been historically attractive, it was some distance from the 9% reached in the aftermath of the railroad crash of the early 1870s (the founders crisis)

The point I'm making is not that a German investor paying attention to the bigger picture would have had a crystal ball telling him of the upheavals about to befall his country. It's that by being aware of the *plausible possibility* that the situation in Germany had the potential to become orders of magnitude worse (both Keynes and HG Wells weren't too wide of the mark in their assessment of the dangers), he would have been aware that buying equities at that

time was taking on the embedded macro bet that none of the downside risks would materialise. He *might* therefore have concluded that the compensation for the risks he was set to undertake as an equity investor wasn't so generous given the possible downside.

In his book, "The Most Important Thing", Howard Marks writes:

> *"We hear a lot about "worst case" projections, but they often turn out not be negative enough. I tell my father's story of the gambler who lost regularly. One day he heard about a race with only one horse in it, so he bet the rent money. Halfway around the track the horse jumped over the fence and ran away. Invariably things can get worse than people expect. Maybe "worst case" means "the worst we've seen in the past". But that doesn't mean things can't be worse in the future."*

I'd add something to that. When I have conversations about "worst case scenarios" the most common conclusion I hear upon reflection of the argument (and I'm usually the one making it!) is *"yeah"* then a pause, and then *"… but that won't happen."* This completely misses the point of the exercise because your view on whether or not it will happen isn't important. What's important is understanding that it *might* happen, understanding the consequences if it does and understanding that the market might price it in for a while *even if it doesn't ultimately happen*. Only by doing this exercise can you aim to build a strategy/portfolio which will give you the best chances of surviving the worst case, should it come to pass.

Which lengthy detour brings us to the eurozone today: what's the worst we can think of here? Suppose that Italy or Spain get caught up in the whirlwind like Greece, Ireland and Portugal, as threatened to happen last month. Maybe the Italian political situation deteriorates, maybe Ireland defaults, maybe Greece will go revolutionary, or maybe an ill-advised wayward comment from an influential European politician will spook markets and send them into renewed tailspin. We don't know which of these will happen, if any. All we know is that these are some of the many plausible triggers for a further deterioration in this fragile situation.

Let's say one of those triggers is activated, leading to an intensification in the runs on the securities of eurozone governments and banks, probably Italian and/or Spanish, but who knows? In all likelihood, every bank will get further pummelled regardless. And let's also say that the panic is fuelled further by concern that Italy and Spain's multi-trillion-euro balance sheet banks are simply too big for their already fiscally strained governments to save. Fear that they will try creates more panic in the market for those government bonds, the viability of the euro is perceived by the markets to be threatened and so all eyes switch to Germany and France to provide further bail-outs.

But at that point everyone realizes that France and Germany's own banks are being dragged down. And, in France and Germany at least these banks would take priority over those of other countries. So the trillion-euro bank balance sheets of many of the eurozone's financial institutions seem too big for even the core governments to save. Runs develop in the core government bond markets too as investors take fright that they might try. Meanwhile, the continued absence of any coherent pan-European political leadership ensures any opportunities to get ahead of the panic are missed, and so one/some European banks fail. Thus the entire financial system fails. The 1931 Credit Anstalt crisis is rerun and the depression that follows is too much for austerity fatigued peripheral eurozone members, whose electorates succumb to the siren call of anti-euro populists promising deliverance from the economic misery imposed by Berlin. The euro ends not with a whimper, but a bang ....

Now, personally, I don't think this will happen. I think the ECB will get the printing presses rolling before we get to the stage where markets seriously panic over the solvency of the eurozone's core, or of its banks. And when I say I expect the ECB to get the printing presses rolling, *I mean QE of the unbridled unsterilizable sort,* and of which The Ben Bernak is so fond.

This action won't be taken lightly. In fact, I doubt it will be taken at all until the market puts a gun firmly to the ECB's head and forces it to choose between its two great loves: the euro or its Germanic belief in hard money. "You can't have both" the market will say, as it cocks its gun and slowly squeezes the trigger. And my guess is that the ECB will let its principles go and sell the strategy to Germans as a hard-money sabbatical. After all, if the hard-money Swiss National Bank can commit to unlimited money printing, so too can the ECB.

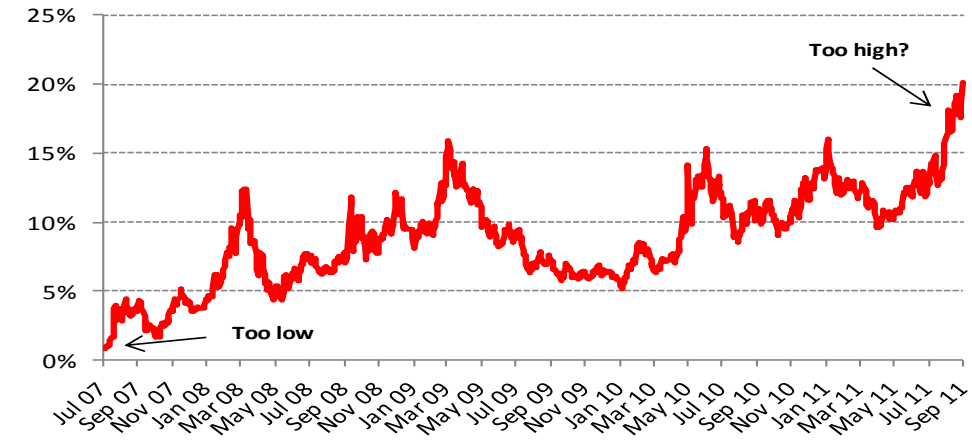
I also suspect such an action would be the final kick of the can. Money printing buys time and nothing else. But I think it could buy the eurozone quite a lot of time, certainly enough to be open-minded towards owning the cheap assets the episode might throw up. Let's face it, equities would likely become *very* cheap in the sort of panic that would force the ideologically Germanic ECB to print with the abandon of a Ben Bernanke.

So where does this leave us? In May of this year I argued for heavy cash holdings. I still lean in that direction because I expect the European situation to get worse and give a lower-risk entry point. But as some of this worst case is now reflected in the market I'd be deploying *some* of the cash holding I argued for in May (e.g. if you were holding 25% cash, I'd be comfortable taking that down to 20% to buy *selected* eurozone names, some ideas for which I'll give below).

Interbank markets are already showing signs of distress. The markets' implied probability of a hard default in Greece is 100%. The implied probability of default among European financials is 20% which, frankly, seems rich to me (see chart below). Valuations are beginning to look interesting for the first time in a few years, and fear is high (see volatility chart, second one below). The ECB *are* actually buying Italian and Spanish bonds in the market. On the other side of the Atlantic, Buffett has done a deal with Bank of America giving him equity upside, something he didn't do in 2008 because, he later explained, he didn't know enough about the balance sheet to want equity-like risk. Presumably that means he does feel comfortable enough with Bank of America's balance sheet this time around. Banks certainly feel in better shape today than they did going into 2008, and overall complacency is lower too.

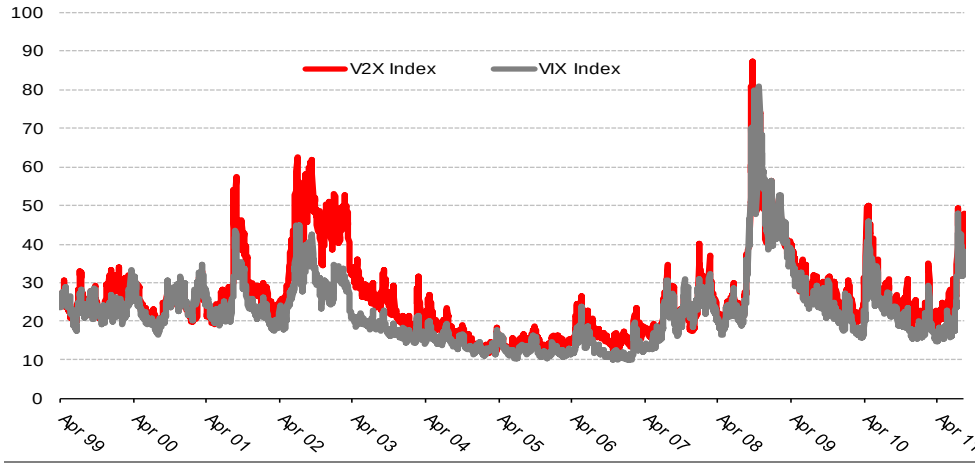
So I have sympathy for the idea that eurozone stocks should be bought here. Irene wasn't as bad as Katrina, should 2011 be as bad as 2008? Time will tell, but it won't be much use to us by then. In the meantime, there is every chance that I'm wrong on the scenario I expect. Perhaps this is the bottom, in which case I'll be sitting on cash as the market rallies. Won't I then wish I'd gone maximum bullish here? Yes I will. The risk in what I'm suggesting is that you end up paying the opportunity cost of missing out. This isn't a fun cost to pay. It's emotionally difficult to regret not purchasing at the low prices you could have, especially with hindsight bias tricking you into thinking you should have. But as a general principle, I prefer the emotional risk of opportunity cost to the financial risk of prematurely buying high risk situations.

Probability of Euro financial senior debt default implied by 5yr CDS (assuming 40% rec rate)



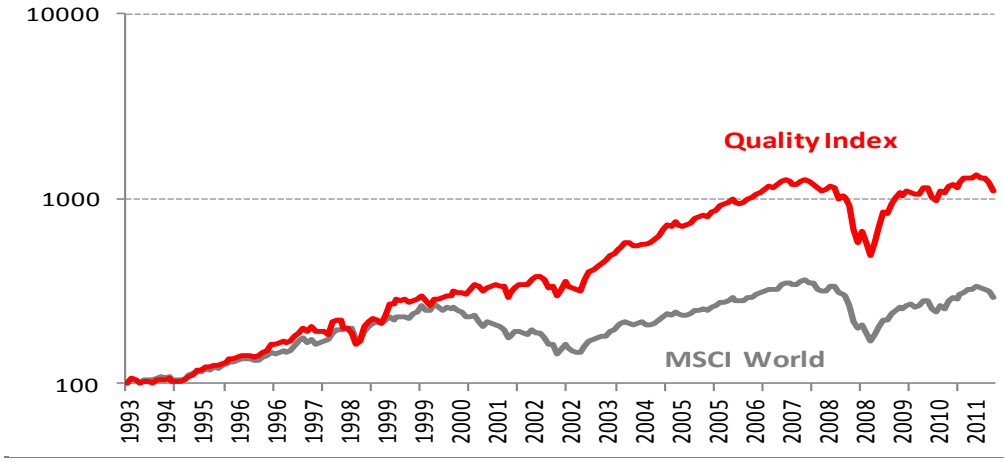
Source: SG Cross Asset Research, Bloomberg

VIX and V2X suggest panic



Source: SG Cross Asset Research, Bloomberg

Popular delusions quality stock index vs MSCI World (cumulative total $ returns, log scale)



Source: SG Cross Asset Research, GFD

Of course, this begs two questions: what is a quality asset, and what is a decent price? Since this has already turned into longer piece than I like to write, I'll preview the fuller answer which

I'll give next week (or the week after) by defining a quality asset as one that has a robust balance sheet, a history of earning above its cost of capital, and a history of operationally outperforming its peers. In other words, stocks that are in my newly constructed "Popular Delusions Quality Index", which is compared to the MSCI world in the chart above.

The eurozone constituents are shown in the following table, along with IVP ratios in the last column on the right, and stocks with an IVP >1 (i.e. estimated intrinsic value>price) are greyed. While the outperformance of the index shown in the chart above speaks volumes on all of these stocks, at this stage the smarter thing to do might be to look at the cheaper ones.

Eurozone constituents of Popular Delusions Quality Index (stocks in shaded area are "cheap" with IVP>1)

Company Name	Sector	10y med RoE	Industry 10Y median RoE	BV/Sh	Intrinsic Value/sh	Last Price	IVP
ArcelorMittal	Steel	21.0	14.0	30	66.0	13.6	4.9
Akzo Nobel N.V.	Diversified Chemicals	25.1	8.9	38	94.0	32.3	2.9
Randstad Holding N.V.	Human Resource & Employment Services	19.7	19.1	16	31.2	21.7	1.4
Eramet S.A.	Diversified Metals & Mining	16.3	14.4	112	182.5	135.8	1.3
Delhaize Group	Food Retail	10.7	12.8	50	53.6	45.7	1.2
UCB S.A.	Pharmaceuticals	12.3	12.6	25	30.4	30.2	1.0
Adidas AG	Apparel Accessories & Luxury Goods	19.9	14.8	22	46.3	46.4	1.0
Abertis Infraestructuras S.A.	Highways & Railtracks	16.1	16.1	6	8.2	11.0	0.7
K+S AG	Fertilizers & Agricultural Chemicals	23.1	13.7	14	32.9	45.4	0.7
Luxottica Group S.p.A.	Apparel Accessories & Luxury Goods	19.9	14.8	7	13.9	20.4	0.7
Kerry Group PLC	Packaged Foods & Meats	17.6	10.1	9	16.3	26.3	0.6
LeGrand S.A.	Electrical Components & Equipment	16.3	6.8	10	15.6	25.9	0.6
Christian Dior S.A.	Apparel Accessories & Luxury Goods	14.4	14.8	43	59.7	99.0	0.6
L'Oreal S.A.	Personal Products	17.7	17.7	25	43.5	72.5	0.6
Suedzucker AG	Agricultural Products	10.4	12.8	13	13.5	23.5	0.6
Danone S.A.	Packaged Foods & Meats	13.6	10.1	19	24.9	46.5	0.5
Zardoya Otis S.A.	Industrial Machinery	103.1	10.3	1	5.7	10.8	0.5
Air Liquide S.A.	Industrial Gases	15.7	15.7	31	46.9	89.5	0.5
Industria de Diseno Textil S.A.	Apparel Retail	27.7	22.7	10	30.2	58.9	0.5
LVMH	Apparel Accessories & Luxury Goods	16.3	14.8	36	55.9	113.1	0.5
Anheuser-Busch InBev	Brewers	11.4	11.6	16	18.4	37.6	0.5
Fresenius SE	Health Care Services	11.5	11.9	31	33.9	71.9	0.5
Fresenius Medical Care AG & Co. KGaA	Health Care Services	12.2	11.9	18	21.6	48.6	0.4
Bulgari S.P.A.	Apparel Accessories & Luxury Goods	16.2	14.8	3	4.8	12.2	0.4
Hermes International S.C.A.	Apparel Accessories & Luxury Goods	19.4	14.8	20	38.0	263.9	0.1

Source: SG Cross Asset Research

Alternatively, or additionally, you could take advantage of the rich volatility pricing shown above by writing put options on stocks you want to own in order to get them at a cheaper price. I know that isn't everyone's cup of tea, but at these vol levels its worth considering. To illustrate, consider Adidas, a solid business trading at a very reasonable valuation on my IVP methodology (IVP=1). As I write, its stock trades at €47.20. On my Bloomberg screen, the November €47 puts are bid at €3.20, around 7% of face value, giving a roughly 30% annualized return. Of course, that return isn't risk-free. The stock price can go lower, and you'll have committed to pay €47 for it. But your breakeven price will be €43.67 (€47.00-€3.33). In this scenario you'll own an *asset you wanted to own anyway* cheaper than if you'd gone out and bought it today. That's not a bad downside to bear for a 30% annualized return.

Why we overpay for excitement (and the secret pleasure of being boring) (04/04/2012)

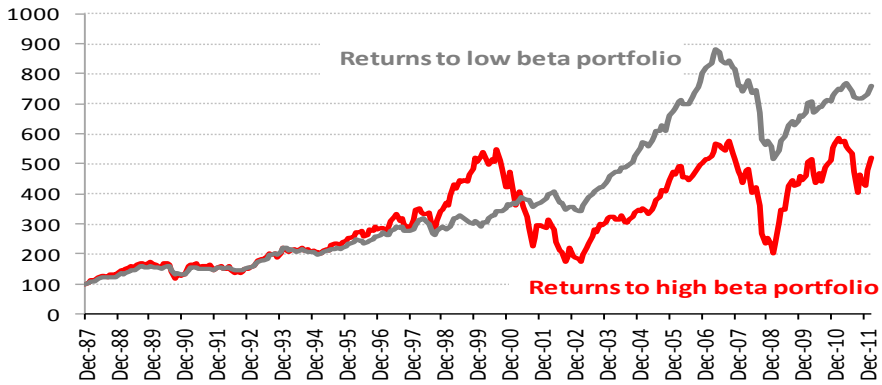
One of the most common questions we get is whether or not now is a good time to be buying quality names in the stock market. Our answer is almost always yes because we think quality is systematically underpriced. High risk offers high excitement, not high returns, because excitement is overvalued. Quality names are boring, and "boring" is undervalued. As our resident SG dividend fetishist Andy Lapthorne says, quality isn't just for Christmas.

▪ Regular readers will be aware of the bias we have on these pages towards the so-called "quality" names in the equity market. The reason is that high risk doesn't always equal higher return. Indeed, although higher quality stocks carry the sort of lower risk which is supposed to attract a low return, we've consistently found them to be higher return. Quality stocks, in other words, seems to possess that attribute most desirable to the long-term investor: systematic undervaluation. The easiest way to show this is to compare the returns of stock portfolios constructed by their market betas (see chart below). It seems compelling enough: the outperformance has persisted over a lengthy period of time after all.

▪ Yet something apparently true isn't necessarily something actually true. Unfortunately we don't know how persistent that anomaly is because we only have a few decades worth of data. For all we know it's not a systematic mispricing at all, but a reflection of something artificial. Maybe it's as ephemeral and fake as "the great moderation".

▪ So here in the office we've all been thinking hard about it. We've thought and we've thought, and we've discussed and we've argued ... and we still don't know. But we have a theory. And we think Antti Ilmanen's idea that "high risk" securities attract a "lottery ticket" premium is closer to being right than wrong. We also think that the same psychological tendency that overvalues lottery tickets undervalues quality stocks, as their robust business models and solid balance sheets do tend to be quite boring. So our best guess at the moment is that the mispricing of quality is indeed systematic. It reflects something permanent (our psychological hardwiring) rather than something transient (the fads of macroeconomic theory).

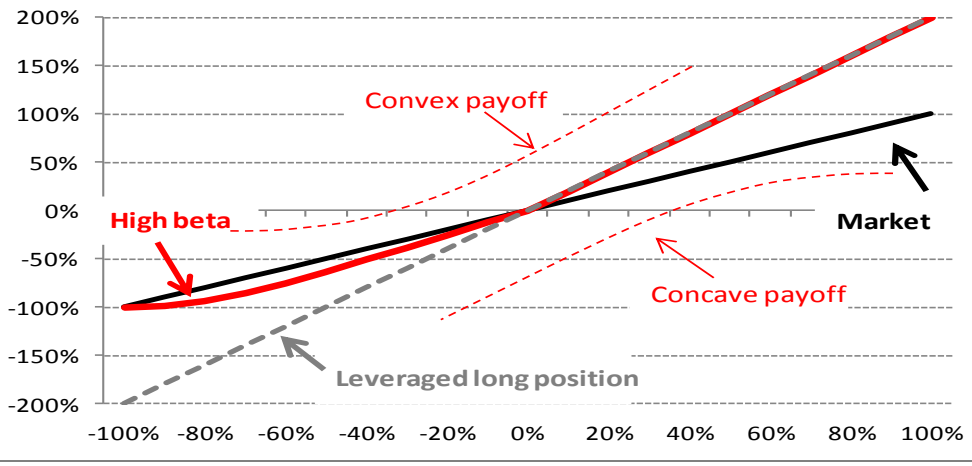
High risk equals low return: historic outperformance of low beta stocks



Source: SG Cross Asset Research

Before going through what we think though, I'm going to start with what GMO's David Cowan and Sam Wilderman think and a brilliant paper they published late last year (if you haven't read the piece already I think you should). In summary, they think the idea that high beta stocks offer a way for asset managers to simply leverage into a market rally isn't quite correct. While a leveraged long position in stocks risks a maximum potential loss in excess of 100% of equity (a 2x levered portfolio can lose 200% of equity), the maximum potential loss embedded in a long position in high beta stocks is capped at 100%. Thus, Cowan and Wilderman characterise the prospective payoff for a high beta portfolio as "leverage with protection" and having a shape which is convex to the market. The following chart compares the stylised payoff in thick red with an unlevered market portfolio, and a 2x levered portfolio.

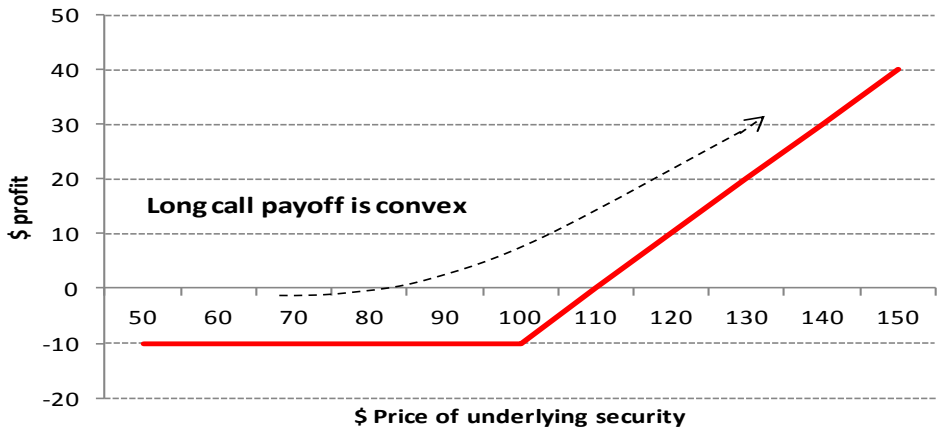
Stylised convex payoff for high beta stocks, versus leveraged long position on the market



Source: SG Cross Asset Research

The classic payoff giving protected downside and levered upside is a naked long call option. A standard text book payoff for a long call option with a strike price of $100, costing $10, is shown below.

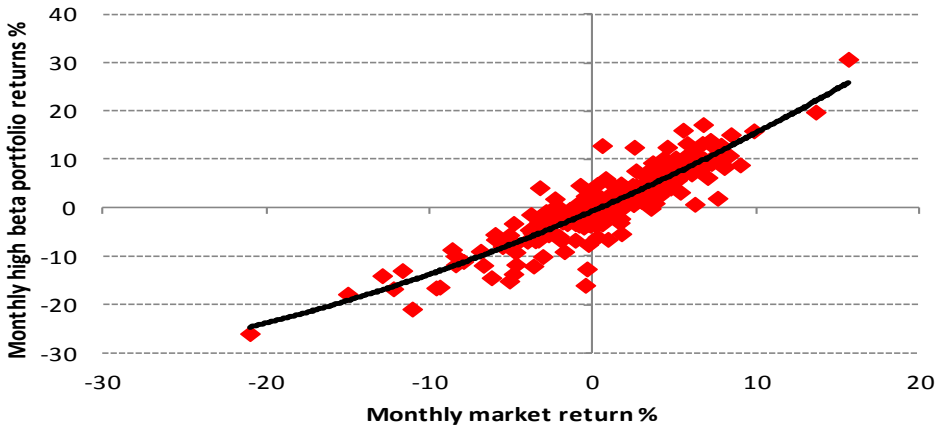
Profit at expiry for long call option



Source: SG Cross Asset Research

So, having protected downside with levered upside is like being long the market *plus* being long call options on the market, with even more attractive convexity. The authors show that the relationship of monthly changes in a high beta portfolio to the market is indeed convex, as shown in this stylised example.

Convexity of high beta portfolio to the market

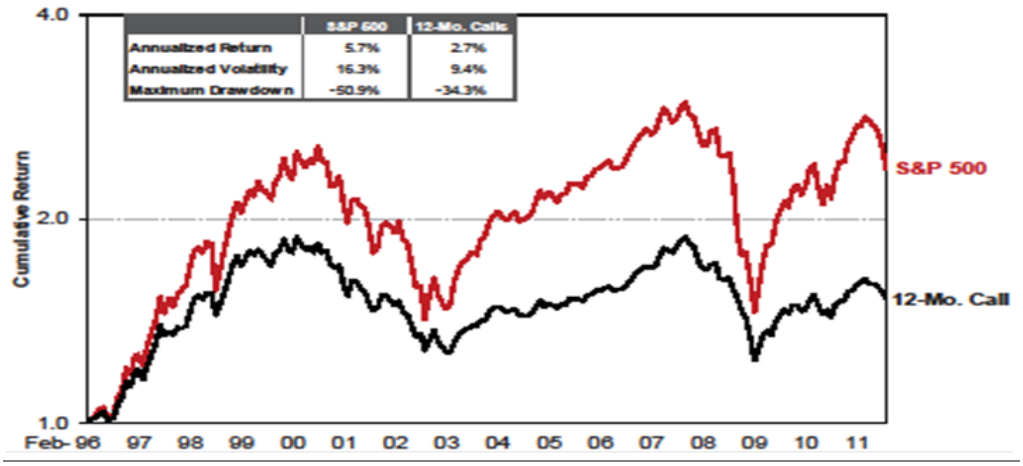


Source: SG Cross Asset Research

But of course, who doesn't want upside without downside? It's a very attractive prospect that can make buying call options expensive. A portfolio of high beta stocks implicitly embedded with such convex optionality should therefore come bundled with that same cost too. The following chart shows what sort of cost should be expected. It's taken from GMO's piece (with permission) and shows that buying call options on the market isn't generally a profitable long-term strategy – or, at least, not relative to owning the market outright. Convexity, in other words, appears to be overpriced.

Thus, a strategy that combines buying the market with buying calls on it should yield a return which reflects that performance drag. Cowan and Wilderman argue this is precisely what happens with a high beta portfolio.

Performance of call buying strategy versus the market

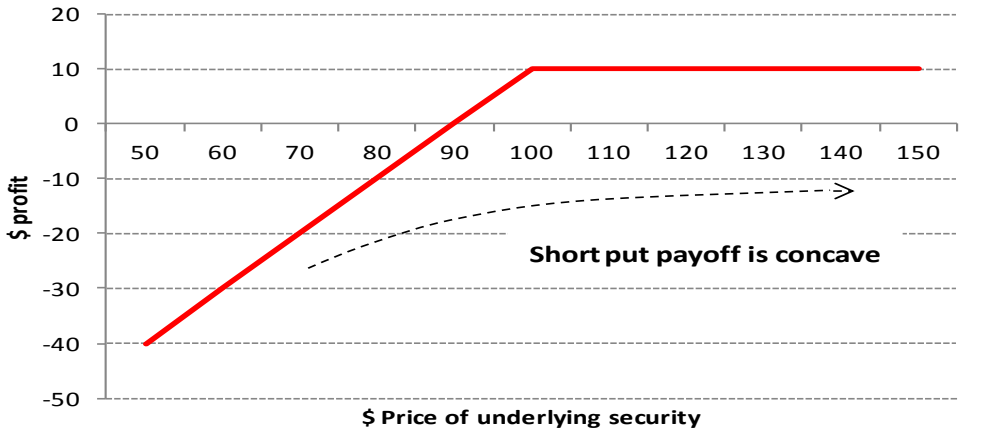


Source: Cowan and Wilderman

But Cowan and Wilderman then take the analysis a step further. While convex payoffs which limit downside yet capture upside might be overvalued, the opposite is true of concave

strategies, which instead limit upside in return for accepting downside. The simplest concave strategy is that of selling put options. The next chart shows another text book example, a returns profile for selling a $100 strike put for $10.

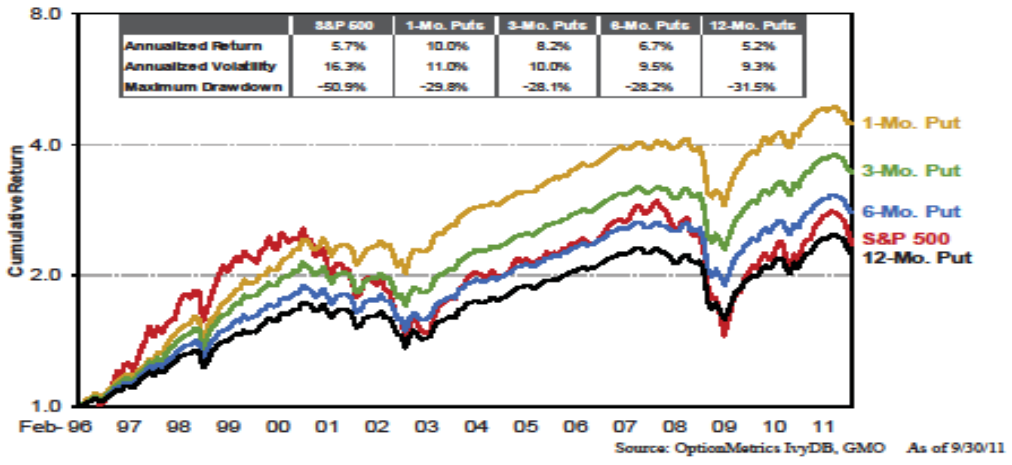
Profit at expiry for shorting a put



Source: Cowan and Wilderman

And since this is such a psychologically unattractive prospect, it tends to be offered only at a very high price. Such a high price, in fact, that as the following chart shows, naked put selling is a very good way to earn risk premium.

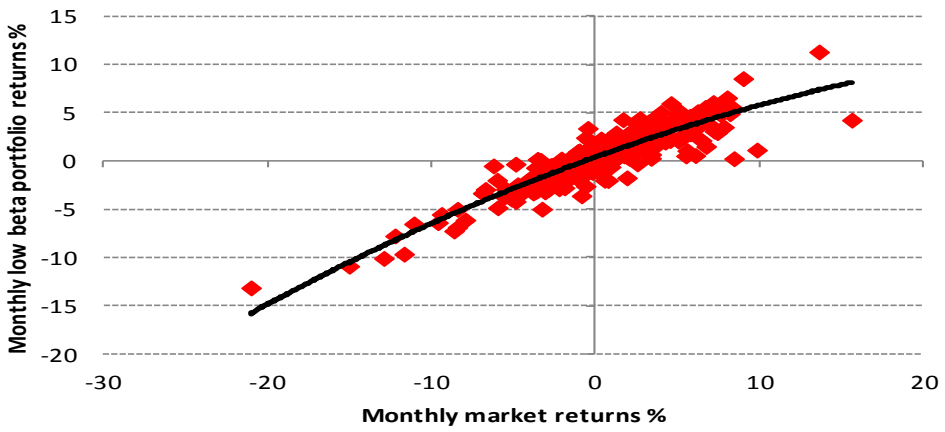
Performance of put selling strategy versus the market



Source: Cowan and Wilderman

Since low beta portfolios are concave, they resemble exactly such a strategy. In effect, low beta portfolios have short puts embedded in them, with their owners taking as much downside risk as the market, but with a capped upside. So the returns of low beta stocks therefore embed the attractive returns of put option writing.

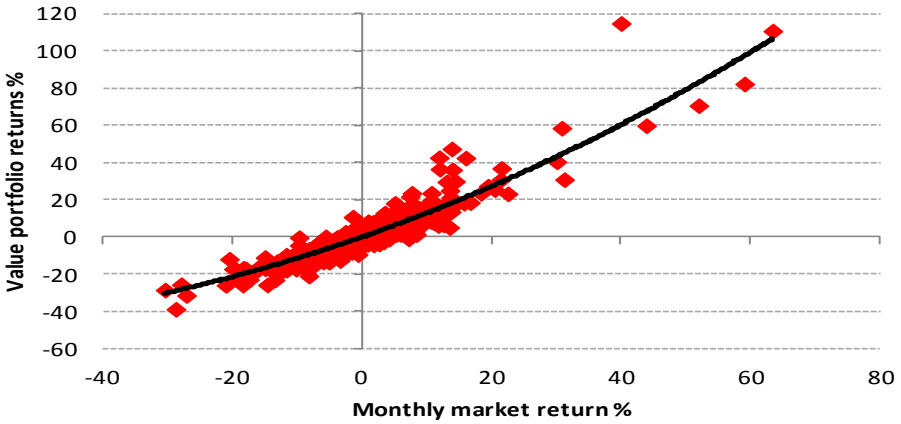
Low beta portfolios are concave to the market



Source: SG Cross Asset Research

Also, a tendency towards overpaying for convexity doesn't mean that all convex payoffs are necessarily overvalued. If you think about it, buying assets with limited downside but plenty of upside is a perfect description of value investing, where a margin of safety is the primary mechanism for limiting downside risk. The following chart shows that a standard value portfolio consisting of the lowest decile price-to-book value stocks is also convex to the market. Yet by construction this portfolio (and its convexity) are *underpriced*.

Cheap/Value portfolios (defined by low price to book ratios) are *convex* too (1929-2011)



Source: SG Cross Asset Research

Nevertheless, the idea that, all else equal, convexity will be overpriced relative to concavity has great intuitive appeal to me because it fits with what we know about the psychology of circumstantial change. As embodied in prospect theory, losses have roughly twice the psychological impact of gains. We're hardwired to overpay for loss mitigation.

The psychology of change gives a useful lens with which to examine the subject and is touched on by Antti Illmanen in his brilliant book *Expected Returns*. He said that, at the more extreme end of the spectrum, high risk securities might be overvalued because they contain an embedded "lottery ticket" not dissimilar to the call option embedded in a high beta portfolio.

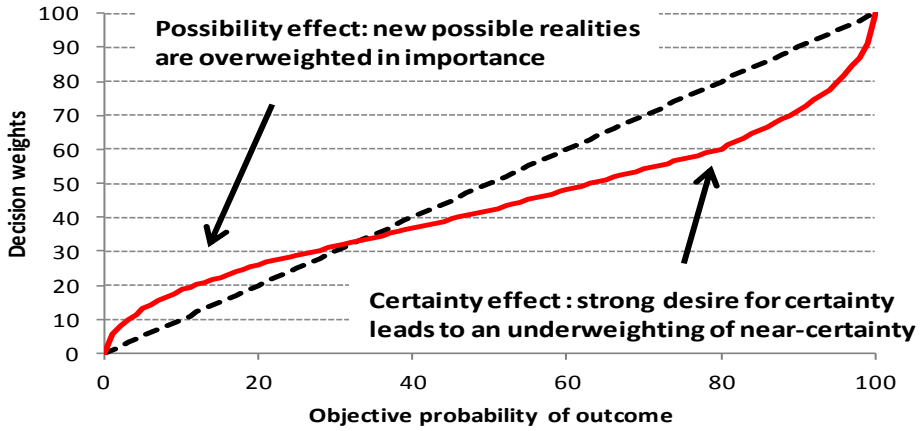
Here it's important to understand that, at the extremes, small changes in likelihood have disproportionate effects. Imagine, for example, that you have a close friend or family member

gravely ill in hospital. If the doctor tells you there's a treatment that will improve the chances of survival by 10%, what value should be placed on that treatment?

The answer is that it depends. Suppose the chances of survival without the treatment are 50% so that the treatment improves that chance to 60%. This is a welcome and valuable improvement. But now imagine a second case, where the chances of survival are exactly nil. From here, the treatment radically transforms the situation. Without it the patient will certainly die, but with it comes a different prospect altogether: the possibility of survival. With it now comes hope.

So even though the incremental change in probabilities is identical in each case, the significance of each change is very different. In the first case there were two possible outcomes – a good one and bad one – regardless of whether or not the treatment was taken. So in the first case the situation cannot be transformed by the treatment. But in the second case, the treatment adds a whole new realm of possibilities. It brings light to a situation which had hitherto been only dark and so has a much bigger weight in our decision making.

Objective probability and subjective importance



Source: Kahneman (2011), SG Cross Asset Research

This is known as the "possibility effect" and is well illustrated in the chart above, which I based on a table in Daniel Kahneman's beautiful book *Thinking, fast and slow*. It shows that, according to the laboratory experiments conducted with Amos Tversky, the psychological importance (what Kahneman and Tversky called "decision weights") associated with incremental probability changes depends on the starting point. If you begin at zero and run your eye from left to right across the horizontal axis, you'll see that going from a probability of 0% to 10% has the 'decision weight' on the vertical axis go from 0 to 18. But as you continue right, a change in probabilities from 10% to 20% sees the decision weight rise only from 18 to 26. Thus, the first 10% improvement has more than *twice* the psychological importance of the second 10%.

The possibility effect explains why people over-estimate the likelihood of extreme events *after* they've happened. Prior to September 11th the idea of terrorists hijacking planes to such devastating effect was unthinkable. It was 0% probability in most people's minds. But then it became all too possible. This new perceived possibility created a famously outsized effect as passenger miles on US airlines fell by 20% in some cases and travellers switched to their cars. Gerd Gigerenzer estimated that in the following year there were nearly 1,600 more road fatalities than there otherwise would have been as a consequence.

The possibility effect helps explain why sports fixtures between unevenly matched competitors can be so popular too. It's not for the quality of the sporting contest (which is usually completely one sided) but for the *possibility* of a giant killing. It helps explain why people overpay for lottery tickets – playing the lottery opens up a potentially transformative positive life event.

But for our purposes if high beta/low quality stocks come with the possibility of drastically outsized triple-digit returns over a very short period of time, it seems plausible that investors overpay for them too. The stocks with the highest betas today are things like banks, steel companies, miners, airliners and autos, none of which have shown themselves to be great businesses over any length of time. Yet the bull case for each implies some spectacular upside, especially for those who *"get the timing right"* …

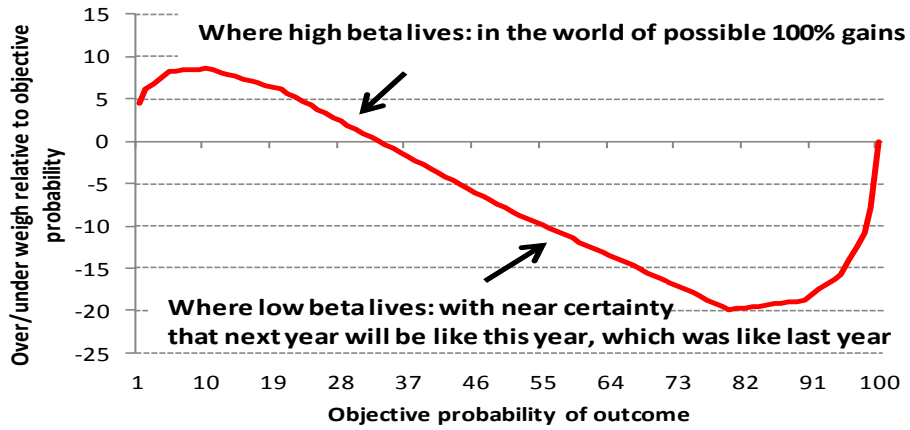
The idea can be taken a step further because, as the above chart also shows, moving towards complete certainty (i.e. 100% probability) exerts a similarly disproportionate influence. Think back to the example of a sick relative for whom your doctor offers a 10% improvement in his survival chances. Now though, suppose that his starting chances of survival are 90%, which means he's probably going to be fine … *probably* … but is *probably* reassuring enough in a situation like this? We want to know for *certain* that he'll be OK!

As the chart shows, according to Kahneman, people value that last 10% – the one that eliminates all risk – and this sees the decision weight rise from around 71 to 100, a 29 point increase. Compare that to the mere 6 point change as we go from 50% to 60% and the last 10% increase is nearly *five times* as valuable. This is known as the "certainty effect" and is even more powerful than the possibility effect.

The consequence of the certainty effect is that *near*-certain outcomes are undervalued. A common finding in experiments is that people prefer, say, a guaranteed $90 to a 95% chance of $100. In other words, a near-certain bet correctly valued $95 will tend to be worth significantly less to most people. We undervalue near-certain outcomes. Yet this is exactly the world in which low beta/high quality stocks live. Cast your eyes down a screen of low beta stocks and you'll find yourself looking at food retailers, tobacco companies and regulated utilities. Forget the possibility of outsized returns in a few months. Last year was pretty much the same as the one before, and this year will probably be much the same as next … *probably* …

The next chart shows the difference between the objective probabilities and the decision weights from the previous chart. It shows the over-valuation of possibilities and the undervaluation of near-certainties. And if high beta/low quality stocks live in the world of possible triple-digit returns, attracting lottery ticket overvaluations, low beta/high quality stocks live in the world of near certainty, attracting the boredom discount.

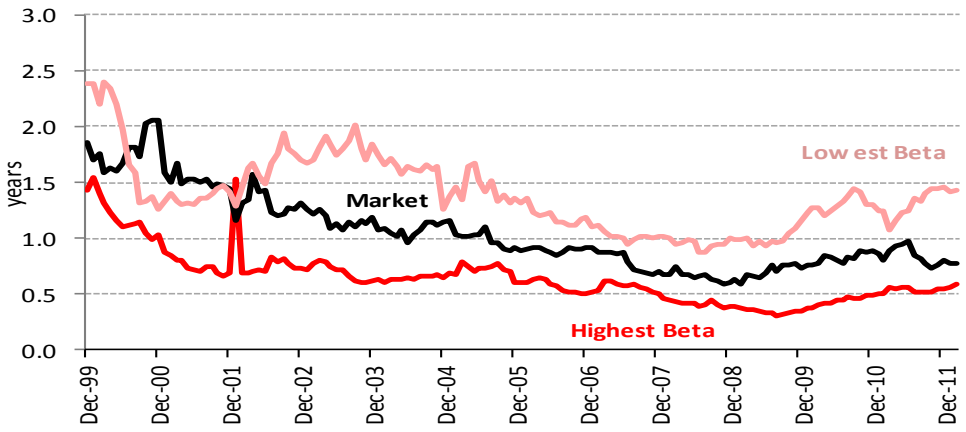
Objective probability and subjective importance



Source: SG Cross Asset Research

Of course, for this thinking to be correct we, like the guys at GMO, are making the assumption that the lower quality elements of the stock market are effectively more speculative. They are vehicles for trading with, not investing in. If that's close to the mark, therefore, we'd expect to see more activity in the high beta/lower quality names. The following chart shows exactly such a tendency, with estimated holding period for low beta (fifth quintile) portfolios to be almost three times higher than for high beta (top quintile) ones.

Junk stocks seem to have a shorter holding period (years)



Source: SG Cross Asset Research

The most common question we get when we recommend quality is whether or not its past outperformance has been simply because it started out cheap, or because there's something more going on. The possibility effect creates excitement. The near-certainty effect is a slightly anxious boredom. And we're hardwired to overvalue excitement and undervalue boredom. So I think it's the latter – because there is something more going on.

So we still have a bias towards quality in the stock market, and we think you should too.

Introducing SG's Quality Income Index (24/05/2012)

Andrew Lapthorne
(44) 20 7762 5762
andrew.lapthorne@sgcib.com
Georgios Oikonomou
(44) 20 7762 5261
georgios.oikonomou@sgcib.com

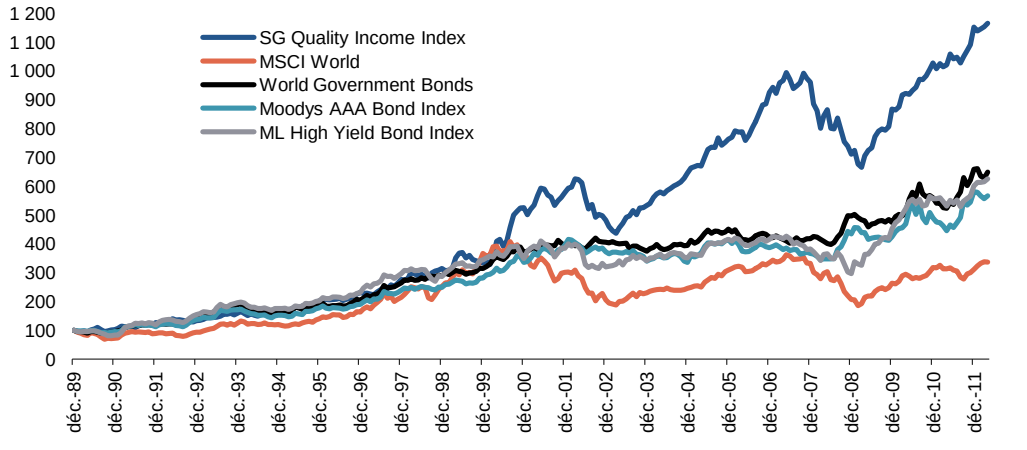
Dylan Grice
(44) 20 7762 5872
dylan.grice@sgcib.com

This report from us is slightly different from usual. Regular Popular Delusions readers will note that this one is not just authored by Dylan Grice, but also by Andrew Lapthorne and Georgios Oikonomou. Those of you who've never heard of Popular Delusions or Dylan Grice have been sent this because you usually read Andrew and George's stuff. But we're writing this together because we've combined our admittedly modest individual talents to reach an immodest conclusion: that we can create an investable index of equities that we think generates relatively safe income, protects capital, and (even) grows over time.

▪ Those of you who know our work will appreciate that we tend not to give market views so much as an investment philosophy. We like to distinguish the things we know from the things we don't (or can't) know. We think about where the uncertainties are, not to bet on them, but to avoid betting on them. Within this context, we like 'value'. This tends to elicit a common response: "This is nice and interesting guys, but it's a bit wishy-washy. What should I actually do?" Well, this is what we think you should do.

▪ Equity returns have been appallingly low over the past decade. Worse, they've subjected investors to gut-wrenching drawdowns that have pushed savers into bonds. Although prospective bond returns look awful, the feeling is that they have limited drawdown risk so the capital is at least safe. But we think there is another way. The fact is 'equities' as an asset class contain various sub-classes. And one such sub-class, which we call Quality Income (QI), provides bond-like characteristics (income and capital safety) with equity-like characteristics (capital growth). The chart below shows in the last two decades QI not only outperforming the overall equity market, but bonds too (please see the addendum at the back of this report for full performance details).

The SG Quality Income Backtested Performance



Source: SG Cross Asset Research

SG's Quality Income Philosophy: The best offence is defence

Talk is cheap, of course. Scepticism is warranted. So we'd like to explain to you how we construct our little index and more importantly, why. Then you can make your own mind up.

Our central philosophy was neatly encapsulated by Howard Marks in one of his 1990 memos, where he recounted the story of a prominent money manager who, after a spectacular few years, was now underperforming so dramatically that his five year performance was below the S&P500's. The manager justified its aggressive style as follows

> *"If you want to be in the top 5% of money managers, you have to be willing to be in the bottom 5% too."*

If you want spectacular success you have to be prepared for spectacular failure, this manager seemed to be saying. But Marks went on to cite a pension manager who'd eschewed such a gung-ho approach, yet had easily outperformed over time. That manager said

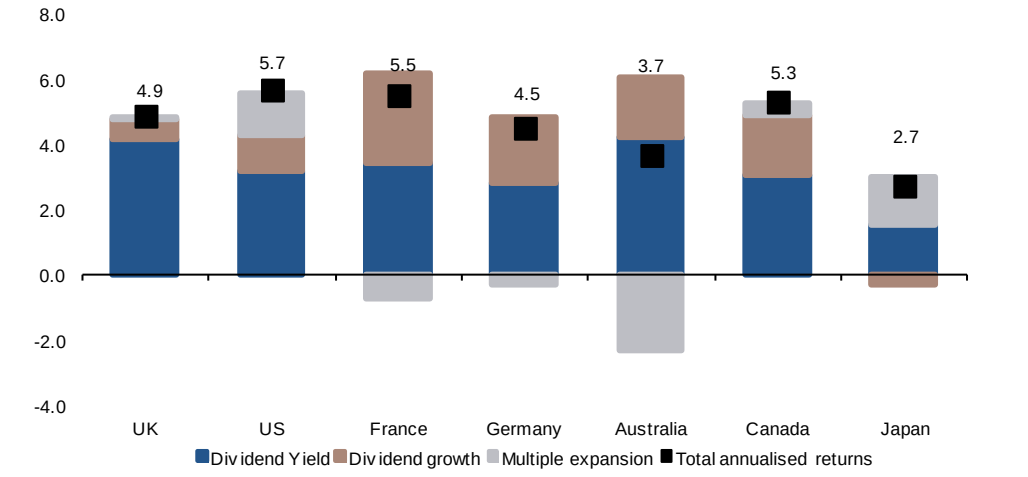
> *"We have never had a year below the 47th percentile over that period or, until 1990, above the 27th percentile. As a result, we are in the fourth percentile for the fourteen year period as a whole"*

Like Mr. Marks, this manager eschewed the "investment-as-swashbuckling" paradigm. We do too. There is nothing daring or clever about what we're doing. All we're trying to avoid is being dumb. Neither is what we're doing new. Our resident dividend fetishist, Andy Lapthorne, has been banging this drum for years (e.g. Global Income Investor Feb 2009). The difference is that we're now presenting something to you which is actionable.

The first part of avoiding being dumb is to focus on things we think we know. And we don't know what goes on in the minds of central bankers or Chinese bureaucrats or anything else which might drive the mood swings of Mr. Market. So risk-on risk-off sector rotations and the like are beyond our scope. But we think we do know some things.

The first thing we know is this: dividends have dominated long-run equity returns. The following chart shows that since 1970, dividends and dividend growth have been pretty much the whole story.

Dividend yield is the biggest driver of equity returns (real total returns since 1970)

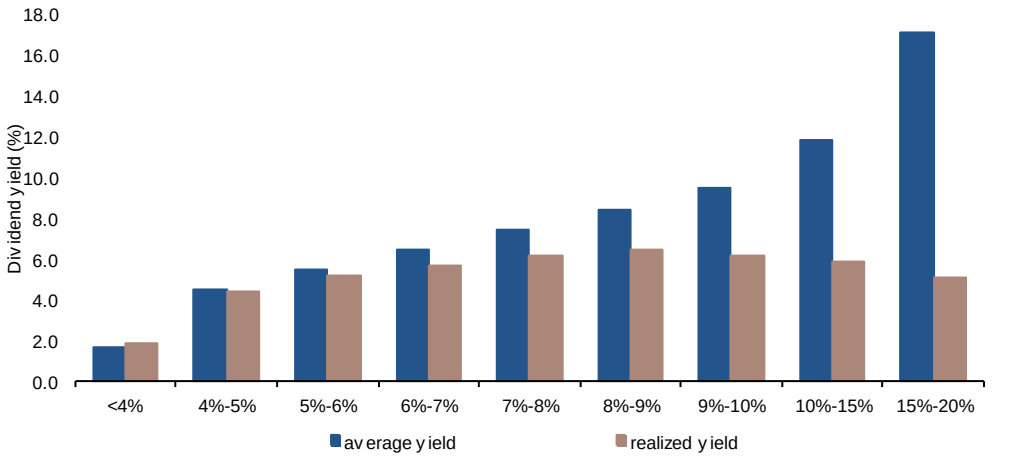


Source: SG Cross Asset Research, MSCI

So we start with a bias towards dividend-paying companies. However, a higher prospective dividend yield isn't always a better dividend yield. Dividends can and are lowered, and

dividend yields which look too good to be true usually are. The following chart compares realized dividend yields with forecast dividend yields. An abnormally high yield is generally a sign of distress. So it's not as simple as packing our index with the highest yielding stock we can find. We only want those companies paying a *sustainable* yield.

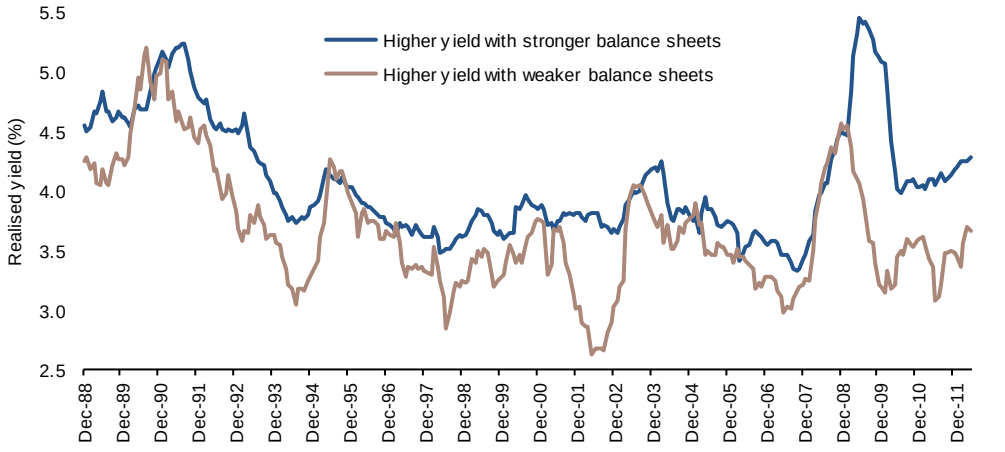
Realised and forecast dividends



Source: SG Cross Asset Research, Factset, I/B/E/S

The second thing we know is this: dividends are only sustained by companies economically able to sustain them. A typical way to judge this is to look for a good track record of dividend payments. Dividend history might be worth a look too. But you know what they say about past performance. Things change. Good historic dividend payers can and do hit problems (e.g. RBS or BP to name two). So some compare the dividend payments to earnings or cash flows, which sounds more sensible. But what happens if those earnings or cashflows dry up, for whatever reason? Our research suggests that good dividend cover is not a good indicator of how safe that dividend is in the future. In fact we've found that balance sheet quality (as we define it) is the best predictor of dividend cuts, as the chart shows.

Balance sheet strength helps identify dividend sustainability
(realized income of high yield stocks filtered on balance sheet strength, %)



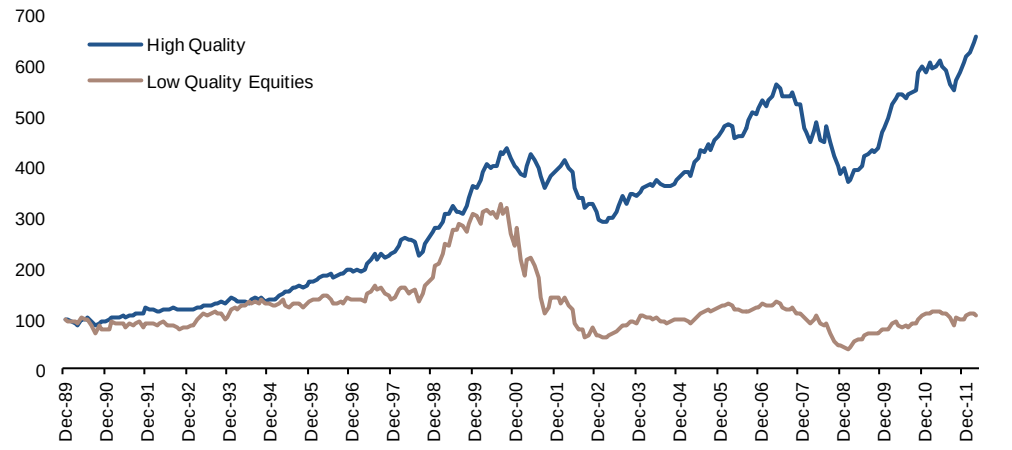
Source: SG Cross Asset Research, Factset

But as it happens, not only does balance sheet quality provide a good indicator of dividend sustainability, but it is itself likely to be systematically mispriced (i.e. too cheaply).

The third thing we know is that good "quality" companies' share prices tend to outperform poor quality companies. We define a 'quality company' as *financially robust* (please see our SG Quality Income Methodology report for full details of our methods). That means both its balance sheet and its underlying business economics are robust. Note that *both* are necessary. Nokia has a robust balance sheet but rapidly deteriorating underlying business. Enterprise Inns has a robust underlying business but a poor balance sheet. We look for both when we look for quality and as the chart below shows, the high quality companies tend to outperform low quality ones[12].

This might sound obvious. But it stands in stark contrast to some of the basics of finance such "as great businesses aren't necessarily great investments" and "high risk equals high return." Our measure of quality suggests the opposite. Low-risk, high-quality companies have indeed been better stocks to invest in than high-risk low-quality ones.

When high risk doesn't equal high reward: total returns for high vs low quality portfolios



Source: SG Cross Asset Research

Why do Quality strategies and Income strategies work?

It is one thing looking at historic data to see what has worked. It's another thing to understand *why.* If we can understand that, we'll have a better understanding of how likely it is to work in the future, and under what circumstances it might not.

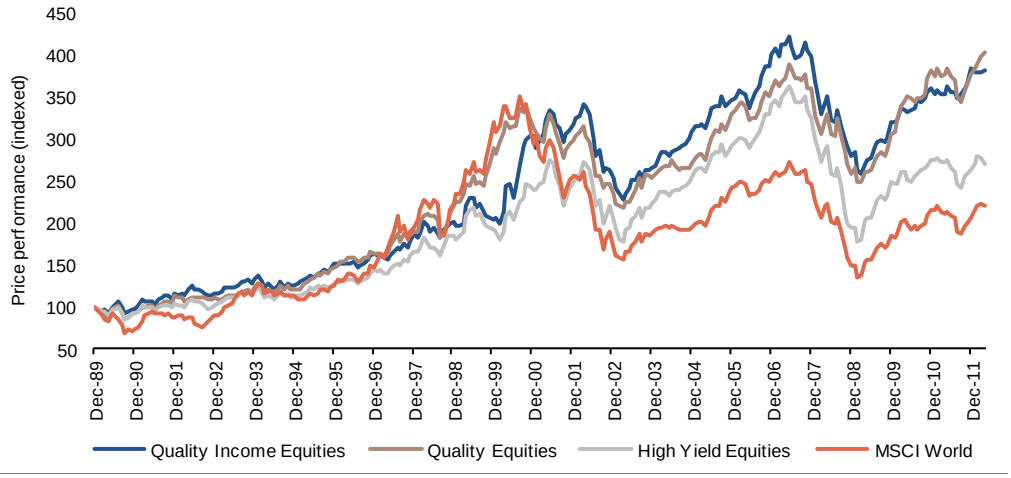
Let's start with why we think dividends are so important. Financial theory states that companies growing rapidly are better off deploying that capital themselves, and paying out capital is an inefficient thing to do. Berkshire Hathaway is a text book example. It would be worth less today had it been paying out a share of its earnings each year to shareholders rather than investing them back into its best performing businesses because Warren Buffett has been an incredibly skilled capital allocator.

The problem is that most capital allocators are not Warren Buffett, they just think they are. And why would it be otherwise? Most drivers think they drive better than average, most students think they're smarter than average, most investors think they'll beat the index … why wouldn't overconfidence be *at least* as deeply ingrained in high-achieving corporate CEOs than elsewhere in the animal kingdom?

[12] Among other things we define quality as those companies that are profitable, where profitability is improving, and where the balance sheets is strong. For more detailed information see the SG Quality Income Methodology document.

A commitment to pay a dividend helps safeguard shareholders from any inflated egos lurking in the boardroom, and mitigates the misallocation of shareholders' own capital. To see why, consider the chart below, which shows that the *capital* return of our QI Index (i.e. the return excluding dividends) has been higher than that of the market. *In other words, these companies are more efficiently reinvesting capital in their own business despite paying out a healthy income to their shareholders.*

Capital only returns to QI companies, versus the rest



Source: SG Cross Asset Research, MSCI

What about quality businesses? Why do we think they're systematically better places to invest? Well, they tend to be boring businesses. They tend to have boring balance sheets too. They quietly go about their business from one year to the next, and do whatever it is they do. When there is a recession, they might get slightly less of it. When there's a recovery they might get slightly more. But one year looks pretty much like another.

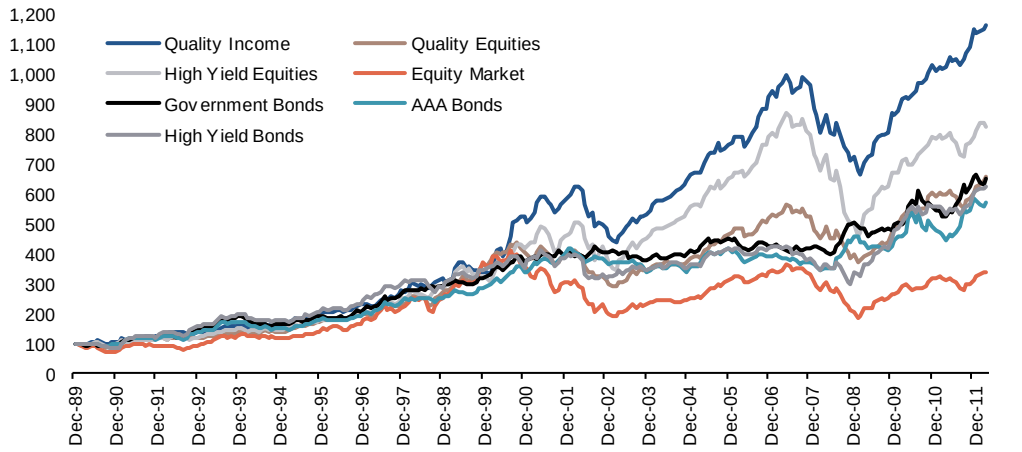
So they're not *exciting* businesses to follow. But people like excitement. They pay good money for it. And in their excitement they pay too much. A fuller discussion of this idea and on why 'quality' stocks do well can be found here and here. But to briefly summarize, we think it's down to what psychologists call the "possibility effect" in which people value potential changes differently. For example, suppose a family member is ill. How much would you pay for medication which improved their chances of survival by 1%? If the prior chances of survival are 50%, that additional 1% chance is valuable. But if the prior chances of survival are 0%, that 1% increase is much more valuable. It changes the range of possibilities completely. So although both 1% improvements are identical at the margin, people tend to the give more importance to the latter because it increases the possible outcomes. It's one reason why people play the lottery so enthusiastically, regularly paying dollars for pieces of paper worth only cents. With a winning lottery ticket comes the hitherto impossible possibility of a new life.

When it comes to the stock market things are no different. Managers overpay for the possibility of game-changing near-term outperformance in the same way that people overpay for game-changing possibilities embedded in lottery tickets. Effectively, managers pay to play. They like stocks that move a lot. Stocks which can shoot up by 100% or more in a short period of time. Stocks which offer the possibility of radically altering the managers' annual performance (and bonus). Stocks which the swashbuckling manager Howard Marks referred to on the front page would use to give him the best chance of being in the top performance decile. Stocks which are, in other words, the opposite of the ones we want in our index.

Meet SG's Quality Income (QI) Index

So there are very sound logical reasons for being biased towards high quality/low risk stocks. There are even more sound reasons for being biased towards sustainable dividend payers. Our Quality Income Index aims for both[13]. The following chart compares its returns (navy blue) to those of similarly constructed 'high yield equities index' (which consists purely of high income stocks regardless of their balance sheet quality), a 'quality index' (which consists purely of quality stocks regardless of their yield) and the overall market index. Quality stocks have beaten the market. High yield stocks have beaten the market. But the mix of "quality yield" in our QI index has beaten them both. Moreover, despite the bull market in bonds, QI returns have been significantly higher than those in the bond market.

SG Quality Income Index trumps all: total returns in euros

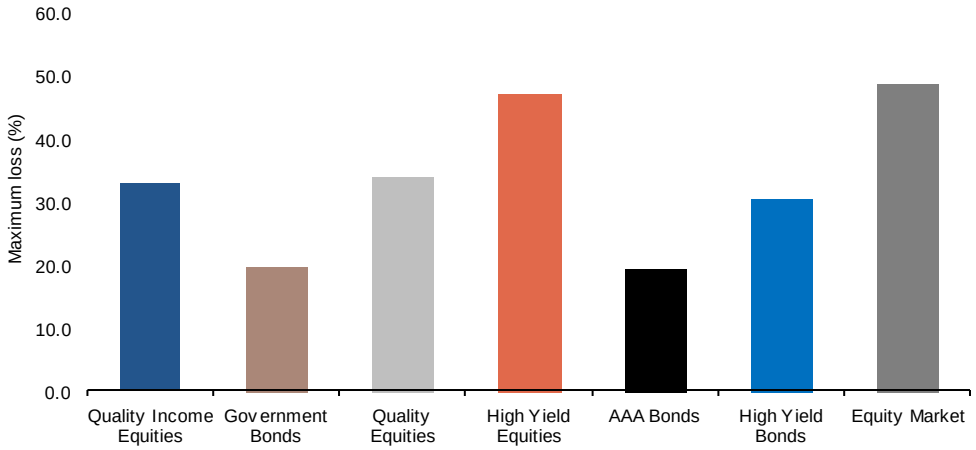


Source: SG Cross Asset Research
Past performance is no guide to future returns. Performance shown includes no transaction costs or commissions. Full details of the portfolio and performance are available upon request.

More importantly, what we find more satisfying about our index isn't just that it's historically beaten the market's returns. A strategy leveraging JGBs could have done the same. What we find more satisfying is *how* those returns were earned. Remember that the primary focus of the index is not actually the generation of returns *per se*, but the safety of the capital invested. The following chart shows the maximum drawdowns of each of the four indices shown above. We'd draw particular attention to the drawdown of our Quality Income index with that of the Merrill Lynch global high yield bond index. Although similar, the total return on the Quality Income index has been far superior. As a real asset class, we think Quality Income is an attractive alternative to anyone buying credit thinking that's the only way to generate a high yield.

[13] For full and exhaustive details of index construction methodology please refer to "Global Quality Income Index Methodology, 24th May 2012" See link

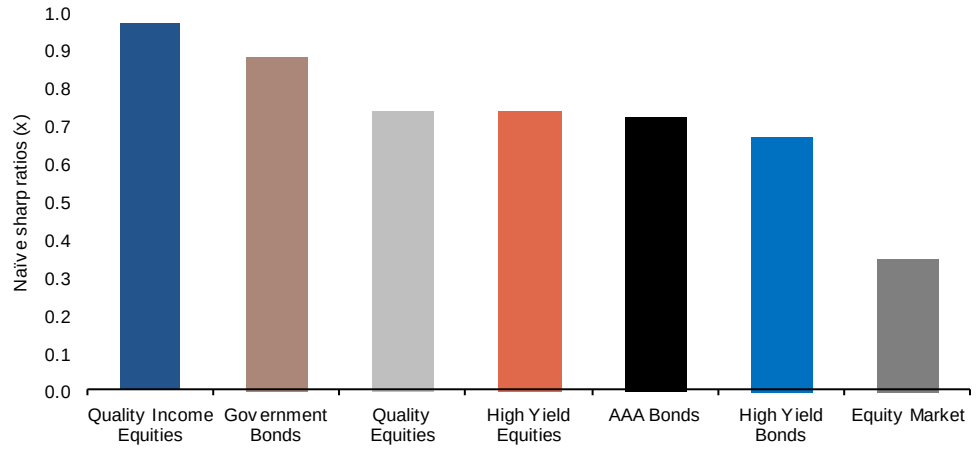
SG Quality Income Index has had credit like drawdowns …



Source: SG Cross Asset Research
Past performance is no guide to future returns. Performance shown includes no transaction costs or commissions. Full details of the portfolio and performance are available upon request.

When we adjust those returns for the volatility of those returns, as is standard practice for the computation of Sharpe Ratios, we find our QI has had the most attractive return profile of all.

… but with returns to compensate

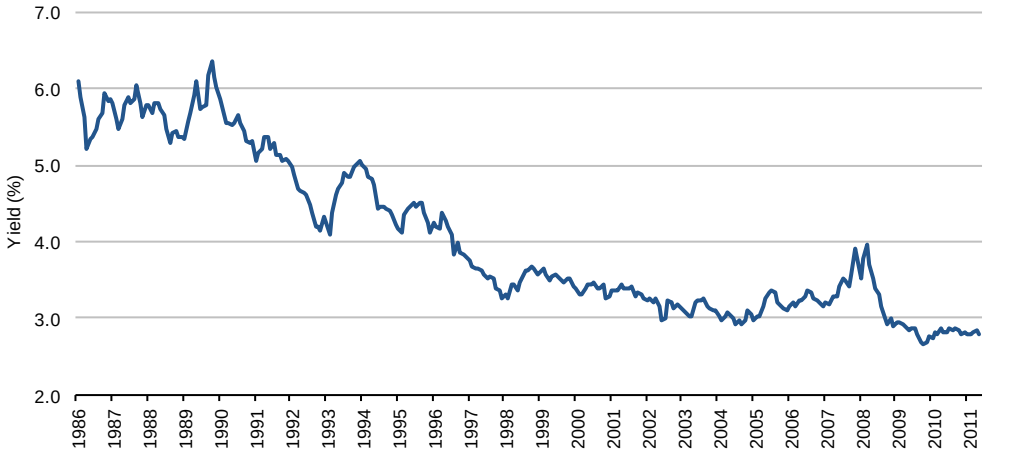


Source: SG Cross Asset Research
Past performance is no guide to future returns. Performance shown includes no transaction costs or commissions. Full details of the portfolio and performance are available upon request.

Looking to the future and Quality Income

Nevertheless, the past doesn't predict the future. So we wouldn't be so bold as to argue that these favourable historic numbers will be repeated in the future. We worry about the world every bit as much as the next person and we remain particularly concerned about the consequences of the yield having been squeezed out of capital markets over three decades of central banks acting for the common good. Naturally, therefore, we're concerned about the prospects for our index. Macro storms buffet all ships. But we think our index should at least give the upfront protection of a secure, high and (as it is equity and not fixed income) a degree of inflation protected yield. This alone gives it a strong advantage as we face what appears to be a bleak future (chart below).

Bleak return prospects: The games central banks play (gross yield of a balanced portfolio, %)



Source: SG Cross Asset Research

But there are other things too. As discussed, we think the historic outperformance of quality and dividend paying stocks has less to do with investment fashion, and more to do with our behavioral hard-wiring. To the extent that our index is trying to avoid overconfidence, and the human tendency to pay too much for lottery tickets remains, we think it should be more robust than other savings vehicles.

So while we have no idea what the future holds, and we can't *promise* that our Quality Income index will perform as well as we surely hope it will (though who can make such a promise), what we can say with hand on heart is that we're happy to take our chances.

Appendix: Performance Stats

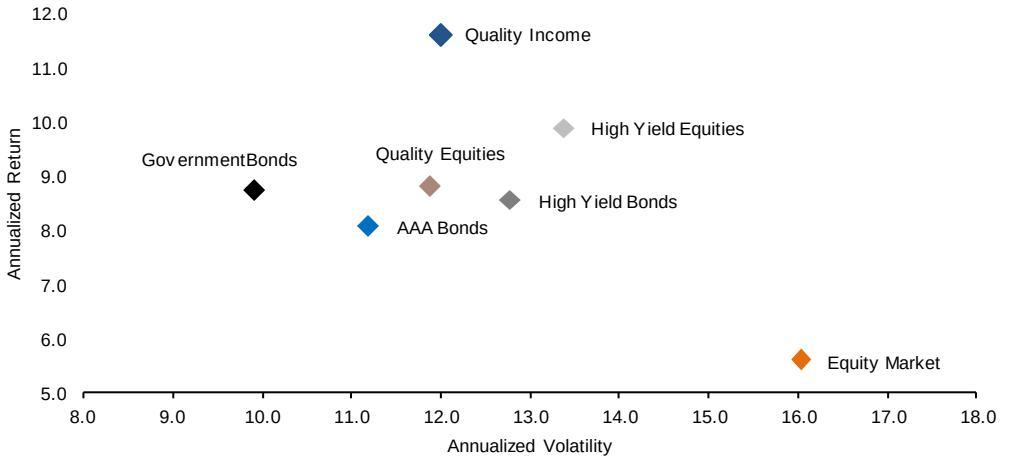
The following performance figures compare the SG Quality Income Index to a variety of benchmarks. The time series for this index can be found on Bloomberg using the tickers SGQI Index and SGQINTR Index for the price and net total returns. All measures are priced in euros. The High Yield Equity index is the MSCI World High Dividend Yield index and for the Equity Market we have used the MSCI World Index. The Quality Equities benchmark we used is an equal-weighted benchmark of our Quality measures but without a filter for higher dividend yield. The bond indices are the Merrill Lynch High Yield bond index, the ML Global Government Bond index, whilst the AAA bond index is from Moodys

SG Quality Income index performance compared (net total returns since 1990, euros)

	Quality Income Equities	Quality Equities	High Yield Equities	Equity Market	Government Bonds (10y)	AAA Bonds	High Yield Bonds
Total Return	11.6	8.8	9.9	5.6	8.7	8.1	8.6
Volatility	12.0	11.9	13.4	16.0	9.9	11.2	12.8
Return/Volatility	0.97	0.74	0.74	0.35	0.88	0.72	0.67
Maximum loss	33.0	33.8	47.1	48.9	19.7	19.3	30.5

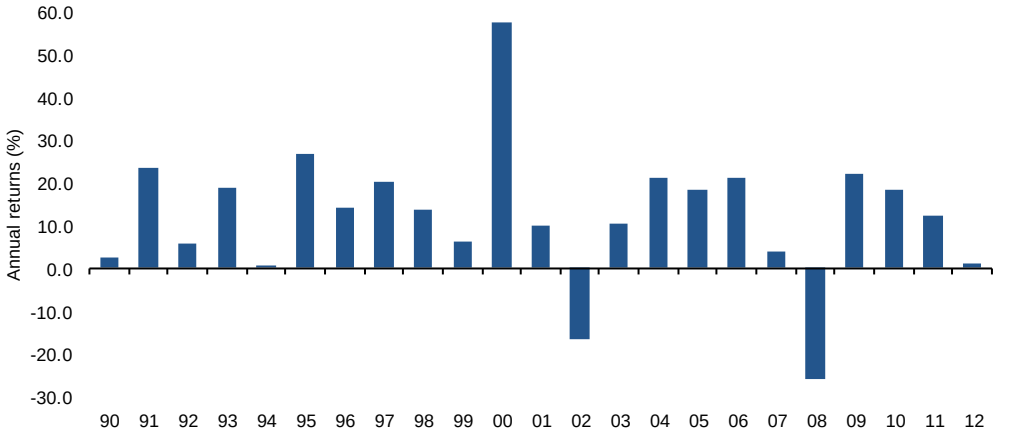
Source: SG Cross Asset Research. MSCI, Bloomberg, Moodys
Past performance is no guide to future returns. Performance shown includes no transaction costs or commissions. Full details of the portfolio and performance are available upon request.

Risk and returns compared since 1990



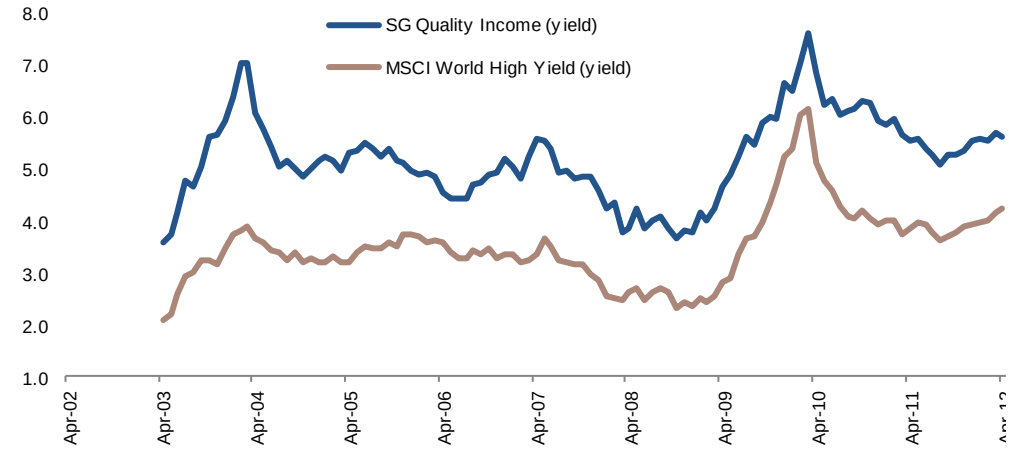
Source: SG Cross Asset Research. MSCI, Bloomberg, Moodys
Past performance is no guide to future returns. Performance shown includes no transaction costs or commissions. Full details of the portfolio and performance are available upon request.

Annualized absolute return of Global Quality Income Strategy (only two years of losses)



Source: SG Cross Asset Research
Past performance is no guide to future returns. Performance shown includes no transaction costs or commissions. Full details of the portfolio and performance are available upon request.

Yield comparison: SG Quality Income index compared to MSCI World high yield index (net total returns



Source: SG Cross Asset Research
Past performance is no guide to future returns. Performance shown includes no transaction costs or commissions. Full details of the portfolio and performance are available upon request.

Cockroaches for the long run! (23/11/2012)

All good things come to an end, sadly. So it is with my time here alongside Albert, Andy and the rest of the gang at SG. I'm signing off, checking out, moving on to pastures new. It's been a wonderful time. But after three years of trying to sound clever it's time for me to do something altogether more difficult, and actually be clever. So early next year, I will join a small but outstanding investment practice. Naturally, I hope it will be a great success. But what makes a great success? Since there are few more accomplished species on earth than the lowly cockroach where better to start looking for an answer?

Cockroaches get a bad press. They're pests. We don't want them in our houses. Mainly, we want to kill them. If you call someone a cockroach, like Tony Montana did to Frank Lopez in Scarface, it's not meant as a compliment. You might think that one of the most successful species in the long and colourful history of life on earth would enjoy more respect. But no…

Of course, you have to be careful in how you define success. Cockroaches don't have iPhones, space stations or edible underwear. They don't have any of the nick-nacks we have that make us think we're so clever. They're not ingenious, like we think we are.

But ingeniousness is over-rated. Cockroaches may not be able to build nuclear bombs, but they can withstand nuclear war. They survive. Don't get me wrong. Thriving is great. Prospering isn't bad either. But neither mean much if you're unable to survive. To my mind, therefore, capacity to survive has to be the starting point when thinking about success. It's all about robustness really, and on this metric cockroaches are tops.

The oldest cockroach fossil is 350 million years old, which is quite remarkable when you think about it. We humans have been around for around for a mere fifty thousand years (so we're one seven thousandth as successful as cockroaches). According to the record of the rocks, cockroaches first appeared just after the second of the earth's five mass extinctions (defined as the loss of 75% of all species). In other words, that means they survived the third, fourth and fifth mass extinctions which followed, the last one being the Cretaceous event which wiped out the dinosaurs. They can go without air for 45 minutes, survive submerged underwater for half an hour, survive freezing temperatures and withstand fifteen times more radiation than humans. They eat pretty much anything, including the glue on the back of stamps. And when that runs out, they can last a month without anything at all before finally starving.

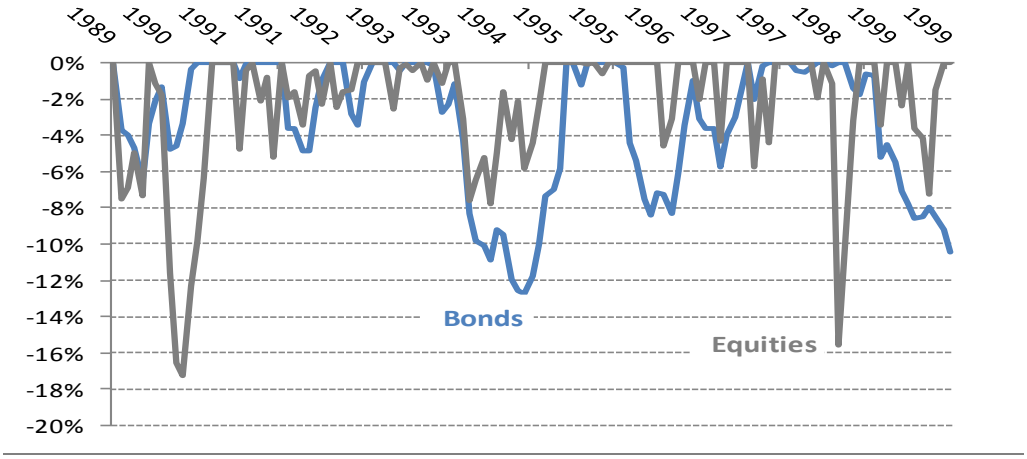
But what I like best about cockroaches isn't just their physical hardiness, it's the simple algorithm they use to survive. According to Richard Bookstaber, that algorithm is "singularly simple and seemingly suboptimal: it moves in the opposite direction of gusts of wind that might signal an approaching predator." And that's it. Simple, suboptimal, but spectacularly robust ….

Cockroaches prove that what is optimal isn't necessarily robust, that there is such a thing as being too clever, and that you can thrive with very simple underlying algorithms. As you can imagine, this is an inspiring and reassuring idea for someone as limited me. And it's got me thinking about what a cockroach portfolio would look like.

When I started work in 1997 equities were the only place to be. The mantra was that in the long run, you couldn't lose money in stocks. The tech bubble was just beginning to inflate. Two financial writers, James Glassman and Kevin Hassett, were conceiving of a book called "Dow 36,000" which would be published a few years later, in 1999. This would be close to the peak of the bubble.

In a sense it's easy to see why. The following chart compares the real drawdowns (peak to trough movements adjusted for CPI inflation) of bonds and equities during the 1990s bull market. The maximum real drawdown was 17% in the equity market (in 1990) and 13% in the bond market (1994). These downsides weren't a million miles away, but the returns on equities were much higher. So only idiots would own bonds. This all sounds quaint today. But it happened and it was real. Institutional investors, pension funds and insurance companies held about 85% of their assets in equities. They thought it was the prudent thing to do.

Real 1990s drawdowns between bonds and equities compared (% peak to trough in real return)

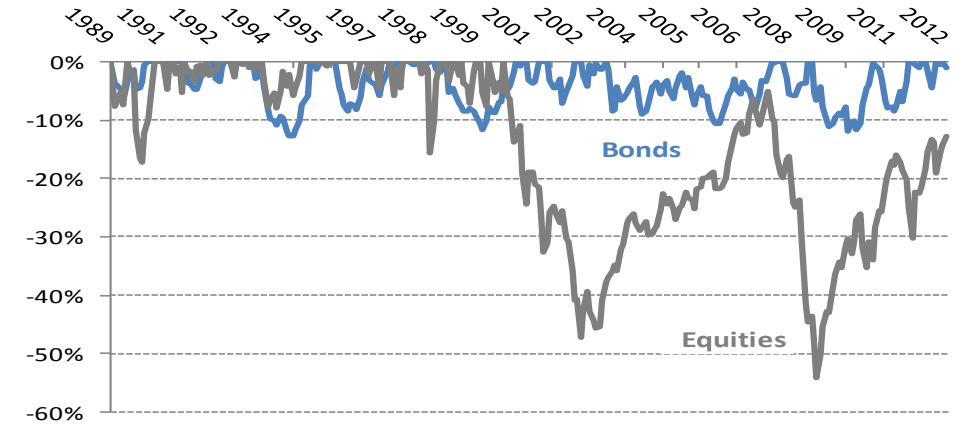


Source: SG Cross Asset Research

As the market rose to the heady valuation peak of the late 1990s, equity investors felt very pleased with themselves. They understood all the fancy new ideas like collapsing equity risk premia and productivity miracles. They marvelled at tantalizingly delphic central bankers, and on good days they thought they were nearly as clever. It would all have been lost on a lowly and limited cockroach …

Over a decade later, and we're in a similar place today. Insurance companies have almost completely sold their equity holdings and they own large bond portfolios instead. The FT reports that UK pension funds also now own more bonds than equities. In real terms, equities have suffered real drawdowns of nearly 50% on two occasions in ten years while bonds have held firm (chart below). Worse, equity returns have been negative over that period.

Equity market drawdowns were savage in the 2000s, bonds trucked along



Source: SG Cross Asset Research

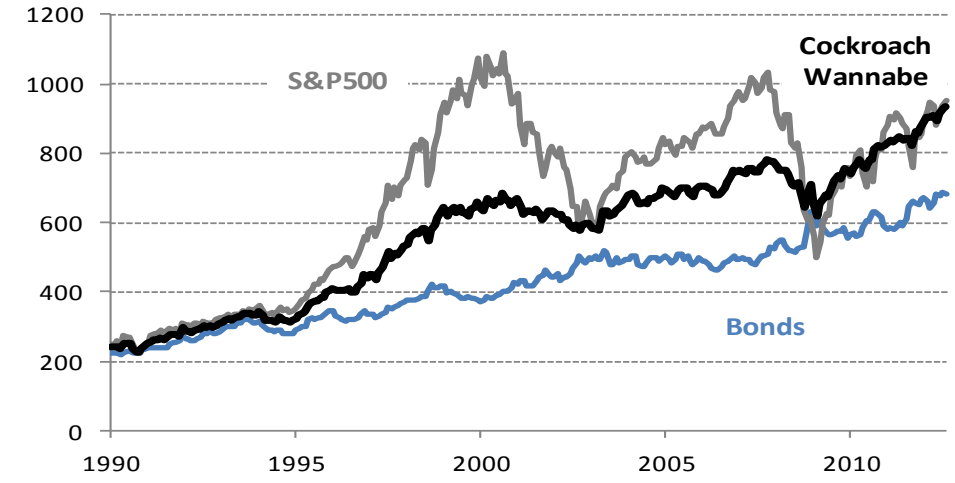
So .... now everyone knows that only an idiot would want to own equities. It's true that bonds don't offer much return with yields down here … *"but at least you don't lose your capital."* They've had 10% maximum real drawdown, after all. They're risk-free. Some economists even tell us that governments can't go broke if they are in control of the printing press. "*That your only risk with bonds is inflation, but let's face it deflation is the risk here. Look around, we're deleveraging! Central banks couldn't create inflation even if they wanted to!! We'll be lucky to emulate Japan!!!*" … according to Nobel Prize winning clever-clogs. I happen to think the clever-clogs wrong. But I don't really know. Maybe it's me that's wrong. What I do know is that it's all beyond the lowly cockroach.

Of course, if you'd been clever (or lucky) you'd have owned equities in the 1990s and bonds in the 2000s. You'd have switched out at the top. But how many did? Some managed to be right in timing as well as thought and so kept their jobs. But most didn't. For the overwhelming majority, timing these events is a mug's game. Yet today everyone asks what the trigger will be for a bond rout. They need to know so they know when to get out of bonds. It's what they're paid to do. Again though, it's all beyond the lowly cockroach.

A cockroach would avoid playing the game in the first place. He'd accept that he wasn't clever enough to know when to switch out of one asset class and into another. He'd probably do everything he could to avoid having to make such horrible decisions. He'd buy bonds and equities together, ensuring that each year he held them in equal proportion.

The following chart shows what his returns would have looked like, using such a strategy from the 1990s onward. Not bad in fact.

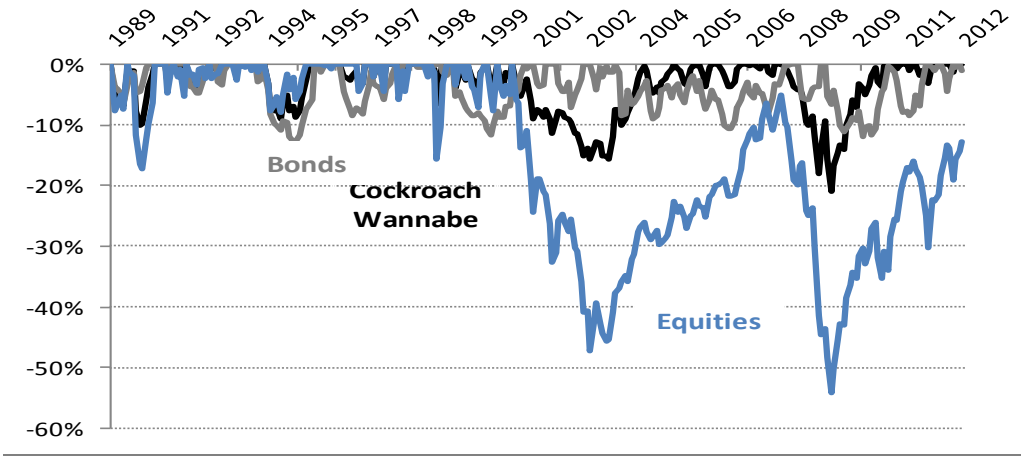
Real returns compared: bonds, equities and 50/50 bonds/equities



Source: SG Cross Asset Research

The picture looks even better when you compare the drawdowns. Not only does the cockroach wannabe combine bonds and equities, giving a much better risk profile than each one individually, it removes the need for a crystal ball.

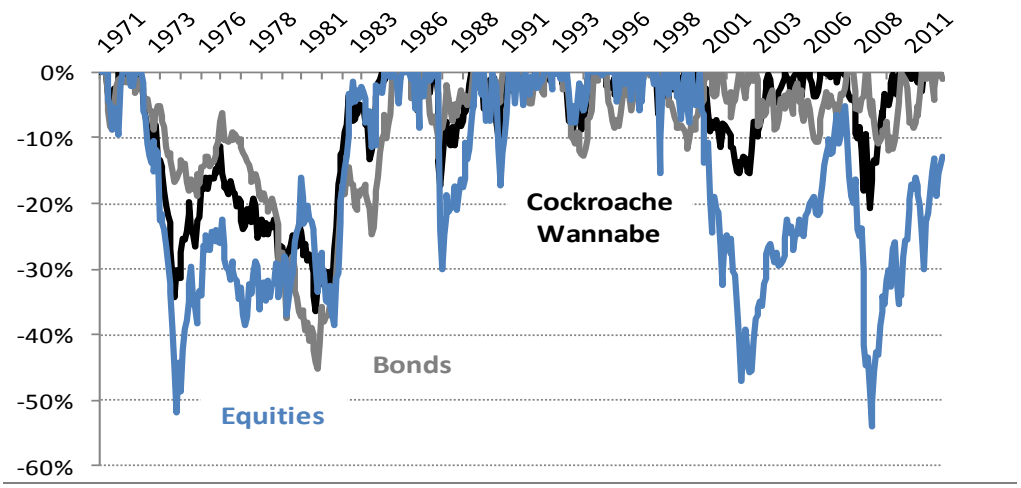
Real drawdowns compared



Source: SG Cross Asset Research

But … how cockroach-like is this strategy really? If we go back to the 1970s and compare real drawdowns from then, we get a very different picture. We see that during that inflationary decade the bonds/equity combo didn't really do much to mitigate the potential for capital loss.

Why the wannabe isn't a real cockroach: huge drawdown in the 1970s

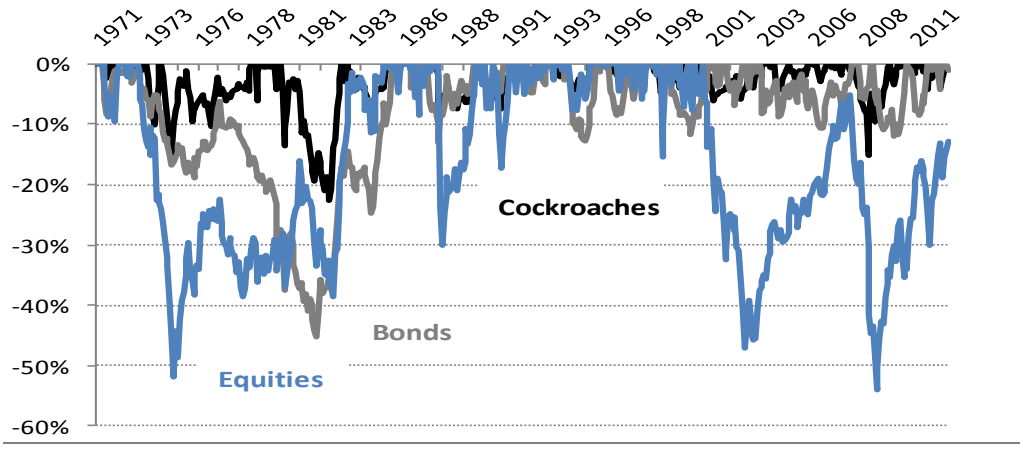


Source: SG Cross Asset Research

A real cockroach would survive the 1970s. It would be inflation resistant, deflation resistant, credit inflation resistant, credit deflation resistant … despite having "no view" on which scenario was more likely at any point in time. So let's assume our cockroach has no view. It doesn't know what's around the corner so it doesn't make any bets. It holds half of its capital in real assets, the other half in nominal. Of course, being a cockroach, it doesn't know if capitalism is about to collapse or flourish. So it divides its nominal and real buckets further into productive and unproductive assets. It puts 25% of its portfolio in equities, 25% of its portfolio in gold, 25% of its portfolio in government bonds and 25% in cash.

The following chart shows that such a portfolio offers some very real protection against the vagaries of an unknown future. Real drawdowns during each regime were significantly mitigated with the cockroach-like strategy of simplicity, agnosticism and robustness.

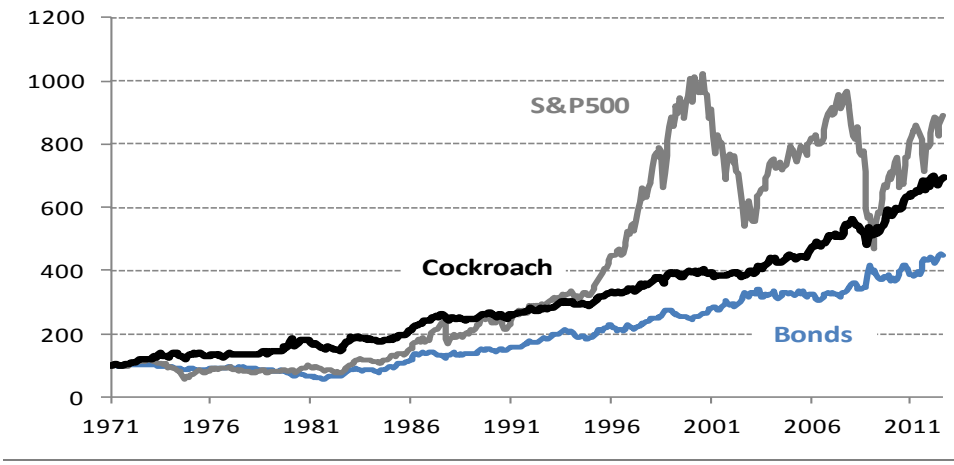
A true cockroach portfolio survived the 1970s



Source: SG Cross Asset Research

And the returns haven't been bad either: 5% real since 1971, versus 5.5% in equities and 4% in government bonds.

Cockroaches for the long run!



Source: SG Cross Asset Research

In 1975 Charles D Ellis wrote about investment being a "losers' game." He was using the distinction Simon Ramo drew in his book *"Extraordinary Tennis for the Ordinary Tennis Player"* who observed that the game of tennis was in fact, two games. After extensive statistical analysis, he concluded that professional players *win* points, while amateurs *lose* them. Professional players put the ball wherever they like, at whatever pace they like, with a precision and consistency which the overwhelming majority of players could never hope for. The winner of a professional tennis match is the one who makes the most winning shots.

For most tennis players the game is different. Each player tries to make those special shots. They try to win points. But in doing so they double-fault, miss the baseline, hit the net … In other words, they lose points because they keep trying to hit winning points they're not capable of. The winner of the losers' game is the one who loses the least points.

I like Ellis' categorisation of investment as a losers' game. We spend so much time and energy trying to be clever: what the Fed will do next; what it should do next; where oil prices will go; what the effect will be on the economy; when the recovery will come; *if* the recovery will come; will China see a revolution; will Russia revolt against 'Tsar' Putin; *et cetera, et cetera.* It may be better to focus instead on not being dumb. How good are we at making these predictions? Of course there is a time for going on the offensive, and the occasional opportunity to play winning shots. In moving to an investment practice I guess I'm trying to make one now. Time will tell on how sound my judgement is. But I think the principle is a sound one.

So … it's an odd feeling to be drawing the curtain on my time here with Albert and Andy at SG. The three years have flown and it's been both educational and entertaining working with them. But I've known them both for years and been close friends with them for years. So while I'll miss the day-to-day contact, we won't stop being close friends.

But I'm going to miss SG too. I know it's customary to thank everyone everywhere when you leave, but in all sincerity, my time at SG has also been memorable because of SG. It's not been an easy time for banks. Eurozone banks have had a particularly rough time and SG has copped its fair share of the flak. But I've met some fine and honourable people here who will be life-long friends.

I've come across wonderful people outside of the bank too: readers, clients, journalists. But the most common question I've been asked in my time here has been *"how do you get away with writing what you write, while working inside a bank?"* Lurking beneath the question is the

implicit understanding that other banks don't allow their analysts freedom of thought and expression. Yet SG has given us exactly that freedom, along with trust that we won't abuse it. Such trust is unusual indeed in this industry and without it I wouldn't have had the fun, the personal growth, the readership, or relationships that the readership has fostered over time. I am truly grateful and I will always be very fond of this place.

When I resurface on the buy side early next year I will continue to write from my new perch. Before then I will be presenting at Albert and Andy's January conferences in London and Edinburgh. Hopefully I'll get to catch up with some of you personally then. In the meantime, anyone who's corresponded with me, met me, or even just enjoyed reading the odd Popular Delusions and would like to stay in touch, feel free to drop me a line here. To the rest of you, thank you and farewell!

Euro Crisis

Government hedonism and the next policy mistake (11/02/2010)

***"What you as the City of London have done for financial services, we as a government intend to do for the economy as a whole"*- Gordon Brown speech to bankers, Mansion House June 2002.**

Behavioural psychology applies to central bankers, regulators and politicians as much as it does to investors. In promising to 'fiscally retrench tomorrow', finance ministers are exhibiting the behavioural phenomenon of overconfidence in their future self-control. The bitter fiscal medicine required to stabilise debt levels won't become more palatable today relative to tomorrow until the bond market makes it so. It can only do this through higher yields. Thus, Ireland and perhaps now Greece lead the way. For the Japanese it's too late.

▪ Why should behavioural psychology be seen as something applying only to investors? 'Behavioural' finance is a well defined sub-discipline in its own right. But where is 'behavioural' politics, 'behavioural' central banking, or 'behavioural' regulation? Remember the Fed policy statements around the end of the 1990s? The ones that kept referring to the 'technology-enhanced' rate of GDP growth? Wasn't this herding around a bad idea the very same herding then fuelling the NASDAQ bubble?

▪ And as the housing bubble inflated, Bernanke in a quite staggering display of logical sloppiness, concluded that the risk of a housing collapse in the future was small because there had never been one in the past … Weren't they then guilty of 'framing' their analysis in a way guaranteed to preclude an uncomfortable conclusion? If you don't expect to see something, you're less likely to see it. Similarly cringe worthy logic was used when sub-prime rolled over, and Bernanke concluded that there was no risk of contagion to the rest of the economy because … er … there had been no contagion to the rest of the economy yet … wasn't this textbook 'recency bias' whereby the importance of recent events is over-weighted?

▪ It probably was, and it probably demonstrates that central bankers are as prone to be as systematically silly as the rest of us. Indeed, just last year a study by yet more of Bernanke's 'best and brightest' concluded that "monetary policy was not a primary factor in the housing bubble". I don't want to pretend I'm any kind of behavioural expert, but isn't this the well documented 'attribution bias' by which people attribute positive outcomes to themselves, but negative ones to others?

▪ So here we are today, with regulators rounding on investment banks, hedge funds and tax havens, apparently in denial of the reality that the problem was not the regulations but the regulators. After all, heavily regulated institutions like Fannie Mae and Freddie Mac were at the epicentre of the crisis (as was AIG, whose financial services business model was the facilitation of "regulatory arbitrage" around Basle capital requirements). Not that it makes any difference. The regulators are merely bowing to pressure applied by politicians whose understanding today is as flawed as Gordon Brown's was in the Mansion House back then. If this sounds like a rant then I apologise – it isn't meant to be one. We're all fallible and policy making is an impossible job. But that means policy mistakes are inevitable, and I believe we're seeing one right now.

Oscar Wilde said he could resist anything but temptation. But doing something you know you shouldn't is easier if you can convince yourself that this will be the last time you indulge, that you won't do it again. So we convince ourselves that since we'll be strong in the future, we can still indulge today. Whether it's smoking, eating too much or going to the pub instead of the gym, we delude ourselves into thinking that we will take the more difficult path *next time*.

A few years ago, two economists actually looked at the issue using gym membership data.[14] They found that in a club in which non-members could pay a no-strings fee of $10 per visit, people preferred to pay the $70 per month for unlimited access. And since members only attended 4.3 times a month on average, they ended up paying an average $17 per visit. The authors concluded this to be clear evidence of "overconfidence about future self control."

Investors understand the affliction all too well: a stock trades at £10 and we tell ourselves that we're buyers at £8. But how many of us buy when it gets to £8? Some of us do, but most of us don't. Most of us (I can't be the only one!) convince ourselves that it's going lower still: *"I'll buy at £7"* becomes *"I'll buy at £6"* and by the time it's back at £8 we're *"waiting for a pullback"* Each investor has their own way of circumventing this problem. But at root, such poor decision-making is a consequence of our fundamental underestimation today of the discipline and even courage we will require in the future.

Last weekend, the G7 'committed' itself to the path of further stimulus. As politicians are wont to do, they presented it as though it was somehow a difficult decision: "*the position for most countries is to support the economies now, and get the budget deficit down as the economy recovers.*" said the UK's Chancellor, Alistair Darling, nodding earnestly. Am I the only one who heard a heroin addict *steadfastly* committing to his next fix?!

Well, it got me thinking about how much governments need to retrench to stabilise existing debt to GDP levels. And although I consider myself fortunate enough to have forgotten most of the economics I learned at university, one lesson which was useful, or in any case has stuck with me, is of the arithmetic behind government debt sustainability.

There are lots of books containing lots of equations outlining lots of limits and theorems about the dynamics of government debt sustainability, but the basic intuition is that if I'm a finance minister mulling out how much money I should be borrowing, I want my GDP growth (and therefore my tax revenue growth) to pay the coupons on any debt I take on today. If the GDP growth rate equals that interest rate, the incremental revenue flowing into my coffers thanks to the incrementally higher level of GDP covers my coupon payments. I don't need to borrow any more money and my debt ratios are stable. But if the interest rate is higher than GDP growth, my incremental tax revenue won't cover interest payments. I'll be in deficit and I'll have to issue more debt to plug the gap and my debt ratio will rise. The only way I can prevent further debt growth is by running a primary budget surplus (i.e. a surplus excluding interest payments).[15]

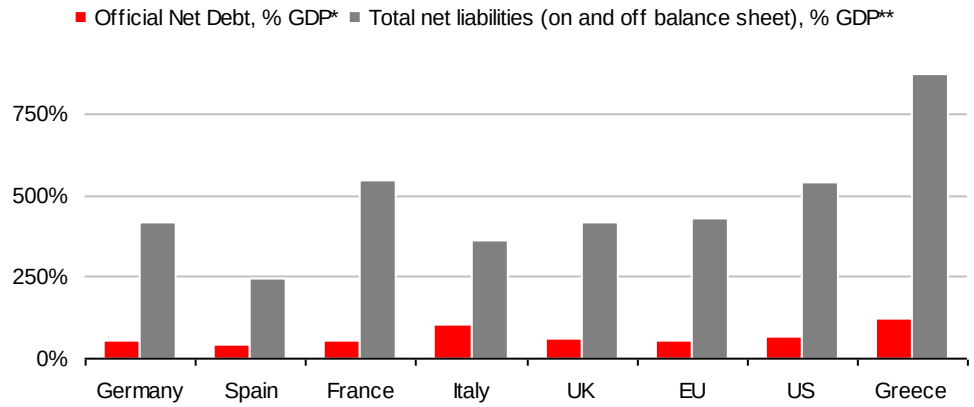
There are nuances and qualifications to this arithmetic, and limitations too, but in essence the fault line between sustainable and unsustainable debt dynamics can be summarised as: **maintaining a stable debt to GDP ratio requires governments to run a primary balance proportionate to the difference between interest rates and GDP growth.**

[14] "Paying not to go to the gym" by Stefano Della Vigna and Ulrike Malmendier in the American Economic Review, June 2006

[15] Debt sustainability equations tend to look something like $pb = d(r-g)$; where pb is primary balance as a share of GDP, d is the debt to GDP ratio, r is the real interest rate and g is the trend rate of real growth.

Before seeing how our governments compare, two qualifications are necessary. Firstly, the European estimates are distorted by the recent 'convergence' within the eurozone which allowed periphery economies temporarily higher GDP growth rates and lower interest rates. This makes on-balance sheet debt loads appear more stable for those economies than they actually are. Secondly, the calculations show only those surpluses required to stabilise the debt loads which are *on-balance sheet.* And it's important to be clear about this. According to Gokhale[16], most government indebtedness is in the form of unfunded pension and health liabilities, which are unrecorded and effectively off-balance sheet (see chart below). I'll come back to these shortly.

Our governments are insolvent: what's off-balance sheet dwarfs what's on …



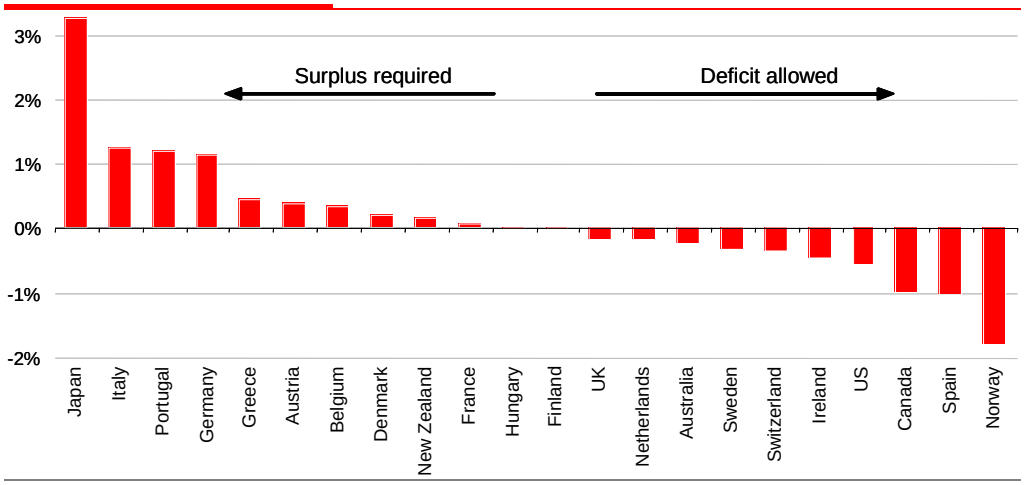
Source: SG Cross Asset Research; Jagadeesh Gokhale (2009); OECD

But sticking with the on-balance sheet debt for now, the calculations shown in the following chart (over the page) use the equation in the footnote at the bottom of page 2 and give a decent first stab of who needs to do what.

The countries on the right are in the fortunate position of paying a rate of interest which is below their GDP growth rate. Provided interest rates don't change from these (historically *very* low) levels, they can run deficits without increasing on-balance sheet debt. The US, the UK and Switzerland both currently fall into that category. Japan doesn't. With bond yields at around 1.5%, 'trend' nominal GDP slightly negative, and on-balance sheet debt to GDP at around 200%, it should be aiming for a primary surplus of 3.3% in order to stabilise its ratio.

[16] "Measuring the unfunded obligations of European Countries" by Jagadeesh Gokhale; National Center for Policy Analysis Policy Report 319; Jan 2009

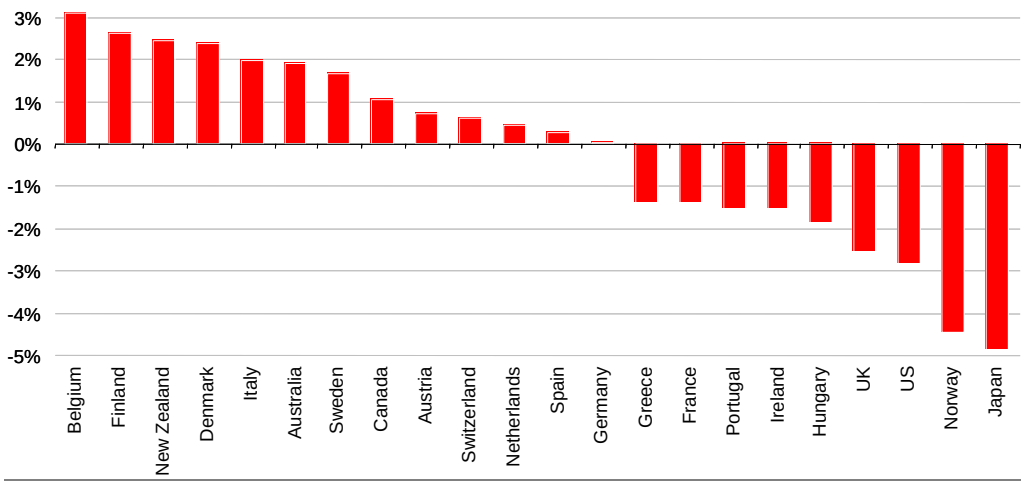
The primary fiscal balances governments *should* be running in order to stabilise on-balance sheet debt to GDP ratios (% of GDP)



Source: SG Cross Asset Research, OECD

Now look at the next chart which shows the primary balances governments have *actually* achieved. I was surprised to find Belgium and Italy running such aggressive primary surpluses, but this is consistent with the broadly stable debt ratios those countries have seen recently. The US, the UK and Japan especially have been running pronounced primary deficits.

Actual primary balances run (average over the last ten years, % of GDP)

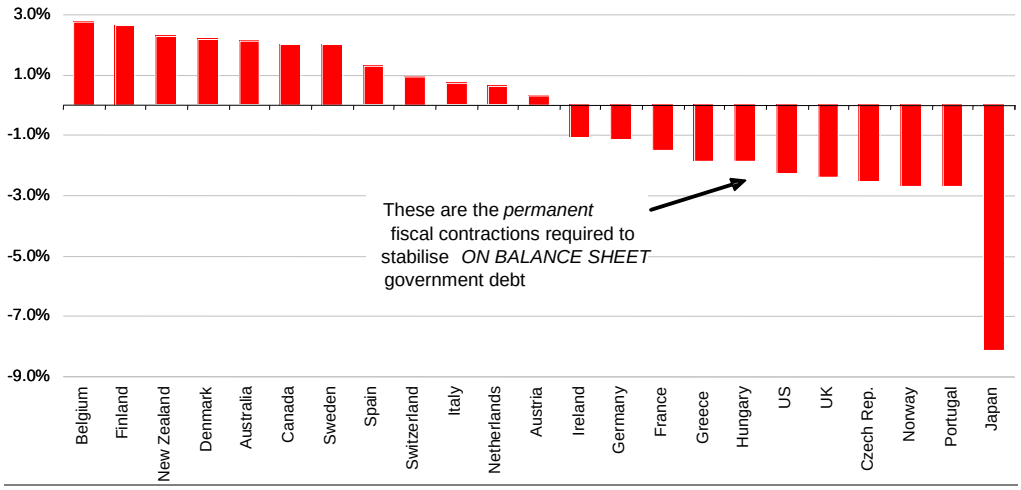


Source: SG Cross Asset Research, OECD

If we add both charts together we can compare the primary balances governments *should* be running with those which they're *actually* running, to get a better feel for the difficulty governments are going to have to face up to in order to merely stabilise their on-balance sheet debt ratios. The next chart does this. Those on the left have been running budget balances consistent with falling on-balance sheet debt to GDP ratios, while those on the right haven't. The US, the UK, Greece, Portugal and Norway (?) all fall into this latter category.

Eyeballing this chart, one might think governments 'only' need a 3% underlying contraction of fiscal policy in order to right the ship. Wouldn't doing that over a number of years be plausible? Perhaps, but I can't find any examples of it having happened before. And while that doesn't make it impossible it does illustrate both the political difficulty of following such a path, and the behavioural biases present in politicians' confidence that they will - **if it is difficult to summon the political courage today, why will it be easier tomorrow?**

Fiscal credibility gap – difference between required and actual primary surplus (% of GDP)

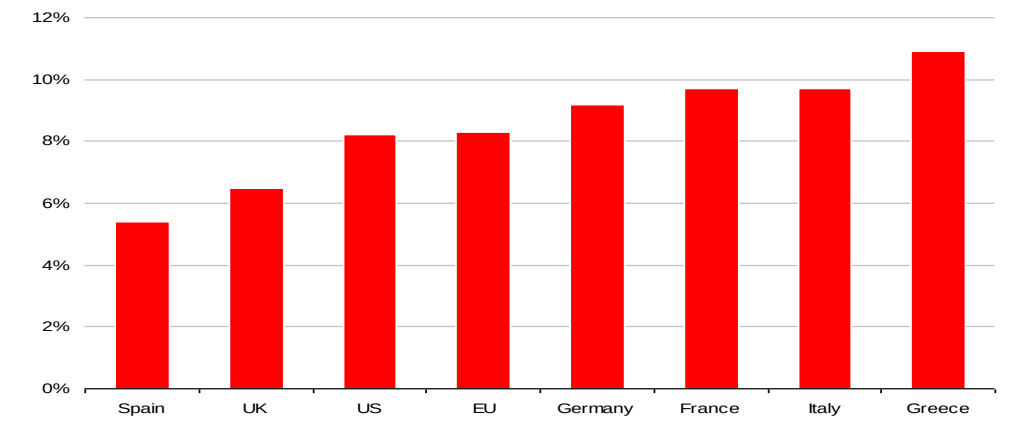


Source: SG Cross Asset Research, OCED

But consider this: all countries, and especially those to the right in the chart, are enjoying *exceptionally* favourable financing positions, with government bond yields near unprecedented lows. Should *anything* push bond yields higher, even by just a percentage point, the ***on-balance sheet debt situation will become explosive.*** This is the situation in Japan where the 8% contraction required to rein in its *already* explosive debt ratio is politically impossible. And again, remember that the estimated 8% required contraction *assumes the Japanese government can continue to fund itself at a 1.4%* JGB yield, which is clearly unrealistic.

If the on-balance sheet position today looks dicey for the rest of us, the off-balance sheet numbers are far more worrying. The following chart shows Gokhale's estimates of the perpetuity surpluses governments would have to run to meet the current outstanding obligations which are both on- and off-balance sheet. The chart speaks for itself. Such fiscal deflation is clearly a political impossibility.

Permanent fiscal contractions required to stabilise *off-balance sheet* liabilities (% of GDP)



Source: Jagadeesh Gokhale (2009)

Apparently heroine addicts can become so drug dependent their bodies cannot withstand the shock of withdrawal, and failure to continue taking the drug triggers multiple organ failures. I just wonder how apt that analogy is to our governments' debt dependency today. As long as governments think that taking these difficult decisions to end the addiction will be easier in the future than it is today, they will never take the decision 'today.' At the very least, there will have to be a sufficiently large bond market 'event' to force the issue.

Oscar Wilde said he could resist anything but temptation. But doing something you know you shouldn't is easier if you can convince yourself that this will be the last time you indulge, that you won't do it again. So we convince ourselves that since we'll be strong in the future, we can still indulge today. Whether it's smoking, eating too much or going to the pub instead of the gym, we delude ourselves into thinking that we will take the more difficult path *next time*.

A few years ago, two economists actually looked at the issue using gym membership data.[17] They found that in a club in which non-members could pay a no-strings fee of $10 per visit, people preferred to pay the $70 per month for unlimited access. And since members only attended 4.3 times a month on average, they ended up paying an average $17 per visit. The authors concluded this to be clear evidence of "overconfidence about future self control."

Investors understand the affliction all too well: a stock trades at £10 and we tell ourselves that we're buyers at £8. But how many of us buy when it gets to £8? Some of us do, but most of us don't. Most of us (I can't be the only one!) convince ourselves that it's going lower still: *"I'll buy at £7"* becomes *"I'll buy at £6"* and by the time it's back at £8 we're *"waiting for a pullback"* Each investor has their own way of circumventing this problem. But at root, such poor decision-making is a consequence of our fundamental underestimation today of the discipline and even courage we will require in the future.

Last weekend, the G7 'committed' itself to the path of further stimulus. As politicians are wont to do, they presented it as though it was somehow a difficult decision: "*the position for most countries is to support the economies now, and get the budget deficit down as the economy recovers.*" said the UK's Chancellor, Alistair Darling, nodding earnestly. Am I the only one who heard a heroin addict *steadfastly* committing to his next fix?!

Well, it got me thinking about how much governments need to retrench to stabilise existing debt to GDP levels. And although I consider myself fortunate enough to have forgotten most of the economics I learned at university, one lesson which was useful, or in any case has stuck with me, is of the arithmetic behind government debt sustainability.

There are lots of books containing lots of equations outlining lots of limits and theorems about the dynamics of government debt sustainability, but the basic intuition is that if I'm a finance minister mulling out how much money I should be borrowing, I want my GDP growth (and therefore my tax revenue growth) to pay the coupons on any debt I take on today. If the GDP growth rate equals that interest rate, the incremental revenue flowing into my coffers thanks to the incrementally higher level of GDP covers my coupon payments. I don't need to borrow any more money and my debt ratios are stable. But if the interest rate is higher than GDP growth, my incremental tax revenue won't cover interest payments. I'll be in deficit and I'll have to issue more debt to plug the gap and my debt ratio will rise. The only way I can prevent further debt growth is by running a primary budget surplus (i.e. a surplus excluding interest payments).[18]

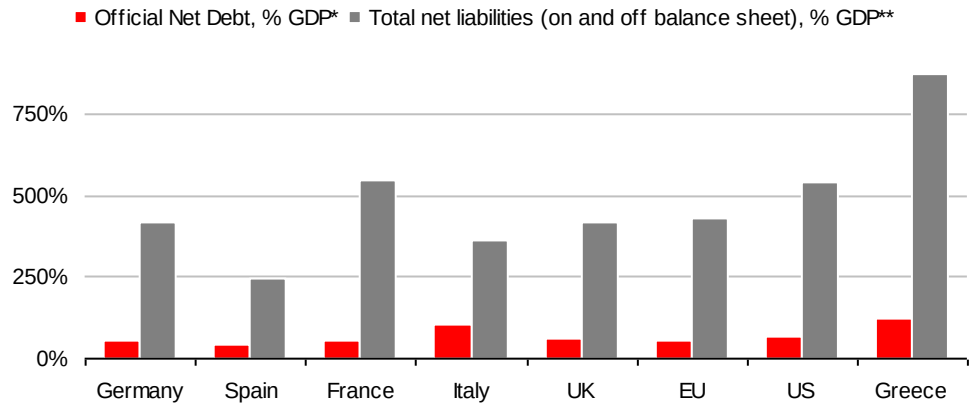
There are nuances and qualifications to this arithmetic, and limitations too, but in essence the fault line between sustainable and unsustainable debt dynamics can be summarised as: **maintaining a stable debt to GDP ratio requires governments to run a primary balance proportionate to the difference between interest rates and GDP growth.**

[17] "Paying not to go to the gym" by Stefano Della Vigna and Ulrike Malmendier in the American Economic Review, June 2006

[18] Debt sustainability equations tend to look something like $pb = d(r-g)$; where pb is primary balance as a share of GDP, d is the debt to GDP ratio, r is the real interest rate and g is the trend rate of real growth.

Before seeing how our governments compare, two qualifications are necessary. Firstly, the European estimates are distorted by the recent 'convergence' within the eurozone which allowed periphery economies temporarily higher GDP growth rates and lower interest rates. This makes on-balance sheet debt loads appear more stable for those economies than they actually are. Secondly, the calculations show only those surpluses required to stabilise the debt loads which are *on-balance sheet.* And it's important to be clear about this. According to Gokhale[19], most government indebtedness is in the form of unfunded pension and health liabilities, which are unrecorded and effectively off-balance sheet (see chart below). I'll come back to these shortly.

Our governments are insolvent: what's off-balance sheet dwarfs what's on …



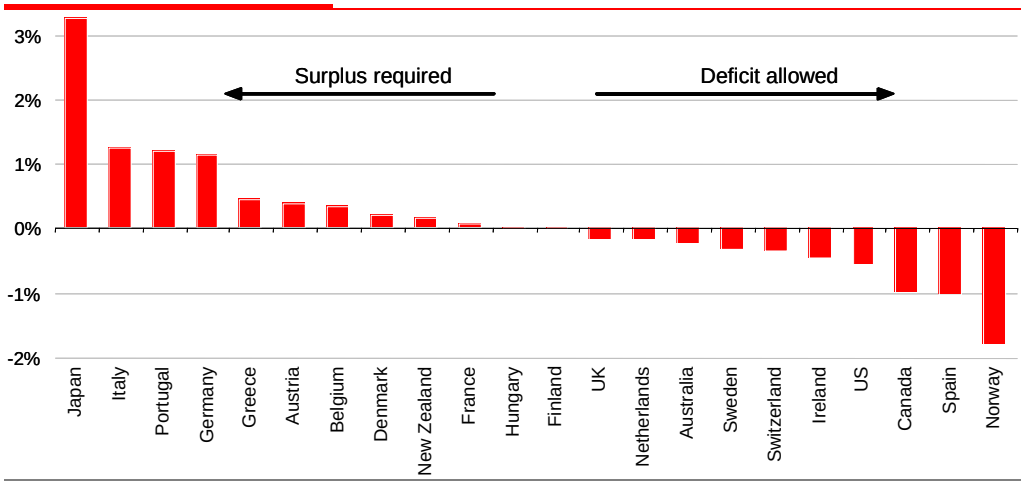
Source: SG Cross Asset Research; Jagadeesh Gokhale (2009); OECD

But sticking with the on-balance sheet debt for now, the calculations shown in the following chart (over the page) use the equation in the footnote at the bottom of page 2 and give a decent first stab of who needs to do what.

The countries on the right are in the fortunate position of paying a rate of interest which is below their GDP growth rate. Provided interest rates don't change from these (historically *very* low) levels, they can run deficits without increasing on-balance sheet debt. The US, the UK and Switzerland both currently fall into that category. Japan doesn't. With bond yields at around 1.5%, 'trend' nominal GDP slightly negative, and on-balance sheet debt to GDP at around 200%, it should be aiming for a primary surplus of 3.3% in order to stabilise its ratio.

[19] "Measuring the unfunded obligations of European Countries" by Jagadeesh Gokhale; National Center for Policy Analysis Policy Report 319; Jan 2009

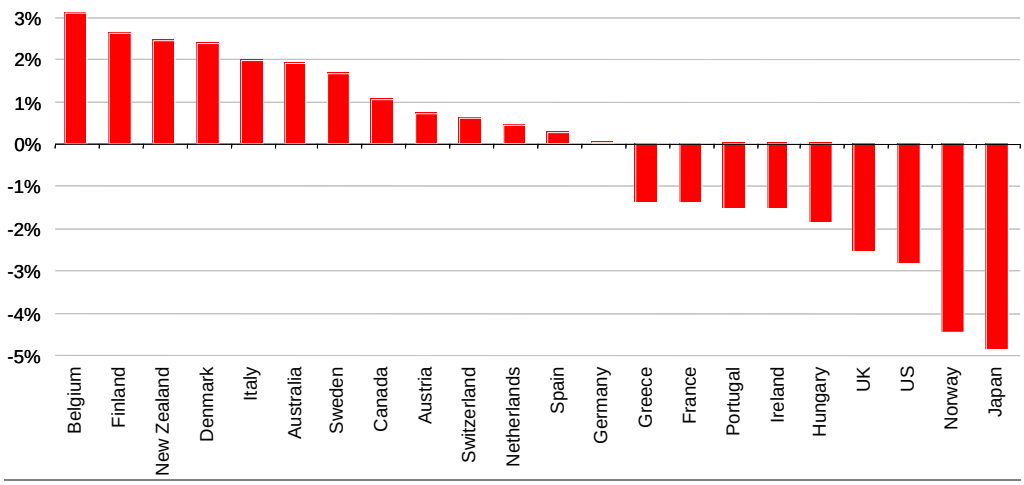
The primary fiscal balances governments *should* be running in order to stabilise on-balance sheet debt to GDP ratios (% of GDP)



Source: SG Cross Asset Research, OECD

Now look at the next chart which shows the primary balances governments have *actually* achieved. I was surprised to find Belgium and Italy running such aggressive primary surpluses, but this is consistent with the broadly stable debt ratios those countries have seen recently. The US, the UK and Japan especially have been running pronounced primary deficits.

Actual primary balances run (average over the last ten years, % of GDP)

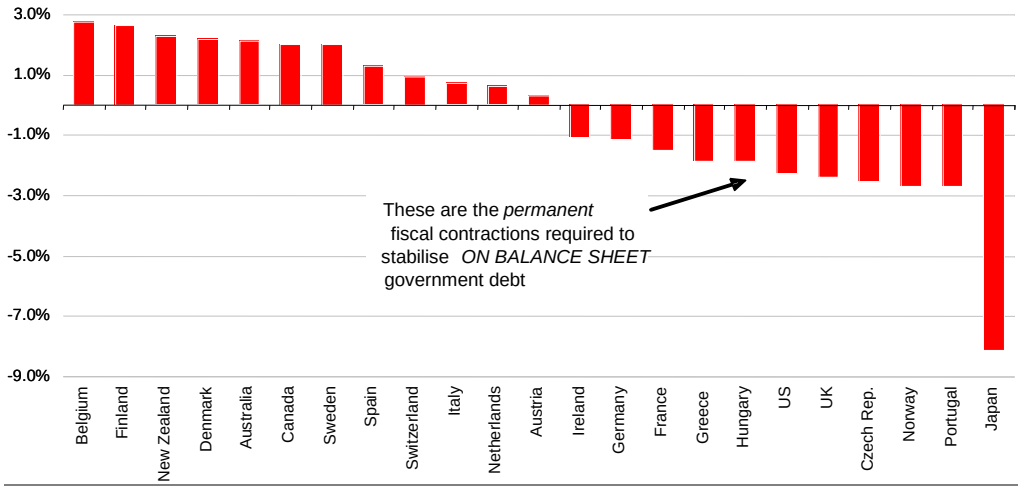


Source: SG Cross Asset Research, OECD

If we add both charts together we can compare the primary balances governments *should* be running with those which they're *actually* running, to get a better feel for the difficulty governments are going to have to face up to in order to merely stabilise their on-balance sheet debt ratios. The next chart does this. Those on the left have been running budget balances consistent with falling on-balance sheet debt to GDP ratios, while those on the right haven't. The US, the UK, Greece, Portugal and Norway (?) all fall into this latter category.

Eyeballing this chart, one might think governments 'only' need a 3% underlying contraction of fiscal policy in order to right the ship. Wouldn't doing that over a number of years be plausible? Perhaps, but I can't find any examples of it having happened before. And while that doesn't make it impossible it does illustrate both the political difficulty of following such a path, and the behavioural biases present in politicians' confidence that they will - **if it is difficult to summon the political courage today, why will it be easier tomorrow?**

Fiscal credibility gap – difference between required and actual primary surplus (% of GDP)

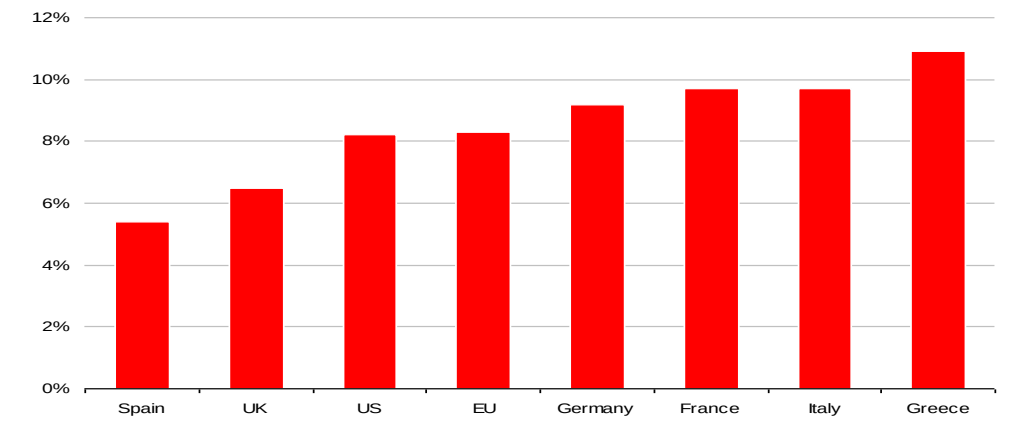


Source: SG Cross Asset Research, OCED

But consider this: all countries, and especially those to the right in the chart, are enjoying *exceptionally* favourable financing positions, with government bond yields near unprecedented lows. Should *anything* push bond yields higher, even by just a percentage point, the ***on-balance sheet debt situation will become explosive.*** This is the situation in Japan where the 8% contraction required to rein in its *already* explosive debt ratio is politically impossible. And again, remember that the estimated 8% required contraction *assumes the Japanese government can continue to fund itself at a 1.4%* JGB yield, which is clearly unrealistic.

If the on-balance sheet position today looks dicey for the rest of us, the off-balance sheet numbers are far more worrying. The following chart shows Gokhale's estimates of the perpetuity surpluses governments would have to run to meet the current outstanding obligations which are both on- and off-balance sheet. The chart speaks for itself. Such fiscal deflation is clearly a political impossibility.

Permanent fiscal contractions required to stabilise *off-balance sheet* liabilities (% of GDP)



Source: Jagadeesh Gokhale (2009)

Apparently heroine addicts can become so drug dependent their bodies cannot withstand the shock of withdrawal, and failure to continue taking the drug triggers multiple organ failures. I just wonder how apt that analogy is to our governments' debt dependency today. As long as governments think that taking these difficult decisions to end the addiction will be easier in the future than it is today, they will never take the decision 'today.' At the very least, there will have to be a sufficiently large bond market 'event' to force the issue.

Some useful things I've learned about Germany's hyperinflation (26/02/2010)

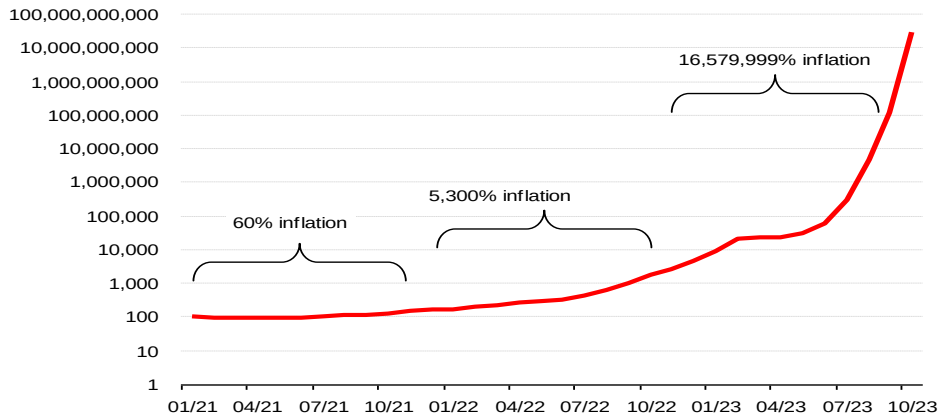
For all the ink spilled analysing two of the 20th century's greatest economic tragedies - the Great Depression and Japan's lost decade(s) - little has been spent on arguably the greatest of them all: Germany's hyperinflation. It may be because we're confident we understand it. Everyone knows that unfettered money printing eventually leads to explosive inflation, don't they? The thing is, economists knew that then! So what was going through the mind of the central bank head who presided over history's most pathological currency debasement?

▪ Is anything more dangerous than a nonsensical idea taken seriously? The esteem of economists has been dented by the financial crisis, though not so severely that the financial community treat economists' views with anything approaching the derision they deserve. The macroeconomic meme is resilient indeed!

▪ Sadly, the situation isn't new. Macroeconomic theory has a long and distinguished history of seducing policymakers into thinking utopia is just around the corner, a trick brought about by untested hypotheses masquerading as empirical knowledge. Believe it or not, a school of economic thought that was prominent in Weimar Germany during the hyperinflation – and particularly at the Reichsbank as it was aggressively monetising the government deficit – held that the escalating money supply had nothing to do with the exploding rate of inflation!

▪ More on that later. For now, in this new world of policymaking experimentation, it's worth recalling the British Ambassador to Germany's observation on the hyperinflation that "no-one could anticipate such an ingenious revelation of extreme folly to which ignorance and false theory could lead."

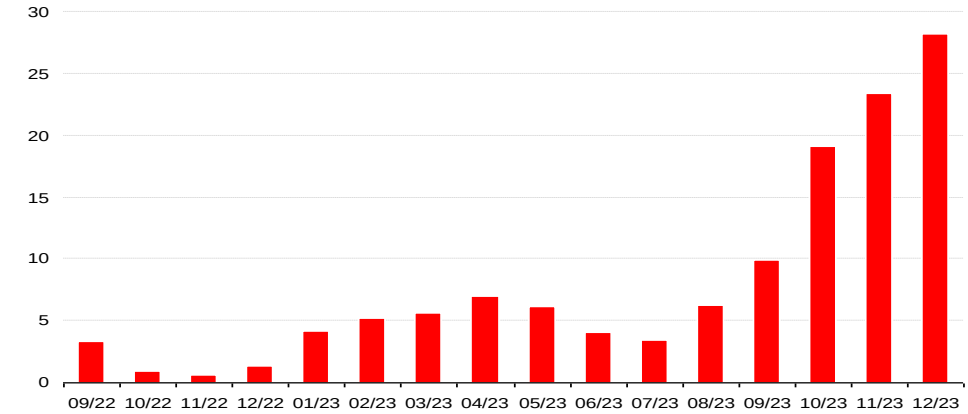
Weimar Germany CPI (log scale) (inflation per annum)



Source: Bresciani-Turroni (1931), SG Cross Asset Research

It is often said that the Great Depression so thoroughly destroyed the social fabric of the industrialised world in the 1930s that WW2 became inevitable. But this overlooks the role of Germany's hyperinflation, the horror of which seems underappreciated in the Anglo-Saxon world. At the height of the crisis in 1923, for example, industrial production fell by the staggering annual rate of 37%. In roughly the same single year, the unionised unemployment rate rose from under 1% in late 1922 to *nearly 30%!* (and according to Frank Graham, almost *half* of the total workforce became unemployed at this time).[20] This, remember, is at a time when the rest of the world economy was booming.

German unemployment during hyperinflation (% of unionised workforce)



Source: Graham (1930)

As far as economic pain goes, this probably surpasses the Great Depression yet to come. But it only tells a part of the story: the nation's wealth, held largely in German government bonds was completely wiped out. We can only imagine the nationwide psychological devastation of a proud Germany already feeling victimised and humiliated in the aftermath of WW1. In his '*Ascent of Money*', Niall Ferguson quotes Elias Canetti's recounting of his hyperinflation experience as a young man in Frankfurt, *"It is a witches' sabbath of devaluation, where men and the units of their money have the strongest effects on each other. The one stands for the other, men feeling themselves as 'bad' as their money; and this becomes worse and worse. Together they are all at its mercy and all feel equally worthless"*. Such was the condition of Germany *before* the Great Depression had even begun.

Indeed, it is a tantalising counterfactual: would Germany have fallen under the Nazi spell which would ultimately lead the world to a second World War had she not borne the grave burdens of the Great Depression *already* exhausted, despairing and with ruptured social cohesion? We'll never know, of course, and anyway such events are never so simplistically mono-causal. Nevertheless, it is possible that German hyperinflation played a decisive role in the build-up to WW2 and therefore logical to conjecture that the central banker who presided over that hyperinflation is the most influential figure in history you've never heard of.

That central banker was a certain Rudolf von Havenstein. Born in 1857 into an aristocratic Prussian family, he trained as a lawyer and rose to become a county court judge before joining the Prussian Finance Ministry in 1890 and being appointed president of the Reichsbank in 1908. Steeped in the Wilhelmine tradition of devotion to his Kaiser and a passionate believer in the virtue of public duty, he seems to have been liked by all – a true gentleman of the old

[20] See "Exchange, Prices and Production in Hyper-inflation: Germany 1920-1923" by Frank D. Graham (1930)

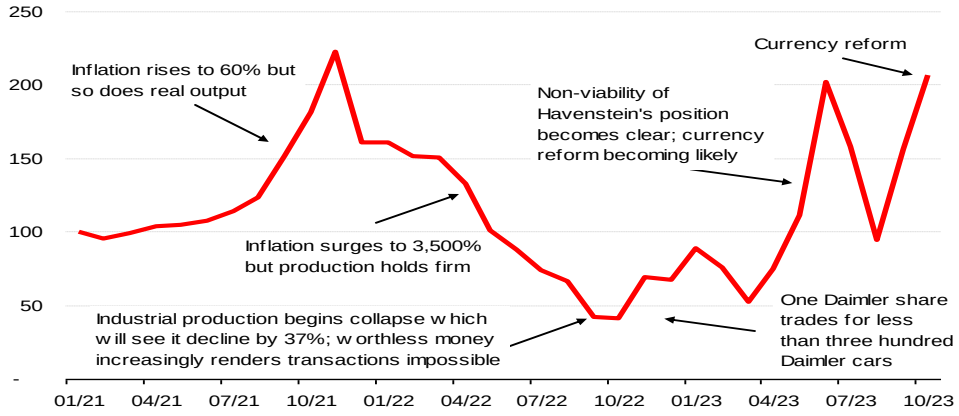
school. Montagu Norman - then governor of the BoE - found him to be a *"quiet, modest, convincing, and a very attractive man."*

Just how could such a decent, hard-working, intelligent and well-intentioned public servant have given birth to the uncontrollable monster of hyperinflation? How could such a paragon of public integrity preside over the largest currency debasement in financial history, quite possibly sowing the seeds for the most destructive war in the history of civilization?

He first seems to have developed the habit of monetizing government debt during WW1. With a complacency arguably similar to today's policymakers in justifying their variously creative schemes for monetary and fiscal experimentation, the monetary expansion was justified as merely a stop-gap measure. The war was expected to be short and in any case the losers would be made to foot the bill. No one really anticipated the long and protracted conflict which occurred, or the financial burden it would impose. So by the end of the War - only 10% of which was financed by taxes - the money supply had ballooned and prices had quadrupled. Nevertheless, Von Havenstein was lauded as a public hero, decorated with honours and even nicknamed *der Geld Marschall*, which sounds a bit like the "the Maestro" but in fact translates as the 'Money General'.

Once embarked upon this path though, it became difficult to stop, especially since the early stages of inflation didn't seem too bad. Although inflation rose by 60% in 1921, real industrial production rose by 26% and unemployment stood at only 1% of the unionized workforce. The following chart shows that at one point during this period, real share prices rose by over 100%. But then the inflation intensified. In 1922 it reached 5,300% and on the eve of currency reform in late 1923, the annual rate was 16,579,999%. How did this happen?

Real German share prices during the hyperinflation

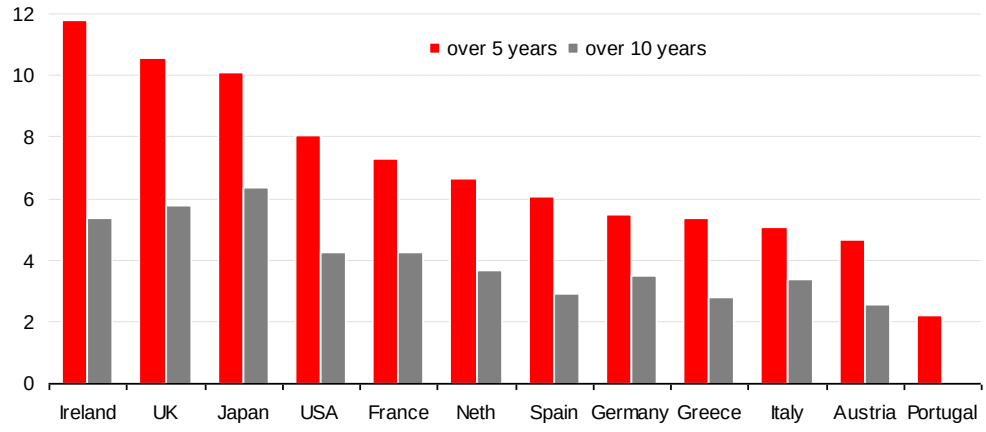


Source: Graham (1930), Bresciani-Turroni (1931), SG Cross Asset Research

To call the political climate of the time merely difficult would be a gross understatement. The country was on the brink of civil war: on the far right was the vast and humiliated ex-military which, having been forcibly demobilized by the victorious Allies, had become a seething and vengeful nationalist militia; on the far left were the anti-war workers and communists, the latter inspired by the 1917 Bolshevik Revolution and aiming to achieve the same end in Germany. Meanwhile, with revolution in the air and violent street battles between these polar political opposites playing out nightly, deep-felt resentment towards the foreign powers was fermented by the issue of war time reparations, whereby Germany was required to hand over 4-7% of GDP each year until full compensation for the war-time devastation had been paid.
It's worth noting that there has been much debate over the extent to which reparations were in fact a primary cause of the hyperinflation. Some have argued that the 4-7% budgetary burden was bearable and that the hyperinflation was actually a bluff gone wrong. The German

authorities were actually trying to demonstrate just how desperate their situation was as a way to lower their reparation payments. I'm no expert, but I'm not completely convinced by this argument. In passing, it's worth noting that we're about to see how politically feasible such a budgetary burden is since the 4-7% of GDP range is roughly what Cecchetti et al at the BIS calculate is required to stabilise debt levels at 2007 levels (see chart below).

Required Average primary balance to stabilise public debt to GDP at 2007 levels



Source: Cecchetti, Mohanty, Zampolli (BIS conference paper, 2010)

I personally think the 4-7% reparations *was* the last straw for the German authorities facing capital flight in response to the tax measures they'd introduced to shore up the government's budget position (as we're seeing in Greece today), with the monetization habit now very firmly entrenched and fearful of what might happen should painful deflationist policies be pursued. As Liaquat Ahamed[21] writes in his masterful book on the Great Depression *"Were he to refuse to print the money necessary to finance the deficit, he risked causing a sharp rise in interest rates as the government scrambled to borrow from every source. The mass unemployment that would ensue, he believed, would bring on a domestic economic and political crisis, which in Germany's [then] fragile state might precipitate a real political convulsion."* Facing a dilemma orders of magnitude higher but nevertheless familiar to observers of today's situation, faced with the terrifying prospect of even more economic pain should he slam on the brakes, he opted to press his foot further on the accelerator.

Less well known though is that, as always, economic theory was on hand to furnish Von Havenstein with a 'scientific' justification for his playing for time. The consensus in Germany was actually that the cause of inflation was external because both the Reichsmark and import prices had moved disproportionately more than the rise in the money supply. Since the external value was caused by the balance of payments, which was largely caused by the reparations, it was foreigners and not budget deficits which caused the inflation. Indeed, Von Havenstein was so enamoured with this theory that he blocked attempts at monetary reform arguing that any measures would be pointless without settlement of the reparations issue. According to Ludvig von Mises, *"Herr Havenstein honestly believed that the continued issue of new notes had* ***nothing to do with the rise of commodity prices, wages and foreign exchanges.*** *This rise he attributed to the machinations of speculators …"*[22] Speculators always get the blame don't they?

I don't want to overplay the parallels. In fact, there is one very clear difference between the hand Von Havenstein had to play then and those today's central bankers have to play now,

[21] Liaquat Ahamed, "Lords of Finance" pp 74
[22] The Great German Inflation" Ludwig von Mises

namely the stability of today's political climate. Clearly this can change, but the class warfare, nationalistic xenophobia and revolutionary spirit poisoning the political atmosphere of 1920s Germany is at the very least dormant today, and certainly not meaningfully visible across the political landscape. **But let's not ignore the parallels either: as is the case for today's central bankers, Von Havenstein was faced with horrible fiscal problems; as is the case for today's central bankers, the distinction between fiscal and monetary policy had blurred; as is the case for today's central bankers, the political difficulty of deflating was daunting; and as is the case for today's QE-enthralled central bankers, apparently respectable economic theory reassured him that he was doing the right thing.**

One might think that the big difference is that today we have a greater expertise. Surely we understand what happens when deficits are financed with printed money, and that it is only backward and corrupt states that don't know any better, like Bolivia and Zimbabwe? But just a few years ago didn't we think that it was only backward and corrupt states that suffered banking crises too?

And anyway, how could Von Havenstein *not* have known that the continued and escalating printing of money to fund government deficits would cause inflation? The United States experience of unrestrained money printing during the Civil War had been well documented, as had the hyperinflation of revolutionary France in the late 18th century. Isn't it possible that, like today, he was overconfident in his ability to control his creation and in the economic theory which told him such control was possible? Certainly, in an article in the New York Times on the eve of the First World War, again from Liaquat Ahamed's book, there seems to have been evidence of the general optimism that there would be no "*unlimited issue of paper money and its steady depreciation … since monetary science is better understood at the present time than in those days.*"

The fact is we do understand the economics of inflation. Despite what economists everywhere say about being in 'uncharted territory' with QE, we know that if you keep monetizing deficits eventually you get inflation, and we know that once you're on that path it can be extremely difficult to get off it. But we knew that then. The real problem is that inflation is an inherently political variable and that concern over debt sustainability and unfunded welfare obligations leaves us more dependent on politicians than we have been in many decades. Frank Graham concluded his 1930 study of the Weimar hyperinflation with the following observation, which I think is as ominous as it is apt today:

"The mills of international finance grind slowly but their capacity is great. It is also flexible. The one condition is that the hoppers be not unduly loaded in the effort to get the whole grist from a single grinding. So much for the economics of the question. **What politics has in store is, however, an inscrutable mystery. It can only be said that such financial difficulties as may occur will almost certainly arise from political rather than from economic sources.**"

Reflections from behind a volcanic cloud of ash
(21/04/2010)

For all the grandiose political loading of the euro project, it is actually only the most recent attempt at a currency union. Some have succeeded, others have failed, and spending time in Helsinki where I've been marooned this past week by Iceland's terrifying volcanic plume (or at least by the hysterical reaction to it) has proved an unexpected opportunity to think about why that is. The euro's problem isn't Greece or Spain or even Germany. The euro's problem is Europe.

■ Though spring has broken out back in London, there is still grit on the roads and pavements here in Helsinki. Lumps of packed snow are wedged into bus shelters and street corners and people are still wearing hats, scarves and gloves. It's very cold and still feels like winter, though the people are friendly and the history rich. There are worse places to be stranded.

■ It's a good vantage point to think about the euro and the problems that currently blight it too. Sitting here writing in the extreme northeast of the eurozone reminds me just how diverse Europe is. I feel far from the eurozone and even farther from Greece, the current epicentre of its problems on many levels.

■ The geographical distance is huge. Helsinki is the eurozone's most northerly city while Athens is its most southerly. But the ancestral distance is no less stark. Greece is the cradle of Western civilisation and Europe's oldest nation, while Finland, colonised by the Swedes during the Northern Crusades of the thirteenth century and with no written history of its own until the sixteenth, is one of its youngest. While Athens is dominated by Mt Olympus from where Zeus was once thought to marshal the clouds, Helsinki is dominated by its cathedral, built in tribute to Tsar Nicholas I in 1852 and giving the city an echo of Romanov Russia.

■ These two nations even appear on opposite linguistic fringes: the Greeks still use the same distinct alphabet as their celebrated ancestors while the Finns' "Finno-Ugric" tongue is one the few EU languages which isn't a member of the Indo-European family.

■ Yet these countries share the same currency. In the cold light of day it's difficult to understand why. What do they have in common - a shared 'European-ness'? Possibly ... but don't Brazil and Angola have a shared 'Portuguese-ness?' Is anyone suggesting they get into monetary bed together?

(Stop Press: Latest reports have Dylan sharing a hire car with some similarly stranded people he met on the ferry between Helsinki and Stockholm. He is driving from Stockholm to the Brussels Eurostar terminal and is stuck in traffic outside Dusseldorf. We hope he is back in time for the Christmas party.)

Anyway, the more you wander around Helsinki and begin to understand it, the more you realise you don't understand Europe or what 'European-ness' is. You might define it as consisting of three ancestral pillars: Graeco-Roman, Germanic and Christian. You might start with the Graeco-Roman tradition, from which comes the notion of centralised state power, of democracy, and in particular secular democracy, and from which the distinction between church and state is derived, in contrast to say, Islam, where there is no such distinction. Then there were the Germanic tribes outside and to the north of the old Roman empire. These tribes' members enjoyed equality in the eyes of the law long before the Magna Carta, and kings were elected according to merit rather than their blood line. They bequeathed Europe a flatter and more meritocratic structure, which tradition found lasting and significant expression in the success of Protestantism in Northern Europe following the Reformation. And you might conclude the final pillar of 'European-ness' to be Christianity, which gives its value system: respect for property rights, monogamy, etc. ... but then you'd probably decide this was all a load of convoluted and unconvincing historical mumbo-jumbo and that you still didn't know what it means to be a European.

And in any case, this 'European-ness' hardly rolls off the tongue does it? If you ask an American what it means to be American they'll instantly rattle off something about freedom and democracy; if you ask a Chinese what it means to be Chinese, you'll instantly get something back about being a part of an ancient civilisation, not a country; if you ask a Brit what it means to be British they'll mumble back something about fair play, bad food, and never winning at football.

Political coherence isn't cultural homogeneity: Minnesota isn't like Dallas, Shanghai isn't like Chongqing[23], Aberdeen isn't like Bristol. But there is a nebulous, intangible yet very real shared "we" with which coherent political units identify; an American "we", a Chinese "we" and a British "we" (although the nationalist genie is hard to put back in the bottle and today the British "we" is weakening). And, because these political unions broadly cohere, they also produce successful currency unions: America has had a single currency since its civil war; each Chinese dynasty through the ages (including today's Communist Party) has succeeded in imposing a single currency on its realm; Britain has had a stable and successful currency union since the Act of Union of 1707.

So when hard times hit these nations, the idea that the union will break up in consequence is absurd. In the UK, the banks which caused most of the problems for taxpayers (HBOS and RBS) were both Scottish, yet no one sought to make political capital out of it. Notwithstanding the rising nationalist temperature north of the border, English anger towards Scotland and the Scots for "causing" the financial crisis hasn't just been muted, it's been non-existent. In America, many States face real solvency issues and fiscal crises that are likely to see some defaults, yet no-one is seriously suggesting this will lead to a break-up of the dollar.

Earlier supra-national currency unions in Europe have broken up: the Austro-Hungarian krone broke up in 1919 because the Habsburg "we" wasn't strong enough to dominate the distinct Austrian and Hungarian "we's" following the fallout from WW1; the Soviet ruble broke up in 1990 because the Soviet "we" wasn't robust enough to dominate, for example, the Ukrainian, Kazakh, Georgian "we's" following the collapse of communism – likewise the Czechoslovakian koruna.

[23] Indeed, see Patrick Chovanec's fascinating thesis on the "Nine nations of China" here http://chovanec.wordpress.com/2009/11/16/the-nine-nations-of-china/

The centrifugal force of the nationalist "we" broke those common currencies. That those similar nationalist "we's" exist in Europe today doesn't bode well for the future of the currency, if history is any guide. Neither the French, German, Finnish or Greek "we's" have strong parallels in the older and more successful currency unions of today. Where is the European "we" and if we don't even know what it is, why do we think it will be sufficiently robust to weather hard economic times?

This is the euro's first test – and the early signs aren't good. According to an FT/Harris poll published last month, only around 30% of Germans think that leaving the euro would leave the economy worse off, while nearly 40% think the economy would be better off. The same poll showed Germans to be steadfastly against aid to Greece. Why, they ask quite reasonably, should German taxpayers retiring in their sixties bail out Greek tax avoiders retiring in their fifties? Note that German and Greek "we's" are already trumping any notional European one.

Meanwhile, the brilliantly named Joachim Starbatty is said to be filing a claim at the constitutional court that the aid package is in breach of the Maastricht treaty. It has been reported that if he does, the rescue could be delayed for weeks or even months, though the confident assumption seems to be that his claim will fail. What if it doesn't?

There is nothing inevitable in the euro breaking up. Decades from now, the European "we" might yet dominate the national versions. Indeed, it took so long for the German "we" to be forged that in 1916, a full 45 years after the official unification of 1871, a Frenchman who couldn't have known the heartbreaking resonance his observation would carry in future years noted: "Still today, Prussians, Saxons, Badensians, Wurttembergers and Bavarians exist in Germany. Only Jews are exclusively German."[24]

But neither is there anything inevitable about it surviving. Most of the arguments against break-up seem to be emotional: that there is "too much political capital" invested in the euro project for it to fail now, or that it's "in no-one's interest" for it to dissolve. Of all the good reasons to give in support of the euro, surely an argument built on the premise that "things that are in no-one's interest don't happen" should be the last.

Anyway, the precedent set by arguably the greatest supra-national single currency experiment in history isn't encouraging. Like the euro today, it involved the use of a cross-border single-currency without political union. Like the euro today, it is impossible to overstate the political capital invested in the project back then, or it's centrality to the psyche of investors and policymakers. Like the euro today, membership was exalted from within and coveted from without. And like the euro today, any policy action aimed at ensuring the system's integrity was sanctified and deemed beyond political reproach.

Yet Keynes famously thought it a "barbarous relic" and most economic historians today believe that adherence to it exacerbated and intensified the Great Depression of the 1930s[25]. That single currency experiment was the Gold Exchange Standard of the 1920s, and the world's de facto single currency was gold. Before the system's collapse the notion that currencies would not one day be backed by bullion was simply unthinkable. But in the face of the chaotic chain of events triggered by the crash of 1929, it was the harsh austerity and painful unemployment levels required to maintain parity to gold standard that instead became unthinkable. How long then before the "internal devaluations" of today become similarly unthinkable, and the poor old euro becomes the "barbarous relic" of the 21st century?

[24] "Gold and Iron; Bismark, Bleichroder and the Building of the German Empire", by Fritz Stern, pg 467

[25] See "Golden Fetters", by Barry Eichengreen

Exorcising von Havenstein's ghost (18/11/2011)

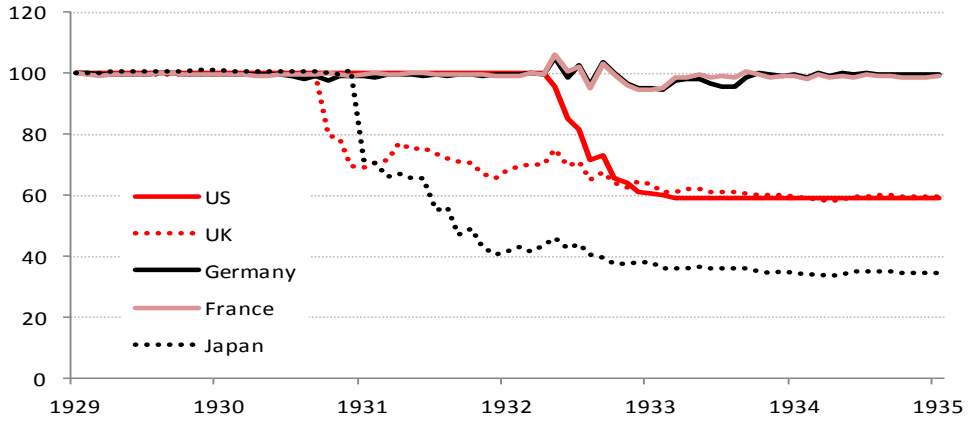
Angela Merkel recently told Greece to make its mind up. But Germany should do the same. What's more important: its hard money principles, or the euro? My guess is we'll see a compromise on principle. And if we don't, I think we'll see a coup inside the ECB. Depending on the magnitude of the market riot which causes either of these events, we might go maximum bullish. In the meantime, valuations are selectively attractive. So we're still minimum bullish.

▪ A widely accepted truth is that the horrors of the Third Reich were caused by the 1923 hyperinflation. Indeed, it is a part of modern Germany's founding myth. But while Hitler's first attempted power grab occurred in Bavaria at the peak of the hyperinflation – the November 1923 "Beerhall Putsch" – by the late 1920s the Nazis were little more than one of the larger fringe groups whose best days were judged to be behind it.

▪ But as the world economy collapsed in the early 1930s the gold standard broke up. Successive countries chose to devalue their currencies and inflate their way out of painful deleveraging (chart below). Germany was the exception. Haunted by von Havenstein's ghost, it fatefully chose to bear instead the brunt of gold standard deflation, experiencing a depression arguably greater even than America's. It was then that something broke in Germany's collective psyche. With resurgent Nazi support, Hitler won power in 1933, his rise facilitated not only by the 1923 inflation, but by the subsequent fear of inflation.

▪ The following charts tell the story. The first shows how the gold standard broke up during the Great Depression. The UK was first to devalue, quickly followed by Japan. FDR devalued the dollar in 1933.

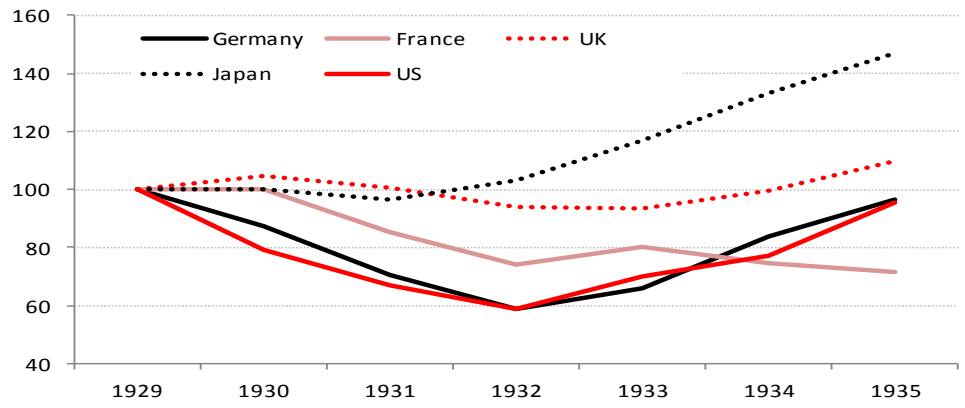
Break-up of the gold standard: traumatised by the hyperinflation, Germany kept parity despite being in depression (gold parities, 1929=100)



Source: SG Cross Asset Research, GFD

These exchange rate devaluations and the domestic reflation they enabled were instrumental in Japan and Britain avoiding deep depressions. But the US and Germany, who hung on for longer, suffered depressions of catastrophic magnitude.

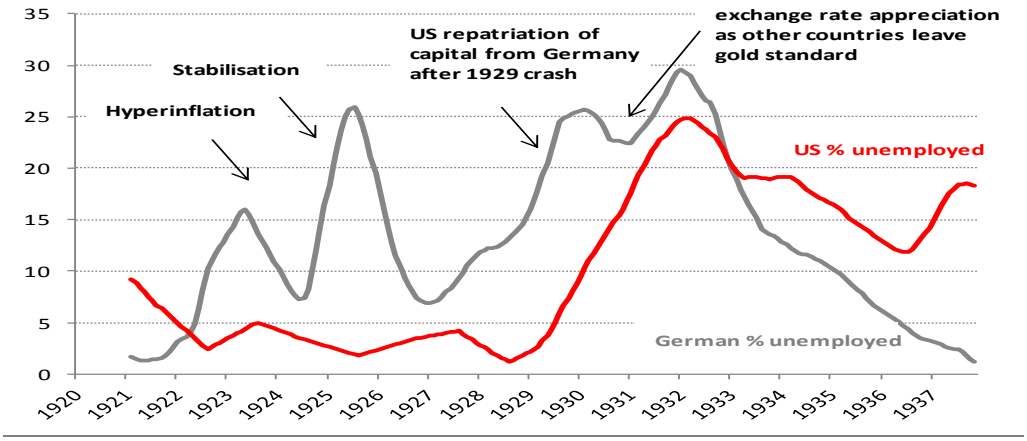
Those who clung on longest suffered the deepest depression (industrial output, 1929=100)



Source: SG Cross Asset Research, GFD

As the front page chart shows, of the main countries entering the Great Depression on the gold standard only Germany and France maintained their parities. For France, this was easier. In 1928, it had re-pegged to gold at an artificially cheap rate. As other countries left the gold standard the franc went from being *very* undervalued to merely *less* undervalued. For Germany the situation was very different. The trauma of the hyperinflation presided over by then-Reichsbank-president Rudolf von Havenstein remained painfully vivid in the collective memory. Having been through so much to achieve currency stability in the 1920s, policymakers were loath to entertain any action which might weaken it. Now, strictly speaking, Germany did actually leave the gold standard in 1931 in that it imposed capital controls, thus eliminating the free international flow of gold. But as can be seen in the chart, it kept the value of the mark pegged in gold terms. And more importantly it kept its gold standard mentality. The dictates of high interest rates and economic deflation were strenuously adhered to.

German and US unemployment rates compared (% unemployment rate, 12 mcma)



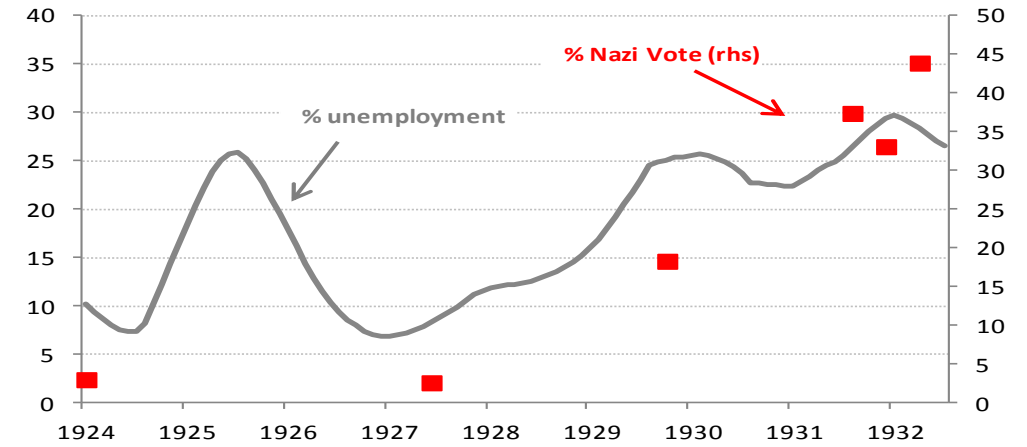
Source: SG Cross Asset Research, GFD

It's important to understand just how devastating the 1920s and 1930s had been for Germany. The US great depression is usually held up as the most distressing economic catastrophe of the 20th century. But the above chart shows that by the time America was in the depths of its depression, the Germans were going through what was arguably their fourth in a decade. If we

use the unemployment rates to gauge the despair, three of Germany's four peak rates were higher than the worst of what was seen in US in the 1930s.

The depression broke something in the German people. Even after the horrors of hyperinflation, which peaked in 1923, and the subsequent currency stabilisation of 1924, which caused a deep depression in 1925, the Nazis were barely on the electoral radar (see chart below). But, by the time Germany's late 1920s depression was in full swing, the situation had changed. (As the chart shows, the depression began sooner in Germany than in America. This was because the US, as Germany's main creditor and most important financier of its reconstruction, began to repatriate funds back to the US in the late 1920s, first to earn better returns in the then booming US economy, then to cover the losses caused when the boom turned to bust).

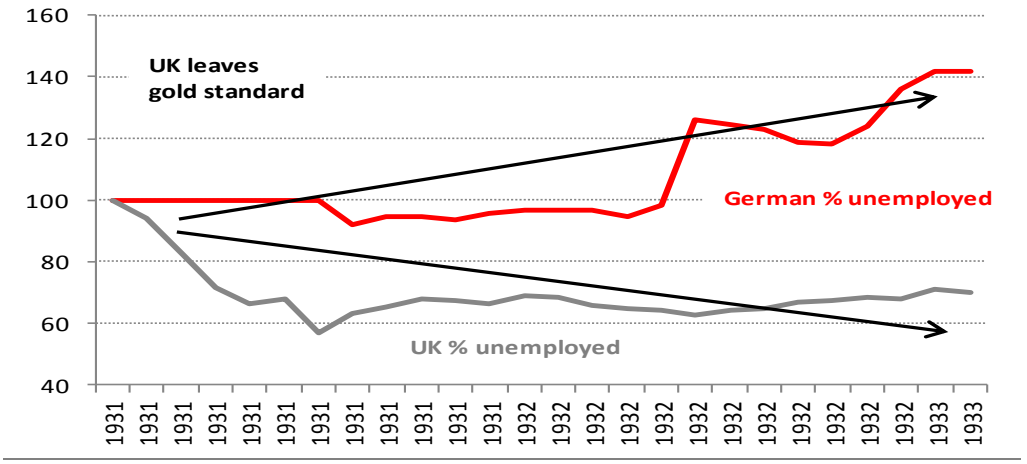
German unemployment and the Nazi vote



Source: SG Cross Asset Research, GFD

And here enters a wistful historical counterfactual: how different might history have been if the Germans had inflated their economy when the crisis broke?

If Germany had inflated … (unemployment rates, 1931=100)



Source: SG Cross Asset Research, GFD

It's impossible to say, of course. By 1931 the world was in depression. Germany would have been too, with or without its pathological fear of inflation. The Nazis would presumably have made the same electoral gains. But suppose Germany had inflated in 1931, like the UK did.

The following chart compares the trajectory of the UK unemployment rate after it had left the gold standard with that of Germany, who stayed on.

After leaving the gold standard, the UK saw its unemployment rate decline by about a third from 1931 to 1933, while Germany's rose significantly over the same period. If Germany had been willing to follow the UK in inflating, and its unemployment rate had followed a similar trajectory, it would have stood at 17% rather than 33%. Would this have averted what followed? Would Hitler have won that March 1933 election with 45% of the vote? Would the world have experienced the evils of the Nazis in power? World history might have been very different. There might not even be a euro today, let alone a euro crisis.

So even a hard money libertarian like me can see that there have been times in history when creating inflation would have been the right thing to do. Germany today has to decide if now is one of those times.

Europe's crisis today is orders of magnitude smaller than that in the early 1930s. The stakes are much lower today than they were then. But they are not low. And, just as it might have done in the 1930s, flexibility on hard money principles might help turn the tide. ECB involvement cannot solve the underlying problems of the eurozone economies, which are anti-entrepreneurial and too heavily regulated. But it will buy time with which to address these problems and so allow eurozone policy makers to get ahead of the panic for now.

But whether or not Germany wants to do that is its decision. To be clear, I'm not recommending any particular course of action and offer no comment on what I think they *should* do. I'm only trying to understand what I think will happen. In a very real sense it is entirely rational for Germany not to sanction an ECB funding of a bailout organisation with adequate fire power if they're so fearful of the dangers of playing fast and loose with the credit system. Who can blame them for that? Central banks' over-willingness to play such games in recent decades has been instrumental in creating the overleveraged world we live in today.[26]

But it's no use saying we shouldn't have started from here. We are where we are. A risk of sticking to the *über harte währung* strategy is that ever-more austerity creates ever-more deflation which creates ever-more misery in ever-more troubled countries (Greece, Spain and Italy today … France tomorrow?). We can argue about how big that risk is and over what time horizon, but that it is real and non-zero is undeniable. A second risk is that such misery will act as oxygen for opportunistic politicians who will blame the euro in general *and Germany in particular* for their misery. Again, we can't quantify that risk but we know that it's real and non-zero (we also know that it is already happening across Europe today). Therefore, the logical implication of a refusal to sanction ECB money printing is that the euro breaks up and Europe splinters apart, in keeping with the various cycles of European history over the millennia. And the logic of Germany's uncompromising stance against the ECB money-printing is that it is happy to run that risk.

But it's difficult to reconcile with the logic implied by Merkel's continued reassurances that the euro is *"more than a currency";* that *"if the euro fails, Europe fails"*; or that *"The task of our generation is to complete economic and monetary union and build a political union in Europe step by step. That does not mean less Europe, it means more Europe".*

[26] Frankly, it's a bit late for one of the key architects of the single currency - perhaps the greatest monetary experiment in financial history - to be so concerned by monetary 'experimentation'.

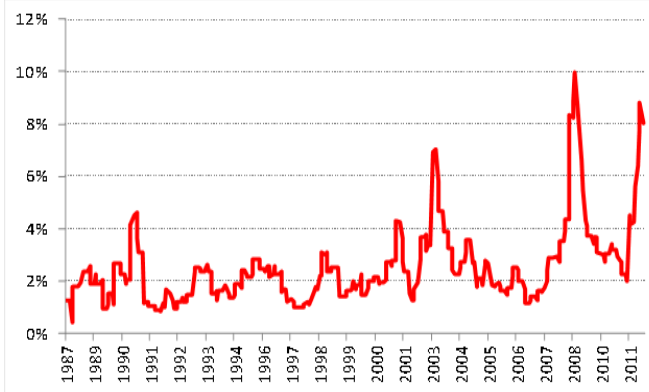
A couple of weeks ago Merkel and Sarkozy bluntly asked Papandreou whether or not Greece wanted to remain in the euro. *"Make your mind up"* she said. But it's now time for the Germans to conduct some introspection of their own. They should make their mind up. What's more important: the euro or their hard money principles?

My guess is it's the euro. Merkel thinks German budgetary responsibility has created today's resurgent locomotive economy and that the rest of Europe should take a leaf out of its book. But growth in exports to the Chinese credit bubble has contributed nearly a full percentage point alone to Germany's GDP growth. If that credit bubble bursts – as seems to be happening now – I suspect the Germans might be more sympathetic to a modest amount of "inflation" (even Germany ran with a near 8% CPI inflation rate in the 1970s).

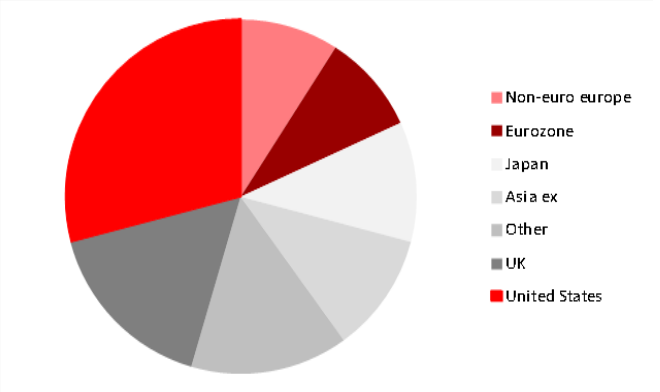
And anyway, it would be an easy operation to set up: giving the EFSF a banking license would allow it to open up a line of credit with the ECB for up to, say, €2tr (which might never even be drawn); the EFSF would then act like a euro IMF, with the power to bail out countries which got into trouble in return for certain conditions being met (e.g., labour market, tax, and welfare reforms); conditionality of lending would prevent the moral hazard issue which Germany fears (that once governments know the ECB is behind them they'll slack off on reform) and there would be no breach of existing treaties. The treaties would be changed to make it easier for countries to take a euro sabbatical. Willingness to sanction such an operation would also allow Germany to obtain its pound of flesh on issues like euro deepening.

So there's a clean deal to be done. I think Merkel will do it. And if she doesn't, I'd expect a market riot which forces an ECB coup, where printers overrule non-printers. When von Havenstein's ghost is exorcised, I might go maximum bullish, but until then I'm still minimum bullish on valuation grounds alone. The first chart below shows that there is a decent percentage of good quality stocks which are "cheap and safe" in our universe. The second shows that most of those stocks are in the UK and the US. Most of these are businesses which will still be around regardless of what happens to the euro (names available on request from your SG salesperson).

Percentage of cheap and safe stocks in the universe



Breakdown of "cheap and safe" stocks by region



Source: SG Cross Asset Research, Factset

Dylan Grice is a disgraceful hypocrite! A summary of last week's mailbag (01/12/2011)

One of the best things about this job is the readers' responses. Frequently interesting, sometimes entertaining, they are always gratefully received. But the mailbag after my recent musings – on Germany's Great Depression, the rise of the Nazis, how world history might have been different had Germany inflated in the 1930s, and parallels to today's crisis – has generated more responses than usual. I thought I'd share some of them.

■ In the last Popular Delusions I speculated on the causes of Germany's Great Depression and about how it ushered in the Third Reich. Clearly, this is a … er … 'controversial' period in world history, and I received a commensurately above average number of complaints in the inbox. I try to reply to all emails, but on this occasion there were just too many to respond to directly. And since most of them centred around common themes, I thought I'd explore them before a wider audience.

■ Before I do though, a quick recap on the thesis. I argued that adherence to a principle comes at a price and I illustrated how high the 'price of principle' can be using the extreme example of Germany's Great Depression in the 1930s. Contrary to conventional wisdom, I proposed that it was this crisis and not the hyperinflation of the 1920s that directly helped the Nazis seize power. This is because Germany, by then traumatised by the hyper-inflation and unbending on its hard money principles, followed a deflationary strategy in the 1930s as other countries were inflating. The price of its adherence to principle was an intensified Depression and so, quite possibly, the Third Reich.

■ That the ultimate 'price of principle' then turned out to be too high (with the benefit of hindsight) was not my point. My point was that there is always a price. Today, the price of Germany and the ECB holding on to their hard money principles is a possible break-up of the single currency. But both have signalled that they won't pay that price ("if the euro fails, Europe fails"). So my conclusion was that since Germany's stance is logically inconsistent (it wants to hold onto its principles but it doesn't want to pay the price), it will ultimately be forced to choose. My prediction was that it will sacrifice its principles. The three broad criticisms I got from readers were:

– My history was factually wrong
– My analysis was simplistic
– In suddenly urging the ECB to print, I was a hypocrite

Let's go through each one in turn.

Complaint #1: Grice's history is disgraceful and wrong

One common response to my thesis was that 'fear of inflation' had nothing to do with Germany's decision not to devalue. In fact, the key factor was the foreign debt Germany owed to the Allies. A number of you replied with this criticism, but the following was my favourite.

> *"Just read Dylan Grice's case that Reichsbank's hard currency policy helped the Nazis to power in 1933. I am amazed that SG would allow such Germanophobic historical crap to be published under its name. Unbeknownst to your strategist, the Allies set Germany's monetary policy back then. His paper is a disgrace."*
>
> *Irate Reader 1*

Fanmail, eh?! To be fair to *Irate Reader 1*, foreign debt was an issue. According to Adam Tooze[27], then American President Herbert Hoover was leaning very heavily on Germany not to devalue because he was concerned about the value of American loans to Germany. But to say the Allies were setting German policy is quite an exaggeration. According to Tooze, the UK was very keen on Germany following its policy of devalution, while the French were offering them cheap refinancing credit. Keeping America onside was deemed by Germany – rightly or wrongly – to be in Germany's best interests.

Of course, the logic that said Germany couldn't devalue because devaluation would merely lead to an increase in the real debt burden is flawed, because the alternative policy of deflation *also* leads to an increase in the real debt burden (because the debt was denominated in gold). What Germany needed then, as various countries in the eurozone need today, was to default, plain and simple. So if *Irate Reader 1* and those who made the same point are correct, the parallel with today is ironically even more acute. Then it was the US forcing an over-indebted country into depression rather than allowing it to default; today Germany is doing the same thing.

But as it happens, it's just not correct to claim that fear of inflation had nothing to do with Germany's decision to deflate rather than devalue. According to a speech given by then Reichbank president Hans Luther in September 1931:

> *"People point to the fact that inflationist countries receive a premium on exports as their costs have not adapted themselves to the depreciation of their currency. All that is true in itself: we have, indeed, experienced it ourselves. But have we not also experienced what follows? Have we quite forgotten that this advantage is only present in the first stage of inflation, and that as soon as costs and prices catch up the premium on exports vanishes … Then there would certainly be a demand to create a new "first stage" and so on. For this reason there is no question for us of a carefully controlled dose of inflation."*

At the same event, then-Chancellor Bruning said:

> *"Conditions in Germany, however, are very different from those in Britain. No people that has had to endure, as Germany has, the ghastly experience of such inflation, can tolerate a fresh blow, in times of the greatest uncertainty and fear, to confidence in the future of their savings."*[28]

[27] See "Wages of Destruction: the Making and Breaking of the Nazi Economy" by Adam Tooze

[28] The Economist, Oct 3rd 1931, page 613 for both speeches

If that's not fear of inflation driving a deflationary policy, I'm not sure what is. As for the charge that my observations were Germanophobic … I think that implies that I'm blaming Germany for their depression, or even for what followed. But I wasn't (and I don't as it happens). I'm not interested in blaming anyone for what happened. Sometimes things just happen. I am just trying to understand why and how.

Complaint #2: Grice's history is simplistic

Another common complaint was that I wasn't doing justice to an historical event with complex causes. One client wrote:

> *"Although a nice story it is more a fairy tale. Society/human nature/markets/economies are too complex to go back and say what would have happened. It's futile anyway; you can't do anything about the past but learn from it. And Dylan doesn't."*
>
> *Dismissive reader*

But I thought it was best summarized by a reader's comment on the write-up of my original piece on the FT's excellent Alphaville site:

> *"This is hideous historicism and statistical manipulation leading to grand and sweeping conclusions. This is the worst sort of shamanism!"*

Shamanism?! I actually looked up shamanism in the dictionary and found it had something to do with the American-Indian religion. I think he meant *charlatanism*. Anyway, these readers were frustrated that my treatment did not do justice to a highly complex phenomenon. Why was I so sure unemployment was the decisive factor behind the Nazi rise, as suggested in the chart below?

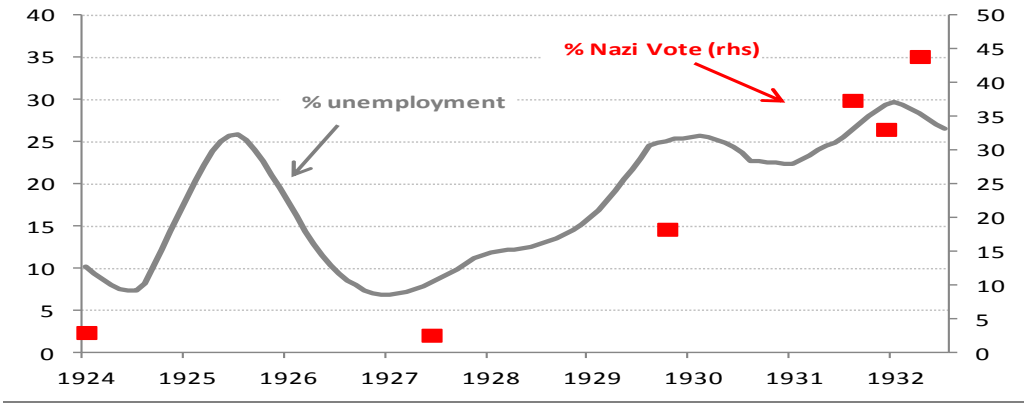
If professional historians who have devoted their entire careers to the study of Hitler's rise to power cannot agree, how can a four-page investment strategy report? And anyway I wasn't attempting to provide the definitive answer. The fact is we don't know and we probably won't ever know, because we can't ever know what *the single major cause* was, or even if there was a *single* major cause. That's why I wrote.

> *"… how different might history have been if the Germans had inflated their economy when the crisis broke? It's impossible to say."*

But what seems obvious to me is that the misery caused by *yet another* German economic crisis combined with uniquely German circumstances (e.g. the humiliation at Versailles, a 15 year decline in living standards, a calling into question of the liberal economic doctrine of boundless growth) drove demand for a new belief system capable of explaining the world around them.

So I find it highly implausible to say that the depression – which I proxied with the unemployment rate – had nothing to do with that demand, and that it was merely coincidental to political radicalism. If we accept that the depression was *one* factor, it follows that anything weakening the intensity of that depression would have lowered the probability of the Nazis gaining power. And if we accept that an inflationary policy would have mitigated the intensity of the depression, the thought experiment and any logical conclusions derived from it seem perfectly valid to me.

German unemployment and the Nazi vote



Source: SG Cross Asset Research, GFD

Complaint #3: Grice is a hypocrite calling on the ECB to print

This was actually a slightly puzzling one for me, as I thought I'd made my position clear. But I couldn't have been because quite a few of you raised the same objection. As (another) irate client wrote:

> *"Your hypocrisy is astounding. After preaching about the evils of money printing, you now join in with the chorus, squealing for the ECB to ride to your rescue by bailing out your bankrupt employer!"*
>
> *Irate Reader 2*

Or another good one from the Alphaville readers' comments

> *"I find it quite entertaining how so many people who have been blustering and soap-boxing about the importance of hard money and criticizing money printing, quickly 'go soft' when their policies are actually in danger of being enacted. Grice being a case in point."*

This is not what I said. I argued only that Germany's principled stance exacerbated its depression and served the Hitlerite cause. If we all agree that serving the Hitlerite cause was a bad thing, then we presumably also agree that a willingness to compromise its principles would have been a better thing.

I found this not only interesting, but *challenging* too, because the corollary is that there is no such thing as an unbendable principle. This might be an uncomfortable observation, but that doesn't make it false. If a principle is unbendable it ceases to be a principle. It instead becomes a rule. And I agree with Doug Bader, the British WW2 fighter pilot, who said *"rules are for the obedience of fools and the guidance of wise men."*

The purpose of the historical analysis, therefore, was not to reach conclusions about how adherence to hard money principles will linearly lead to resurgent fascism, or war on a par with that seen in the 1930s. Neither was it in any way a defence of Keynesian fiscal activism. **It was to illustrate that adherence to even the best principles must come at a price, making a judgment on whether or not that price is prohibitive or not is unavoidable, and today Germany and the ECB have to make that judgment.**

I categorically did not recommend that the ECB or Germany go down the printing path. What I actually wrote on page 4 was this.

> *" … whether or not Germany wants to do that is its decision. To be clear, I'm not recommending any particular course of action and offer no comment on what I think they should do. I'm only trying to understand what I think will happen … it is entirely rational for them not to sanction an ECB funding of a bail-out … if they're so fearful of the dangers of playing fast and loose with the credit system. I don't blame them for that at all. Central banks' over-willingness to play such games in recent decades has been instrumental in creating the overleveraged world we live in today."*

As a general principle, I don't make policy prescriptions. I don't believe my view on what *should* be done is particularly relevant to investors. The world is full of opinions about how the world *should* work, and how it *should* be run. Does it really need another one?

I don't think it does, but to bend a principle (!) for the sake of clarity, here's what I think *should* happen. I think the ECB shouldn't get involved. I think it shouldn't sanction any ECB funding of the ESFS either. I think it should tell governments who made this mess that they can fix it. It should say, "If you want a central bank that prints money when things get tough go and launch your own currency using your own central bank and print until your hearts are content." But then, I'm not emotionally attached to the euro, or Germany's popularity in Europe. And I think the ECB and Germany's politicians are.

Nor is this a new idea on these pages. It is a position we've taken since the crisis broke. On 27 May 2010, after the very attempt to ring-fence the peripheral eurozone economies, I wrote a piece called "Print baby print" in which I said the following:

> *"Today, the ECB is buying insolvent eurozone government debt which it is promising to sterilise. Yet they face the same stark calculus faced by their Anglo-Saxon cousins in 2008. You can only worry about the economy's 'price stability' if the economy hasn't already melted down! So here's my prediction: they won't sterilize, and the [QE] program will expand."*[29]

From the beginning of this crisis I've believed the only way politicians will get ahead of it is to bring in the ECB. Since I believe politicians do want to get ahead of it, I expect the ECB to print, and print copiously.

I've repeatedly emphasized that printing will solve nothing, beyond buying market confidence for a while. Ultimately, I believe the eurozone's structural problem is its government-heavy, over-regulated, anti-entrepreneurial welfare model which I believe is broken. In client discussions I've drawn the parallel between today's uncompetitive eurozone, with the unrealistic social promises it has made to future generations, and Detroit. All ECB printing will do is buy the politicians time and space to reset government and private sector balance sheets, to reform how their economies function and be honest with their own citizens. Whether they use that time or not is a separate question (frankly, I'm not hopeful).

[29] See "Print baby print … emerging value and the quest to buy inflation" Popular Delusions, 27/05/2010

Japan

A global fiasco is brewing in Japan (12/01/2010)

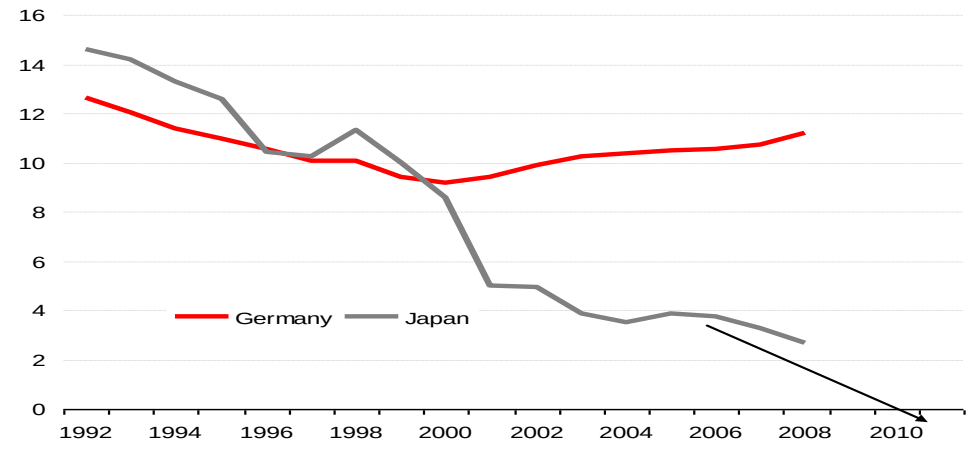
Japan's government borrows from Japanese households and has done for decades. But Japanese households are retiring, and traditionally retirees run down their savings. So who will fund Japan's future deficits, which are already within the range identified by inflation historian Peter Bernholz as hyperinflation 'red flags'? Twenty years ago, who could predict long-term JGB yields below 1%? Who sees uncontrolled inflation as the primary risk facing Japan today?

▪ Don't listen to fiscal scare stories - Japan proves that governments can borrow for as long as they like! Or does it? In the past, the Japanese government had a captive domestic market in which to place its debt. A large pool of domestic savers, made cautious by prior painful experience with risk assets and an increasingly fragile economy, was happy to own as much government debt as possible. After all, the JGB market was the one consistently good performer. But those savers are now retiring, and running down their assets (see chart below). Who will finance Japan's government deficit in their place?

▪ It's been so long since there was an inflation scare, let alone one caused by a government unable to fund itself, that it is difficult to imagine such a scenario today. Developed market governments can always fund themselves, can't they? Behaviourally, we know investors overweight the scenario that is easy for them to imagine and ignore that which isn't. But the 'unimaginable' happens all the time.

▪ Japan is the fourth largest exporter in the world. It is the second largest consumer of US Treasuries. But its more profound influence might be psychological. Its recent experience is the most powerful argument underpinning current bond valuations as the fiscal outlook deteriorates. In the future our 'lessons from Japan' might not be so bullish for bonds.

Japanese household savers to become dis-savers? (household savings as % of disposable inc)



Source: OECD

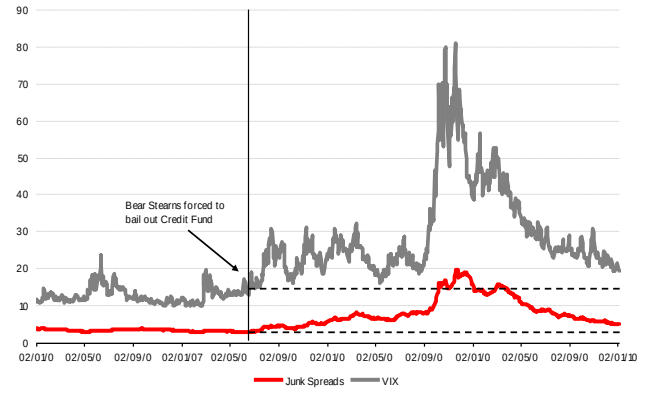
Reality doesn't exist, only perception. In one of my favourite novels, '*Ask the Dust'* by John Fante, the novel's hero Arturo Bandini – the penniless aspiring writer and Fante's alter ego – describes venturing out into 1930s Los Angeles immediately after an earthquake. He describes an 'aftershock' of emotions:

> *"The city was the same, but I was afraid. The streets lurked with danger. The tall buildings forming black canyons were traps to kill you when the earth shook. The pavement might open. The street cars might topple."*

Though it is hard to believe Bandini was unaware LA was highly exposed to earthquake risk, we can understand his sudden panic. In a similar vein, an academic study on the perception of lava-flow risk among Hawaiian residents (where three volcanoes are active) was recently highlighted by Paul Kedrosky, and found that appreciation of lava flow hazards was "*proportional to the time lapsed since the most recent eruption*" rather than to any quantitative assessment of risk.

With memories of the banking crisis still vivid in investors' memories, we can see why various measures show that the market pricing risk is still considerably higher than before the summer of 2007 (albeit nowhere near high enough for my liking), and why so many people consequently seem to view the market as cheap (again, I don't think it is). But one measure of risk which is still priced right where it was before the crisis broke is that of inflation.

Real economy risk premiums above pre-crisis levels



Source: SG Cross Asset Research

Inflation risk is back where it started, i.e. close to non-existent!

Source: SG Cross Asset Research

Perhaps this is because there is no longer any meaningful inflation risk in a world with a largely de-unionised labour force and independent central banks. Perhaps it is because the deflationary risk from China, or from a de-leveraging post-bubble global economy, trumps everything else. But I can't help wondering if, like the above victims of a catastrophe, the Japanese are simply unable to perceive the risk of inflation because they cannot imagine it, and the pricing reflects that.

In their majestic history of financial calamity[30], Reinhart and Rogoff write that,

> *"Many observers … have concluded that "this time is different" and that inflation will never return. We certainly agree that there have been important advances in our understanding of central bank design and monetary policy, particularly in the importance of having independent central banks that place a heavy weight on inflation stabilisation.* ***But, as in***

[30] "This Time is Different: Eight Centuries of Financial Folly" by Carmen M. Reinhart and Kenneth Rogoff

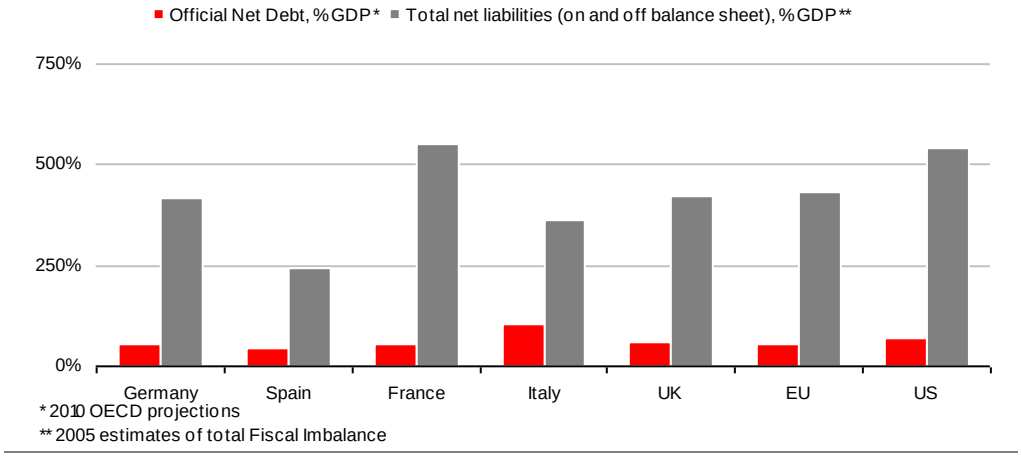
the case of debt default, experience suggests that quiet periods do not extend indefinitely."

Of course, the cousin of inflation is sovereign default. The fiscal pressure forcing default creates pressure to print money. Reinhart and Rogoff again:

" … the lull in defaults after 2002 stands out even more against the preceding century. Only the two decades before World War 1 – the halcyon days of the gold standard – exhibited tranquility anywhere close to that of 2003-2008. ***Looking forward, one cannot fail to note that whereas one and two decade lulls in defaults are not at all uncommon, each lull has invariably been followed by a new wave of defaults."***

The insolvency of developed economy governments when account is taken of their unfunded social promises is something Albert and I have noted for some time, but here is the chart again anyway. It suggests that government liabilities are actually around 400% of GDP (Greece, not shown on the chart, 875%).

Our governments are insolvent



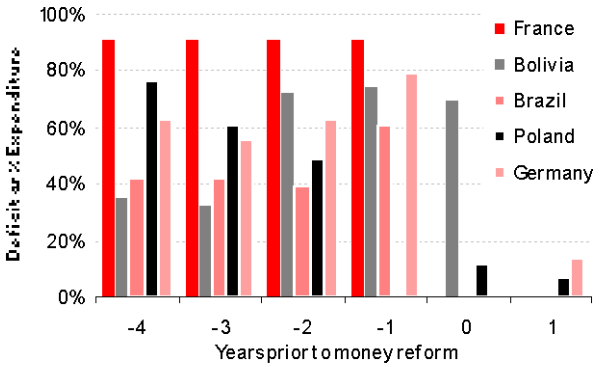
Source: Gokhale, SG Cross Asset Research

But as the Detroit car companies demonstrated, insolvent organizations can stay alive for as long as they can remain liquid – but illiquidity will inevitably force insolvency into the open. And there haven't been any developed market government funding crises since the days of Bretton Woods, even though we came close following the collapse of Lehmans in 2008. So such risk is not taken particularly seriously. But a fiasco is surely brewing.

Although it is difficult to predict exactly how much debt is too much, it is clear that governments are near the mark. On the left of the following frame is a chart taken from Peter Bernholz's classic study of inflationary episodes over the centuries[31] showing budget deficits (as a % of government *expenditures*) prior to five hyperinflations. The range in the run-up to such episodes is 33% to 91%. The right chart shows the current ratios for Japan and the US to be well within that range.

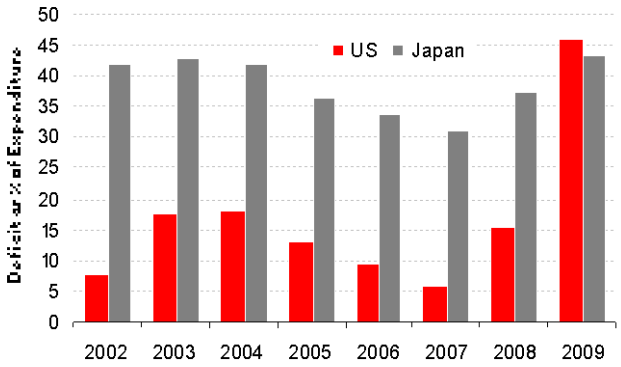
[31] See "Monetary Regimes and Inflation" by Peter Bernholz. The numbers are taken from a section entitled *Budget deficits cause inflation*.

Budget deficits before five hyperinflations



Source: Bernholz, SG Cross Asset Research

US and Japanese budget deficits today



Source: SG Cross Asset Research

It would be nice to think that these deficits are just emergency measures which will be neatly removed as soon as the recovery is safely established, which seems to be the policy making consensus today. In last week's *Financial Times*, John Podesta and Michael Ettlinger concluded their op-ed with the following thought:

> *" … we should not jeopardise recovery by exercising fiscal retrenchment in the near term. Instead, policymakers must build a pathway that will facilitate the hard decisions required in the coming years to bring the federal budget back into balance."*

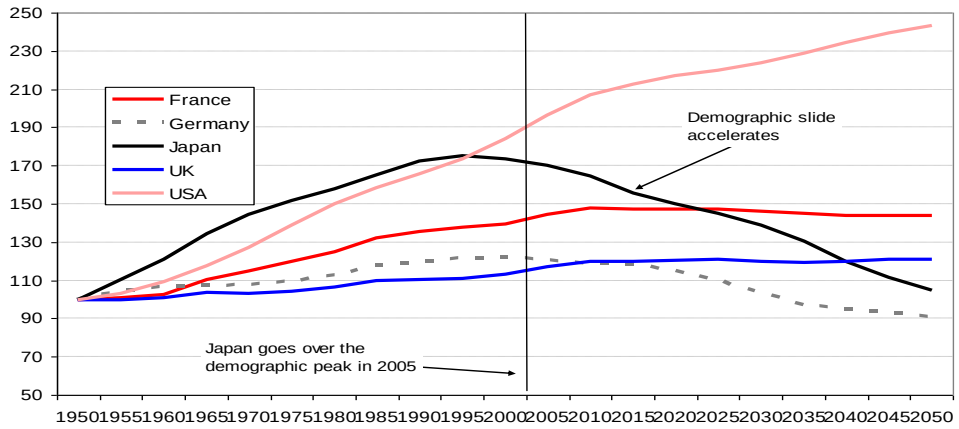
… or as St Augustine wrote in the Fourth Century, "*Lord, make me chaste, but not yet!*" Milton Friedman once quipped that there was nothing as permanent as a temporary government program. I think James Montier would call it *overconfidence about future self-control*.

Whatever, removing the stimulus will involve pain; lower growth, higher unemployment and political unpopularity. But policy makers don't like lower growth, higher unemployment and political unpopularity. They enacted the stimulus in the first place to avoid it! At what point will they decide that they *do* want lower growth, higher unemployment and political unpopularity? Given the choice they won't, ever. So it will be imposed on them (and therefore us) by a suddenly less generous bond market via a government funding crisis.

What might such a funding crisis look like? I'm going to focus here on Japan because many believe that its experience proves debt burdens at current levels are completely irrelevant as far as government funding and bond yields are concerned. Japan has run deficits for years and has seen its debt burden explode, yet it has also seen its long-term borrowing costs collapse. Indeed, if you study the Bernholz deficit chart above, it is obvious that Japan has been running 'hyperinflationary deficits' for several years, yet it remains mired in deflation.

Maybe this time it will be different, but I don't think so. On a point of logic, Japan's ability to avoid a funding crunch to date despite its rising indebtedness does not prove that it will not at some point see a funding crunch. It does prove that this can be delayed. How has Japan been able to achieve this delay? Primarily because it has enjoyed a captive market - not only were domestic savings abundant, but risk-averse Japanese investors were happy to purchase 'risk-free' government bonds. Indeed, Japan's economy collapsed into deflation just as its demographics 'rolled over' in the mid-1990s (see chart), and as a result it accidentally landed in the best possible asset class. So everyone was a winner. Except that the game might now be up as the investors who funded the government's serial attempts to revive the economy are now retiring.

Japan's demographic decline started in the early 2000s (rebased working-age population)

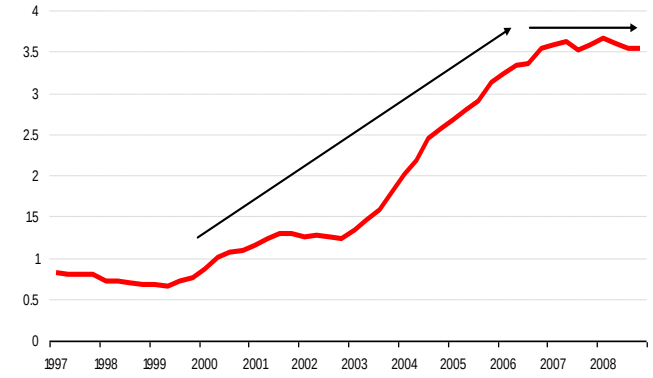


Source: UN

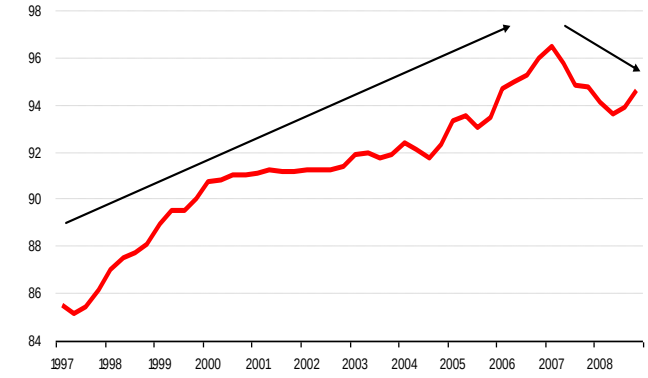
Retirees run down their assets. Our front-page chart shows Japan's savings ratio is set to fall below zero. The chart below left shows Japanese household purchases of JGBs. These purchases really took off after the collapse of world stock markets following the tech bust in 2000. For the past three years, however, JGB purchasing has levelled off. Of course, household direct purchases of JGBs are a small share of total ownership, as buyers, banks and insurance companies are far more significant. But these corporate buyers are only really recycling the same diminishing pool of Japanese savings (see chart, below right).

Hence the current trend implies that Japan's savers will grow less able to continue funding a deficit that is currently running at more than 40% of government expenditure.

Japanese household holdings of JGBs is plateauing (Ytr)



Japanese household wealth being run down (Ytr)

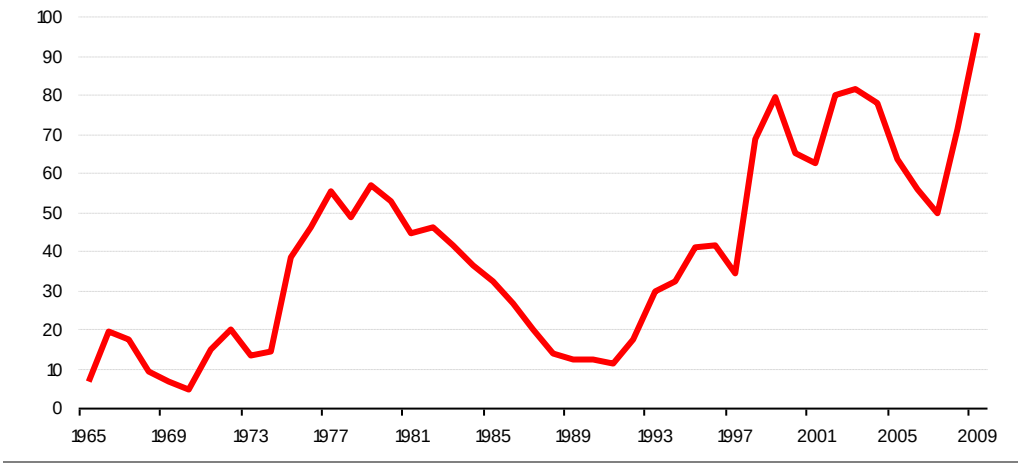


Source: SG Cross Asset Research

So who will fund the Japanese government's deficit in the future? It is not likely to be the international capital markets, especially if its bonds are offering only a 1.5% yield. But if international investors were to demand triple that, pricing JGBs in line with international bond market peers (all priced too generously in my opinion) the game would soon be up because Japan's current debt service *already* amounts to 35% of pre-bond issuance revenues.

The following chart shows the ratio of revenues generated from bond issuance to that generated by tax collection. Next year, the MoF expects that ratio to rise above 100% i.e. **tax revenues will be less important than borrowing as a source of income**. So I doubt there is *any* yield international capital markets can find acceptable that will not bankrupt the Japanese government.

Japanese bond issuance as a share of tax revenue (%)



Source: SG Cross Asset Research

This is far from just a JGB market problem. As Japan's retirees age and run down their wealth, Japan's policymakers will be forced to sell assets, including US Treasuries currently worth $750bn, or Y70 trillion – eight months' worth of domestic financing. At nearly 10% of the outstanding US Treasury stock, this might well precipitate other government funding crises (bearing in mind that the Japanese model is *the* argument buttressing confidence in Western government bonds in the face of deteriorating fiscal conditions). At the very least I'd expect it to trigger an international bond market rout scary enough to spook all other asset classes.

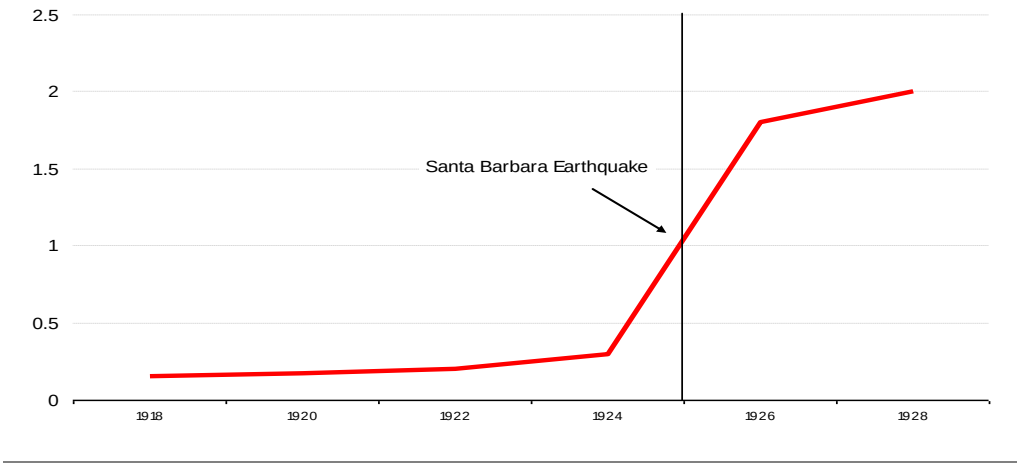
But after they've sold all their foreign assets, yet still have no access to capital markets, how then do they continue to fund their schools, their courts, and their heath system or their bureaucracy? Japan could simply cut its spending to fit its cloth. But bond issuance is currently around 10% of annual GDP and such a cut would cause a sharp and painful depression. If history is any guide, and I sincerely hope it isn't, the BoJ will step in and let their printing presses roll. Of course, this will ultimately cause a depression, but it will be a depression tomorrow whereas draconian spending cuts would be a depression today.

And although foreigners aren't large investors relatively in Japanese markets, capital flight will probably be enough to collapse the yen. Since Japan is the fourth largest exporter in the world, this could have profound ramifications for the rest of Asia, including China. Again, at a minimum this will spook other asset classes in other countries.

So maybe we should all be more concerned that Japan's deficit is in the hyperinflationary range. And if so, maybe we should think a little more carefully about how Western governments consider their debt burdens, both those on-balance sheet (bonds outstanding) and off-balance sheet (unfounded social promises). Maybe Japan's will be the crisis that wakes up the rest of the world and triggers some tough decisions on world-wide debt loads. Or maybe not - maybe the Greeks will beat them to it…or the Irish … or the UK, or the US? Like banks in 2007, developed market governments today rely on sustained capital markets more than any time in their history. What if they shut? …

In 1925 there was an earthquake in Santa Barbara which 'only' registered 6.3 on the Richter scale, but caused enormous damage because the community was unprepared. The following chart shows what happened to demand for earthquake insurance before and after.

Earthquake insurance premiums sold in California before and after the 1925 quake



Source: California Earthquake Insurance Program

There's no way you could have predicted when that earthquake would strike. But it was reasonable to assume that there would be one at some point given its location on the San Andreas Fault. When would be the better time to write insurance – before the earthquake or after? Being so close to the fault line, with both risk and 'risk-free' assets in overvaluation territory, feels much like taking on earthquake risk before the quake.

More on Japan's brewing fiasco, and some musings on recent pushback (08/03/2010)

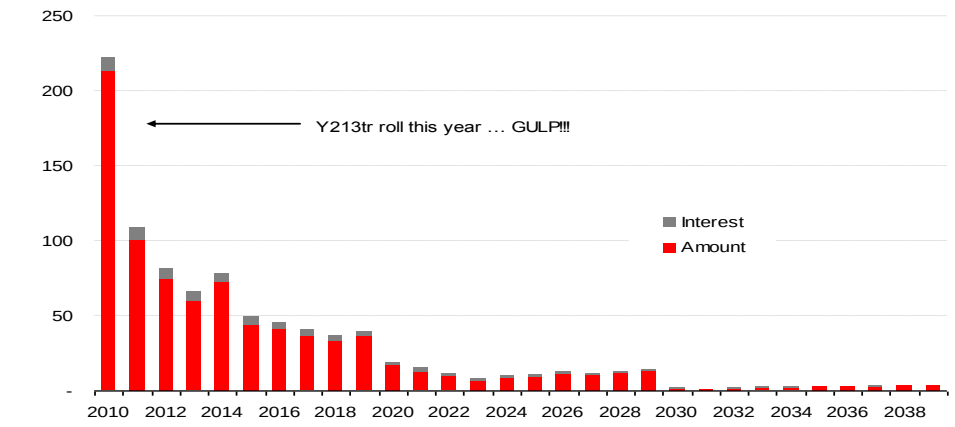
A few months ago I wrote about an impending government funding crisis in Japan. The pushback was so interesting I thought it worth writing up. None of you really disputed the long-term problems facing Japan but, for various reasons – which I'll look at below – very few of you thought it was worth worrying about just now. Meanwhile, the biggest JGB holder on the planet – the Government Pension Investment Fund (GPIF) – which has already admitted it's no longer able to roll maturing bonds, has announced that it will open credit lines so it doesn't have to sell them to fund its obligations. With ¥213 trillion of JGBs to roll this year, or around 45% of GDP (see chart below), maybe I'm not the only one scared stiff after all!

■ One of the great things about doing this job is the feedback you get from pieces you write. I have to admit, I'm poor at predicting the reaction a report will generate. In a warning to anyone following the few predictions I do make, my own favourite pieces have so far tended to be the ones eliciting the least reaction, while those that have made the biggest splash have often been the ones which seemed the most obvious. Anyway, philosophically I believe in reaction more than prediction, judging the response is always more interesting.

■ Broadly there are two types of 'pushback' which make you think you're on to something. One is outright hostility, sometimes verging on hate mail you receive when you know you've touched a nerve (recently I've been called "dishonest" and "immoral" for holding certain views!). The other is complete apathy suggesting a broad disinterest in the topic.

■ The stuff I've written on Japan's fiscal problems recently has fallen into that latter category. I should stress, it's not an apathy born of a lack of understanding of the issues – everyone acknowledges the long-term seriousness of Japan's fiscal position. But people seem almost fatigued with the idea that a country which has defied bond market logic for so long now is ever going to change. This is what I wanted to talk about this week.

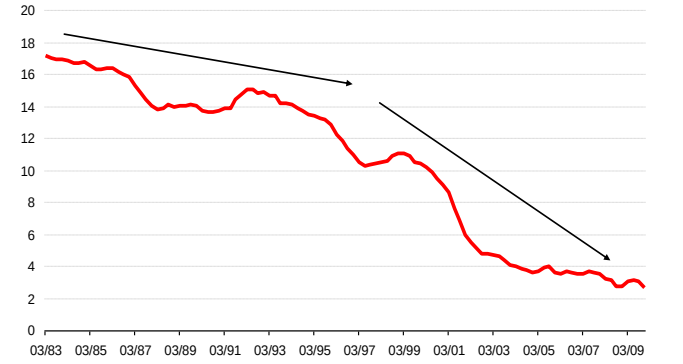
JGB maturity distribution; ¥213 trillion to roll over this year (about 45% of GDP)



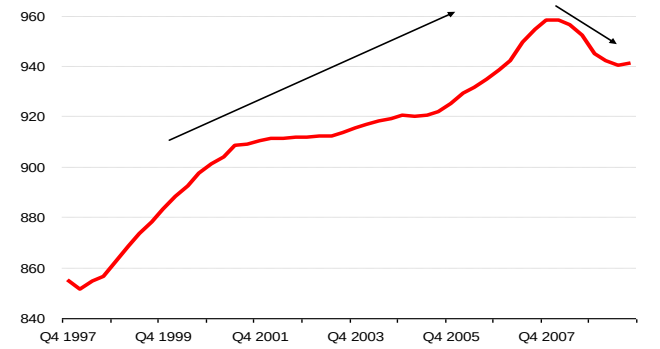
Source: Bloomberg

To recap, the thesis I outlined back in January[32] was that since Japanese households – the biggest effective drivers of JGB demand – are set to dis-save in coming years as they retire (left-hand chart below) there will soon be no one left to finance the government's nosebleed deficits at current yields. Indeed, the chart below suggests households are already running down assets. And because the interest rates which *might* attract international investors will inevitably blow up the budget (debt service is *already* 35% of government revenues at *existing* yields) there is a very clear and present danger that the government reverts to the well-established historical precedent for cash-strapped governments of currency debasement.

Japanese households are set to dis-save (savings as % disposable income)



Japanese households are *already* running down wealth (non-equity, non life assurance household assets)



Source: SG Cross Asset Research

The most common argument I received on why I was wrong to worry was along the lines that Japan has had rising debt ratios and huge deficits for many years now. Not only have yields fallen, but the economy has struggled with deflation, not inflation.

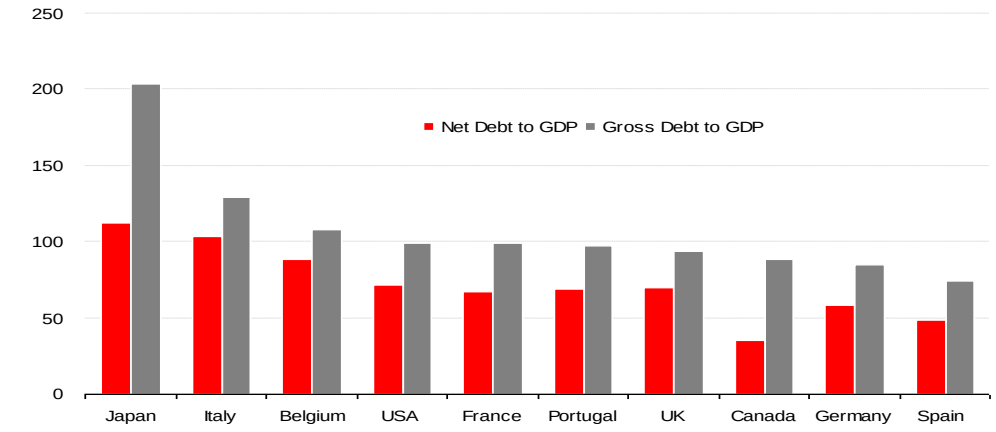
To me this feels like 'recency' bias at work, which is a type of 'availability' bias by which we overweight events we find easy to imagine relative to those we don't. Japanese debt markets have been stable for such a long time it's difficult to imagine anything different, so we don't imagine anything different and predict that the future will look like the past. Now, Japan's debt markets may well remain very stable in the future and I'm very open to the strong possibility that I'm barking up the wrong tree. But 'logic' like that outlined above is lazy indeed. It echoes Bernanke's now infamous 2005 conclusion that nationwide housing collapse in the US wouldn't happen because it hadn't happened before.

More thoughtful critics argued that I was ignoring the Japanese government's significant financial assets. Taking this into account shows a net debt position of closer to 100% of GDP (chart below), considerably more manageable than the 200% gross debt-to-GDP ratio and more in line with other OECD economies such as Italy and Belgium (great!).

But I'm not so convinced by this argument, or to be more accurate, I'm not so convinced the *numbers underlying this argument are correct*. For a start, around 40% of the assets recorded on the asset side of the Japanese government's balance sheet don't actually belong to the Japanese government. They belong to Social Security and therefore to the Japanese public. That the vehicle which owns the assets happens to be publicly owned doesn't change the fact that it is a *very real* liability owed to individuals who must be either paid or defaulted on. It doesn't just cancel out.

[32] See "A global fiasco is brewing in Japan" Popular Delusions 11/01/10

On a net basis Japan isn't such an outlier: OECD gross and net debt ratios (% GDP)



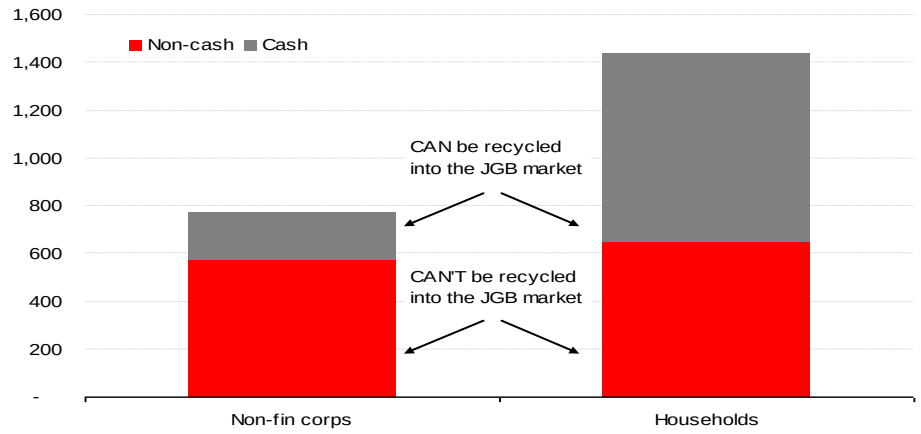
Source: OECD

And who on earth knows what the other assets are worth anyway? The central government, for example, has funded projects deemed "socially useful" and which private markets wouldn't finance. These loans, made via direct 'investments' in public sector organisations (called Fiscal Investment and Loan Program [FILP] agencies), are recorded as assets on the government balance sheet worth around 10% of GDP. Yet we know from decades of banking problems and bank recapitalisations that even the loans that markets *did* finance soured pretty spectacularly, so one wouldn't imagine the FILP agency loans to be of particularly high quality. Indeed, a few years ago two economists at the NBER reckoned that nearly half of the FILP agencies were insolvent. Maybe those assets are being provisioned for correctly on the government's books, but – and call me a cynic if you like – I really doubt it.

But even if we assume those numbers are a fair reflection of asset value there is also the implicit assumption that the Japanese government can monetise them. But I don't think they can. Shares and equity stakes are marked at around 20% of GDP, mainly reflecting Japan Post Bank - the "jewel in the crown" - with $2.5 trillion in deposits. But last year, plans for its long-awaited privatisation were shelved, apparently for fear that on a purely private sector calculus, many small and medium-sized companies wouldn't qualify for the funding they need to stay afloat. Keeping it in public sector hands was the only way to ensure their life-support credit lines weren't cut. Of course, I may just be being cynical again, but I note that Post Bank is also a huge buyer of JGBs and doubt it was just the SMEs life support the government was worried about…

This leads nicely to the other argument worth thinking about, which runs like this: the household sector may well be retiring and less able to absorb new JGB issuance, but the corporate sector is expanding thanks to a vibrant export sector. Since corporate sector savings are as large as households' isn't it reasonable to expect them to take over as the primary source for government funding? The honest truth is that I don't know. Maybe, I guess. But my gut feeling is pretty definitively no. For one, the corporate sector *doesn't* actually have as large a pool of savings as the household sector.

Japanese household and corporate assets compared (¥ trillion)

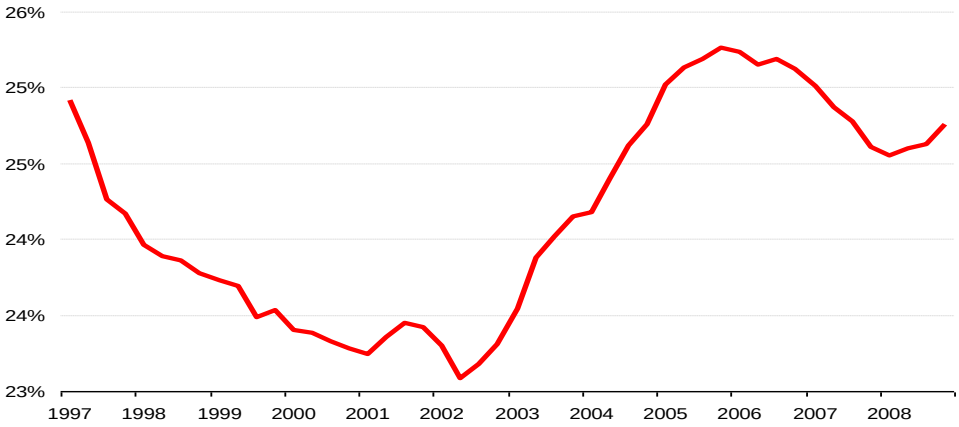


Source: SG Cross Asset Research

For another, the corporate sector – even in Japan – doesn't have anywhere near the same propensity to hoard cash (see chart above). Open the papers today, for example, and you read about Astellas Pharma going hostile on OSI, where it thinks it can buy its way out of Japanese stagnation. When companies have money, they need to spend – sorry 'invest' – it (occasionally they even need to return it to shareholders). Anyway, it looks unlikely to me that companies are going to take over from households in financing the government's deficit.

In passing, I think this is why the idea that Japan can't have a funding crisis because it runs a current account surplus might not actually stack up. I readily admit to having forgotten most of the economics I've ever done and I will happily stand corrected if any of you think I'm wrong on this, but I *think* that if a current account surplus is increasingly dominated by a sector (e.g. non-financial corporates) with a *lower* propensity to fund another sector (e.g. the domestic government), then that other sector must face problems funding its deficit. So is Japan's current account surplus even relevant for assessing the risk of a government funding crisis? Clever economists out there, let me know.

Corporate cash balances as a share of household cash balances (4q mav)



Source: SG Cross Asset Research

Anyway, if the corporate sector was about to suddenly increase its cash holdings, we'd expect to see the ratio of corporate sector cash relative to household sector cash begin to rise. In fact over the last five years it's been falling (chart above).

So I still worry. Households are retiring and running down their wealth; non-financial corporates don't hold as much cash. So the non-financial sector (i.e. households plus non-financial corporates) just isn't going to be in a position to provide the financial sector with the deposits it needs to recycle into JGBs.

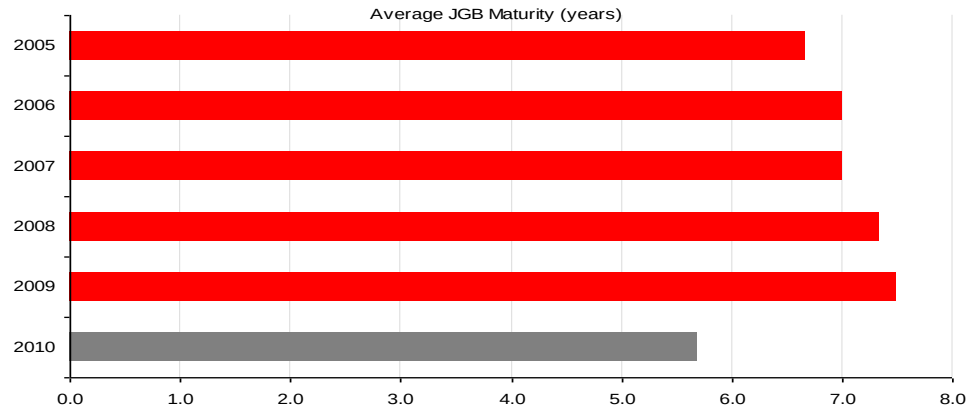
That leaves the foreign sector as the only candidate to fund the government's ever increasing structural deficits and explains the increased frequency of JGB roadshows we're seeing around the globe. But is it realistic to expect foreign investors to fund a likely insolvent government at 1.5% (if this week's Greek financings are a fair gauge, investors want closer to 6% to fund insolvent governments)? Anyway, debt service *already* accounts for 35% of the Japanese budget! Any reasonable interest rate will expose Japan's budget for the mess it is.

But why take my word for it? Why listen to the rantings of some supposed "perma-bear"; a deranged strategist working on a cold rainy island on the other side of the Eurasian continent from Tokyo, and with no great insight into the workings the JGB market or much else for that matter? Well, you shouldn't. But you might want to take Takahiro Kawase, head of Japan's $1.2tr Government Pension Investment Fund (GPIF) and the largest owner of JGBs on the planet, more seriously. He said last summer, "*The big change this year for us is that there is zero new money to invest, so we may need to be a seller in the market to meet the pension benefits … our bond allocations are overweight, so we may need to reduce those a bit to raise cash."* Not to worry, though, because he doesn't think it will have much effect on the market. *"… the sales are not expected to be big, as we can cover the shortfall from maturing bonds."*

How significant a problem is this? In last week's FT, Gillian Tett pointed to the importance of debt maturity in assessing fiscal breathing space. UK debt maturity, at 14 years, is one of the longest, while the US, at 5 years, is one of the shortest. In Japan, based on the Bloomberg data on the front page chart, the number is around 6, and ¥213 trillion matures in 2010.

To spell that out: we are going into a year in which the government has ¥213 trillion of bonds to roll over (chart below), and the biggest holder of JGBs is openly admitting he has no new inflows of money. I suspect he's not as confident as he's making out that this won't be a problem, and I suspect the Japanese authorities aren't either. Otherwise, they wouldn't be scrambling to arrange a new borrowing facility for the GPIF so that it doesn't have to sell JGBs to fund its pension obligations …

Average duration of Japanese government debt



Source: MoF, SG Cross Asset Research

Fooled by anecdotes: Japan's coming inflation, JGB toxicity and what to do (09/09/2010)

I keep being told that if a government solvency crisis is about to befall Japan you wouldn't know it by spending time there: its cities feel prosperous; its streets are clean; and its population is calm. All this is true. But is it relevant? Anecdotes may make for fine entertainment but anecdotal "evidence" is a dangerous thing. The numbers say Japan's government is bust. And the real problem – population decline – is only beginning to be felt.

■ Anecdotal evidence can be a dangerous thing. In 1919 in the aftermath of the First World War, for example, the situation in Germany was about as dire as it's possible to imagine. Humiliated by the Allies, embittered by the realisation that their leaders had betrayed them, and stunned by the toppling of their Kaiser during the November 1918 Revolution, the streets were seething with violence and anger.

■ There was no government to speak of as the political anarchy unleashed by the Revolution remained out of control and unchecked. The economy's productive capacity was shattered too. Since it had been entirely mobilised for war by Hindenburg in 1916, the War's abrupt end caused sudden and painful unemployment. And that was before the demobilisation of six million traumatised troops from the trenches. Having gambled decades of accumulated national wealth on war, and lost, there was simply no money to pay for the reconstruction of the economy and of peoples' lives, other than from the printing presses ...

■ With the benefit of today's hindsight we know that the Weimar Republic the Revolution bore was stillborn. The economic policies aimed at buying peace with increasingly intimidating political factions succeeded only in causing hyperinflation. The pact with a group of demobilized nationalist troops aimed at preventing communists from hijacking the Revolution (as the Bolsheviks had recently done in Russia) would inadvertently seed the military might which would one day propel Hitler to power and the world back to war.

■ But in February of 1919 such a bleak future was merely one scenario, and a distant one at that. The true condition of Revolutionary Germany was unknown so the British government sent two officers to Berlin find out. At the Adlon Hotel where they were staying they saw "no sign of want of anything" and noted the hotel's restaurant was putting on meals "which would have done justice to the Ritz." A plump lady feeding her dog expensive biscuits at the table made an impression on the two agents. But the explanation as to why there were so few cats and dogs in Berlin (they'd been eaten and their skins used for leather) did not. Indeed any claims by locals of shortages, hunger or starvation was treated as "hearsay" since "there was no evidence, whatsoever, of scarcity or want in the outward impressions we got." On the contrary, the "mania for dancing" was observed as was the "huge crowd of middle class men and women" in the local bars "… waltzing and foxtrotting and drinking expensive wines." [33]

[33] See "The Great Disorder" by Gerald Feldman, Ch 3

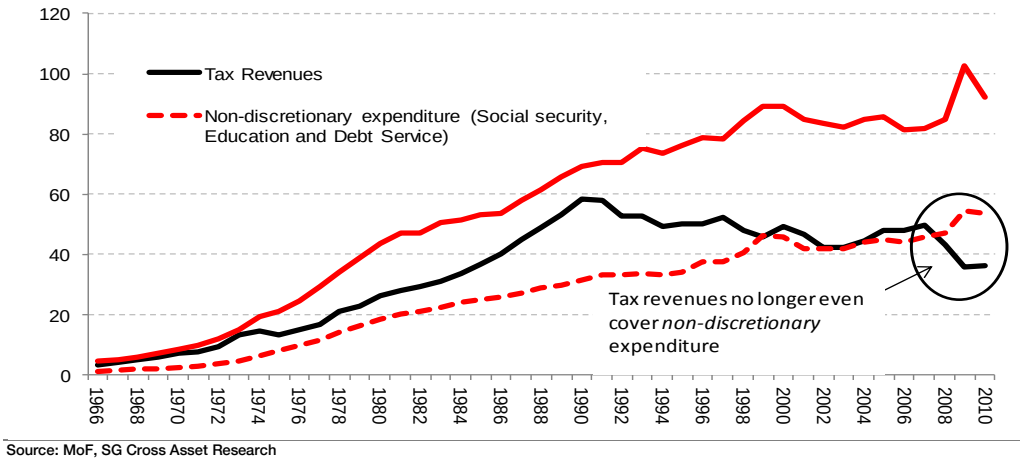
The officers came to the calamitously incorrect conclusion that fears over the stability of Germany were exaggerated and partly due to this anecdotal 'evidence' Britain would soon back French demands for reparations which were so burdensome, historians now consider them the *"continuation of war by other means."*[34] Less than twenty years later the world would be at war again. So much for anecdotes …

I only bring this up because in various conversations with clients over the last few months one theme that has surfaced a few times now is how rich Japan feels, how busy the restaurants and thoroughfares are and how well dressed and polite the begadgeted locals are. Surely the pleasant day to day rhythm of Japanese life is incompatible with the suggestion that Japan's government's balance sheet is bust and its government bonds toxic? And how can any government be insolvent when it can borrow in the market at 1%?!

Well for starters, it's very dangerous to use what the market is saying as any sort of definitive truth. A few years ago the market was saying Greece sovereign credit was basically as sound as Germany's, and that lending 125% of a home's value to sub-prime borrowers was perfectly sensible.

But anyway, a visit to the glitzy districts of Tokyo won't show that the so-called *precariat* – the "precarious proletariat" without job security or social security entitlement – has mushroomed to 20 million or 34% of the labour force; that suicide is now the leading cause of death[35] among young men aged 20-44; or that 56% of 15-34 year olds need outside supplements[36] to their salaries to cover mere living expenses. Neither will it show that young men aren't the only ones who need help to pay for the basics: the Japanese government itself no longer manages to cover its bare necessities with revenues and must borrow just to cover debt service, social security and education (see chart below).

Japan's tax revenues don't even cover the basics



Source: MoF, SG Cross Asset Research

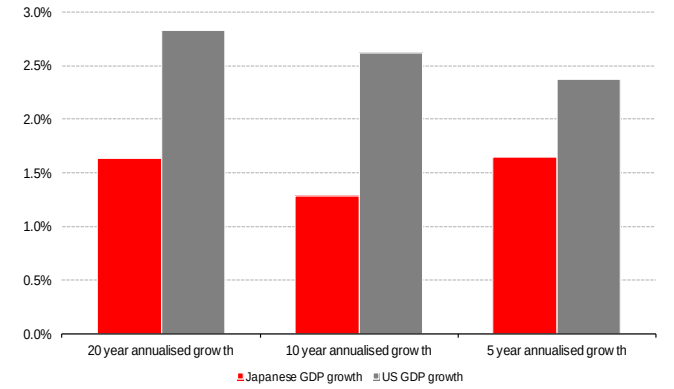
Tax revenues (black line) have been in decline since deflation set-in in the 1990s and most observers seem to have concluded that the problem is therefore a lack of growth. If economic growth can be revived, tax revenues will pick up and the fiscal hole will be plugged. The best way to revive growth is one of the favourite topics of economists everywhere: "almighty fiscal stimulus" says Richard Koo; "raise inflation expectations" says Paul Krugman; "who cares?" say the rest of them, "just break this entrenched deflationary psychology which discourages private sector spending, and encourages excess saving." Fix that macroeconomic malfunction and you'll fix everything else, they say ...

[34] See Sally Marks "Central European History" page 338
[35] Japan: ending the culture of the 'honourable' suicide – guardian.co.uk 3 August 2010
[36] Most Young Japanese Workers Need Help From Their Parents to Pay The Bills – bloomberg.com 3 September 2010

The malfunction is clear for all to see. The following chart (left panel) shows how sluggish Japanese GDP growth has been since the bubble burst … but how confident are we that our economists have diagnosed the cause of the malfunction correctly? **The chart on the right shows that the growth in Japanese real GDP *per worker* has outpaced that of the US over the last five and ten years. If things are so bad in Japan, how come each worker has grown output more than his/her American counterpart?**

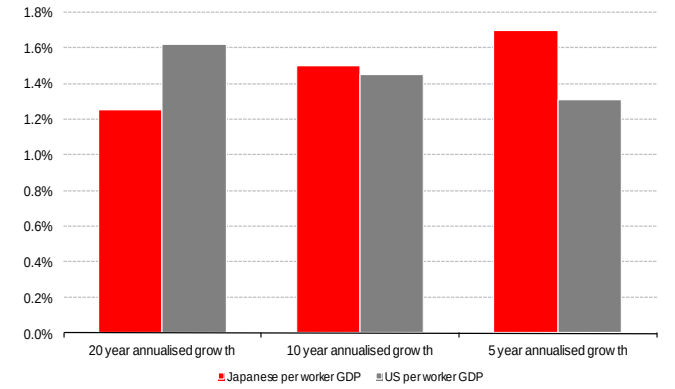
Maybe Japan's macroeconomic malfunction has actually been a *demographic* compression, and maybe no particular policy – fiscal or monetary, conventional or unconventional – will 'normalise' Japan because Japan is actually already behaving perfectly normally. Maybe Japan is what economies which demographically peak look like.

Japan's real GDP growth has lagged that of the US …



Source: SG Cross Asset Research

… but *per worker* real GDP growth has grown *faster*



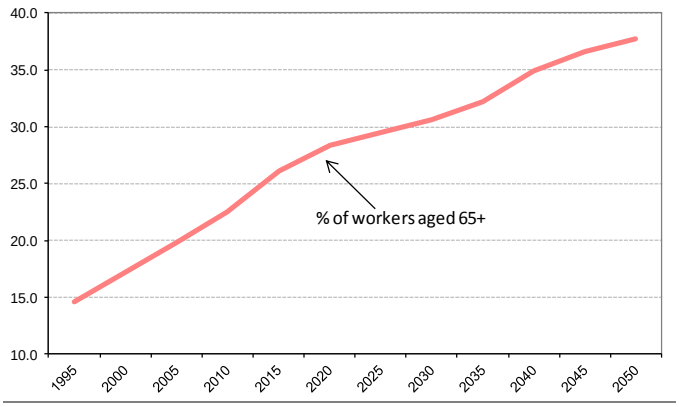
Source: SG Cross Asset Research

For all I know, Keynesians might be even right in thinking policy makers can fiscally jolt economies back to life, allowing them to recover back to their 'default mode.' But their assumption is that 'default mode' is positive growth. But what if it isn't? What if the 'default mode' is falling output because the population is declining? Japan might just have spent the best part of twenty years trying to fiscally stimulate its way out of a demographic compression. If this is correct, and population decline has blown the hole in Japan's government balance sheet there's still plenty of damage in store because the demographic compression isn't over yet.

Retirees *dis*save (household surplus as % of disp income) …

Source: Charles Horioka

… and the share of retirees is inexorably rising

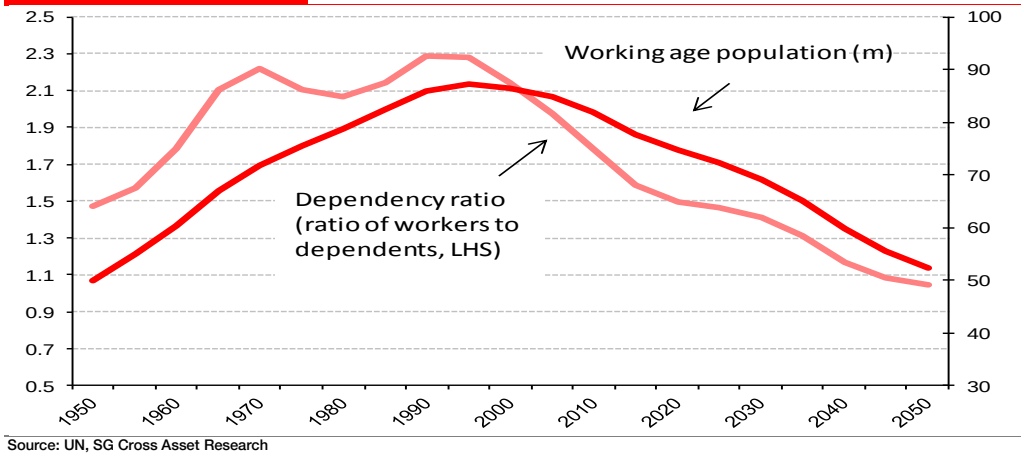


Source: UN, SG Cross Asset Research

But it isn't just government revenues which are hit by demographic decline. The government's ability to fund itself will also be effected since government deficits are funded by Japanese household savings and as households retire they spend their savings. The above chart (left panel) shows savings ratios (actually, "surplus" ratios) as a share of disposable income for various age cohorts and shows that old workers save a lower share of their disposable income

than average, while retirees have negative savings ratios. As the population continues to age (right panel) the savings ratio will be increasingly pulled down, leaving less available capital to lend to the government.

Demographic crunch will intensify from here

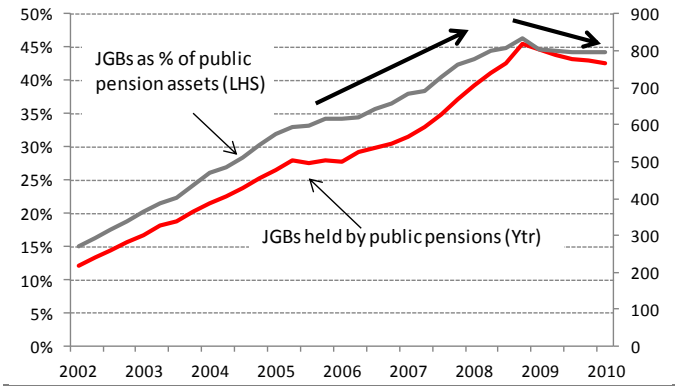


Source: UN, SG Cross Asset Research

At some point, there won't be enough household savings to recycle into the JGB market. The IMF estimate that by 2015, gross government debt will be larger than gross household financial assets. They can't know that, of course. All they've done is extrapolate current trends. But is that such a bad forecast? Is there any indication that those trends are set to change? When current PM Naoto Kan said he'd double consumption tax, his party were routed in July's upper-house elections. Since then, he's been challenged for the leadership by Ichiro Ozawa whose fiscal policy seems to be 'more of the same' (was it Einstein who defined insanity as repeating something over and over again, each time expecting a different result?!)

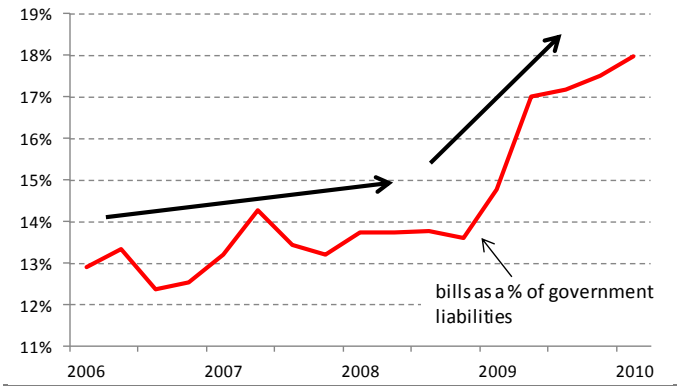
But when will that 'some point' be? When will the government no longer be able to fund itself at economic rates (even at 1% yields, debt service is expected to come in at around 43% of revenues by 2010!). I wish I knew, but I don't see how you can. Most investors I speak to think that even if there is a problem it won't blow up for some time …. but doesn't that imply they know *when* (i.e. a while from now) and how does anyone know that?

Public pension fund selling JGBs



Source: BoJ, SG Cross Asset Research

… while the govt increasingly relies on bills to fund itself



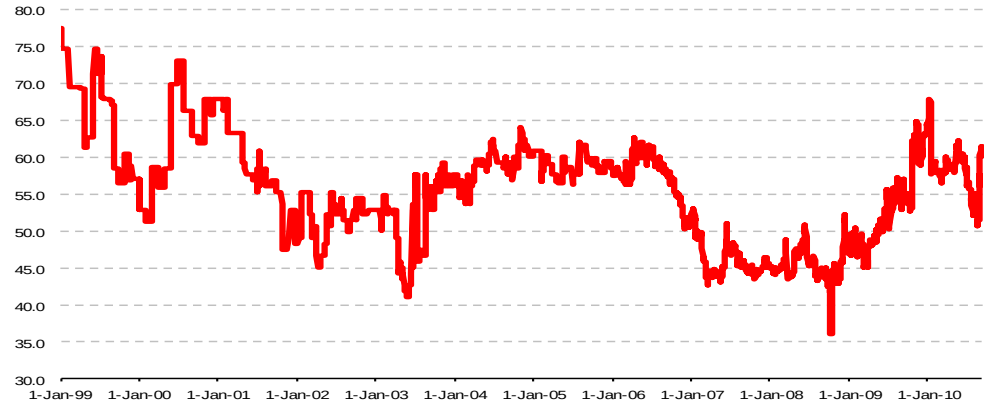
Source: BoJ, SG Cross Asset Research

We know the single biggest holder of JGBs, the GPIF is selling them. They've been very open[37] about it, but you can see it in the Flow of Funds data too (top chart left panel). The reason they're selling them is that they have to pay for the growing number retirees, a trend we know will continue from here. And we know from Reinhart and Rogoff that one of the early warning

[37] GPIF doesn't need investment professionals – ipe.com 24 June 2010 (free registration)

signals of government funding pressure is a narrowing of the debt maturity. The vehicle of choice for the Japanese government has been bills, not JGBs (top chart right panel).

What to do? Cheap insurance: ATM swaptions on 10y yields 10y forward (bps p.a.)

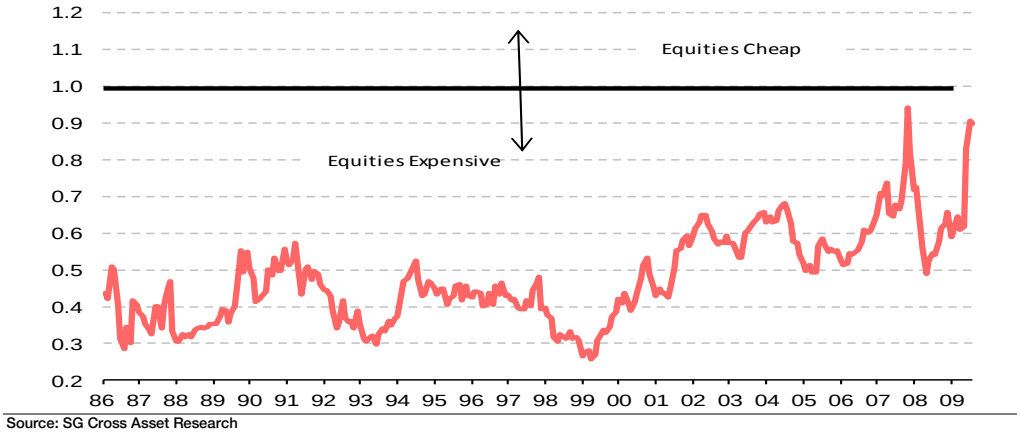


Source: SG Cross Asset Research

What should we do? A bankrupt government implies default via inflation, which isn't what people think when they think of Japan, but who expected such deflation 20 years ago? But the problems should first show up in the JGB market. A potential 'grey swan' with unforecastable timing argues for insurance, but there's no point buying insurance unless it's cheap. The chart above shows ATM swaptions on the 10y yield 10y forward. They've spiked recently because of Ozawa's manoeuvres but at 60bps still seem reasonable to me. Of course, you'd want to go well out of the money, but my assumption is that if the ATMs are reasonably priced, the OTMs will be too (I'm looking into this but haven't managed to get anything firm in time to publish).

Of course, hunting around the more exotic corners of the yen swaps market won't be everyone's cup of tea. But I'm wondering if we should be warming to the idea of Japanese stocks here. That might sound unintuitive given what I've written above but for the first time in decades they're beginning to look cheap (see chart below), they're *very* unloved, and if I'm right that the only realistic future buyer of JGBs will be the BoJ, there might even be a catalyst too … but that's a topic for another note. Look out for it in a few weeks.

What to do part 2: Japan stock market ratio of Intrinsic Value to Price (IVP ratio>1 = cheap)



Source: SG Cross Asset Research

Nikkei 63,000,000? A cheap way to buy Japanese inflation risk (15/10/2010)

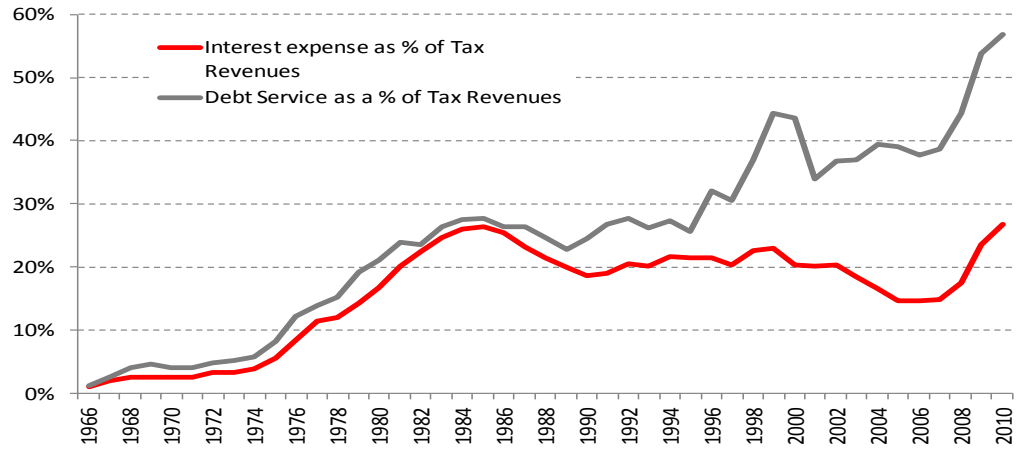
Japan is no Zimbabwe. Neither was Israel, yet from 1972 to 1987 its inflation averaged nearly 85%. As its CPI rose nearly 10,000 times, its stock market rose by a factor of 6,500 … Regular readers know that I don't generally make forecasts, but that every now and then I do go out on a limb. This is one of those occasions. Mapping Israel's experience onto Japan would take the Nikkei from its current 9,600 to 63,000,000. This is our 15-year price target.

▪ Despite the Japanese government paying a mere 1.5% on its bonds, interest payments amount to a hair-raising 27% of tax revenues. Including rolled government bills (which Japan's MoF defines as debt service) takes the share to an eyebrow-singeing 57% (see chart below).

▪ Any meaningful repricing of Japanese sovereign risk would push yields to a level the government would be unable to pay. Moreover, since the domestic financial system is loaded up to the eyeballs with JGBs (first chart inside), a crisis of confidence there would soon transmit itself beyond the public sector.

▪ So the path of least political resistance will presumably be to keep yields at levels which the Japanese government can afford to pay, and to stabilise JGBs at levels which won't blow up the financial system. This will involve the BoJ buying any/all bonds the market can no longer absorb, probably under the intellectual camouflage of "a quantitative easing program" aimed at breaking Japan's deflationary psychology. Economists might applaud such a step as finally showing the BoJ was "getting serious about Japan's problems". In fact, it will be the opening chapter of a long period of inflation instability. [38]

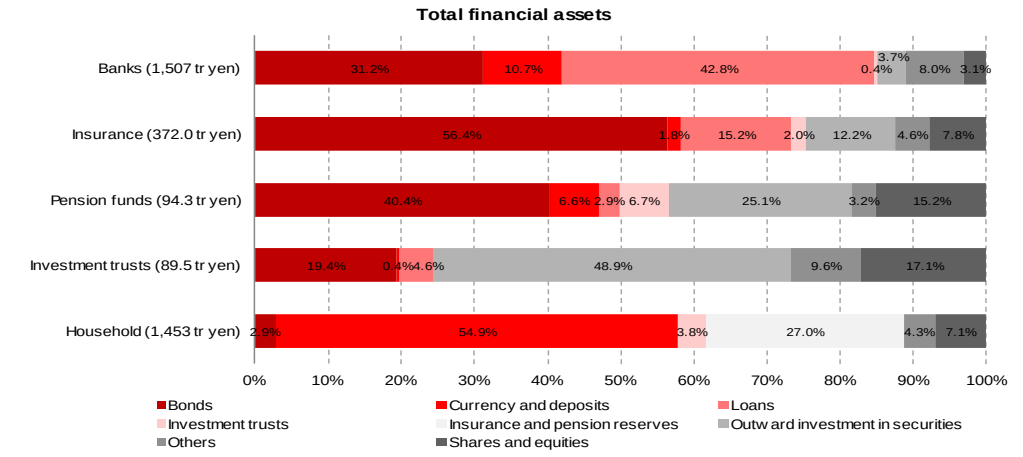
Yikes! Japan's debt payments are eating up a *lot* of tax revenues …



Source: SG Cross Asset Research, Japanese MoF

[38] Albert and I have contributed with a group of other strategists and hedge fund managers to a book we hope will raise some much-needed money for charity. It's called "The Gathering Storm" and has a collection of essays with views on the recent crisis and thoughts about the next ones. It's an easy read and we hope an enlightening one too, and can be purchased at www.thegatheringstorm.info

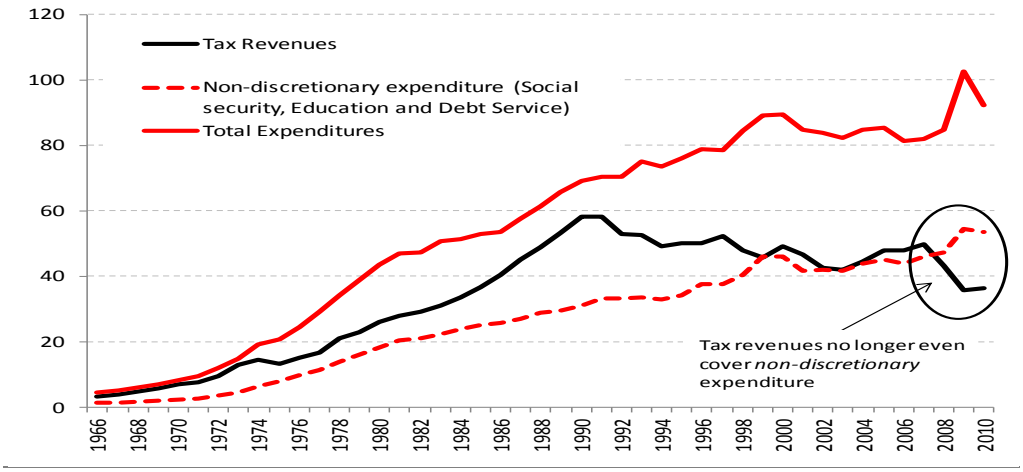
Japan's financial system depends on JGB stability (while Japanese equities are under-owned!)



Source: SG Cross Asset Research, BoJ

It is often pointed out that in Japan's aging population there is no constituency for inflation, which is why there is insufficient pressure on the BoJ to monetise. However, the same demographic dynamic ensures there is no political constituency for reductions in health expenditures. Yet Japan's tax revenues currently don't even cover debt service and social security, persistent and growing fiscal burdens. Therefore, once the BoJ is forced into monetisation of government deficits, even if only with the initial intention of stabilising government finances in the short term, it will prove difficult to stop. When it becomes the largest holder and most regular buyer of JGBs, Japan will be on its inflationary trajectory.

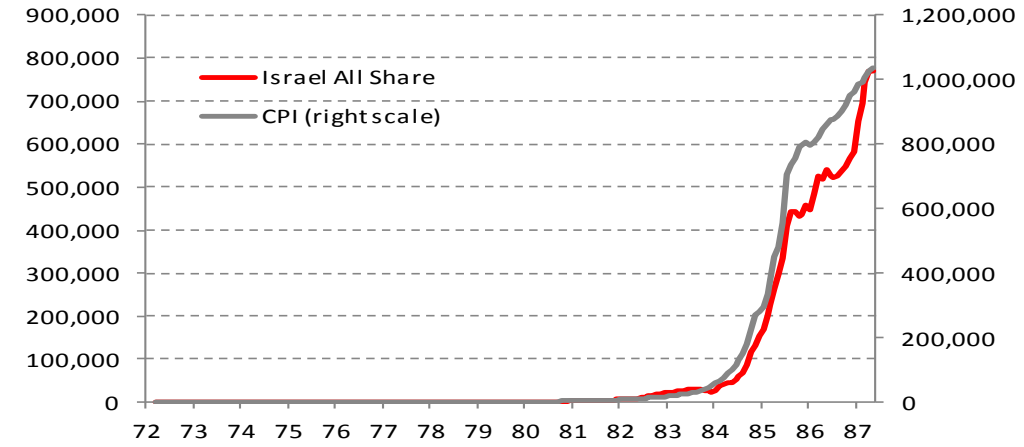
Japan's government tax revenues no longer cover its bare necessities



Source: Japanese MoF. SG Cross Asset Research

It is said that where democracies are developed and institutions robust, hyperinflations don't take hold. In the 1970s, for example, while developed economies exhibited a degree of the political breakdown that usually fosters high inflation, their experience was relatively mild in comparison to the more pathological inflations seen in politically malfunctioning economies such as Zimbabwe or Weimar Germany. Problematic 1970s inflation in the developed economies was controlled before it became too problematic … except in Israel, which saw its problematic 1970s inflation explode into a hyperinflationary 500% by the mid 1980s.

Israeli shares exploded in nominal terms during its 1980s inflation crisis (1972=100)



Source: SG Cross Asset Research, GFD

Think about that for a moment. Japan is an advanced economy, a developed democracy and certainly no Zimbabwe. But Israel was all of those things too. It simply found itself politically committed to a level of expenditure – military and social – which it couldn't fund. Instead of taking the politically unpalatable course of cutting that expenditure, it resorted to the tried-and-tested tactic of buying time with printed money. Between 1972 and 1987 Israel's CPI rose by a factor of nearly 10,000. Inflation averaged around 84% and peaked at an annualised 500% in early 1985.

In real terms equity prices fell (chart above), failing to keep pace with the rise in the CPI. But in nominal terms they *exploded* rising by a factor of around 6,500 over the period, in keeping with experiences of nominal share indices in Argentina, Brazil or Weimar Germany during their inflationary crises. A couple of clients have told me they think the trigger for a forced BoJ monetisation of the government's balance sheet *can only occur* when Japan starts running current account deficits, pointing out that sovereign defaults have only occurred in current account deficit economies. So long as Japan maintains its current account surplus it will be safe. But I'm still not convinced why this *must necessarily* be the case just because it has been in the past. Current account deficits would be critical for government funding if the swing government bond investors were from overseas, which they nearly always are. But in Japan today they're not. The households effectively are. Why should the current account deficit even be relevant to what is effectively an internal issue?

Reinhart and Rogoff say that one of the tell-tale early signs that governments are struggling to maintain market confidence is when debt maturities decline. This is what is happening in Japan today. And the BoJ announced last week (to loud acclaim) that it was going to adopt a more Anglo-Saxon style of quantitative easing. The process is arguably underway. My concern is that once the door to QE has been passed through, it slams shut behind.

The truth is we can't know when this will happen. We suspect only that the writing is on the wall, and the further out we look, the bigger and bolder that writing becomes. But if Japan was to follow a similar trajectory to Israel's, the Nikkei would trade at around 63,000,000 (63 million) by 2025. How much do you think 15y 40,000 strike call options would cost? I'm not sure either (though I'm sure I could get interested parties a quote), but call options are generally cheap, and "melt-up" calls especially so, and I'd be surprised if you couldn't buy that risk for a few basis points a year. Is there a cheaper way to hedge Japan's coming inflation?

Buy Japan, and prepare to buy with both hands
(17/03/2011)

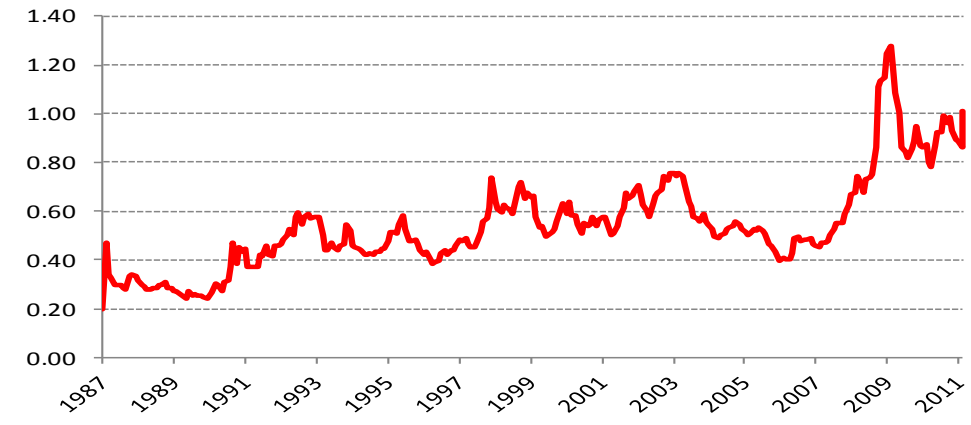
I've been mulling the valuation of Japanese equities for a while now and haven't been able to make up my mind. But as they have just dropped the best part of 20%, and with potentially more to come, it's becoming easier. Japan is beginning to look cheap.

▪ I'm never quite sure what to do during situations like that now unfolding in Japan. Not just because it's so fast moving. But because we all know people in Japan and have friends there we're worried about. And while the media beam images of families with relatives missing after the tsunami, with no heating and no water, and now facing a nuclear meltdown, trying to interpret those flickering market prices with the cold detachment of a profit-seeking investor produces a very strange feeling indeed. But the fact is, there are those out there far smarter than me who thought the Japanese equity market was at bargain basement levels before the earthquake. And while I wasn't sure I was in their camp a few weeks ago, now that prices have fallen by the best part of 20%, the decision is now easier to make.

▪ Just to be clear, the reason I haven't been so keen on Japanese equities has been on valuation grounds alone. It had nothing to do with any concerns I have over the government's solvency. Without going through those arguments again here, I simply point out that a government default (inflationary or otherwise) is merely one possible scenario of several (and frankly, I hope it doesn't happen). It's not inevitable that it will come to pass because there are lots of things the Japanese government can do to avoid it. But neither is it inevitable that the Japanese government will do them. What's important is that at current prices across a range of derivatives, the risk can be hedged at attractive prices. And if we can hedge that tail, we're free to focus on the more central part of the distribution. We can then consider boring old investment valuations with peace of mind.

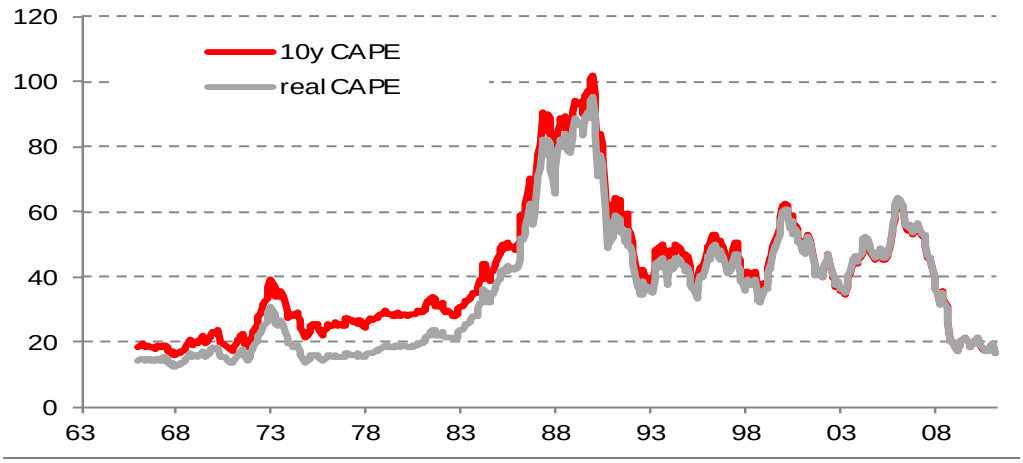
▪ And valuations are beginning to look attractive. When you say to people that Japan is beginning to look cheap, a common reply is that it's been cheap for ages. I disagree. The following chart shows Japan's intrinsic value to price ratio (IVP). Only in the past year or so has the Japanese equity market traded at a price broadly consistent with intrinsic value.

Japanese equity market IVP ratio



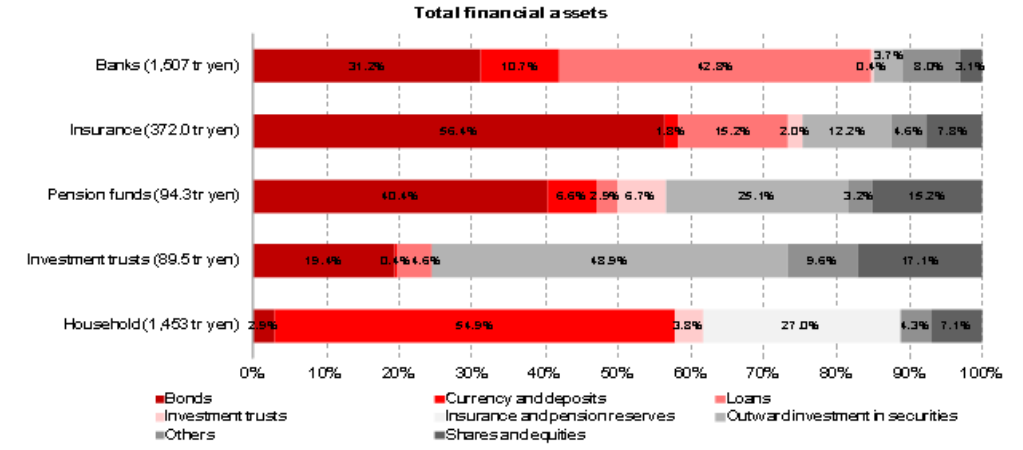
Source: SG Cross Asset Research

Shiller's cyclically adjusted PE ratio (CAPE) for Topix now 16x



Source: SG Cross Asset Research

Japanese equities are under-owned: assets held by financial institutions by asset class



Source: SG Cross Asset Research

A similar picture emerges using Shiller's cyclically adjusted PE ratio (top chart above), which with the Topix at around 800 now stands at roughly 16x. And while I worry that JGBs are over-owned within the financial system, the flipside is that Japanese equities are massively under-owned (second chart). Japanese stocks are starting to look attractive.

That's not to say they won't soon look more attractive. Who knows how the current situation will play out? Something I've found striking watching the endless interviews with nuclear experts on the various TV news shows has been their confidence that there won't, there *can't* be another Chernobyl. The reactors and safety mechanisms aren't even comparable, they say and I'm sure they're correct. I know even less about nuclear physics than I do about macro economics. But I do know that people mistake understanding the causes of a past event to understanding *all possible causes* of that event. So I've been watching these experts and wondering, are they telling us that another Chernobyl cannot happen because it absolutely cannot happen under *any circumstances*, or are they falling into the trap of thinking that there won't be a Chernobyl-like outcome because it's not a Chernobyl-type reactor? If so, doesn't the possibility that a Chernobyl type leak could happen in a completely new and hitherto unanticipated way remain open?

I have no idea. But as the story unfolds and the threat to the number four reactor intensifies, I'm beginning to fear that it's the latter. Let's hope and pray this doesn't happen. But if it does, we could see another 20% off the Topix in very short order. At that point we should be buying with both hands … for now, here's a list of Japanese stocks trading at or below their estimated intrinsic value. (This is merely a screen output, and yes, we are aware of the first name on the list. For more fundamental analysis of the names included speak to Lisa Fox, the head of sales at Ji-Asia, our joint venture research partners in the region).

Japanese companies with estimated intrinsic value higher than current price (IVP>1); mkt cap >$5bn

Company Name	Mkt Cap ($bn)	Class	10y med RoE	BPS	Intinsic Value PS	Closing Price	IVP	Piotroski Score
Tokyo Electric Power Co. Inc.	42,381.8	Electric Utilities	8.4	1,828	2,108.1	798.0	2.64	7.0
Ricoh Co. Ltd.	9,544.6	Office Electronics	10.2	1,341	1,992.3	850.0	2.34	8.0
Mitsui O.S.K. Lines Ltd.	7,765.1	Marine	22.1	553	1,076.5	460.0	2.34	5.0
JFE Holdings Inc.	16,488.3	Steel	17.5	2,690	4,603.2	2,170.0	2.12	6.0
Toyota Tsusho Corp.	6,322.6	Trading Companies & Distributors	11.7	1,675	2,224.8	1,163.0	1.91	5.0
Sekisui House Ltd.	6,689.8	Homebuilding	4.8	1,060	1,374.9	756.0	1.82	4.0
Nippon Telegraph & Telephone Corp.	65,580.0	Integrated Telecommunication Services	7.2	5,886	6,216.5	3,610.0	1.72	7.0
Nippon Yusen K.K.	7,363.2	Marine	10.7	389	485.2	311.0	1.56	3.0
Sega Sammy Holdings Inc.	5,833.0	Leisure Products	25.1	943	2,209.4	1,447.0	1.53	8.0
Itochu Corp.	15,923.9	Trading Companies & Distributors	17.4	695	1,169.3	778.0	1.50	5.0
Sumitomo Corp.	18,283.3	Trading Companies & Distributors	10.4	1,267	1,578.2	1,065.0	1.48	6.0
Kyushu Electric Power Co. Inc.	11,076.1	Electric Utilities	7.5	2,266	2,507.9	1,709.0	1.47	7.0
Sumitomo Metal Industries Ltd.	11,444.5	Steel	9.9	179	227.3	162.0	1.40	3.0
Aeon Co. Ltd.	9,473.7	Hypermarkets & Super Centers	5.4	1,100	1,172.1	875.0	1.34	6.0
Sankyo Co. Ltd.	5,348.3	Leisure Products	11.1	4,238	5,643.8	4,230.0	1.33	8.0
Nippon Steel Corp.	21,960.7	Steel	6.7	293	322.9	243.0	1.33	3.0
Nissan Motor Co. Ltd.	41,634.7	Automobile Manufacturers	20.7	618	953.5	733.0	1.30	6.0
Secom Co. Ltd.	11,010.3	Security & Alarm Services	10.1	2,562	4,692.8	3,625.0	1.29	7.0
Kao Corp.	14,371.4	Personal Products	13.2	1,056	2,523.7	1,974.0	1.28	6.0
Mitsubishi Corp.	44,293.1	Trading Companies & Distributors	12.4	1,862	2,524.0	2,029.0	1.24	6.0
Tohoku Electric Power Co. Inc.	11,723.7	Electric Utilities	5.8	1,790	1,844.4	1,499.0	1.23	7.0
Toppan Printing Co. Ltd.	5,702.9	Commercial Printing	3.6	1,159	718.8	586.0	1.23	8.0
KDDI Corp.	29,272.9	Wireless Telecommunication Services	12.5	453,364	599,491.6	504,000.0	1.19	5.0
NEC Corp.	6,998.3	Computer Hardware	1.3	304	208.1	175.0	1.19	6.0
Ajinomoto Co. Inc.	7,987.2	Packaged Foods & Meats	6.3	864	987.6	840.0	1.18	8.0
Chubu Electric Power Co. Inc.	20,248.2	Electric Utilities	7.2	2,147	2,349.4	2,000.0	1.17	7.0
The Chugoku Electric Power Co. Inc.	7,831.6	Electric Utilities	6.0	1,855	1,925.2	1,670.0	1.15	7.0
Daikin Industries Ltd.	9,880.9	Building Products	12.3	1,705	2,516.7	2,205.0	1.14	6.0
Sony Corp.	35,112.8	Consumer Electronics	4.0	2,955	2,838.9	2,515.0	1.13	6.0
Toyota Motor Corp.	140,560.4	Automobile Manufacturers	13.2	3,303	3,676.3	3,270.0	1.12	7.0
Osaka Gas Co. Ltd.	7,950.8	Gas Utilities	8.1	310	330.7	298.0	1.11	8.0
Canon Inc.	58,206.7	Office Electronics	14.2	2,178	3,800.6	3,470.0	1.10	6.0
Shiseido Co. Ltd.	7,992.6	Personal Products	6.0	877	1,582.6	1,452.0	1.09	6.0
Yamada Denki Co. Ltd.	6,930.7	Computer & Electronics Retail	14.4	4,297	5,554.6	5,240.0	1.06	7.0
West Japan Railway Co.	7,871.2	Railroads	9.5	345,568	325,252.1	308,500.0	1.05	5.0
Sumitomo Metal Mining Co. Ltd.	10,014.1	Diversified Metals & Mining	9.1	1,044	1,321.5	1,254.0	1.05	7.0
Kansai Electric Power Co. Inc.	23,721.2	Electric Utilities	6.5	1,972	2,090.6	1,994.0	1.05	8.0
FUJIFILM Holdings Corp.	16,522.6	Electronic Equipment & Instruments	3.8	3,574	2,309.9	2,250.0	1.03	5.0
Dai Nippon Printing Co. Ltd.	8,465.5	Commercial Printing	4.0	1,422	901.3	880.0	1.02	7.0
East Japan Railway Co.	26,881.0	Railroads	10.8	4,501	4,496.7	4,405.0	1.02	5.0
Toyota Industries Corp.	10,329.9	Auto Parts & Equipment	3.5	3,396	2,373.8	2,366.0	1.00	5.0
Mitsubishi Heavy Industries Ltd.	14,981.5	Industrial Machinery	1.9	381	304.8	304.0	1.00	6.0

Source: SG Cross Asset Research, Factset

Asia

Travels in Asia: bubbles in the air, bubbles on the ground (19/11/2010)

It's the second week I've been marketing here in Asia with Andy Lapthorne. It might be that we're too used to gloomy Europe, but no one seems too worried about much out here. Yet there is much to worry about. The near-term risk of a bubble is very real. EMs should be tightening policy aggressively. They're not. This is not bullish. Bubbles are dangerous. Failure to tighten now adds to the risks of turmoil later. And China's decision to combat food price inflation with price controls adds to that risk.

■ But first Japan, where we started out. Tokyo is always great city to go to and the highlight of the trip so far has indubitably been the dinner organised by the famous Jim McGinnis at a Chinese restaurant and attended by most of the wizened old luminaries of the Japanese market, including the legendary Peter Tasker.

■ My 63,000,000 fifteen-year 'forecast' for the Nikkei turned out to be a good place to kick off the discussion. Tasker thought there is much more tax revenue to be squeezed from the economy than meets the eye, and cited OECD numbers to back up a very plausible argument. Others pointed to the net foreign asset position, which I suppose is a variant of Tasker's point.

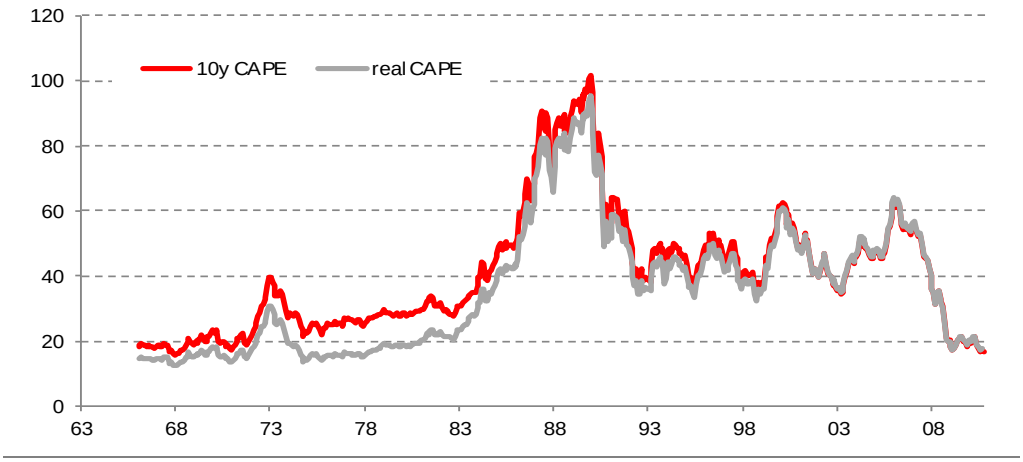
■ I think it's fair to say that most viewed the potential for an inflationary dénouement to the government's balance-sheet mess as a definite risk, though they thought such a scenario highly unlikely. I hope they're right. I don't want to see an inflation crisis in Japan. And history so far hasn't been kind to anyone foolish enough to write off the Japanese. But then, history also shows that nations rise and nations fall...

■ Perhaps more selfishly, I worry that Japan is a leading indicator for the rest of us. One of the things that struck us most while wandering around the place was the absence of energy. The bustle and zip I remember from my first visits to Tokyo was gone. So is the hope that things would soon turn around. There are more grey hairs than black … and people are asleep everywhere! In Starbucks, in restaurants, on the metro, on the buses and even in the shopping malls … Tokyo feels like a city which is sleepwalking.

■ Japan is the most rapidly aging society in the world and I believe the demographic contraction, which is only now beginning, has been the single most important factor in stretching the government balance sheet to breaking point. Is this what the future looks like? There is no panic. There is no sense of crisis. But neither is there much hope. Just resignation, apparently.

A great time for contrarians to invest? Hmmm … I'm sure there are some good stocks around, but the Japanese market isn't cheap. The Shiller PE for the Topix currently stands at around 20x, about the same as that for the S&P500. If 20x is too rich for the S&P500 (historically you've made virtually no real long-term returns investing at such levels), its most definitely too rich for Japan, where the population is projected by the UN to shrink at an annual rate of -0.7% over the next forty years. I think someone recently argued that Japan was the unacknowledged 'Tiger of Asia.' Andy and I thought it looked more like a stuffed tiger.

Japan 10Y CAPE in nominal and real terms



Source: SG Cross Asset Research, GFD

The contrast with Hong Kong couldn't be more stark. Frankly, it's been a nice change to be surrounded by such optimism! It caught us out though. Investors here have generally been disinterested in the developed market's problems. With one or two exceptions, the vast majority of people we met had little interest in the instability which might be unleashed by a more serious run on the debt of a larger Eurozone government than Ireland or Portugal, or the de-securitization of allegedly fraudulently foreclosed properties back onto US banks' balance sheets. Neither are they worried about the inflation risks that are building from the ballooning of developed market government balance sheets

Not that Andy or I have any real idea how those events will play out (though we suspect badly). All we know is that since developed market stocks aren't cheap they're more vulnerable to such risks. Some cash isn't a bad thing to be holding here. True, you're getting a negative return on it. You're effectively helping in your own small way to fund QE2. But holding cash here should be thought of as insurance giving the holder the option to buy cheap assets, and insurance comes with a price.

But I digress. The apparent disinterest in the seriousness of developed market problems is reflected in the media, which aren't filled with stories of impending doom like they are back home. There is no talk of fiscal crisis or of painful deleveraging. There is no scapegoating of bankers' greed or politicians' incompetence … at least none for the moment because such things feature in post-bubble economies …

Instead the papers are filled with tales of another record property deal (a 400ftsq property outside the SG office in central Hong Kong just sold for HK$14m; The Economist newspaper

recently ranked Hong Kong as the second most expensive property market in the world, calculating it to be 58% too expensive.

Last weekend's Sunday Morning Post reported that Sotheby's and Christies will raise more money from wine sales in Hong Kong this year than in London and New York combined. Vintage bottles are "better than stocks" according to the piece. And on the mainland, nearly four hundred years after the Tulipmania, speculation is said to be rampant in … er … caterpillar fungus, of all things.

Like the other derivative plays on China and India, (e.g. Brazil, Canada, Australia) HK had a 'good' crisis. So they feel confident that they can cope with whatever fate throws their way … fair enough … but having a 'good crisis' can be a mixed blessing. The US had a very good EM crisis in 1997/98 only to fall victim to the tech bubble; Japan had a very good crisis in 1987 when world stock markets crashed, and was rewarded with the greatest real estate bubble in financial history a few years later; the US had a good crisis in the mid 1920s, as the UK struggled with the self-imposed deflation of a painfully overvalued exchange rate, only to be flattened by the stock market crash of 1929.

Why might having a 'good' crisis prove such a poisoned chalice? Perhaps because countries pay more attention than they should to what's happening to their neighbours, keeping monetary conditions lower than the domestic climate would ordinarily merit. This was certainly true of Ben Strong's US interest rate policy in the mid-to-late 1920s when there were difficulties in Europe; it was true of the BoJ's monetary stance following the crash of 1987; it was true of the Greenspan's emergency stimulus following the EM crisis of 1997/98; it is true of EMs today, running policy which is overly calibrated to what's happening abroad.

It feels odd defending beleaguered Ben Bernanke and his central bank brethren, but they're not the only 'villains of the piece' here. EMs have more robust growth, faster productivity gains and an altogether brighter future. Their currencies should be allowed to reflect this. China has negative real interest rates and a deeply undervalued exchange rate with which the other Asian economies are trying to maintain parity. The Fed might be stoking the flames, but the EM's are doing themselves no favours by not tightening much more aggressively here.

What effect will continued financial problems in the developed markets have on EM? Ironically, I think the worse developed markets get, the stronger the emerging-market narrative becomes. EM is the antithesis of DM, after all. Solvent governments, better demographics, harder working populations, etc.

So, much as I fret about the various problems in developed markets, I'm not sure those problems will be enough to puncture the emerging-market narrative, although they'll certainly set EMs back from time to time. The only thing that will remind investors there is profound risk as well as very attractive growth in EMs will be a problem within the EMs themselves, and the most obvious risk here is China. Indeed, perhaps the most surprising (and worrying) feature of our trip so far has been the almost universal conviction that China cannot hard land.

Its administrative controls work with far more precision than the one-dimensional interest-rate adjustments our central banks use, we are told: when the authorities tell investors to buy, they buy; when they tell them to stop, they stop. Today the authorities are adjusting reserve requirements and restricting multiple-home ownership as well as raising interest rates as we speak. Moreover, the regulators are terrified of a bubble and acutely alert to the danger.

But, but, but … but: regulators have rarely been a match for the folly of mobs intoxicated by the prospect of instant riches. And if the Chinese authorities exert such precise control over the behaviour of their speculative classes, why haven't they been able to cool down the credit

inflation this year, which remains well above target? Why haven't they been able to eradicate the underground banks funnelling lending into ventures that are officially forbidden? And why haven't they cooled land price inflation, which remains rampant? The authorities have been telling investors to stop buying property all year, yet still they buy.

Is it possible they've… (sharp intake of breath) already lost control? And if so, who's to say what will happen if the asset inflation goes into reverse? Maybe when the authorities engineer the slowdown they desire and tell investors it's safe to buy again, those investors won't want to buy. In which case a hard landing shouldn't be beyond the realms of imagination.

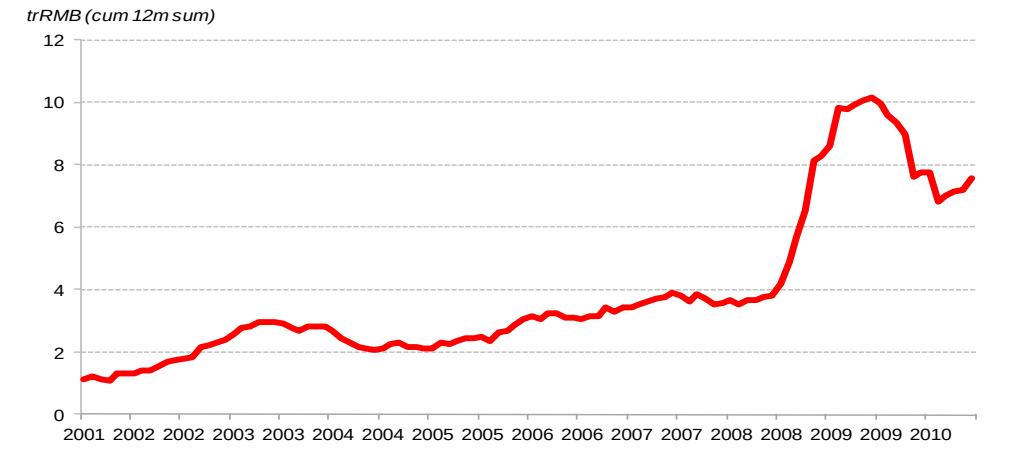
Forget US deleveraging, this represents the largest deflationary risk to the world economy. Yet it was universally dismissed by everyone we flagged it to! As far as I'm aware, no economy has managed to industrialise without hitting a few speed bumps along the way. Some Chinese bumps are overdue and to my mind the question is when, not if.

So when? As regular readers will know, I have no expertise in guessing these things (if only!) But for the very little it's worth, I think we're still a year or two away because I don't think they're tightening fast enough. History suggests the point of maximum danger to be when the authorities react too aggressively to late-cycle inflation, and I don't think we're there yet.

Markets have taken fright that the recent surge in inflation reported last week will bring about such overkill. And that's certainly possible (see the Popular Delusions of September 24th, and soon to be updated for some cheap insurance ideas on this particular 'tail'), but the inflation is currently driven more by food prices. This doesn't make it any less real, but it does ensure a different response, and one that will be aimed specifically at food price controls and probably the scapegoating of merchants.

This is totally inappropriate. Not only do such measures rarely work since they exacerbate the problem by sending food prices even higher – indeed, it makes me even more bullish on agriculture, which is one of my three bubble candidates along with EMs and gold – but price controls on agriculture do nothing to address the key engine in the EM narrative today though – China's credit inflation.

China's credit inflation



Source: SG Cross Asset Research, POBC

Financial historians have shown that every single financial crisis since the 1870s has been preceded by rampant credit growth. So long as China's credit growth continues at its current

pace, aided by the liquidity the Fed is flooding world markets with, and encouraged by artificially low interest rates, the primary risk EMs face today remains that of a bubble.

This might sound a very bullish note on which to end. It isn't. And let me be crystal clear about why: a bubble is not a bullish scenario. It's not bullish for the EM economies themselves, their citizens or for the world as a whole. The fact is all bubbles end in tears. The innocent bystanders who go to work not realising that their jobs derive from unsustainable demand suddenly find they're out of work, through no fault of their own. The investors who believe the hype – generally but not exclusively naïve retail investors – get completely wiped out, or worse find themselves in debt after leveraging into the story. Those who are sceptical, but play along thinking they'll exit before everyone else are rarely successful. And investors who refuse to participate as the bubble inflates face business risk and career risk. Go to Ireland and ask them how they feel about bubbles. They'll tell you a bubble is a curse, not a blessing.

China's 'Great Suppression': Suicidal monetary policy and systemic fragility (07/06/2011)

For an idea of the magnitude of the distortions China's suicidal monetary policy is causing, look no further than the report on Reuters last week that China's central government has agreed to bail out local governments by as much as $463bn, or around one-and-a-half TARPs when adjusted for GDP. This is the starkest evidence yet of China's 'industrialisation by suppression.' Yet numerous past experiences have clearly demonstrated suppression buys only short-run stability at the cost of long-run fragility. The world should be worried.

■ Booms fed by excess demand, fuelled by capital markets distorted by policymakers beguiled by their own hubris … well, they're nothing new, are they…? Economists used to talk about the 'natural' rate of interest, which was a rate of interest equal to the trend rate of economic growth. Rates above the natural rate would reduce the demand for risk capital, since fewer projects would meet the hurdle rate. But the supply of risk capital would increase because of its attractive high price. Lower demand combined with increased supply would push rates back down to their natural rate. Similarly, rates below the natural rate would increase the demand for risk capital. But since the same low rates would reduce capital supply, rates would be pushed back up towards the natural rate. In other words, the price of capital – i.e. the rate of interest – was supposed to be self-equilibriating like any other market price.

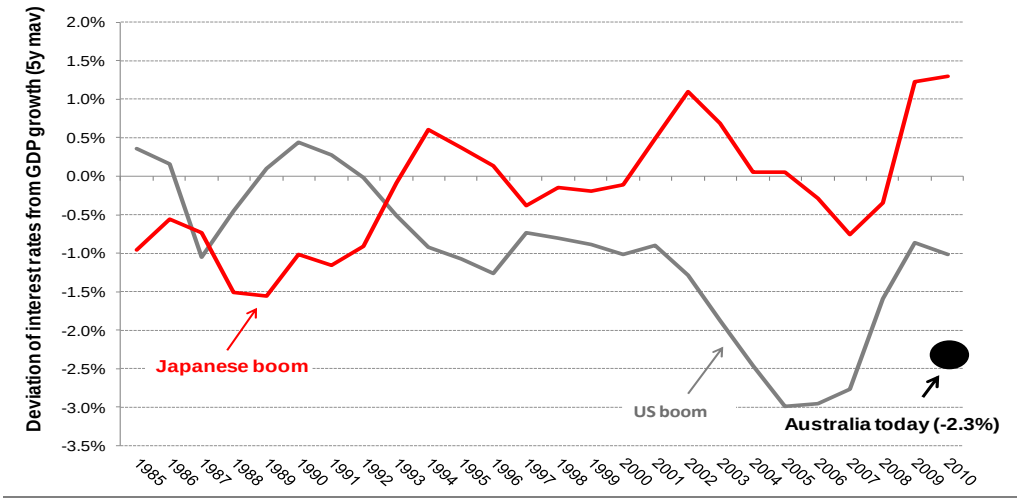
■ But what do markets know, eh? Today it is widely believed that committees of academics, the foremost of which is the FOMC, make better decisions. The markets themselves are not to be trusted with such an important price as that for capital. Consequently, we are as blessed with such committees as we are with the inflationary fruits of their toil and wisdom.

■ In recent decades many such committees have found themselves in difficult situations. After lowering rates for one reason or another, they grew fearful of the instability that might ensue if rates were allowed to rise to their natural rate too quickly. What to do? They pressed their index fingers hard into the temples of their heads, closed their eyes and meditated. They summoned their years of collective experience wrestling with problems as profound as "the computational complexity of rationalising boundedly rational choice behaviour" and "equilibrium theory with satiable and non-ordered preferences" before finally, with furrowed brows and straight faces issuing their pronouncement to lesser members of the financial community: it would be much 'better for the economy' to keep the rate of interest below its natural rate.

■ Surely enough, their economies boomed as the demand for risk capital rose. Why would it do otherwise? But since the price of capital was suppressed by these wise committees, rates weren't allowed to rise to their natural levels, so there was no increase in the supply of capital. Who would supply the searing demand for risk capital these wise central bankers were unleashing? Why, the wizards in the financial system! With dazzlingly clever new ways of creating credit, asset prices rose, the economy boomed and more people were tricked into thinking they were talented speculators than was strictly healthy. It was fun while it lasted, at least while no one realised it was just credit inflation. Few knew how much was real and how much was illusory, and fewer cared. Until they did

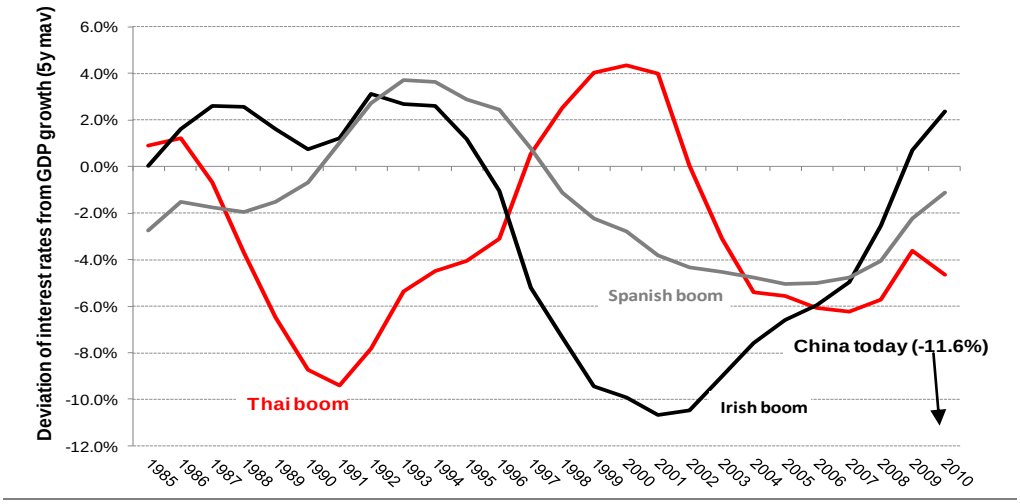
The following chart shows five-year-average deviations of Japanese rates from the 'natural' rate in the 1980s. I don't need to tell you how that ended. It also shows the deviation of US rates from their natural levels over the past decade or so. I don't need to tell you how that ended either. It also shows the current deviation of Australian rates from their natural level. Maybe that's why the lucky country is home to some of the world's most expensive real estate, according to the Economist. But it will end in the same way. Suppression by committee always does.

Some past deviations from natural interest rates …



Our second chart (see below) paints the same picture even more starkly using other countries: Thailand in the 1990s, Ireland and Spain in the mid-2000's. All those episodes had sorry endings, good people tricked by the fraud of suppressed prices, driven to madness by artificially cheap credit, like China today ...

….and here are some even more extreme booms and busts



Source: GFD, SG Cross Asset Research

Of course, China is different. It has unparalleled administrative control over its economy. Therefore, its suppression is greater than anything any industrialising economy has yet managed. But why will suppression work this time? Is having tighter control of the levers the same as having tighter control of the machine? I'm writing this on a plane half way across the Atlantic. If the crew were somehow simultaneously incapacitated and I ended up being nominated to try and fly us to Boston, I'd have tight control over the levers too. But since I have no idea what effect the levers have, I'd still have no control over the machine.

The economic machine is no different. No one really knows how it works, at least not with the precision required to smooth out its natural fluctuations. I don't, you don't, our central bankers don't, and 'the men in grey suits' who 'control' China's economy don't either. Their use of the levers might suppress volatility for a time and give the impression of stability, as it did during the 'Great Moderation', but like everything else in China, where the private sectors isn't private, the bond market doesn't price risk, and the Communist Party isn't communist, appearances can be deceptive.

Last week saw perhaps the starkest example yet of China's 'Great Suppression.' Reuters reported that China's central government was taking on responsibility for up to $463bn of bad loans made to Local Government Financing Vehicles (LGFV) which had been made to fund various infrastructure and development projects as a part of the stimulus package. It's not clear yet how this will be done, but I suspect the template will be similar to that used during the recapitalisations of Chinese banks in the 1998-2005 period. Asset management companies buy the bad assets, which they pay for with non-tradable government guaranteed bonds which don't show up in the official measures of government debt. Maybe this is why the story didn't get much attention: China's government throws money at a problem … problem goes away … boring story … move on.

But the problem hasn't gone away. Think carefully about what's just happened. A bail-out of $463bn is half the size of the TARP, introduced by Paulson at the nadir of the 2008 crisis, for an economy which is only one-third the size of the US. So adjusted for GDP, China has just announced an emergency bail out of one and a half TARPs!! If we calibrate the magnitude of the economic crisis with the size of the bail-out, one and a half TARPs implies a financial crisis one and half times the order of magnitude of 2008.

Maybe China has dodged the crisis. In doing so, maybe its even just demonstrated the superiority of its model. But I doubt it. For what is its model? More suppression than has ever been seen before? In the May/June issue of Foreign Affairs, Nassim Taleb and Mark Blyth liken the uprisings in the 'near' Middle East to the financial crash of 2008. They write:

"The critical issue in both cases is the artificial suppression of volatility – the ups and downs of life – in the name of stability. It is both misguided and dangerous to push unobserved risks further into the statistical tails of the probability distribution of outcomes and allow these high-impact, low-probability "tail risks" to disappear from policymakers' fields of observation. What the world is witnessing in Tunisia, Egypt, and Libya is simply what happens when highly constrained systems explode." [39]

This is all China has done with its bail-out of local governments. It has upped the ante. While we can't predict where complex systems will go, we know that the longer their volatility is artificially suppressed, the more emphatic will be its release when it does come. It is more likely that China has one and a half times (and counting) the 2008 financial crisis ahead of it.

[39] See *"The Black Swan of Cairo"* by Nassim Nicholas Taleb and Mark Blyth; Foreign Affairs, Volume 90, Number 13

On China's swindles: how big is the bezzle?
(04/11/2011)

The farce of the eurozone's debt crisis is understandably captivating, but is an even bigger situation developing in China? Credit-fuelled gullibility lies at the heart of most bubbles, but such gullibility provides quality fodder for fraudulent schemes too. No one notices on the way up. But Charles Kindleberger showed in his seminal history of financial manias that they start emerging on the way down. In this context, China's newsflow is worrying indeed.

■ "*To the economist embezzlement is the most interesting of crimes. Alone among the various forms of larceny it has a time parameter. Weeks, months or years may elapse between the commission of the crime and its discovery. (This is a period, incidentally, when the embezzler has his gain and the man who has been embezzled, oddly enough, feels no loss. There is a net increase in psychic wealth.) At any given time there exists an inventory of undiscovered embezzlement in - or more precisely not in - the country's business and banks. This inventory - it should perhaps be called the bezzle - amounts at any moment to many millions of dollars. It also varies in size with the business cycle. In good times people are relaxed, trusting, and money is plentiful. But even though money is plentiful, there are always many people who need more. Under these circumstances the rate of embezzlement grows, the rate of discovery falls off, and the bezzle increases rapidly. In depression all this is reversed.*"

JK Galbraith

■ "*The propensities to swindle and be swindled run parallel to the propensity to speculate during a boom. Crash and panic, with their motto of 'sauve qui peut', induce still more to cheat in order to save themselves. And the signal for panic is often the revelation of some swindle, theft, embezzlement, or fraud.*"

Charles P Kindleberger

■ "*A Xinhua investigation found that workers had been building the pier foundations of one bridge, the No 3 bridge, by filling them with gravel instead of concrete, thus making it unsafe. A worker called Dawei told Xinhua that he tossed rocks and gravel into one of the pier foundations in June. Experts say that using gravel instead of concrete to fill pier foundations will cause them to tilt or even break in the future.*"

China Daily, 22 October 2011

About the best framework I know of for thinking about the signposts on the way to financial crisis is that provided by Charles Kindleberger, and based on the work of Hyman Minsky, in his classic text "Manias, Panics and Crashes." To recap, the model has five stages.

The first sees a "displacement" which suddenly changes the investor community's belief system, and its perceived profit opportunities. This displacement can be down to different factors. Perhaps it will be caused by a significant geopolitical event (e.g. the defeat of Napoleon leading to the London-centred emerging market crisis of 1825; the end of the Franco-Prussian war leading to the German "founders crisis" of 1873; arguably the collapse of the Soviet Union leading to the US tech boom of the late 1990s); the widespread adoption of a new and exciting technology (canals, railroads, automobiles, the internet), a sudden change in monetary policy (the peripheral eurozone bubbles following currency union), or "a surprising financial success" (most emerging market bubbles). What causes the sudden shift in expected investment opportunities isn't important. What's important is that something does.

The second stage occurs with the fanning of this excited optimism with an expansion of credit, which may be from within the banking system, but is as likely to come from outside it.

Stage three is what Minksy called euphoria, but it is best explained by Kindleberger himself: *"Let us assume, then, that the urge to speculate is present and is transmuted into effective demand for goods or financial assets. After a time, increased demand presses against the capacity to produce goods or the supply of existing financial assets. Prices increase, giving rise to new profit opportunities and attracting still further firms and investors. Positive feedback develops, as new investment leads to increases in income that stimulate further investment and further income increases."* Often, though not inevitably, such euphoria is accompanied by what Adam Smith called "overtrading" which we might think of as being associated with the overestimation of prospective returns; over-gearing and the drawing of segments of the population towards the object of speculation, and away from their more traditional sphere of confidence. Kindleberger continues, *"At a late stage, speculation tends to detach itself from really valuable objects and turn to delusive ones. A larger and larger group of people seek to become rich without a real understanding of the processes involved. Not surprisingly, swindlers and catchpenny schemes flourish."*

Stage four is the crisis. It sees, after a levelling off of prices, an uneasy period of financial distress, often accompanied by a move to increase liquidity. As this distress persists, the rush to cash turns becomes disorderly. It may be caused by a banking failure, a sudden decline in the price of the object of speculation, or maybe – and of relevance to us now – by the revelation of spectacular fraud. The spell cast on the public's imagination in stage one, and strengthened during stages two and three, now breaks. It paves the way for stage five: revulsion, where the former object of speculation is now derided as an embarrassment.

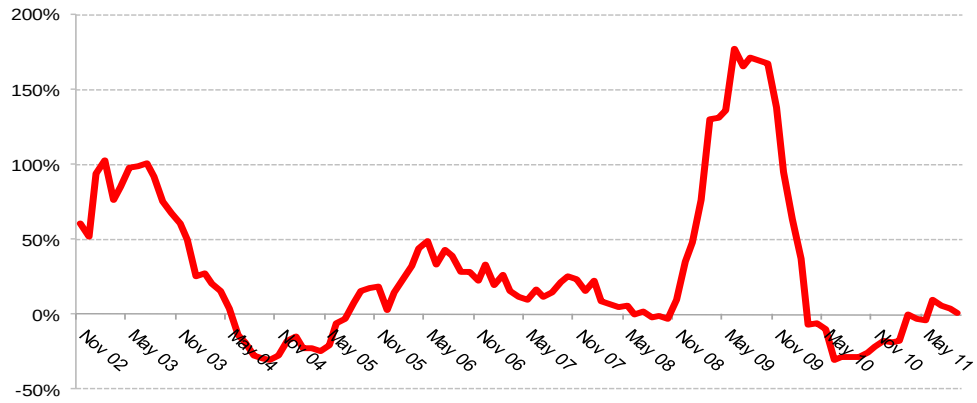
The reason for reminding you of this model in such detail is that I think China's has recently moved from stage three (euphoria) to stage four (crisis) and I'm worried about what stage five (revulsion) will look like.

Let's go through the model again, keeping China's recent financial history in mind as we do so. Stage one, the 'displacement' is a tough one. China only constitutionally enshrined property rights in 2004 and, as countless protests by dispossessed rural dwellers attest, they're still far from clear cut. Chinese data is also of poor quality. So saying, exactly when this all started is impossible to pinpoint. However, Kindleberger himself cites one common cause of the displacement as a sudden shift in monetary policy. We saw this in the eurozone periphery during the convergence of bond yields before currencies were unified, and we have

recently seen the effects. Maybe China's response to the 2008 crisis qualifies as its displacement.

Stage two – liquidity fanning the flames of optimism – was seen in the credit inflation which followed. The order central government gave to its banks to lend to keep the economy moving in the face of the sudden collapse in global trade during 2008 saw what might be the most explosive credit surge in financial history (see chart below). Total lending on an annualised lending basis grew by around 170% at its peak, as the authorities, so famed for their supposed command, clearly lost control. As you look at this chart, also bear in mind not only the centrality of credit inflation to the Kindleberger-Minsky model, but also the findings of the two NBER economists, Schularick and Taylor, who showed, by analysing over sixty financial crises since the late 19th century, that explosive credit growth is the single best predictor of financial crises.[40]

China's credit explosion (annualised new bank loans YoY)



Source: SG Cross Asset Research, Bloomberg

Anyone who's been to Asia in recent years will understand the euphoria surrounding emerging markets in general (and China in particular) which I think has been stage three. As recently as last summer, when my colleague Andy Lapthorne and I were touring the place, we were struck by how utterly disinterested people were in exploring the idea that China could 'hard land'. Few would even entertain the idea. Even now, we keep hearing 'this time is different', that China's authorities have a firm grip and it's not in their interests to allow a property collapse. (Edward Chancellor pointed out here that one of the many red flags warning of a bubble is undue faith in policymakers' control.) We also hear that the 'fundamentals' argue for higher property prices (as they did in Japan in the 1980s, and the US only a few years ago), or that the Chinese view property as a store of value and don't worry about such trivialities as occupancy. And, of course, prevalent is the feeling that since the Chinese pay cash, there is no leverage in the system.

But if there is no leverage in the system it's odd that there has been such a sudden scramble for liquidity across China's property sector in response to credit tightening measures. According to a recent Bloomberg article (last week), nearly 70% of property developers saw worsening cash flow positions in August relative to July. In his excellent blog, Patrick Chovanec suggests this rush for cash explains why primary real estate prices in Shanghai and

[40] Credit booms gone bust: monetary policy, leverage cycles and financial crises 1870 -2008, by Moritz Schularick and Alan M. Taylor; www.nber.org/papers/w15512

Beijing (i.e. prices the developers sell at directly) are 20% lower than those in the secondary markets. Developers have been dumping their inventory. The WSJ blogged last week that Longfor Properties Co. showrooms in Shanghai were attacked by protesters – presumably recent property buyers – aggrieved at the developer's recent 25% price cut on new deals. This sudden scramble for liquidity feels like Kindleberger-Minsky's stage four.

And something else which feels very stage four is the recent emergence of various swindles. The sub-prime crisis ultimately unmasked Madoff, Galleon, and the Greek government, but one of the first cockroaches was Bear Stearns' Structured Credit Fund, later found to have mismarked the valuation and liquidity of its holdings to investors.

The various foreign listed Chinese reverse takeover companies which guys like John Hempton, Alfred Little and Muddy Waters were all over during the summer seem to have gone from bad to worse. Sinoforest was spectacular, but recently former stock market darling Chaoda Agriculture has come under scrutiny, and is now being investigated by Hong Kong regulators. I wouldn't be surprised if we ultimately see a major developer has been fatally cooking its books.

And in the meantime, swindles are emerging in the infrastructure sector too. Passengers have been mauled or even killed in accidents on the newly opened Shanghai metro and Beijing high speed train system and the blame is being laid at the door of engineers cutting corners to meet ambitious targets. But would you be surprised if shoddy workmanship by fraudulent workers was to blame too? I wouldn't. According to this China Daily report, the building of bridges and tunnels is being sub-contracted out (illegally as it happens) to firms run by qualified chefs with no building experience, who believe it is an acceptable practice to use gravel in pier foundations (see last quote on front page).

And I doubt these are isolated events either. Media reports suggest that the problems go all the way to the top. For example, the wife of the deputy-chief engineer at the ministry of railways – himself recently found guilty of fraud – reportedly owns three Los Angeles mansions and offshore bank accounts worth nearly $3m. And that would be entirely in line with the estimated average theft committed by the average fleeing public official, according the PBOC at least, which recently estimated that since 1990, a total of 18,000 party officials had fled the country, taking with them a total of $120bn (around $7m per flight). Of course, the report doesn't include any estimates of embezzlement by officials who haven't fled and so is likely to underestimate the bezzle.

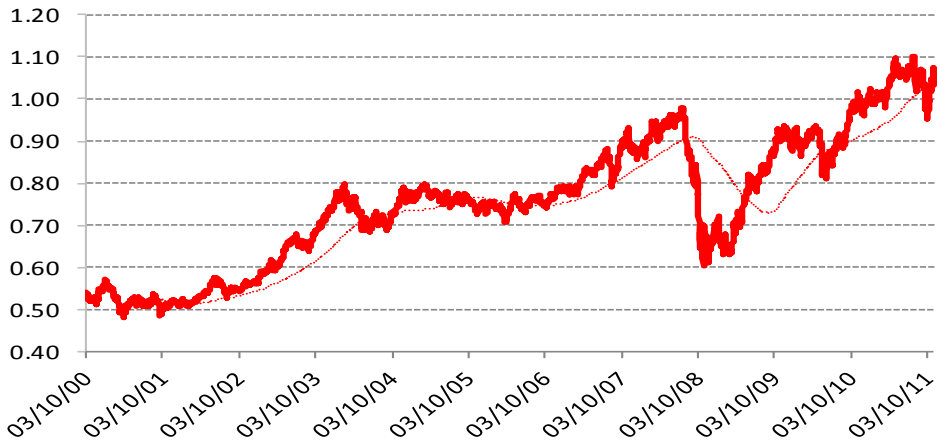
On a very important level, we should be wary of any conclusions drawn from such anecdotes which on their own prove little if anything. Japan, for example, is witnessing its own corporate scandal unfold today with Olympus. It would be ludicrous to conclude on that basis that Japan has been a hidden bubble economy these last few years and that this scandal signals that's about to burst.

But though anecdote is of the very lowest quality information when looked at alone, when placed in context I believe it can help contribute to the attainment of knowledge. And placing these new and various revelations of fraud in the context of the recent rush for liquidity among property developers, the aggressive and sudden credit expansion of recent years, the pervasive feeling that 'China is different' during the same time gives the feeling of something more tangible altogether. While its application is more art than science, I believe the Kindleberger-Minsky model is fundamentally valid and that when placed in that framework, these various anecdotes paint a telling picture. And stage five, of course, is revulsion.

It's possible that the Chinese can keep the plates spinning for a few more years yet. The Fed managed it after the technology bust, after all (though this is hardly an encouraging precedent given the mess the credit bubble it subsequently created has caused, and anyway, the tech bust was hardly a picnic). But economic expectations are always too sanguine before bubbles burst. Wenzhou, the country's financial trend-setter and pioneer of the black-market lending firms across the country turned to in response to the administrative controls, appears to be caught up in a full blown credit-crunch. The tycoons who haven't killed themselves have fled, it seems. Yet few are forecasting a hard landing, despite what seems to be very clearly developing distress in a highly speculative and pivotal sector of the economy! Wenzhou, it seems, is a small part of the economy and its trouble is likely to be contained. More typical is the analyst quoted in last week's Globe and Mail saying *"A property-led hard landing scenario is quite likely in the next few years, even though we do not think the property market is about to collapse now."*

Why not? My hunch is that this is going to be far more serious than anyone thinks, and anyone levered into China's story is about to come unstuck. Like Australia. Steve Keen shows in his must-read blog that household debt to GDP is higher today than it was in the US before the crash, and mortgage interest payments account for an eye watering 65% of after-tax wages. Australia has boomed on the back of the commodity demand China's credit bubble has driven, and it has its own housing bubble ready to pop when China's does. I could be wrong, of course. I could be years wrong. But that's why I think you could do worse than take a good look at the Australian dollar exchange rate here which, being on its moving average has an appropriately asymmetric payoff.

Asymmetric payoff? AUD/USD on its 260d MAV



Source: SG Cross Asset Research

Australians be worried: someone is calling your country a miracle! (25/04/2012)

What do you call a credit bubble built on a commodity bull market built on a much bigger Chinese credit bubble? Leveraged leverage? A CDO squared? No, it's Australia. Someone has just written a book about how it's all a miracle too. I'm worried.

■ During a recent trip to Australia at the kind invitation of my friends at the Daily Reckoning, I found myself browsing one afternoon in a Sydney bookshop. It's always a pleasant way to spend half an hour, but doubly so on this particular occasion as I was trying to keep the late summer Sydney sun away from my delicate Scottish skin. My perusal took on more focus though, when I stumbled across a book called "*The Australian Moment"* by George Megalogenis, a highly regarded journalist in the lucky country.

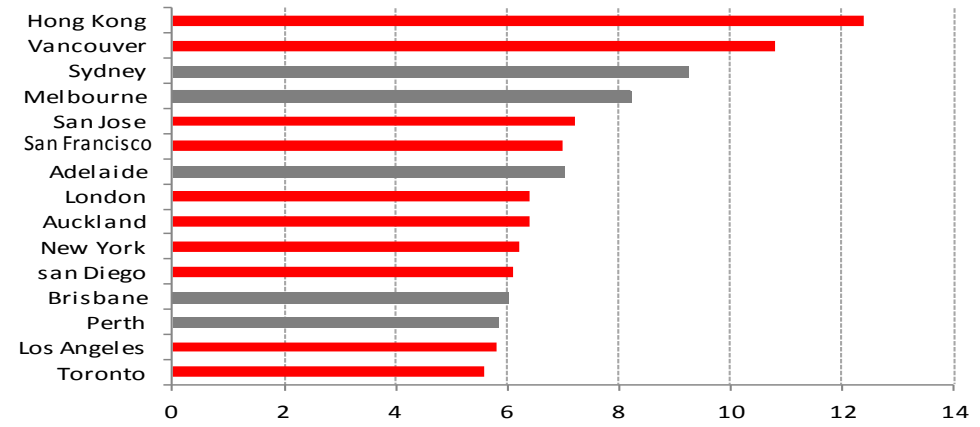
■ The book's subtitle was "*How we were made for these times*" and its introduction contained the following passage: "*Australia, uniquely, has avoided the first three super crashes of the digital age – the Asian financial meltdown, the tech wreck, and the big one, the Great Recession, which we branded the 'global financial crisis*'. ***A single escape might be put down to luck, two to good management. But a third is the stuff of legend***."

■ Legend … This was most impressive bluster. So with my interest well and truly piqued I read on. "*This book will argue on behalf of the Australian miracle through our response to external events*." I stopped and checked what I'd just read. Then I double checked. I'd read it correctly. Someone was calling Australia a "miracle." By now I was engrossed.

■ As far as I've ever been able to tell, miracle economies don't live up to their billing. Japan didn't, Thailand didn't, Ireland didn't … my reading pace quickened. I think my heart rate might have too, it was such heady stuff. The last four decades had apparently made Australia "*more versatile today than any other First World nation*." Much was made of the "*unique elements of the Australian project*." But the author saved his triumphant best for last: "*The days of us looking to the British and Americans for inspiration and comfort have passed*" he proclaimed, "*Now its our turn to tell them how the world works.*"

■ Now I know what you're thinking. You're thinking, why on earth would anyone look to the British for inspiration and comfort? Me too. But that's not what I was interested in. I was thinking more of Edward Chancellor's classic history of financial speculation "*Devil Take the Hindmost*" and one of its key themes: the role hubris plays in financial calamity. Australia has five of the world's 15 most expensive cities (on a median price to median income ratio), has seen household debt levels explode in recent decades, and even has a current account deficit despite the windfall terms of trade improvement caused by the commodity bull market. This is not a robust base from which to weather a Chinese hard landing, if and when it comes. I had a great time in Oz: fantastic people, wonderful atmosphere, and a truly beautiful country. But I felt more relaxed when Australians called themselves the "lucky country" with their typical honesty, realism and humility. Now that it's been upgraded to the status of "miracle" I'm worried.

Five of the world's 15 most expensive cities are in Oz (median price/median income)

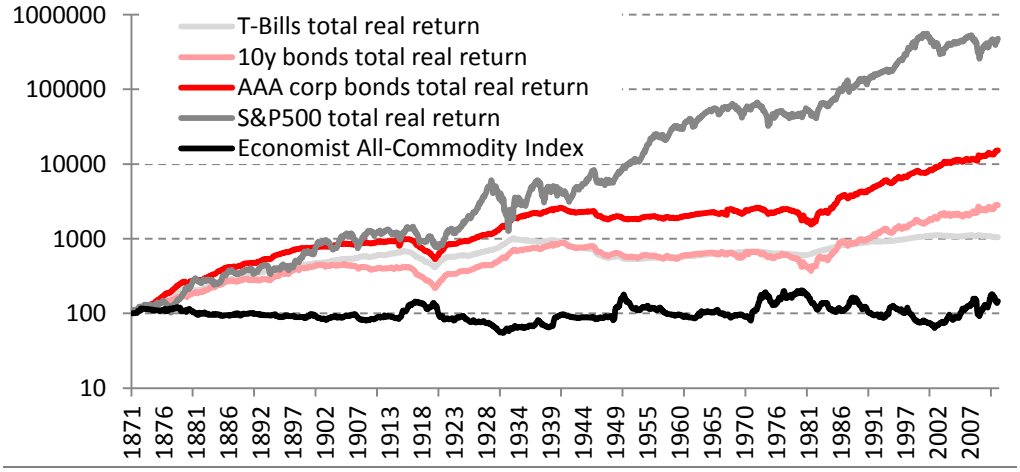


Source: Demographia

Why should a country with a land mass roughly the same as western Europe but a population only one-tenth the size, which digs stuff out the ground and sells it on for other people to make stuff, have about the most expensive real estate on the planet?

The commodity boom has been great for Australia. The "quarry in China's backyard" was a reference I heard a lot. But how much is a quarry in a backyard worth? There's no doubt there has been true wealth creation of the real and substantive kind. But to the extent it's been driven by the commodity bull market, shouldn't it be in the "lucky windfall" category rather than the "sustainable wealth creation" one? Bull markets don't last forever and commodity bull markets are especially ephemeral.

Commodities for the long run?



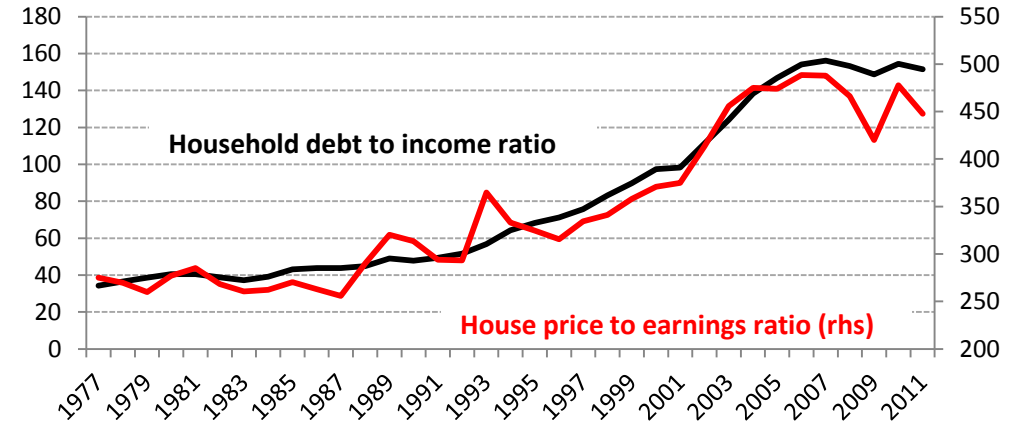
Source: SG Cross Asset Research

As we all know, past performance says little about the future. But at the very least, the boom-bust history of commodity markets surely argues for caution and forethought during the fat years. Yet Australians seem to have been doing the opposite. A great deal of the wealth creation they're currently enjoying appears to be of the illusory and credit-fuelled kind. They're not just good at just digging stuff out of the ground down there. They're pretty good at borrowing money to sell houses to each other too, like the rest of us.

Debt to disposable income has risen pretty steadily over the last few decades. It's gone from 40% in the 1990s to around 150% today. When you scratch the surface of the Australian

'miracle' you don't just find an unmiraculous commodity super-cycle: you also find an equally unmiraculous credit super-cycle as well. A credit bubble built on a commodity market built on an even bigger Chinese credit bubble, Australia looks like leveraged leverage, a CDO squared.

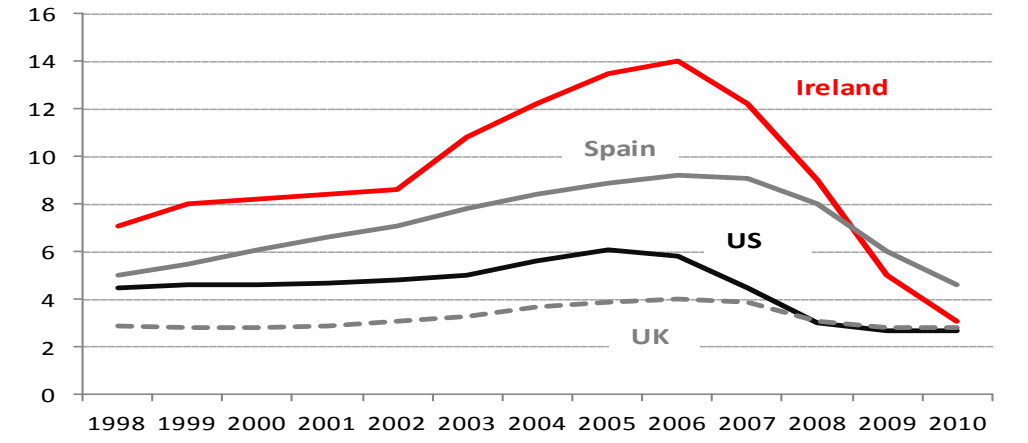
Australia's miracle: Credit/asset inflation



Source: RBA

More positively, one of the classic triggers for a housing crash seems to be absent. As Spain, Ireland, and to a lesser extent the US, demonstrated, few things trash a housing market more comprehensively than a sudden flood of supply (see chart below). Here in the UK there was no residential construction boom, which is likely one reason why housing valuations have defied gravity … so far (though I bet they won't be as gravity-defying when real interest rates rise … which they eventually will, one day).

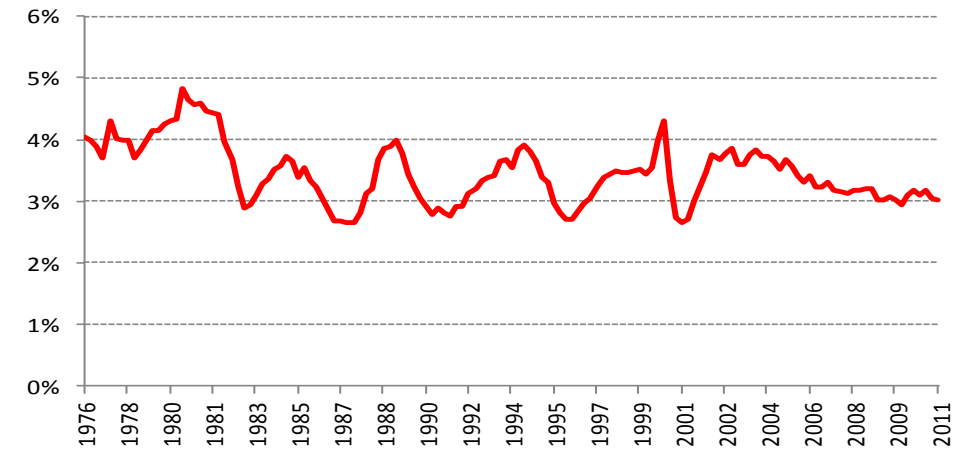
Construction booms and real estate busts: Ireland, Spain, the US, and the UK compared



Source: SG Cross Asset Research

When it comes to housing construction Australia looks more like the UK than it does Ireland or Spain. Residential investment as a share of GDP has been stable for decades. But non-housing investment (and mining investment especially) has a decidedly more Irish/Spanish feel to it (chart on next page).

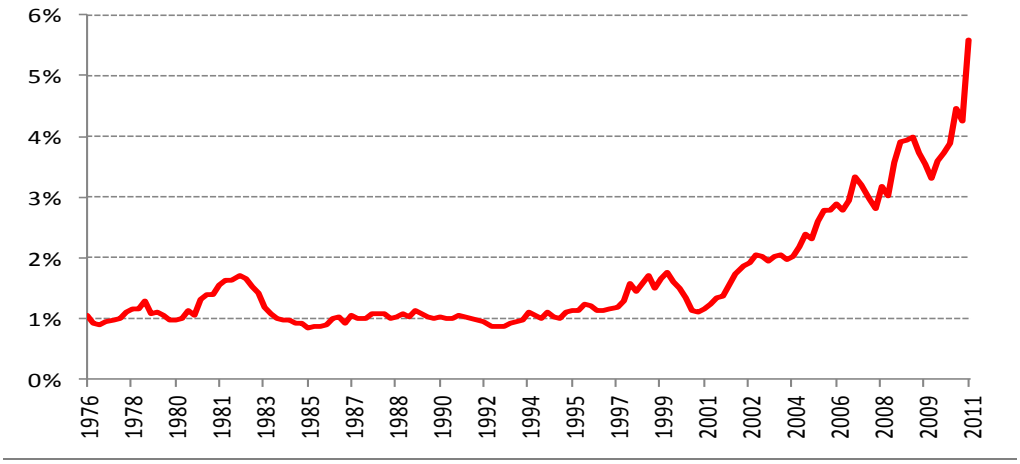
Australia: Investment in dwellings (% of GDP)



Source: Australian Bureau of Statistics

That might sound like an unfair comparison: mines are economically productive investments, houses aren't. But mines are only economically productive at the right commodity price and in the very long term, at least, real commodity prices tend to go lower, not higher.

Australia: Construction engineering projects as a % of GDP

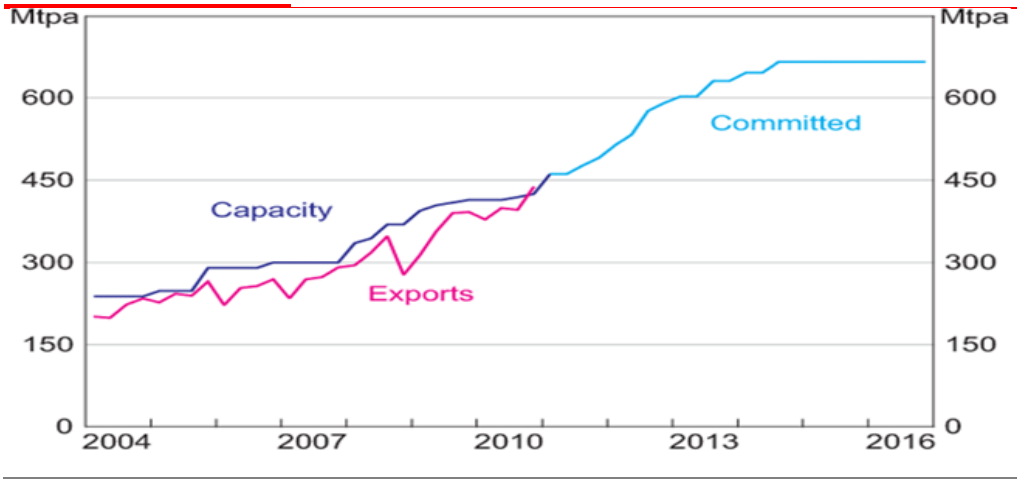


Source: Australian Bureau of Statistics

Australia's two biggest commodity exports are iron ore and coal. According to the RBA Australia has increased its iron ore capacity by 150Mtpa in the last five years, from 300Mtpa to 450Mpta. Planned capacity increases over the next five years amount to a further 200Mtpa (see chart below). Nearly all of it will go to China to feed the burgeoning steel industry there.

But how healthy is China's iron ore demand? If its steel prospects were so attractive why does Wuhan Iron & Steel for one think pigs are the future? Why has the company recently announced plans to invest nearly $5bn over the next five years in industries in which it has no expertise, such as pig, fish and organic vegetable farming? Probably because steelmakers are now loss making and there is excess capacity. And if they have no confidence in the Chinese steel industry, why should Australia?

Australia: Iron ore export capacity (annualised, nsa)



Source: RBA

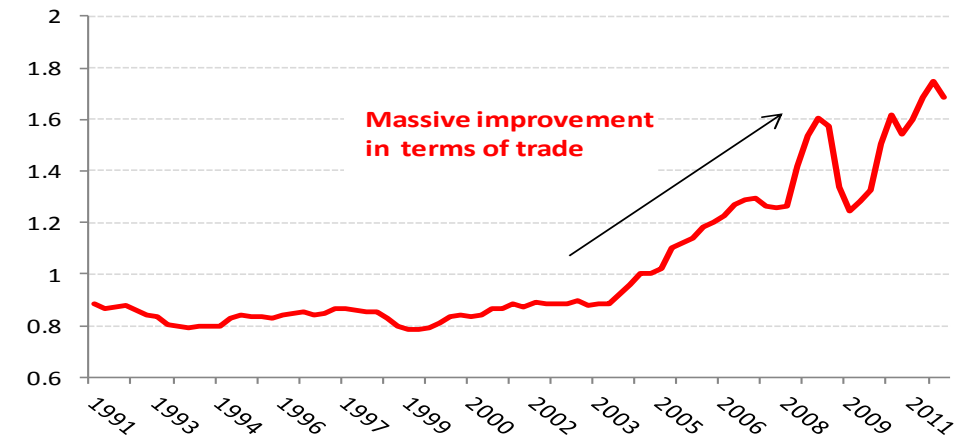
Coal is just as vulnerable. Mine production is being ramped up to satisfy a demand assumed to be as voracious in the future as it has been in the recent past (see chart below). But there is a third energy revolution underway. Shale gas. Last week the US railroad company CSX said that it might have to renegotiate its contracts with power utilities because coal demand was drying up. Their shipments of coal to power stations fell 28% last year because power stations are switching to gas. Shale gas will be as disruptive to the global economy as the internet was. Though it's predominantly a US story today, it's going to go global.

Australia: Coal export capacity (annualised, nsa)

Source: RBA

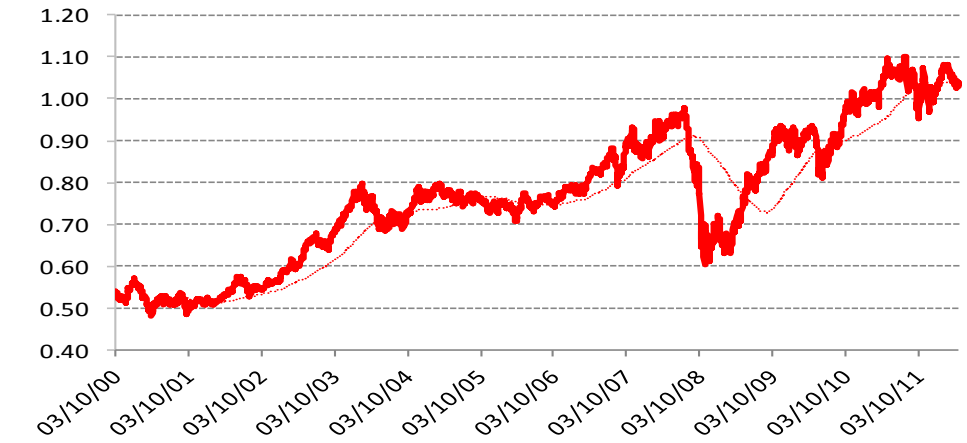
Which I think leaves Australia in a precarious position. If Chinese resource demand holds up everything will probably be fine. But if it doesn't … well, everything won't be. In fact, there might be trouble anyway. The improvement in Australia's terms of trade (the ratio of its export prices to its import prices) has been spectacular thanks to the bull run in commodities. It should be running large current account surpluses, like Norway. But it isn't. It's running a deficit of 3%. So the AUD is overvalued and vulnerable. For Australians, buying bonds makes some sense to me (despite last year's rally, developed market bonds backed by a printing press give a glimpse of the future), while buying gold makes a lot of sense (because gold is very cheap in AUD terms). For foreigners, the AUD's own day of reckoning provides a very good hedge against any great leap backwards in China.

Australian terms of trade improvement has been explosive ...



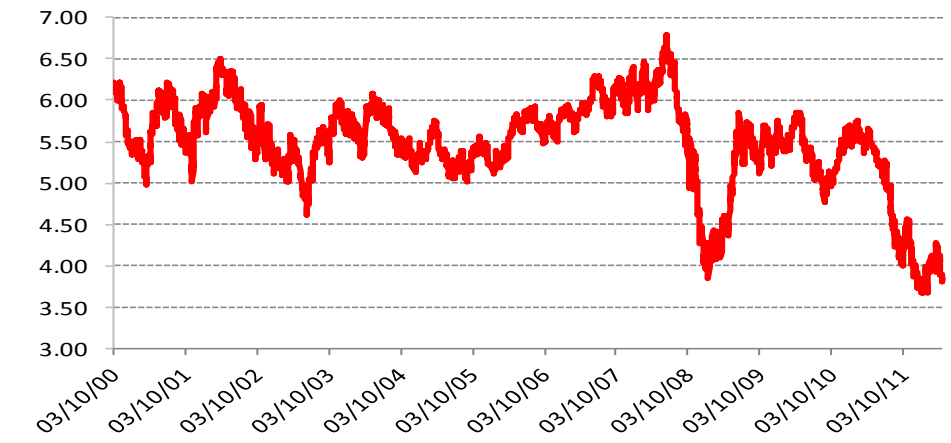
Source: SG Cross Asset Research

... but AUD still a good short from here



Source: Bloomberg

Australian 10y bond yields have further to travel



Source: Bloomberg

Gold

A Minskian roadmap to the next gold mania
(18/11/2009)

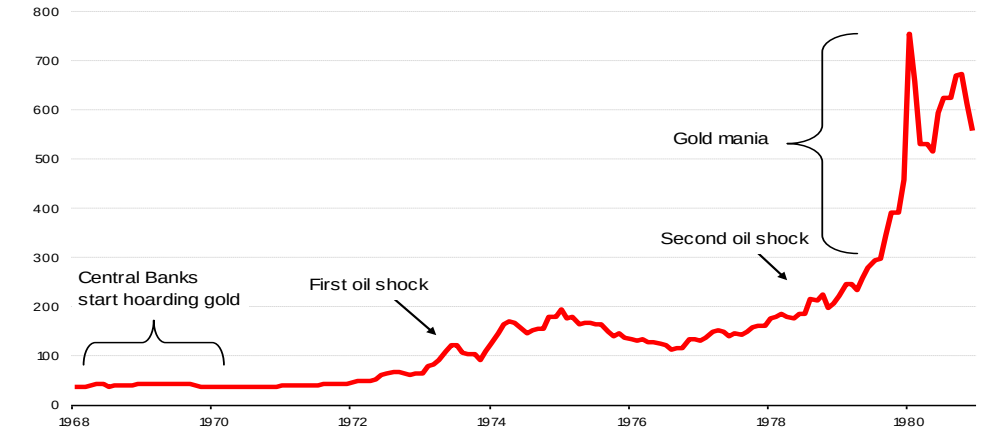
Central bank hoarding of gold in 1970 ushered in the famous gold bull market. With central banks likely to be net gold purchasers in H2 2009 for the first time since 1988 the same starting gun is ringing out today. The price at which the USD would be fully backed by gold (as it was during the peak of the 70s mania) is $6,300. So there is a case for gold being "cheap." Moreover, the 70s bull market was facilitated by tight energy markets, overly accommodative central banks and nervousness that policymakers had lost their way. Sound familiar?

▪ In 1965, concerned at the inflationary policies of the US and the attendant threat to their dollar reserves, the French central bank started converting their dollars into gold. This set in motion events which saw the central banks of Belgium, the Netherlands, Germany, and eventually Britain doing the same in 1970. By 1971, the Bretton-Woods system, by which all currencies were pegged to the dollar and the dollar effectively pegged to gold, had broken. The French had fired the starting gun for the great 1970s bull market in gold and silver.

▪ It's worth pointing this out because central banks aren't known for their investment acumen. Some commentators have mockingly suggested that the Reserve Bank of India's recent decision to buy 200m tonnes of IMF gold signals the top of the market in the way that heavy selling by the UK signalled the bottom in 1999.

▪ This is cute. But I think it's wrong. Like today, central banks weren't buying gold in the late 1960s to prop it up, they were abandoning attempts to prop up the dollar. Gold feels frothy today, but the Indian purchase of IMF gold eerily parallels the French purchases of the late 1960s. And ill policy winds are blowing in its favour. With the precious metals consultancy GFMS estimating that central banks will be net buyers of gold for the first time since 1988, have the Indians just sounded the same starting gun the French did in 1965?

The last time central banks hoarded gold ….



Source: SG Cross Asset Research

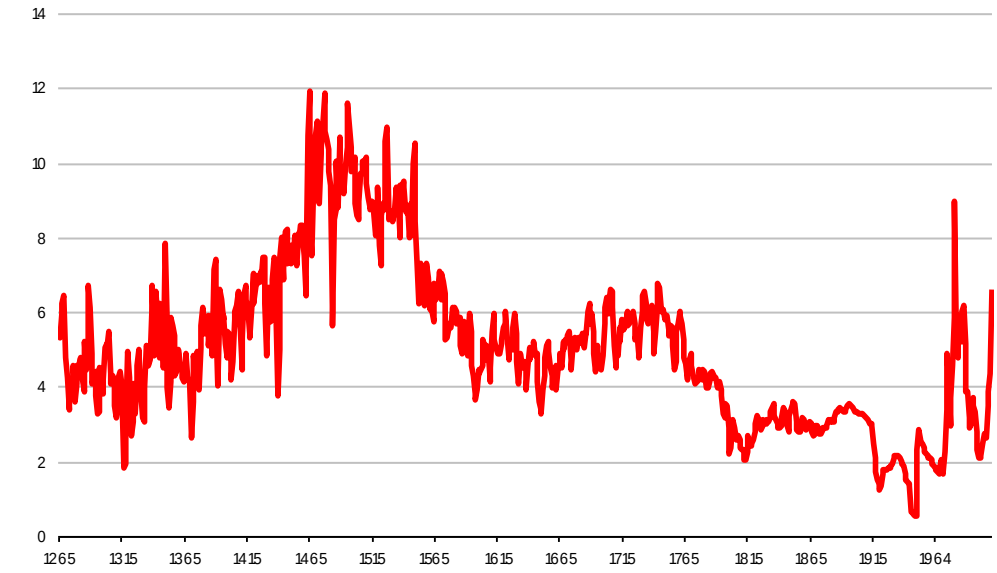
"Gold gets dug out of the ground in Africa, or someplace. Then we melt it down, dig another hole, bury it again and pay people to stand around guarding it. It has no utility. Anyone watching from Mars would be scratching their head."

Warren Buffett

The standard reply to Mr. Buffet might be that gold acts as a long-term store of value, the most commonly heard rationale for investing in gold. Indeed, the chart below shows the real UK gold price today to be similar to that prevailing in 1265.

But the same chart also shows how unreliable gold has been as a store of wealth. A 15th century gold bug who'd stored all of his wealth in bullion, bequeathed it to his children and required them to do the same would be more than a little miffed when gazing down from his celestial place of rest to see the real wealth of his lineage decline by nearly 90% over the next 500 years (though he might take comfort from the knowledge that his financial advisor would be burning in hell). More recently, had you bought at the peak of the last bull market in January 1980 for $850, you'd have suffered a nominal decline of 70% by the time it bottomed in 1999. On an annualised basis you'd have lost 6% pa nominal and 9% real.

Seven and a half centuries of real gold prices



Source: SG Cross Asset Research, www.measuringworth.org

So gold isn't intrinsically safer than any other asset. There is nothing mystical about it either. Like all other assets, it goes up and down according to its fundamental drivers.

But what are these fundamental drivers? How can something with no cashflow or earnings power be valued?

The simple answer is that it can't be. Intrinsically it is pretty much worthless. Indeed, when I tell people I buy gold the most common complaint I hear is that it has no real industrial use. Surely I'd be better at least buying a commodity that industry needs to make stuff with, like silver or platinum?

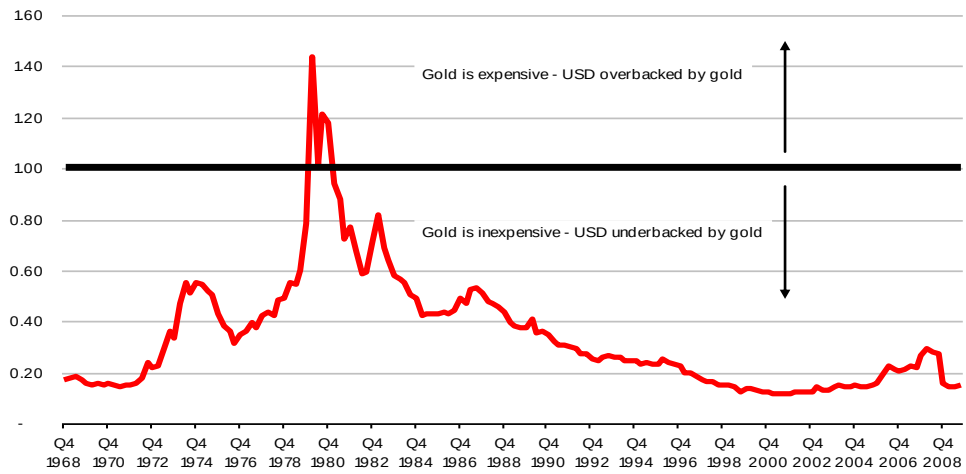
The more *verbose* answer is that this "uselessness" is exactly what gives gold its value because it makes it the perfect currency. If you own silver, a recession will cause the price (and therefore its purchasing power) to fall because industrial demand has fallen. The same is true for platinum or palladium. But the price of gold will be unaffected by any decline in industrial demand because there is no industrial demand!

To value gold it helps to understand that paper money was traditionally based on the stock of gold (and silver). Depositors of bullion would receive a receipt proving their holdings and it soon became easier to use those receipts for commerce than it did the physical gold. So while the use of paper money had become commonplace by the 18th century, that **paper was always redeemable into gold or silver. The money supply was always gold-backed.**

Full redeemability was increasingly watered down after WW1 so that by the time the Bretton Woods system was imposed following WW2, only central banks had the right to convert paper for gold. But when that broke in 1971 because dollar holders had become distrustful of US promises to restrain its dollar printing, the link between paper money and gold was severed completely. Since then, paper money has been backed by nothing more than central banks' promises to maintain the money supply at a stable level

So one way to value gold, therefore, is to ask at what gold price the value of outstanding central bank paper would be completely backed by gold. The US owns nearly 263m troy ounces of gold (the world's biggest holder) while the Fed's monetary base is $1.7 trillion. So the price of gold at which the US dollars would be fully gold-backed is currently around $6,300.

Gold is very cheap - at current prices, the USD is only 15% gold backed



Source: SG Cross Asset Research

The chart above shows the extent to which the USD has been gold backed since the late 1960s. It currently stands at 15%, close to the all-time low 12% reached in 2001 but far from the all-time high of 140% reached in early 1980. Interestingly, during that inflation panic the value of gold rose to such a level that the dollar became *over-backed* (the red line is higher than 1). The market value of gold held by the Fed was worth more than the paper money it had issued!

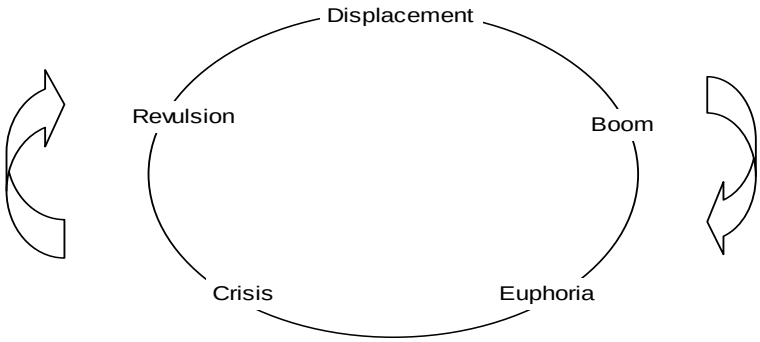
Gold has rallied considerably in recent years, but the monetary base has grown *even faster.* So a better response to Mr. Buffet might be that you should buy gold because it's cheap …

If my "valuation" of gold strikes you as a desperate attempt to value something which can't be valued, it's no different from metrics such as the "market cap to clicks" or "ARPU" ratios which were used in the late 1990s during the technology bubble when demand for bullish "valuation analysis" mushroomed. They seem crazy now but speculators bought into them during the tech craze. And there may well be a bubbly parallel ... Charles Kindleberger, drawing heavily on the work of Minsky, outlined the following "anatomy of a bubble".

Stage 1 sees "displacement". Frequently, this comes about through the introduction of a new disruptive technology (e.g. canals, railways, or the internet) although Kindleberger says it doesn't necessarily have to come from such an innovation. It can arise on the back of greater market liquidity through, for example, financial deregulation.

Stage 2 is the "boom." A convincing narrative gains traction (e.g. Asian economies are "miracle" Tiger economies; the Internet will change the world; sub-prime mortgages help financial institutions diversify risk). Price movements which seem to confirm the narrative are stoked by credit creation.

Anatomy of a bubble: the Kindleberger-Minsky model



Source: Kindleberger, SG Cross Asset Research

Stage 3 is "euphoria." In the words of Kindleberger, "there is nothing so disturbing to one's well-being and judgement as to see a friend get rich." This greed sucks people who wouldn't normally involve themselves in such practice into the mania. More and more people seek to become rich without understanding the process involved. Rationality becomes stretched and increasingly fanciful notions excuse what would ordinarily be considered irrational behaviour.

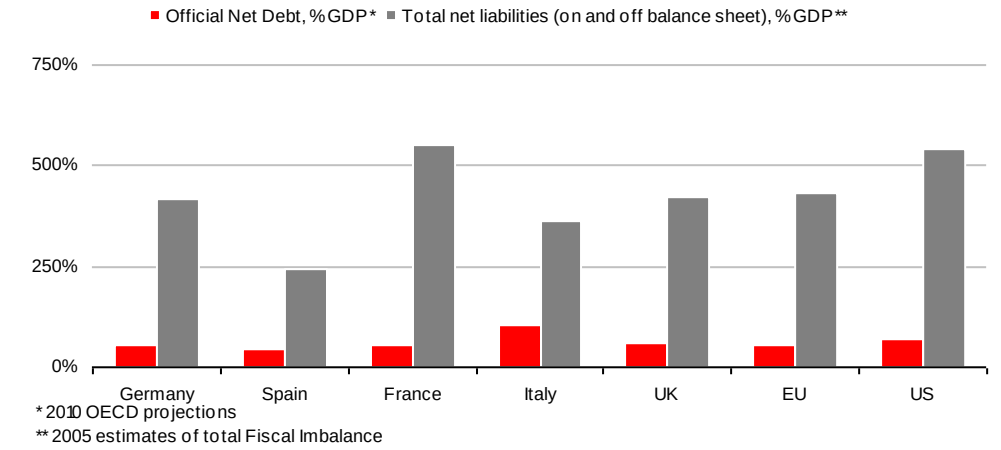
Stage 4 sees the "crisis." The insiders originally involved start to sell. Prices level off and begin to fall. Those who bought at the top find themselves pushed out first and their selling eventually cascades down through the remaining believers. Speculators realise prices can no longer rise and the rush to exit is on. To the extent that leverage was used to finance any purchases at irrationally overvalued prices, savage price declines put banks in trouble too. Stage 5 sees "revulsion" where prices likely overshoot fundamental values on the downside. Scams and frauds are uncovered. Scapegoats are found for the financial distress caused. The object so richly desired as the bubble inflated becomes an object of ridicule and disgust, along with anyone or anything associated with it.

With this in mind, consider the parallels between the 1st and 2nd phase of the 1970s gold mania with the situation unfolding today. Then, the "displacement" was the collapse of the

Bretton Woods system, precipitated by central banks, distrustful of inflationary US policies buying of gold. This is very similar to what we are seeing today. Then, the liquidity turning "displacement" to "boom" came from central bank accommodation of the oil shocks. Today, central banks are monetising government deficits to accommodate the recessionary effect of the credit crisis.

Then the convincing narrative was that with the Middle East controlling our energy from abroad and aggressive trade unions rampant at home, policymakers were no longer in control. Today, the perception of central bank infallibility has been permanently ruptured by their collective failure to see the 2008 crash coming. Nagging concern at their over-willingness to inflate, at the blurring of monetary and fiscal policy and over long-term government solvency (see chart below) gives traction to a similar narrative today.

Our governments are insolvent



Source: SG Cross Asset Research, OECD, Gokhale (2009)

On the Kindleberg-Minsky map as I've drawn it, therefore, we've had the "displacement" and are only now entering into the "boom" phase. The "mania phase" lies well ahead. Who knows what unknown unknowns might parallel the two oil shocks of the 1970s?

The top of the gold bubble occurred when politicians won a mandate in the late 1970s/early 1980s to take painful decisions, to take on the trade unions, and to raise interest rates to tackle inflation. Only then, during the "crisis phase" did scams such as the Hunt brothers' attempted corner of the silver market come to light. The parallel today would be governments winning a mandate to take the difficult decisions ahead on health care and pension entitlement, or even climate change. And who knows what yet-to-be-conceived frauds await?

But that is a long way off. Governments only won such mandates because by the late 1970s, the "inflation fatigued" electorate was tired of lurching from one crisis to another. We're several crises away from governments winning similar mandates. In the meantime, displacement has happened, liquidity is plentiful, and the compelling narrative is gaining traction. Oh, and gold is "cheap" ...

When to sell gold (23/03/2010)

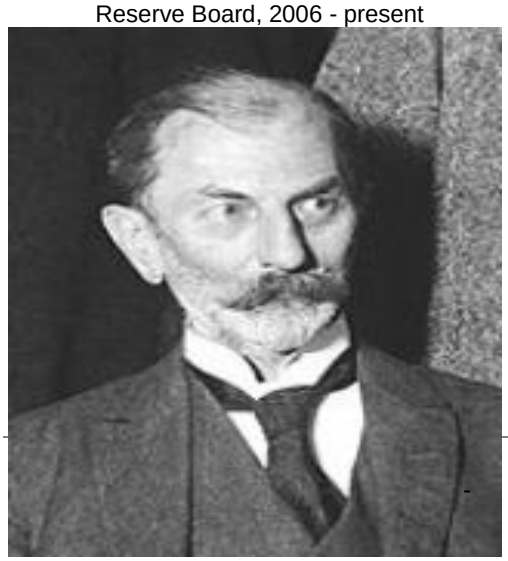
JP Morgan once said he'd made his fortune by selling too soon. We spend much time thinking about what to buy and when to buy it, when in fact knowing when to sell is more important. The case for owning gold is clear enough, but when should we look to sell?

▪ Some would say the time to sell is now. Gold just isn't the misunderstood, widely shunned asset it was a few years ago. Isn't the gold bull market now long in the tooth, with better opportunities to be found elsewhere? I can understand this view. Had you bought stocks at the bottom of the bear market in 1974 and held them for ten years you'd have seen them go from being hated to being loved. And as the number of mutual funds exploded you could have plausibly argued that since stocks were no longer the deeply contrarian plays they'd been, they should be sold. But you'd have missed spectacular gains over the next 15 years because the social contrarian indicators said nothing as to how favourable underlying conditions were for risk assets.

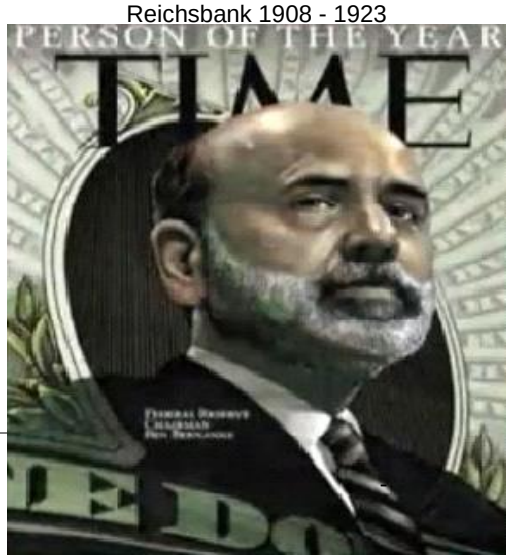
▪ Though developed market governments are insolvent by any reasonable definition, it's far from *inevitable* that this insolvency will precipitate an extreme inflationary event … it's just that it *might* ... And although I've wondered aloud if Ben Bernanke is in fact the reincarnation of Rudolf von Havenstein – the tragic president of the German Reichsbank who presided over the Weimar Hyperinflation (speculative evidence presented below) – I don't think he actually is ... it's just that he, and other central bankers, might be closer than they think ...

▪ Gold, like all other commodities, is *inherently* speculative. Unlike well chosen stocks which you buy to hold to take advantage of their wealth-compounding properties, you only ever buy commodities to sell later. With this in mind, when should you sell gold?

Ben Bernanke, chairman of the Federal Reserve Board, 2006 - present



Rudolf von Havenstein, president of the Reichsbank 1908 - 1923



Source: Google Images, Time Magazine

Willem Buiter called "Gold – a 6000 year bubble" – ft.com. The late and great Peter Bernstein subtitled his book about gold *"the History of an Obsession".* But much as I admire these two great minds, such loaded phraseology implies there to be something irrational about owning gold and I think that's just plain wrong. The fact is that there is a fundamental need for a medium of exchange. Early civilisations used pebbles or shells. Prisoners have used cigarettes.

Having a medium of exchange makes life easier than under barter economy and societies have always organised themselves around the best monetary standard they could find. Until industrialisation of the paper printing process, that happened to be gold, which is small, malleable, portable and with no tendency to tarnish. Crucially, it's also relatively finite and this particular characteristic (in combination with the others) can be very useful in environments characterised by monetary mischief.

I view it primarily as insurance against such environments. It's a lump of metal with no cash flows and no earnings power. In a very real sense it's not intrinsically worth anything. If you buy it, you're forgoing dividend or interest income and the gradual accumulation over time of intrinsic value since a lump of cold, industrially useless metal can offer none of these things. That forgone accumulation of wealth is like the insurance premium paid for a policy which will pay out in the event of an *extreme* inflation event.

Is there anything else which will do that? Some argue that equities hedge against inflation because they are a claim on real assets, but most of the great bear market troughs of the 20th century occurred during inflationary periods. A more obvious inflation hedge is inflation linked bonds, but governments can default on these too. More exotic insurance products like sovereign CDSs, inflation caps, long-dated swaptions or upside yield curve volatility all have their intuitive merits. But they all come with counterparty risk. Physical gold doesn't. **Indeed, during the "6000 year gold bubble" no one has defaulted on gold. It is the one insurance policy which will pay out when you really need it to.**

There is nothing mystical about gold and I don't consider myself a *gold bug*. In fact, I'm not sure I'd even classify gold as an 'investment' in the strictest sense of the word. Well chosen equities (not indices) will act as wealth-compounding machines and are likely to make many times the initial outlay in real terms over time. These are 'investments' because so long as the economics of each business remain firm, you don't want to sell. As they say in the textbooks, you 'buy to hold.' But gold isn't like that. Like all commodities, it's intrinsically speculative because you only buy it to sell it in the future.

The reason I own gold is because I'm worried about the long-term solvency of developed market governments. I know that Milton Friedman popularised the idea that inflation is "always and everywhere a monetary phenomenon" but if you look back through time at inflationary crises – from ancient Rome, to Ming China, to revolutionary France and America or to Weimar Germany – you'll find that uncontrolled inflations are caused by overleveraged governments which resorted to printing as the easiest way to avoid *explicit* default (whereas inflation is merely an *implicit* default). It's all very well for economists to point out that the cure for runaway inflation is simply a contraction of the money supply. **It's just that when you look at inflationary episodes you find that such monetary contractions haven't been politically viable courses of action.**

Economists, we find, generally don't understand this because economists look down on disciplines which might teach them it, such as history, because they aren't *mathematical* enough. True, historians don't use maths (primarily because they don't have physics envy) but

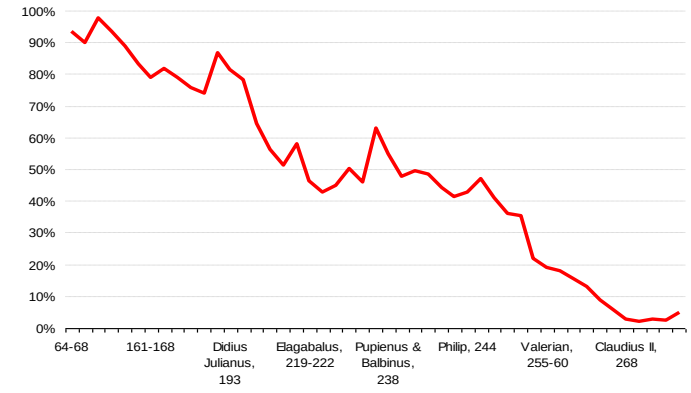
what they do use is common sense, and an understanding that while the economic laws might hold in the long run, in the short run the political beast must be fed.

I wrote about the Weimar Hyperinflation a few weeks ago and showed, for example, that Rudolf von Havenstein (Reichsbank president) was terrified of pursuing such a monetary contraction because he was so fearful of the social consequences rising unemployment and falling output would elicit. But the agonizing dilemma he faced, identical in principle if not in magnitude to that faced by policy makers today, is as old as money itself.

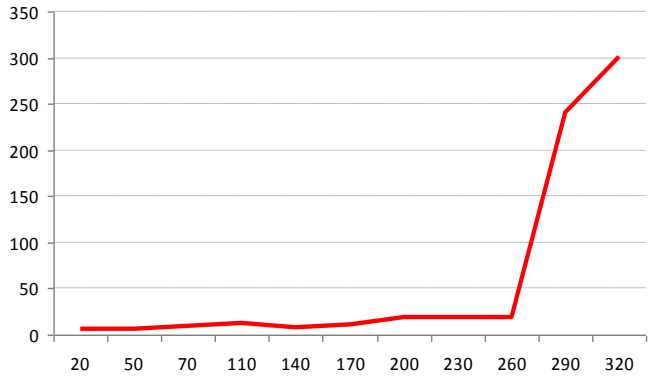
In the 3rd century AD, as the Roman Empire became too large and unwieldy, its borders were consolidated and the great imperial expansion halted. Though necessary, this consolidation posed problems. While the Empire was in growth mode, driven by military conquest which strengthened public finances, the army paid for itself. It was an asset on the national balance sheet. But when that territorial growth was halted, a hole was created in the budget as while the army was still needed to defend the borders, it was no longer self-funding because there was no territorial expansion.

Roman emperors discovered that contracting expenditure to fit with new lower revenues was a difficult feat to pull off. So rather than contract military spending, public works or public entertainment – long-term necessities which were painful in the short run – they opted to buy time using successive currency debasements. Ultimately, this culminated in what would become the world's first of many *fiscally* driven inflation crises (see charts below).

Silver content of a Roman denarius



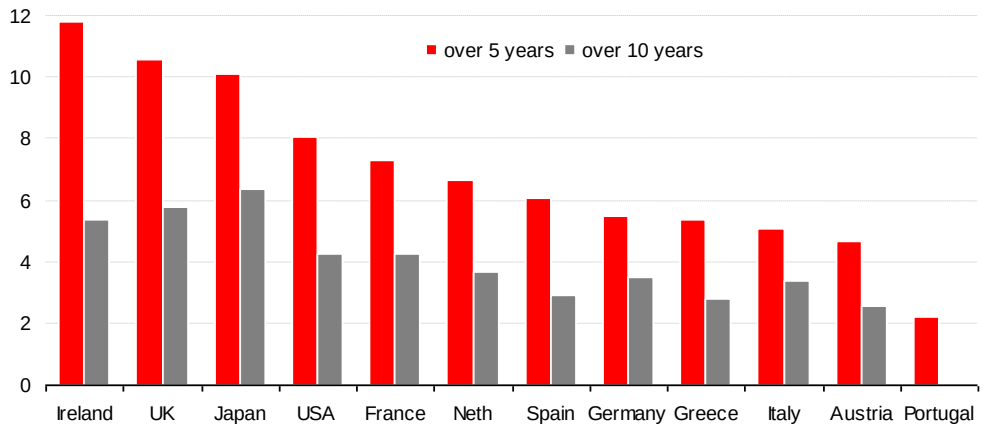
Egyptian wheat price, drachmas per artaba



Source: http://www.tulane.edu/~august/handouts/601cprin.htm

Two thousand years ago, the fiscal sobriety so clearly needed in the long run was subordinated to the short-run requirement to buy time. Hence the age-old short-term temptation to debase the currency and hope no one notices. Paring overstretched government balance sheets has *never* been easy. As the Romans should have done in the third century, developed market governments today will have to come clean to their citizens that since keeping the welfare promises they've made over the years will bankrupt them, those promises are going to have to be 'restructured' and government expenditure substantially tightened.

Fiscal contractions required over 5yr and 10yr periods to stabilise government debt ratios at 2007 levels (% p.a.)



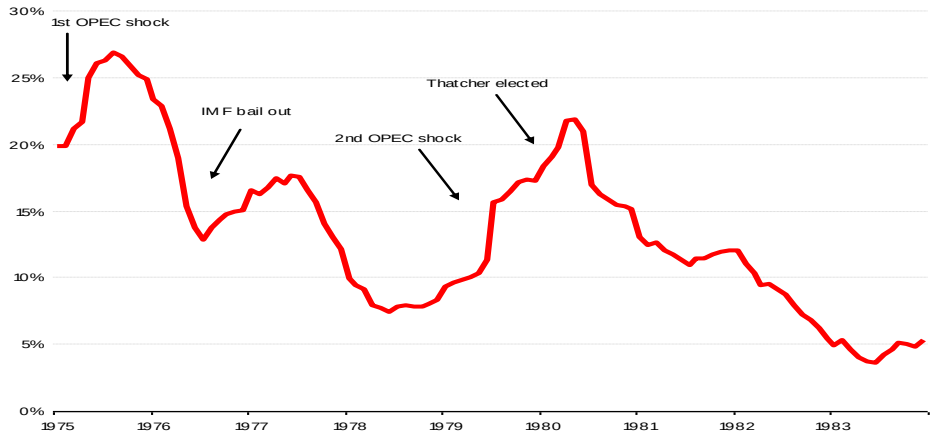
Source: Cecchetti, Mohanty, Zampolli (BIS conference paper, 2010)

But governments aren't ready to take that step at the moment (the chart above shows just how painful the required measures could be). Indeed, the pressing fear among policy makers today remains that stimulus might be removed too soon. In the UK, policy makers refused to "risk the recovery *we've fought so hard for*" to quote PM Gordon Brown ("fought so hard for"!). In the US, lawmakers have just *expanded* the most inefficient health care system on the planet (according to Peter Peterson – ft.com there are five times as many CT scans per head in the US as there are in Germany, and five times as many coronary bypasses as in France). It has been promised that the increase will be deficit-neutral (which I doubt) but even if it is, current period deficits aren't the correct way to look at health and pension obligations which should be examined on an actuarial basis (and if expanding the program is so difficult, wait until they try contracting it!)

But they will face up to these problems one day, because they must. And the good news is that there are precedents for policy makers adopting the policy of short-term pain for long-term gain. In the UK in the 1970s, for example, the country tired of lurching from one crisis to the next, of militant trade unions and of high inflation. Eventually, they elected Margaret Thatcher who promised to control inflation and smash the unions even if the short-term pain would be severe. She did, and it was. But the rest (despite 364 economists petitioning her that such drastic measures threatened social stability – How 364 economists got it totally wrong - Telegraph) is history. **The key point to bear in mind is that she was elected with a mandate for short-term pain which hadn't existed five years earlier. *The political winds had changed.***

Ireland swallowing bitter fiscal medicine today offers a similar example. I've been over there a couple of times in the last few months and it's heartbreaking. Its economy has contracted by nearly 10% since the peak of the credit bubble and my friends in Dublin tell me that, unofficially, house prices are down 60-70% from their peak. Unemployment has spiked to around 15%. The striking thing about being there, though, is that while no one is happy about them, and there have been strikes in protest at the distribution of the pain (which, in passing seems to be a feature of the political climate during such crises) on the whole there seems to be an understanding that such measures are unavoidable. **These draconian fiscal policies wouldn't have been possible five years ago. *But the political winds have changed.***

UK inflation in the 1970s



Source: SG Cross Asset Research

What causes the political winds to change? A government crisis. In 2008, Ireland came very close to going the way of Iceland. They had their crisis. And historians today still refer to the "inflation fatigue" in Britain by the end of the 1970s. This was our crisis. So what we learn from these experiences and others like them is that a fiscal crisis is required to force a majority acceptance of the implications of an overleveraged government.

But the political winds *in countries with central banks* are a long way from blowing in the direction of fiscal rectitude. And while it's true that more people are at least talking about it, talk is very cheap and no one is yet close to walking the walk. Such steps remain politically unpopular because we haven't had our crisis yet. Given the clear unsustainability of government finances and the explosive path government leverage is on, a government funding crisis is both inevitable and necessary. Dubai and Greece are merely the first claps of thunder in what is going to be a long emergency.

Eventually, there will be a crisis of such magnitude that the political winds change direction, and become blustering gales forcing us onto the course of fiscal sustainability. Until it does, the temptation to inflate will remain, as will economists with spurious mathematical rationalisations as to why such inflation will make everything OK (witness the IMF's recent recommendation that inflation targets be raised to 4%: IMF Tells Bankers to Rethink Inflation – WSJ). Until it does, the outlook will remain favorable for gold. But eventually, majority opinion will accept the painful contractionary medicine because it will have to. **That will be the time to sell gold**.

Why this commodity-sceptic value investor likes gold (24/03/2011)

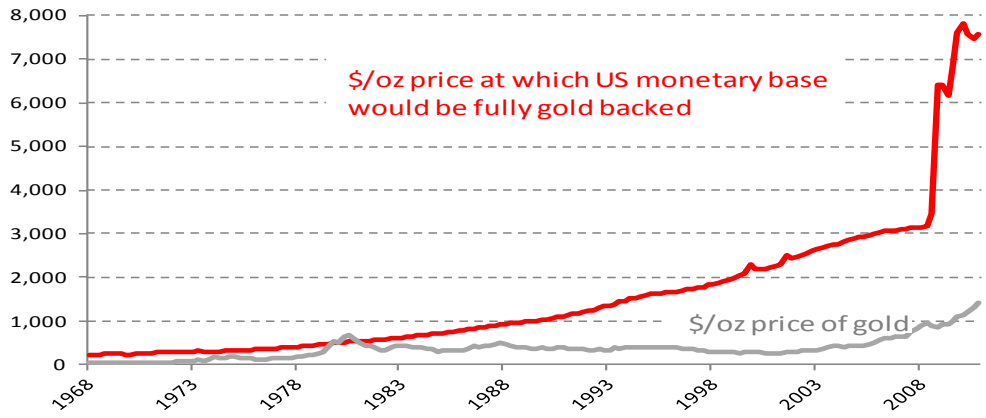
In the hard sciences knowledge builds cumulatively. It propels the relentless growth in man's ability to do more with less, which makes commodities such a lousy investment in the long term. Yet in the realm of social decision-making mankind is a fool, unable to learn the wisdom of posterity and doomed to repeat its mistakes: the first credit crunch occurred in the Rome of 33AD and the ancient Greeks lived with high inflation. Confidence in central bankers' ability to learn from past inflation is as likely to be misplaced as it was in their ability to learn from past credit booms. Gold remains the cleanest insurance against such overconfidence.

▪ I recently showed that the long-term real return on commodities since the 1870s has been zero (Popular Delusions, 15 December 2010), and so I am sceptical of long-only commodity investing. The history of our species has been one of adaptability and innovation, and I argued that to buy commodities was to go short human ingenuity. But some thoughtful observers - see Sean Corrigan profiled on zero hedge for a good example - questioned exactly how "*ingenious*" humanity really is. They suggest that shorting human ingenuity might not actually be such a bad idea!

▪ This is a valid point and one that I want to explore in more detail this week. In the original note I explicitly excluded gold from my analysis, as I have done in subsequent writing. But I have never properly explained what, on the surface at least, appears to be a stark contradiction: how can such a commodity-sceptic as I be so comfortable owning physical gold? What follows is such an explanation. I'll let you decide whether it's any more than an elaborate attempt to relieve a particularly nasty case of cognitive dissonance.

▪ Gold is not like other commodities, and other commodities are not like gold. That difference is central to the reconciliation to come. But it is actually much more. It lies at the heart of the absurd contradiction innate to the human condition: how can a species as capable of the creative resourcefulness embedded in space travel, wireless communication, genome mapping, edible underwear, be, at the same time, so hopelessly incapable of learning past wisdom, and apparently doomed to repeat past follies?

The price of gold at which the USD would be fully gold backed is $7,500/oz



Source: SG Cross Asset Research

If we go back to the very beginning of our story, around 50,000 years ago when evidence of the existence of modern day humans first emerges, we find that we shared our planet with our close genetic cousins, the Neanderthals. They'd been there 80,000 years before the first modern humans evolved and would be extinct 25,000 years later, for reasons no one is entirely sure of. One remarkable theme running through the archaeological evidence, though, is that in material terms at least they made no progress: the rudimentary tools found in excavations of Neanderthal sites dated 125,000 years ago are identically rudimentary to the tools excavated from Neanderthal sites 25,000 years ago. In other words, Neanderthals were not innovators and were consequently, perhaps, ill equipped to deal with the sudden environmental change brought about by the climate or by the spread of modern day humans.

Humans were different. From early stone tools to chipped flint, to spears, to jewels, to cave drawings, to early agriculture, centralised states, pottery and bronze metallurgy; empires, science, medicine, the industrial revolution and today the computer revolution, the human story has been a breathtaking one of innovation and ever-accelerating material progress that shows no sign of abating.

This week's Economist magazine's quarterly technology review has an article about wireless energy transmission. A remote controlled drone called *the Pelican* and normally powered by a twenty minute battery managed to remain airborne for twelve hours during a Seattle exhibition because a laser beam aimed at photovoltaic cells on its underside and kept in place by an optical-tracking system ensured the power supply remained charged. The demonstration hints at a transport revolution without oil, as such a technology might one day make the rocket obsolete and allow for more expansive space exploration.

Nanoscale science offers its own mind-blowing prospects. It turns out that nature's distinction between the elements – copper, zinc, lead – holds only at the 'macro' level. When you get down to the nano level of atoms and molecules where quantum mechanics rule you find *"material unity"* and that materials' properties change spectacularly: white and opaque zinc oxide becomes clear and transparent at the nanoscale; soft aluminium becomes highly combustible at the nanoscale (a potential energy source); malleable carbon graphite becomes stronger than steel and six times as light at the nanoscale; copper can be stretched fifty times its original length without breaking at the nanoscale.

We are developing an ability to design materials to fit specific purposes, rather than simply working around nature's limitations as best we can. Presumably, as our ability to do so improves, so too will our ability to choose the most cost-effective solution for our future material needs. So too will our ability to squeeze ever more *'stuff'* from a given industrial commodity input. Hence the price of commodities will continue to fall relative to the *'stuff'* they go into. This process is entirely consistent with the relentless march of human progress to date, and this trend is what you're up against when you buy commodities for the long term.

Unfortunately though, there is more to the human story than this. Two thousand years ago, Marcus Cicero said *"any man can make mistakes, but only an idiot persists in his error."* By such logic our species is idiotic indeed. For our ability to pass knowledge down through the generations applies only to the physical sciences. In the realms of the social decision making, where humility and realism are so often the dupe of hubris and self-delusion, each generation is condemned to relearn the mistakes of generations past.

The abuse of political power, wars and popular uprisings are as prominent in ancient history as in today's newspapers. In the 5th century BC the helot serfs tried in vain to overthrow their

Spartan masters. Today the Libyan rebels' struggle to topple Gadaffi may be going the same way. Harry S. Truman once said *"there is nothing new, only the history you don't know."*

Financial history is no different. Indeed, it is the systematic tendency towards *precedented* folly which is such a fascinating feature of our financial heritage. During the South Sea Bubble, as the stock of the South Sea company entered stratospheric proportions, John Martins of Martins Bank bought stock at the ludicrous price of £500 and justified it thus, *"when the rest of the world are mad, we must imitate them in some measure."*[41] Nearly three hundred years later, the then CEO of Citigroup, Chuck Prince, echoed identical idiocy with the now infamous utterances *" … as long as the music is playing, you've got to get up and dance."*

Tacitus[42] refers to what may be the first recorded credit crunch in 33AD. An edict on usury from the Emperor Tiberius forced money lenders to call in loans and borrowers to sell property at distressed prices, during a *"great scarcity of money."* Only when the emperor advanced 100m sisterces to distressed debtors to borrow for three years without interest (the world's first ZIRP) did the crisis pass. So the credit crunch of 2008 wasn't the first, and it won't be the last. Yet only a few years ago we were told that financial crises were a thing of the past. Central banks knew better. They'd learned the lessons from the past. But history shows that in the realm of social decision making such confidence is rarely warranted. Hubris plays the lead role in all great financial tragedies.

And what is an inflation crisis if not a financial tragedy? Today our central bankers are as confident in their ability to control inflation (Mr. Bernanke claims 100% confidence) as they were in the soundness of the financial system in 2006. Yet history suggests they shouldn't be, for inflation goes back almost as far as we do. In the ancient Greek comedy, *The Frogs,* written in 405BC, Aristophanes writes that *"the full-bodied coins that are the pride of Athens are never used while the mean brass coins pass hand to hand".* His reference to Gresham's law predates Sir Thomas Gresham's first observation during the medieval inflation of Henry VIII's England by around two thousand years. As the play was written during the closing years of the epic Peloponnesian Wars which would have stretched the government's budget, we can assume that Aristophanes and his audience witnessed inflation first hand.

Like credit crunches, there is nothing new about inflation crises. It's not something which happened in the past but which we now understand well enough to ensure it never happens again, any more than systemic banking crises were. Yet when we talk about past inflationary episodes, whether in classical times, medieval times or industrial times we read of the same two villains of the peace each time: financially pressured governments and the politicised issuance of money. With the festering off-balance sheet liabilities threatening public sector solvency throughout the developed world, and central banks little more than fiscal puppets and economic cheerleaders (with the exception of the ECB, for the moment), we're set to reacquaint ourselves with those villains in the flesh.

Shorting mankind's ingenuity isn't a smart thing to do. But ingenuity isn't wisdom. And shorting mankind's ability to absorb wisdom … well, aren't you silly if you *don't*? With less of the technological risk you're taking when you buy any other part of the commodities complex, gold is the oldest, purest and simplest way.

[41] Quoted in "The First Crash: Lessons from the South Sea Bubble" by Richard Dale
[42] See "The Reign of Tiberius" in the Annals, Tacitus

The market for honesty: is $10,000 gold fair value?
(14/09/2011)

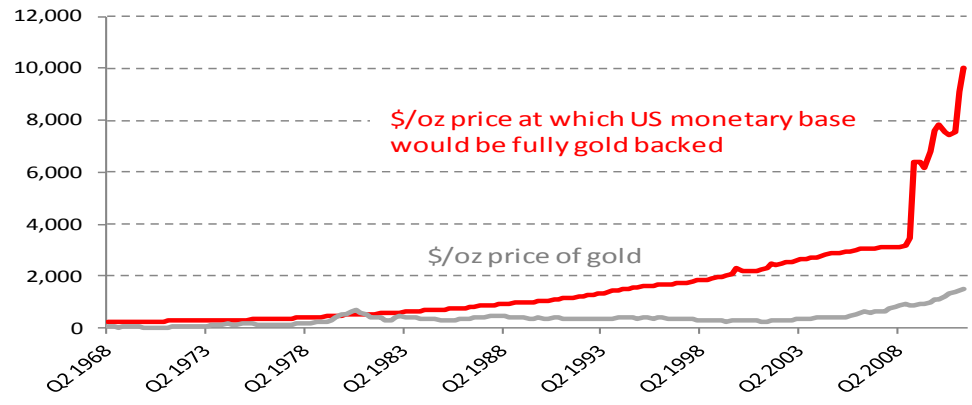
With global demand for non-debased currency surging, last week's capitulation by the Swiss demonstrated once again the perverse risk inherent in doing the right thing. It also narrowed the already shrunken universe of sound currencies. Meanwhile, the per ounce price of gold at which the US dollar would be fully backed has reached $10,000 ....

▪ Gresham's law is often referred to as "bad driving out good". It operates when two currencies are in circulation together, one stable and the other falling in value. Faced with the choice of which currency to pay for goods and services with, people pay in the declining currency while hoarding the stable one for themselves, thus leaving only the depreciating currency to circulate. The sound money 'disappears'; bad money drives out good.

▪ The law takes its name from Sir Thomas Gresham, a banker in Tudor England who witnessed Henry VIII's debasement first hand, though it is clearly referenced in Aristophanes' 405 BC comedy "*The Frogs.*" Since coinage was probably only developed in around the eighth century BC, we can say that Gresham's law is about as old as money itself. It has been documented by Peter Bernholz as a feature of all great inflations since the third century Roman inflation. It explains the behaviour of the gold price today.

▪ But the phenomenon of bad driving out good applies to more than just currencies. Early in my career as an economist (yes, it pains me to admit that I was once one of their number), I remember being taken around to see clients with a certain gloomy strategist known as Albert Edwards. It was early in the spring of 2000 and tech hysteria was fever pitched. Talk was of a "new paradigm" and madness masqueraded as wisdom. Albert had been going around, with me in tow, arguing that the madness was, well … mad … but most meetings were hostile and Albert's views were felt to be too extreme (some things never change!) But one meeting stands out in my mind, making a deep impression on me ...

"Fair value" for gold now $10,000 p/oz



Source: SG Cross Asset Research

"Human nature being what it is, all men prefer a false promise to a flat refusal."

Quintus Cicero, musing on his brother Marcus' political success

The fund manager who'd taken this breakfast meeting listened to Albert begin his argument but seemed agitated. Then, after only a few minutes he interrupted. *"Look,"* he gasped, *"I know it's all crazy, but what do you want me to do? If the bubble inflates like this for even one quarter and we don't participate, we'll lose half our assets. I'll be out of a job!"* Here was someone who could see the fraud all around him but felt powerless to resist. Bad fund management practice was driving out good.

A few years ago, the FT's John Authers documented the very same phenomenon, recalling his time as a journalist covering the banking industry.[43] In June 1999 Washington Mutual (WaMu) shares fell by 5% because the company was unwilling to lever its balance sheet to buy mortgage-backed securities which, analysts confidently informed him, was the surest way to EPS growth. Of course, nine years later, WaMu became the then biggest banking failure in US history precisely because somewhere along the way, it embraced exactly that strategy. When Michael Lewis wrote about the origins of the Greek debt crisis he noted *"the Greek state was not just corrupt, **it was corrupting.**"* His astute observation can be generalized to the warped world of folly that is economics and finance.

Last week, the Swiss National Bank (SNB) pledged to buy "unlimited" amounts of foreign exchange to prevent the Swiss franc from further appreciating. In other words, it is willing to print "unlimited" quantities of Swiss Francs, tolerating an "unlimited" debasement of its currency. Why would the Swiss of all people, one of the world's few remaining 'sound money' proponents make such a commitment? Because unlike its main 'competitors' in the market for currency (the major central banks), which are either debasing with abandon or looking as though they're about to, Switzerland had been rewarded for its rectitude with an uncomfortable share of the world's flight capital and a painful currency overvaluation. So the SNB has given up trying to be honest in a dishonest world.

So let me explain why I believe printing money to be a **fundamentally dishonest endeavour**. Think about how it works. When the central bank, at zero cost, increases the monetary base by 1%, where does that money go? Answer: into the market for government bonds. Since printing the money to buy government bonds costs nothing, government revenues are obtained ostensibly for free. Of course, it buys those bonds in the secondary market rather than from the government directly, and the pretense of an arm's length transaction between government and central bank is thus maintained, with all parties claiming a separation of monetary and fiscal policy. But it's only a pretense.

By issuing bonds to itself the government seems to have miraculously raised revenue without burdening anyone else. This is probably why the mechanism is universally adopted throughout the world's financial system. Yet free money does not, and cannot, exist. Since there can be no such thing as a government, or anyone else for that matter, raising revenue "at no cost" simple logic tells us that someone, somewhere has to pay.

But who? This is where the subtle dishonesty resides, because the answer is that no-one knows. If the money printing creates inflation in the product market, the consumers in that product market will pay. If the money printing creates inflation in asset markets, the purchaser of the more elevated asset price pays. Of course, if the printed money ends up in asset

[43] See "Long View: Testing times for true believers in a bull run." John Authers, Financial Times, 26-08-08

markets *even less* is known about who ultimately pays for the government's 'free lunch', because in this case the money printing sets off its own dynamic via the perpetual Ponzi machine that is the global financial system. The 'free lunch' providers will be the late entrants into whatever asset-bubble or investment fad the money printing inflates.

The point is we can't know *who* will pay, only that *someone* will pay. Thus the government has raised revenues without even knowing upon whom the burden falls, let alone telling them. Compare this to raising explicit 'honest' taxes, which are at least transparent. We know who levied the sales tax or the income tax, when it was levied, when it is payable, and how much has to be paid. The burden of this money printing, in contrast, seeps silently into the economy, falling indiscriminately but indubitably on unseen, unknowing victims.

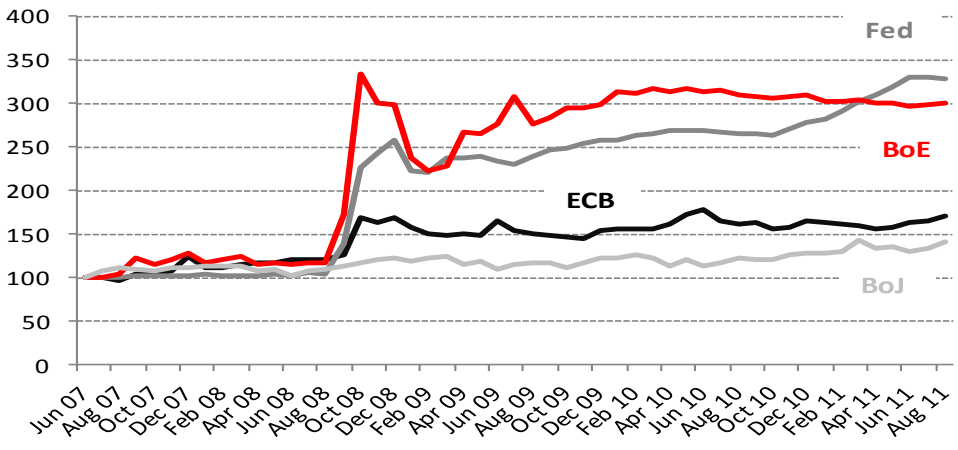
The economic hardships this clandestine tax operation imposes are real and keenly felt. But because no one knows from where it comes the enemy is unseen. Thus, during great inflations, societies turn on themselves with each faction blaming another for its malaise: the third century inflation crisis in ancient Rome coincided with Diocletian's infamous persecution of the Christians; the medieval European debasements coincided with surging witchcraft trials; the extreme Central European hyperinflations following WW1 saw whole societies blaming their Jewish communities. More recently, the aftermath of the historically modest asset inflations in the tech market and the US real estate market have seen society turn on "fat-cat CEOs" and "greedy bankers" respectively.

By now, some of you might feel this all to be irrelevant. Surely, you might be thinking, the plain fact is that there *is* no inflation. I disagree. To see why, think about what inflation is in the light of the above thinking. I know economists define it as changes in the price of a basket of consumer goods, the CPI. But why should that be the definitive measure, given that it's only one of the many possible destinations in money's Brownian journey from the printing presses? Why ignore other destinations, such as asset markets? Isn't asset price inflation (or bubbles as they are more commonly known) *more* distortionary and economically inefficient than product price inflation?

I believe economists focus so firmly on product prices in their analysis of inflation not because of any judgment over the relative importance of one type of inflation over the other, but simply because CPI-type measures of inflation are easier to see. In doing so, they resemble the fabled driver who lost his keys one evening and was found looking for them under a streetlamp. When asked by his wife why he was looking there when he'd probably lost them further back, he replied *"Because here it's easier to see."*

We know that revenue cannot be raised for one person without costing someone else. We know that money printing generates revenue for the public sector. So we also know that money printing must be a tax. We know that the magnitude of that tax – the inflation rate – can be reliably measured by the increase in the rate of base money growth. Since we don't know which markets new money will end up in or even when, we know we can't reliably count on measures of inflation in those markets to tell us what the "inflation rate" is. Thus, the only reliable measure of inflation is the expansion of the monetary base. So to those who say there is no inflation, I give you the following chart.

There is no inflation … : central bank balance sheets (Jun 2007=100)



Source: Bloomberg

By now, the more polite economists among those still reading may be thinking something like: *"What **utter drivel** you are full of Grice! When there is a recession/depression on and the pressure faced by an economy is deflation, which can become self-fulfilling, the only correct thing to do is to create inflation to protect jobs."*

To this I would reply that every right thinking person wants to see job creation. Those advocating the creation of inflation, or fiscal stimulus are doing so because that's what the system of logic known as 'theoretical macroeconomics'[44] teaches. Yet this system of logic with its deeply flawed epistemological foundations is what brought us here in the first place! The macroeconomic body of knowledge represents no such thing – a cacophony of faiths would be more accurate. The instruments and gauges it recommends policy makers rely on – CPI, trend growth, output gaps, NAIRUs, budget deficits, debt/GDP – are subject to such wide conceptual ambiguity, not to mention estimation error, as to render them utterly meaningless. The fact is the captains of our ship have no reliable gauges. They have no understanding of what a yank of this lever, or a push on that button will ultimately achieve. They just think they do. Intoxicated by trumped up notions of what they know and understand, the drunk driving of macroeconomists is what led us to where we are today.

Of course, this begs the question of why we continue to listen to them. I believe it's for the same reason that Quintus Cicero thought his famous brother was such a successful politician two millennia ago: **people prefer a false promise to a flat refusal.**

Believe it or not, for all this talk of honesty and dishonesty I'm not actually passing any judgment on the ethics of this state of affairs. The simple fact is that as a species we're liars. One of the most famous recent experiments was carried out by Robert Feldman who recorded students talking to strangers for ten minutes, and then asked the students to watch the recordings again, making notes of the number of lies they told. Fully 60% owned up to lying at least once, with an average of 2.9 lies (to be precise) told per person. As a species, our capacity for conceptual thought makes us better at it than other animals, but other

[44] I don't think economics can ever be anything more than a structure of logic by the way. We might pretend otherwise, but macroeconomics can never be a truly empirical discipline because we will never know the opposing counterfactual of what would have happened had event x not happened. Interesting though they may be, "lessons" from Japan or from the Great Depression add virtually nothing to "what we know".

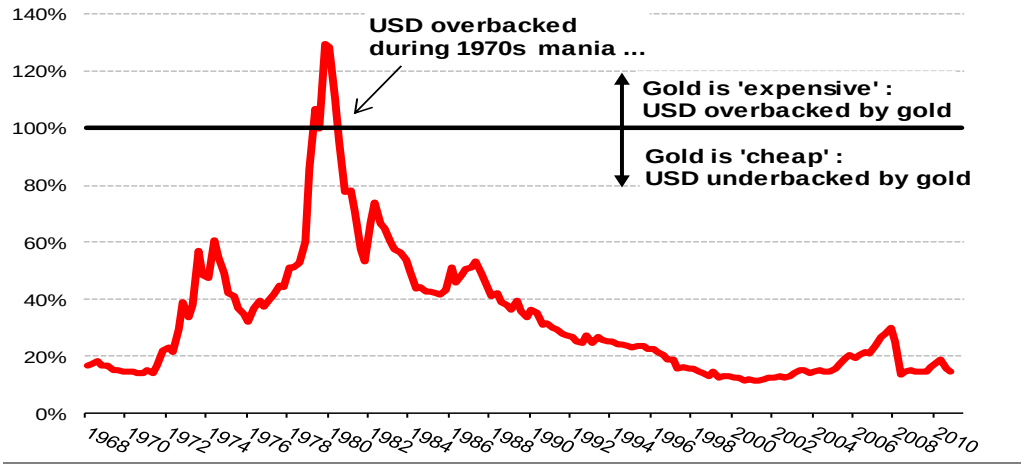
animals do it too. When a Kildeer's nest is threatened, it feigns a broken wing to lure its predator away. There are firm evolutionary foundations for the tendency towards untruth.

However, societies work on trust too, and there are equally firm evolutionary foundations for honesty. I know honest economists, honest investors, honest journalists, even … deep breath … honest bankers. Indeed, there is a *demand* for honesty. There is a demand for honest brokers, fund managers, lawyers, dentists, doctors, plumbers etc. And there is a demand for honest currency.

That demand has overwhelmed the Swiss. But their actions merely narrow the universe of honest destinations for flight capital with which gold has historically competed. For gold has no export sector, no pop-economists to be swayed by, and no populists to pander to. Gold might be a mere lump of dense, useless shiny metal, but it's one which crackpot central bankers can't print. Indeed, benchmarked against the printing of The Ben Bernak, the price of gold at which the US dollar would be fully gold-backed is now $10,000 (see front page chart).

You might think such a 'price target' is far-fetched (and I might agree with you). But bear in mind that the last time honesty was perceived to be so scarce – in the 1970s gold mania – the dollar was *over-backed by gold* (see chart below). If it happened then, why not again?

Gold is "cheap": USD only 15% "backed"



Source: SG Cross Asset Research

Commodities

A structural shift is set to imbalance grain markets and increase global instability (17/09/2010)

The 1973 spike in world oil prices is usually attributed to OPEC's spectacularly successful embargo. But commodity markets face disruptions all the time and the effects are short lived. Why did the 1973 oil markets disruption lead to *permanently* higher real prices? The OPEC embargo was merely the *trigger*. The cause was a structural shift which saw a rapid surge in the import needs of oil's biggest consumer, the US, as its oil production peaked in 1970. Today, the grain market's biggest consumer - China - is undergoing a similar shift.

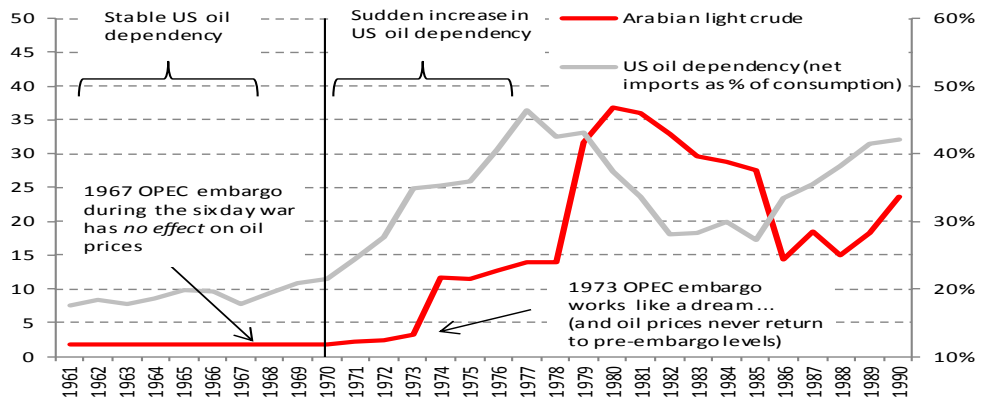
■ On the 6th October 1973 – the holy Jewish holiday of Yom Kippur that year - the fourth and most intense Arab-Israeli war started. Egyptian jets launched surprise attacks on Israeli command posts on the eastern side of the Suez and the Sinai, while Syrian planes simultaneously attacked from the north. It would be the most serious Arab-Israeli conflict ever, threatening at one stage to spill over into a full-blown nuclear conflagration between the Soviet Union and the US.

■ Fortunately, a cease-fire was brokered before it came to that. But by then the industrialised economies were in disarray suffering simultaneous recession and inflation. Indeed, this spectacular use of the "oil weapon" which Kissinger said "*altered irrevocably the world as it had grown up in the post war period*" would be the most lasting effect. The psychological effects of the "*OPEC shock*" continue to linger in the public's mind today.

■ But the "oil weapon" might not have been as potent as has generally been assumed. Indeed, it *failed miserably* when used during the six day Arab-Israeli conflict of 1967. Then the US had so much spare capacity the embargo simply brought the Arab nations to the edge of financial ruin. The reason it worked so spectacularly in 1973 was that the US spare capacity was now gone. Indeed, US oil production had already entered into permanent decline and its import dependency was surging (chart below, grey line).

■ So the spike in oil prices may have been triggered by OPEC's embargo, but the violence of the move and the continued volatility was caused by a permanent structural shift. A similar shift seems to be playing out in grain markets today.

The 1970s spike in oil prices was made possible by surging US oil dependency

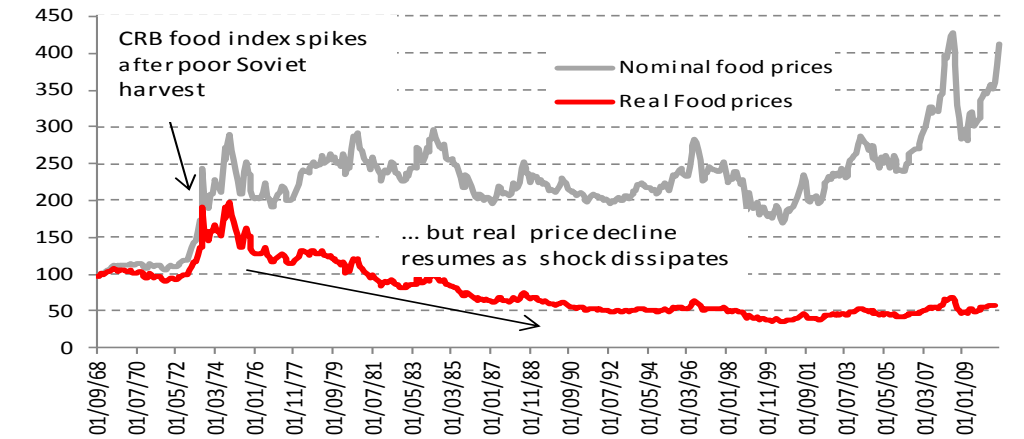


Source: SG Cross Asset Research

Real commodity prices should decline over time as technological advancement lowers the supply costs without affecting the basic utility of the commodity. A bushel of wheat today is pretty much the same as a bushel of wheat five thousand years ago, except that it costs a fraction of the labour to produce. Temporary bottlenecks shouldn't change this long-term downward trajectory, and should cause only temporary price increases until new supply can be brought to market.

A famous example of a temporary shock was that suffered by agriculture markets in 1972 after a catastrophic Soviet harvest forced Brezhnev to secretly tap world markets in an operation which became known as the "Great Grain Robbery." The Soviet Union was one the largest consumers of grain in the world and its sudden, forced and mercifully short-lived plunge into the world grain markets as a large buyer caused prices to nearly triple (see chart below).

What a temporary shock looks like – the CRB food index after the Great Grain Robbery



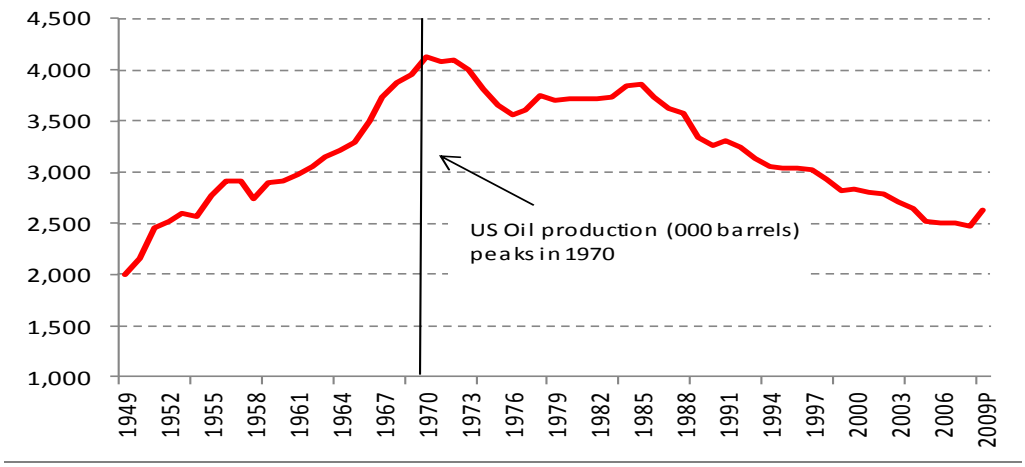
Source: SG Cross Asset Research

But the shock was largely temporary, as poor harvests tend to be. There was an aftershock in 1977 as the Soviets endured another poor harvest but the bull market in agricultural produce was over. Prices remained in a tight range for the next few decades and failed to keep pace with inflation.

The shock to energy markets was more serious. It was driven by the *permanent* peaking of US oil production in 1970 which pushed the US dependency ratio (imports as a % of consumption) from 20% to 40% in barely three years. The permanent nature of that shift is reflected in the permanent rise in real oil prices: the subsequent oil glut of the 1980s crashed the market and ruined many leveraged players, but even in the depths of the global commodity bear market in the aftermath of the Asian crisis in 1997, *real* prices were 70% higher than they had been before the OPEC shock of 1973 (see sequence of charts below).

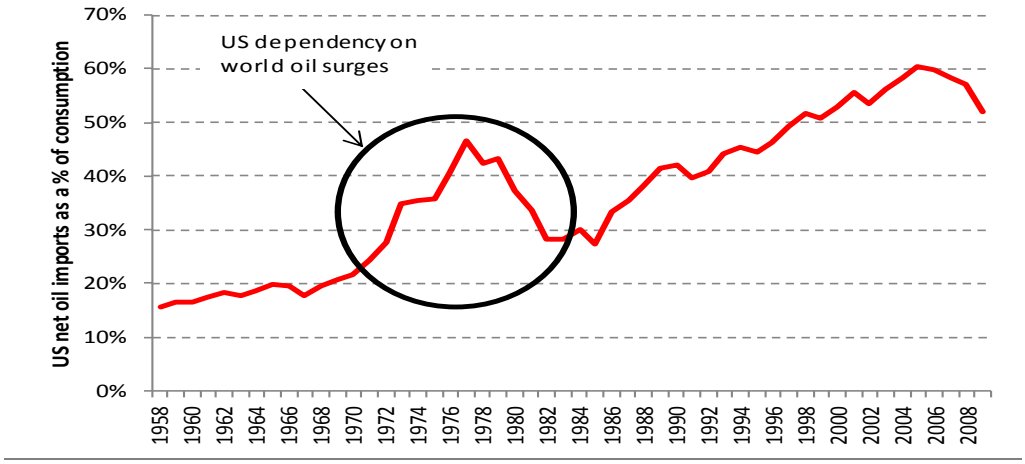
This implies an interesting hypothesis: the 1970s bull market in energy wasn't caused by the OPEC embargo but by the strain of the market's largest consumer suddenly and permanently increasing its dependency on the oil available for export. The implication is that had OPEC *not embargoed* oil during the Yom Kippur war, real oil prices would eventually have risen anyway because underlying conditions required it.

US oil production permanently peaked in the 1970s



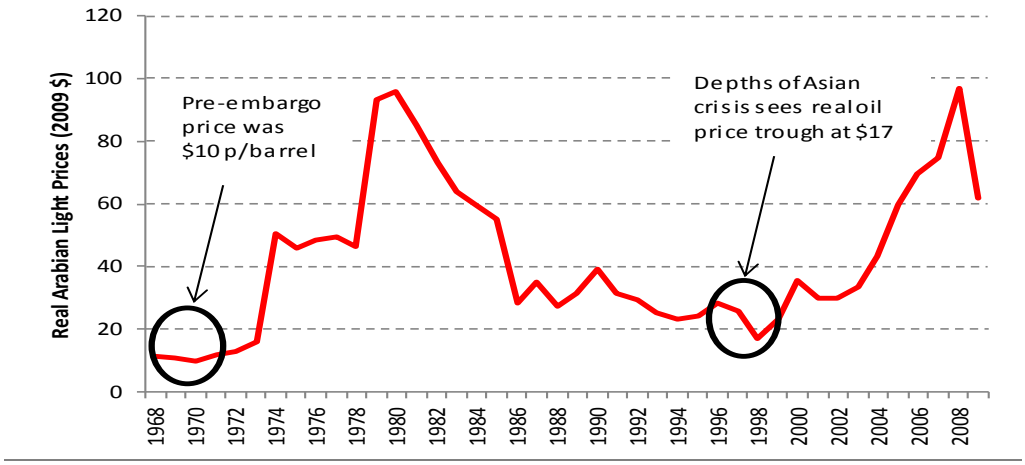
Source: IEA

... leading to a rapid doubling of US import dependency ...



Source: IEA

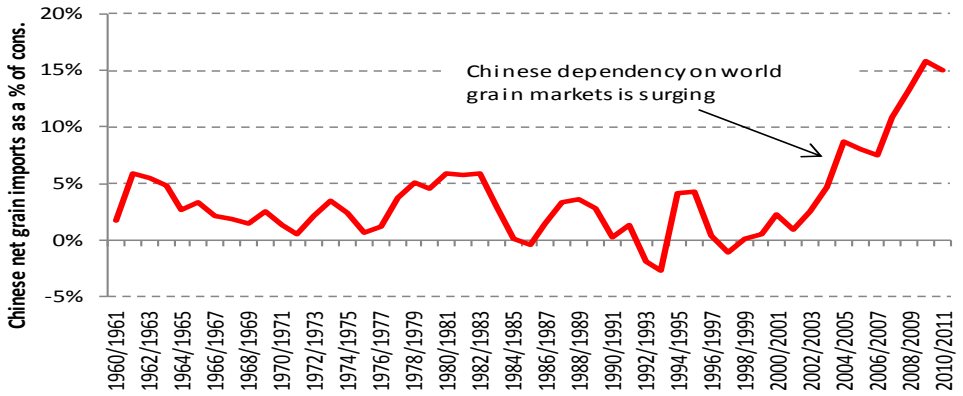
... and pushing *real* oil prices to a new long-term equilibrium



Source: BP Statistical Review

The hypothesis might be more than just interesting though. It might even be relevant! Today, the largest consumer in the grain markets – China - is seeing its dependency on world export markets surge in a similar way to that seen in the oil market in the 1970s.

Is China to today's grain market what America was to the world's energy markets?

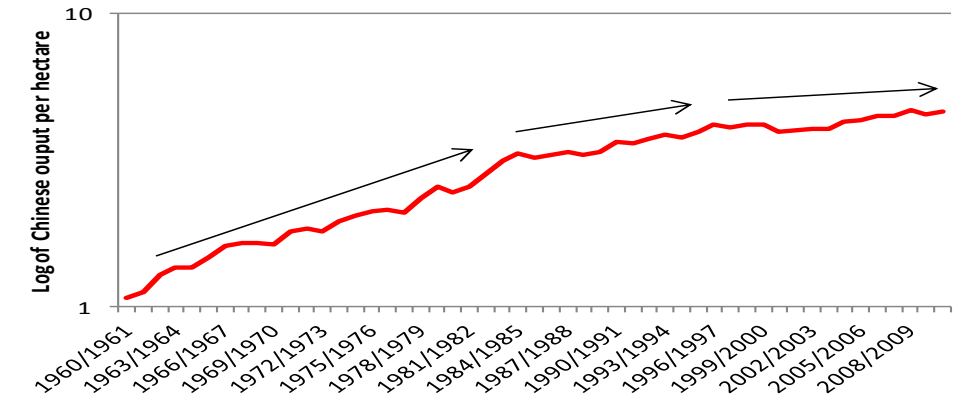


Source: USDA

Why might this shift be permanent? With 7% of the world's land and water but 22% of the world's mouths to feed, China's fight to retain grain self-sufficiency was always going to be a losing battle unless the economy was devoted entirely to agriculture. Of course, prior to Deng's 1978 reforms that's exactly what China was. But the logic of industrialization in such a land and water constrained country implies scare water and land be effectively imported via grain and livestock, while abundant labour be exported through manufactured products. And while China has excelled at the latter, it has understandably resisted the former.

But how long can it defy the arithmetic of natural resource endowments? The dismantling of the agrarian economy in favour of an industrial model has seen scarce land built upon. Roads, car parks, factories and shopping malls increasingly take the place of farms. Industrialization also implies richer households eat more protein and, paradoxically, meat-rich diets require much more grain than vegetarian ones (apparently around seven times more). None of this would be a problem if China was capable of increasing its agricultural productivity as spectacularly as it is increasing its living standards. But so far at least, it isn't coming close. According to the USDA Chinese land productivity continues to decline.

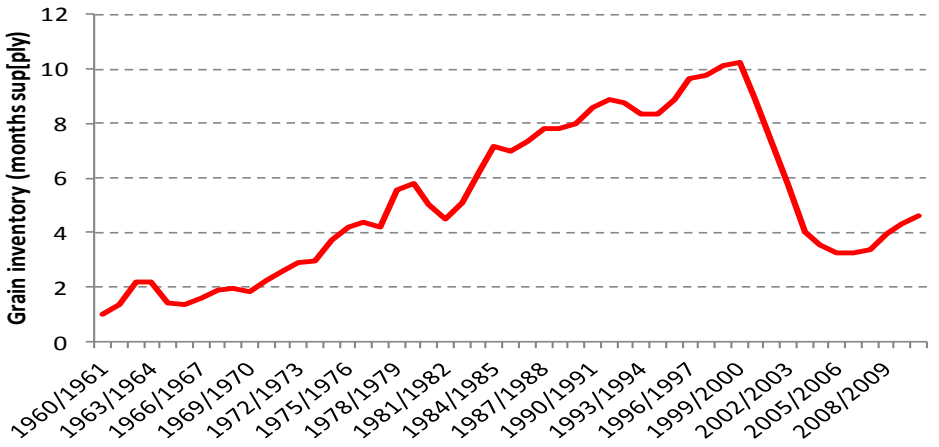
China's land productivity growth is falling



Source: USDA

The strain first started to show in the collapse in Chinese inventories in the early 2000s. Now, as China tries to rebuild them it is showing up in China's surging import dependency. It seems reasonable to think that it will soon be showing up in price.

Chinese agricultural inventory (month's worth of consumption)



Source: SG Cross Asset Research

"Hunger eats civilization" says Marjane Saatrapi, author of the beautiful book Persepolis. Food inflation has a dark history. It has been said that the 70s food crisis contributed to the Iranian revolution. We know the Russian Revolution started with starving workers protesting high bread prices. The Parisian riots of 1789 following the devastated crop of 1788 snowballed into the French Revolution and the revolutionary fervour which swept Europe in 1848 followed a sequence of bad harvests.

If BHP Billiton's bid for Potash Corp succeeds, the Australian miner could own a third of the world's potash supply in ten years' time. This week, a magazine interview in which Sinochem's Han Gensheng said that Potash Corp was too pricey was pulled from Chinese news sites hours later. The site which had carried the comments now denies the interview ever took place. The Chinese appear to be getting twitchy on the security of their future grain supplies. Who can blame them? The following names might be worth looking at.

Company Name	Country	Mkt Cap ($m)	Book Val p/sh*	est. Intrinsic Value	Last close**	IVP
Chaoda Modern Agriculture Ltd.	Hong Kong	2,661	6.28	13.1	6.6	1.98
Marine Harvest ASA	Norway	2,226	3.19	6.1	5.0	1.20
Bunge Ltd.	United States	8,146	70.80	56.0	56.7	0.99
Archer Daniels Midland Co.	United States	20,949	23.01	28.2	32.5	0.87
Yara International ASA	Norway	9,704	99.38	224.4	269.4	0.83
Agrium Inc.	Canada	11,432	30.77	60.8	74.4	0.82
K+S AG	Germany	10,569	10.93	34.4	42.4	0.81
Nufarm Ltd.	Australia	756	6.07	3.2	4.1	0.79
Incitec Pivot Ltd.	Australia	5,475	2.10	2.8	3.6	0.77
Golden Agri-Resources Ltd.	Singapore	4,051	0.63	0.4	0.6	0.67
Taiwan Fertilizer Co. Ltd.	Taiwan	2,291	51.17	57.6	99.0	0.58
Syngenta AG	Switzerland	23,756	79.39	126.3	251.5	0.50
Monsanto Co.	United States	31,603	18.86	27.0	57.5	0.47

Source: SG Cross Asset Research, FactSet. * Latest actual data. ** Closing prices as of 15 September. *** Our analyst rates K+S a Buy with a price target of €50. For a more complete explanation of intrinsic value see Dylan's 'Bargain hunting with Ben: in search of mispriced intrinsic value', 2 December 2009

Commodities for the long run? Not on your Nellie – I'd rather eat coal!! (15/12/2010)

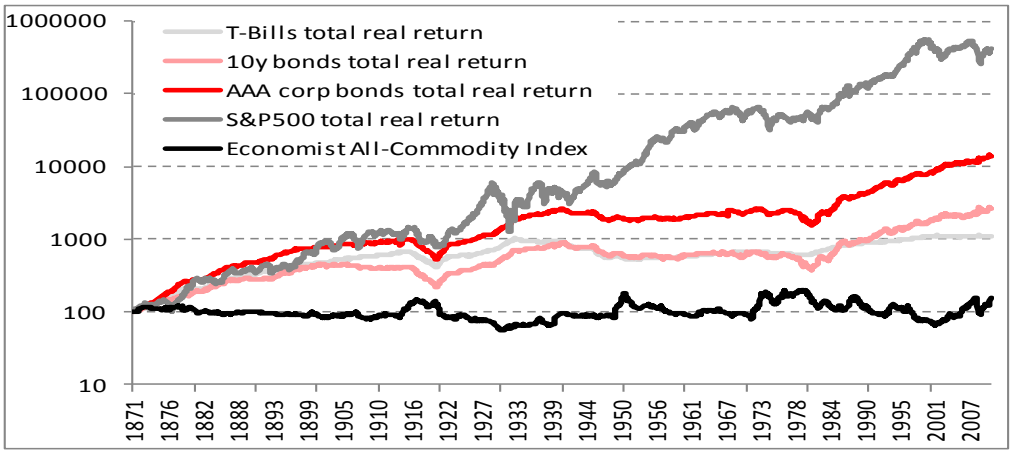
With scarcity developing in key parts of the commodities complex – energy, industrial metals and agriculture - there are many good reasons to want exposure to commodity markets. Regular readers will know I'm particularly bullish on agriculture (and gold, though I view this as a currency). But there is one very good reason not to invest in the commodities themselves: their expected long-run real return is 0%.

▪ The fluctuations of commodity prices have fascinated *speculators* for hundreds of years, but why should *investors* be interested? Commodities aren't productive assets, so how can they create wealth over time? And why should they provide investors with a collectable risk-premium? Commodity returns can be decomposed into the "spot" return and the "roll" return. It's not obvious to me that either are dependable sources of compoundable profit.

▪ Prior commodity bull markets have been much like England football managers: they promised much, burned brightly for a while, but ultimately crashed, breaking the hearts of those who believed in them most. The chart below shows that in real terms, commodity prices have gone nowhere in the long run. Bull markets have tended to end where they started. Admittedly, the commodity series in the chart is a spot price index rather than an investable total return index, but as we'll see inside, total returns are likely to be as underwhelming.

▪ All this implies a bright and profitable future for skilled traders able to see the bottom of bear markets and the top of bull markets. The rest of us, we'll be lucky to do as well as your average long-suffering fan of the English national football team. There will be ups and downs, but history suggests "buy and hold investors" in raw materials are likely to make zero real returns. Better to build a portfolio of low-cost commodity producers/equipment providers, or give your money to people who know the commodity markets well, be they trend-following CTAs or competent speculators (if you can find any at a good price).

Real commodity prices have gone nowhere

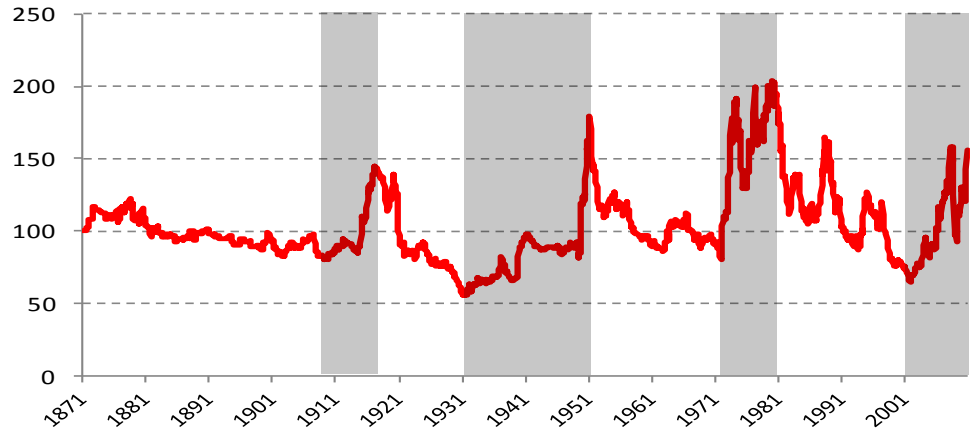


Source: SG Cross Asset Research, GFD

Why *should* commodities provide investors with a real risk premium? Shouldn't prices actually *decline* in real terms over time? A bushel of wheat, a lump of iron-ore or an ingot of silver today is identical to a bushel of wheat, lump of iron-ore or ingot of silver produced one thousand years ago. The only difference is that they're *generally* cheaper to produce because over time, human innovation has lowered the cost of production. **When you buy commodities, you're selling human ingenuity.**

Past performance is no guarantee of future results, obviously, but human ingenuity has a good track record of overcoming nature's constraints so far. A commodity bull market is really just a bottleneck and as a species we've succeeded in bottleneck removal. Historically, most bull markets have ended up where they started.

Real commodity prices (1871 = 100, shaded areas show bull markets)



Source: SG Cross Asset Research, GFD

Why bet *against* human ingenuity by buying physical commodities when you can bet *on* it by investing in the enterprises whose task is to remove the bottlenecks and lower commodity prices? As a strategy, this is something I will focus on in later notes. I think there are more efficient ways to gain exposure to commodity markets and I will write in more detail about them after Christmas.

But for now I want to focus on the commodities themselves and show why they're such an inefficient way to invest. Natural gas is a good example. I have a book on my shelf written in 2004 by Julian Darley which made a big impression on me at the time. It's called "High Noon for Natural Gas" and in it, the author spends a great deal of time lamenting the lack of planning for the soon-to-bite shortage of domestically produced North American natural gas. Wrote he:

"For the United States, and by extension for Canada and Mexico, high noon has indeed arrived for natural gas ... For North America, now racing full bore into the carbon chasm (a huge gap between high energy demand and falling supply), the question boils down to whether or not to agree to build dozens of new liquefied natural gas importing terminals."

Naturally, by increasing import dependency, such a solution would simply surrender what little energy security the US still enjoyed. A prominent alternative news site echoed his fears:

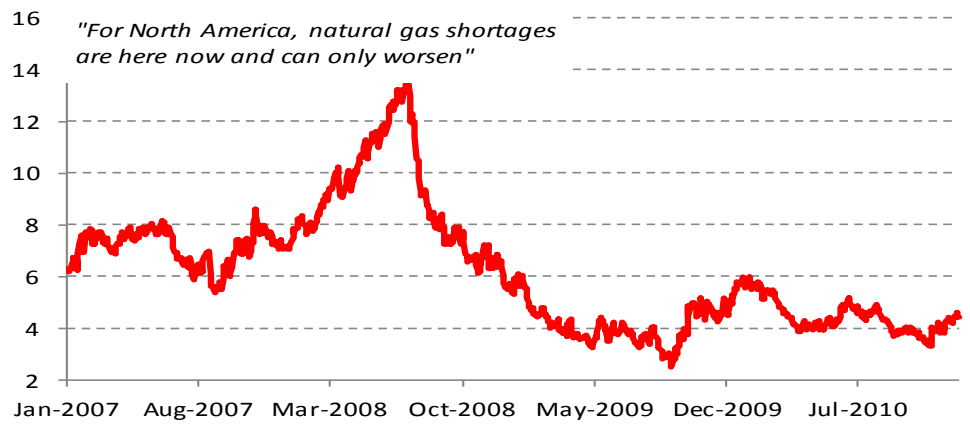
"For North America, natural gas shortages are here now and can only worsen."[45]

A few years later the prophesies appeared to be coming to pass. In June 2008 natural gas traded at close to $14 p/mbtu. A friend of mine (a very successful commodities trader, incidentally) told me that, because of problems with Asian supply, LNG shipments would be diverted from North America, leaving that market horribly short unless US natural gas hit $20 p/mbtu. I believed him.

But almost as he was speaking, natural gas prices were collapsing (see chart below). A glut of new 'unconventionally' extracted supplies hit the market as hitherto unobtainable gas, thought forever locked into impermeable shale-rock formations, became easily extractabled using cutting-edge hydraulic fracturing and horizontal drilling techniques. Once, these techniques were expensive and highly experimental. Today they are conventional and often cheaper than more established techniques.

Indeed, we might even be looking at a global glut. Shale formation rock is everywhere, and on every continent. Does that mean shale gas is too? The IEA think so. Their guess is that global shale reserves are more than five times current proven conventional gas reserves. I have no idea if they're right or not. No one will until drilling is more advanced. But the recent evolution of the natural gas market is merely the latest example of high commodity prices being ravaged by the unceasing cycle of speculation, investigation and inference which is the essence of the human condition.

Natural gas prices ($ p/mbtu)



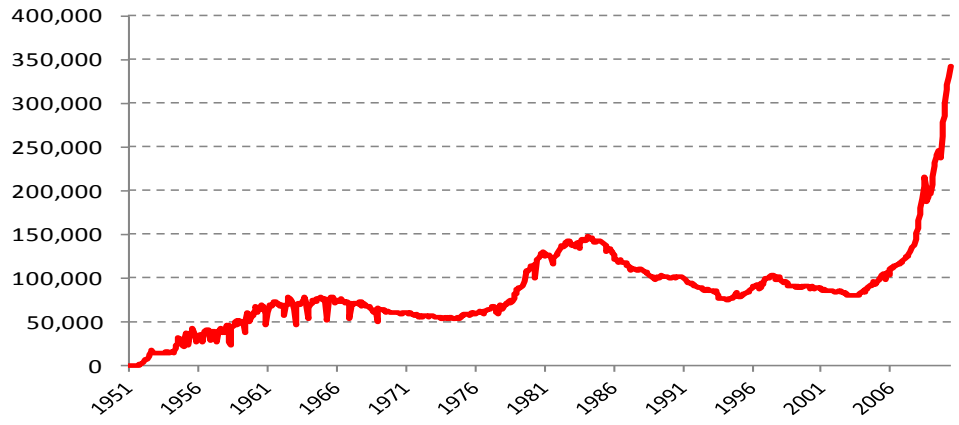
Source: SG Cross Asset Research, Bloomberg

Indeed, the very same techniques which have been so benign for natural gas producers – and so devastating for natural gas investors - seem to be bearing fruit in the oil industry too. Mineral leases that would have gone for $10 an acre in the Niobrara Shale a few years ago are going for nearly $6,000 an acre today according to the FT recently.[46] Benefitting from these techniques, oil production in North Dakota has risen by 160% in the past three years (see chart below). Might hydraulic fracturing do to the oil markets what it did to the gas markets? I think it's unlikely for a number of reasons, but who really knows? What I know is that I'd

[45] See "Oil Shortages look Certain by 2007 – LNG to the rescue?", www.fromthewilderness.com
[46] See "US energy firms rush into shale oil projects", FT September 28th, 2010

much rather buy the companies – for example the low cost integrateds, E&Ps and drillers - whose job it is to fix the world's emerging energy problems than I would buy the energy itself.

North Dakota daily oil production (bpd)



Source: North Dakota Industrial Commission

Now, at this point you're probably thinking to yourself *"What kind of buffoonery is this Grice? You're just saying what everyone knows about spot commodities already. Commodity investors invest in the futures markets, not the spot markets, and it's there that they earn a riskpremium by rolling contracts."*

This idea goes back to Keynes, who argued that current future prices should be *lower* than expected future spot prices, so that suppliers selling forward paid an effective 'insurance' to speculators taking on the risk of price volatility. Thus, the "normal" state of commodity markets should be for longer-dated futures to be priced more cheaply than current prices. Such a market would be 'backwardated.'

For long-only investors, this 'insurance premium' is collected by rolling futures contracts in backwardated markets. Suppose the spot price of oil is $80 p/barrel. Most investors can't buy oil at the spot price. What they can buy is the front month future which currently would be for delivery in December 2010. And rather than take delivery of the crude oil when the December contract expires, they'll sell the contract and buy the next one, expiring in March 2011. When the March 2011 contract expires, they'll buy June 2011 contract, and so on.

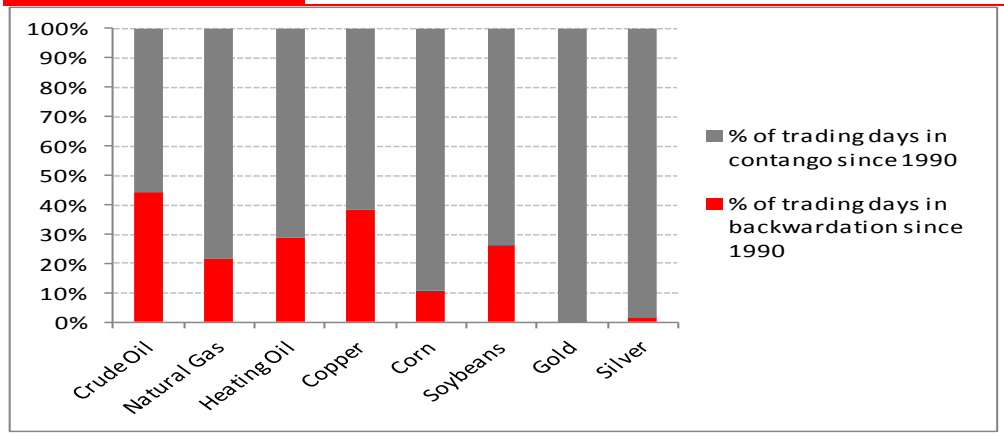
Suppose the December 2010 future is $80 but the March 2011 future is $78. When the investor rolls contracts he'll be selling the December 2010 for $80 and buying the March 2011 for $78. Assuming spot prices remains unchanged at $80, the March future will rise by $2 by expiry. If the investor keeps rolling contracts every quarter, he'll have made $8 by the end of the year – a 10% return - even though spot prices have remained at $80.

The problem is that to pick up that risk premium, the near months need to be *systematically* priced higher than those further out. But it's not clear that this is the case. Currently, the futures strips for aluminium, silver, corn, soybeans, crude oil and natural gas are all in contango (upward sloping), meaning that investors are rolling into more expensive contracts rather than cheaper ones. Academics have noted the same phenomenon. D.E. Allen et al studied futures prices on the LIFFE, SFE and SIMEX, concluding that *"normal backwardation*

is not normal … it does not appear that a positive risk premium exists in a majority of the markets studied."[47] [48]

Indeed, the following chart shows the percentage of trading days during which various futures markets have been backwardated over the past 20 years. It shows that contango (an *upward* sloping futures strip, the opposite of backwardation) has been the normal state of affairs, meaning that it has cost investors to roll contracts, thus they have been *paying* rather than receiving a risk premium!

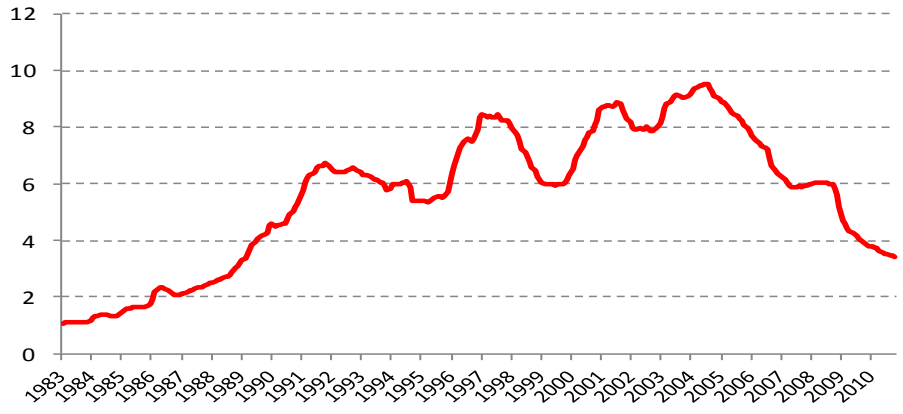
Most futures markets have been in contango most of the time over the past 20 years



Source: Bloomberg

The following chart shows this more clearly. It takes the S&P GSCI Total Return Index as a ratio of the S&P GSCI Spot Index. If investors had been picking up a risk premium by systematically rolling futures indices their total return would be higher than the spot market return. So the ratio of the total return index to the spot index should steadily rise over time. In fact, the ratio has been zero for the last *twenty years.*

Ratio of GSCI Total Return Index to GSCI Spot Index (rising ratio signals +ve roll return):



Source: Bloomberg

What the chart doesn't show is that over the past 20 years the GSCI's annualised total return has been 4.3% despite the spot return being 5.2%. In other words, the 'roll yield' has been

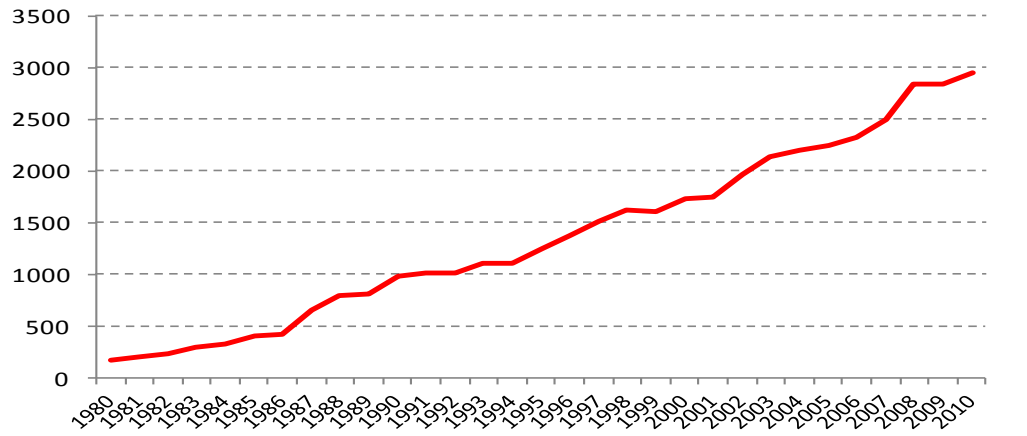
[47] See "Backward to the future: a test of three futures markets" by Allen, Cruikshank, and Morkel-Kingsbury

[48] Its fair to say that opinion is divided. Almost everyone that's ever looked at it has found that futures markets are not systematically backwardated. But in 1985, a certain thrusting young economist, then with the world at his feet, and known only as Albert Edwards, found that they were. For his seminal contribution to the world's understanding of risk premia in futures markets applied to financial interest rate futures, see *"Arbitrage between the spot and futures markets for Eurodollars",* Bank of England Quarterly Bulletin, December 1985 (signed copies are available on request).

-0.9%. Since the year 2000 it has been even worse. The GSCI spot return has annualised an impressive 9.9%, but the total return has been only 3.9%. The "roll yield" has been -6%!

If the shape of the futures strip determines the likely returns to investors, you might think investors should restrict themselves to buying commodity markets which are in backwardation while selling short those which are in contango. Aside from the complexeties of executing such a strategy which runs counter to the idea of passive index investing, it would also probably have been quite painful to run for most of this decade because the spot price rises of most commodities offset the negative roll yield.

Barclay Hedge CTA hedge fund index, cumulative return (1980=100)



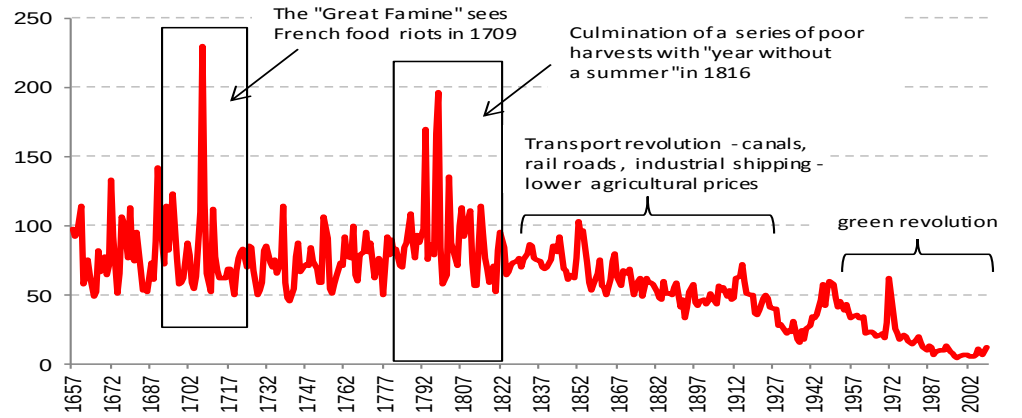
Source: www.barclayhedge.com

Should investors then develop a process which takes both the shape of the futures strip into account when determining spot price momentum to ensure positions are only taken in commodities where the stars are aligned? Possibly, but you're moving away from the realms of 'investing' and into those of active 'speculating'. And there's nothing wrong with this, but it's important to understand your circle of competence. Since this is exactly what trend-following CTA funds have been doing for decades (Commodity Trading Advisors – generally systematic 'trend followers'), it might be be more profitable to give one of them your money to invest, rather than passively invest in a commodities index.

Over the past decade, commodity investors haven't done badly. But as we've seen, they've made money recently not by picking up Keynesian risk premiums but by being on the right side of the most recent bull run in the spot prices. From the front page, we know how reliable such rallies have been in the past. But for those still unconvinced, let's finish up by taking a panoramic history of real commodity prices over the last couple of centuries for industrial metals, precious metals, agricultural commodities, soft commodities and energy.

Let's start with wheat. The chart below shows real prices dating back to 1657. Two things are striking: the first is that wheat prices in real terms have steadily declined over time, by -0.6% per year; the second is that there have been some spectacular bull markets notwithstanding this trend decline. Those corresponding to the run of poor harvests during the late 17th and the 18th centuries are highlighted.

Real wheat prices (1657=100)



Source: SG Cross Asset Research, GFD

Interestingly, both periods saw profound social upheaval. The bankrupt Bourbon monarchy of the day was so spooked by the French food riots of 1709 it agreed to the highly experimental monetary system then being peddled to monarchies across Europe by a certain Scottish 'adventurer' known as John Law. The run of poor harvests at the end of the 18th century would contribute to the unrest which would become the French Revolution. Both periods highlighted coincided with unusually low solar activity, of the like we are seeing today.

If wheat is a typical example of the real price trajectory of the majority of commodities, cotton is perhaps the most spectacular. The following chart shows real prices since 1820. The very obvious spike of the early 1860s occurred during the Amercan civil war, when cotton rose from $0.10 in 1860 to $1.89 in 1863. In those days the South was primarily a cotton-based economy and Britain, its largest customer, was the most powerful economy in the world. Since Britain relied on American cotton to run its dominant textile industry, Jefferson Davis calculated that embargoing cotton exports would help shift the British from their position of neutrality to support for the Confederate cause.

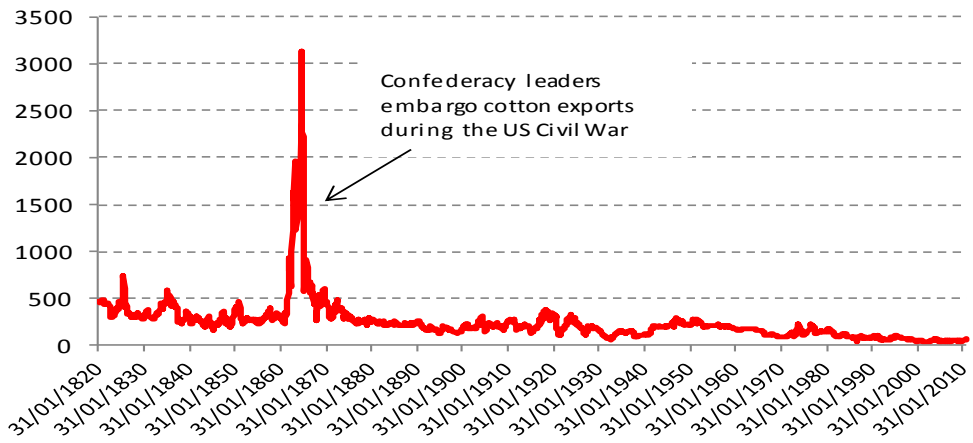
It was a huge miscalculation. The "cotton famine" of the early 1860s encouraged additional production elsewhere in the world and deprived the Confederacy of its main source of revenues. But for a pertinent lesson on the dangers of assuming a commodity boom will last forever, the sorry tale of Egypt's then Khedive Ismail Pasha, and his hasty response to the price spike is pertinent.

Officially a part of the Ottoman Empire (but highly autonomous in practice), the Egyptians had long sought formal independence. Unfortunately for them, the European powers were more concerned with maintaining the balance of power than they were with Egypt's cause and so were wary of encouraging instability in their Ottoman neighbours. To win Western support for independence, therefore, Egypt had to make itself more geopolitically important. The most obvious way to do this was to take control of the Suez canal project which was then underway. With the record prices cotton now commanded on the world market, the Khediva saw his opportunity. The ambitious plan to buy out the French would be financed by borrowing against now plentiful cotton revenues.

Unfortunately, the flood of cotton revenues soon dried up. Egypt wasn't the only alternative supplier, and India and Brazil were soon producing too. Then the US Civil War ended, US cotton exports resumed, prices collapsed and Egypt was saddled with a debt burden it could

no longer afford. The financial crisis which ultimately ensued saw the British taking over Egypt's shareholding of the canal, moving its troops in to protect its new 'strategic interest' and expelling poor old Ismail the Magnificent, with French help.

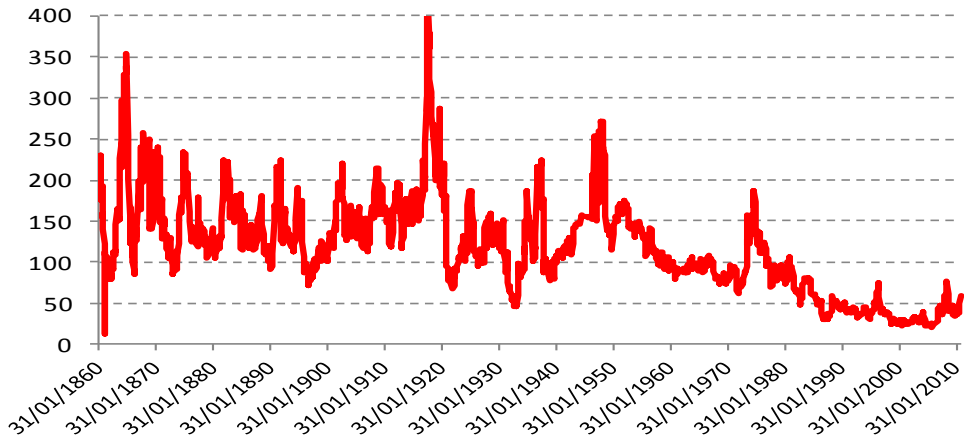
Real cotton prices (1930 =100)



Source: SG Cross Asset Research, GFD

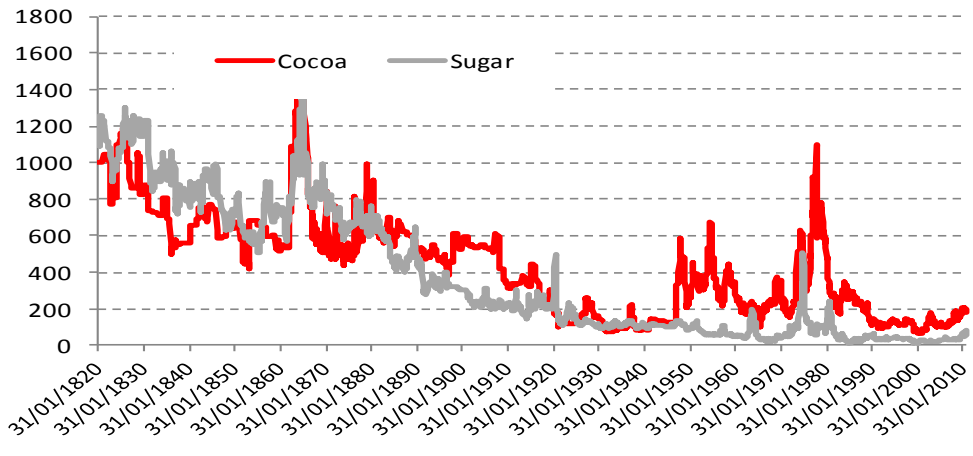
The following charts show that real corn, cocoa and sugar prices have followed the characteristic trajectory of that outlined, as have most the industrial metals such as aluminium, copper and zinc. Tin, iron ore and gold have been roughly stable (though notice that silver's decline makes it look like an industrial commodity) while oil and natural gas have risen in real terms, reflecting increasing marginal cost curves in those sectors. The potentially profound implications of this have been outlined in Andy Lee's excellent chapter in "The Gathering Storm", the book to which both Albert and I contributed, the proceeds go to charity and which is available for purchase here.

Real cornmodity prices (1930=100)



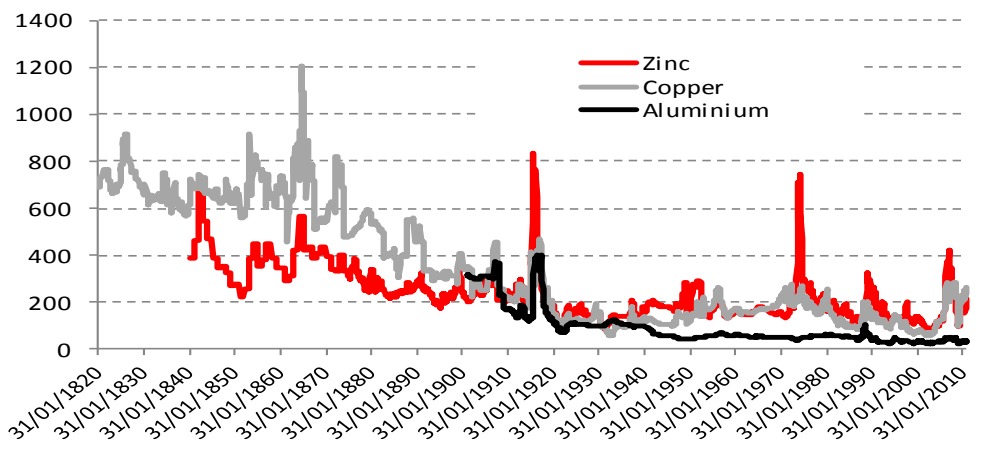
Source: SG Cross Asset Research, GFD

Real cocoa and real sugar prices (1930=100)



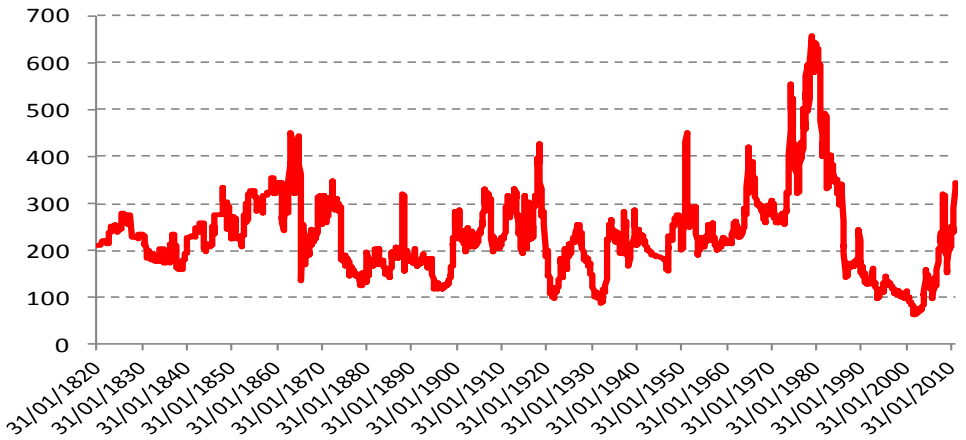
Source: SG Cross Asset Research, GFD

Real copper, aluminium and zinc prices (1930=100)



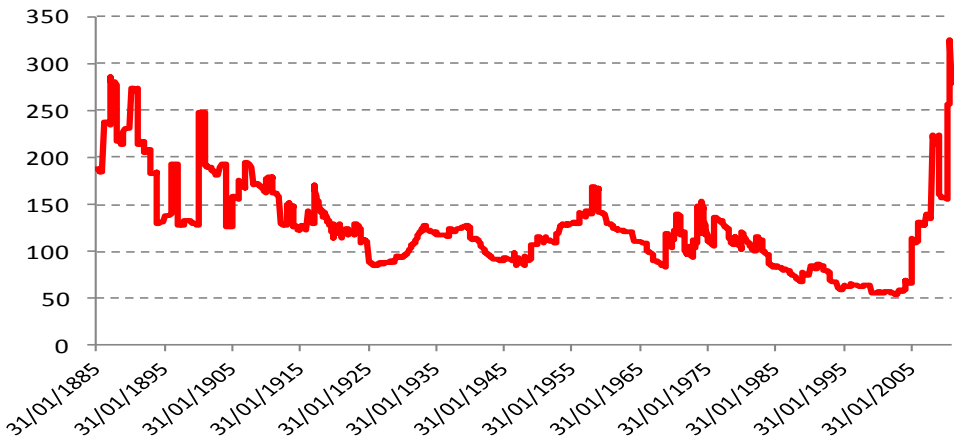
Source: SG Cross Asset Research, GFD

Real tin prices (1930=100)



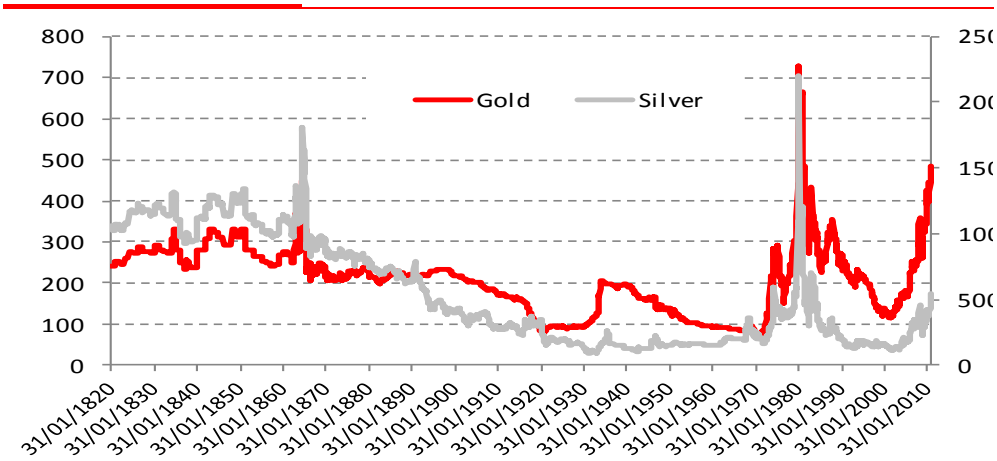
Source: SG Cross Asset Research, GFD

Real Iron-ore prices (1930=100)



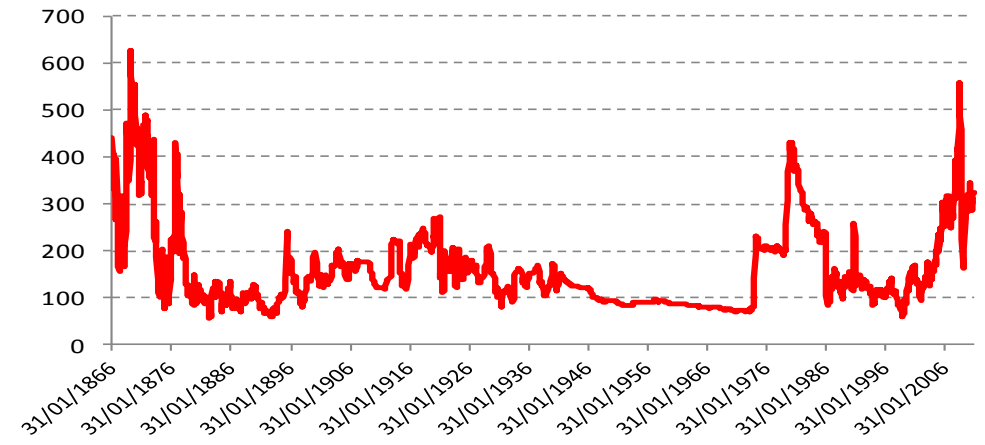
Source: SG Cross Asset Research, GFD

Real gold and silver prices (1930=100)



Source: SG Cross Asset Research, GFD

Real oil prices (1930=100)

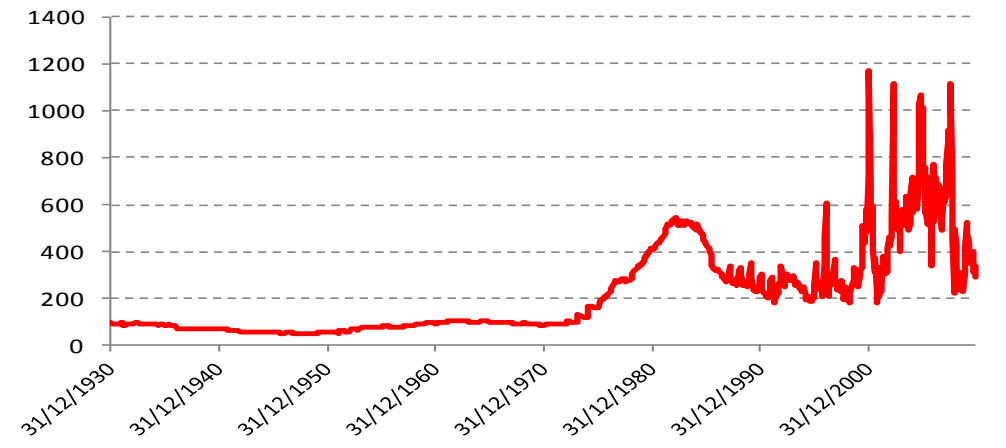


Source: SG Cross Asset Research, GFD

Real coal prices (1930=100)

Source: SG Cross Asset Research, GFD

Real natural gas prices (1930=100)



Source: SG Cross Asset Research, GFD

Books

Six books I'm trying to get Albert to read (16/12/2009)

In the short time I've been doing this job, a recurring conversation I have had with clients has been about my favourite books. One client asked me what books we would recommend to a university graduate coming into the industry. Albert has passed on this onerous task, claiming he only reads "chick lit"; but since James Montier made book lists a bit of a SocGen tradition I've come up with the six broadly financial titles which fundamentally changed the way I view the world.

It's very difficult to come up with a list of favourite investment books that doesn't change each time I think about it. But the ones which have, I think, made the biggest impression on me are as follows:

1. Manias, Panics and Crashes, by Charles P. Kindleberger;
2. The Essays of Warren Buffett, edited by Larry Cunningham;
3. Reminiscences of a Stock Operator, by Edwin Lefevre;
4. Fooled by Randomness, by Nassim Taleb;
5. The Case against the Fed, by Murray Rothbard;
6. Judgement under Uncertainty: Heuristics and Biases, eds Kahneman, Slovic and Tversky.

'Manias, Panics and Crashes', by Charles P. Kindleberger

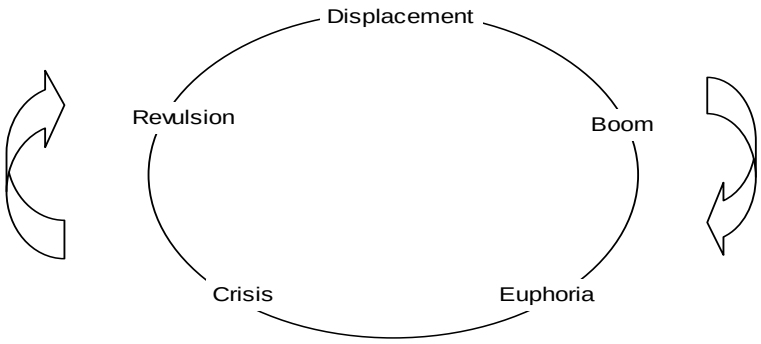
Firming up a list of favourite books is a bit like nailing jelly to a wall, there being so many worthy candidates that making final decisions is very difficult. My one exception though is Kindleberger's history of financial calamity, which is the easiest to include. It is the best single book on how financial markets actually behave and if I could recommend only one book to understand finance it would be this. Drawing on an encyclopaedic knowledge and lifetime's reading of financial manias (in Appendix B to the book, roughly 45 crises dating from the 1622 Holy Roman Empire crisis to the Asian crisis of 1997 are summarised), legendary MIT economic historian Charles P. Kindleberger gives a beautifully panoramic view of financial crises through the ages.

History is specific, economics is general. As a historian, Kindleberger weaves anecdotes into common themes in a beautifully written narrative: self-deprecating, linguistically rich and genuinely illuminating of the thesis. As an economist he places the narrative into a convincing model which is based largely on the work of one Hyman Minsky.

The five-stage model is now well known (see chart below). Crises start with a random 'displacement' which jolts expectations. This can be war, the end of a war, an unexpected harvest, a new technology or indeed financial deregulation (as we've just been reminded with the sub-prime fiasco). Then comes stage two, the 'boom.' Prices rise; the public's attention is captured by tales of previously obscure speculators' newfound super-wealth; ample liquidity creation fans the flames. Eventually the boom becomes 'euphoric', stage three, when what had been niche becomes mainstream. As Kindleberger dryly remarks "there is nothing so disturbing to one's well-being and judgement as to see a friend get rich." Participation now becomes widespread and the collective mania begins.

The 'crisis' occurs when prices stop rising. Insiders have sold out and those new to the narrative - the 'weak hands' - are forced to sell. Suddenly, the spell is broken and the collective realisation that valuations are unsustainable precipitates a rush for the exits. The trigger for the crisis may be the failure of a bank, or a firm associated with the speculation stretched too tight. Regardless, the rush is on. As prices decline, bankruptcies increase, scapegoats are found and swindles are uncovered, the people and the ideas associated with the boom are ridiculed and despised. 'Revulsion' has set in.

Anatomy of a bubble: the Kindleberger-Minsky five stages model



Source: Kindleberger, SG Cross Asset Research

Each stage gets a dedicated chapter, but it's the historical examples that turn the abstract into something rich and real. For example, the role of monetary expansion in fuelling the 'boom' phase recounts the role of personal credit innovation during the Dutch tulip mania; the role of the unpronounceable *Wisselruitij* in the 1763 Dutch commodity bubble; joint-stock banking in the 1793 British canal mania; changes to banking regulations in 1826 fuelling 1830s and 1840s railway booms; new world gold and the railway booms of the 1850s and 1860s; the coinage of silver in the United States during the 1893 crash; and the boom in trust companies going into the 1907 crash.

It is often said that bubbles don't reinflate. Perhaps. But there is a very clear tendency for manias to revisit certain themes. Railways were a constant theme in the 19th century. Real estate bubbles have been common throughout the past couple of centuries. And commodity bubbles resurface from time to time (e.g. copper in 1888 and 1907, gold and silver in 1979), as do periodic infatuations with emerging markets (the first being that of 1825).

Finally, it's important to emphasise that the book is great not only for its illuminating content and structure. In correctly discarding the assumption that markets were rational and fitting the historical facts to a Minskian framework, it was well ahead of its time too. Although well known today, when Kindleberger was writing in the 1970s Minsky wasn't taken seriously.

In 1982, Kindleberger edited a book in which Minsky wrote a chapter outlining the "Financial Instability Hypothesis." Here is what one reviewer of that chapter wrote:

"It is argued …. that the larger a financial system grows in relation to the economy and the more complex and layered it becomes, the greater its fragility and its proneness to financial crisis, and the more serious the effect on economic development. Now it is a fact that over the past century and a half the financial systems in practically every country … have become relatively larger and more complex … It is also a fact that financial crises have become rarer and less acute and indeed have almost disappeared since the early 1930s, a period of nearly half a century, in sharp contrast to the decennial recurrence in the preceding century. Financial crises are a childhood disease of capitalism, not an affliction of old age. This contradiction alone is sufficient, it seems to me, to invalidate the financial instability hypothesis." [49]

Kindleberger saw the power of Minsky's idea long before the mainstream because he'd spent his life studying the instability of stability. To me at least, it provides further vindication of the economic historian's approach: to consider the general as it informs the specific; to increase the number of events in the sample size; to put facts before theory. In contrast, consider how much of current economic 'understanding' is based on the Great Depression and Japan's lost decade(s) - a sample size of two.

We shouldn't be too hard on the hapless reviewer. Writing at that time, extreme financial panics had become distant memory. In failing to predict the avalanche of such crises to come over the next three decades (an age of speculative excess which somehow became known as "the great moderation"), he had merely assumed that what had happened recently would persist indefinitely. The 'problem of induction' applies to historians too ....

'The Essays of Warren Buffett'; Edited by Larry Cunningham

For pure timeless investment wisdom I don't think there is a better book than this abridged version of Warren Buffett's letters to Berkshire shareholders. The healthy influence one would expect from Buffett's early mentor (Munger has had a greater influence later in Buffett's life) is ever present: a subsection is dedicated to the story of Mr. Market, Ben Graham's mental framework for dealing with the price fluctuations which are so often fatal to the best laid plans; another is called "Intelligent Investing." But Buffett and Munger's thinking not only updates that of Graham and Dodd, it goes beyond it. It is therefore as pioneering in my view.

Each page drips with richly distilled common sense on a wide range of topics. On investment philosophy "*… as citizens, Charlie and I welcome change: Fresh ideas, new products, innovative processes and the like cause our country's standard of living to rise, and that's clearly good. As investors, however, our reaction to a fermenting industry is much like our attitude towards space exploration: We applaud the endeavour but prefer to skip the ride.*"

On board accountability " *… at too many companies, the boss shoots the arrow of managerial performance and then hastily paints the bullseye around the spot where it lands.*"

On the difference between accounting goodwill and economic goodwill: *"… when an overexcited management purchases a business at a silly price … because it can't go anywhere else, it ends up in the Goodwill account. Considering the lack of managerial discipline that created the account, … it might better be labelled 'No-Will' …. What a business can be expected to earn on unleveraged net tangible assets, excluding any charges against earnings for amortization of*

[49] See "Financial Crises: Theory, History and Policy" Eds Charles P. Kindleberger and Jean-Pierre Laffargue, pp 42.

Goodwill, is the best guide to the economic attractiveness of the operation. It is also the best guide to the current value of the operation's economic Goodwill."

I could go on endlessly as each section contains priceless insight. But for me the common sense typical of the entire book is best exemplified in the section entitled "'Value' Investing, A Redundancy." In a discussion of the Berkshire approach to investment selection, Buffett makes the following remarks:

" … most analysts feel they must choose between two approaches customarily thought to be in opposition: "value" and "growth." Indeed, many investment professionals see any mixing of the two terms as a form of intellectual cross-dressing. We view that as a fuzzy thinking (in which, it must be confessed, I myself engaged some years ago). In our opinion, the two approaches are joined at the hip: growth is always a component in the calculation of value, constituting a variable whose importance can range from negligible to enormous and whose impact can be negative as well as positive.

In addition, we think the very term "value investing" is redundant. What is "investing" if it is not the act of seeking value at least sufficient to justify the amount paid?

... whether appropriate or not, the term "value investing" is widely used. Typically it connotes the purchase of stocks having attributes such as a low ratio of price to book value, a low price-earnings ratio, or a high dividend yield. Unfortunately, such characteristics … are far from determinative as to whether an investor is indeed buying something for what it is worth and is therefore truly operating on the principle of obtaining value …. Correspondingly, opposite characteristics – a high ratio of price to book value, a high price-earnings ratio, and a low dividend yield – are in no way inconsistent with a "value" purchase. Similarly, business growth per se, tells us little about value. It's true that growth often has a positive impact on value … but such effect is far from certain."

'Reminiscences of a Stock Operator', by Edwin Lefevre

The prejudice of our industry today seems to be that while "investing" is acceptable, "speculation" isn't. We all like to think of ourselves as thoughtful intellectual sages who *invest* while idiot 'punters' and 'spivs' *speculate*. I've never felt comfortable with this distinction though, and if Ben Graham articulated the founding principles of "intelligent investment", *Reminiscences* articulates those of "intelligent speculation."

A thinly disguised biography of legendary early 20th century speculator, Jesse Livermore, the accounts of the panic of 1907, or of the Lusitania sinking of 1915, are riveting in themselves. But the real richness of the book is in the principles it articulates. Though learned in the markets of a century ago they remain as pertinent today because they are rooted in the hardwired tendency to folly that is the human condition.

Buffett has said that successful investing has more to do with temperament than intellect. Livermore gives the following stark insight:

"*The speculator's chief enemies are always boring from within. It is inseparable from human nature to hope and to fear. In speculation when the market goes against you, you hope that every day will be the last – and you lose more than you should had you not listened to hope – to the same ally that is so potent a success-bringer to empire builders and pioneers, big and little. And when the market goes your way you become fearful that the next day will take away your profit, and you get out – too soon. Fear keeps you from making as much money as you ought to. The successful trader has to fight these two deep-seated instincts. Instead of hoping he must fear; instead of fearing he must hope. He must fear that his loss may develop into a much bigger loss, and hope that his profit may become a big profit.*"

Indeed, on further reading it's interesting how similar the philosophies of the intelligent speculator are to those of the intelligent investor. The focus on process rather than outcomes is emphasised …

"The professional concerns himself with doing the right thing rather than with making money, knowing that the profit takes care of itself if the other things are attended to."

… as is knowing your "circle of competence" and your ability to be patient:

"What beat me was not having brains enough to stick to my own game – that is, to play the market only when I was satisfied that precedents favoured my play. There is the plain fool, who does the wrong thing at all times everywhere, but there is also the Wall Street fool, who thinks that he must trade all the time."

But perhaps the most consistent theme is the importance of downside minimisation. Buffett has said the first golden rule of investing is never to lose money. The second is never to forget the first. For the Graham and Dodd-schooled investor, risk is managed by buying on a margin of safety. For the speculator it is ensuring losses stay small and are taken quickly:

"I knew of course, there must be a limit to the advances and an end to the crazy buying of A.O.T - Any Old Thing – and I got bearish. But every time I sold I lost, and if it hadn't been that I ran darn quick I would have lost a lot more."

'Fooled by Randomness', by Nassim Taleb

Taleb warns us to beware of confirmation bias. We focus on the seen and the easy to imagine and use them to confirm our theories while ignoring the unseen. If we had an urn with 999 red balls and 1 black one, for example, our knowledge about the presence of red balls grows each time we take out a red ball. But our knowledge of the *absence* of black balls grows more slowly.

This is Taleb's key insight and it has profound implications. A theory which states that all balls are red will likely be 'corroborated' with each observation. Our confidence that all balls are red will increase. Yet the probability that the next ball will be black will be rising all the time. If something hasn't happened before or hasn't happened for some time we assume that it can't happen (hence the "this time it's different" syndrome). But we know that it can happen. Worse, we know that eventually it will.

A few years ago Ben Bernanke told us a nationwide housing market crash in the US was highly unlikely because it had never happened before (housing bubbles had previously been localised, e.g. in California or Florida). He based his monetary policy on it, the GSEs based their lending

polices on it, AIG based its bond insurance strategy on it, and the agencies based their ratings on it. So when the first nationwide crash did happen we got wiped out ....

Today, the idea that Japan, say, will suffer a government funding crisis is similarly silly – everyone knows that Japan has a deflation problem, not an incipient inflation problem. One prominent commentator recently argued that since he "couldn't see any precipitating event" likely to trigger a JGB market crash, there was no precipitating event. Not being able to see something doesn't mean that something isn't there. Yet we behave as though it did.

There are two main criticisms of Taleb's work. One is that he is 'arrogant.' I don't know him at all so can't really comment. He does come across as someone who enjoys intellectual mischief. And he also comes across as someone who has a passion for ideas. So I don't find him arrogant. Or maybe it's fairer to say I'm not bothered by his arrogance. But who cares? Criticising the style of delivery is an *ad hominem* tactic – playing the man. It has nothing to do with the validity or otherwise of Taleb's insights.

Maybe a more valid criticism is that his ideas aren't new. The 'problem of induction' is well known and Karl Popper showed decades ago that it was logically impossible to verify hypotheses (all we can hope to do is falsify them). Again though, I don't see this as a particularly important criticism. Not just because Taleb freely admits to the influence of Popper in his thinking, but because it implies there is something wrong with popularising an idea! For bringing Popper's ideas to life I think he should be congratulated for doing the world a service, as Richard Dawkins has been for popularising the notion of gene-centred evolution.

In the publishing sense his subsequent book 'The Black Swan' was, well in my view, a black swan. It was perfectly timed. It was beautifully presented. It elaborates on the themes explored in *Fooled by Randomness* with a chapter devoted to Mandlebrot's fractal geometry, and it develops the idea of Mediocristan (where statistical moments can be estimated) versus Extremistan (where they can't moments can't). It's a great sequel and a worthy addition to any bookshelf. But I prefer the original.

'The Case Against the Fed', by Murray Rothbard

Murray Rothbard is an economist who deserves more attention. Marginalised during his lifetime by the mainstream[50] for the "unconventional" Austrian approach which, like Minksy, puts inherent financial system inherent instability at the heart of how the economy functions, it is odd that while Minsky's ideas have enjoyed a deserved renaissance, the Austrian school is still treated with suspicion.

Rothbard's disconcertingly simple thesis is that there is no need for a central bank. There is no need for a government monopoly on the issuance of money and so no need for the monopoly issuer to set a price (i.e. the central bank sets interest rates). Heavily regulated fractional reserve banking creates a persistent bias towards unstable credit inflation and therefore economic instability, while activist central bankers merely add to the problem. Allowing anyone to open a bank and anyone to issue a currency would be the best way of selecting a sound currency, securing low inflation and achieving long-term economic stability.

So central banks add to economic instability. And the more angles I think about this from, the more I think Rothbard and the Austrians are right. Former Fed Governor William McChesney Martin once quipped that the job of the central banker was to take away the punchbowl as the party gets going. However, such a policy requires the central banker to lean against the winds

[50] Though not by Kindleberger, interestingly enough, who though no Austrian knew a good economic historian when he saw one. He frequently refers Rothbard's prolific financial history writings.

of credit growth, asset price inflation, and therefore political popularity. In other words, being a good central banker requires a strong contrarian streak. And while McChesney Martin might have had one, Greenspan didn't. And Greenspan created the tech bubble which created the housing bubble which created the current mess.

I'm not personally attacking Greenspan, or any other central bankers for that matter. I'm saying that it's an impossible job. Central banks think they can control the economy and its inflation rate but behavioural psychologists have demonstrated how prone we are to both overconfidence and to the illusion of control. We are behaviourally ill-equipped to set the economy-wide cost of capital and the market would likely do a *less imperfect* job.

'Judgment under uncertainty: Heuristics and Biases'; edited by Tversky, Kahneman and Slovic

If there is a theme running through all of the books above it is that people are flawed in their ability to think rationally: Kindleberger knew it because he'd studied the history of folly; Buffett quipped that if the Efficient Markets Hypothesis was correct he'd be a bum on the street with a tin can; Jessie Livermore was acutely aware of the frailty of the human condition via his intimacy with the inner game that is market speculation; Taleb has eloquently demonstrated the difficulty we have accepting how little we know (even if others, including Buffett and Munger, were already there); and although Rothbard was writing long before the discoveries of behavioural psychology, I believe his insight that central banks exacerbate the system's existing tendency towards instability are given far more weight by it.

James Montier introduced me to this body of work when we were at Dresdner Kleinwort about eight years ago now, and still I find myself re-reading chapters and learning new things. 'Heuristics and Biases' proves, for example, that our preferences change when the context in which they arise changes, that we see patterns in random data; that we are even more prone to see patterns in random data when in possession of a theory predicting such patterns; that we overweight outcomes we can imagine easily; that even though we prefer more information to less we are hopeless at processing it; that we are hopeless at gauging correlations until they are very obvious. It proves, in other words, that we are flawed as rational thinkers, which is why the above authors are right.

Happy Christmas!

I first published at SocGen in mid-September and it's been a fun few months. I've come across some fascinating people already and am excited about 2010. I try to respond to all the emails I get in reply but inevitably some slip through the net. If I didn't respond to one of your mails I apologise. I hope it doesn't put you off trying to contact me again, or even resending the original response. But I'm looking forward to getting in touch with my inner skier, and catching up on some reading. On my list are the 'The Panic of 1819' by Rothbard, 'Once in a Golconda' by John Brooks, and 'Lords of Finance' by Liaquat Ahamed. We'll see how far I get.

Five books for the beach (15/07/2010)

At Christmas I offered up some ideas for winter reading based on the six books which had had the biggest influence on my thinking over the years. Now that summer is here, which means the rain in London is warm, and minds are wandering to more exotic locations, I thought I'd lower the hurdle a little. Here are five books I've read recently, really enjoyed and think you might too.

■ "The Drunkard's Walk" by Leonard Mlodinow isn't just a book about how deceptive randomness can be; it's about our apparent emotional need to reject luck as an explanation for the events shaping our lives and our world. I actually found it a very uplifting book. It's not just about probability or even investing, but about life.

■ "The Little Book of Behavioural Investing" by James Montier is a brilliant summary of behavioural finance written by the guy who did more than anyone else to bring behavioural psychology out of academia and into the investing community. It's as punchy as you'd expect from anything written by Montier, and with characteristic "Little Book" conciseness.

■ I warn you now: "Mobs, Messiahs, and Markets" by Bill Bonner and Lila Rajiva is impossible to put down once you've started it. I *suppose* it's a book about mob psychology, but … that just doesn't do this wonderful book justice. Drawing on psychology, evolutionary biology, anthropology, history, politics and economics, the authors - with trademark humility and wit – develop, illustrate and warn with their theory of "the Public Spectacle".

■ My fourth recommendation might not strictly count as beach reading. But "Gold and Iron: Bismarck, Bleichröder and the forging of a new German Empire" by Fritz Stern is a book I've been meaning to read for a while and only got round to a few months ago (largely thanks to being stranded in a hotel room by an ash cloud!). There really are parallels between the rise of Germany in the 19th century and of China in the 21st and the biographical approach teases out the story wonderfully.

■ "Lords of Finance" by Liaquat Ahamed is a book I read last Christmas and regular readers will recognise it because I've quoted heavily from it ever since. The Great Depression is possibly one of the most analysed episodes in economics. But this is genuinely a profoundly different approach to studying the period. Firstly, it's written almost as a biography of the four most prominent central bankers of the day as they struggled from one crisis to another during the rolling financial implosions that characterised the years from 1928 to 1933. Secondly, the story starts at the beginning, in WW1 where the seeds of the problems of the 1930s were sown (written in five parts, the crash of 1929 isn't covered until part four). Finally, the Depression is treated as the global phenomenon it was, in contrast to the prevalent US-centred treatments which view the episode as primarily an American depression triggered by a Wall St crash. It's one of the best accounts of the Great Depression there is and all the better for being so brilliantly told.

■ Books I'm hoping to get through this summer are "The Uses of Pessimism" by Roger Scruton, "The Invisible Hands" by Steve Drobny, "Don't Blame the Shorts" by Robert Sloan and "Faultlines" by Raghuram Rajan.

The Drunkard's Walk, by Leonard Mlodinow

If you take one book with you on holiday this year, I strongly recommend that it be this one. It's about randomness. It's short, at just over two hundred pages. And, to the extent that it covers some of the same ground Nassim Taleb did in his classic "Fooled by Randomness", parts can be skimmed through quite quickly. What I loved about the book though was the behavioural context in which our encounters with randomness are placed. For example, why is "luck" almost *never* an acceptable explanation? What is it about us that we need to find *causal meaning* in the most statistically insignificant observations? The law of small numbers and the illusion of control figure prominently in the second half of this book, and for this reason alone it merits a place in the holiday luggage.

These themes will resonate with anyone following their country's fortunes in the 2010 World Cup. Take England, for example, where there were good reasons to expect a successful outcome. They had some of the most talented players in the tournament in their first XI and in legendary coach Fabio Capello – who'd won wherever he'd been – one of the best managers in the game. The self-belief seemed to be there too: Capello, who magnificently announced "*I exist to win*" said that not reaching the final would be a failure....

So failure it was. Qualification from an easy group proved tortuous, with draws against the USA – where "football" means something entirely different and "soccer" is a minority sport – and against lowly Algeria – after which the hapless English were booed off the pitch by their own fans. Of course, a slow start to the tournament needn't bode badly. The competition lasts five weeks and the early-stage trailblazers rarely sustain their momentum. But much worse was to come. England didn't just lose to Germany, their arch nemesis, they were mercilessly thrashed, and as Harry Enfield might have said, "*humiliated by Germany's clinical finishings."* Indeed, some thought them lucky to lose only 4:1.

Naturally, the national inquest is now underway into *why*. Some lament that England's domestic league has so many foreign players that the emergence of English talent is stifled (which is to forget that the most dismal period in English footballing history, the 1970s, when the national team failed to even *qualify* for the 1974 and 1978 World Cups, was a period when virtually no foreign players graced England's domestic leagues). Others argue that the Premiership is so physically demanding that the English were too tired. Yet six of the Spanish/Dutch players who did make the final play in the English Premiership!

Here isn't the place to go through everyone's pet theory over what went wrong, but suffice it to say that none of them really stack up. So the soul-searching continues, with each argument carefully weighed, evaluated, pored over and refined on the radio, TV and in the press – to no real benefit though because the nation is still, frankly, puzzled. Yet when England striker Jermaine Defoe said he thought the team were just … sharp intake of breath … unlucky *(unlucky?!)* he provoked *anger* in the next day's press! "Luck isn't an *explanation*", an exasperated nation spluttered over its morning cornflakes, "It's an *excuse.*"

The fact is, assuming you qualify for the World Cup and then reach the knock-out phase, you'll be one team of sixteen. And since there is only one sequence from a possible sixteen that will win the trophy – four consecutive wins – if England were on average *as good* as all the other teams in the knockout phase, they should expect to win one tournament in sixteen (which of course, overstates the probability because it assumes England reach the last sixteen in the first place, which most countries don't). British teams couldn't play in World Cups before 1950 because they weren't members of FIFA, and since then there have been exactly sixteen tournaments, of which England have won one. Was Defoe's 'explanation' so wide of the mark?

The Little Book of Behavioural Investing, by James Montier

Most people reading this will be familiar with the psychological biases which govern our behaviour. We all know that we use the "availability heuristic" to assess probabilities rather than computationally complex Bayesian equations. We all know that this gives way to all sorts of judgemental errors: a belief in the "law of small numbers" as alluded to above, a tendency towards "hindsight bias" and "confirmation bias". We know that we "anchor" around irrelevant information and that we take too much comfort in ever-more information.

The reason we're so familiar with these concepts is that in the last few years the language of behavioural psychology has become standard nomenclature within the investment community. And one of the reasons such concepts have gone from niche to mainstream is the popularising work of James Montier, my predecessor here at SG. So when he writes a comprehensive summary of the behavioural psychology it pays to know, along with relevant applications, and does so in the concise format of the "Little Book" series (which you can read in a few hours) you have to ask yourself why you *wouldn't* read it. As with Mlodinow's book, those familiar with the territory won't find much that is new. But as with Mlodinow's book, jogging your memory is a very good way to embed lessons. Of course, if you're not fully familiar with the territory this is a great place to start.

One of my favourite chapters is on the importance of process rather than outcome because the reality is that we do tend to do the opposite, to judge people and even process by outcomes. Actually, Mlodinow cites a poignant example in his book, contrasting two brilliant physicists he knows. The first, John Schwarz, was gaining little recognition and *" … had suffered a decade of ridicule as he almost single-handedly kept alive a discredited theory … then one day, he and a co-worker made a technical breakthrough, and … string theory has been the hottest thing in physics ever since. Today John is considered one of the brilliant elder statesmen of physics."*

The other was John's supervisor,

> " … *considered one of the most brilliant scientists of his generation … a leader in S-matrix theory. Like John, he was stubbornly persistent and continued to work on the theory for years after others had given up. But unlike John, he did not succeed. And because of his lack of success he ended his career with many people thinking him a crackpot. But in my opinion, both he and John were brilliant physicists with the courage to work – with no promise of an imminent breakthrough – on a theory that had gone out of style."*

As Montier illustrates using the following matrix – which he attributes to Michael Mauboussin – the best way to separate 'deserved success' from 'dumb luck' is to focus on process. I guess the other is to make sure you get enough rolls of the dice ...

	Good Outcome	**Bad Outcome**
Good Process	Deserved success	Bad Break
Bad Process	Dumb luck	Poetic Justice

Mobs, Messiahs, and Markets by Bill Bonner and Lila Rajiva

This is a difficult book to categorise in that it's not really *about* finance, or psychology, or politics. It's a book about the collective thinking of crowds. So while it touches on finance, psychology and politics, it delves as much into anthropology, neuroscience, and evolutionary biology. Published in 2007, it's not a book about the madness of crowds in the tradition of Charles Mackay, or George Rudé, who documented episodic popular delusions (although plenty of episodes are documented here including the McMartin trials, the Iraq war, the US real estate bubble). It's as much about *why* crowds think the way they do and *why* "public spectacles" are an inevitable part of our collective human condition.

As you'd expect from a book that Bonner – a modern day Mencken – has co-authored, his trademark wordcraft and wit drip from each page: part poetry, part grumpy old man, all painfully true. At the heart of the "public spectacle" is the observation that at a very basic level we need to believe things whether they are true or not. We like to think we are rational beings, but like all other species, we are fundamentally instinctive and emotionally driven. The authors suppose, as did Desmond Morris, that *"man is not as a fallen angel but as a risen ape."*

We are social beings. Our ancestors lived in groups because it improved our chances of survival, allowing us to hunt together and to protect ourselves more easily. And since more tightly bound groups will have better survival prospects, group identity emerges as a powerful instinct, binding the group closer together and further enhancing its survival prospects.

Of course, from a purely rational perspective, one group is pretty much like the next. It doesn't matter which one you're in. But individuals wouldn't be prepared to lay down their lives in defence of their own tribe if they thought that way. They'd only make the *ultimate* sacrifice if they believe their own tribe to be somehow superior. So of course, most groups do: every man sees his own nation's history as heroic, every football fan believes his team to be the most deserving, every believer believes his to be the true religion, and of course every messiah claims his message to be the only truth.

Yet the only truth is that no-one can ever really know – neither the mob, nor the messiah. But why should that interfere with the deception that seems an inherent aspect of survival? Birds feign injury to distract predators from their nest, cats arch their backs to look bigger, some insects look like wasps but have no sting. Nature tells a consistent story: deceive when there is an emotional need. And we are products of the same evolutionary template.

But isn't man different from animals, driven by logic and reason? 'Cogito ergo sum' and all that? Sadly not. At a very fundamental level we deceive ourselves as we deceive others:

> *"Bluff, bluster, humbug, fraud – we live it every day. And yet, who would be willing to admit it? Instead, we all take the lies even further - we lie about lying! … We tell each other we appreciate the truth, but in fact the truth is often the last thing we want to hear. Imagine the husband who says 'You look awful tonight, honey' or 'Boy, I sure had a good time last night at the strip joint.'"*

The stories peddled by messiahs and consumed by mobs often masquerade as science, reason and logic, but they're little more than compound errors, an abstract and emotive umbilical cord by which we bind ourselves to the group, which also engenders feelings of superiority to others not like us. After all, such visceral impulses are far stronger than our desire to be correct. *"Man is an impostor, a sentimentalist not a rationalist"* and herein lies the source of the public spectacle.

"In the public sphere the frontal lobe may be engaged, but his reasoning rests on nothing more solid than the shifting bog of group-think, which is not only completely different from private thinking but is an illusion, piled on top of a fraud, stacked on a foundation of humbug, built in the mud of misconception with the building blocks of lunacy."

Understanding *why* public spectacles are inevitable will help in recognizing and avoiding future ones as they emerge. But don't expect an instruction manual here, or a check list of do's and don'ts. One of the book's central themes is the importance of appreciating the qualitative limits to what we think we and *others* know. It's not about what to think, it's about what *not* to think. So read the book, beware the messiahs and beware the mobs … and then maybe watch Monty Python's "Life of Brian" again just to reaffirm the message.

Gold and Iron: Bismarck, Bleichröder and the Building of the German Empire, by Fritz Stern

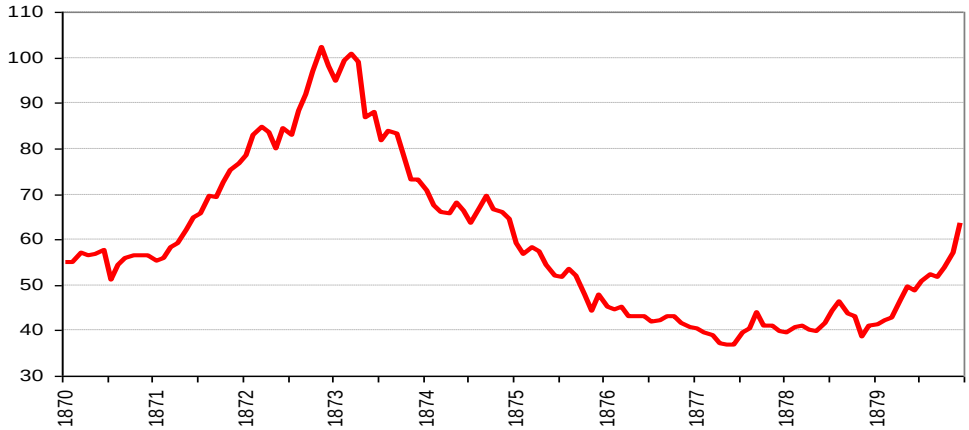
OK, so this isn't 'beach reading' in a strict sense. Unlike the other books here, it's quite weighty (600 pages of very small print) and more academically orientated (though it's put together in such a way that it's easy to pick and choose sections without ruining the book's themes). It's actually quite an old book too (first published in 1977) and I only got round to finally reading it a few months ago. But not only did I find it incredibly fresh and rich, but it is pertinent too with some eerie echoes of where China is today.

The book is about the unification of Germany in the 19th century, and the prominent role played by the relationship between Chancellor Otto von Bismarck, the ruthless master-politician whose name and work are renowned, and Gerson Bleichröder, the self-made banker then known as the "German Rothschild" who became the first Jew to be ennobled by the Second Reich, but whose name has since faded into obscurity.

This is a fascinating period in world history anyway, but one reason I found this book especially rewarding was for the parallels between events in Europe then with those we are seeing today in Asia. Like China's rise today, Germany's then was of a nation perceived to have finally overcome the obstacles that hitherto prevented it from taking its rightful place atop the world's great powers. Like China today, the world watched with wonder as Germany's relatively *laissez-faire* industrial policy delivered spectacular economic growth, boosting the status of an emergent capitalist class. And like China today, it watched with apprehension too, as that growth enhanced the militarily capacity of its authoritarian and non-democratic leadership.

Two parallels were especially resonant. One of the themes in Edward Chancellor's classic "Devil Take the Hindmost" (in passing, another book you should definitely take on holiday if you haven't read it already) is that the national hubris accompanying large geopolitical swings often coincide with market manias. This was certainly true of Germany's 1873 stock market bubble, driven in part by the wild enthusiasm for the new nation forged during the 1871 war victory over France. Unfortunately, Stern doesn't go through the financial episode in much detail. Indeed, he laments the "*surprisingly scant"* literature on the disaster. Nevertheless, his account of a bubble fuelled by a wild optimism, liquidity and financial deregulation sounds familiar. The railroad bubble *" … was fed by the French reparations of 5 billion francs, which facilitated the early retirement of public debts and thus provided Germany with a sudden supply of vast liquid funds. Easy money, an ebullient public, and a new law permitting the founding of joint-stock corporations without difficulties – all of these aroused appetites and led to frenzied activity."*

The founders crash of 1873: German stock prices following unification in 1871



Source: NBER macro history database

Equally familiar is what happens in the aftermath of the bubble. And here I don't mean the economic aftermath: the sluggishness of the recovery or the persistence of subsequently high unemployment (though there was a four-five year depression which, by all accounts, was as severe as that experienced in the United States at the same time). I mean the social aftermath: the ideological backlash and the demand for retribution.

All bubbles have a narrative which is reversed in the aftermath. A few years ago, banks could safely lever up more than they had done previously because "light touch" regulation had fostered financial innovation. The system was capable of spreading risk more efficiently now, and central banks had tamed the cycle too. Now the bubble has burst, the reversed narrative of the need for more financial regulation and punishment of 'greedy bankers'. The narrative fuelling the tech bubble was that the internet would so profoundly change the way the world worked, old business models and valuation metrics didn't matter. When that bubble burst, the reversed narrative stressed investing in things you could understand (like real estate) while punishing the fat-cat chief executives (with Sarbanes-Oxley). Indeed, this modern lust for retribution against 'fat cats' echoes the 1930s US Pecora hearings during the Depression.

Germany in the 1870s was no different and demand for retribution was directed towards those perceived to have benefited the most, namely the bankers and capitalists. And since the financial community was disproportionately Jewish, the already obnoxious anti-Semitism became altogether more sinister, according to Stern. In 1875, an article by popular financial pundit Franz Perrot railed not only against Bismarck's economics, but against his association with Bleichröder. The Chancellor, said Perrot, had been party to a Jewish conspiracy (he called it Bismarck's Jew-policy) which had brought ruin upon the nation:

> *""The term 'Judenpolitik' … is unfamiliar to the German public" because the Jews hide their dominance, but "Jews actually govern us now". The implication was inescapable: the rulers of Germany were the tools of Jews – and who but Bismarck was the ruler of Germany?"*

One public spectacle followed another, and in the search for the *meaning* of the crash, previously dormant social tensions were stirred by political opportunists. A parallel backlash occurred against capitalism itself. The railroads which had been the source of the 1873 mania had been almost *completely nationalised* by the close of the decade and the flirtation with *laissez-faire* "Manchesterism" of the 1850s and 1860s was over.

When you read how far reaching the political repercussions the crash of 1873 were on German public attitudes, you realise how fragile some of the then "new beliefs" really were, and how ill at ease they were with concepts such as free market liberalism, outward looking economic policies, or acceptance of a Jewish dominated financial sector. The boom held such anxieties under the surface. The bust saw them erupt into the open. So as I read Stern's account, I couldn't help wondering how robust and deep rooted China's current "new beliefs" towards markets, free trade and an outward looking economic strategy are, and how destabilising any social backlash will be when a crash comes, as one day it inevitably will.

Lords of Finance, by Liaquat Ahamed

When you read history, you tend to read about historical events, about numbers, dates, and data. But it was people who drove those events, people making decisions on the basis of uncertain information, unknown consequences and frequently in the "fog of war". The opening quotation in Ahamed's book is from Benjamin Disraeli: "*Read no history – nothing but biography, for that is life without theory*". This perfectly sets the tone for what for me is one of the best treatments of the Great Depression I've ever read.

This account differs from others because it is told largely from the vantage points of the four central bankers of the four largest economies of the day: Benjamin Strong at the New York Fed, Hjalmar Schacht of the German Reichbank, Montagu Norman of the Bank of England, and Emile Moreau of the Banque de France. From here we gain insight into the influence the BoE exerted on the NY Fed and the damage such closeness might have caused. We see the mistrust Moreau felt towards both the Anglo-Saxons and especially the Germans, and we sense the canniness, but also the cold aloofness, that made Schacht the right man to tackle the hyperinflation, but maybe the wrong one to work with in subsequent German episodes.

It also differs from other accounts in that the story is told as one that has its roots in the First World War. This is absolutely correct. WW1 saw the US become the world's primary capital exporter, destabilised the gold standard, sent Germany into a hyperinflation, and saw the UK peg to gold at an overvalued parity and France at an undervalued one. It is only in the context of the ultimately vain struggle to recover from these events of the 1920s that the 1930s can be fully understood.

Finally, the book is also a wonderful counter to the popular US-centric understanding of the Great Depression which sees the 1929 crash as its spark, 'policy mistakes' as its fuel, and FDR as its saviour. In fact the catastrophe was truly *global* and the 1929 stock market crash was merely one of four financial earthquakes which shook the world economy.

> *"Part of the reason for the extent of the world economic collapse of 1929 to 1933 was that it was not just one crisis but … a sequence of crises, ricocheting from one side of the Atlantic to the other, each one feeding off the ones before, starting with the contraction in the German economy that began in 1928, the Great Crash on Wall Street in 1929, the serial bank panics that affected the United States from the end of 1930, and the unravelling of European finances in the summer of 1931 ..."*

Ahamed likens the collapse of Germany in 1928, which was precipitated by an outflow of the American capital on which it depended, to that of Mexico in 1994, which had become similarly dependent on international funds which it struggled to retain as American rates began to rise. The 1929 stock market crash was of a similar magnitude to the tech crash of 2000, the US banking collapses of 1931-33 to those of the financial crisis of 2007/08, and the collapse of the European financial system and the gold standard to the Asian/emerging market crisis of 1997/98. All in all it was:

> "*…a crisis equivalent in scope to the combined effects and more of the 1994 Mexican peso crises, the 1997/98 Asian and Russian crises, the 2000 collapse in the stock market bubble, and the 2007/08 world financial crisis, all cascading upon one another in a single concentrated two-year period.*"

I have to confess to not quite agreeing with some of Ahamed's conclusions at the end of the book. The 'policy mistake' explanation for the severity of the depression sweeps too many issues under the carpet for me, and comes across as being biased emotively and by hindsight. But who cares what I think? Read this brilliant book and judge for yourself. And have a great summer!

Summer reading (13/07/2011)

When the going gets tough, the tough find a quiet beach and some good books to escape into, hoping that the situation will have resolved itself by the time they return ... Here are some summer reading ideas based on some of the books I've read in the last few months

- "The Most Important Thing: Uncommon Sense for the Thoughtful Investor", by Howard Marks
- "Expected Returns: An Investor's Guide to Harvesting Market Rewards", by Antti Ilmanen
- "Red Capitalism: The Fragile Financial Foundation of China's Extraordinary Rise" by Carl E. Walter and Fraser J. T. Howie
- "Caesar: the Life of a Colossus", by Adrian Goldsworthy
- "Mr. Speaker! The Life and Times of Thomas B. Reed", by James Grant

Before going on though, I was criticised last time for putting some books on the list which some of you thought were too heavy for the beach (literally – one of them was about 800 pages of small print). So a book I read which deserves particular mention with that very issue in mind is "A Conspiracy of Paper" by David Liss, a very neat work of historical fiction set in London during the rise of the South Sea bubble.

'Change Alley', in the heart of the City of London was where the coffee houses which the stock-brokers had to operate from were located after they were evicted from the Royal Exchange at the end of the 17th century (one of them, Jonathan's, would become the site of the original London Stock Exchange). Funnily enough, about three hundred years ago, its denizens – our professional ancestors – were struggling to gauge the potential consequences of insolvent sovereigns in much the same way as we are today (some things never change!) and one of those consequences would be the world's first global stock market bubble and bust, which played out in the early 1720s. "Conspiracy of Paper" is a detective story set against this backdrop. Today that street looks drab, grey and anonymous. But it was one of the main theatres in which the drama played out. If you're like me and you wander around this town wondering what London, and 'Change Alley' in particular looked and felt back then, you'll love David Liss's book.

The most important thing, by Howard Marks

A few weeks ago I was one of the speakers at the Value Intelligence conference in Munich, organized by Stefan Rehder and Richard Ratke of VIA. This meant I was lucky enough to sit through the talks of some extremely high quality practitioners, including Bruce Greenwald, James Montier, Mary Chris Gay, and Howard Marks to name but a few (I know what you're thinking … I'm not sure what I was doing speaking either). For me though, the stand out performer was Howard Marks. Like everyone else, I've read some of his famous client memos. But after listening to him discuss his investment philosophy I realized that I hadn't read enough. So I bought his book to read on the way home and didn't stop until I'd finished.

To some extent this was partly because of the book's emphasis – like his presentation – on the importance of focusing more intently on the downside than the upside. Regular readers will be familiar with this particular theme on these pages, with occasional Popular Delusions titles including "The search for cheap insurance, and letting the upside take care of itself" or "Hoping for the best, preparing for the worst" expounding the very same philosophy. But Howard Marks is … well … Howard Marks - why listen to the tinny sell-side stuff when you can hear the authentic, 24 carat version from someone who's spent decades practicing what he preaches, and very successfully ....

Jacub Rehor from Third Avenue put it succinctly during his presentation when he said that "finding cheap stocks is the easiest thing in the world; the difficulty is finding stocks which are cheap *and safe*." Focusing on the upside without due focus on the downside is one of the most common procedural errors investors make, in my opinion and one of the themes which differentiates Howard Marks' book from others I've read is its relentless emphasis on what he calls "defensive investing":

> *"Trying to avoid losses is more important than striving for great investment successes. The latter can be achieved some of the time, but the occasional failures may be crippling. The former can be done more often and more dependably … and with consequences when it fails that are more tolerable."*

Much of the book is focused on conceptually isolating the types of errors which are commonly made and managing the risks accordingly. One of the most basic mistakes and one I think is most prevalent in our industry is the reliance on forecasts. The evidence that we can't forecast is overwhelming and I'm not going to go into detail here. Indeed, the problem isn't our tendency to forecast *per se* (on a very basic level we need to make assumptions about the future), the problem is the confidence we attach to them.

Chapter 14 is summed up neatly in an introductory quote by JK Galbraith …

> *"We have two classes of forecasters: those who don't know, and those who don't know they don't know."*

and Amos Tversky …

> *"It's frightening to think that you might not know something, but more frightening to think that, by and large, the world is run by people who have faith that they know exactly what's going on."*

Knowing what you don't know (indeed, knowing which things are unknowable) should actually free up work time to enable more fruitful investigation into things which can be known (such as the intrinsic value of assets). It might also prevent fund managers from taking high risk "vision bets," where the manager has a view of the world and positions his client's capital accordingly. This works fine so long as the vision is correct in both substance and timing. If not … well, it doesn't. Such a mindset also encourages what Marks criticizes as 'swinging for

the fences.' Citing the president of a mutual fund which had underperformed the S&P500 by over 18% due to the boldness of its predictions, the president of the firm explained,

> *"If you want to be in the top 5% of money managers, you have to be willing to be in the bottom 5% too."*

Marks couldn't disagree more with this philosophy. Instead, he quoted approvingly of a pension plan director who over the previous fourteen years had massively outperformed the S&P500:

> *"We have never had a year below the 47th percentile over that period or, until 1990, above the 27th percentile. As a result, we are in the fourth percentile for the 14 year period as a whole."*

His reflections on this philosophy are worthy of note:

> *"I feel strongly that attempting to achieve a superior long-term record by stringing together a run of top-decile years is unlikely to succeed. Rather, striving to do a little better than average every year, and through discipline to have highly superior relative results in bad years is:*
>
> - *less likely to produce extreme volatility*
> - *less likely to produce huge losses which can't be recouped and, most importantly,*
> - *more likely to work (given the fact that all of us are only human)."*

Actually, I should mention that this example came not from the book but from Marks' memos which I decided to read in chronological order after I'd finished the book. I can't recommend this exercise highly enough. Philosophically, it covers much of the same ground as that in the book, albeit with less structure. But these are memos which were written in real time. So not only do you get a refresher on the financial follies of the past two decades, you get a cockpit view of the real world application of the book's principles.

'Expected Returns', by Antti Ilmanen

Regular readers will know that we've been advocating longer cash positions for a few months now on our view that equity indices are broadly overvalued. One of the most common responses we hear, and hear across the entire spectrum of our client base is this: "OK, stocks might be overvalued but we're getting nothing on cash – what else can we do?" I sympathise enormously with this sentiment (though to do injustice to de Toqueville's quip, maybe a nation gets the central bankers it deserves).

More importantly though, I think the idea that even overvalued stocks are better than cash because they offer at least some sort of (dividend) return is flawed. This is because the comparison is of spot returns, not expected returns. To use the US as an example, the spot return on cash is zero while the spot dividend yield is around 2%. But do you really want to take on that equity risk for the sake of a 200bp pick-up? The correct approach is to compare the expected return of equities versus cash. On occasions where you expect the ten year return (say) of equities to be roughly zero because the market is overvalued it seems sensible to take the same expected zero percent real return on offer from cash without the volatility. There are times, in other words, when cash is competitive with equites, or indeed, any other risk asset – but to reach (or refute) such a conclusion, the language must be that of *expected* returns.

Providing a rational framework for forming realistic return expectations is the subject of this book. Now, on one level, that might not sound such a necessary endeavor. Historically, equities have averaged around 5% pa real, government bonds around 2%, commodities around zero. These are probably quite similar to most asset allocators' expectations for their

respective long-term portfolio returns. But they shouldn't be, which is why this is such an important book. Remember that those quoted numbers are **averages over a very long period of time. As Howard Marks cautions, it pays to remember the story about the 6ft tall guy who drowned in a river which was 5ft deep on average.**

The fact is, expected returns vary inversely with recent price performance. As prices go higher, valuations become stretched so that future returns cannot possibly replicate those recently experienced. But for all sorts of reasons – Ilmanen gives a neat and succinct overview on behavioural biases – the tendency is to extrapolate that recently stellar performance into a subjective expected return which is unrealistically stellar. Efficient market theorists would say that such divergences provide 'arbitrage' opportunities and so don't exist in any meaningful way. As we all know however, there are very real barriers to the extent to which those 'arbitrages' can be closed, in the shape of things like career and business risk. Such valuation gaps can therefore persist for some time.

Ilmanen doesn't restrict his analysis of available risk premia to asset classes. He includes styles in his analysis too, such as value, volatility-selling, trend-following and carry-trading. An intriguing theme in the book is that risk premia derive not just from the underlying volatility of an asset class, but its skew, with historic risk premiums correlating well with that asset class's performance during 'tail events.' There is also an interesting overlap with Howard Marks book in the treatment of CAPM (both are ex-University of Chicago). Marks says that while he doesn't agree with CAPM he *respects* it, which I think is an interesting statement. It's also one which Ilmanen picks up on in an early chapter on the model. He says that although CAPM has been shown to be deeply flawed theoretically and empirically, the central tenet – that it's very difficult to beat the market – is correct.

I'm only actually half way through Ilmanen's weighty tome. I'm struggling to put it down to be honest. If there is a complaint it's that it is a big, heavy hard-backed book with an unsexy title. From pragmatism's perspective, it's encumbering. From vanity's, it is even worse as it sending a strong signal to anyone who happens to notice what you're carrying that you're a geek. But so what? You can get round both problems by reading it on your Kindle. What's more relevant is that it's actually fantastically well written: clearly articulated, even funny in places (the foreword by Cliff Asness sets the tone nicely) and actually, profoundly important ....

'Red Capitalism', by Carl Walter and Fraser J. T. Howie

A history on the history of China's financial system since its opening up doesn't sound like compelling reading. In fact, it sounds like the sort of dry business book I hate to read. But I actually think it's one of the most important books I've read this year. And I'm not sure how the authors managed it, but they've turned frankly 'challenging subject matter' into a decent read. You really get a tantalizing glimpse into the murky, haphazard and rickety edifice which is the Chinese banking system.

This book won't provide you with any answer to the question of *when* China crashes. When talking to two of the smartest guys I know – one a China bull, the other a bear – both thought this book validated their prior conclusions! But that says more about our biases than it does about the book, which is excellent. What it will give you is an insight into how China's political economy hangs together, and how the Party, not the financial system, is the nexus. It's not a great book because it necessarily tells you something you didn't already roughly know, it's a great book because it ties it all together.

Very early on the idea that the Party had opened up the economy to the enterprising spirit of capitalism, with Zhu Rongji as some sort of Mikhail Gorbachev type character, is scotched. Zhu's reforms have been intended to strengthen the Party and consolidate its position of strength:

"The resemblance of today's commercial sector in China, both foreign and local, to that of the merchants in traditional, Confucian China is marked: it is there to be used tactically by the Party and is not allowed to play a dominant role."

This is the context within which you have to understand the entire system. China is not in any meaningful sense a free market economy. The corporate sector has taken on many of the trappings of capitalism – stock market listings, foreign listings, use of accountants, lawyers, investment bankers, and glitzy websites and annual reports – but fundamentally China is a family business based on patronage. The fate of senior corporate managers, like their companies, is entirely dependent on their political backers:

"China's state-owned economy is a family business and the loyalties of these families are conflicted, stretched tight between the need to preserve political power and the urge to do business. To date, the former has always won out.

The overriding picture is of an industrialization that is quite unlike the more spontaneous industrializations seen elsewhere, resembling more a controlled explosion, executed by the Party, for the Party, and fully within the Party's parameters of what is and is not an acceptable objective (I haven't read 'The Party' by Richard McGregor, but a few people have recommended it to me and I hope to get through it over the summer).

I don't want to sound too cynical about that. The fact is that 300m people have been taken out of poverty. This is a good thing. But such tight regulation and planning of a system as unknowably complex as a rapidly industrializing society is bound to have unintended consequences somewhere, and the really interesting stuff in the book is about how these unintended consequences land on the banking system's balance sheet (and by extension, that of the central government). Again, understand that just because China's banks look like banks anywhere else in the world, with skyscraper headquarters and glossy annual reports, doesn't mean they *really are* just like banks everywhere else in the world. Their function is less as a pricer of risk capital, and more of a sign-off mechanism for the politically directed expropriation of household savings (and why these banks – which are little more than equity dilution machines – trade on 2x book value I don't know).

I won't go into detail here on the chapters detailing the complex smoke and mirrors which have been used to serially recapitalise the banks (and which look set to be repeated in the coming months, in light of the exposure of banks to the local governments). But I urge you to read the chapters on the opaque related-party transactions involving the MoF, specially created asset management companies and the banks themselves. You get a much clearer understand of just how real these bad debt problems are and how desperately dependent China's undercapitalized financial system is on rapid GDP growth to outgrow them.

Instead, I'll leave you with another thought on Chinese bank solvency which has nothing to do with its lending to local governments, property developers, or SOEs. Less talked about (or at least, I wasn't aware of it until reading this book), but I think probably just as important is the façade that is China's government bond market. Fully 70% of it is owned by China's banks. And it doesn't trade in anything closely resembling a secondary market. For example, on December 8th 2009, according to the authors, only 1,550 trades representing $190bn in value traded, compared to a daily average of 600,000 trades representing $565bn in value in the US treasury market. Why? Because the primary market price at which the banks underwrite government issues is too high for the level of demand in the secondary market. In other words, Chinese banks' own government debt holdings which are marked at a price that is meaningfully higher than what they're worth.

Caesar, by Adrian Goldsworthy

And now for something completely different ... Disraeli said:

"Read no history, nothing but biography, for that is life without theory."

If the first three books are genuinely important for anyone doing the things we do, this book is less so. This one is just a fantastic story, well told, about one of the most remarkable lives ever lived, and in a time so distant from our own on so many levels but identical in the most fundamental. During the time of the Roman Republic which Caesar brought to an end, the fabric of society was both weaved and torn by the pursuit of wealth by many, the pursuit of great wealth by a few, and the subsequent divisions caused as that wealth was distributed.

The historical record seems clear: surges in wealth creation leave a destabilizing wake. Periods of wealth creation create wealth inequality and wealth inequality unleashes often destabilizing political forces. Today in China the Party worries about the social tension caused by the wealth inequality attendant in the recent rapid industrialization; Raghuram Rajan believes the sub-prime crisis was caused by the attempt of American politicians to dampen similar tensions; the wealth accumulation by American elites, and its attendant inequality at the beginning of the 20th century culminated in the 1930s of FDR …

The Republican Rome into which Caius Julius Caesar was born was wracked with similar tensions. The empire's spectacular rise to Mediterranean dominance had the unwelcome byproduct of disenfranchising the group we would today call the land-owning middle classes. The *quid pro quo* of Roman land ownership was the duty to fight in Rome's wars and while the empire was small these conflicts were short lived. Roman soldiers had plenty of time to fulfill their military duty and tend their land, providing for their army. But as the empire grew, so did the duration of its wars. By the time the Punic Wars were over, a Roman centurian might be expected to be posted to a far flung corner of the empire for five years or more. That was a long time to be away from his land, which might turn fallow in consequence and which almost certainly wouldn't be tended sufficiently to provide for him to provide for his family. So many such soldiers were forced to sell their land to those who had sufficient capital to pay – the already-wealthy aristocratic elite. The rich became richer while the poor became poorer. So the question which was first asked 30 or so years before Caesar's birth by Tiberius Gracchus, but which resonated throughout his lifetime, as it does ours today was this: "For who's benefit is this show run, and why are those apparently doing all the work different from those apparently gaining all the credit?"

It was the opportunity created by this social inequity that Caesar took when after 'pacifying' Gaul, he lead his army to victory in the civil war against Pompey, emasculated the aristocracy and set himself up as dictator for life. These were fascinating times and Caesar remains a fascinating story. And I found myself wondering, who will emerge as China's Caesar?

Mr. Speaker! by James Grant

In his recounting the life and times of Thomas Bracket Reed, James Grant rescues one of the most influential politicians in American history – confidante of Mark Twain, mentor to Ted Roosevelt, and speaker of the House of Reps in the 1890's – from what had hitherto been an undeserved near anonymity. It's a great book on many levels, Grant's reliably colourful prose being only one of them.

I've always been fascinated by the gilded age, roughly America's last quarter of the 19th century. It's a period which is overshadowed by the 1920s and the 1930s in the history books and probably in people's imaginations, but I've always felt this relative neglect to be undeserved. It is striking how the controversies of that time still resonate today. Civil rights, women's rights, labour relations, poison partisanship, the role of government, and the role of the United States in the world were the political issues of the day. Railway infrastructure booms, real estate booms, financial panics, sound money and what would later be termed debt-deflation were their economic counterparts (pertinent to our times today, the pronounced gilded age deflation *didn't* suck the US or the world into a never ending deflationary vortex, though it *did* energise the Farmers' Alliance, a vested-interest group of debtors seeking government relief). In the midst of it all, chairing, motivating and often cheating the debate, sat Thomas B. Reed.

If many of the issues were similar, one thing was very obviously not – the eloquence and wit characterizing the belligerence of Reed and his contemporaries. The debate on the resumption of the convertability of paper dollars into gold following the civil war gives some wonderful examples. To a bill that sought to allow the issue of unbacked paper money as legal tender, the wonderfully named Roscoe Conkling responded:

> *"Necessity! That market price of principle at which every virtue has been sold for six thousand years. From the apothecary selling poison, to the lord chancellor selling justice, the plea has always been, 'My poverty, but not my will, consent' ...The bill says to the world that we are bankrupt, and we are not only weak, but we are not honest … it would proclaim throughout the country a saturnalia of fraud, a carnival for rogues.'"*

Somehow, I can't quite imagine Sarah Palin saying that … but Reed himself, a self-taught French speaker ("I speak French like a native … of the United States"), was no slouch when it came to wry observation. Demonstrating the idea that there is nothing new, only the history you don't know, his dry note on mining entrepreneurs during the California gold rush bears remembering during today's commodity bull market:

> *"In my opinion, it would be far preferable for an honest man to embark his money in some well conducted lottery than to venture it in mining stock. He would come out of it, if he failed, with more faith in human nature and less belief in total depravity."*

The elegance and style of the prose would count for little however, if there was no substance. But the descriptions of some of the age's more famous events – from the rigging of the 1876 presidential election, to the debate on the Gold Standard against the silver interests, and the background to war with Spain – really are wonderful. My favourite set piece was the description of the great plains land bubble of 1890, during which the thirst for anything Great Plains-related reached such a level that debt issued by the Capitola Township of Spink County of Dakota changed hands several times across eastern markets before anyone realised that Capitola township didn't actually exist (funnily enough, a similar fraud occurred in the 1825 emerging market bubble centered on the London exchanges, when debt for the Central American 'Kingdom of Poyais' was successfully issued and traded before anyone worked out that the kingdom was the product of the imagination of a Scottish con-man called Gregor Macgregor).

But Reed himself is more than a vehicle for illustrating the times. He's a fascinating character himself, riddled with complexities that can be difficult to fathom. I'm not sure how much I would have liked him though. He was clearly a sparkling wit, a man of principle, and was on the right side of most debates, though he was a staunch trade protectionist *(*as were most Republicans of the times). But he was also a member of the caste I least like, the hypocritical politician who feels he needs to *do things*. And with it came that politician's tendency to push through things not because people necessarily wanted them, but because he thought they should want them. Ida Tarbell said that he was in favour of majority rule – so long as the majority agreed with him.

One of the telling features of the book - and I mean both the subject and his author – is that despite Reed being more responsible than anyone else for the ending of minority rights in the House of Representatives, the subsequent 'tyranny of the majority' and arguably today's big government, Grant clearly retains an affection for his subject (he said on writing the book that he found Reed "wonderful company"). You don't have to approve of everything someone does to have great affection for them.

Rainy day reading (17/07/2012)

Personally, I'm quite enjoying the rainy summer we're having. It reminds me of the Scottish summers of my youth. Nevertheless, I imagine many of you will be in need of something good to read. Let's face it, is there a better (or cheaper) way to blot out the endless and incessant *whining* about it? What follows are some suggestions.

- "Genius: The Life and Science of Richard Feynman" by James Gleick
- "Red Plenty: Inside the Soviet Dream" by Francis Spufford
- "SWAG" by Joe Roseman
- "Thinking, Fast and Slow" by Daniel Kahneman
- "Paper Promises: Money, Debt and the New World Order" by Philip Coggan

"Genius: The Life and Science of Richard Feynman" by James Gleick

Richard Feynman is a hero of mine, as regular readers might have noticed from my tendency to quote liberally from him. I think anyone who thinks for a living should spend some time getting to know him. There are many Feynman books out there – transcripts of lectures and interviews, some about physics and others about life – and all count as must-read material in my opinion (especially "The Pleasure of Finding Things Out"). The only problem with those books is that they're snapshots. They tend to explore a few ideas or themes and invariably leave you wanting more. So it's the comprehensiveness of this biography which makes it so satisfying.

As a physicist he pioneered (and won a Nobel Prize for) quantum electrodynamics (QED) - the theory of how photons and electrons, light and matter interact. It was the first body of knowledge in which quantum mechanics and special relativity agree, and it provides the basic rules for all ordinary phenomena except for gravitation and nuclear processes. From QED, the laws for the collision of billiard balls, the motions of wires in magnetic fields, the specific heat of carbon monoxide, the colour of neon signs, the density of salt, and the reaction of hydrogen and oxygen to make water are all explicable as consequences of this one law.

But Feynman wasn't just special. He was described by the Hans Bethe as being gifted with a genius beyond the ordinary. *"An ordinary genius is a fellow that you and I would be just as good as, if we were only many times better."* In other words, you could understand how ordinary geniuses came up with their answers. They used the same basic methods and tools as you did. They were just more accomplished.

But Feynman was different. He was a magician. No one quite understood how he conjured up his ideas. One story which may or may not be *actually* true relates to a young physicist studying quantum field theory with Murray Gell-Mann (Nobel prize winning physicist and founder of the Santa Fe Institute). It was in the subject's early days and before standard texts became available.

> *"The student discovers unpublished lecture notes of Feynman and asks Gell-Mann about them. Gell-Mann says Dick's methods are not the same as the methods used here. The student asks, well, what are his methods? Gell-Mann leans against the blackboard and says, Dick's method is this. You write down the problem. You think very hard. (He shuts his eyes and presses his knuckles parodically to his forehead) … Then you write down the answer."*

When he wasn't at the vanguard of quantum theory he made groundbreaking inroads into the theory of superfluidity. In a sabbatical year in which he ventured into the field of biology rather than travel foreign lands he reached the brink of understanding how DNA was read, before stopping because his year was up and he was desperate to get back to his physics. A year later, James Crick's team at Cambridge University independently reached the same point as Feynman but had managed to progress, using it as the touchstone for understanding how the genetic code was read. As a result, Crick felt able to declare *"The story of the genetic code is now essentially complete."*

The irony is that while being a "magician" might have made it impossible to learn much about how the processes and techniques Feynman's mind used, the fundamental principle by which he lived his life is clear for all to see, and is not merely educational but inspirational. That fundamental principle is: **love the truth.**

That might sound like a very simple thing. In fact, it *is* very simple thing! But it is also a profound thing. Bear in mind that people are killed for speaking the truth. The truth often injures one's ego. People frequently prefer *not* to know the truth (Feynman himself wrestled with a common criticism by artists, who accuse scientists of spoiling the joy of nature by removing its mysteries). And of course, knowing the truth can be lonely and burdensome, something Feynman had to come to terms with himself, having helped uncover the atomic truths which paved the way for the first Bomb.

Nevertheless, his burning curiosity into how things worked on the most fundamental level was what makes Feynman such a hero of mine. The first lesson is that getting as close as possible to finding out how things really are isn't merely a means to an end, a route to a higher purpose or a path to riches. It is the *end*. It's the whole point. It's the best part of the journey!

One story which sums this up beautifully is when he'd just returned from the Los Alamos project and he was struggling to renormalise to a slower paced academic life at Cornell. While sitting in the canteen struggling to think of what his next big project should be someone tossed a dinner plate into the air. The plate had a Cornell logo imprinted on one rim and as the plate spun, the logo wobbled. He noticed that the spin of the plate and the wobble of the insignia weren't quite in synch even though they must be related and he didn't know why. So he sat down, wrote out

some equations and figured out what was going on from first principles. Later that lunchtime his friend and Los Alamos colleague Hans Bethe wandered over and Feynman excitedly showed him that he'd discovered a two-to-one ratio in the relationship between wobble and spin, Bethe asked him what the importance of it was. Feynman replied

> *"It doesn't have any importance. I don't* care *whether a thing has importance. Isn't it* fun*?!"*

In this respect, the playfulness of doing things for their own sake reminds me of Steve Jobs recounting his own motivation for Apple. Sure, the money and profits were important, but only because without them they couldn't get to keep making *"cool stuff"* and it was the cool stuff which was important.

Another implication of his commitment to truth was his relentless skepticism. Doubt is a friend to knowledge, certainty a friend to authority. So the uncertainty and not knowing was the fun bit, it's where the excitement lay because it's where the puzzles lay. In a famous interview for Horizon (also transcribed "The Pleasure of Finding Things Out") he said

> *"I can live with doubt, and uncertainty and not knowing. I think it's much more interesting to live not knowing than to have answers which might be wrong. I have approximate answers and possible beliefs and different degrees of certainty about different things, but I'm not absolutely sure of anything. And there are many things I don't know anything about … But I don't have to know an answer. I don't feel frightened by not knowing things, by being lost in a mysterious universe without having any purpose, which is the way it really is as far as I can tell...."*

Of course, embracing a state of profound ignorance imparts an equally profound humility. But Feynman's humility was a characteristically honest sort. It wasn't driven by a sense of unworthiness, or self-deprecation, or *faux* diffidence intended as some sort of charm tactic. It was a humility borne of logical reasoning and an understanding that imperfect knowledge was part of the human condition.

And finally, a profound implication of this radical skepticism was an inevitable tendency to ruffle feathers, as was demonstrated most famously for the general public by his role in uncovering the causes of the Challenger space shuttle disaster and the role NASA's bureaucracy played in it. When I was at school, Holden Caulfield in J.D. Salinger's "Catcher on the Rye" had a revulsion of "*phonies"* which was fascinating to me. Now I'm older, Feynman holds a similar place for me. He talked about "*dishonest fools*", but I think he was talking about phonies

> *"Ordinary fools are alright; you can talk to them and try to help them out. But pompous fools – guys who are fools and covering it all over and impressing people as to how wonderful they are with all this hocus pocus – THAT, I CANNOT STAND! An ordinary fool isn't a faker; an honest fool is alright. But a dishonest fool is terrible!"*

"Red Plenty: Inside the Soviet Dream" by Francis Spufford

Some of you might remember a few years ago I wrote several pieces on hyperinflations. I was going through a phase at the time where I was reading everything I could on as many inflationary episodes as I could find. The motivation for this was that I felt that to properly understand how a system functions you have to understand the many ways it can malfunction.

But unlike, say, the Great Depression, Japan's lost decades, or the Weimar inflation, one malfunction that I don't think attracts anywhere near as much attention as it should is the

comprehensive collapse of the planned economy experiment. Today, we assume that it was somehow inevitable, and it probably was. But it didn't feel like it at the time.

In the 1950s, the McCarthy "witch-hunts" saw American democracy come close to eating itself, so great was its paranoia towards the communist threat. Indeed, the successful launch of the Sputnik in 1957 and the orbit of the earth by Yuri Gagarin in 1961 put the Soviets firmly ahead in the space race and seemed to confirm what Nobel Prize winning economist Paul Samuelson was then telling anyone who'd listen: that the USSR with the miracle of central planning was barely a generation away from overtaking the US (memo to readers: Nobel Prize winning economists have a dubious track record of understanding their own subject!). So if you're interested in this particular malfunction, Francis Spufford's historical novel set "inside the Soviet dream" is a wonderful way to go about exploring it.

The keenly felt optimism that planning would ultimately prevail comes through early in the story, as a fictionalised Nikita Kruschev muses to himself (probably with Samuelson's infamous chart in mind) on the flight from Moscow to Los Angeles:

> *"It had already begun to happen in his opinion, If you looked at people on the street, all the old clothes had vanished, in the last few years. No more patches, no more darns. Everyone was wearing fine new outfits. The children had winter coats no one had worn before them. People had wristwatches on their arms, like his own good steel watch from the Kuibyshev plant ... of course, there was still a long way to go. No one knew that better than him. He saw the figures the economists prepared. A Russian worker still only earned around 25% of the average American income, even if you threw in the most generous allowance for all the things that cost money in America and came free in the Soviet Union. But he saw the other figures too, the ones showing that year after year this last decade the Soviet economy had grown at 6%, 7%, 8% every year, while the American one only grew 3% or so at best. He was not a man who was naturally excited by graphs, but he was excited by this one, when he understood that if the Soviet Union just kept growing at the same rate, propelled onward by the greater natural efficiency of central planning, the line of Soviet prosperity on the graph was due to cross the line representing American prosperity, and then to soar above it, in just under twenty years from now. He had seen victory on a sheet of cardboard. It was proven."*

The book follows the parallel though unconnected lives from across the spectrum of then Soviet society: a Communist Youth Party idealist, a brilliant mathematician and central planner, a pop star (officially approved of), a mid-level bureaucrat with links to the black market and organised crime, and as we've just seen, Nikita Kruschev himself. However, the real 'hero' of the story is the idea that society can be planned, and as such is a very quirky 'rise and fall' narrative.

It has some fascinating recurring themes. One will be familiar to anyone who read Taleb's classic, *"Black Swan"* which is partly a meditation on the problems caused by an excessive focus on the seen at the expense of the unseen. Planning was (and still is) handicapped by the same error. It was deemed preferable precisely because it was uniquely capable of removing by fiat problems which were plain for all to see: poverty, unemployment, education, health care. The problem was that doing so involved a cost, and the cost was that overriding the mechanisms which caused these seen problems meant overriding the same mechanisms that silently solved so many unseen ones.

In one scene, set during a world youth exhibition in Moscow at which different countries have different stalls, the young party members gather around the American exhibition, in which they see a video clip of an ordinary day in America, complete with gleaming kitchens with easy wipe surfaces, unbreakable plastic beakers, draining boards which didn't crack and buckle, separate bedrooms for each person, a world in which *"everything said ease".* Fydor, a factory worker and member of the youth party finds himself licking his lips and crooning at the gleaming American cars with a *"shark-like length and chrome ornaments at the front for teeth"* tries to gather himself, probing the American presenter and trying to goad him into admitting that such luxuries are little more than bourgeois waste, *"Surely these things are just an indulgence in a country where thousands of children go to bed hungry."*

Of course, the planned model required a planner's judgment of what people wanted, and this was done according to what political doctrine said people *should* want. And it was deemed materialistic and selfish for people to want nicer cars, sparkling new kitchens, or entertaining things to watch on TV. These were things people should be happy to forsake. The problem was that people wanted such things. They *did* want the things seen as 'vulgar' by the planners. And so the planners ultimately failed because the people didn't want the things planners delivered.

One thing the book very subtly gives is an appreciation of the free-market, not with any great eulogy to free exchange (it's not like reading Ayn Rand), but rather by showing how difficult it is to replicate and manipulate that most remarkable agent of self-organisation: the market mechanism. Capitalism is honored in the breach.

Understand that the apparatus of the command economy, with the brute force computing power and bureaucratic infrastructure that went into the formulation of detailed plans was an impressive achievement on many levels. But I couldn't escape that feeling you get when you marvel at the human ingenuity that has gone into an airplane or helicopter, only to shrug your shoulders when comparing it to the elegance of an eagle or a bee. While it is hard not to be impressed by the man-made flying machines, next to nature's work they're clunky and cumbersome. So it is with the natural and spontaneous order of free-exchange compared to a crude man-made attempt:

> *"'Did you know that last year more than half of the hosiery delivered to shops was sub-standard? … It was incredibly hard for the stores to send the bad stuff back to the knitting mills, because it all counted towards their output targets. What we need is a planning system that counts the value of production rather than the quantity. But that, in turn, requires prices which express the value of what's produced.'*
>
> *'The value to whom?'*
>
> *'Good question,' said Valentin.*

"SWAG" by Joe Roseman

Before writing about this book, I should admit to being conflicted: Joe isn't just a very good friend of mine, he's been one of the most important influences on how I think. So although I'm going to try to be unbiased here, I can't promise anything. To be fair, he did make me buy my own copy and that gives me a certain leeway, but beyond the book's cheap and slightly tacky cover (which Joe is very proud of) I can't fault it. I think it's a really interesting book and guaranteed to get you thinking.

Fundamentally it's about 'real assets'. That is, real assets which offer no cashflow and which are ordinarily put in the 'too hard to value' bucket. Joe thinks the most attractive such assets are Silver, Wine, Art and Gold (hence SWAG). But underlying his logic is a conviction that such assets *can* be valued, notwithstanding their lack of cashflow, and it is the conceptualization of such assets as 'investable' which makes this book such a must read. This is fascinating intellectual territory.

Joe's own example of an asset which is worth something yet which has no cashflow is the ability to outrun a colleague which, if you're in the jungle and being chased by a leopard, is an asset that is *incredibly* valuable … so the lazy logic which says something which has no cashflow isn't a proper asset is flawed. Of course the less strident form of this idea is one which doesn't deny that such an asset has value, only that its value is more difficult to measure. But here we cut to the wider problem with the notion of value and our tools for appraising value.

Suppose we think of a typical SWAG asset. It has finite supply and stable to rising demand, but it offers no cashflow. When we discount its future cashflows, they sum to zero. So using a discounted cashflow model, such an asset has zero value. Therefore, a Picasso has zero value. But a Picasso clearly *does* have value. So the model is clearly limited. It can't capture a Picasso's *utility* value because that value is *subjective*. The power of a discounted cashflow model is that it allows us to achieve a value which is *objective*. With a model based on discounted future cashflow we can arrive at *intrinsic value*.

But is this correct? Can cashflows be *objectively* valued? Suppose I'm a fund manager worried that if I underperform the market over a twelve-month period I'll be out of a job. What value would I attach to a boring business with dependable and robust cashflows, and therefore represents an excellent place to allocate preserve and grow my client's capital over time but which, nevertheless, is unlikely to 'perform' over the next twelve months? The likelihood is that I will value such cashflows less than an investor who considers himself the custodian of his family's wealth, who attaches great importance to the protection of existing wealth for future generations, values permanence highly, and is largely uninterested in the next twelve months.

In other words, an institutional fund manager might apply a 'higher discount rate' to those same expected cashflows than the investor of family wealth. They arrive at different answers to the same problem. The same cashflows are being valued *subjectively* and there is no such thing as an objective or *'intrinsic value'* embedded in the asset, even though it has cashflows.

But we can go further. What would Berkshire Hathaway be worth now were it not for Warren Buffett? We can't know, but I'll hazard a guess at about $0 (the US textile industry hasn't been such a great place to be over the last few decades). That implies the investment performance of Berkshire Hathaway ended up being less to do with the business model and more to do with the people at the top of the business.

Here's another thought experiment: what would Lehman Brothers be worth now if it wasn't for Dick Fuld? Again, we can't know, but there is a good chance that it would still be worth something. So the Lehman's estimated "discounted future cashflows" were fundamentally down to an assessment of the men at the top of that business too.

So this presents the notion of 'intrinsic value' with another problem. How do you value the people at the helm? They have no cashflows. They are not recorded in separate notes to the financial statements. Their track records look good until they don't. Yet they are the most

elemental assets. And they defy objective valuation. Therefore, I would say again the answer can only be subjective. One has no choice but to exercise one's judgment. Which is what we have to do with a Picasso (or gold, or silver, or a 1982 Chateau Lafite). So are SWAG assets *really* so fundamentally different from a business with cashflows? I am no longer so sure. There will be differences of taste, of views of the future, in the value attached to permanence, and there is certainly an issue of expertise. But are there any investment endeavors which don't involve such differences?

I should say by the way, that I'm speaking for myself here. But Joe's book – along with a few other conversations I'm having at the moment - helped develop this thinking, which is new for me. It does that because it is I think a radically different view on what constitutes investment-worthy consideration. So it makes you think hard about what you think you know about valuation.

Joe's point isn't that you should go out and put all of your assets in SWAG, or in SWAG-type assets. Rather, he suggests that there is scope for an allocation within your portfolio to SWAG. In effect, you're buying a "money supply tracker fund". But I've already gone on too long. The most important thing to understand about SWAG is that an allocation to such assets shouldn't be considered a vehicle for speculating on the future, but as a way to build into one's portfolio a robustness to the fact that we simply don't know what the future holds. This sentiment will be familiar to regular readers of Popular Delusions. As I said, Joe has been a very big influence on me over the years.

"Thinking, Fast and Slow" by Daniel Kahneman

For anyone compiling a list of absolutely 100% necessary reads for new recruits into their firm, I'd have to put this book close to the top of that list. The breadth of knowledge, the framework and intuition provided to help understand are wonderful, but it's the humility of the man who invented the subject which makes it so special and not merely another book on behavioral finance. It reads almost like a memoir and has a unique gravitas and authority, making you aware that you're reading an original source. I really liked that.

Here's an example of what I mean. In one chapter is a section on the Allais paradox, in which Nobel Prize winning economist Maurice Allais demonstrated to a distinguished audience of economists and statisticians that they weren't rational (including the Nobel Prize winning Paul Samuelson, the economist who thought the Soviet Union's centrally planned economy was a miracle).

It's difficult to convey to people who haven't been brainwashed by a formal education in modern economics just how significant that would have been at the time. That people are rational was, and probably still is, the fundamental working premise of theoretical economics. You absolutely *were not* allowed to say it wasn't true because the whole theoretical structure was based on it. But Allais stood up and asked the audience what choice they would make given:

A. A 61% chance to win $520,000 or a 63% chance to win $500,000

Most people preferred the 61% chance to win $520,000. He then asks them what choice they would make given:

B. A 98% chance to win $520,000 or a 100% chance to win $500,000

Now most people preferred the 100% chance to win $500,000 (if you take some time to ponder the choices I think you will too.)

So Allais then pointed out to them that they had violated one of the axioms of expected utility theory. In each choice, A and B, increasing your probability of success reduces the size of the prize. A 2% increase in probability reduced a $520,000 prospect to a $500,000 prospect. So to be consistent, if you're happy to forgo the 2% improvement in option A to keep your potential prize at $520,000, as most people did, you should do the same thing for option B. But people aren't 'consistent'. Most people view choice B as very different because it offers a prize of $500,000 with complete certainty.

Allais had demonstrated what is now referred to as the 'certainty effect' in which we value certainty more highly (and undervalue near-certainty). He wanted to make the point that if his esteemed audience were demonstrably 'irrational' the rest of the world was likely to be too. But what I loved about the way this story was told, apart from being a neat example of the certainty effect, was that prior to the conference Allais had thought his findings would be a bombshell. He thought it would revolutionise the study of economics, and that Nobel Laureates would suddenly say *"Hey wait a minute, for all this time we've been peddling a load of tosh without realising it. Let's go back to the drawing board and figure out how this stuff really works."*

Of course, it didn't. Kahneman said, *"As often happens when a theory that has been widely adopted and found useful is challenged, they noted the problem as an anomaly and continued using expected utility theory as if nothing had happened."* It might be stretching the

imagination too far, but if Richard Feynman had been an economist I bet he'd have taken note. Fortunately for the rest of us, Kahneman and his long-time collaborator and friend Amos Tversky did.

"Paper Promises" by Philip Coggan and a few others

I've indulged myself too much on the books covered already so I don't have time to go into some of the other books I'd really enjoyed. *'Steve Jobs'* by Walter Isaacson was a breathtaking read and truly educational, as was *'FutureBabble'* by Dan Gardner. A book I read over Christmas called *'Water: The Epic Struggle for Wealth, Power and Civilisation'* by Steven Solomon deserved I think much more attention than it received, while *'The Party: The Secret World of China's Communist Rulers'* by Richard McGregor was a great book to take around Asia. I could have filled pages on each and wholeheartedly recommend any one of them.

But before I bow out for the summer for a spot of my own summer reading, *'Paper Promises'* by Phil Coggan deserves a particular mention. It's a very unusual financial history book in that although it has a nice and pacey narrative (Phil writes the Buttonwood column for the Economist), in another sense it has a degree of rigour most narrative histories lack because it's told using the simple but very powerful framework of the debtors and creditor nexus.

The central idea is that money contains within it a fundamental tension between its various roles. To over-simplify somewhat but to give you the rough gist, savers want money to serve as a store of value while merchants and industrialists see it as a medium of exchange. Phil argues that those motives are incompatible, at least in the short term. Trade can usually be stimulated and the burden of debtors relieved by increasing the supply of money, but this strategy is detrimental to savers.

This tension is a familiar one to us today's world. It can be seen in the eurozone situation between Greece vs Germany, the standoff between the US and China, or in the debate between bond bulls and gold bugs. What Phil's book shows is that it is nothing new. Although he kicks off his story with the tale of Dionysius' default on his own subjects by unilaterally decreeing that one drachma coin was now worth two drachmas, he points out early on in his tale that *"Since the time one caveman borrowed another's flint axe, mankind has been in debt."*

Historical records show that debt preceded coins by around two thousand years. From Hammurabi to Diocletian to Henry VIII to John Law to William Jennings Bryan to the World Wars to the Gold Standards to Richard Nixon to the sub-prime crisis to the eurozone crisis (and probably to tomorrow's inflation) … one of the most profound rhythms of history has been that caused by the permanent tension between debtor and creditor and, as far as I know, this is the first book to illustrate this so comprehensively.

Philosophy

A call for honest fools (03/02/2012)

Frequently, when we make mistakes we try to correct them not by changing the flawed thinking which led to the mistake in the first place, but by reapplying the same flawed thinking with even more determination. Behavioural psychologists call it the "lost pilot" effect, after the lost pilot who tried to reassure his passenger: "I have no idea where we're going, but we're making good time!" Policy makers on both sides of the Atlantic are treating today's malaise with the same flaky thinking which created it in the first place. How can that work?

▪ It seems counterintuitive, but "trying harder" doesn't always work. Last week I wrote about an experiment[51] in which groups of people for and against capital punishment were asked to evaluate two separate studies, one for capital punishment and the other against. The group in favour of capital punishment found the study in favour to be more valid, while the group against capital punishment found the study against to be more valid, and that after reading each report, each group's prior beliefs were strengthened as was their hostility to the other. What I found especially fascinating was that when the study was rerun, only this time with the experimenters explicitly telling the subjects to be "strictly unbiased in their judgment" (i.e. "try harder"), the effect was to make the polarisation even *more* pronounced!

▪ It's this aspect to those studies I want to think about this week: the incorrect application of faulty models. In essence, that's all those studies on confirmation bias are really about. Subjects applied a faulty model – a mental algorithm saying "accept only supporting evidence" – which resulted in a biased assessment of the evidence. "Trying harder" didn't work because the problem was the faulty model, not the lack of effort, and applying that faulty model with more determination just caused an even bigger error. Psychologists have a name for this. They call it the "lost pilot effect" after the lost pilot trying to reassure his passengers by saying "I have no idea where we're going, but we're making good time!"

▪ Flawed thinking got us into this mess. But rather than change that flawed thinking, our policy makers are applying it with even more rigour: we have more debt for insolvent borrowers, more financial engineering, *more* complicated banking regulations, more blaming speculators for everything, *more* monetary experimentation by central banks. Our policy makers have absolutely no idea what they're doing, but they're giving it a go!

▪ The latest from the Fed provides a wonderful example. Undeterred by the latest calamitous failure of CPI targeting regimes (a brief history of which will be presented below), it has announced an explicit 2% inflation target. But why? Would an explicit target have made any difference to the last crisis? Will it prevent the next one? And where did this 2% come from? We don't know. But we suspect that past uninformed capital market tinkering has failed to control the uncontrollable, and we're pretty sure these ones will too.

[51] See Lord, Ross & Lepper "Biased Assimilation and Attitude Polarization: the Effects of Prior Theories on Subsequently Considered Evidence", Journal of Personality and Social Psychology

In fact, if such tinkering has in the past been the primary causes of crises, then why won't this latest attempt – the 2% inflation target – be the cause of the next one? There are certainly precedents. Targeting stable "prices" isn't a new idea. The first experiment was actually conducted in the US in the 1920s, apparently successfully. Indeed, so stable were consumer prices that the authorities assumed there was no inflationary threat. And, this brilliant new idea, that stable consumer prices were both a necessary and sufficient condition for economic stability, proved so appealing that the NY Fed adopted it as a policy objective. On January 11th 1925, then-governor Benjamin Strong wrote to a friend:

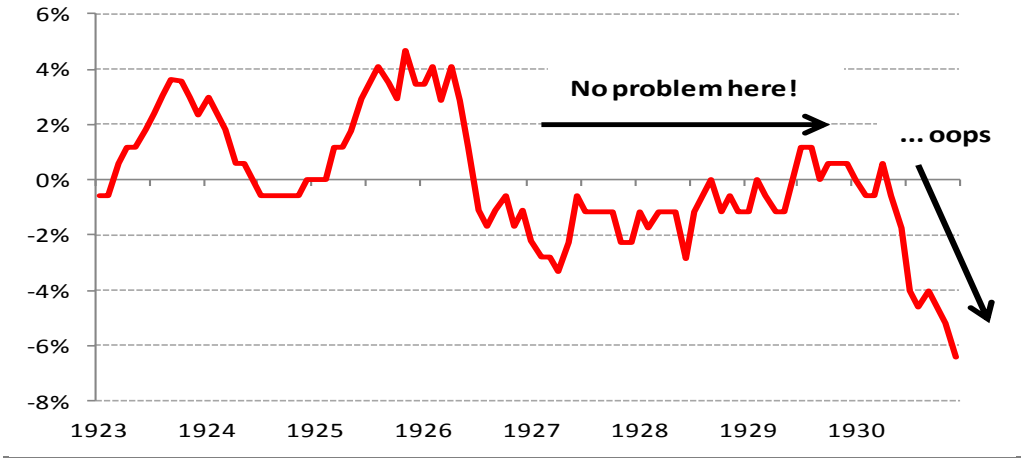
> *That it was my belief, and I thought it was shared by all others in the Federal Reserve System, that our whole policy in the future, as in the past, would be directed towards the stability of prices so far as it was possible for us to influence prices."*[52]

During the 1927 Stabilization hearings before the Committee on Banking and Currency on a Bill to amend the Federal Reserve Act to provide for the "stabilization of the price level for commodities in general", the governor was asked if the Fed could stabilize prices more than it had done in the past. Strong replied

> *"I personally think that the administration of the Federal Reserve System since the reaction of 1921 has been just as nearly directed as reasonable human wisdom could direct it toward that very object."*

Like a driver focused on the speedometer rather than the speed, oblivious to the risk that the speedometer might be faulty, they kept their foot on the gas until they crashed. So focused were they on the stability of the CPI (first chart below), and so convinced that it was the be all and end all of inflation, they missed what was going on in the credit markets (second chart below).

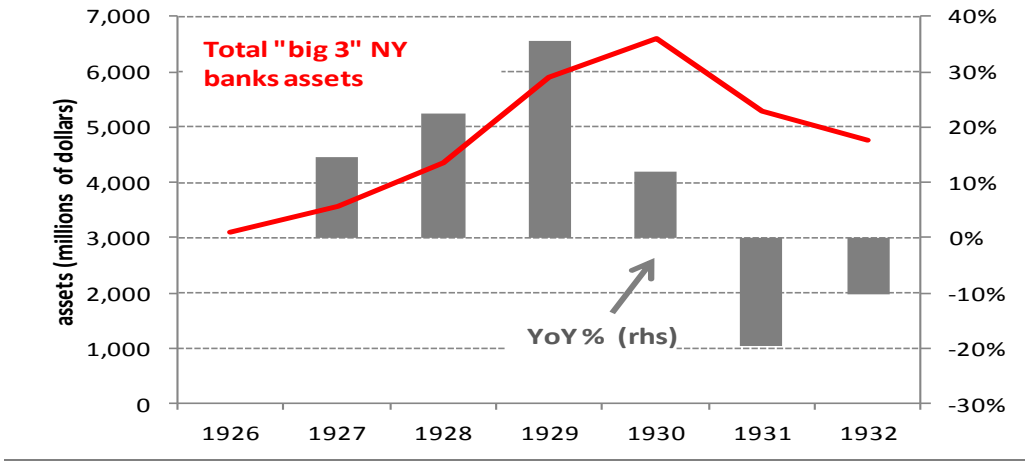
US CPI YoY% in the 1920s



Source: Bloomberg

[52] Quoted from "America's Great Depression" by Murray Rothbard

The warning that the Fed ignored

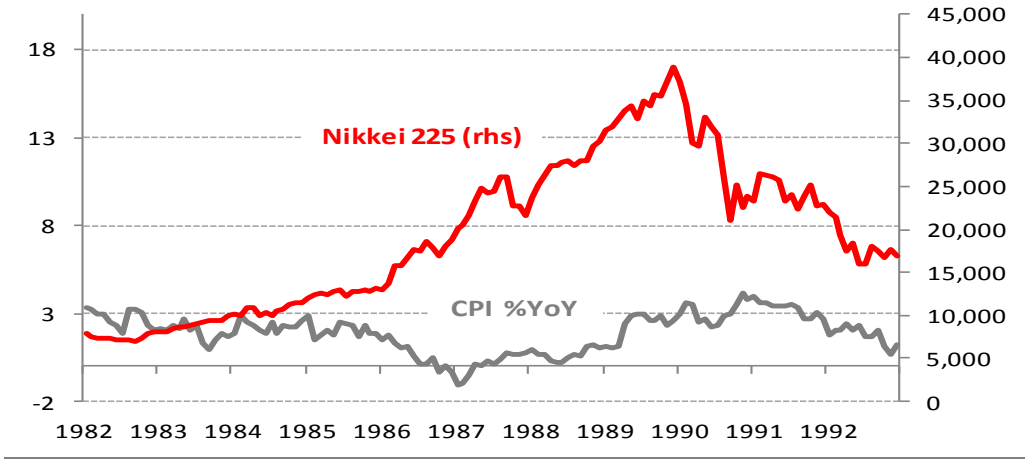


Source: Rötheli (2009)

We know that episode didn't end too well. Yet to this day, on the long list of explanations for what put the "Great" into the 1930s Great Depression, the prior credit bubble which was allowed to develop – and was possibly even caused by the monetary authorities' undue attention to an arbitrary variable (consumer prices) – and the false sense of security the stability of that variable created, is barely a footnote. Amid the mountains of literature on the "lessons from the 1930s" there doesn't seem to be much on the danger posed to an economy of allowing a committee of economists to tamper with the natural functioning of the market for capital by letting them decide what interest rates should be.

Certainly, the Japanese don't seem to have been aware of the danger. Allowing themselves the false reassurance there was no inflation problem because there was no CPI inflation in the late 1980s, bank credit was allowed to boom. The consequent inflation of real estate and equity prices was interpreted instead as something miraculous (chart below).

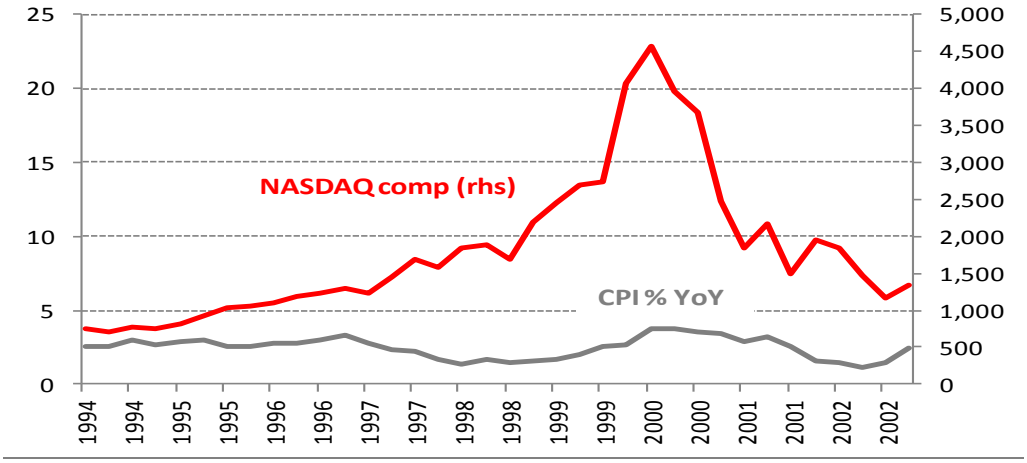
Japan made the same mistake



Source: Bloomberg

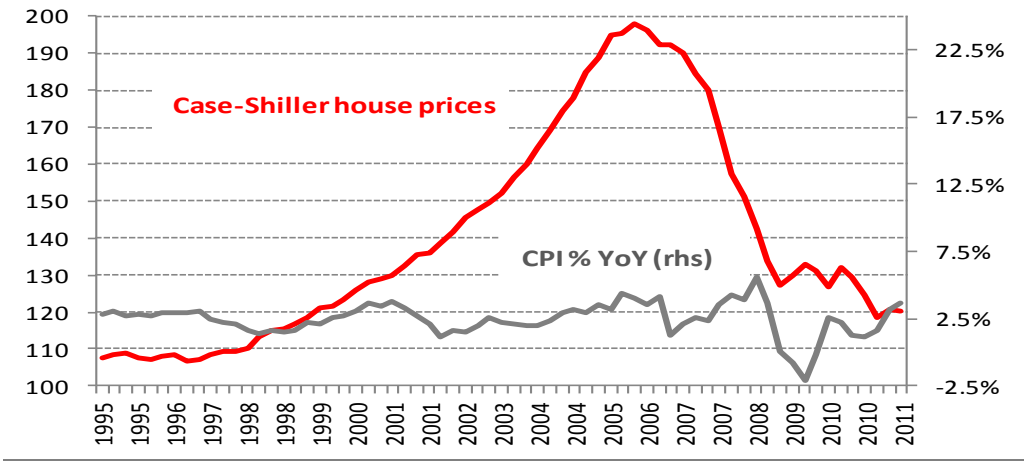
More recently we've experienced the same thing with the tech bubble of the late 90s and the real estate bubble we're still recovering from (see charts below). On each occasion, the monetary authorities were blinded to the runaway inflation in the markets for equities (first chart below) and real estate (second chart below) by stable CPI inflation.

I see no inflation …



Source: Bloomberg

I *still* see no inflation!



Source: Bloomberg, Robert Shiller

Inflation targeting, it seems, has a history of fostering asset bubbles because the notion that a stable CPI equates to a robust economy contains numerous false premises.

The first is that inflation is measurable. Einstein once had the words *"not everything which can be measured counts, and not everything which counts can be measured"* on the desk in his office at Princeton. And although the world might be simpler if it wasn't so, I believe "inflation" happens to be one of the things which counts but can't be measured. The fact is that once money is created you don't know where it ends up. Maybe it will end up in the consumer goods market, maybe it won't. Or maybe it will be multiplied via the financial system into new credit which will inflate asset prices instead. Even then, we don't know which assets.

But suppose we did know where money would end up, how would you weight the assets together into one index? Should stock prices be included in the CPI? If so, what should the weight be? And if you're going to add stocks, why not add corporate bonds too? And what

should their weight be? And if you're going to add bonds, why not add house prices, etc., etc.? Isn't it obvious that the rich concept of "inflation" is unobservable? So who said that proxying it with a narrow sub-category – consumer prices – was a good idea?

The second is the premise that consumer prices themselves should be as "stable" as possible. But is that correct? Isn't the natural tendency of our species to do more with less, to lower the cost of a given good or service, to "increase productivity"? In other words, isn't "deflation" a part of the human condition? Jeff Bezos, the CEO of Amazon famously said there were two types of company in the world, those that work to charge more and those that like to charge less. His company, he said, would belong to the second group.

Shouldn't someone warn him of the folly of pursuing deflation? Of the untold havoc he's set to unleash by trying to undercut Apples iPad? And how about those guys at Walmart? Surely they deserve a stern ticking off oblivious, it seems, to the downright irresponsibility of their "Everyday Low Prices" strategy? Maybe all the clever economists and Ivy League Nobel Prize winners should make going to Arkansas to explain to the Waltons that they're playing with fire a matter of urgency?

Or maybe the clever economists aren't so clever. Maybe they have it all wrong. Maybe deflation is most painful when there is an excess of debt, and so maybe they shouldn't be encouraging excessive debt accumulation in the first place, by distorting the interest rate market in the pursuit of aims whose consequences they don't fully understand?

This brings us to a third false premise, that there is some "optimal" rate of consumer price inflation. Judging by the targets of most central banks which have them, that rate is around 2%. But why is it 2%? Why not 3%, or 4%, or 6.78384%? What's so magical about 2%? Where did that number come from?

One of my favourite people of the 20th century is Richard Feynman, the Nobel Prize winning physicist who, among other things, pioneered the study of quantum electrodynamics. In a fantastic documentary about him for BBC's Horizon show called "The Pleasure of Finding Things Out" he said something I found moving and profound. He was talking about the "experts" he saw on TV and how although he didn't have any expertise in the area they claimed to have expertise in, he felt quite sure that they didn't know what they were talking about. He said this:

> *"There are myths and pseudo-science all over the place. I might be quite wrong, maybe they do know all this ... but I don't think I'm wrong, you see I have the advantage of having found out how difficult it is to really know something. How careful you have to be about checking the experiments, how easy it is to make mistakes and fool yourself.* ***I know what it means to know something.*** *And therefore, I see how they get their information and I can't believe that they know it. They haven't done the work necessary, they haven't done the checks necessary, they haven't taken the care necessary. I have a great suspicion that they don't know and that they're intimidating people."*

So if I apply Feynman's test and ask myself how hard most economists worked for their knowledge, I can't help thinking they haven't worked hard for it at all. I don't think they've worked hard to know what inflation is, or whether it can or should be targeted. I think they've just *assumed* it, and anyone can do that. As Feynman warned, they've fallen into the trap of fooling themselves. They've *assumed* that inflation can be proxied by the CPI because it's easier to do that, they've *assumed* that 2% is somehow the right rate for it, and they've *assumed* they're capable of setting interest rates at the "appropriate" level.

But what if those assumptions are wrong? What if, for example, the "natural" rate of consumer price inflation was 0% and so by trying to keep it at the unnaturally high rate of 2% they've had to artificially goose up the rest of the economy by setting interest rates at an inappropriately low level? And what if, like force-feeding steroids to a horse because you assume it should be running faster, in doing so you kill it, distorting the credit system so grotesquely as to crash the rest of the economy?

They've assumed that wouldn't be a problem, and they assumed that if there was one they'd be able to fix it (Ben Bernanke supposedly promised Milton Friedman that there would never be another great depression because the "lessons" had been learned from the 1930s). But, assuming you know how the animal behaves isn't the correct way to go about attaining knowledge about how the animal actually behaves. So they don't attain knowledge about how the animal behaves. So the animal keeps mauling them.

But they keep doing it. Now a 2% CPI inflation target is going to make all the difference. And I find it a very strange thing. I just don't understand why they're so sure they know all this stuff despite all the evidence to the contrary. I feel like McCarthy in *One Flew Over the Cuckoo's Nest: "That's right Mr. Martini, there is an Easter Bunny."*

Mr. Feynman said something else which I like. He said

> *"Ordinary fools are all right; you can talk to them, and try to help them out. But pompous fools - guys who are fools and are covering it all over and impressing people as to how wonderful they are with all this hocus pocus – that I cannot stand! An ordinary fool isn't a faker; an honest fool is all right. But a dishonest fool is terrible!"*

I think he's right. Dishonest fools are terrible. It's a shame they're in charge.

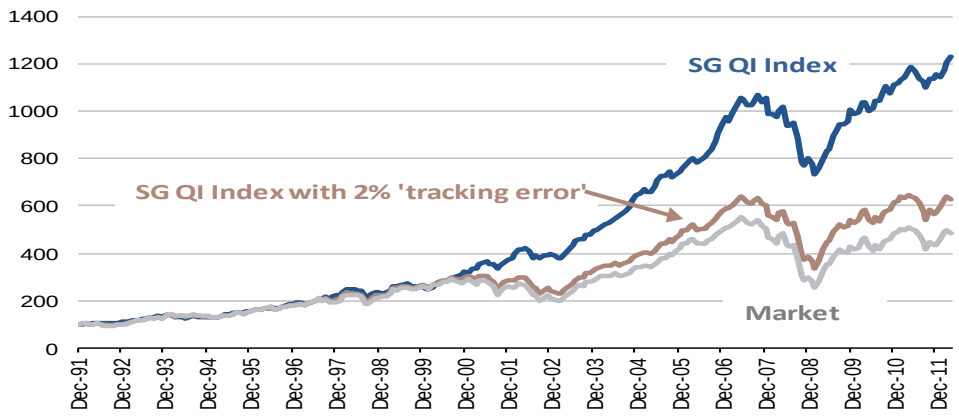
The tyranny of targets: process, outcome and the complexity of it all (15/06/2012)

The pages of the financial press overflow with opinions on what targets would make the world safer: what ratio of risk-weighted-assets banks should target, what RoE targets they would be safe at, what inflation target the central bank should aim for, or what growth target is appropriate for China. Someone even asked me if I was a fan of the idea of nominal GDP targets! I'm not. It's a terrible idea. Today's various issues – the euro, China's economy, over-indebtedness – are the cumulative unintended consequences of such past targets, and the naïve presumption that complexity can be commanded.

▪ It's been an interesting few weeks. We (Andy Lapthorne, Georgios Oikonomou and I) launched our Quality Income index last month (SGQINTR Index on Bloomberg for those interested) and have been involved in discussions around it with various people since. One thing that has struck me is the number of queries we've had on what our targets are (return, volatility, drawdown, etc.). My answer is that we don't have any targets. We have a process. We want to make sure that the index contains robust companies with attractive yields, and that's it.

▪ Maybe this isn't what some people want to hear, but I think it's the right answer. I know we're all obsessed with outcomes rather than the process which led to them (there's a great chapter on this in James Montier's *Little Book of Behavioural Investing*). But I hadn't realised what a very dangerous tendency it was. A good way to see just how dangerous is to consider the chart below. It compares our Quality Income index to a version of the SGQI index constrained by the imposition of a 2% tracking error. I should stress that the constraint is George's quick and dirty approximation to a full optimisation. But I didn't see the point in the extra effort required. I think the chart below says it all.

When trying to minimize 'risk' gives you more risk



Source: SG Cross Asset Research

Quick and dirty comparison of QI with constrained QI (with a 2% tracking error)

	QI	QI (with 2% tracking error)	Market
Return	12.9	10.0	8.9
Standard deviation	10.1	13.6	15.2
Tracking error	**9.4**	**2.3**	**0.00**
Max drawdown	31.6%	47.1%	53.5%

Source: SG Cross Asset Research

The chart on the front page shows what appears to be a superior performance of the QI over its constrained sibling. The table above makes it clearer still. On every metric, with the significant exception of the variable we targeted (tracking error), the unconstrained QI wins. Tracking error falls from 9.4% to 2.3% (which is what we wanted), but returns fall while volatility and maximum drawdown rise meaningfully. Victory over tracking error has exacted a high price. But I don't want to get hung up here on the pros and cons of tracking error. What's interesting is the insight the exercise gives into the dangers of outcome targeting.

All outcomes are caused by an underlying process. In very general terms, all we did by constraining the QI to have a 2% tracking error was impose an outcome on a process. But as soon as we did that we also *changed the process*. Instead of including stocks that matched the criteria we were looking for, we included stocks that didn't because doing so helped us hit our tracking error target. But once we change the process we necessarily change other outcomes. Thus, while we achieved the outcome we were targeting, we negatively affected the outcomes we weren't targeting (returns, volatility and drawdown). The overall effect of targeting one outcome was then detrimental.

It might be tempting to think that tracking error is just the wrong thing to target. But I'd argue that for even mildly complex systems, *any outcome* is the wrong thing to target. As we just saw, targeting one outcome of such a process changes that process, and changing the process subsequently changes all the other outcomes. In any kind of complex system where the underlying outcome generating processes aren't well understood – whether a company, or a society – the effects of changing the process won't be well understood either. Unintended consequences *must* ensue.

Yet even a cursory glance at the news shows 'outcome targeting' to be endemic: in response to the damage caused by Basle II, we're given the 'new and improved' targets of Basle III (now already being traduced); the insurance industry now faces Solvency II targets; investors fret that banks won't be able to hit their RoE targets; investors wonder if China will be able to hit its 8% GDP growth target; most major central banks target some sort of CPI inflation rate.

This is lunacy. How much damage has already been caused by banks that overreached themselves in trying to meet their RoE targets? How lopsided and capital destructive has China's insistence on hitting its breakneck GDP growth targets at all costs been? How much of today's painful credit deflation was caused by the credit *in*flation central banks pumped up while aiming for their CPI inflation target? In targeting these outcomes, underlying processes were distorted. Unforeseen outcomes resulted. But regulators continue to prescribe capital targets, banks continue to target RoE, China continues to target a growth rate, and central banks continue with ever more experimental methods in defence of their inflation targets. Indeed, today in Europe we're seeing the unintended consequences of imposing outcomes (i.e. an exchange rate) on the eurozone economies.

Regular readers know how little time I have for macroeconomics. One reason is that it's obsessed with the targeting of interest rates, GDP, inflation, unemployment, exchange rates, *et cetera,* as though such a thing was possible without unintended consequences. Since such variables are actually outcomes of a complex process, most macroeconomics seems to me to be an embarrassingly naïve study of outcomes which completely neglects process.

I'm not sure when this started. Adam Smith's observation on the 'invisible hand' of self-interested but mutually advantageous behaviour might have been our species' first articulation of a complex adaptive process. Austrian economists understood this too. Ludwig von Mises distilled social phenomena to the simple observation that "man acts purposefully," while Hayek coined the phrase "spontaneous order" to describe the market. And all this before complexity had been given its name by mathematicians.

The thing is, Adam Smith and the Austrians didn't fall into the trap of focusing on outcomes. And we're trying to avoid that trap too. Warren Buffett said great baseball players watch the field, not the scoreboard. So we don't have any targets for our QI index beyond focusing as best we can on our process. What else is there?

Finally, an enormous thank you to those of you who voted in this year's Extel Survey, and particularly for those of you who voted for Albert and me as the number 1 team, and Andy Lapthorne as the number 1 quant. On a personal level, I'd especially like to thank those of you who voted for me ahead of Albert. It means I get to call him "number two" for a year and order him around the office. It really does make the job worthwhile. Thank you again.

The illusion of safety: traffic lights, beehives and the problem with regulation (29/06/2012)

Developments in traffic engineering show that measures aimed at making roads safer (such as road signs, traffic lights) actually make roads less safe. They signal to drivers that it's OK not to think through the risks of their behaviour. Is that so different to the recent problems caused by over exposure to sub-crime mortgages or eurozone sovereign debt? Didn't regulators say such securities were "*risk free*" and reward heavy ownership of them? Today's crisis has been dubbed a *crisis of capitalism*. A *crisis of regulation* is more accurate.

One of the great things about kids is the questions they ask. Last year I was walking my youngest son home from school and we were strolling through the park, discussing the world when we came to a busy road. I told him to press the button and wait for the green man, which he likes to do. We waited for the lights to change. A few cars whizzed by. Then he piped up with a question. "*Why do we have traffic lights?*"

As another car sped by, I thought this was pretty easy to answer. "*It's so you don't get hit by cars going as fast as that*" I said. He nodded to signal that he understood. "*Traffic lights make it easier for us to share the same space as the cars*." I continued, "*By taking it in turns we get to use the road, and the cars do too. What the traffic lights do is make the roads safer for everyone*." He nodded again to signal that he understood. Then the traffic lights turned to amber to red another car raced past. My son said "*And do they work?*".

The beeps sounded and the green man lit up. We started to cross the road. I was slightly confused. "*What do you mean, do they work?*" I asked. "*I mean, do they make the roads safer?*" I was just about to answer … but, I paused … "*Well*" I began eventually, "*I'd always assumed they did ... but now you mention it … I don't know!*" And I didn't. But now I do. And they don't.

it's safer when you don't feel safe: Drachten intersection with no traffic lights, and no accidents

Source: Google Images

Initially I was most surprised to discover this. But on reflection it makes perfect sense. Traffic is a rudimentary complex system. These systems are characterized by aggregate behaviour exhibiting properties which seem far removed from the properties of individual parts. Behaviour at a micro level following a simple algorithm produces macro-behaviour which seems far removed and more impressive than one would have thought such a simple algorithm capable of producing.

Bees are an excellent example. They build and maintained hives despite having no intelligence to speak of. Each individual bee follows a set algorithm which governs how it interacts with other bees, including "waggle dancing" to one another to signal discovery of a potential new hive location, for example. No one is in command. There is no centrally directed behaviour. None of the bees has intellect. Yet information relating to new hives, new sources of nectar or new threats is somehow communicated to the entire hive, enabling it to survive and prosper. The process by which these hive "decisions" are made has been described as *"an election hall of idiots, for idiots and by idiots, and it works marvelously."*

One of the interesting things about complex systems is how delicately balanced they are. On the surface, the elaborate outcomes might seem very stable. But they are anything but. Very small changes to the simple algorithms driving individual behaviour can have dramatic system-wide consequences. In recent years for example, there has been an increase in the sudden disappearance of beehives all over North America and Europe, a phenomenon called Colony Collapse Disorder (CCD). But no one really knows why. Theories range from disease, to mobile phone radiation to GM crops to the use of certain pesticides. Whatever the underlying cause, the effect seems to have been to disorientate scout bees and leave them unable find their way home. With no information on the world outside, the hives perish.

Actually, this could be significant. Bees pollinate around one-third of the world's agricultural crops and without them we'd have a third less food. So it's not just the complex systems of beehives which are unpredictably influenced by an apparently innocuous change to the micro-level algorithm dictating individual bee behaviour. It's the wider complex adaptive system that is human society.

Anyway, to return to the original idea, traffic is a complex system. It self organizes at a macro level by drivers or pedestrians following a simple algorithm at the micro level. That rule is something like *"avoid collisions by keeping a safe distance from whoever is in front"* and from it springs a cohesive and spontaneous system-wide order. Intricate networks of paths are created allowing individuals to reach one location from any other location, and to do so simultaneously. The non-linearity of the system is apparent when one considers the consequences of a traffic interruption somewhere. The answer is it depends which path is blocked, when and what type of traffic is in the vicinity of the interruption. So it might have no effect on traffic flow, or it might have a paralyzing effect. Finally, there is no central command to such a traffic system. One will spring up where ever there are people and no higher intelligence is required to build one.

Of course, today many such networks are centrally planned, particularly road networks, which is why the traffic light example is so interesting. They are planned by a central agency. And behaviour on them is regulated by that central agency too, in the form of systems of traffic signs, speed bumps, bollards and traffic lights. All are intended to make the roads safer for users of the roads. The problem is that they don't.

The pioneering demonstration of this was by a traffic engineer called Hans Monderman who I think should be a household name. In 2001, he redesigned the landscape of the small town of

Drachten in the Dutch province of Friesland by removing all traffic controls. There are no traffic lights, no traffic signs, no traffic islands and no arrows pointing people in the direction they're supposed to be moving in. At the town's main four-way intersection, the *Laweiplein (*picture on front page), only the minimum legally required traffic indicators remain. In a fascinating article Tom Vanderbilt recalled meeting the man in Drachten:

> *"As I watched the intricate social ballet that occurred as cars and bikes slowed to enter the circle (pedestrians were meant to cross at crosswalks placed a bit before the intersection) Monderman performed a favorite trick. He walked, backward and with his eyes closed, into the Laweiplein. The traffic made its way around him. No one honked, he wasn't struck. Instead of a binary, mechanistic process – stop, go – the movement of traffic and pedestrians in the circle felt human and organic."*

It may be counterintuitive, but the finding in Drachten has been that since it dispensed with such road safety measures the traffic system has become far more efficient. Traffic flow has doubled while the number of fatal road accidents has fallen (by 100%, to zero). Moreover, similar results have been reported wherever such schemes have been tried across Europe - in Germany, Sweden, the UK. Broadly speaking, traffic speeds have declined, the incidence of traffic accidents have fallen and traffic flow has increased.

How can this be? What I find very interesting about these experiments is that criticisms of them almost universally involve people complaining that they don't *feel* safer in such a regime. Indeed, surveys among the residents of Drachten have shown an increased perception that the roads are more dangerous. And I think that's the key. We're not *supposed* to feel totally safe when we're on the road because we're not totally safe. So roads without traffic lights are safer precisely *because* people are alert to the risk of accident: they pay attention to what others are doing; drivers wait until they've made eye contact with other drivers before making a move; pedestrians remain alert to the traffic all around them, and the traffic remains alert to them in turn.

So because people feel *less* safe they keep their guard up, which makes them engage in less risky behaviour, which makes the system *more* safe. The traffic lights and road signs are well intentioned, but by subtly encouraging us to lower our guard they subtly alter the fundamental algorithm dictating micro-level driving behaviour. This causes a perverse macro-level outcome.

You might be thinking that traffic lights don't have anything to do with the markets we all work in. But I think they do. Instead of traffic lights and road signs think rating agencies; think Basle risk weights for Core 1 and Core 2 bank capital; think Solvency 2; or think of the ultimate market regulators of our currencies - the central banks - and the Greenspan/Bernanke "put" which was once imagined to exist. Haven't these regulators provided the same illusion of safety to financial market participants as traffic safety tools do for drivers? And hasn't this illusion of safety been even more lethal?

The regulations which told banks that AAA-rated bonds were "risk free" were designed to make markets safer. But they created an artificial demand for such bonds, which created an incentive for issuers to dress up bonds as "risk free" when they were anything but. The regulations effectively incentivized ratings agencies to rate them as "risk free" when they clearly weren't. And today, the same madness is going on in the government bond markets.

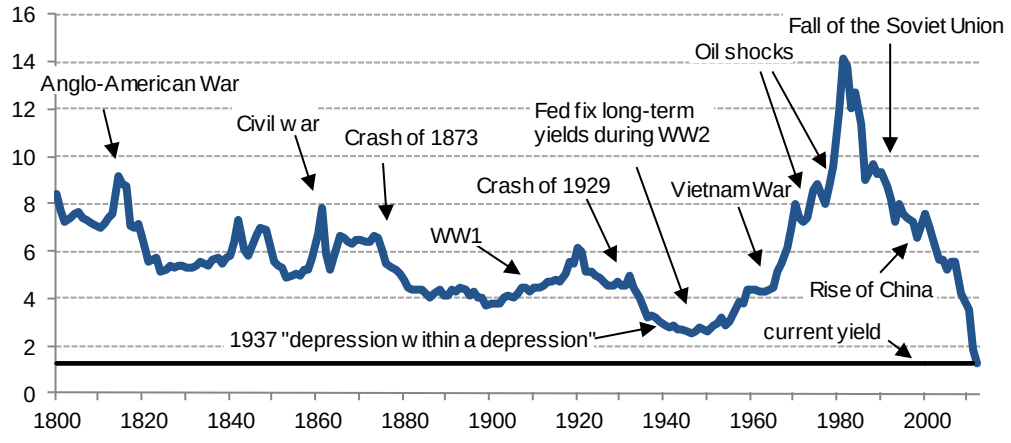
It's very difficult to see how government bonds are anything other than "risk assets" (let's face it, all assets are). Yet insurers are buying them because they've been told to "take less risk"

(whatever that means) by the regulators. So they are taking more risk, and they will one day suffer the consequences. Banks in the eurozone are bust because they own so much of their local sovereigns' debt. But they were told it was OK to do that by the regulators. So they let their guard down.

Indeed, having told banks that they were of sound balance sheet before the crises (Lehman Brothers Tier 1 risk-weighted capital ratio was 11% five days before bankruptcy), those same regulators today scratch their heads and wonder how banks became too big to fail. It's all embarrassing really.

But what would have happened if banks had never been given capital ratio targets? What if they'd been told that if they got into trouble they'd go bankrupt, like any other business? Wouldn't they would have been more careful about what they were buying? Wouldn't they have paid more attention to the price they were taking? I'm quite sure they wouldn't have let their guard down so easily. Behaviour at the micro level would therefore have remained more consistent with robustness at the macro level because individual banks would not have been seduced by the illusion of safety. Just as the residents of Drachten do today, they would have felt less safe, and been safer for it.

The next crisis: "safe-haven", "risk-free" US treasury yields at all-time lows (%)



Source: SG Cross Asset Research

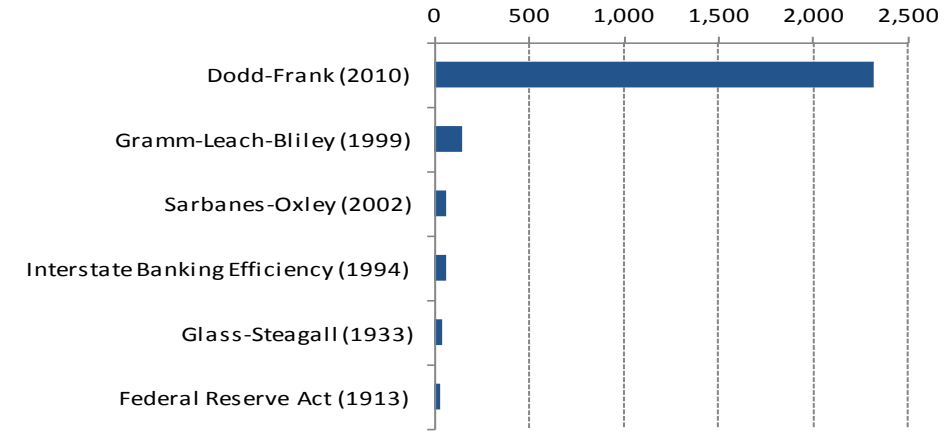
You might say *"Well, it shouldn't matter what the regulations say, it's still stupid for a bank not to hold capital against assets, even low risk ones."* I'd completely agree. I tell my son that just because the green man is flashing doesn't mean you don't look before crossing the road. Nevertheless, tailgating through amber at the traffic lights because the system says we're allowed to pass through amber is stupid too. But we've all done it.

So the knee-jerk reaction to *"tame the excesses of capitalism"* with more regulation is frustrating to watch. We're failing to learn from mistakes. The FT has even gone so far as to label our times as being characterized by a *"crisis of capitalism"*. Yet government typically constitutes nearly 50% of most economies. Why isn't it a crisis of government? All areas of activity are heavily regulated, and the financial sector is the most heavily regulated of all. Why isn't anyone running a special report on the *"crisis of dumb counterproductive intervention?"*

Regulation by the fiat imposition of outcomes on poorly understood processes is an awful way to go about things. As we've seen, the changes to micro-level behaviour mess up the delicate macro-level balance in unexpected ways. Some of the most dysfunctional labour markets in

the world (i.e. those in the Eurozone) are also the most heavily regulated. Those regulations might be well intentioned and intended to make the world fairer to employees but the effect has been the opposite. All they have achieved are some of the highest rates of structural unemployment around, and discrimination against youth which is both tragic and shameful. Today's crisis is not a crisis of capitalism. It is a crisis of regulation. It is a consequence of presumed knowledge.

The continuing crisis of regulation: major financial legislation by number of pages



Source: Mark J. Perry

We should be able to understand that the world isn't risk free, can never be made risk free and that regulations which trick people into thinking it is risk free serve only to make it more dangerous. It is true that there are always fools who cause problems by behaving badly. The perception that more regulatory safeguards are needed to deal with them is easy to understand. But as Monderman said *"There's a little part of society who don't accept rules, who don't accept social structures. It's not up to a traffic engineer to change it".* There will always be idiots. But if ill-conceived and crude regulations merely add to the tally, doesn't the chart above suggest we're creating even more?

Memo to Central Banks: You're debasing more than our currency (02/10/2012)

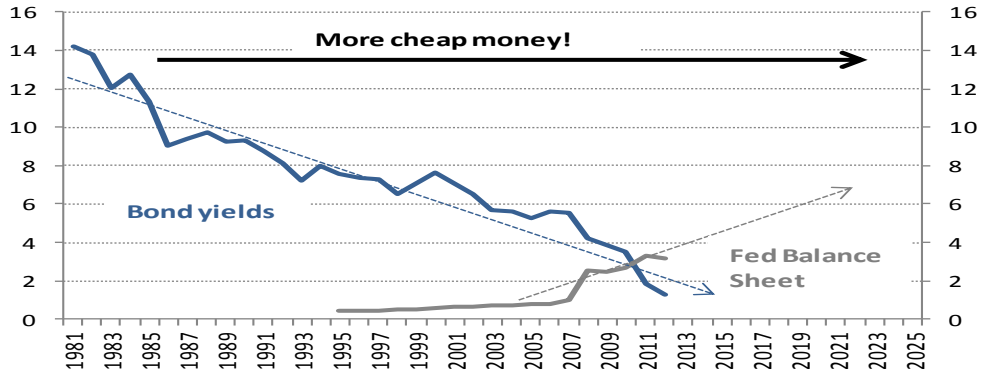
At its most fundamental level, economic activity is no more than an exchange between strangers. It depends, therefore, on a degree of trust between strangers. Since money is the agent of exchange, it is the agent of trust. Debasing money therefore debases trust. History is replete with Great Disorders in which social cohesion has been undermined by currency debasements. The multi-decade credit inflation can now be seen to have had similarly corrosive effects. Yet central banks continue down the same route. The writing is on the wall. Further debasement of money will cause further debasement of society. I fear a *Great Disorder*.

I am more worried than I have ever been about the clouds gathering today (which may be the most wonderful contrary indicator you could hope for...). I hope they pass without breaking, but I fear the defining feature of coming decades will be a Great Disorder of the sort which has defined past epochs and scarred whole generations.

"*Next to language, money is the most important medium through which modern societies communicate*" writes Bernd Widdig in his masterful analysis of Germany's inflation crisis "*Culture and Inflation in Weimar Germany*." His may be an abstract observation, but it has the commendable merit of being true … all economic activity requires the cooperation of strangers and therefore, a degree of trust between cooperating strangers. Since money is the agent of such mutual trust, debasing money implies debasing the trust upon which social cohesion rests.

So I keep wondering to myself, do our money-printing central banks and their cheerleaders understand the full consequences of the monetary debasement they continue to engineer? Inflation of the CPI might be a consequence both seen and measurable. A broad inflation of asset prices might be a consequence seen, though not measurable. But what about the consequences that are unseen but unmeasurable – and are all the more destructive for it? I feel queasy about the enthusiasm with which our wise economists play games with something about which we have such a poor understanding.

Einstein defined insanity as doing the same thing over and over, expecting a different result



Source: SG Cross Asset Research

If you take a look around you, any artefact you see will only be there thanks to the cooperative behaviour of lots of people you don't know. You will probably never know them, nor they you. The screen you watch on your terminal, the content you read, the orders which make the prices flicker … the coffee you drink, the cup you hold, the bin you throw it in afterwards … all your clothes, all your accessories, all the buildings you've been in, all the cars … you get the idea. *Without exception* everything you own, everything you want to own, everything you need, and everything you think you need embodies the different skills and talents of a mind-boggling number of complete strangers. In a very real sense we constantly trust in strangers to a degree, as strangers trust us. Such cooperative activity is to everyone's great benefit and I find it is a marvellous thing to behold.

The value strangers put on each other's contributions manifests itself in prices, and prices require money. So it is through money that we express the extent of our appreciation for the many different talents embedded in each thing we consume, and through money that our skills are in turn valued by others. Money, in other words, is the agent of this anonymous exchange, and therefore money is also the agent of the hidden trust on which it depends. Thus, as Bernd Widdig reflects in his book (which I urge you all to read), money …

> *"… is more than simply a tool for economic exchange; its different qualities shape the way modern people think, how they make sense of their reality, how they communicate, and ultimately how they find their place and identity in a modern environment."*

Debasing money might be expected to have effects beyond the merely financial domain. Of course, there are many ways to debase money. Coin can be clipped, paper money can be printed, credit can be created on the basis of demand deposits which aren't there ... the effects are ultimately the same though: the implied trust that money communicates through society is eroded.

To see how, consider the example of money printing by authorities. We know that such an exercise raises revenues since the authorities now have a very real increase in purchasing power. But we also know that revenue cannot be raised by one party without another party paying. So who pays?

If the authorities raise taxes explicitly and openly, voters know exactly why they have less spending power. They also know how much less spending power they have. But if the authorities instead raise money by simply printing it, they raise the revenue by stealth. No one knows upon whom the burden falls. People notice only that they can't afford the things they used to be able to afford, or they can't afford the things which everyone else can afford. They know that something is wrong, but they just don't know what, why, or who is to blame. So inevitably they look for someone to blame.

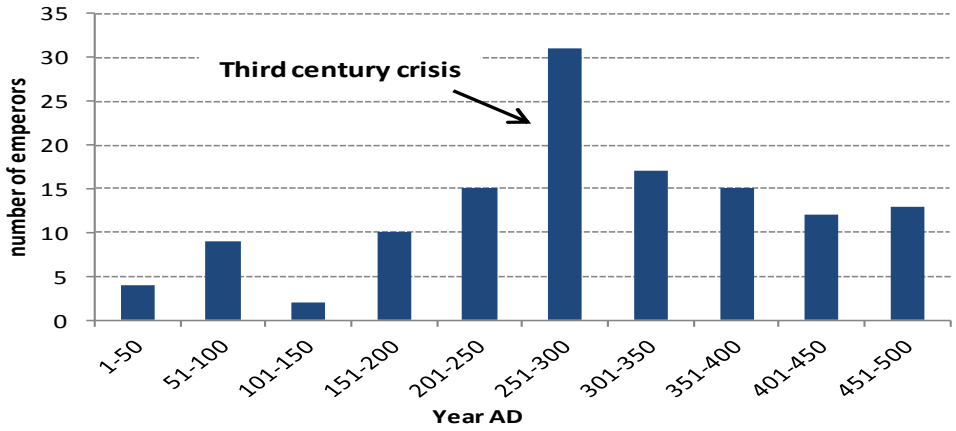
The dynamic is similar to that found in the well-worn plot line in which a group of strangers are initially brought together in happier circumstances, such as a cruise, a long train journey or a weekend away. In the beginning, spirits are high. The strangers exchange jokes and get to know one another as the journey begins. Then some crime is committed. They know it must be one of them, but they don't know who. A great suspicion ensues. All trust between them is broken down and the infighting begins....

So it is with monetary debasement, as Keynes understood deeply (so deeply, in fact, that it's ironic so many of today's crude Keynesians support QE so enthusiastically). In 1921 he said:

"By a continuing process of inflation, Governments can confiscate, ***secretly and unobserved,*** *an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate* ***arbitrarily****; and, while the process impoverishes many, it actually enriches some …. Those to whom the system brings windfalls …. become "profiteers" who are the object of the hatred … the process of wealth-getting degenerates into a gamble and a lottery .. Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all* ***the hidden forces of economic law*** *on the side of destruction, and does it in a manner which not one man in a million is able to diagnose."*

History is replete with Great Disorders in which currency debasement has coincided with social infighting and scapegoating. I have written in the past about the Roman inflation of the Third Century AD. The following chart shows the rapid turnover of emperors during what is known as the Third Century Crisis. As trade declined, crops failed and the military suffered what must have seemed like constant defeat, it wasn't difficult for a successful or even popular general to convince the rest of the empire that he'd make a better fist of governing.

Turnover of Roman Emperors during the Third Century Crisis

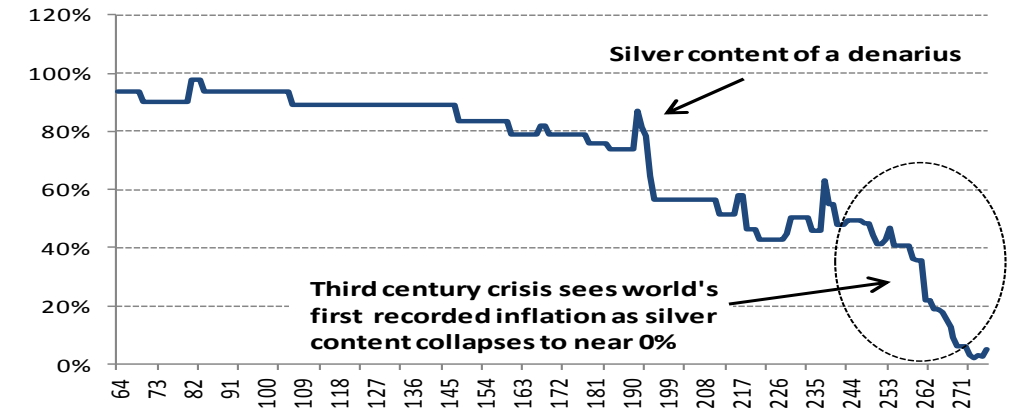


Source: SG Cross Asset Research

But this political turnover was accompanied by what may be history's first recorded instance of systematic currency debasement. With the empire no longer expanding and barbarians being forced westwards by the migrations of the Steppe peoples, Rome's borders were under threat. But the money required to fund defence wasn't there. Successive emperors therefore reached the same conclusions that kings, princes, tyrants and democratically elected governments would later reach down the ages when faced with a perceived "shortage of money": they created more by debasing the existing stock. In the second half of the third century, the silver content of a denarius had shrunk to zero. Copper coins disappeared altogether.

This debasement of currency also coincided with a debasement of society. Factions grew more suspicious of one another. Communities fragmented. And one part of the community bore the brunt of the fears: Christians. While Rome had always welcomed new religions and Gods, incorporating new foreign deities as their empire grew, Christians were altogether different. They rejected Rome's gods. They refused to pray to them. They said that only their God was deserving of worship. The rest of the Romans concluded that this obstinacy must be a source of great anger for their own ancient Roman gods, and supposed that those gods must now be exacting their own great punishment in return.

Declining silver content of a Roman denarius

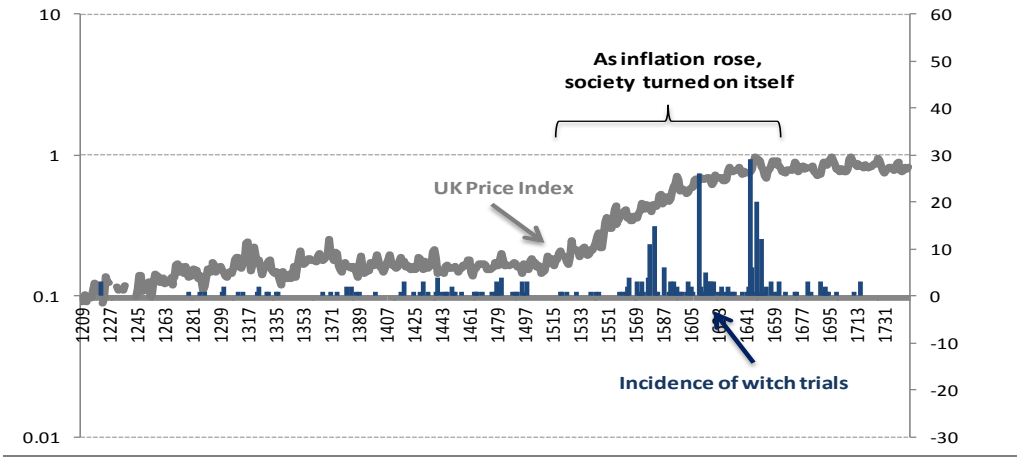


Source: http://www.tulane.edu/~august/handouts/601cprin.htm

So the Romans turned on their Christians with a great violence which lasted throughout the period of the currency debasement but peaked with Diocletian's edict of 303 AD. The edict decreed, among other things, that Christian meeting places be destroyed, Christians holding office be stripped of that office, Christian freedmen be made slaves once more and all scriptures be destroyed. Diocletian's earlier edict, of 301 AD, sought to regulate prices and set out punishments for 'profiteers' whose prices deviated from those set out in the edict.

A similar dynamic seems evident during Europe's medieval inflations, only now, the confused and vain effort to make sense of the enveloping turmoil saw the blame focus on suspected witches. The following chart shows the UK price index over the period with the incidence of witchcraft trials. Note the peak in trials coinciding with the peak of the price revolution.

British witch trials peaked with the medieval price revolution (price index in logs)

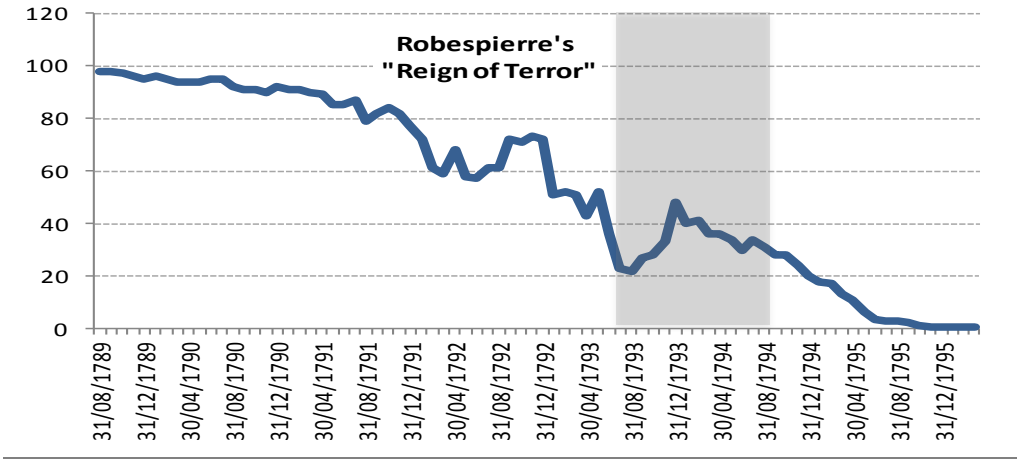


Source: GFD, http://www.personal.utulsa.edu/~marc-carlson/witchtrial/eis.html

Were the same dynamics at work during the French Revolution of 1789? The narrative of Madame Guillotine and her bloody role is well known. However, the execution of royalty by the Paris Commune didn't begin until 1792, and the Reign of Terror in which Robespierre's Orwellian sounding "Committee of Public Safety" slaughtered 17,000 nobles and counter-revolutionaries didn't start until well into 1793. In the words of guillotined revolutionary Georges Danton, this is when the French revolution "ate itself". But the coincidence of these events to the monetary debasement is striking.

The political violence was justified in part by blaming nobles and counter-revolutionaries for galloping inflation in food prices. It saw 'speculators' banned from trading gold, and prices for firewood, coal and grain became subject to strict controls. According to Andrew Dickson White, author of "Fiat Money Inflation in France", (echoing Keynes' remark that *"wealth-getting degenerates into a gamble and a lottery")* "economic calculation gave way to feverish speculation across the country."

Conversion rate of francs of gold per assignat note



Source: GFD

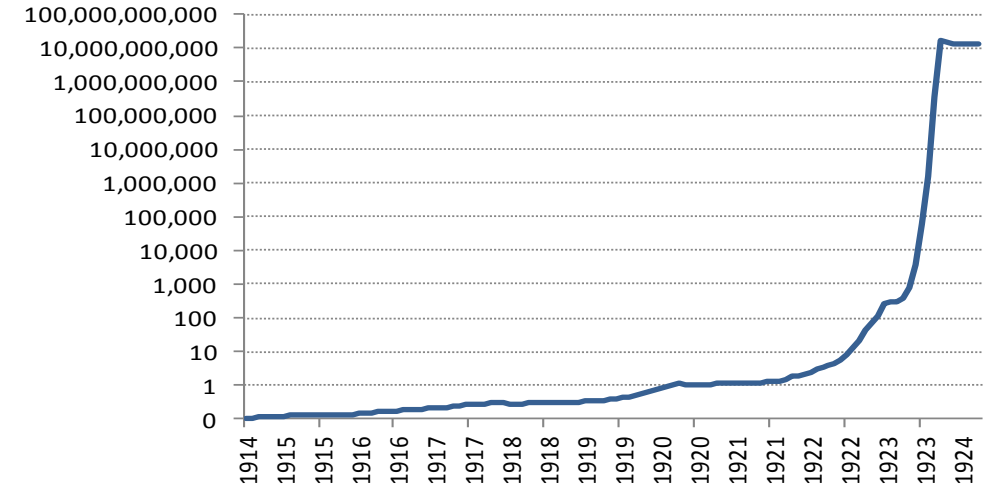
However, the most tragic of all the inflations in my opinion, and certainly the starkest example of a society turning on itself was the German hyperinflation. Its causes are well known. Morally and financially bankrupt by the First World War, the reparation demands of the Allies (which Keynes argued vociferously against) followed by the French occupation of the Ruhr served to humiliate a once-mighty nation, already on its knees.

And it really was on its knees. Germany simply had no way to pay. The revolution following the flight of the Kaiser was incomplete. Concern was widespread that Germany would follow the path blazed by Moscow's Bolsheviks only a year earlier. A *de facto* civil war was being fought on the streets of major cities between extremist mobs of the left and right. Six million veterans newly demobilized, demoralized, dazed and without work were unable to support their families ... the great political need was to pay off the "internal debts" of pensions, life insurance and welfare support in any way possible. The risk of printing whatever was required was well understood. Bernhard Dernberg, vice chancellor in 1919, found himself overwhelmed with promises to pay for the war disabled, food subsidies, unemployment insurance, etc., but everyone knew where the money was coming from:

> *"A decision of the National Assembly is made. On its basis, Reich Treasury bills are printed and on the basis of the Reich Treasury bills, notes are printed. That is our money. The result is that we have a pure assignat economy."*

But print they did. Prices would rise by a factor of one trillion. At the end of the war, Germany owed 154bn Reichmarks to its creditors. By November 1923, that sum measured in 1914 purchasing power was worth only 15 pfennigs.

German CPI (log scale)



Source: GFD

It is difficult to comprehend the psychological trauma inflicted by this episode. Inflation inverted the efficacy of correct behaviour. It turned the ethics of thrift, frugality and notions such as working hard today to bring benefit tomorrow completely on their heads. Why work today when your rewards would mean nothing tomorrow? What use thrift and saving? Why not just borrow in depreciating currency? Those who had worked and saved all their lives, done everything correctly and invested what they had been told was safe, were mercilessly punished for their trust in established principles, and their inability to see the danger coming. Those with no such faith who had seen the danger coming had benefited handsomely.

Everything, in other words, was dependent on one's ability to speculate, recalling what Dickson White observed of the French Revolution and Keynes reflections more generally. Erich Remarque is best known for his anti-war novel *"All Quiet on the Western Front"* but perhaps his best work was the "*The Black Obelisk"* set in the early Weimar period, and a penetrating meditation on the upside-down world of inflation. The protagonist Georg poignantly captures this speculative imperative when he sits down and lets out a long sigh:

> *"Thank God that it's Sunday tomorrow … there are no rates of exchange for the dollar. Inflation stops for one day of the week. That was surely not God's intention when he created Sunday."*

Perhaps the most eloquent chronicler of the Weimar hyperinflation was Elias Canetti, whose mother moved him from the security of Zurich to Frankfurt in 1921 to take advantage of cheaper living. Canetti never forgave her, and his life's work shows what a lasting impression the move from heaven to hell made:

> *"A man who has been accustomed to rely on (the monetary value of the mark) cannot help feeling its degradation as his own. He has identified himself with it for too long, and his confidence in it has been like his confidence in himself … Whatever he is or was, like the million he always wanted, he becomes nothing"*

More tragic still was what German society became during the inflation. Like other Axis countries on the wrong side of the War and now in the grip of hyperinflation, Germany turned viciously on its Jews. It blamed them for the surrounding evil as Romans had blamed Christians, medieval Europeans had suspected witches, and French revolutionaries had blamed the nobility during previous inflations. In his classic "Crowds and Power", Canetti attributed the horror of National Socialism directly to a "morbid re-enaction impulse".

"No one ever forgets a sudden depreciation of himself, for it is too painful … The natural tendency afterwards is to find something which is worth even less than oneself, which one can despise as one was despised oneself. It is not enough to take over an old contempt and to maintain it at the same level. What is wanted is a dynamic process of humiliation Something must be treated in such a way that it becomes worth less and less, as the unit of money did during the inflation. And this process must be continued until its object is reduced to a state of utter worthlessness. … In its treatment of the Jews, National Socialism repeated the process of inflation with great precision. First they were attacked as wicked and dangerous., as enemies; then, there not being enough in Germany itself, those in the conquered territories were gathered in; and finally they were treated literally as vermin, to be destroyed with impunity by the million.

All this is very disturbing stuff, but testament to a relationship between currency devaluation and social devaluation. Mine is not a complete or in any way rigorous analysis, I know. **I emphasize that it's not in any way meant as some sort of crude mapping on to today's environment.** My point is to show that money operates in many social domains beyond the financial, and that tying currency devaluation to social devaluation might have some merit.

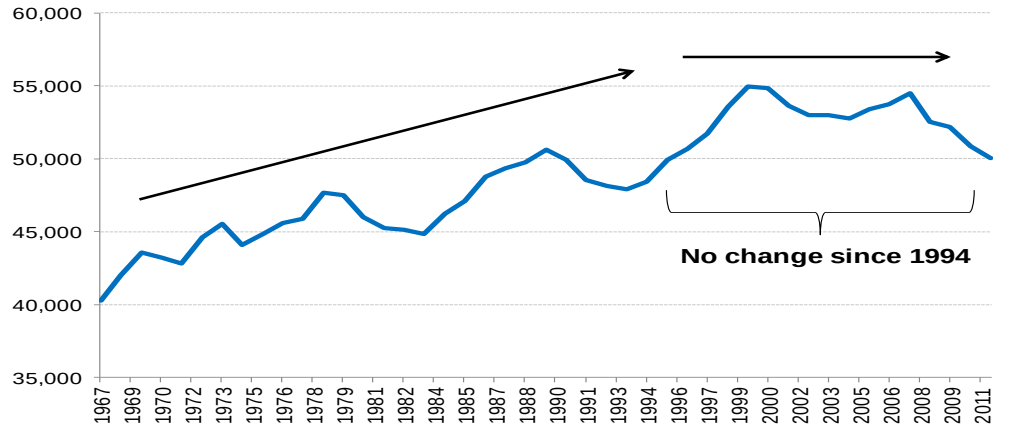
Consider some recent and less extreme currency inflations. The 1970s bear market in equities saw relatively mild inflation which was also characterized by relatively mild but nevertheless real factionalization of society. An ideological left vs right battle played out between labour and capital, unions and non-unions and perhaps most bizarrely, between rock and disco. As already stated, money implies a trust in the future. It implies that today's money can be used in the future. So in the era of punk, did the Sex Pistols provide the most concise commentary of the malaise?

Never mind the bollocks … here's the Sex Pistols

Source: Google Images

Which brings us to today. Despite the CPI inflation of the 1970s receding, our central banks have continued to play games with money. We've since lived through what might be the largest credit inflation in financial history, a credit hyperinflation. Where has it left us? Median US household incomes have been *stagnant* for the best part of twenty years (chart below)

US median household income (2011 $s)

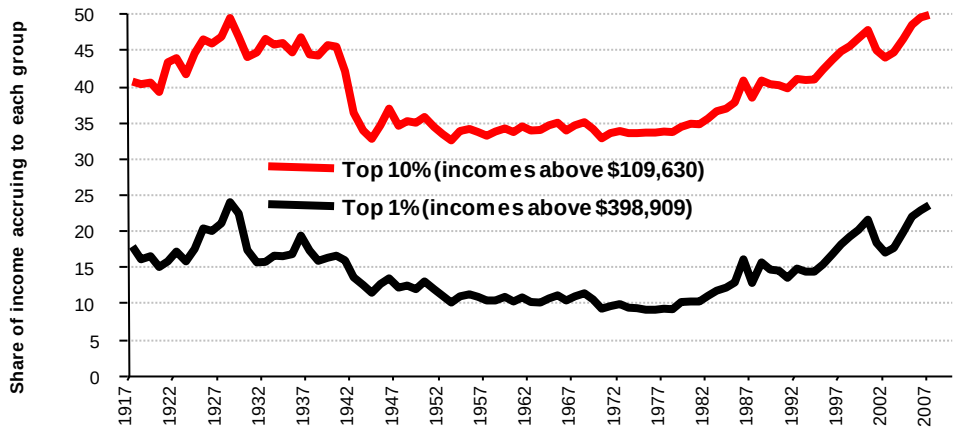


Source: Bloomberg

Yet inequality has surged. While a record number of Americans are on food stamps, the top 1% of income earners are taking a larger share of total income than since the peak of the 1920s credit inflation. Moreover, the growth in that share has coincided almost exactly with the more recent credit inflation.

These phenomena are inflation's hallmarks. In the Keynes quote above, he alludes to the "artificial and iniquitous redistribution of wealth" inflation imposes on society without being specific. What actually happens is that artificially created money redistributes wealth towards those closest to it, to the detriment of those furthest away.

Income distribution in the US



Source: Emmanuel Saez, University of California

Richard Cantillon (writing decades before Adam Smith) was the first to observe this effect (hence "Cantillon effect"). He showed how those closest to the money source benefited unfairly at the expense of others, by thinking through the effects in Spain and Portugal of the influx of gold from the new world as follows:

> *"If the increase of actual money comes from mines of gold or silver … the owner of these mines, the adventurers, the smelters, refiners, and all the other workers will increase their expenditures in proportion to their gains. . . . All this increase of expenditures in meat, wine, wool, etc. diminishes of necessity the share of the other inhabitants of the state who do not participate at first in the wealth of the mines in question. The altercations of the market, or the demand for meat, wine, wool, etc. being more intense than usual, will not fail to raise their prices … Those then who will suffer from this dearness … will be first of all the*

landowners, during the term of their leases, then their domestic servants and all the workmen or fixed wage-earners ... All these must diminish their expenditure in proportion to the new consumption …"[53]

In other words, the beneficiaries of newly created money spend that money and bid up the price of goods with their higher demand. Those who suffer are those who have to pay newly higher prices but did not benefit from the newly created money.

The credit inflation analog to the Cantillon effect has played out perfectly in recent decades. Central banks provided cheap money to banks, the cheap money artificially inflated asset prices, artificially inflated asset prices made anyone connected to those assets rich as we became a nation of speculators, those riches were achieved at everyone else's expense, and 'everyone else' has now realized what has happened and is understandable enraged … as Keynes explained, "*Those to whom the system brings windfalls …. are the object of the hatred*.

And now the social debasement is clear for all to see. The 99% blame the 1%, the 1% blame the 47%, the private sector blames the public sector, the public sector returns the sentiment … the young blame the old, everyone blame the rich … yet few question the ideas behind government or central banks ...

"Those to whom the system brings windfalls become the object of hatred"

Source: Google Images

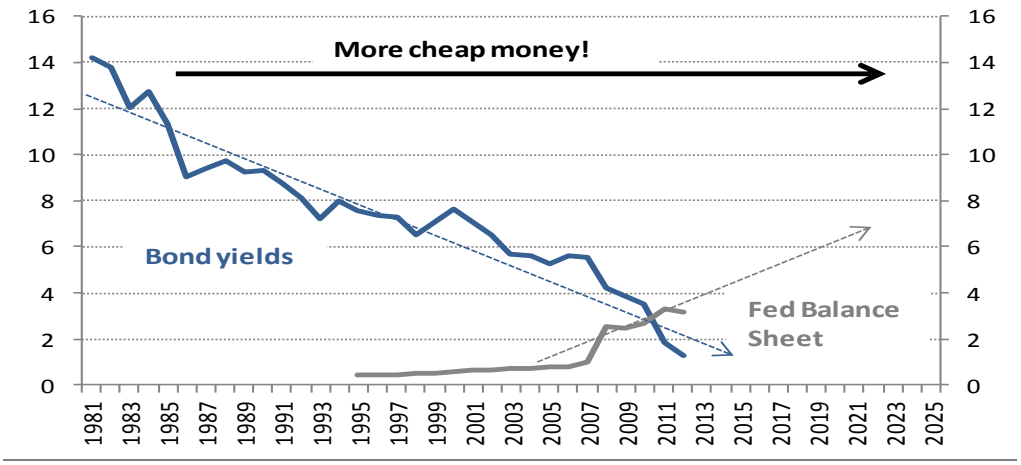
I'd feel a whole lot better if central banks stopped playing games with money. But I can't see that happening anytime soon. The ECB has thrown the towel in, following the SNB last year in committing effectively to print unlimited amounts of money for the greater good. The BoE and the Fed have long since made a virtue of what was once considered a necessity, with what was once the unconventional conventional. As James Bullard told everyone a few weeks before the last Fed meeting, lest there be any doubt:

"*Markets have this idea that, there's QE1 and QE2, so QE3 must be the same as those previous ones. It's not that clear to me that this is the way this is going … it would just be to do balance sheet policy as the exact analogue of interest rate policy.*"

[53] Quoted in Mark Thornton, *"Cantillon on the Cause of the Business Cycle"* Quarterly Journal of Austrian Economics Vol9, No 3 (Fall 2006)

In other words, the central banks' balance sheets are the new policy tool. As interest rates embarked on a multi-year decline from the 1980s on, central bank balance sheets are set to embark on a multi-year climb ...

Balance sheet policy as the exact analog of interest rate policy



Source: Bloomberg, SG Cross Asset Research

So as Nobel Prize winning experts in economics punch the air because inflation expectations have been rising since the policy was announced, *"It's the whole point of the exercise"* (Duh!) the BoE admits that QE has mainly benefited the rich, but vows to continue anyway.

All I see is more of the same - more money debasement, more unintended consequences and more social disorder. Since I worry that it will be Great Disorder, I remain very bullish on safe havens. The next few issues of Popular Delusions will outline some thoughts on what exactly that means.

.

APPENDIX

ANALYST CERTIFICATION

The following named research analyst(s) hereby certifies or certify that (i) the views expressed in the research report accurately reflect his or her or their personal views about any and all of the subject securities or issuers and (ii) no part of his or her or their compensation was, is, or will be related, directly or indirectly, to the specific recommendations or views expressed in this report: **Dylan Grice, Andy Lapthorne, Georgios Oikonomou**

FOR DISCLOSURES PERTAINING TO COMPENDIUM REPORTS OR RECOMMENDATIONS OR ESTIMATES MADE ON SECURITIES OTHER THAN THE PRIMARY SUBJECT OF THIS RESEARCH REPORT, PLEASE VISIT OUR GLOBAL RESEARCH DISCLOSURE WEBSITE AT http://www.sgresearch.com/compliance.rha or call +1 (212).278.6000 in the U.S.

The analyst(s) responsible for preparing this report receive compensation that is based on various factors including SG's total revenues, a portion of which are generated by investment banking activities.

Non-U.S. Analyst Disclosure: The name(s) of any non-U.S. analysts who contributed to this report and their SG legal entity are listed below. U.S. analysts are employed by SG Americas Securities LLC. The non-U.S. analysts are not registered/qualified with FINRA, may not be associated persons of SGAS and may not be subject to the FINRA restrictions on communications with a subject company, public appearances and trading securities held in the research analyst(s)' account(s): Dylan Grice, Société Générale London; Albert Edwards, Société Générale London; Andy Lapthorne, Société Générale London; Georgios Oikonomou Société Générale London

IMPORTANT DISCLOSURES

Abertis	SG is acting as financial advisor to Abertis for the acquisition of OHL assets in Latin America.
Abertis	SG acted as joint bookrunner in HIT Finance's bond issue (5.75% 09/03/18 EUR).
Abertis	SG acted as joint bookrunner in Abertis' disposal of Eutelsat shares.
AIG	SG acted as co-manager in AIG's equity offering.
AIG	SG is acting as co-manager in the disposal of AIA shares by AIG.
Air Liquide	SG acted as joint book runner in Air Liquide's inaugural Euro denominated Socially Responsible Investment bond issue.
Anheuser-Busch InBev	SG acted as joint bookrunner in Anheuser-Bush Inbev's bond issue.
ArcelorMittal	SG acted as joint bookrunner in ArcelorMittal's bond issue (4.5% 29/03/18 EUR).
ArcelorMittal	SG acted as passive joint bookrunner in ArcelorMittal's bond issue. (USD)
Bank of America	SG acted as co-manager in Bank of America's bond issue.
BHP Billiton	SG acted as joint bookrunner in BHP Billiton's bond issue (2.25% 25/09/20 EUR & 3.25% 24/09/27 EUR).
BHP Billiton	SG acted as co-manager in BHP Billiton's bond issue (USD benchmark SEC registered 5-part sr unsec notes consisting of 2y FRN, 3y, 5y, 10y, 30y)
BP	SG has acted as exclusive financiel advisor to BP plc for the disposal of southern gas assets to Perenco.
BP	SG acted as joint bookrunner in BP's bond issue (2.177% 16/02/16 EUR & 2.994% 18/02/19 EUR).
Bunge Ltd	SG acted as co manager in Bunge Ltd's senior high grade bond issue.
Caterpillar	SG acted as co-manager in Caterpillar Finance Services' high grade bond issue.
Caterpillar	SG acted as a co-manager in Caterpillar's bond issue.
Caterpillar	SG acted as joint bookrunner in Caterpillar International Finance's bond issue (3yr - EUR).
Citigroup	SG acted ng as co-manager of Citigroup's bond issue. (Perp NC10)
Citigroup	SG acted as a senior co-manager in the Citigroup's bond issue. (Perp NC10 - 5,950%)
Citigroup	SG acted as co manager in Citigroup's High Grade bond issue.
Danone	SG acted as active joint bookrunner in Danone's bond issue (1.125% 27/11/17 EUR).
Danone	SG acted as joint bookrunner for Danone's bond issue. (USD)
Enagas	SG acted as joint bookrunner in Enagas's bond issue (4.25% 05/10/17 EUR).
Eramet	SG has acted as financial advisor to Areva notably to give a fairness opinion on its stake in Eramet to be sold to the FSI.
Fiat SpA	SG acted as joint bookrunner in FIAT's bond issue (Tap of 7.750% 17/10/16 EUR).
Fiat SpA	SG acted as joint bookrunner in FIAT's bond issue (7.75% 17/10/16 EUR).
Fiat SpA	SG makes a market in Fiat warrants
France Télécom	SG acted as co-lead Manager in France Telecom's bond issue (maturity 15/06/22 3 euros)
Fresenius Medical Care AG & Co KGAA	SG acted as co-lead Manager in Fresenius Medical Care's bond issue (5.25% 31/07/19 EUR).
Fresenius SE	SG acted as joint bookrunner in Fresenius SE's capital increase in relation with its bid on Rhoen Klinikum.
Fresenius SE	SG is acting as joint Underwriter and Bookrunner on Fresenius SE's acquisition facility in relation with its bid on Rhoen Klinikum.
Fresenius SE	SG is acting as co-lead manager in Fresenius' bond issue (4.25% 15/04/19 EUR).
General Motors	SG is acting as joint global coordinator and joint bookrunner in Peugeot Citroen PSA's capital increase.
London Stock Exchange	SG is acting as joint financial advisor to London Stock Exchange for the acquisition of a majority stake in LCH.Clearnet Group.
MAN	SG acted as joint bookrunner in MAN's bond issue (1% 21/09/15 EUR).

Metro AG	SG acted as joint bookrunner in the Metro finance's bond issue. (2.25% 11/05/18 EUR).
Monsanto	SG acted as co-manager in Monsanto's bond issue (10yr & 30 yr).
Nissan Motor Co	SG acted as co-manager in Nissan Motor Acceptance's bond issue.
Nokia	SG acted as co lead manager in Nokia convertible bond's issue.
Range Resources	SG acted as co-manager in Range Resources Corporation's high yield bond issue..
Royal Bank of Scotland	SG is acting as joint dealer manager in Royal Bank of Scotland's tender offer (several targeted bonds in EUR, GBP and USD).
Total	SG acted as passive joint bookrunner in Total's USD bond issue (2 tranches 3.5-yr and 10.5-yr).
Wind	SG acted as passive joint bookrunner for Wind's high yield bond issue (mirror the existing EUR 7.375% and USD 7.25% Senior Secured Notes (non-fungible mirror notes).

SG and its affiliates beneficially own 1% or more of any class of common equity of Abertis, ArcelorMittal, Fiat SpA.
SG or its affiliates act as market maker or liquidity provider in the equities securities of Abertis, Adidas, Air Liquide, Anheuser-Busch InBev, ArcelorMittal, Danone, Enagas, Fiat SpA, France Télécom, Fresenius Medical Care AG & Co KGAA, L'Oréal, LVMH, MAN, Metro AG, Munich RE, Nokia, Syngenta, Total.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from AIG, Abertis, ArcelorMittal, BHP Billiton plc, BP, Centrica, Danone, Delhaize, Enagas, Fiat SpA, France Télécom, Fresenius SE & Co. KGaA, L'Oréal, LVMH, Legrand, MAN, Metro AG, Nissan Motor Co, Nokia, Range Resources, Royal Bank of Scotland, Total, Yara International.
SG or its affiliates had an investment banking client relationship during the past 12 months with AIG, Abertis, Air Liquide, Akzo Nobel NV, Anheuser-Busch InBev, ArcelorMittal, BHP Billiton plc, BP, Bank of America, Bunge Ltd, Caterpillar, Citigroup, Danone, Enagas, Eramet, Fiat SpA, France Télécom, Fresenius Medical Care AG & Co KGAA, Fresenius SE & Co. KGaA, General Motors, London Stock Exchange, MAN, Metro AG, Monsanto, Nissan Motor Co, Nokia, Range Resources, Royal Bank of Scotland, Total, Wind.
SG or its affiliates have received compensation for investment banking services in the past 12 months from AIG, Abertis, Air Liquide, Akzo Nobel NV, Anheuser-Busch InBev, ArcelorMittal, BHP Billiton plc, BP, Bank of America, Bunge Ltd, Caterpillar, Citigroup, Danone, Enagas, Eramet, Fiat SpA, France Télécom, Fresenius Medical Care AG & Co KGAA, Fresenius SE & Co. KGaA, General Motors, London Stock Exchange, MAN, Metro AG, Monsanto, Nissan Motor Co, Nokia, Range Resources, Royal Bank of Scotland, Total, Wind.
SG or its affiliates managed or co-managed in the past 12 months a public offering of securities of AIG, Abertis, Air Liquide, Akzo Nobel NV, Anheuser-Busch InBev, ArcelorMittal, BHP Billiton plc, BP, Bank of America, Bunge Ltd, Caterpillar, Citigroup, Danone, Enagas, Fiat SpA, France Télécom, Fresenius Medical Care AG & Co KGAA, Fresenius SE & Co. KGaA, General Motors, MAN, Metro AG, Monsanto, Nissan Motor Co, Nokia, Range Resources, Royal Bank of Scotland, Total, Wind.
SG received compensation for products and services other than investment banking services in the past 12 months from AIG, Abertis, Air Liquide, Akzo Nobel NV, Anheuser-Busch InBev, ArcelorMittal, Archer Daniels Midland, BHP Billiton plc, BP, Bank of America, Bourbon, Bunge Ltd, Cascades INC, Caterpillar, Centrica, Citigroup, Danone, Delhaize, Enagas, Eramet, Fiat SpA, France Télécom, Fresenius SE & Co. KGaA, JP Morgan Chase, K+S, Kerry, L'Oréal, LVMH, Legrand, Metro AG, Monsanto, Nationwide Mutual Insurance Company, Nissan Motor Co, Nokia, PKN ORLEN, Pioneer Natural Resources, Range Resources, Refer, Royal Bank of Scotland, Total, Toyota Motor Corp, UCB, Yara International.
SGAS had a non-investment banking non-securities services client relationship during the past 12 months with AIG, Abertis, Anheuser-Busch InBev, ArcelorMittal, Archer Daniels Midland, BHP Billiton plc, BP, Bank of America, Bunge Ltd, Caterpillar, Citigroup, Danone, Fiat SpA, France Télécom, Fresenius SE & Co. KGaA, LVMH, Monsanto, Nationwide Mutual Insurance Company, Nissan Motor Co, PKN ORLEN, Pioneer Natural Resources, Range Resources, Royal Bank of Scotland, Toyota Motor Corp.
SGAS had a non-investment banking securities-related services client relationship during the past 12 months with AIG, Apple, Bank of America, Citigroup, JP Morgan Chase, Royal Bank of Scotland.
SGAS received compensation for products and services other than investment banking services in the past 12 months from AIG, Abertis, Anheuser-Busch InBev, Apple, ArcelorMittal, Archer Daniels Midland, BHP Billiton plc, BP, Bank of America, Bunge Ltd, Caterpillar, Citigroup, Danone, Fiat SpA, France Télécom, Fresenius SE & Co. KGaA, JP Morgan Chase, LVMH, Monsanto, Nationwide Mutual Insurance Company, Nissan Motor Co, PKN ORLEN, Pioneer Natural Resources, Range Resources, Royal Bank of Scotland, Toyota Motor Corp.

IMPORTANT DISCLAIMER: The information herein is not intended to be an offer to buy or sell, or a solicitation of an offer to buy or sell, any securities and has been obtained from, or is based upon, sources believed to be reliable but is not guaranteed as to accuracy or completeness. Material contained in this report satisfies the regulatory provisions concerning independent investment research as defined in MiFID. SG does, from time to time, deal, trade in, profit from, hold, act as market-makers or advisers, brokers or bankers in relation to the securities, or derivatives thereof, of persons, firms or entities mentioned in this document and may be represented on the board of such persons, firms or entities. SG does, from time to time, act as a principal trader in equities or debt securities that may be referred to in this report and may hold equity or debt securities positions. Employees of SG, or individuals connected to them, may from time to time have a position in or hold any of the investments or related investments mentioned in this document. SG is under no obligation to disclose or take account of this document when advising or dealing with or on behalf of customers. The views of SG reflected in this document may change without notice. In addition, SG may issue other reports that are inconsistent with, and reach different conclusions from, the information presented in this report and is under no obligation to ensure that such other reports are brought to the attention of any recipient of this report. To the maximum extent possible at law, SG does not accept any liability whatsoever arising from the use of the material or information contained herein. This research document is not intended for use by or targeted to retail customers. Should a retail customer obtain a copy of this report he/she should not base his/her investment decisions solely on the basis of this document and must seek independent financial advice.

The financial instrument discussed in this report may not be suitable for all investors and investors must make their own informed decisions and seek their own advice regarding the appropriateness of investing in financial instruments or implementing strategies discussed herein. The value of securities and financial instruments is subject to currency exchange rate fluctuation that may have a positive or negative effect on the price of such securities or financial instruments, and investors in securities such as ADRs effectively assume this risk. SG does not provide any tax advice. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. Investments in general, and derivatives in particular, involve numerous risks, including, among others, market, counterparty default and liquidity risk. Trading in options involves additional risks and is not suitable for all investors. An option may become worthless by its expiration date, as it is a depreciating asset. Option ownership could result in significant loss or gain, especially for options of unhedged positions. Prior to buying or selling an option, investors must review the "Characteristics and Risks of Standardized Options" at http://www.optionsclearing.com/publications/risks/riskchap.1.jsp.

Notice to French Investors: This publication is issued in France by or through Société Générale ("SG") which is authorised and supervised by the Autorité de Contrôle Prudentiel and regulated by the Autorite des Marches Financiers.
Notice to U.K. Investors: This publication is issued in the United Kingdom by or through Société Générale ("SG"), London Branch . Société Générale is a French credit institution (bank) authorised and supervised by the Autorité de Contrôle Prudentiel (the French Prudential Control Authority). Société Générale is subject to limited regulation by the Financial Services Authority ("FSA") in the U.K. Details of the extent of SG's regulation by the FSA are available from SG on request. The information and any advice contained herein is directed only at, and made available only to, professional clients and eligible counterparties (as defined in the FSA rules) and should not be relied upon by any other person or party.
Notice to Polish Investors: this document has been issued in Poland by Societe Generale S.A. Oddzial w Polsce ("the Branch") with its registered office in Warsaw (Poland) at 111 Marszałkowska St. The Branch is supervised by the Polish Financial Supervision Authority and the French "Autorité de Contrôle Prudentiel". This report is addressed to financial institutions only, as defined in the Act on trading in financial instruments. The Branch certifies that this document has been elaborated with due dilligence and care.
Notice to U.S. Investors: For purposes of SEC Rule 15a-6, SG Americas Securities LLC ("SGAS") takes responsibility for this research report. This report is intended for institutional investors only. Any U.S. person wishing to discuss this report or effect transactions in any security discussed herein should do so with or through SGAS, a broker-dealer registered with the SEC and a member of FINRA, with its registered address at 1221 Avenue of the Americas, New York, NY 10020. (212)-278-6000.
Notice to Canadian Investors: This document is for information purposes only and is intended for use by Permitted Clients, as defined under National Instrument 31-103, Accredited Investors, as defined under National Instrument 45-106, Accredited Counterparties as defined under the Derivatives Act (Québec) and "Qualified Parties" as defined under the ASC, BCSC, SFSC and NBSC Orders
Notice to Singapore Investors: This document is provided in Singapore by or through Société Générale ("SG"), Singapore Branch and is provided only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289. Recipients of this document are to contact Société Générale, Singapore Branch in respect of any matters arising from, or in connection with, the document. If you are an accredited investor or expert investor, please be informed that in SG's dealings with you, SG is relying on the following exemptions to the Financial Advisers Act, Cap. 110 ("FAA"): (1) the exemption in Regulation 33 of the Financial Advisers Regulations ("FAR"), which exempts SG from complying with Section 25 of the FAA on disclosure of product information to clients; (2) the exemption set out in Regulation 34 of the FAR, which exempts SG from complying with Section 27 of the FAA on recommendations; and (3) the exemption set out in Regulation 35 of the FAR, which exempts SG from complying with Section 36 of the FAA on disclosure of certain interests in securities.
Notice to Hong Kong Investors: This report is distributed in Hong Kong by Société Générale, Hong Kong Branch which is licensed by the Securities and Futures Commission of Hong Kong under the Securities and Futures Ordinance (Chapter 571 of the Laws of Hong Kong) ("SFO"). This document does not constitute a solicitation or an offer of securities or an invitation to the public within the meaning of the SFO. This report is to be circulated only to "professional investors" as defined in the SFO.
Notice to Japanese Investors: This publication is distributed in Japan by Societe Generale Securities (North Pacific) Ltd., Tokyo Branch, which is regulated by the Financial Services Agency of Japan. This document is intended only for the Specified Investors, as defined by the Financial Instruments and Exchange Law in Japan and only for those people to whom it is sent directly by Societe Generale Securities (North Pacific) Ltd., Tokyo Branch, and under no circumstances should it be forwarded to any third party. The products mentioned in this report may not be eligible for sale in Japan and they may not be suitable for all types of investors.
Notice to Australian Investors: This document is issued in Australia by Société Générale (ABN 71 092 516 286) ("SG"). SG is regulated by APRA and ASIC and holds an AFSL no. 236651 issued under the Corporations Act 2001 (Cth) ("Act"). The information contained in this document is only directed to recipients who are wholesale clients as defined under the Act.