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LT Asset Return Study

A Journey into the Unknown

Special Report

Research Team

Jim Reid

Strategist
 (+44) 20 754-72943
 jim.reid@db.com

Nick Burns, CFA

Strategist
 (+44) 20 754-71970
 nick.burns@db.com

Stephen Stakhiv

Associate Analyst
 (+44) 20 754-52063
 stephen.stakhiv@db.com



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Common abbreviations used in this report:

GFC – Global Financial Crisis
DM – Developed Markets
DW – Developed World
ERP – Equity Risk Premium

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Executive Summary

As a passionate lover of economic history, a silver-lining to this ongoing crisis has been that it has allowed us to dust off old economic textbooks and venture back through time to seek parallels and use the long and distant past to try to work out what happens next at each stage. Economic history has certainly been a great help in trying to be one step ahead of the developed market's rolling bubbles of the last decade or so. Whether it be the absurdity of the equity bubble in 2000, the obvious US/Global housing bubble in 2005-7, the dramatically oversized and unsustainable financial system of the last decade, or the more recent and spectacular Sovereign crisis, economic historians have warned of the likely corrections well in advance. Clearly timing has not always been where history works best but in understanding the deep problems of the last decade or so, it has been about as good a navigational tool as you could get. A 'this time is different' argument has been repeatedly destroyed.

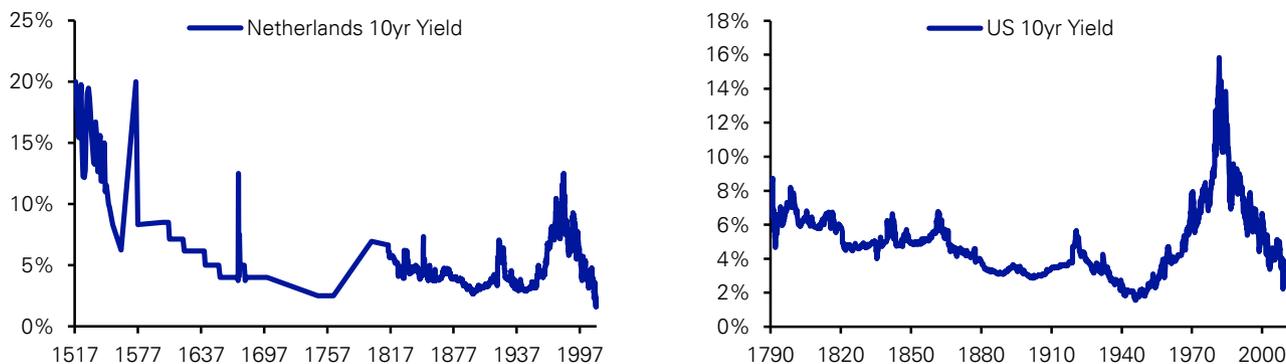
So what does history tell us now?

Here's where the problems start as we believe we are now journeying more and more into the unknown. While economic history has been great in so far helping us understand the state of the world, many variables are now outside of any previous historical observations.

One big theme of this document is showing how many economic or financial variables are at levels unique to this cycle, even if we extend the analysis back hundreds of years. This must surely reduce the confidence levels in predicting the future to fairly low levels. For example:

- Core long-dated bond yields have hit their all time lows in 2012. In Holland (our longest time series), 10 year yields hit their lowest level in 495 years worth of history back in June this year and are only around 20bps higher now.

Figure 1: Dutch (left) and US (right) 10 Year Bond Yields recently at multi-century, all time lows

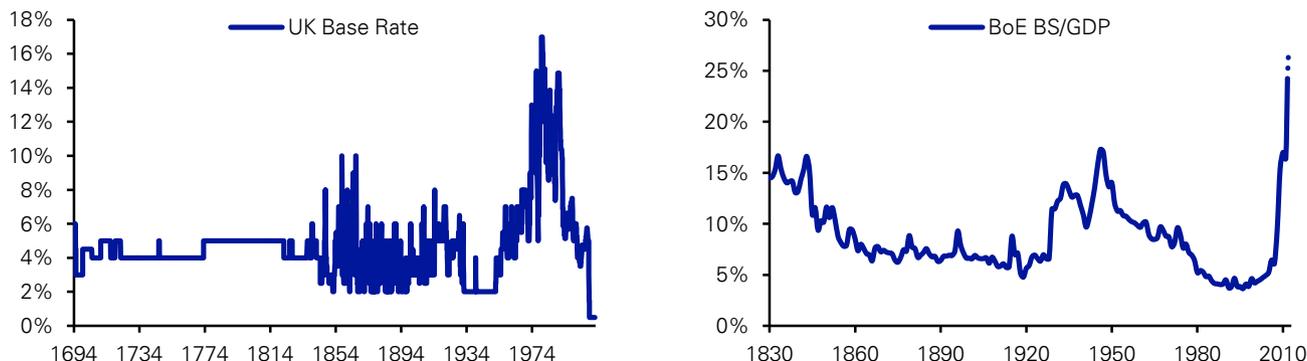


Source: Deutsche Bank, GFD

- The most important global benchmark - 10 year US Treasuries - also hit its all time low (1.39%) in July, with data going back all the way to 1790.
- 2 year yields have been negative (or close to zero) in several core countries this year which has never been seen on such a global co-ordinated basis before.
- At the very front end, base rates have never been so low, for so long, for so many. Several countries are at or around all time lows with the UK (our longest time series) at the lowest level since the Bank of England's inception in 1694 - 318 years ago. Indeed at 0.5%, base rates are a full 1.5% below their previous low and have been for three and a half years with few signs that a rise is likely for perhaps many years to come.

- Meanwhile the Bank of England also provides us with the longest record of central bank balance sheet activity in the world with data going back to 1830. In 2012 we have rocketed past the previous record level of the size of the BoE balance sheet relative to GDP. Similar trends are being seen elsewhere. Can we really say with any confidence how this experiment will end?

Figure 2: BoE Base Rate (left) and Balance Sheet as a Percentage of GDP (right)

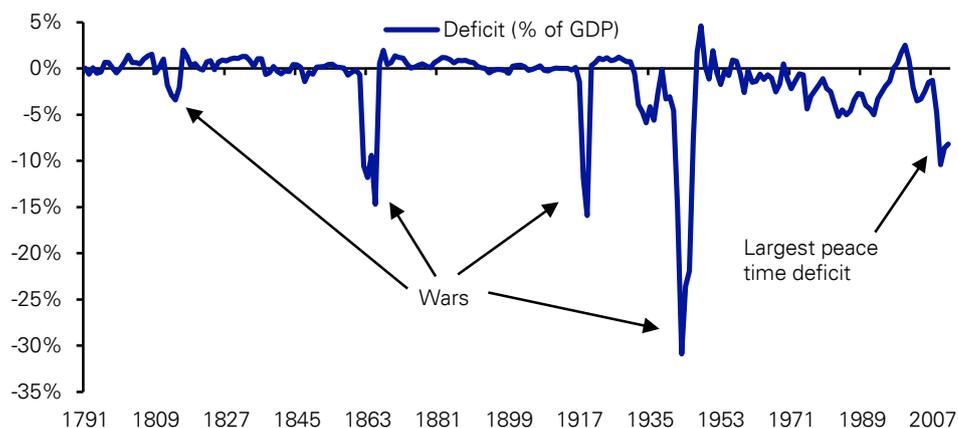


Source: Haldane, A G (2009), Deutsche Bank calculations (from 2007), GFD

Persistent multi-decade deficits a modern day phenomena

With yields so low and money printing so historically high, it is fascinating and unique to find ourselves in a period where persistent deficits are the norm and have been now for over four decades.

Figure 3: US Annual Budget Deficit since 1791



Source: Deutsche Bank, GFD

Prior to this period, a balanced budget was a routine occurrence only punctuated by wars or deep economic crises. Once the war or crisis was over, most countries quickly returned to balanced budgets. What is unique about the current period is that never before in observable history have so many countries had such long periods without sustainable surpluses. For example, the US has now run a deficit for 40 of the last 44 years (including 2012), the UK 51 out of the last 60 years, and Spain 45 of the last 49 years. Japan has run an annual budget deficit since 1992 and elsewhere Italy, Portugal and France have seen perpetual annual deficits since we have reliable data back to 1960, 1977 and 1978 respectively.

Did the Global Financial Crisis (GFC) start on August 15th 1971?

It's perhaps no co-incidence that the trend towards persistent deficits started around the final collapse of the last link to a quasi-Gold standard back in August 1971. In a world of the Gold Standard or equivalent, those countries loosening policy too much would have seen a rush to

convert their currencies into Gold thus destabilising their economic policy framework. Multi-year (let alone multi-decade) deficits and the GFC could not have occurred under a gold standard.

So with the shackles off and with nothing backing paper money, the post 1971 period has seen a uniquely long period of fiat currencies globally with a beggar-thy-neighbour rolling period of credit creation. Never before in observable history have so many countries been off a precious metal type currency system for so long. This move in 1971 helped create the conditions (alongside ever looser financial regulation) for almost unlimited credit and debt creation potential that would have been inconceivable through the annals of economic history. The developed world in particular went on a 36 year credit/debt binge which probably lasted longer and was more aggressive than it would have been had it not been for China's globalisation moment 30 years ago. From this point they almost single handedly started a three decade period of suppressing global inflation thus allowing the credit/debt binge to become ever bigger without the inflationary check that would have likely otherwise occurred.

So after 41 years of global fiat currencies and an unparalleled amount of debt that is proving very difficult to shift, we really are venturing into the unknown.

Germany has consistently had the strongest currency since the Weimar Republic

The nearest thing to the Gold Standard today is the single currency in Europe where countries have no control over their own monetary policy. The main difference being that the ECB can print money whereas new Gold clearly could not be printed. In previous research notes we've discussed how in the 1930s countries that kept on the Gold standard for longer tended to suffer most and disproportionately over what was a difficult decade. Those leaving the standard early in the decade suffered much less and started to prosper again after their devaluation.

We don't dwell on repeating this analysis in the document but instead show how the German currency has consistently out-performed virtually every other developed market currency in almost every decade from the 1930s up to the start of the single currency. The hyperinflation of the 1920s created a deep scar and a subsequent consistent and sacred desire to exhibit very sound money and with it currency strength relative to any of its peers.

When analysing over such a long historical context, it's easy to see how tensions in Europe were inevitable at some point unless the other nations strictly followed the German model or if Germany changed its model.

Will we ever have a situation where so many countries in Europe are permanently able to change the policies that led to several decades of currency under-performance relative to Germany? Or will Germany have to become less German and water down their long ingrained sound money beliefs?

History says that something has to give and perhaps the mistake of the single currency was making too many countries try to keep up with the strongest currency of its peer group of the last 80+ years rather than making it more of a currency of the 'average' member.

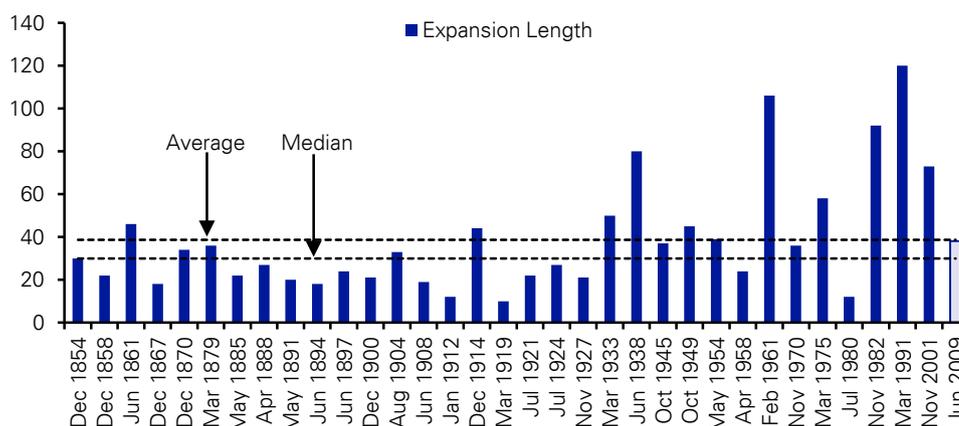
Shorter business cycle theory recap

In this report we recap our shorter business cycle theory and show how across the globe there is compelling evidence supporting the thesis first launched in this piece two years ago. Many countries in the Developed World (DW) and even some in EM have seen a negative quarter of growth in the last 12 months or are (or have recently been) in recession. Indeed most countries in our DW sample have yet to pass their 2007/08 real activity peak, meaning that the positive leg of this last cycle has for many failed to take us beyond the pre-GFC peaks.

The biggest test to our shorter cycle theory will come from the US which as we go to print now sees the current recovery at exactly average length relative to history. If any Developed Market (DM) country can extend their cycle it is the US as they are still running a much higher deficit than many of their peers and have control over their monetary policy unlike many European countries. Politics (presidential election and the fiscal cliff) may be the biggest swing factor in how long this cycle can last. However whatever happens with the length of this cycle, we show how this US recovery is pretty much the weakest on record in spite of the unparalleled amount of fiscal and monetary stimulus thrown at it.

This again shows the unknown journey we are progressing on. This cycle is truly unique.

Figure 4: US Economic Expansion Lengths (months) since 1854



Source: Deutsche Bank, NBER

5 years on from the GFC - No growth, no deleveraging

Whether we are right in our view of an upcoming decade or so of shorter business cycles and subdued DW growth, what is clear is that since the GFC first hit in 2007, the DW has overall seen no growth and no deleveraging. Virtually every country now has more debt than they did in 2007 and where there has been some private sector deleveraging, it has typically been more than compensated for by an increase in Government debt. Over the same period most countries are still below their peak level of real economic activity. The only savior being that some inflation has meant that most have edged past their pre-GFC, nominal GDP peak. However this rise has not been enough to reduce overall economy wide Debt/GDP ratios for the majority of developed countries. The US has arguably progressed most but Debt/GDP levels are still broadly where they were in 2007.

So the real deleveraging hasn't yet started. Never before have so many countries had such a high level of overall economy Debt/GDP. We've now had 5 years of managing to just about prop up the mountain of debt but have made no real progress in dealing with it. How this ends is highly uncertain and unpredictable with little or no historical precedent on such a grand scale.

European Equities look historically cheap but with so many unknowns

We show that on a PE and Equity Risk Premium (ERP) basis, European equities look historically cheap relative to the US, which looks slightly on the rich side of average valuation relative to its own history. This European 'cheapness' is especially true on an ERP basis due to ultra low bond yields in the core and still relatively low bond yields compared to their long-run histories in Spain and Italy. However earnings numbers in the periphery have collapsed since the Sovereign crisis began and it's difficult to know what the trend level of earnings is for countries embarking on large adjustment programs and with uncertainty as to their long-term economic futures. The conclusion is basically that without an aggressive ECB,

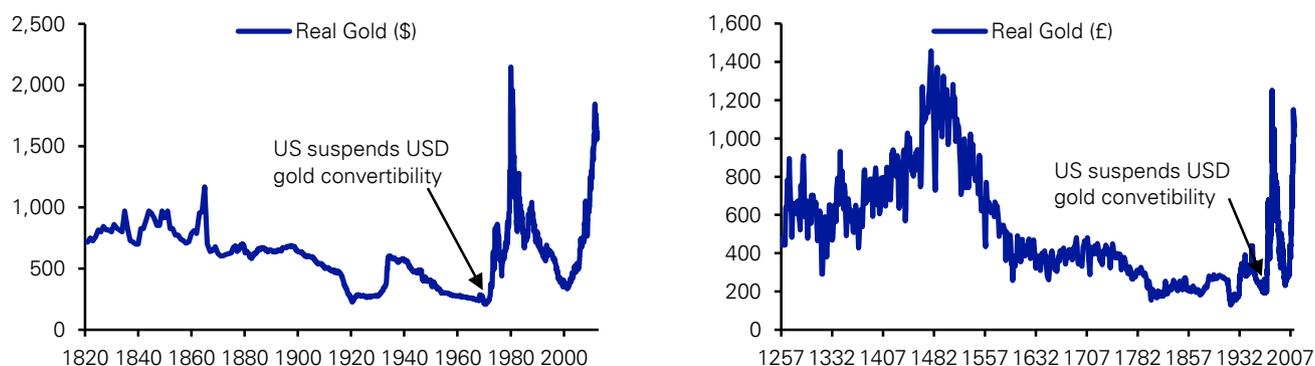
peripheral European equity markets would likely go from cheap to extra-ordinarily cheap. If the ECB is about to commit to a long-term Euro-saving mission then one would have to say there's a large amount of potential upside in European equities, especially in the periphery. For the more risk adverse, German equities may represent a better risk reward profile as we enter unknown territory.

As we see in the section on US asset mean reversion, all assets covered show future total return prospects below their long-term averages. Commodities and Bonds are the worst with negative nominal and real returns likely if they mean revert over the next decade. Equities at least provide a positive nominal and real return on this basis over the full period. However it's still a world of sub-par returns.

How should one view Gold?

Throughout this piece we've discussed how the world dramatically changed post-1971 relative to prior history. The last tie to a monetary system based around Gold ended 41 years ago. Prior to this point Gold had fallen to an all-time inflation adjusted low in Dollar terms and had consistently fallen in real terms for the best part of 100 years. Since 1971 it has seen 4.9% p.a. real returns and 9.4% p.a. on a nominal basis. Has there been a paradigm pricing shift in hard commodities since the Gold standard collapsed? The longer-term chart of Gold in Sterling (back to 1257), shows that we are close to 600-year highs in real terms. This is surely telling us something about the uniqueness and possible unpredictability of the current global financial system.

Figure 5: Real Gold Price in USD since 1820 (left) and in GBP since 1257 (right)



Source: Deutsche Bank, GFD

In theory the real price shouldn't have changed if published official inflation had responded to the post-1971 exponential credit, debt and money creation binge. However perhaps China's dramatic reemergence as a Global superpower over the last 30 years has helped push CPI inflation, calculated on a traditional basis, much lower than monetary inflation over this period. Maybe Gold reflects the inflation in the monetary economy since 1971 and CPI measures more reflect the prices of goods and services, more influenced by China and by cheap labour.

Maybe in a now multi-decade world of suppressed global goods and services inflation, but in a 41-year period of almost endless credit creation, the real challenge for investors and policy makers is understanding what the real rate of inflation is.

This report is not a love letter to the Gold Standard

We should make it clear that this document is not a love letter to Gold and in particular to the Gold Standard. To return to it today would be a disastrous, if understandable reaction to the excesses of the last 41 years. The savage economic hardship of the 1930s and eventual large devaluations, and the current Euro peripheral woes show that a Gold Standard or fixed

currency systems in general can be highly destructive if a country is on the wrong exchange rate. Economies also change over time through both luck and skill. The right exchange rate in one decade can be totally wrong the following one.

Nevertheless, although a return to a Gold Standard type system is not the right policy today, if we continue to see more and more money printing over the next few years, there will likely be a slow romanticising of the perceived stability of the pre-1971 world. Indeed if we do eventually muddle through and get to a more sustainable, less imbalanced and indebted global economy there may well be moves towards some kind of new Gold Standard simply to prevent the excesses of the last four decades from happening again. Such a debate would be sensible but does need to happen after we work through the tremendous amounts of excesses in the system. If we can in the future benefit from the disciplines of a link to precious metal currencies, whilst maintaining some kind of genuine safety valve/flexibility, then we could have a superior global financial system to that seen since 1971. This will be easier said than done but expect this debate to build.

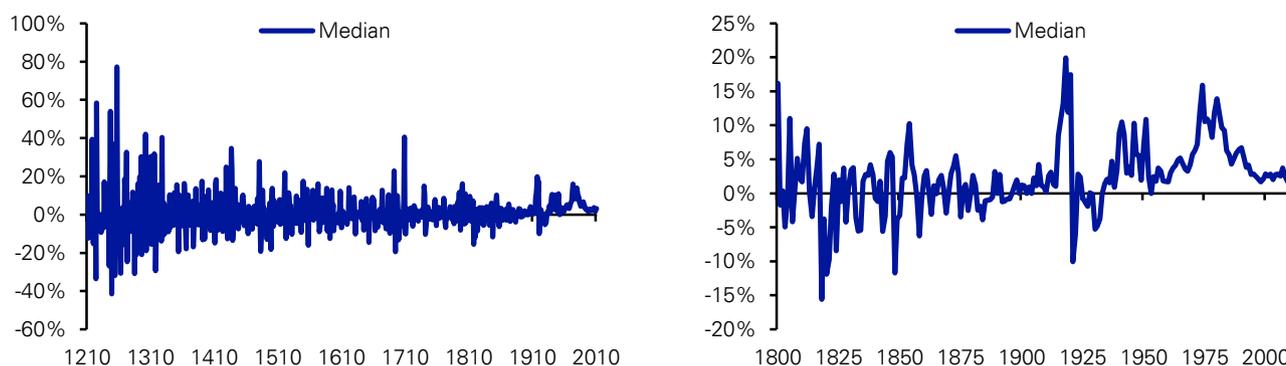
How will this all end?

As we discuss at length in this piece, we are entering unknown territory in a number of economic and financial indicators, even if we extend the analysis back through hundreds of years. So the level of uncertainty concerning the future must be extremely high.

Perhaps our quickest path to renewed and sustained prosperity would be to restructure Trillions of Dollars of Global debt artificially accumulated in the 1971-2007 period, especially in the latter years. This way we could ensure a quicker return to a more efficient allocation of scarce economic resources. In a free market (capitalism in fact), we would have already seen such an outcome but the authorities have now spent 5 years ensuring this hasn't happened.

The reality is that the short-term pain of such an outcome would not be tolerable to politicians and most modern day central bankers. Therefore the most likely scenario is that money printing is here to stay across the globe until it eventually works and restores stability or it creates its own problems further down the line. There is a precedent for individual countries expanding their central bank balance sheets this high before but not for so many countries acting simultaneously in such a manner. Eventually we think inflation will win out as we haven't seen a year of global deflation (using our median YoY measure compiled from 24 countries) since 1933. The twentieth century has been all about loosening ties with Gold, thus allowing for varying degrees of money creation and the dramatically reduced risk of deflation.

Figure 6: Global Median YoY Inflation since 1209 (left) and 1800 (right)



Source: Deutsche Bank, GFD

However there could easily be mishaps along the way and debt restructuring and defaults are still a significant risk, especially in areas where money creation is not in domestic hands (e.g. Europe).

The best strategy for this decade remains an accumulation of core, higher quality, real assets on dips. An income stream is also desirable. So higher dividend, quality equities remains the favoured traditional asset class of choice for us. Credit spreads hedged for an eventual rise in yields are also a decent safe haven investment. We don't think there is any need for long-term investors to chase the market as regular wobbles, the threat of default and deflation, and shorter business cycles will mean many buying opportunities ahead. However one has to try to seize these moments as constant money printing could mean cash and the safe haven of core bond markets are eventually seen as disastrous long-term investments from this starting point.

Nevertheless, all outcomes are possible and there is no pre-determined destiny. We are more reliant on our politicians and central bankers to manipulate and shape markets and returns than perhaps ever before. These are not free markets. Defaults, deflation and hyperinflation are still all possible in many parts of the world. Also as we discussed in last year's report never before have we seen a country as big as China grow as quickly as it has done over the last 30 years without several business cycles along the way. Strong China growth hasn't prevented the DW spiraling into economic chaos in recent years so China is unlikely to be able to single-handedly come to the rescue. In fact what would happen if China's growth actually slowed dramatically at some point?

With a lethal cocktail of unparalleled levels of global debt and unparalleled global money printing, and with many financial indicators at multi-century highs/lows, we really are embarking on a Journey into the Unknown.

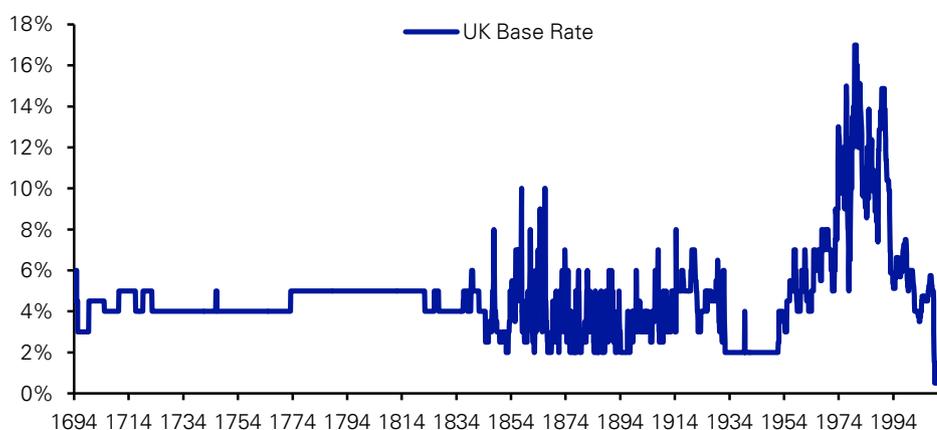
A Journey into the Unknown

It's easy for all of us that work in financial markets on a daily basis to get 'anchored' to the current market environment. A prolonged period of prevailing conditions tend to slowly help ensure that what might be extreme levels historically take on an air of normality when living through them. In this opening chapter to our 2012 study we wanted to delve into history to show just how abnormal economies and financial markets remain. In many cases there are no historical precedents for what we are currently experiencing. This can be interpreted in two main ways. 1) That the underlying problems the developed world in particular face are worryingly unparalleled in history, and 2) that anyone who tries to predict the endgame to this now five-year crisis is operating outside of the scope of historical data analysis. As such all predictions must have a higher degree of uncertainty than in more 'normal' times. This is perhaps awkward territory for a strategist whose job it is to predict the future but we really are journeying into the unknown in many key variables across financial markets. It's likely that the economic/financial market modelling that has been prevalent in recent decades may not be the most appropriate framework in this unprecedented era. We show examples of just how unique these times are in the following charts.

Base rates at multi-century lows

The longest series of base rates we have globally is for the UK back to when the Bank of England was founded in 1694 (Figure 7). This shows that base rates have never been this low before. Indeed we've been at the current 0.5% (March 09 onwards) for three and a half years now. Before this, the previous lowest was 2%. A stunning departure from the 318 year history of the data. The UK has been through numerous landmark events over this period and yet current conditions are totally unique.

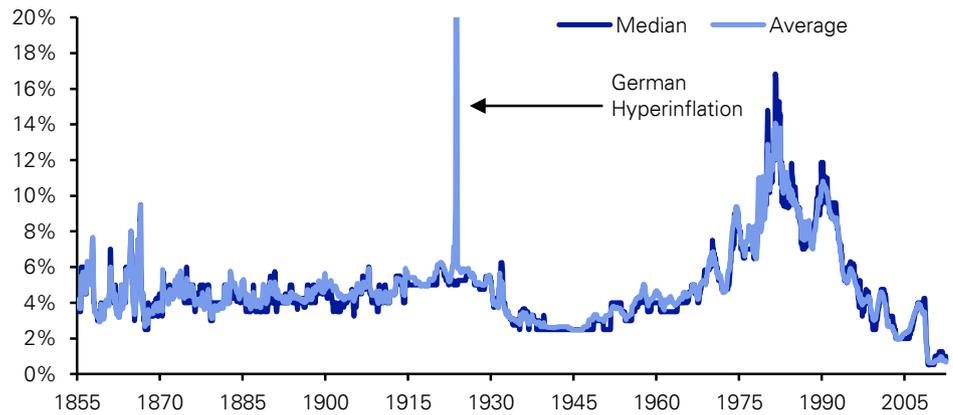
Figure 7: UK Base Rate since 1694



Source: Deutsche Bank, GFD

For base rates the UK provides us with our longest time series but for many countries we can go back to the nineteenth century. In Figure 8 we show the un-weighted median and average base rate for all the current G7 countries plus Spain and Switzerland as additional interesting countries with decent histories. The average base rate of these countries is currently 0.55% and as can be seen from the graph, prior to this decade we have rarely been lower than 3% on average. So again conditions are pretty unique across a whole host of countries.

Figure 8: G7 plus Switzerland and Spain Average/Median Base Rate

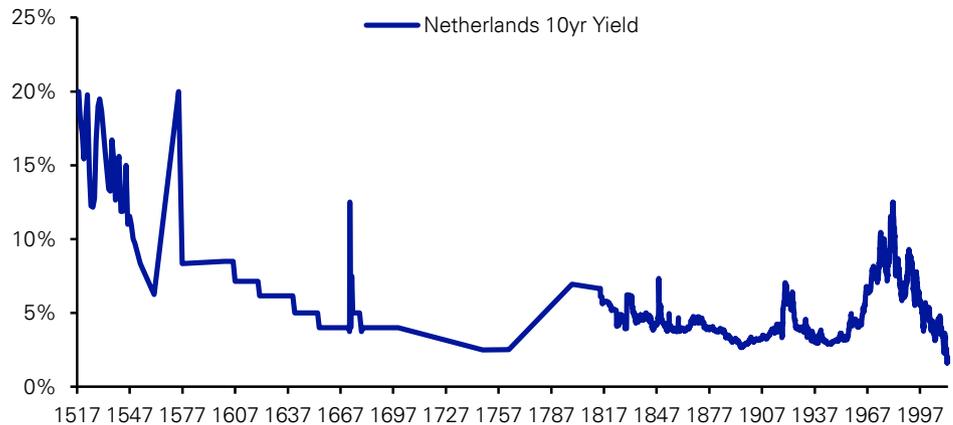


Source: Deutsche Bank, GFD

Core 10 year yields also close to multi-century lows

The longest time series we have for 10 year Government bonds is from the Netherlands with the data back to 1517. The series is incomplete in the early stages, especially for periods in the 1700s. However as can be seen in Figure 9, we’ve recently hit the all time lows. So one can be fairly confident that bond yields in the Netherlands are at near 500 year lows.

Figure 9: Netherlands 10 Year Government Bond Yield since 1517



Source: Deutsche Bank, GFD, Bloomberg Finance LLP

If we now move on to 10-year US Treasuries which is one of the most important benchmarks globally, yields are currently at their lowest ever level with data going back as far as 1790.

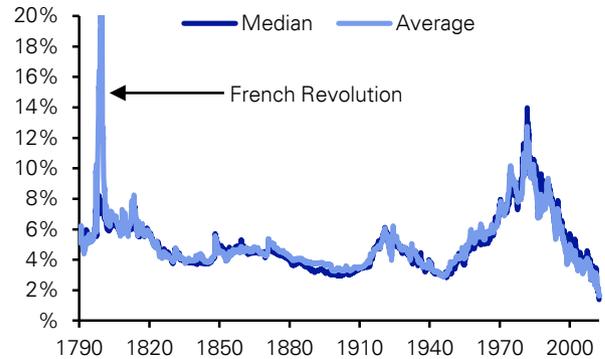
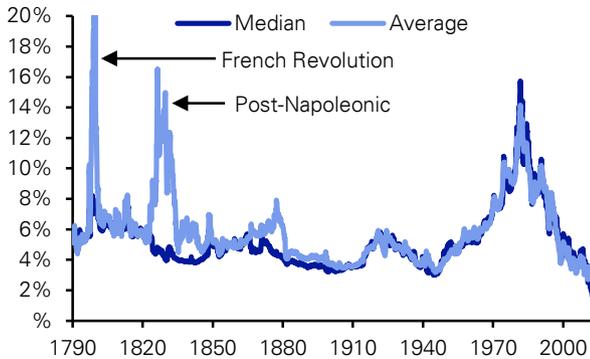
Figure 10: US 10 Year Treasury Yield since 1790



Source: Deutsche Bank, GFD, Bloomberg Finance LLP

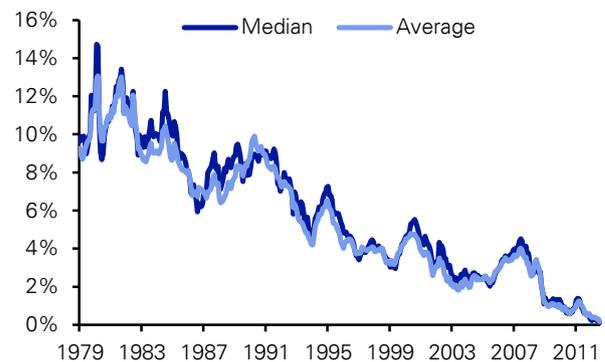
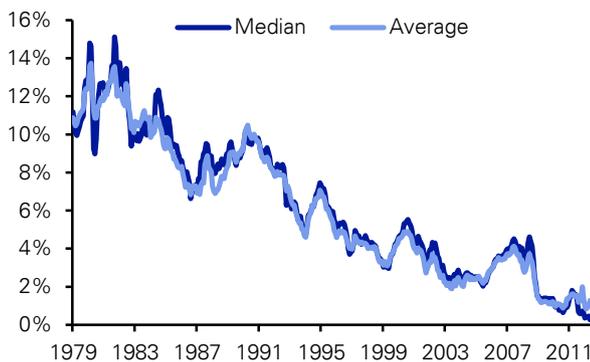
If we again look at the G7 countries plus Switzerland and Spain we see record low levels of average 10 year yields with data again stretching back over 200 years. We also include a line excluding Spain and Italy which accentuates the point that core, perceived safe-haven Government bond markets are at even more extreme yield lows. We also show a similar picture for 2 year yields in Figure 12, albeit over a much shorter time period.

Figure 11: 10 Year Yields with G7 plus Switzerland and Spain (Left); G7 plus Switzerland without Spain/Italy (Right)



Source: Deutsche Bank, GFD

Figure 12: 2 Year Yields with G7 plus Switzerland and Spain (Left); G7 plus Switzerland without Spain/Italy (Right)

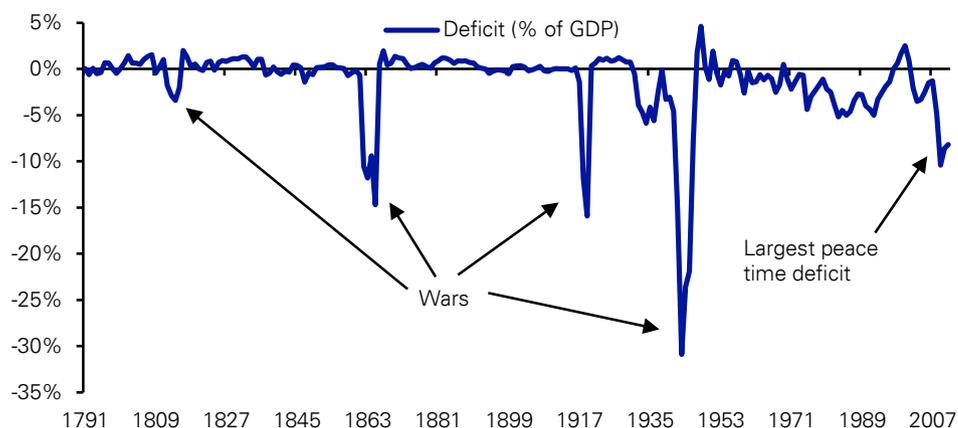


Source: Deutsche Bank, GFD

Debt and deficits

There is an irony over such low yields in core Government bond markets given current debt levels. Indeed deficits have been so ingrained in western culture/economics for so many decades that it might be much harder than we think to eradicate them, especially with the upcoming demographic time-bomb that we have discussed at length in previous editions of this report. The high government deficits that have been run since the 2008/09 crisis have simply been an extension of a multi-decade trend and have now been in place long enough for markets to perhaps get used (or 'anchored') to the scale of them and become somewhat complacent. Figure 13 shows the US annual budget deficit back to 1791 and illustrates that this is by far and away the largest peace time deficit in the US in history.

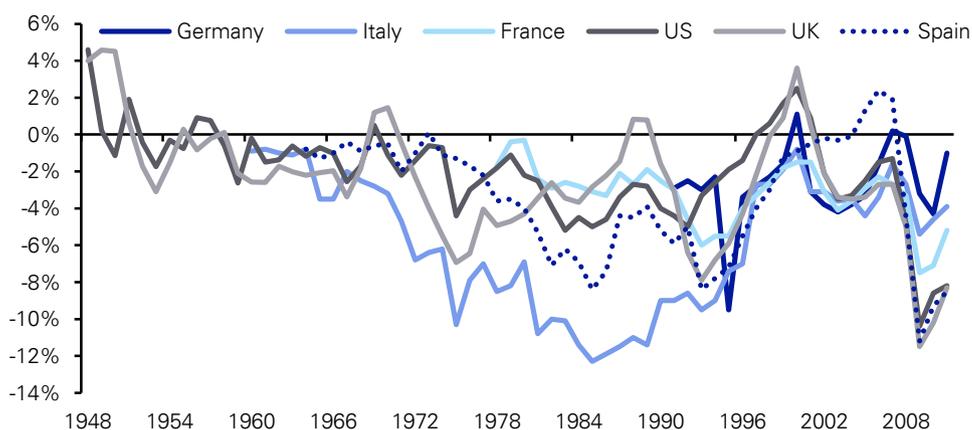
Figure 13: US Annual Budget Deficit since 1791



Source: Deutsche Bank, GFD

Prior to the Dollar Standard (Bretton Woods) collapsing in 1971 and with it our last currency link to gold, a balanced budget was a routine peace time phenomena in sound economies with little variability around this. Even when the deficit spiked due to wars there tended to be a quick return to surplus after each conflict ended. However in modern times, apart from the 4 years of small surpluses between 1998 and 2001 (internet bubble related), the US has run an annual deficit every year since 1969. In other words they have been in deficit for 40 out of the last 44 years (including 2012) with no sign of this returning to surplus anytime soon.

Elsewhere the UK has been in annual budget deficit 51 out of the last 60 years, and Spain 45 of the last 49 years. Japan has run an annual budget deficit since 1992 and Italy, Portugal and France have seen perpetual annual deficits since we have reliable data back to 1960, 1977 and 1978 respectively. Figure 14 plots the annual budget deficits for these countries and shows just how unusual budget surpluses have been in the last 40 plus years. Surpluses have often only been seen briefly in artificial booms like the one already discussed around the turn of the millennium, the late 1980s consumer boom/bubble in the UK and the property bubble in Spain just before the GFC (Global Financial Crisis).

Figure 14: Annual Budget Deficit by Sovereign since 1948

Source: Deutsche Bank, Bloomberg Finance LLP, GFD, Haver

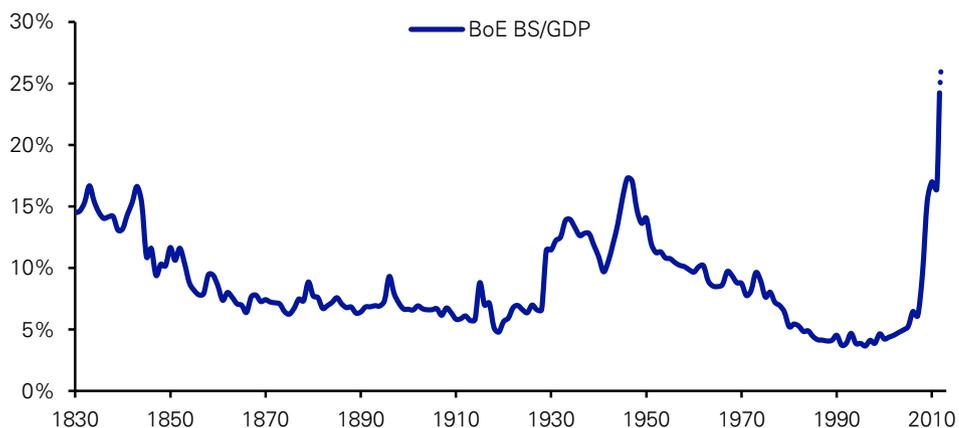
So as discussed, prior to the last 40 years or so, deficits only tended to occur in extreme situations which largely corresponded with wars or from savage economic shocks like the Great Depression. With a multi-decade compounding of deficits we are now left with debt/GDP numbers across large parts of the developed world that are high enough for much of them not to be fundable in a free market, hence the sovereign crisis seen to date and the associated dramatic interventions. Even those countries that don't currently have a funding crisis are all aware that the trend now has to be to start to control these deficits. The US is a prime example of this.

One of the issues looking into the future is that the modern day economies of the past 40 years are arguably not set up for a balanced budget or aggressive moves towards it. The evidence so far is that those who have attempted to cut their deficits (eg Greece, Ireland, Portugal, Spain, Italy and to a lesser extent the UK) have seen weaker growth than expected and in many cases much weaker growth. Can we really be confident that the developed economies that we have created over the last 40 years have the ability to withstand the effects of austerity and cut backs? Do our modern day econometric models have the ability to understand the impacts of fiscal retrenchment after a financial crisis having been calibrated in a period of excessive leverage? The jury must surely be out on this. It really is a journey into the unknown as the developed world tries to rein in their deficits and ultimately try to balance their budgets.

Money printing at all time highs?

To help finance these deficits many countries have embarked on money printing. This has clearly been seen numerous times before through economic history and in some individual cases has been far more aggressive than any country is currently embarking on (e.g. The Weimar Republic of the 1920s). However the breadth of countries now currently printing money is surely unique through economic history. It's difficult to prove this given the lack of breadth of relevant historic global data but it seems that we are entering unknown money printing territory in many countries. The longest time series of central bank balance sheet data is from the Bank of England. Figure 15 shows that 2012 has seen the balance sheet surpass the previous peak relative to GDP (17.28%) seen in 1946 just after WWII. As recently as 2007 this number was under 7%, climbing to 16.4% at the end of 2011, 24.2% currently and estimated by us to likely be 26.7% by the end of 2012.

This trend is being repeated across the developed world to varying degrees and again we are journeying deep into the unknown. Anyone predicting the endgame is speculating outside of the historical dataset as there are few precedents for such broad based global money printing. That it is occurring and still we see economies that in many cases are seeing their weakest recovery in history, further reinforces the uniqueness of the current environment.

Figure 15: Bank of England Balance Sheet vs. GDP

Source: Haldane, A G (2009), Deutsche Bank calculations (from 2007)

What is clear is that the roots of the GFC, and the post GFC era of aggressive money printing and ballooning fiscal deficits would not have been possible in a pre-1971 world. We'll move on in the next chapter to look at how the world changed dramatically post 1971.

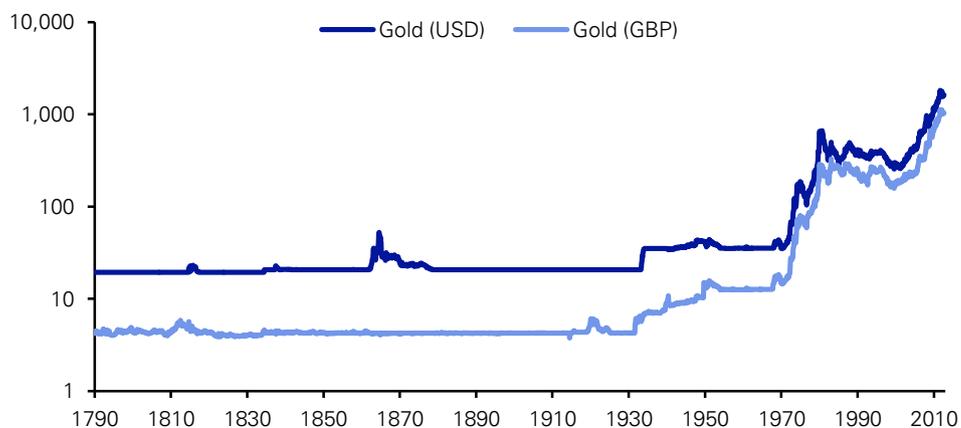
1971 – The year the Global Financial Crisis begun....??

One can only hazard a guess at the number of words, chapters and books that have been written over the past five years to try to understand and explain the origins of the Global Financial Crisis. Many of these books have become seminal works but perhaps the real origin was the final break with a Gold based global financial system in 1971. We would argue that this event started the ball rolling for everything we have seen over these past five years. Prior to 1971, the globe's economies and currencies were linked to Gold (or some precious metal) for the vast majority of observable economic history. Even though the Bretton Woods system (1946-1971) was essentially a Dollar standard, the Dollar was convertible to Gold at around \$35 per ounce over the period and most countries tried to maintain their peg to the dollar even if there was some flexibility.

The twentieth century - A weakening of the ties with Gold

Figure 16 shows the price of Gold in Dollars and GBP over the last 220+ years. The data is shown on a log scale which is needed to sensibly capture the dramatic moves in the price of Gold over the last 100 years.

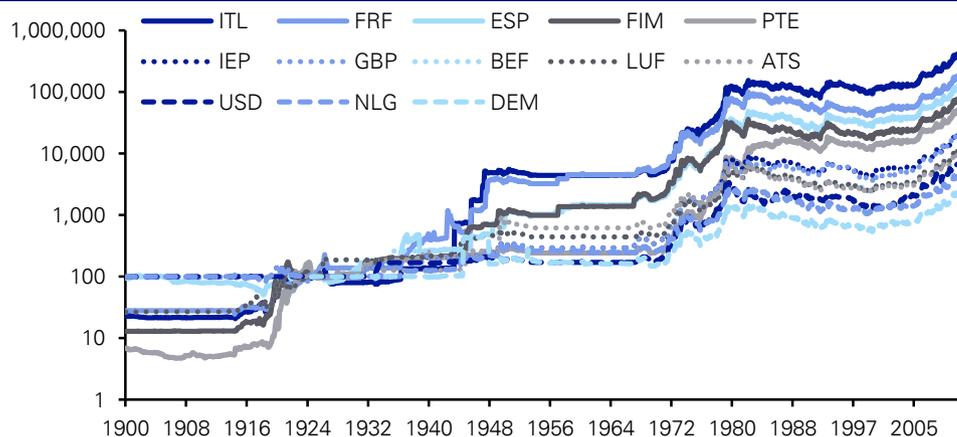
Figure 16: Gold Price in USD and GBP since 1790



Source: Deutsche Bank, GFD

The UK and the US are a good place to start as the UK was the world's superpower as we moved into the 20th century and the US then grew into this role as the first half of the last century progressed. As can be seen, the UK and to a lesser extent the US, slowly devalued against gold during the 20th century up to the early 1970s before the process accelerated from the point that the Gold (or Dollar) Standard ended in 1971.

The reality is that this was a common theme across the globe and Figure 17 repeats Figure 16 but for a much wider selection of countries. We've rebased at 100 in 1925 after Germany's hyperinflation period.

Figure 17: Gold Price in Various Currencies rebased to 100 in 1925

Note: The legend in the graph is ordered from most to least devaluation to Gold since we rebased at 100 in 1925.
Source: Deutsche Bank, GFD

It's worth reminding ourselves that this graph is compiled on a log scale which can visually understate the scale of the loss of purchasing power seen against Gold over the last century. Such losses did occur in stages though. As can be seen from the graph, the 1930s Depressionary period, and the war-torn 1940s, saw sizeable devaluations against Gold from most countries as many re-valued or left the Gold Standard due to high economic stress. Post WWII, the Bretton Woods system then broadly stabilised currencies by creating a Dollar standard where the US agreed to convert Dollars into Gold at around \$35 per ounce. After 20 plus years of relative currency stability (helped by heavy post WWII capital controls), the late 1960s started to see pressures building on this Dollar/Gold peg as some countries chose to switch their Dollars into Gold as concern mounted about the loosening of US monetary policy and on the other side some countries had to devalue within the system. By 1971 President Nixon had decided that this peg was unsustainable and on 15th August he suspended convertibility.

August 15th 1971 - the date the Global Financial Crisis of 2007 was born?

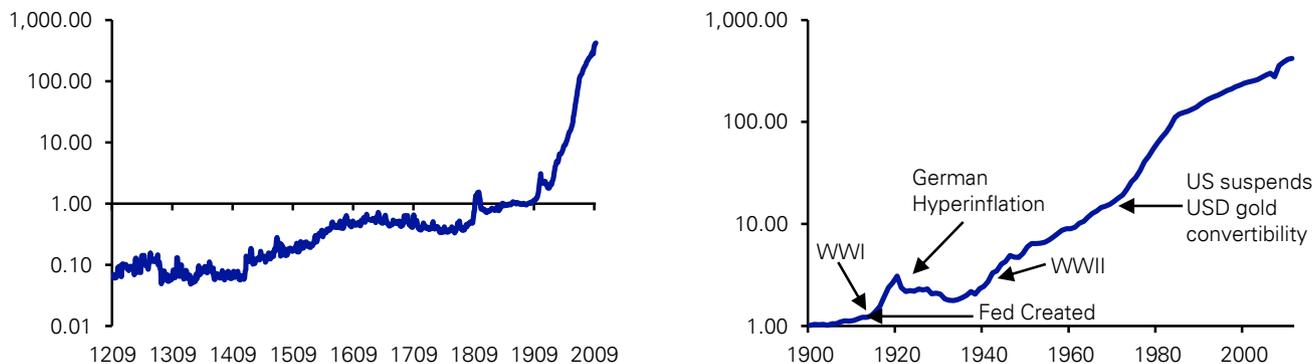
From 1971 onwards, all countries devalued aggressively against Gold at a pace only seen through history during the 1930s and 1940s. But this time rather than a selection of countries experiencing such a trend the devaluation was universal. As the late 1960s developed there were pressures on both sides of the Dollar standard but overall it was a period where Governments started to pursue more expansionary fiscal policies without central banks reining in the monetary spigots to offset this. We saw in the opening chapter that multi-year, persistent and widespread Government deficits are a feature only really seen in the last 40 years or so. In a world of the Gold (or Dollar) Standard, those countries loosening policy too much would have naturally seen a rush to convert their currencies into Gold thus destabilising their economic policy framework.

When the Dollar convertibility ended, the shackles were off and countries no longer had to adhere to strict policies in order to defend their peg to Gold or to the Dollar. The era of global fiat currencies had begun and we moved into a new world order almost totally different to any that had preceded it.

With nothing backing paper money, the path to almost unlimited credit creation had begun. Prior to this point, although the strictness of the Gold standard had been slowly diluted, meaning that the amount of Gold that had to back paper money had reduced through time, there was always a physical limit to how much money there could be in an economy at any point in time. Over the course of the last 40 years financial market regulation also progressively loosened allowing private sector institutions to create money in a manner never previously seen on such a scale through history. A combination of fiat currencies and ever weakening financial market regulation basically ensured almost unlimited credit and debt creation. It was surely inevitable that this money would end up somewhere and we therefore started a period of higher inflation than seen through history, and one where we saw frequent asset price bubbles all around the world.

Figure 18 shows median global inflation first from 1209 (left) and then from 1900 (right). As we've discussed in previous notes inflation took on a totally different persona after the start of the twentieth century. The charts are again on a log scale to allow us to easily see the near exponential increase in inflation over the last 100 years or so, especially relative to what occurred before. Note that had we used average instead of median, the chart would look almost absurd given the extreme levels of hyperinflation seen in several countries over the last century. The data behind the graph is based on a full set of 24 countries where we have inflation data back to 1900¹. Prior to this many countries have data that goes back several decades with some back through the centuries. We have included data as and when it becomes available.

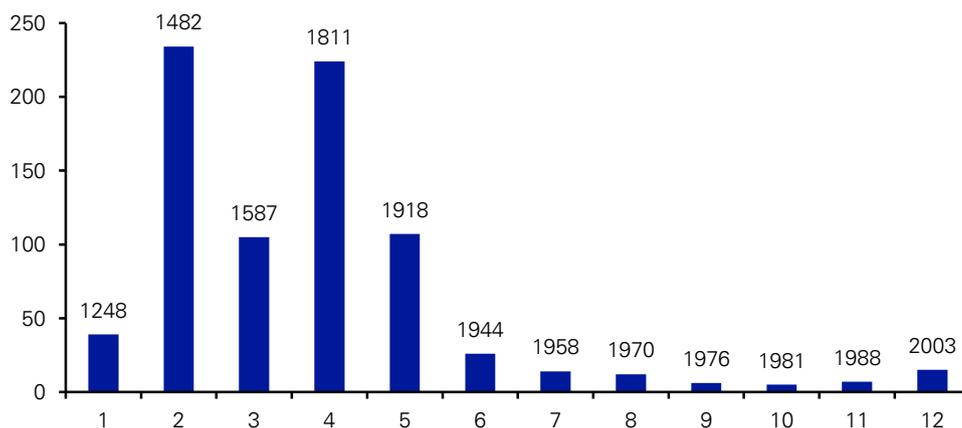
Figure 18: Global Median Inflation Series since 1209 (left) and 1900 (right)



Source: Deutsche Bank, GFD

Figure 19 then looks at this another way and shows how long it took for median global inflation to double since the data starts in 1209. Prior to 1918, inflation only doubled five times over 700 years. Over the next 85 years it doubled on seven occasions, four of which occurred between 1970 and 2003. In contrast it took 602 years for the first 4 doublings from 1209.

Figure 19: Number of Year for Median Global Inflation to Double

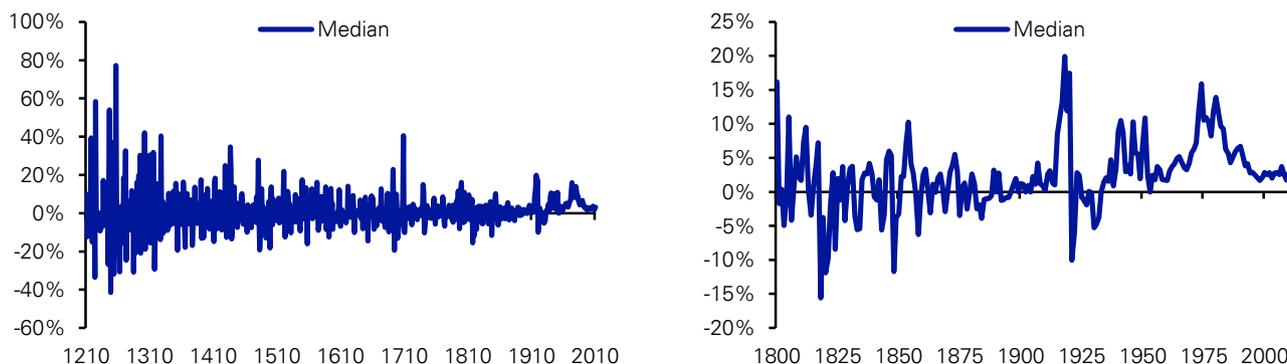


Source: Deutsche Bank, GFD

It's not just the general trend of higher prices, it's the fact that even single years of deflation have been increasingly hard to find globally over the last century. Figure 20 shows the same data set as used above but shows the median YoY inflation back to 1209 (left) and over the shorter period since 1800 (right).

¹ Countries included: Argentina, Australia, Austria, Belgium, Brazil, Chile, Colombia, Denmark, Egypt, France, Germany, India, Italy, Japan, Mexico, Netherlands, Norway, Philippines, South Africa, Spain, Sweden, Switzerland, UK, US

Figure 20: Global Median YoY Inflation since 1209 (left) and 1800 (right)

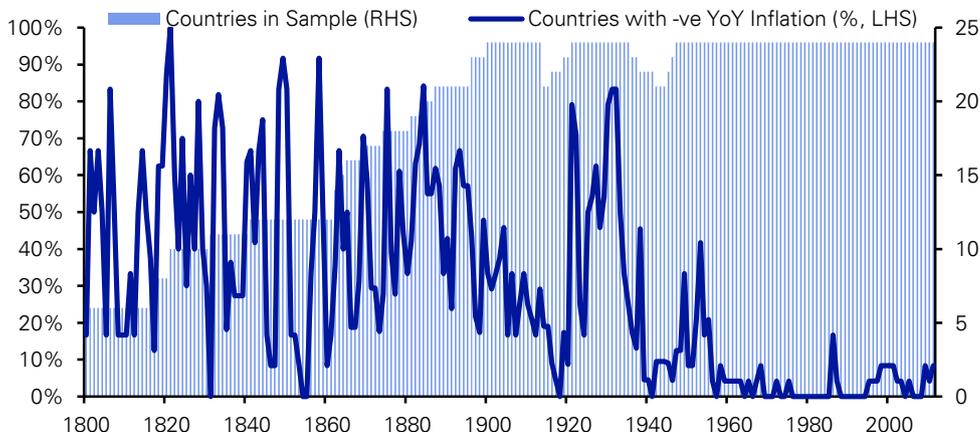


Source: Deutsche Bank, GFD

Prior to the twentieth century years of deflation were almost as common as years of inflation. However as discussed above, this all changed over the last 100 years or so. Indeed we haven't seen a year of deflation on this median Global YoY measure since 1933. So we've now had nearly 80 years without a global year on year fall in prices.

Figure 21 extends this analysis showing the percentage of countries in our sample with a negative YoY inflation print and the total number of countries in our sample each year. The number of countries in annual deflation has certainly fallen over the last 100 years and particularly since the Gold Standard link was broken in 1971. Indeed since 1987 no more than 2 countries (out of the maximum 24 in our sample) have seen deflation in any one year and in most cases one of these two countries was Japan.

Figure 21: Percentage of Countries with Negative YoY Inflation since 1800 SCALE 25?

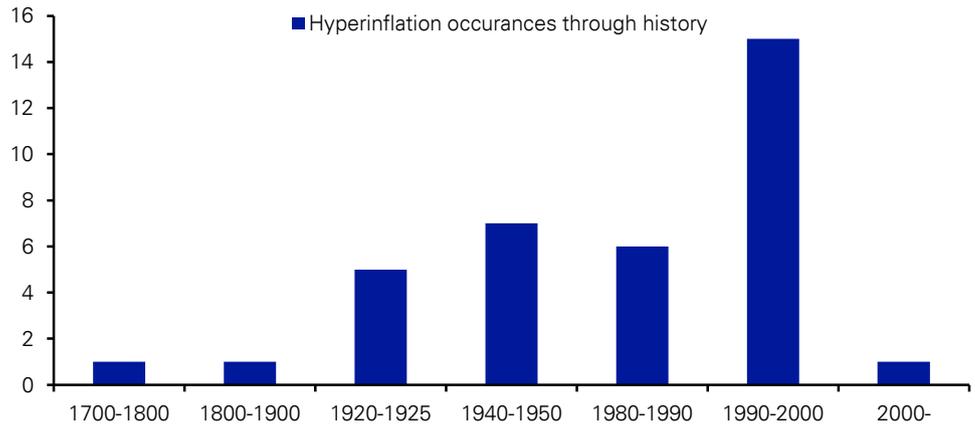


Source: Deutsche Bank, GFD

So although the last 30 years has been a period where inflation was perceived to be under control across the globe, there has generally been a persistent positive bias not seen through longer-term history. The break with Gold has ensured that countries can mostly ensure they don't have deflation by being free to conduct money creation policies.

Indeed at the more extreme end of the spectrum, since 1971 the number of recorded hyper-inflations seen throughout the globe has dramatically increased. Figure 22 counts such incidents seen through history in selected buckets.

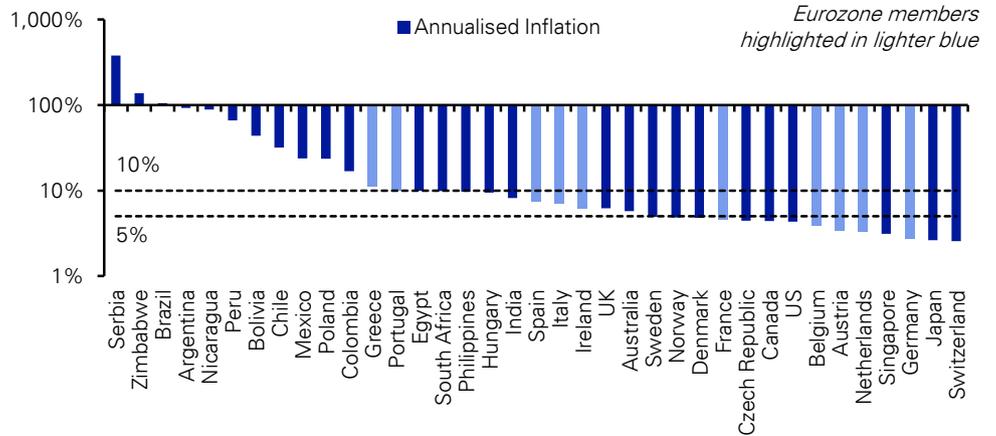
Figure 22: Hyperinflation Occurrences through History



Source: Deutsche Bank

Although the hyperinflation list perhaps isn't 100% inclusive, the trend is absolutely beyond dispute. The 1980s and 1990s saw the vast majority of the examples of these occurrences through history. Although all these have been outside of the developed world, this region has also seen many countries with high inflation over the period and with wide divergence between countries. Figure 23 shows a selection of Developed Market (DM) and EM countries' annual inflation rates since end July 1971 on a log scale. We've highlighted those EU-12 countries that are members of the single currency as we will move on to make a point about divergent economic trends in member countries in the years and decades leading up to the start of the Euro.

Figure 23: Annualised Inflation Rate since Gold Standard Abandoned (Log Scale)



Source: Deutsche Bank, GFD

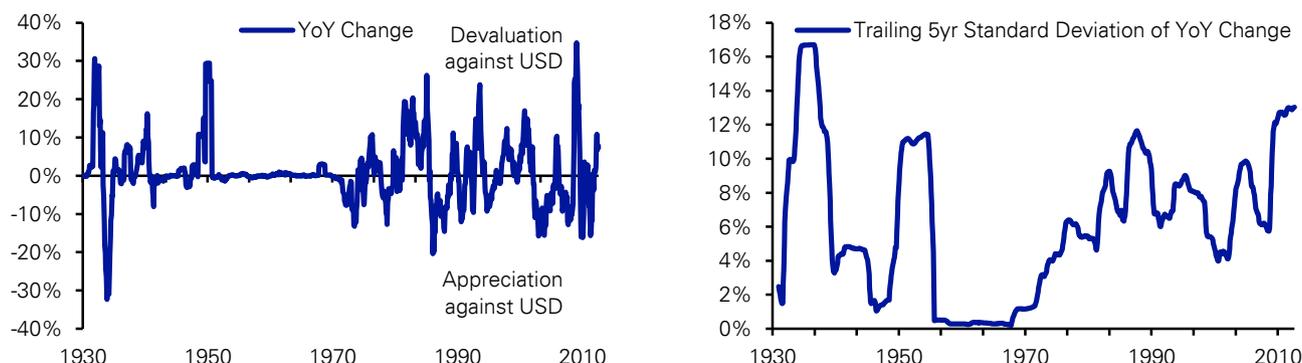
It's interesting to look at the EU12 countries we've highlighted as the annual inflation rate since 1971 has seen huge divergence. At one end we have Greece (11.1%), Portugal (10.2%), Spain (7.5%), Italy (7.2%) and Ireland (6.3%) and at the other end Germany (2.8%), Netherlands (3.4%) and Austria (3.4%). Such inflation differentials are often down to productivity and inefficiency gaps between nations and we'd argue that these increased after 1971. This led to huge moves in currencies across the world and ended up being the safety valve to the global economy post Bretton Woods.

Fighting the natural global currency order

One of the legacies of the GFC has been that currency volatility in the Non-EU 12 Developed world has been at its highest level since the 1930s when the stresses of the Gold Standard

unraveled. Figure 24 shows the average YoY change (left) of a selection of these currencies relative to the Dollar and on the right we show the standard deviation of these moves. The countries in this group are Australia, Canada, Denmark, Japan, Norway, Sweden, Switzerland and the UK.

Figure 24: Non-EU Dev. World Average YoY Currency Change vs \$ (Left) & 5Yr Trailing Standard Deviation (Right)

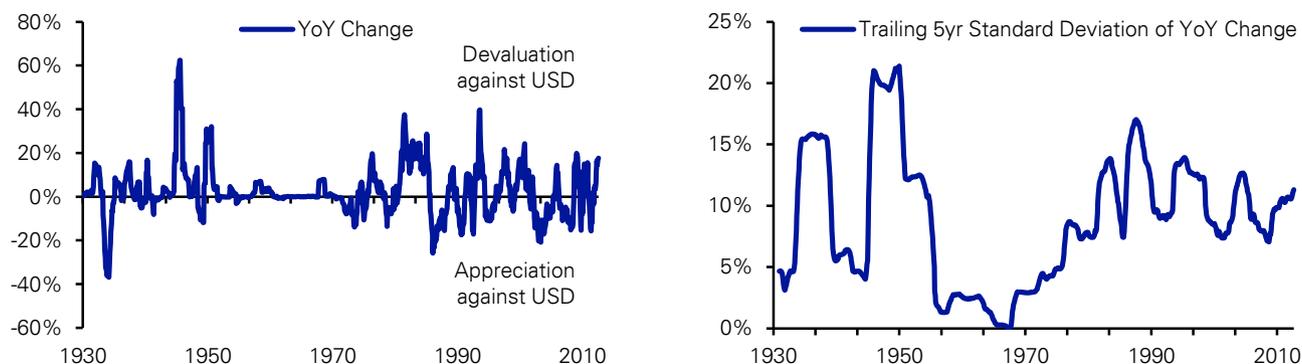


Source: Deutsche Bank, GFD

As can be seen there are distinct periods of volatility. That seen in the early-mid 1930s as some countries devalued and left the gold standard, after WWII, at the end of the 80s/early 90s (culminating in the ERM break-down), and again in this recent period after the GFC.

Meanwhile the same two charts for the EU-11 (Greece excluded due to data inconsistencies after WWII) shows that currency volatility whilst still historically high against the dollar, is clearly not at the peak levels seen for its developed market peers. With the single currency there is only one rather than 12 sources of volatility.

Figure 25: EU-11 (Ex-Greece) Average YoY Change vs \$ (Left) & 5Yr Trailing Standard Deviation (Right)



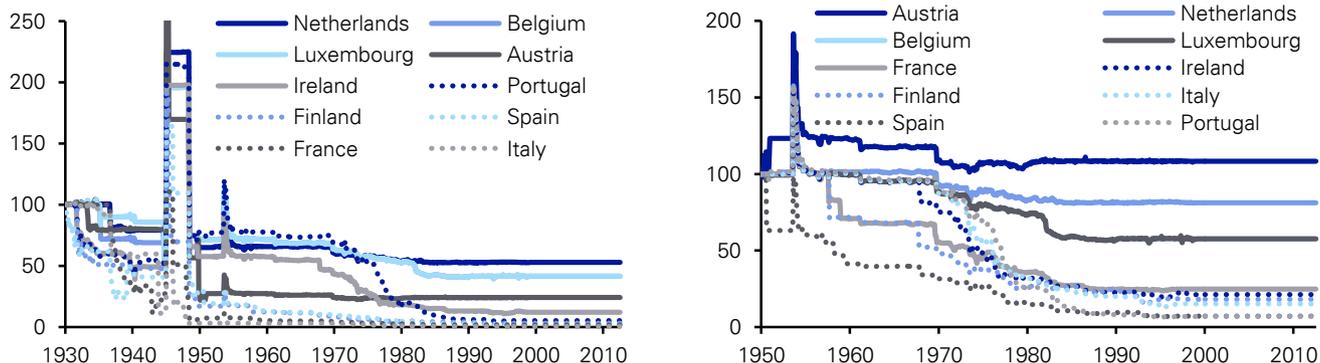
Source: Deutsche Bank, GFD

Interestingly EU11 currency volatility peaked in the late 1980s/early 1990s at similar levels to that seen during the 1930s collapse of the Gold standard. The early 1990s part of this equation was due to the disintegration of the ERM in late 1992. By July 1993 we saw large YoY devaluations against the dollar in Spain (-35%), Finland (-32%), Italy (-31%) and Portugal (-30%). Greece, although not included in the data in Figure 25, depreciated by -24% over the period. Germany by comparison only fell by -15% against the dollar over the period ensuring a large out-performance. Given the GFC and recent Sovereign crisis, individual Euro nation currency volatility probably should be close to extreme highs at this point but as the graph shows it is being suppressed to some degree by the single currency.

Germany has consistently had the strongest currency since the Weimar Republic

The reality is that German currency out-performance has been a persistent theme since the 1930s and one has to wonder whether a single currency tied to a perennial currency out-performer was always going to be a recipe for future stresses, especially if aggressive structural reforms were not made. Figure 26 shows the exchange rate of 10 of the EU-12 back to 1930 (left) and to 1950 (right) relative to Germany, all rebased to 100.

Figure 26: EU Member FX Performance Relative to the DEM from 1930(Left) and 1950(Right)



Source: Deutsche Bank, GFD

Figure 27 shows the overall performance of these currencies relative to Germany from these two dates and also from the start of the fiat currency period in 1971 and from 1990 – the last decade before the single currency started. We’ve also included the UK and the US in this table to enable international comparison outside of the Euro-area.

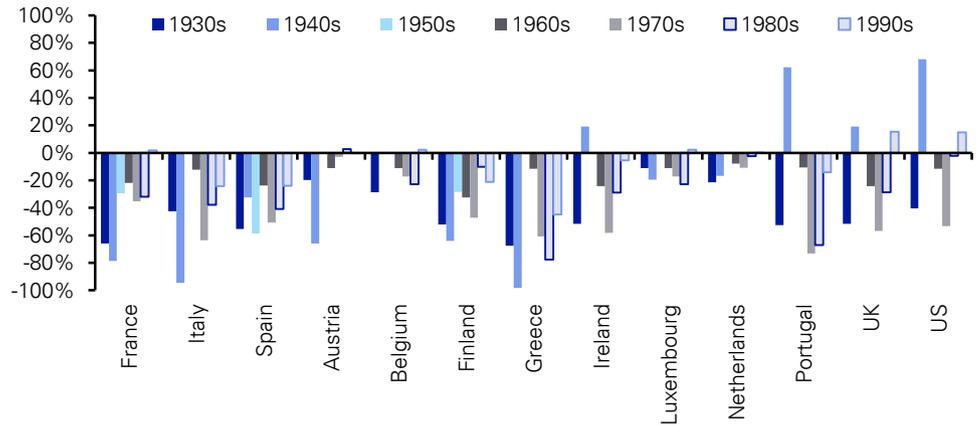
Figure 27: FX Performance against the DEM

Country	1930	Country	1950	Country	1971	Country	1990
Italy	-99.5%	Portugal	-93.2%	Greece	-95.3%	Greece	-46.6%
France	-98.2%	Spain	-93.0%	Portugal	-92.4%	Italy	-24.3%
Spain	-97.9%	Italy	-85.0%	Italy	-82.7%	Spain	-23.9%
Finland	-96.9%	Finland	-81.9%	Spain	-77.5%	Finland	-21.3%
Portugal	-94.9%	Ireland	-78.9%	Ireland	-71.7%	Portugal	-14.1%
Greece	-89.4%	UK	-78.8%	UK	-71.6%	UK	-8.5%
Ireland	-87.8%	France	-75.2%	Finland	-62.2%	US	-5.9%
UK	-87.8%	US	-62.2%	US	-56.2%	Ireland	-5.6%
Austria	-75.9%	Belgium	-42.3%	France	-54.7%	Austria	0.0%
US	-62.0%	Luxembourg	-42.3%	Belgium	-33.7%	Netherlands	0.2%
Belgium	-58.6%	Netherlands	-18.7%	Luxembourg	-33.7%	France	1.9%
Luxembourg	-58.6%	Austria	8.4%	Netherlands	-12.1%	Belgium	2.2%
Netherlands	-47.4%	Greece	n/a	Austria	1.3%	Luxembourg	2.2%

Note: Data to COB 31 Jul 2012.
Source: Deutsche Bank, GFD

Even if we look at the data by decade, between the 1930s and the start of the Euro, there is rarely a decade where the German currency isn’t stronger than its European peers, especially those now in the periphery.

Figure 28: Performance of European Currencies vs Germany (DEM) by Decade



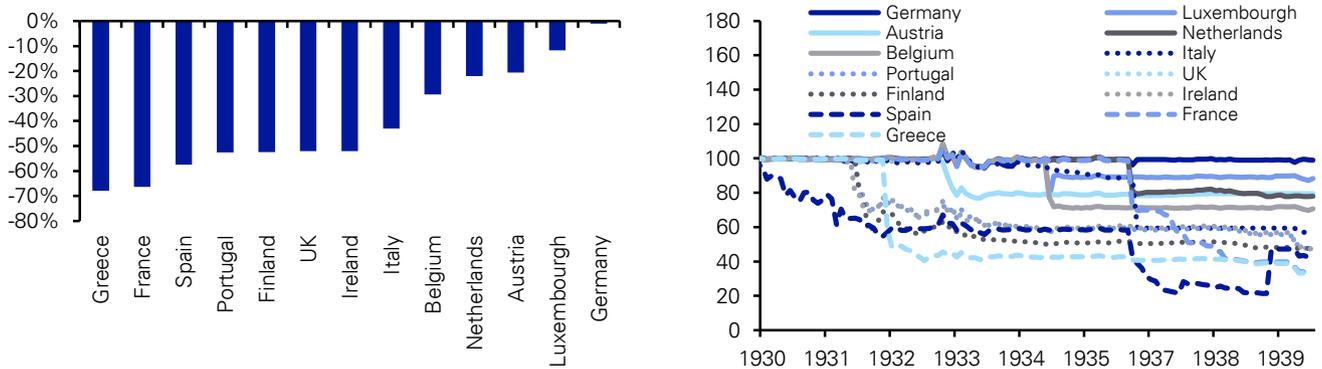
Source: Deutsche Bank, GFD

After the hyperinflation of the 1920s, Germany has been the star currency performer in the EU and indeed in global terms. This performance was only halted by WWII and its out-performance was soon re-established after the conflict and was a persistent theme leading up to the start of the Euro.

So as the Euro commenced in 1999, could the countries in the new single currency correct or adjust policies that had seen them dramatically under-perform Germany for well over half a century? Or would the same trends be there? Unfortunately the pressure wasn't immediately there to reform or converge economic policy as the start of the Euro broadly coincided with (and arguably helped facilitate) a global leverage boom that eradicated the need for structural reforms as debt fuelled growth masked the structural differences/inefficiencies between the core and the periphery. In a pre-1971 era, such activity would have been near impossible. Post the GFC, the Euro today is acting like the Gold standard of the 1930s for the periphery. It's forcing extremely restrictive policy on the weakest countries.

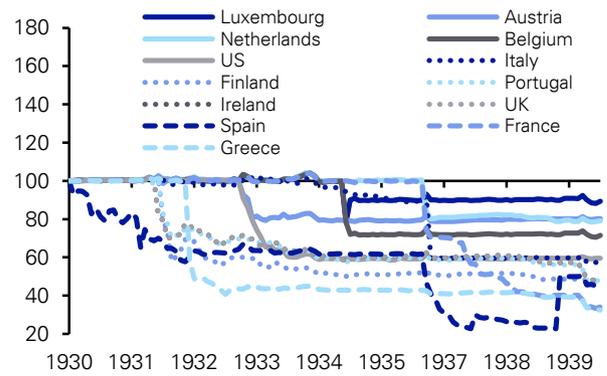
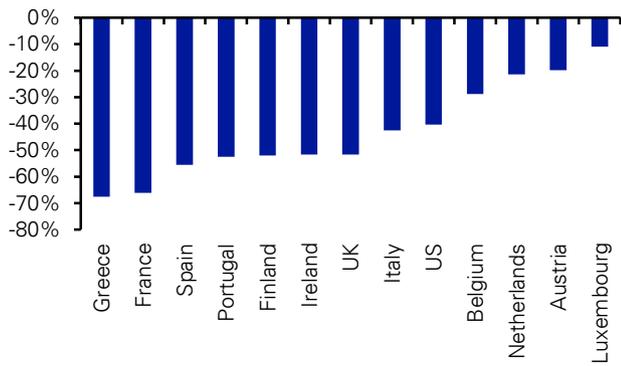
The 1930s was a period of extra-ordinary stress on economies and indeed on currencies. Figure 29 shows the devaluations seen relative to Gold and Figure 30 that seen relative to Germany (DEM) over this decade. As we can see on the right hand chart much of these moves came in large one-off devaluations which tended to coincide with that country leaving the Gold Standard. Germany's obsession with monetary stability started from this decade and there are parallels to what is happening today within the single currency.

Figure 29: FX in the 1930s relative to Gold



Source: Deutsche Bank, GFD

Figure 30: FX in the 1930s relative to DEM



Source: Deutsche Bank, GFD

History suggests that fixed currency systems are like tectonic plates, they can hold together for long periods but when they do break the volatility can be quite aggressive. The question is whether the damage done from events pre and post the GFC is reversible or whether maintaining the current single exchange rate through Europe is actually going to lead to even more stresses going forward.

After such a long period of consistent out-performance from Germany in the currency market we are again entering a journey into the unknown as we will see whether the single currency can survive in an environment where increased debt can no longer mask the lack of economic convergence between the member states. Much probably depends on Germany moving away from policies (or being forced to) that have made it the star currency performer of the last 80 years or so.

An Update to our Shorter Business cycle theory

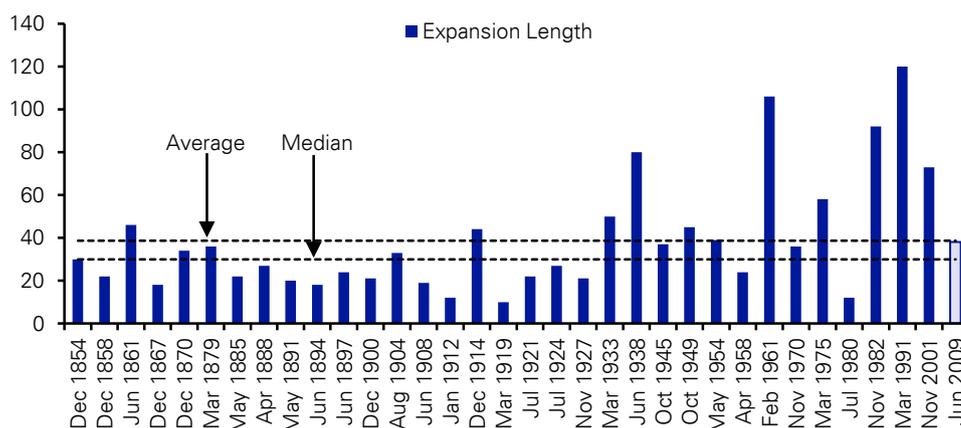
In our 2010 edition of this report, “From the Golden to the Grey Age”, we first articulated our shorter business cycle theory for the Developed World using the US experience to illustrate our argument given the depth and history of the data. We showed that prior to the GFC we had witnessed three of the longest expansions in history, punctuated by only two mild recessions. Indeed by the end of 2007 the US economy had only been in recession for 16 months since November 1982. This equated to just over 5% of the time over a remarkable 25 year stretch. From the point the NBER started to define business cycles in 1854, to the start of the ‘Golden Age’ in 1982, the US was in recession 35% of the time. We should remember that this covered a 125+ year period that the US rapidly developed, witnessed great prosperity and became the pre-eminent Global economic superpower.

Recessions are a natural economic feature and we’d actually say that their regular occurrence is healthy and indeed essential. Without them there is a serious danger of bubbles and the misallocation of resources as the further market participants detach themselves from the last downturn the more they tend to under-estimate risk. We would argue that the reason the GFC was so deep was due to the authorities continued refusal to let the business cycle take its natural course. We’ll discuss below how in the 1982-2007 period they had the power to intervene to mitigate the business cycle and chose to use this option aggressively. Such policy flexibility has now been largely reversed.

The history of business cycles in the US

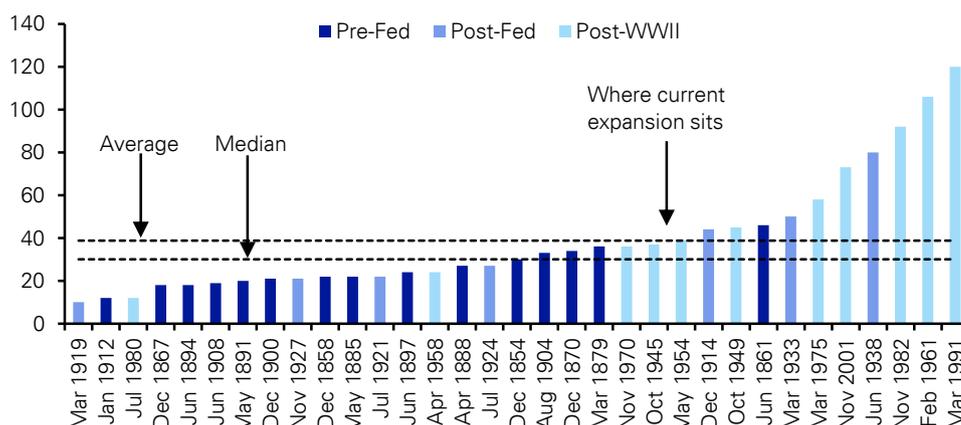
Figure 31 shows the duration of each economic expansion (i.e. between all US recessions) since the NBER started collating statistics from 1854. This highlights the fact that prior to the GFC the three preceding expansions were in the top five on record. We can also show that this cycle is now almost exactly average length through history.

Figure 31: US Economic Expansion Lengths (months) since 1854



Source: Deutsche Bank, NBER

If we re-order these cycles by duration we can show more clearly how this current US expansion compares to those through history.

Figure 32: US Expansion Lengths since 1854 – From Shortest to Longest

Source: Deutsche Bank, NBER

We passed the median cycle length at the start of 2012 and we will be past the historical average point by the end of this month (September 2012). This expansion is now the 12th longest out of 34 since 1854.

There are those that suggest that the Fed's inception back in 1913 has allowed for longer business cycles and for those interested we have colour coded those cycles that occurred after this point, and also those post WWII when overall economy debt seemed to start a YoY increase that continues to this day. Countering the argument for longer post-1913 cycles would be the view that without the Fed helping to elongate several recent cycles, the GFC we've just been through might not have been anywhere near this deep and we are therefore now left in a unique situation at what is at the likely end of a multi-decade leverage binge consisting of several artificially long cycles. We are also now arguably in a liquidity trap where the Fed are less potent that they have been before in their near 100 year history.

Recapping the shorter cycle theory

We've previously argued that the three 'super-cycles' between 1982 and 2007 were the exception rather than the norm, one where Central Banks and Governments had almost total flexibility over policy. The conditions that allowed for these long cycles perhaps started a decade earlier with the already much talked about collapse of the Gold Standard. Without the discipline of a gold based monetary system (or equivalents), global authorities were able to conduct policy with less constraints. Loose money arguably led to a subtle beggar-thy-neighbour worldwide policy which repeatedly fed back on itself. If one country eased policy, another might be incentivised to follow to remain competitive. This wouldn't have been possible under the gold standard. Figure 17 earlier showed the near universal and aggressive devaluations that occurred against Gold in the immediate post 1971 period. Government's running persistent deficits would also have been untenable pre-1971. As we also saw in an earlier section, post 1971 deficits have been an almost permanent feature of most developed world economies.

The policy flexibility of the 25 years prior to the GFC took some time to materialise post 1971. The immediate few years after saw the global economy struggle with inflation and double dipping recessions. At this stage there was no reason to suggest that abandoning the global link to Gold was anything other than a disaster for the world economy and not one that would facilitate the three long expansions that followed from the early 1980s. However as the 1970s drew to an end the fiat currency system arguably got bailed out by Globalisation and in particular from China's re-entry into the global economy and the massive downward pressure they put on many factors of production (e.g. labour costs). This re-emergence started a three

decade period where inflation fell across the Western World almost regardless of what the globe's authorities did in terms of stimulus. From this point on, Western authorities 'maxed out' on the benefits of this inflationary decline by pumping monetary and fiscal stimulus into their economies whenever they had an economic problem. Given the lack of inflationary pressures they had a rare ability to do this without the normal subsequent price rises, and without a gold standard they didn't suffer from a destabilising loss of Gold.

So from the early 1980s every business cycle threatening incident was dealt with using aggressive intervention. This led to more and more confidence in the ability of the authorities which coupled with lower and lower interest rates, increased public and private leverage to previously unthinkable levels. It's fair to say that most economies saw leverage increase every year over this period - a situation that would have been unimaginable under the strict exchange rate systems that we had before.

Unfortunately the 25-30 year build up of excess that this facilitated led to the GFC being the worst crisis since the 1930s and we have now likely moved to an era where policymakers no longer have the flexibility that defined the previous 25-30 years. Most Developed World (DW) Governments are up against their fiscal limits and are actually being forced into economically damaging austerity. We also have interest rates across the Western World that remain close to zero with little room to be lowered further. While we do have money printing, we are close enough to a liquidity trap that flooding the market with printed money doesn't have the same immediate impact on the economy as a cut in interest rates did in the long leveraging stage of the super-cycle.

So not only are we battling with the huge structural problems that the post-credit crisis world brings, we are fighting it without much policy flexibility and are indeed being forced into a reversal of stimulus at arguably exactly the wrong time.

So it all adds up to a return to more normal length business cycles in our opinion. Indeed one could make an argument for shorter cycles than normal given the lack of policy flexibility relative to most of history.

So what's happened since policy flexibility changed?

Figure 33 in our opinion offers compelling arguments supporting our shorter cycle theory as many developed countries are currently in, have been in, or are now close to being in recession. There are exceptions but the relative DM outperformer – the US – is still suffering one of its weakest recoveries on record as we'll see later in the next section.

Figure 33 shows a table of G20 countries (excluding Saudi Arabia) plus selected others in Europe. The EM countries included are shaded grey. In the table we've stated whether each of these countries is currently in recession or whether it has either been in recession in the last few quarters or whether there has been at least one negative quarter of growth over the same period. We've then shown the latest QoQ and YoY growth, and how far overall activity is above/below the 2007/08 peak in real and nominal terms. Finally we show deficit numbers for 2011 and the 2012 estimates.

Figure 33: Recession Monitor - G20 plus Selected European Countries' GDP Growth

Country	In recession?	2 -ve Quarters since GFC?	Any -ve Quarters since GFC?	Latest QoQ Real GDP	Latest YoY Real GDP	Relative to 07/08 Real GDP Peak	Relative to 07/08 Nominal GDP Peak	2011 Deficit	2012E Deficit
Argentina*	N	N	Y	-7.1%	5.2%	11.3%	69.2%	-2.9%	-3.4%
Australia*	N	N	Y	1.3%	4.3%	8.3%	16.0%	-3.4%	-3.0%
Austria	N	N	Y	0.2%	1.0%	1.2%	8.7%	-2.6%	-2.9%
Belgium	N	N	Y	-0.6%	-0.4%	0.2%	7.8%	-3.7%	-3.4%
Brazil	N	N	Y	0.4%	0.5%	8.6%	39.8%	-2.6%	-1.6%
Canada	N	N	Y	0.5%	2.5%	4.2%	7.6%	-1.9%	-1.7%
China	N	N	N	1.6%	7.5%	37.3%	58.7%	-2.0%	-1.5%
EA17	N	N	Y	-0.2%	-0.4%	-2.4%	1.8%	-4.1%	-3.2%
Finland	N	N	Y	-1.0%	0.7%	-3.9%	4.5%	-0.5%	0.3%
France	N	N	Y	0.0%	0.3%	-0.8%	4.5%	-5.2%	-4.8%
Germany	N	N	Y	0.3%	1.0%	1.7%	6.2%	-1.0%	-0.6%
India	N	Y	Y	-6.4%	5.5%	20.4%	56.0%	-8.3%	-7.8%
Indonesia	N	N	Y	2.8%	6.4%	20.8%	54.4%	-1.1%	-2.7%
Ireland*	N	N	Y	-1.1%	1.4%	-8.8%	-15.8%	-13.1%	-8.6%
Italy	Y	Y	Y	-0.7%	-2.5%	-6.8%	-2.1%	-3.9%	-2.3%
Japan	N	Y	Y	0.3%	3.6%	-1.7%	-7.6%	-10.0%	-10.0%
Mexico	N	N	Y	2.7%	4.1%	4.0%	22.5%	-2.4%	-2.2%
Netherlands	N	Y	Y	0.2%	-0.6%	-1.9%	1.3%	-4.7%	-4.7%
Portugal	Y	Y	Y	-1.2%	-3.2%	-6.4%	-1.6%	-4.2%	-5.5%
Russia	N	N	Y	-0.2%	4.0%	1.2%	35.2%	0.8%	-1.0%
South Africa	N	N	Y	3.8%	3.0%	5.0%	34.8%	-4.5%	-4.5%
South Korea	N	N	N	0.4%	2.4%	11.4%	22.2%	1.5%	0.0%
Spain	Y	Y	Y	-0.4%	-1.3%	-5.4%	-3.7%	-8.5%	-6.2%
Switzerland*	N	N	N	0.7%	1.9%	3.6%	4.9%	0.4%	-0.3%
UK	Y	Y	Y	-0.4%	-0.5%	-4.2%	5.7%	-8.3%	-6.3%
US	N	N	N	0.4%	2.3%	1.8%	8.3%	-8.5%	-6.2%

Note: Recession defined as at least two consecutive quarters of real GDP contraction. * Based on real GDP data to Q1 2012, everything else to Q2 2012. Emerging economies shaded grey.
Source: Deutsche Bank, Bloomberg Finance LLP, Haver

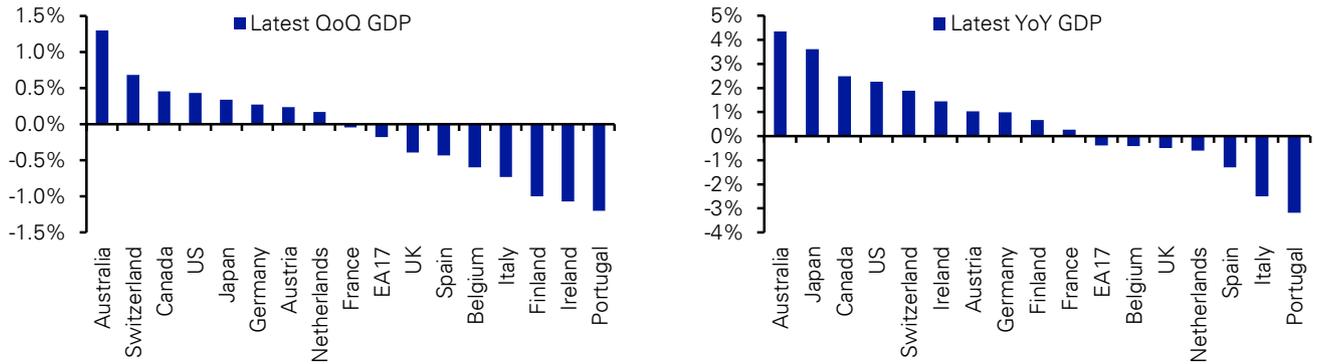
It's first fair to point out that EM and non-Western DM countries have all avoided a recession to date, however Brazil, Argentina, South Africa, Mexico, Australia, India and Indonesia have all had at least one negative quarter over the past year or so. The previously dynamic Brazil is now only seeing growth of around +0.5% YoY. So although EM countries are fairing much better in terms of growth, largely due to more policy flexibility and less structural problems, there have been an increasing amount of negative growth quarters seen over the last year indicating that there are even shorter cycle pressures that are extending beyond the DM.

For DM, although only four countries in our sample are currently in recession (plus Greece which has stopped publishing data), most have seen at least one negative quarter of growth in the last year. YoY growth in the recessionary countries are all negative and elsewhere the YoY growth rate is also negative in Belgium (-0.4%) and the Netherlands (-0.6%) and is only marginally above last year's activity level in France (+0.3%) and Finland (+0.7%).

The developed world suffering most

Figure 34 shows the latest YoY and QoQ growth figures graphically. In terms of Western World developed economies only Canada (2.5%) and the US (2.3%) currently have YoY growth of more than 2% in this sample and even here the latest QoQ momentum has been disappointing.

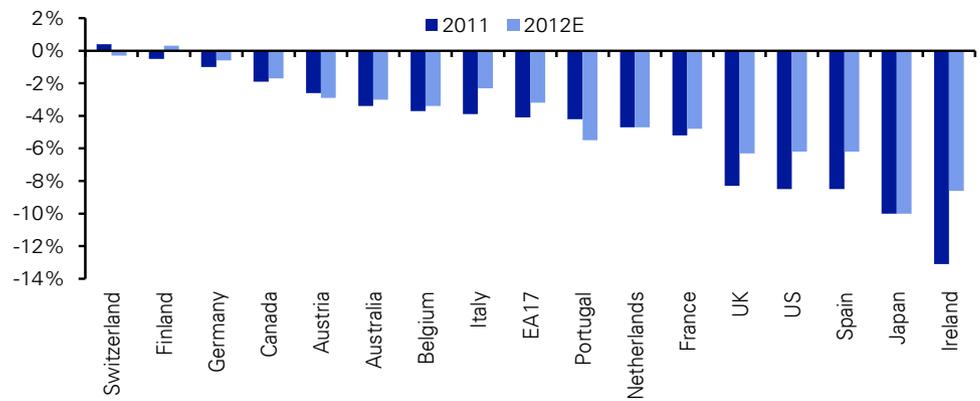
Figure 34: Latest QoQ (left) and YoY (right) Real GDP Growth for Developed Economies



Source: Deutsche Bank, Bloomberg Finance LLP, Haver

Given that fiscal retrenchment is a large part of the problem, it's interesting to look at these countries' deficits. Figure 35 shows the 2011 numbers and the 2012 estimates. Only Switzerland saw a surplus in 2011 (albeit very small) and only Finland is expected to see one in 2012. So we are seeing weak overall growth in spite of still sizeable deficits across the DW combined with the unparalleled global monetary stimulus. One can only fear how bad things would be growth wise if there was an immediate need to balance budgets, and no ability to print money. A global depression would be a near certainty.

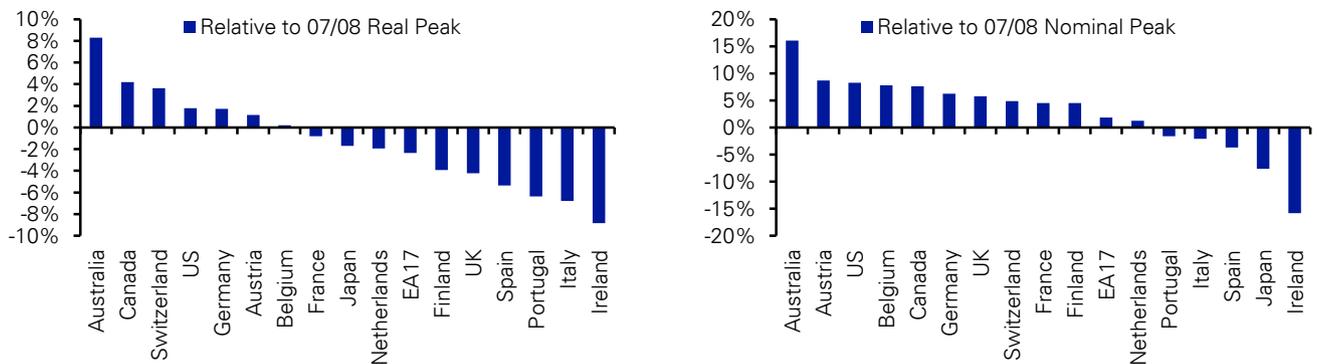
Figure 35: Developed Economies Fiscal Deficits



Source: Deutsche Bank

If we look at things more holistically and look at overall growth since the peak in 2007/08, Figure 36 shows this in Real and Nominal terms relative to each country's activity high.

Figure 36: Real (left) and Nominal (right) GDP Level Relative to 2007/2008 Peak



Source: Deutsche Bank, Bloomberg Finance LLP, Haver

Over half the countries in our DM sample have yet to pass their real GDP peak level seen prior to the GFC with only three (Australia, Canada and Switzerland) more than 2% higher. The US is only running 1.8% above peak activity. Positive inflation has meant that nominal GDP is higher for most of these countries but only seven countries (Australia, Austria, US, Belgium, Canada, Germany and UK) are at levels 5% or more above their peak with Australia the only country to be more than 10% above their 2007/2008 peak.

Overall, we think there's enough compelling evidence here to support our view that there are more specific pressures to the immediate post-GFC cycles than to their predecessors. Anecdotally we also know that most of the countries that have seen at least one quarter of growth reversal have been embarking on austerity measures to varying degrees and are all constrained by the zero rate bound with many also having no domestic control of their monetary policy. A lethal cocktail and one that has helped contribute towards shorter business cycles and weaker growth. A combination we expect to continue throughout this decade.

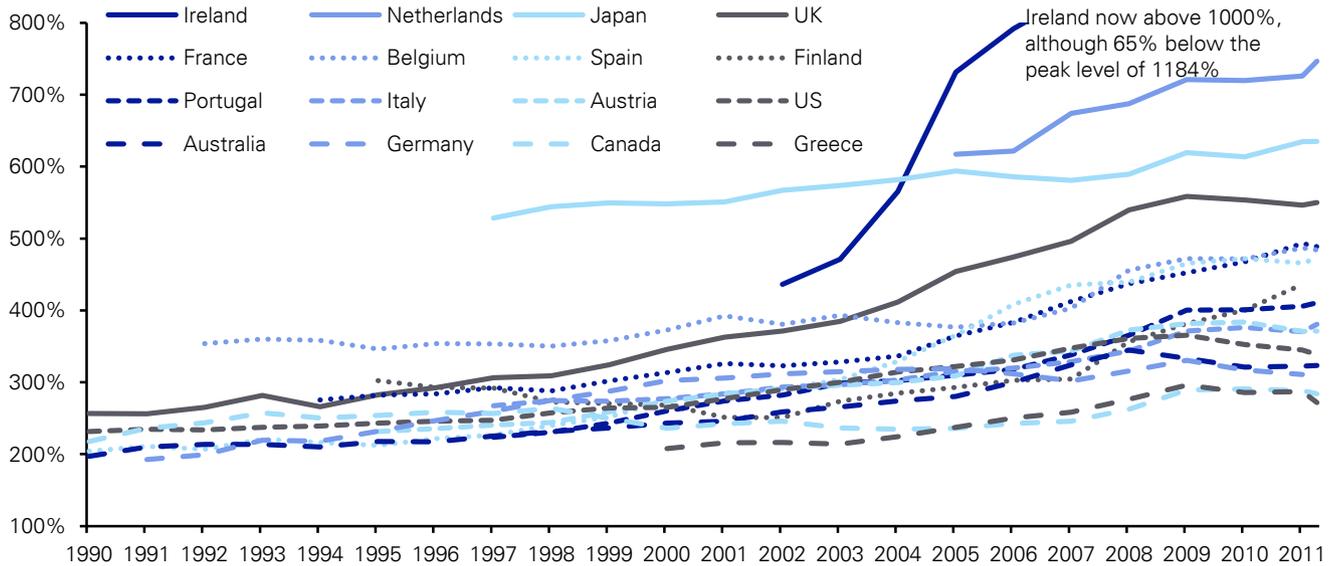
In the next chapter we show how 5 years on from the GFC we have gone nowhere in deleveraging in the DW. The US is arguably ahead of its peers but is still shackled by the same problems as everyone else. We'll end by looking at how the US is seeing one of its weakest recoveries on record and what it tells us about the US and the shorter cycle theory.

5 years on from the GFC - No growth, No deleveraging

One of the buzz words of the post GFC period has been deleveraging. However 5 years on and we've basically seen minimal to no growth and no deleveraging in the DW.

Figure 37 shows the combined Debt to GDP of the EU-12 (excluding Luxembourg), the US, UK, Japan and Australia. This debt includes Governments, Financials, Corporates and Households. Ireland's small economy and large financial system (domestic and foreign), ensures an outsized reading which we cut off in the chart.

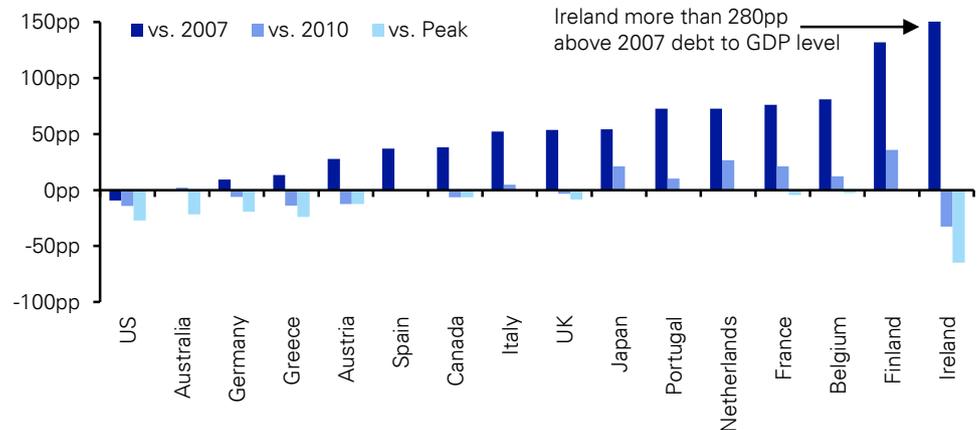
Figure 37: Total (Government+Financial+Corporate+Household) Debt to GDP



Source: Deutsche Bank, Haver

Figure 38 then shows; 1) how this ratio has changed from the end of 2007 to the end of 2011; 2) what the trend was in the 1-year to the end of 2011 to see momentum; and 3) where the ratio is from the peak point. The data is represented in percentage point moves.

Figure 38: Current Debt/GDP Level vs. 2007, the last year and Max (Percentage Points)



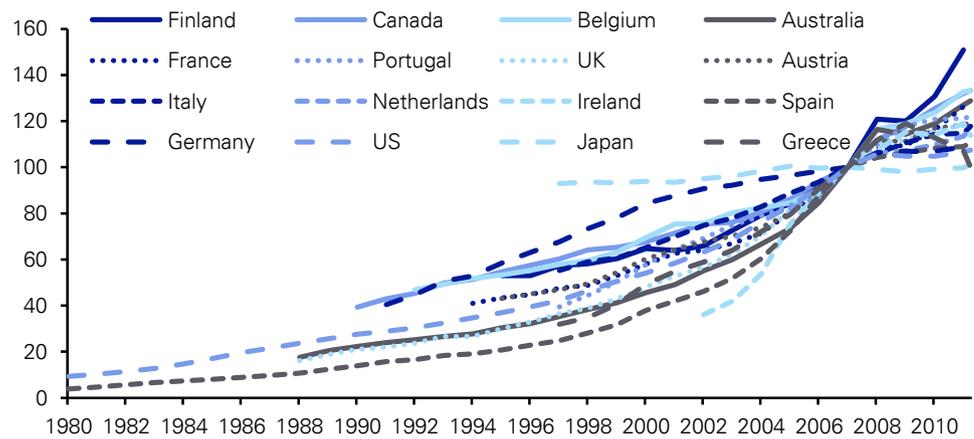
Source: Deutsche Bank, Haver

As can be seen, only the US and Australia have seen their overall economy Debt to GDP fall since the end of 2007 and for both these the fall is negligible. The US has gone from around 348% to 345% on this measure. From the peak the US has fallen from the 366% seen in 2009 and the 353% seen in 2010 but few other countries are seeing their debt/gdp ratio move in the right direction. Many are currently at their peak overall economy wide leverage number and as already discussed when looked at from the start of the crisis all but the US and Australia have seen this ratio rise. Interestingly as we'll see below Australia and the US have still seen debt rise but Nominal GDP has risen by a higher amount, thus helping them see leverage ratios decline slightly. It shows how important growth and inflation are if you want to delever.

Deleveraging problems from both the debt and growth side

The deleveraging problem comes from both sides. As we saw in Figure 36 in the previous section, growth has struggled to eclipse its peak levels across a number of countries with only inflation allowing many to surpass their peak activity levels. In terms of debt, Figure 39 shows the growth of an index of economy wide liabilities from our DW sample rebased at 100 at the end of 2007. We have gone back as far as the full data starts for each country.

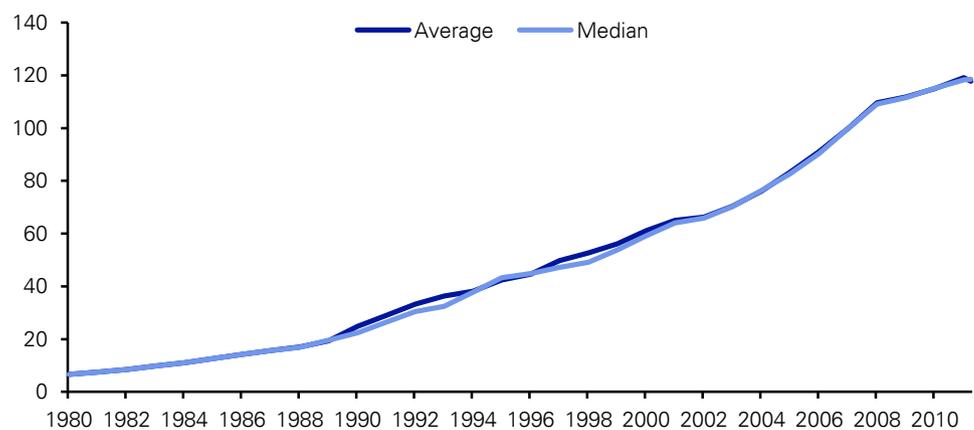
Figure 39: Total Economy Debt Level Rebased to 100 in 2007



Source: Deutsche Bank, Haver

Figure 40 then shows a simple un-weighted average and median of this basket and shows that debt is still increasing in the developed world.

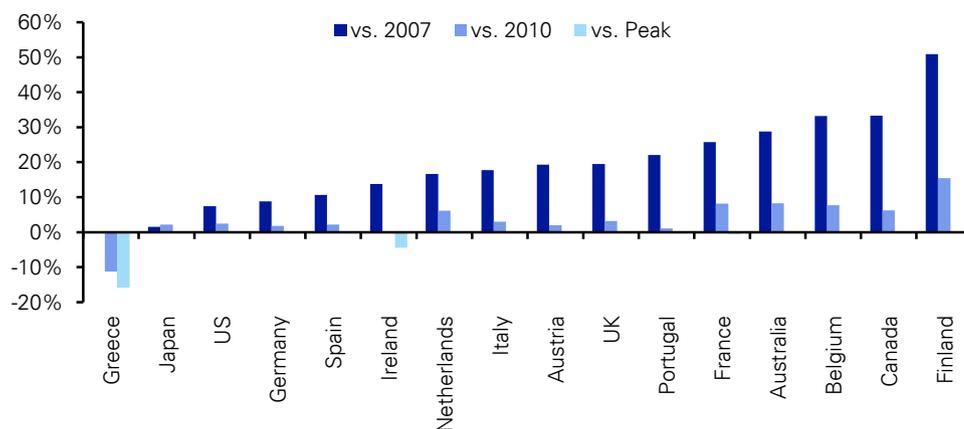
Figure 40: Average and Median Total Economy Debt Level Rebased to 100 in 2007



Source: Deutsche Bank, Haver

Figure 41 then looks at the numbers for each country again from the end of 2007 to Q1 2012, since the end of 2010 and also from the peak. Debt hasn't started to turn down anywhere in the Developed World since the end of 2007. As already discussed, those that have seen their debt/GDP ratios stabilise (e.g. US and Australia) have required some nominal GDP growth.

Figure 41: Change in Total Economy Debt Level since 2007, 2010 and the Peak



Source: Deutsche Bank, GFD

So debt is still climbing in most countries. Clearly the splits are changing with more emphasis on public over private debt but there's little evidence that the DM deleveraging trend has started yet.

Given such an unparalleled run up in debt over the last few years and decades, will we be able to de-lever naturally and without defaults? If we can find a higher pace of growth and inflation than debt accumulation then we can. But can every country succeed? The reality is that we would make a strong argument suggesting that the high debt burdens are actually holding growth back thus ensuring a problem of circularity. As a minimum it likely ensures that these economies remain fragile and vulnerable to shocks for many years to come.

So in aggregate the DM post-GFC world can be characterised by a "No Growth, No Deleveraging" mantra and one where we are still in a similar situation to where we were five years ago.

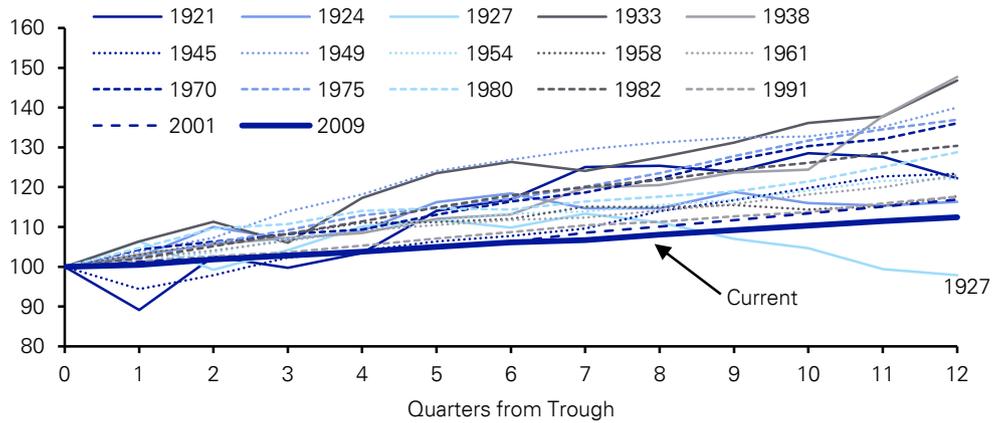
Is the US an exception?

In this section it's clear that the US does come out more favourably than most of its DM peers, especially those in Europe. Nominal and real growth are both slightly higher than their pre crisis peaks and debt/GDP whilst still high, is off its peak. Deficits remain higher than normal in many DM countries though and this may have helped contribute to the higher growth since the GFC. Nevertheless, the US looks like a relative winner. However how does its economic performance, and that of US sensitive asset classes, look post GFC relative to its past and what does it tell us about our shorter cycle theory? We start by looking at what has been fairly anaemic economic growth in this cycle versus its historic peers.

Anaemic growth relative to history

The most damning statistic concerning this US expansion is that of all the 17 cycles we have quarterly nominal data for back to 1921, this is the weakest recovery seen at this stage apart from the 1927 recovery that was unfortunate to run into the 1929 stock market crash and eventual depression.

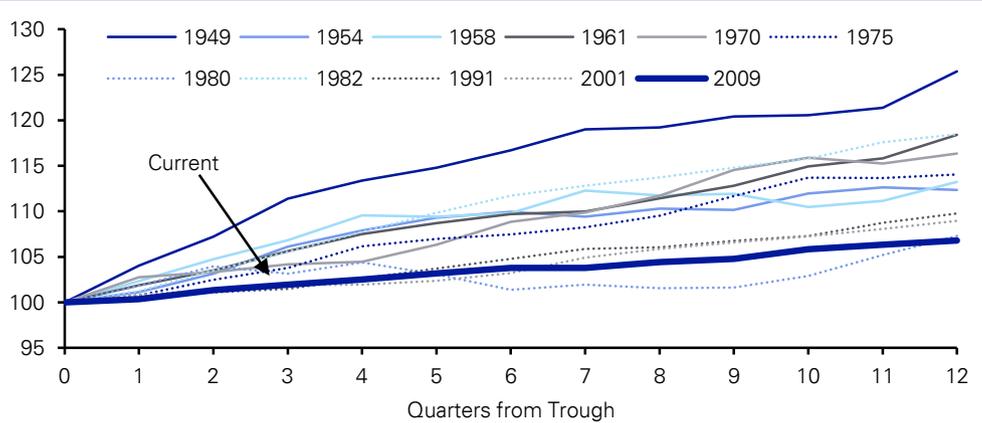
Figure 42: Current US Nominal GDP Growth vs. Other Recoveries since 1921



Source: Deutsche Bank, GFD, NBER

We think nominal growth is currently more crucial than it is in most cycles as in order to erode the substantial government and financial debt burdens in the west we need to see robust nominal GDP growth. The pattern though is similar for real GDP. Figure 43 shows that even after adjusting for inflation, growth at this stage of the cycle has also been some way below the long-term average (this time going back to 1949) and this is now the weakest recovery out of these last eleven.

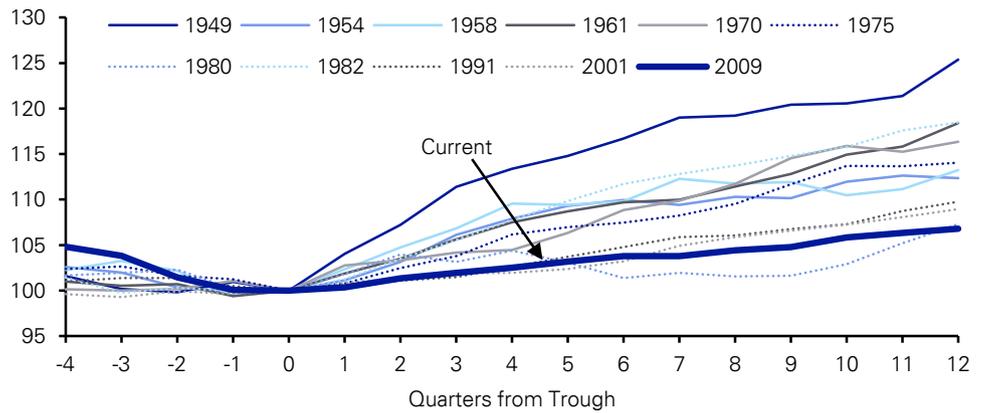
Figure 43: Current Recovery US Real GDP Growth vs. Other Recoveries since 1949



Source: Deutsche Bank, GFD, NBER

The fact that this recovery is much weaker than normal is especially concerning given that one of the laws of economics is that the deeper the recession, the sharper the rebound normally is. Figure 44 shows that this has not been the case so far in this recovery. The GFC recession was the worst slump in the last eleven we have quarterly data for and yet it's seen the weakest recovery. Again using the running theme from this document we are entering unknown territory. It seems different forces are operating here relative to the cycles seen in our lifetimes and indeed going back much further through history. Although we only have quarterly data post 1949, eyeballing the annual data confirms that this almost record weak recovery trend would extend back to when our data starts in the nineteenth century.

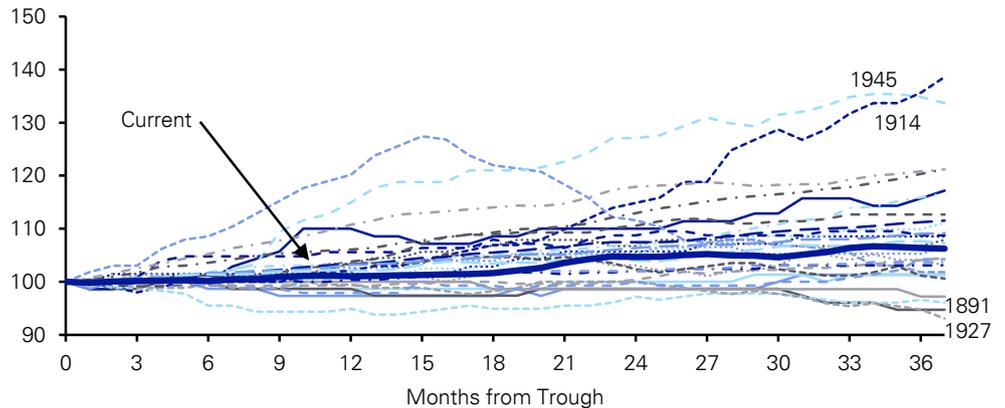
Figure 44: Real US GDP Rebound since 1949



Source: Deutsche Bank, GFD, NBER

If we look at inflation, the story stands out less with the cumulative increase in CPI at this stage slightly below average. However given the potential for a huge debt driven deflationary cycle post GFC, it's perhaps very impressive that we've had this amount of inflation and probably shows that in a world of fiat currencies even the most deflationary environment can still be countered by stimulus if the will is there. We will need this will to be ever present over the coming years in our opinion.

Figure 45: Current Recovery US CPI vs. Historic Recoveries since 1879

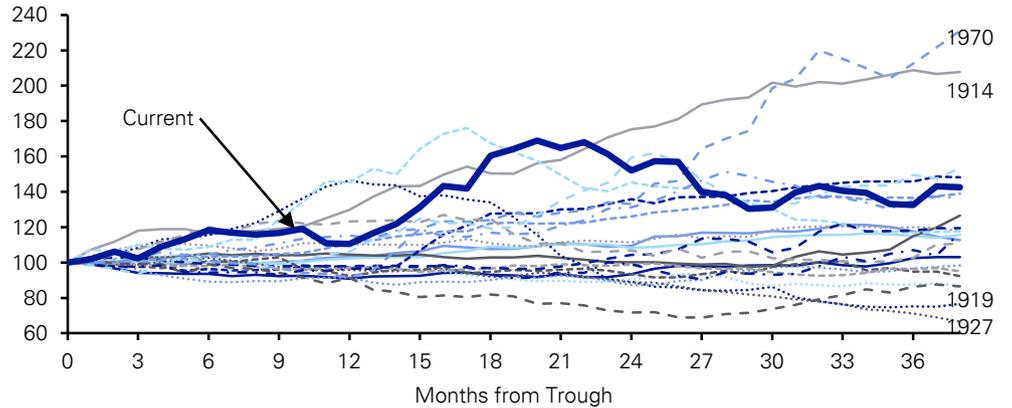


Source: Deutsche Bank, GFD, NBER

Strong performance from assets this cycle versus history

This recovery has perhaps felt better than the US economic data has so far suggested due to the performance of Dollar related assets. The evidence is compelling that liquidity has helped assets more than it has helped the economy. We first look at commodities using the Economist All Commodities index back to 1900.

Figure 46: Current Recovery Commodity Performance vs. Historic Recoveries since 1900



Source: Deutsche Bank, GFD

In this cycle there is some evidence to suggest that the performance was very strong during QE1 and QE2 but less so in the non-expansive balance sheet period of Operation Twist. As we can see in Figure 47, focusing on the CRB index, commodities certainly seemed to benefit from the liquidity boost provided by both QE1 and QE2. During QE1 commodities rallied around 50% and around 40% during QE2. It's interesting to note that towards the end of both QE1 and QE2 commodities started to weaken quite aggressively perhaps indicating their correlation to actual injections of liquidity.

Indeed the period since Operation Twist was first mooted has seen the CRB index fall by around 10%. Perhaps this is not entirely surprising. If our hypothesis about liquidity being the main reason for the rally during QE1 and QE2 then the fact that Operation Twist didn't actually expand the balance sheet could be a key reason for the lack of positive momentum. Interestingly the CRB index was, as recently as late June 2012 back to levels seen half way through QE1 which might indicate that much of the early gains were markets trading the liquidity increase rather than due to any structural demand improvements. The shaded bars for each form of monetary stimulus highlight what we have determined to be the three phases of QE. 1) The period where we think that QE/stimulus started to be expected until it was actually announced, 2) the period from the announcement date to the actual start date, and 3) the period from the start date to the end date.

Figure 47: Commodities through the Different Phases of QE

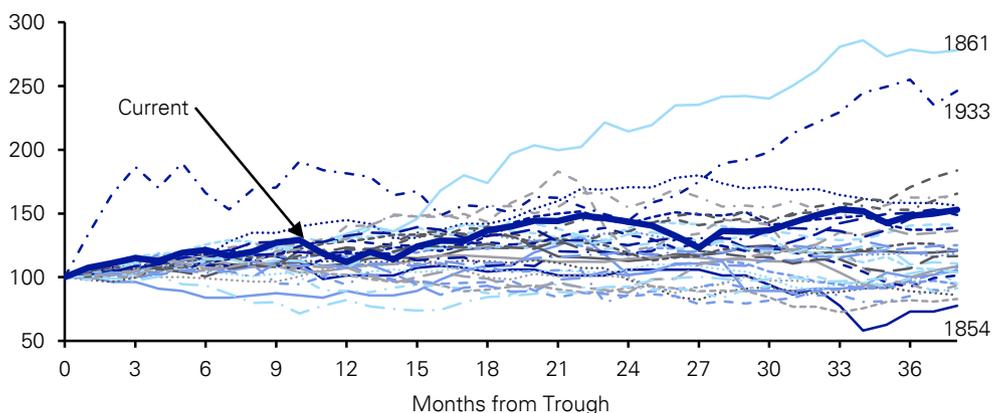


Source: Deutsche Bank, Bloomberg Finance LLP

Moving on to equities, Figure 48 shows that the S&P 500 performance in this cycle has been strong relative to history. Out of the 34 recoveries since 1854, this is the 7th strongest post recession increase in the market at this stage. Again this is perhaps because of the huge amount of liquidity in the system. However it's again worth pointing out that the Fed balance sheet is now at similar levels to when QE2 ended on June 30th 2011. Interestingly the S&P 500 was broadly flat up to the beginning of August 2012 relative to its QE2 peak level seen a couple of months before the second round of purchases ended. So maybe some momentum has been removed from the market since the Fed last expanded its balance sheet.

This is why the debate over QE3 is so important.

Figure 48: Current Recovery S&P 500 Performance vs. Historic Recoveries since 1854

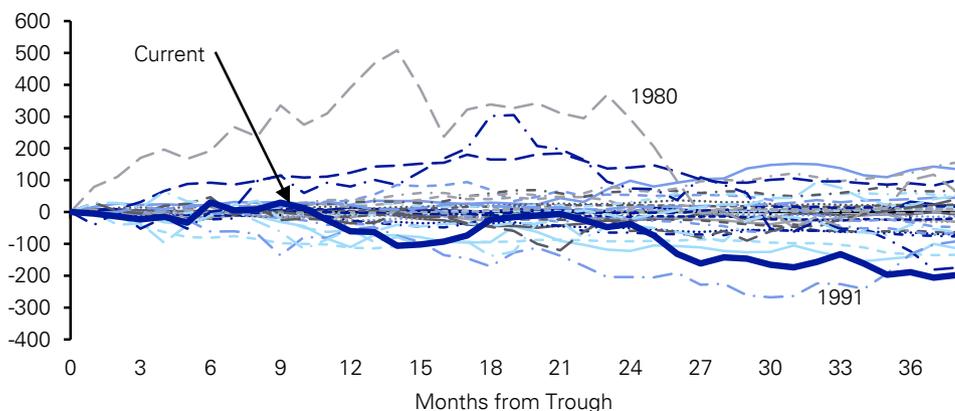


Source: Deutsche Bank, GFD, Bloomberg Finance LLP

Treasuries – Best recovery performance in history

Figure 49 shows that of all the 33 recoveries since 1854, this is now the best performance from Treasuries at this stage thus reinforcing the unusual and arguably uniqueness of this cycle.

Figure 49: Current Recovery 10 Year Treasury Yield Change (bp) vs. Historic Recoveries since 1854



Source: Deutsche Bank, GFD, Bloomberg Finance LLP

It's difficult to work out whether this extreme rally is due to the weak nature of this recovery or whether it's due to QE and aggressive bond buying. It might be for both reasons but as Figure 50 shows, yields have seen their biggest lurches lower in the periods between QE. The direct periods of QE1 and QE2 actually saw yields rise.

Figure 50: 10yr Treasury Yields through the Different Phases of QE

Source: Deutsche Bank, Bloomberg Finance LLP

So perhaps QE has prevented yields falling further in the US as it has for a time given the market enough confidence in the recovery/risk assets to prevent them continuing to pile into Treasuries.

So how does the US fit into our shorter cycle theory?

Looking at the evidence in these last two chapters, the shorter cycle theory has been vindicated in large parts of the developed world. We also think that this trend will continue for several years given the lack of policy flexibility that abounds. As for the US, growth is clearly being impacted by all the factors that contribute to our shorter cycle theory. As we point out above, this is pretty much the weakest recovery on record. However the recovery is better than most of its developed world peer's and demonstrates that if you can keep monetary and fiscal policy exceptionally loose then you can have some control over your destiny. The fact that the US hasn't yet been forced into austerity is a huge factor in the still positive growth seen so far. Some have argued to us that the lower, subdued growth might allow for this cycle to be stretched out longer than we expect as the excesses have not been built up that might ordinarily cause a recession.

The reality is though that policy choice and flexibility remains the key. We've now reached average length in this US cycle and the next 12 months will likely be crucial. Policy will be seriously tested by the fiscal cliff debate, renewed budget ceiling discussions, and the upcoming election. If the new administration can keep high deficit spending for longer, then the US could escape recession and maybe hope that a growth miracle finally comes along to start to address the same huge structural debt problems that Europe is now suffering from.

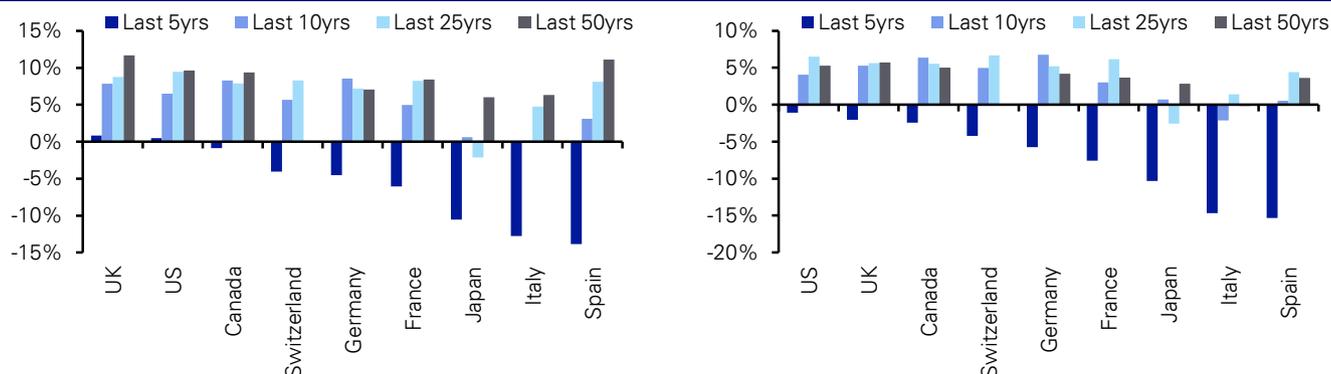
It seems unlikely that the US can escape from our shorter cycle theory indefinitely, but to date the ability to still make extreme policy choices when their international peers have been compromised, has allowed this US cycle to reach average length. Our base case remains for shorter cycles and lower than trend growth across the DW for many, many years to come.

Are European equities now cheap?

In 2012 several European equity markets have hit multi-year lows or have traded at levels first seen well over a decade ago. Even the core European equity markets that are higher in 2012 have generally lagged the US market since the end of the GFC. It's no surprise that the markets that have seen the most stress have tended to be those at the heart of the European Sovereign crisis.

Figure 51 looks at the nominal (left) and real (right) annualised performance of a small selection of major developed world equity markets over the last 5, 10, 25 and 50 years.

Figure 51: G7 plus Spain and Switzerland Nominal (left) and Real (right) Annualised Equity Returns



Source: Deutsche Bank, GFD

Over the last 5 years only the US and UK equity markets from this sample have seen small positive nominal annualised returns. Spanish and Italian markets have seen 10-15% p.a. falls which compounded up over 5 years leave equities at over half their 2007 peaks. German and French markets are also lower but by around 5% p.a. In real terms all the above falls are more savage with the US and UK dipping into negative territory and Italy and Spain seeing declines of around 15% p.a. The 10 year numbers are generally healthier but with the exception of Germany, all these markets are well below their historic averages.

Given the poor to very poor performance of European equities in recent years how can we assess whether European equities are now cheap?

European equities relatively cheap to history and the US

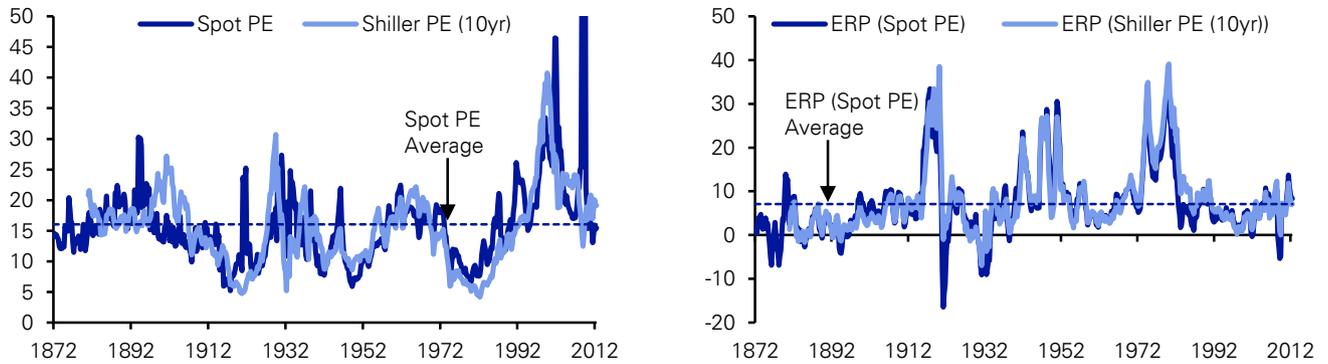
In this section we look at European markets relative to their own historic valuations, and also relative to valuations seen through history in the two markets where we have the longest time series of PE ratios – namely the US and the UK. For most European markets we can only obtain PE ratios back to the early 1970s but for the US we can delve back into the nineteenth century and for the UK back to 1927. For Spain and Italy we don't have PE ratios back beyond the late 1980s but we try to adjust for this in an attempt to assess longer-term value.

The US as our control

Figure 52 shows the PE ratio for the S&P 500 back to 1872 (left) and the equity risk premium (ERP) (right) which is calculated by subtracting the 10 year real Government yield from the inverse of the PE ratio (e.g. 1/PE).

As for all the charts that follow we show spot PEs as well as what we always call “Shiller” PEs which cyclically adjust earnings over the last 10 years to smooth out any cyclical extremes. This is important as earnings are very volatile.

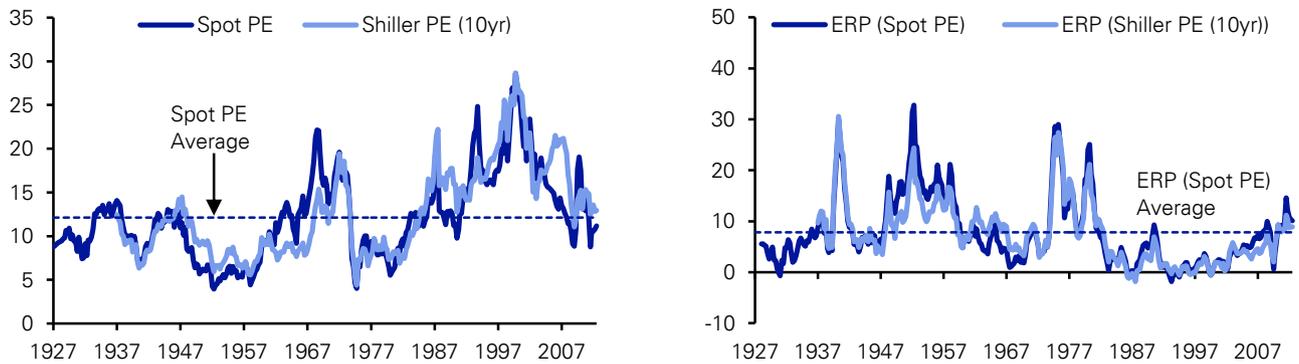
Figure 52: S&P 500 PE Ratio (left) and Equity Risk Premium (right)



Source: Deutsche Bank, Bloomberg Finance LLP, GFD, S&P

Figure 53 then looks at the same two charts for the UK.

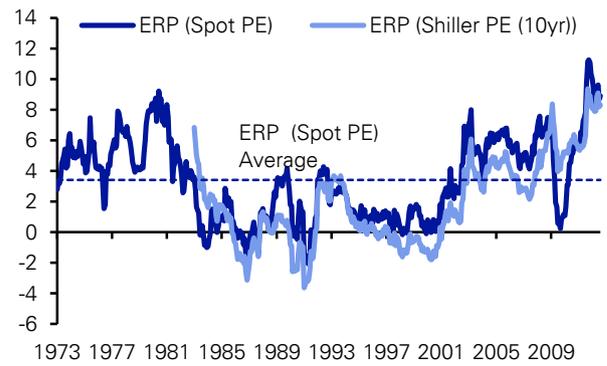
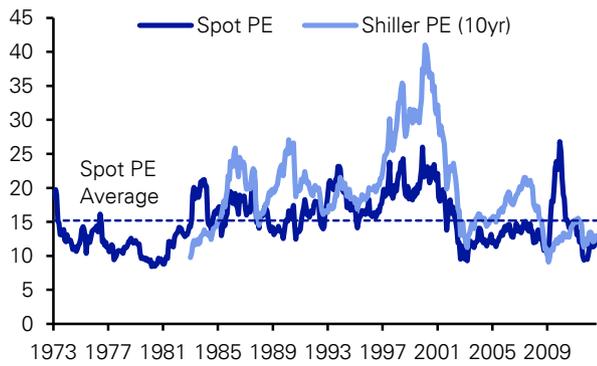
Figure 53: FTSE All Share PE Ratio (left) and Equity Risk Premium (right)



Source: Deutsche Bank, GFD, Bloomberg Finance LLP

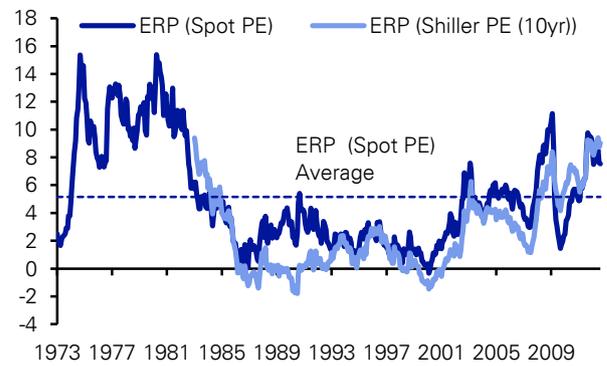
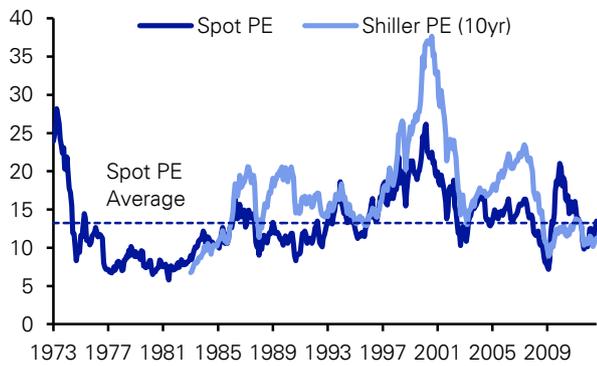
Figure 54 to Figure 57 then show the same graphs for the other countries in our sample. After we show all the graphs we aggregate the results in a table for comparison purposes. This is compiled over the entire data period for each country and also from a uniform starting point from 1987 - the point where we have all the data.

Figure 54: German Equity PE Ratio (left) and Equity Risk Premium (right)



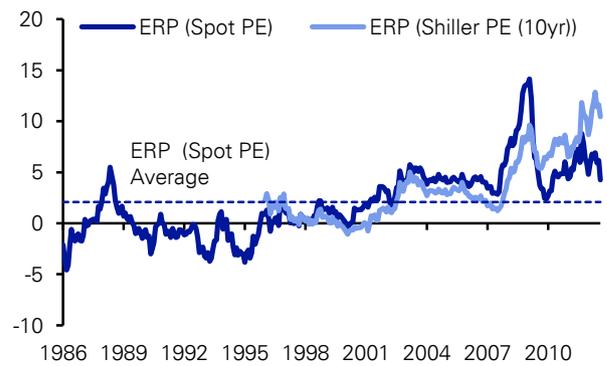
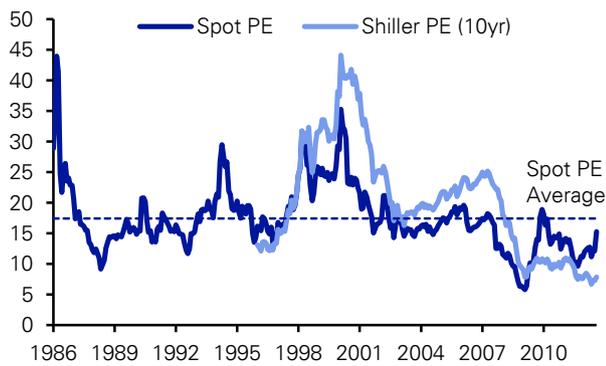
Source: Deutsche Bank, Datastream, GFD

Figure 55: French Equity PE Ratio (left) and Equity Risk Premium (right)



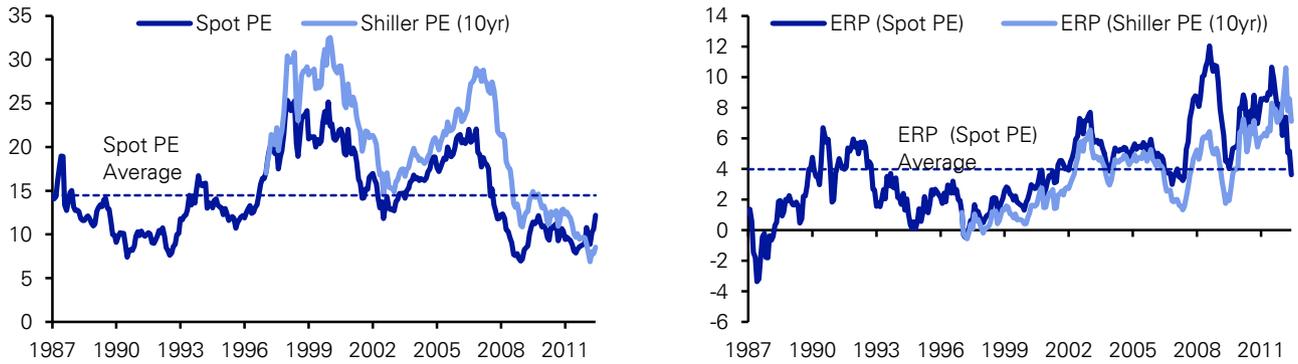
Source: Deutsche Bank, Datastream, GFD

Figure 56: Italian Equity PE Ratio (left) and Equity Risk Premium (right)



Source: Deutsche Bank, Datastream, GFD

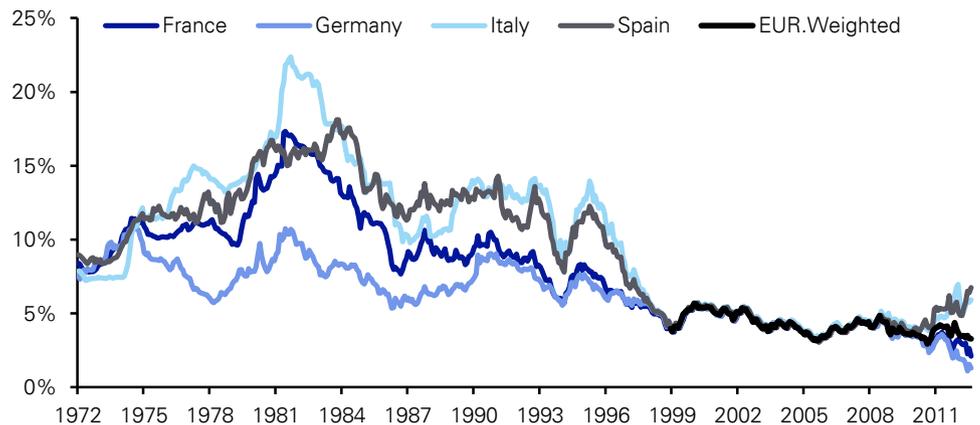
Figure 57: Spanish Equity PE Ratio (left) and Equity Risk Premium (right)



Source: Deutsche Bank, Datastream, GFD

The analysis is complicated by wide differentials between bond yields around Europe because of the European Sovereign crisis. For each European country we therefore duplicate the results by calculating an EU-12 GDP weighted bond yield for comparison across all markets. Figure 58 shows this line along with those in our small sample demonstrating the convergence, stability and then widening yield differentials seen over the last four decades. So does using a GDP weighted bond yield series make a difference in valuation terms for the core and for the periphery?

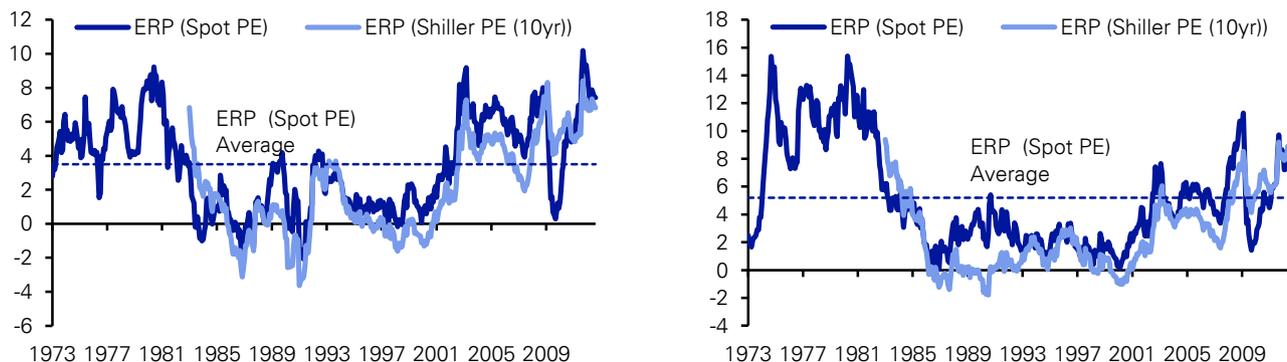
Figure 58: Select European 10yr Government Bond Yields and Eurozone GDP Weighted Average



Source: Deutsche Bank, Bloomberg Finance LLP, GFD

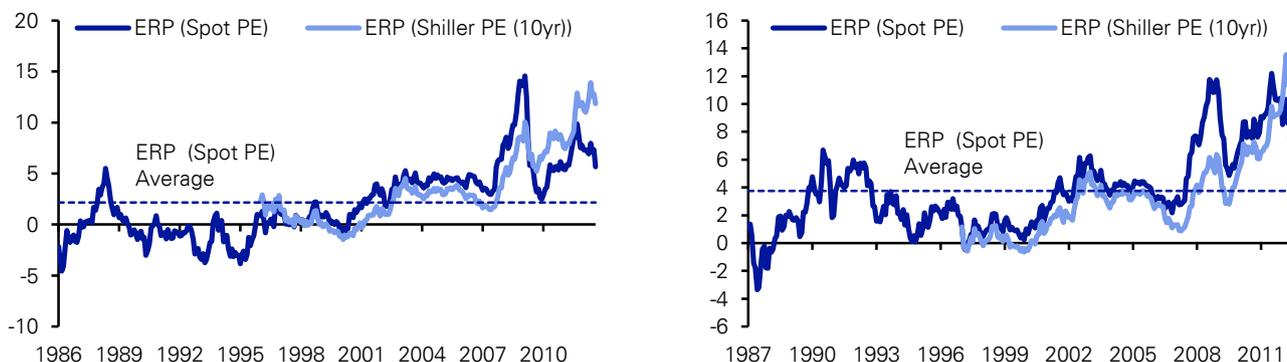
Figure 59 and Figure 60 show the results with our new weighted bond yield series. It does make some difference to the results but the overall conclusion is similar. The exact differences are better quantified in the table (Figure 61) overleaf.

Figure 59: German (left) and French (right) Equity Risk Premium vs. Weighted European Government Yield



Source: Deutsche Bank, Datastream, GFD

Figure 60: Italian (left) and Spanish (right) Equity Risk Premium vs. Weighted European Government Yield



Source: Deutsche Bank, Datastream, GFD

Figure 61 then aggregates all these results with each country’s data starting from the first available point (which we detail in the table). We show the current PE, the average, median, low and high. We then repeated this for the rolling 5yr and 10yr ‘Shiller’ PE ratio which as previously discussed looks at average earnings over these periods rather than spot. We do the same calculations for the ERP and then rank the current points for each indicator relative to each country’s own history. A reading closer to 0% indicates that a market is cheap relative to its own history and a reading closer to 100% shows that it’s expensive. To make the table easier to read we’ve added a colour coded heat map. For those observations in the top 10% of ‘cheapness’ we’ve shaded them darker blue and for those between 10-25% we’ve used a slightly lighter blue. At the other end of the scale those shaded darker grey are in the bottom 10% on a valuation basis and those in the bottom 25% are shaded a slightly lighter grey.

Figure 61: Current PE Ratios and ERP Relative to Average, Median, High and Low

		France	France (EUR Yield)	Germany	Germany (EUR Yield)	Italy	Italy (EUR Yield)	Spain	Spain (EUR Yield)	UK	US
Spot PE	Current	13.49		12.03		15.26		12.18		11.18	15.45
	Current Rank	56.6%		21.8%		33.2%		37.7%		47.0%	53.1%
	Average	13.25		15.20		17.41		14.48		12.12	16.01
	Median	12.63		14.59		16.44		13.38		11.64	14.96
	Low	5.79		8.43		5.79		6.94		3.96	5.21
	High	28.20		26.82		43.95		25.34		28.64	122.41
	Start Date	Jan 73		Jan 73		Jan 86		Mar 87		Mar 27	Mar 1871
Shiller PE (5yr)	Current	11.16		13.04		7.84		7.05		11.80	21.54
	Current Rank	28.4%		28.9%		5.0%		1.6%		52.4%	86.8%
	Average	14.75		16.95		17.93		16.84		12.42	15.32
	Median	13.09		16.14		16.42		15.58		11.57	15.08
	Low	5.48		8.10		6.54		5.62		4.34	4.26
	High	34.34		34.50		41.42		33.16		26.56	35.06
	Start Date	Jan 78		Jan 78		Jan 91		Mar 92		Mar 32	Mar 1876
Shiller PE (10yr)	Current	11.25		12.98		7.86		8.53		12.94	19.13
	Current Rank	13.5%		12.3%		4.0%		2.1%		58.9%	76.6%
	Average	17.28		19.56		20.25		20.19		12.64	15.32
	Median	16.54		18.82		19.67		20.66		11.71	15.27
	Low	6.76		9.09		6.72		6.90		4.40	4.16
	High	37.64		41.00		44.12		32.53		28.63	40.74
	Start Date	Jan 83		Jan 83		Jan 96		Mar 97		Mar 37	Mar 1881
ERP (Spot PE)	Current	7.55	6.53	8.90	7.43	4.27	5.67	3.62	7.33	10.11	8.30
	Current Rank	26.2%	28.3%	2.2%	8.3%	25.1%	13.2%	52.5%	14.8%	25.2%	31.0%
	Average	5.16	5.20	3.41	3.49	2.08	2.14	3.98	3.74	7.84	7.10
	Median	4.12	4.15	3.45	3.48	1.51	1.47	3.79	3.24	6.02	5.60
	Low	-0.33	0.08	-2.08	-2.08	-4.57	-4.57	-3.37	-3.37	-1.80	-16.52
	High	15.38	15.38	11.27	10.18	14.15	14.58	12.04	12.21	32.76	33.84
	Start Date	Jan 73	Jan 73	Jan 73	Jan 73	Jan 86	Jan 86	Mar 87	Mar 87	Mar 27	Mar 1871
ERP (Shiller PE (5yr))	Current	9.10	8.08	8.25	6.78	10.47	11.87	9.58	13.30	9.63	6.47
	Current Rank	12.1%	19.6%	4.6%	15.5%	4.3%	4.7%	4.5%	1.7%	30.8%	40.9%
	Average	4.21	4.25	2.97	3.06	3.06	3.14	4.20	3.91	7.93	7.61
	Median	3.22	3.25	3.08	3.13	2.07	2.10	4.27	3.70	6.59	5.60
	Low	-1.73	-1.73	-3.64	-3.64	-3.13	-3.13	-0.94	-0.94	-1.92	-6.98
	High	14.56	14.56	9.73	9.67	13.26	14.34	13.92	16.85	30.29	41.28
	Start Date	Jan 78	Jan 78	Jan 78	Jan 78	Jan 91	Jan 91	Mar 92	Mar 92	Mar 32	Mar 1876
ERP (Shiller PE (10yr))	Current	9.02	8.00	8.29	6.82	10.45	11.84	7.12	10.83	8.89	7.05
	Current Rank	2.0%	3.7%	2.0%	4.6%	4.1%	3.1%	6.5%	2.2%	36.8%	41.7%
	Average	2.51	2.55	1.92	2.03	3.43	3.54	3.65	3.26	7.77	8.06
	Median	1.71	1.89	1.39	1.58	2.76	2.86	3.99	3.04	6.64	5.99
	Low	-1.78	-1.78	-3.63	-3.63	-1.08	-1.48	-0.57	-0.65	-1.81	-7.02
	High	9.40	9.40	9.37	8.41	12.83	13.92	10.61	13.54	30.58	39.09
	Start Date	Jan 83	Jan 83	Jan 83	Jan 83	Jan 96	Jan 96	Mar 97	Mar 97	Mar 37	Mar 1881

Note: Data to COB 31 Aug 2012.

Source: Deutsche Bank, Bloomberg Finance LLP, Datastream, GFD

Results analysis

Looking first at the US on a spot PE basis, the US is pretty average in valuation terms relative to its own history. However if we use the average of the last 5 or 10 years of earnings, the US appears expensive. This is because spot earnings (and with it profit margins) are high relative to the past.

On an ERP basis the US is on the cheap side but not in the upper quartile regardless of which earnings adjustment we make. This is confirmed by eyeballing Figure 52 earlier in this section.

If we look at Europe the standout feature is that these markets generally look very cheap on an ERP basis. This is particularly true when using an average of earnings over the last 5 or 10 years. However Spain in particular does not look cheap when looking at ERP on a spot earnings basis. This is because Spanish yields are currently relatively high in addition to the strong rally in equities we've seen during August. If we look at the ERP on an EU-12 GDP weighted bond yield basis Spain goes back to looking cheap on a spot basis (very cheap for the other measures). The other issue with Spain is that earnings are significantly lower over the last 5 years which therefore favours the rolling 5 and 10 year measures when looking at valuations (more on this below). Italy is cheap on all ERP measures except when using spot earnings and unadjusted yields, although even then the reading is just 25.1%. Germany is actually the cheapest market likely due to having the best earnings performance of its peers and the lowest bond yields. Germany's valuations only tail off a small amount when using our Europe wide bond yield series.

Overall at this stage it's fair to say that on a PE basis, whichever earnings series you use, European equities look cheap to very cheap. In terms of ERP the same is true but one can argue that on this measure they are broadly even cheaper.

Results from 1987 -

Figure 62 repeats the same exercise but using data only from 1987 onwards - the point where all data becomes available.

On this basis the US looks reasonably cheap as the bubble years at the turn of the century push up the average PE and depress the average ERP.

This is also the case for Europe (France/Germany) and unsurprisingly all markets (except France on a spot PE basis) look cheap relative to their valuations of the last 25-30 years, especially on an ERP basis. The data for Spain is the same as in the previous analysis and the Italian data is very similar due to the same/similar start dates used.

For this data from 1987, comparison across markets might be the best valuation matrix rather than relative to its own history as the last 25 years have seen valuations on a PE basis be above their long-term average.

Figure 62: Current PE Ratios and ERP Relative to Average, Median, High and Low since 1987 for all Countries

		France	France (EUR Yield)	Germany	Germany (EUR Yield)	Italy	Italy (EUR Yield)	Spain	Spain (EUR Yield)	UK	US
Spot PE	Current	13.49		12.03		15.26		12.18		11.18	15.45
	Current Rank	42.2%		13.1%		34.7%		37.7%		9.8%	15.6%
	Average	14.49		16.10		16.98		14.48		16.39	24.34
	Median	14.09		15.77		16.15		13.38		16.00	19.63
	Low	7.16		9.27		5.79		6.94		8.77	11.69
	High	26.14		26.82		35.28		25.34		28.64	122.41
Shiller PE (5yr)	Current	11.16		13.04		7.84		7.05		11.80	21.54
	Current Rank	15.9%		23.2%		5.3%		1.6%		10.9%	45.1%
	Average	16.30		17.90		17.93		16.84		17.68	22.75
	Median	14.32		16.49		16.82		15.58		17.92	22.85
	Low	7.83		8.10		6.54		5.62		9.11	11.20
	High	34.34		34.50		41.42		33.16		26.56	35.06
Shiller PE (10yr)	Current	11.25		12.98		7.86		8.53		12.94	19.13
	Current Rank	9.7%		17.2%		4.3%		2.1%		8.0%	24.1%
	Average	18.13		19.99		20.25		20.19		18.96	24.39
	Median	18.24		17.16		20.22		20.66		19.07	22.98
	Low	8.91		9.09		6.72		6.90		11.07	12.44
	High	37.64		41.00		44.12		32.53		28.63	40.74
ERP (Spot PE)	Current	7.55	6.53	8.90	7.43	4.27	5.67	3.62	7.33	10.11	8.30
	Current Rank	8.6%	10.2%	3.0%	6.9%	26.3%	13.8%	52.5%	14.8%	4.0%	16.7%
	Average	3.58	3.64	3.14	3.26	2.26	2.33	3.98	3.74	3.81	5.29
	Median	2.99	3.12	2.56	2.66	1.72	1.71	3.79	3.24	3.28	5.06
	Low	-0.33	0.13	-2.08	-2.08	-3.84	-3.84	-3.37	-3.37	-1.80	-5.38
	High	11.15	11.29	11.27	10.18	14.15	14.58	12.04	12.21	14.57	13.69
ERP (Shiller PE (5yr))	Current	9.10	8.08	8.25	6.78	10.47	11.87	9.58	13.30	9.63	6.47
	Current Rank	3.3%	7.8%	5.4%	12.3%	4.5%	4.9%	4.5%	1.7%	7.4%	17.1%
	Average	3.06	3.11	2.71	2.84	3.06	3.14	4.20	3.91	3.61	4.93
	Median	2.97	3.10	3.85	4.00	2.29	2.36	4.27	3.70	2.85	5.13
	Low	-1.27	-0.82	-1.51	-1.51	-3.13	-3.13	-0.94	-0.94	-0.84	0.28
	High	9.95	10.09	9.73	9.67	13.26	14.34	13.92	16.85	12.46	13.08
ERP (Shiller PE (10yr))	Current	9.02	8.00	8.29	6.82	10.45	11.84	7.12	10.83	8.89	7.05
	Current Rank	3.3%	6.0%	3.8%	8.2%	4.4%	3.3%	6.5%	2.2%	4.9%	19.4%
	Average	2.29	2.35	2.06	2.19	3.43	3.54	3.65	3.26	4.04	5.01
	Median	3.51	3.63	3.65	4.14	2.96	2.92	3.99	3.04	3.74	4.85
	Low	-1.46	-1.04	-1.82	-1.61	-1.08	-1.48	-0.57	-0.65	-0.53	0.03
	High	9.40	9.21	9.37	8.41	12.83	13.92	10.61	13.54	11.18	12.33

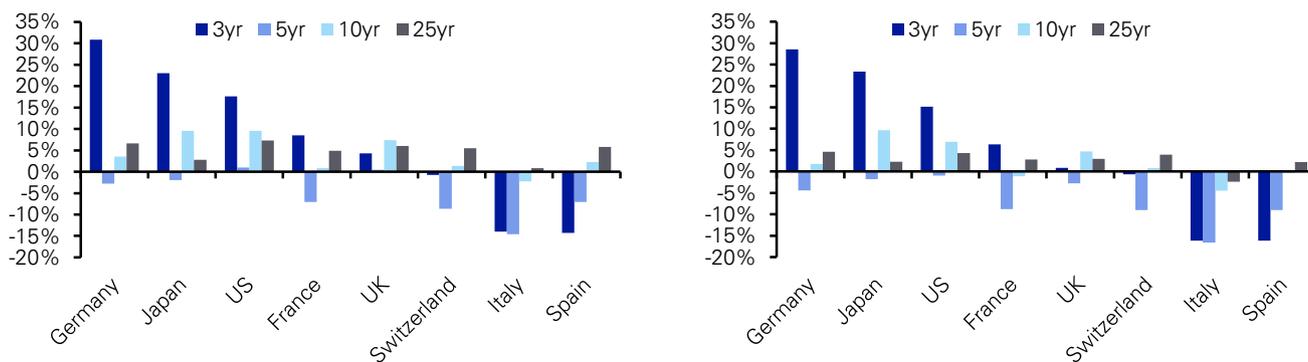
Note: Data to COB 31 Aug 2012.

Source: Deutsche Bank, Bloomberg Finance LLP, Datastream, GFD

What about earnings?

One of the problems about this exercise and the valuation techniques used is that it says little about the momentum or trend in earnings. Figure 63 shows the nominal (left) and real (right) earnings growth over the last 3,5,10, and 25 years.

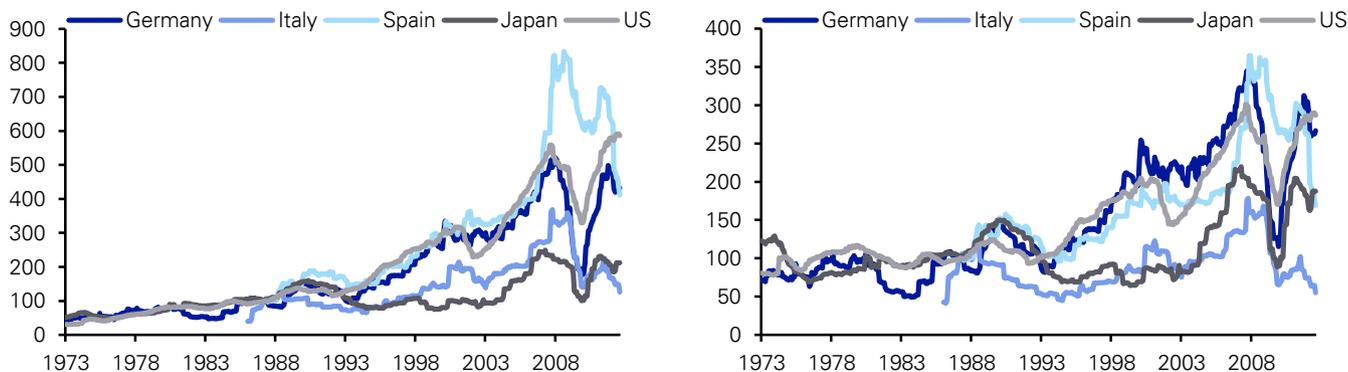
Figure 63: Nominal (left) and Real (right) Earnings Growth (Annualised)



Source: Deutsche Bank, Datastream, GFD

The stand out from these charts is the dramatic absolute and relative earnings under-performance from Spain and Italy. The sovereign crisis, the austerity, the lack of funding and the knock-on negative impact this has had on economic activity has undoubtedly been the culprit. The problem is how can we be sure this trend is over? Figure 64 looks at the evolving trend of Italian and Spanish earnings on a nominal (left) and real (right) basis. We use the US, Germany and Japan as our comparisons. All data is rebased at 100 in 1987 but the data is back filled for those with a longer history.

Figure 64: Nominal (left) and Real (right) Earnings Series Rebased to 100 in 1987.



Source: Deutsche Bank, Datastream, GFD

Based on the graph it's tough to accurately suggest what the trend should be for a country like Spain. It had one of the best earnings performances prior to the GFC and saw a dramatic run-up in the immediate years leading up to it. The subsequent collapse only brings earnings growth back to the same 25 year growth trend as Germany. Should Spain benefit from years of convergence and catch-up and still be ahead of Germany on this measure or should the spectacular bust that is still reverberating around its economy ensure that the risks are still to the downside and that much of the previous rapid earnings growth should be seen as artificial?

As for Italy, in earnings terms they have been permanent laggards with similar nominal earnings growth to Japan, but they easily move to the bottom of the pile when real adjusted. Indeed as we'll see in the international returns section of this report, the Italian stock market has been a woeful under-performer for many decades and has actually produced a negative real return over the last 50 years. It takes a brave analyst to suggest that this is about to reverse even if the valuations suggest the market is extremely cheap.

Japan a warning

Indeed Japan should be a warning here as the market has looked steadily but slowly cheaper almost every year for the last two decades without any long-lasting positive impact on performance. With the current austerity measures it takes a big leap of faith to speculate as to when and at what level earnings stabilise in the more stressed areas of Europe.

Japan is also a big warning that using ERP type calculations can be incredibly dangerous if low bond yields arise because of either deflation or because of chronic economic problems. Clearly low bond yields are not the issue in Spain or Italy but deflation is a risk and the general ERP calculations have to be treated more carefully in an environment where bond yields are detached from normal economic activity. When they are being impacted by stress, deflation, flight to quality, QE etc., then ERP results are perhaps less robust than in 'normal' market conditions.

Conclusion

We show that on a PE and ERP basis, European equities look historically cheap on an absolute basis and relative to the US, which in turn looks on the rich side of average valuation relative to its own history if you cyclically adjust earnings. This European 'cheapness' is especially true on an ERP basis due to ultra low bond yields in the core and still relatively low bond yields compared to their long-run histories in Spain and Italy. However earnings numbers in the periphery have collapsed since the Sovereign crisis began and it's difficult to know what the trend level of earnings is for countries embarking on large adjustment programs and with uncertainty as to their long-term economic futures. The conclusion is basically that without an aggressive ECB, peripheral European equity markets would likely go from cheap to extra-ordinarily cheap. If the ECB is about to commit to a long-term Euro-saving mission then one would have to say there's a large amount of potential upside in European equities, especially in the periphery. For the more risk adverse, German equities may represent a better risk reward profile as we enter unknown territory.

Mean reversion conclusions

One of the original motivations for first compiling this report back in 2005 was a belief that traditional asset classes exhibited a rhythm of returns through time that made them very susceptible to mean reversion. In 2005 it was clear that after a super charged period for returns over the previous 20-25 years most risk assets were at valuations that compromised their long-term return prospects. Our mean reversion analysis suggested Equities would likely have negative returns for the rest of that decade and would only broadly match the returns on Treasuries in the decade out to 2015.

The 2008 report was entitled 'The Upcoming Decade of Credit Returns' and concluded that the extreme stress in the cash credit market, with spreads at around historic (100-year) wides, left the asset class with the most to gain from mean reversion. We were left thinking that double-digit annual returns were a realistic possibility over the medium-term. Back then equities also fared reasonably well on the mean reversion exercise as the S&P 500 had dipped into the 800s, thus finally correcting a 15-year period of trading above its long-term average valuation.

From the lows in 2008 and 2009, most asset classes rallied strongly and in both the 2010 and 2011 versions of this document there were no stand-out opportunities from the long side only a realisation that from elevated starting valuations, overall DM returns (especially on a real basis) were likely to be subdued for many years as markets continued to adjust to; a) the super-charged 1982-2007 'Golden Age' period for returns and b) the hangover from the worst financial crisis for nearly 80 years. It's hard to draw any particularly different conclusions this year except to say that Government bond markets have continued to become more expensive and therefore appear to offer even less value on a mean reversion basis than they did a year ago.

We have again included a section on European and International returns in a later chapter, but the depth of the data make a mean reversion exercise difficult to compile outside the US. Also one could argue that mean reversion for Europe is unlikely as we could either see full convergence and better times than most countries have seen in the past, or possibly a future disintegration of Europe that will render such analysis as meaningless for some time. Although we haven't compiled a European equity mean reversion exercise, there is plenty of work in the previous chapter detailing the long-term valuation of these markets.

So given all that Europe is going through at the moment, this largely US focused mean reversion exercise may not be a template for every country as the crisis has left some large European markets at vastly different valuations across different asset classes to those currently seen in the US. For example Italian bonds in late November of last year traded at yields not seen for over a decade whilst US 10 year yields have recently hit all time lows stretching back to 1790.

We'll now go through the mainly US mean reversion results in detail and look at what nominal and real returns will be over the next decade if assets revert back to their long-term average valuations. A brief appendix is posted at the back of the document that takes us through our methodology for the mean reversion exercise. It basically assumes that earnings, PE valuations, inflation, real yields and economic growth return to their long-run averages/trend. As well as US based assets we have also looked at European credit markets in this exercise. Here the universe is predominantly made up of safer 'core' country issuers and there is thus limited 'peripheral' exposure which as discussed may not be appropriate for mean reversion analysis.

The results are only meant to be a relative value guide and work best on a relative basis across asset classes and the longer the time horizon you view them over. As discussed above, we have mainly concentrated on US Dollar-based assets in this section. This enables us to delve deeper into history to analyse the long-term rhythm of returns. In reading the results, hopefully one will be able to understand the type of returns that a sophisticated Developed Market sees through time.

Results

Figure 65: Potential Annualised Returns Based on Full Mean Reversion over Different Time Horizons

		Nominal Returns			Real Returns		
		3yr	5yr	10yr	3yr	5yr	10yr
US Assets	Equity (Trend Earnings/Average PE)	-8.8%	-3.0%	1.5%	-11.1%	-5.4%	-0.8%
	Equity (Trend Earnings/Average PE since 1958)	-1.3%	1.6%	3.8%	-3.8%	-0.9%	1.4%
	Treasury (10yr)	-6.5%	-2.6%	0.3%	-8.9%	-5.0%	-2.0%
	Treasury (30yr)	-9.7%	-4.5%	-0.5%	-12.0%	-6.8%	-2.8%
	IG Corporate Bond	-6.0%	-1.8%	1.4%	-8.3%	-4.2%	-0.9%
	BBB Bond	-3.7%	-0.2%	2.5%	-6.2%	-2.6%	0.1%
	Property	-1.3%	0.1%	1.2%	-3.8%	-2.3%	-1.2%
	Gold	-27.8%	-17.0%	-7.8%	-29.6%	-19.0%	-10.0%
	Oil	-21.0%	-12.4%	-5.3%	-23.0%	-14.5%	-7.5%
	All Commodities (1919 Reversion)	-2.3%	-0.5%	0.9%	-4.7%	-2.9%	-1.4%
High Yield	USD High Yield	0.1%	2.6%	4.4%	-2.4%	0.1%	1.9%
	Treasury (Duration Matched)	-4.9%	-1.6%	0.8%	-7.3%	-4.0%	-1.6%
	EUR High Yield	5.3%	6.2%	6.9%	2.6%	3.5%	4.3%
	Treasury (Duration Matched)	-3.4%	-0.9%	1.0%	-5.9%	-3.3%	-1.4%
iBoxx EUR	Corporate Bond	-0.3%	1.6%	3.0%	-2.9%	-1.0%	0.5%
	BBB Bond	2.2%	3.3%	4.1%	-0.5%	0.6%	1.5%
	Non-Financial Bond	-1.6%	0.7%	2.3%	-4.2%	-1.9%	-0.2%
	Non-Financial BBB Bond	0.2%	1.8%	3.0%	-2.4%	-0.8%	0.5%
	Bund (Duration Matched)	-4.3%	-1.4%	0.7%	-6.8%	-3.9%	-1.8%
iBoxx GBP	Corporate Bond	-1.5%	1.3%	3.4%	-4.4%	-1.6%	0.5%
	BBB Bond	4.1%	4.9%	5.5%	1.1%	1.9%	2.5%
	Non-Financial Bond	-5.8%	-1.6%	1.6%	-8.5%	-4.4%	-1.2%
	Non-Financial BBB Bond	-1.5%	1.1%	3.1%	-4.3%	-1.8%	0.2%
	Gilt (Duration Matched)	-7.6%	-3.2%	0.2%	-10.3%	-6.0%	-2.7%
iBoxx USD	Corporate Bond	-2.6%	0.2%	2.4%	-5.1%	-2.2%	0.0%
	BBB Bond	-1.0%	1.2%	3.0%	-3.5%	-1.2%	0.6%
	Non-Financial Bond	-4.7%	-1.1%	1.7%	-7.2%	-3.5%	-0.7%
	Non-Financial BBB Bond	-2.6%	0.2%	2.4%	-5.1%	-2.2%	0.0%
	Treasury (Duration Matched)	-6.5%	-2.6%	0.3%	-8.9%	-5.0%	-2.0%

Source: Deutsche Bank, Bloomberg Finance LLP

For equities we use two slightly different methods. Method 1 simply looks at mean reverting earnings back to their long-term trend and PE ratios back to their long-term average. Method 2 recognises that earnings growth may have increased (albeit slightly) post 1958 (see below) and uses the trend line of earnings seen since then and the (again slightly higher) average PE ratio seen since. We have noted in previous studies, including the 2011 version, that up until 1958, dividend yields were always above bond yields. This situation reversed for the next 50 years when in November 2008 S&P 500 dividends briefly crossed above bond yields again. Since this point the two have crossed a few times with dividend yields on the S&P (c.2.2%) now slightly above 10 year bond yields (c.1.6%).

The jury is still out however as to whether the post 1958 move to lower dividends and perhaps higher earnings growth has actually been positive or negative for equity returns. We think it's actually been negative as there is no conclusive evidence that earnings have broken permanently higher (and not just cyclically) from their long-term trend post-1958. Basically returns seem to be higher when investors receive dividends rather than when companies retain dividends and attempt to expand their businesses. We have written about this in length in previous studies for those that want to explore the arguments further.

Overall this leaves us preferring method 1 but we've included both results in the exercise for those that think it's a slightly different market now to that seen prior to 1958 and the great dividend crossover.

If we use method 1, annualised real returns on this method show a negative trend over the next decade. The returns are slightly better if you use method 2 as we reach positive territory 10 years out but they are still sub-standard relative to long-term history. However it's fair to say that nominal equity mean reversion returns over the next 10 years do outperform most other asset classes, such as Treasuries, property and commodities. Credit as we'll see below is broadly the exception but much depends on future inflation as to how realistic these returns are. Before we move on from equities we should stress that the biggest problem with valuations today is that earnings/profits are at a very high share of GDP relative to history. If this does eventually mean revert, our low future return numbers are absolutely justifiable. If however we've moved to a permanent new plateau of higher earnings relative to the size of the economy then our numbers are too low.

In terms of fixed income, the mean reversion exercise suggests that Government bonds are set for a generally negative decade, which is not surprising given the recent 220-year lows. It will take a decade of coupons for 10 year Treasuries to edge into positive return territory on a nominal basis. 30 year Treasury mean reversion returns remain negative out over the next 10 years. Clearly assuming any inflation, real returns are negative across the board ranging from -2.8% p.a. for US government bonds and -1.8% p.a. in Europe.

Credit arguably provides some protection from future mean reversion in Government yields. In terms of total returns the LT IG corporate and BBB index provides a nominal 1.4% and 2.5% annual return respectively on a mean reversion basis over 10 years, with BBB corporates also just about providing positive returns (0.1% p.a.). If we expand this out to the iBoxx indices then the potential upside is more impressive, particularly when looking at the EUR market. Mean reversion over 5 years would see positive nominal total returns across the board in the EUR market and to a lesser extent the UK market. USD returns look less attractive on this basis but would still offer protection against potentially negative returns in US Treasuries.

So future total returns in credit will likely be most impacted by the likely negative future returns for government bonds on a mean reversion basis. Therefore it is also important to consider excess returns over the relevant government benchmarks. In Figure 66 we show the potential excess returns for the various IG credit indices that we have analysed. We can see that they look fairly attractive and certainly in the case of the LT US data, notably in excess of the LT average excess returns we have seen historically for IG corporates (1.0%) and BBB corporates (1.4%). So credit spreads are above their long-term average.

Figure 66: 10 Year Mean Reversion Excess Returns over Duration Matched Treasuries

	LT US	USD iBoxx	EUR iBoxx	GBP iBoxx
Corporate Bond		2.1%	2.2%	3.2%
BBB Bond		2.6%	3.3%	5.1%
Non-Financial Bond	1.8%	1.3%	1.6%	1.4%
Non-Financial BBB Bond	2.9%	2.0%	2.3%	2.8%

Source: Deutsche Bank, Bloomberg Finance LLP

Like IG, the extra yield in HY also more than offsets any likely future rises in Government bond yields. However given the very low underlying yield environment, mean reversion produces future HY total returns some way below their long-term averages. On an excess return basis, higher than average spreads again mean that the results show higher than average returns on this basis, especially in Europe.

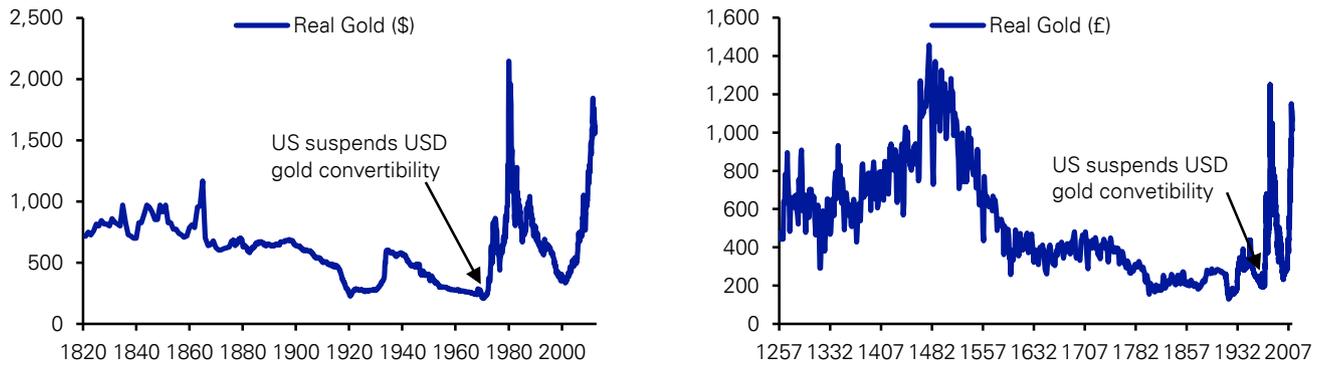
For property, using Robert Shiller's long-term data back to 1900, the asset class still appears slightly expensive on a mean reversion basis and while nominal returns could be slightly positive over the next decade, real returns may still be negative. The fact that we're still saying this more than six years after the US housing bubble burst shows the prior extreme levels of over-valuation relative to history. We would stress that property valuations have improved in every version of this report since 2005 and the asset class is fast normalising. We would also say that in certain parts of the country property appears cheap historically. So care needs to be taken with this broad national level index.

Overall, the asset class that continues to stand out in this exercise is Commodities. If mean reversion of long-term data back over the last century was your only guide then Oil and Gold are likely to have poor decades in nominal (-5.3% to -7.8% p.a.) and real (-7.5% to -10.0% p.a.) terms. Indeed although we've been long-term bulls of Gold given the money printing that we've felt will be necessary for many years to come and also the fragility of the financial system, the asset class does not look good on a mean reversion basis. Over a 5-10 year period, you would have to bet against history to suggest that the overall Commodity index was a good area to invest in, at least on a real basis. Note that the asset class does not pay a dividend/coupon. However, given the work we've done in this study it's fair to say that the world changed dramatically post 1971 and we wonder whether a long-term mean reversion for an asset like Gold now actually works.

Indeed for those more optimistic on commodities, especially hard commodities like Gold, it's probably worth reading the two sections on US and International returns where we show that Gold seems to have exhibited different return characteristics since the Gold Standard was abandoned in 1971. Unfortunately it's too early to say whether the returns over the previous century and a half are now irrelevant, but it's certainly something to be aware of when trying to understand long-term valuations.

Our base case is that charts like Figure 67 and the analysis above suggest that Gold, and commodities in general, are not a great real adjusted long-term investment from this starting point. We are basically close to 600 year highs! One would think that even with more money printing, inflation would eventually catch-up with nominal levels. However where it could end up in the short to medium-term in a stress situation or under an extreme money printing environment is open to much debate.

Figure 67: Real Gold Price in USD since 1820 (left) and in GBP since 1257 (right)



Source: Deutsche Bank, GFD

Conclusion

Overall in these highly unusual times we would be very careful on how we interpret these results. The unique levels in many asset classes and financial indicators discussed throughout this report could encourage extreme outcomes and policy reactions over the next decade. So now more than ever, it is best to use this analysis as a broad relative valuation guide. However in the US, it is difficult to see above average medium to long-term real returns from this starting point as most asset classes are fully valued.

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Historical US asset returns

We now look at long-term US returns going back to the start of the nineteenth century (where possible).

Figure 68 and Figure 69 show why we invest in assets over the medium to long-term. Using data going back over 200 years, it is quite clear that history tells us that holding cash on deposit has been a recipe for wealth erosion. We split the data up by nominal and real returns through different time periods. We also show returns annualised within each decade and also by 50 year buckets. This hopefully helps us see both cyclical and secular trends.

Over the entire sample period, Equities outperform Corporate Bonds, which outperform Government Bonds, which outperform Cash, which interestingly has outperformed Commodities. Since 1900, where we have data for the widest selection of assets, Equities outperform 30yr Governments by 4.51% p.a., Corporates by 3.53% p.a., Cash by 5.77% p.a., and Commodities by 6.43% p.a. (on a nominal basis).

As we've seen in the last two versions of this report Commodities are probably seeing the biggest divergence between recent and long-term performance. Over the last 5 and 10 year periods they have generally been one of the better performing asset classes in our study. However their long-term performance has actually struggled to exceed inflation. Over the last 75 years, the overall Commodity index has actually seen flat real returns. If we break down the asset class a similar outcome is seen for both Gold and Oil. While Gold is up 12.35% p.a. over the last 5 years and 13.97% over the last 10 years (real adjusted), the long-term real performance is actually pretty weak and has only grown by 0.82% p.a. (real) since 1900. Meanwhile equities have returned 6.06% p.a. (real) over the same period. A similar picture is seen for Oil. However as we discuss at length in the report has the world of commodity investment changed post 1971? Gold has returned 9.36% p.a. since this point and 4.90% p.a. real), only half a percent behind equities against the 5%+ long-term return differential.

Property (US) is an asset class that has only just out-paced inflation (0.17% p.a. real) over the long-term. We would stress that this is a price-only series and doesn't include potential rental yields but it's a reminder that real adjusted capital returns in the asset class can be minimal over longer time periods. This shows the folly of the modern day trend of investors using their main residence (which will not produce an income) as an alternative to traditional asset classes when providing for the future.

Non-financial IG Corporate Bonds have steadily out-performed Government Bonds over all medium-term time periods. The levels of defaults historically seen in IG very rarely erode the additional spread the asset class provides. Periods of under-performance are much more likely to be driven by temporary spread widening. These spread changes tend to be highly cyclical whereas equity and Treasury valuations tend to exhibit a more secular pattern. The test for IG bonds relative to their history of low defaults may still be ahead over the next few years if financials are forced into default type situations. However the historical data in this section is based around non-financial credit.

HY is a fairly new market, with new issuance (rather than simply fallen angels) only existing from the late 1980s. In this time, we've been through business cycles longer and less frequent than long-term history, but also through two deep default cycles (2000-2003 and 2007-2009), with the former far worse for HY (especially in Europe) than it was for the overall economy. So we would argue that we don't have enough data yet to assess what a likely long-term return number for HY should be. However the excess return of 1.81% p.a. over Government Bonds since 1988 is disappointing relative to the risk and to IG credit. Much of this 'disappointment' has been obscured by the high total returns in fixed income which has given the asset class a healthy 8.67% p.a. nominal return since 1988. This is relevant as HY investors are more total return biased than the more excess return biased IG investors.

Figure 68: Nominal Returns for US Assets over Different Time Horizons

	Equity	Corp Bond	AAA Bond	BBB Bond	Treasury (10yr)	Treasury (30yr)	Treasury (HY) HY Bond	Treasury (HY) Matched	Treasury Bill	House Prices (Price Only)	Gold	Copper	Oil	Wheat	Commodities (Economist)
last 5yrs (2008-2012)	0.77%	11.44%	11.52%	10.47%	7.37%	9.64%	8.78%	5.45%	0.33%	-6.30%	14.13%	2.35%	-1.70%	1.75%	3.58%
last 10yrs (2003-2012)	6.63%	9.67%	9.48%	9.37%	5.73%	7.71%	9.69%	4.25%	1.67%	-0.42%	16.62%	16.93%	10.93%	9.89%	9.67%
last 15yrs (1998-2012)	4.17%	8.94%	9.12%	8.58%	6.68%	8.10%	6.58%	5.57%	2.48%	2.53%	12.15%	10.31%	11.31%	6.74%	5.30%
last 25yrs (1988-2012)	9.51%	10.31%	10.24%	10.37%	7.95%	9.35%	8.67%	6.81%	3.68%	2.52%	4.61%	3.40%	6.88%	4.23%	2.95%
last 50yrs (1963-2012)	9.66%	8.04%	7.78%	8.33%	7.38%	7.03%			5.29%	4.24%	7.94%	4.94%	7.01%	2.87%	4.83%
last 75yrs (1938-2012)	10.76%	6.20%	5.90%	6.65%	5.67%	5.27%			3.95%	4.29%	5.24%	4.82%	5.04%	3.08%	3.81%
last 100yrs (1913-2012)	9.52%	6.01%			5.27%	5.16%			3.64%	3.39%	4.45%	3.02%	3.86%	2.08%	3.00%
last 125yrs (1888-2012)	8.94%				4.79%				3.46%		3.55%	2.08%	3.74%	1.95%	2.60%
last 150yrs (1863-2012)	8.92%				4.88%				3.56%		2.75%	1.54%	2.48%	1.56%	1.72%
last 175yrs (1838-2012)	8.65%				4.84%				3.77%		2.50%	1.46%			
last 200yrs (1813-2012)	8.35%				4.95%						2.24%	1.00%			
since 1800	8.29%				5.14%						2.10%	0.83%			
since 1821	8.46%				4.86%						2.33%	1.29%			
since 1900	9.34%	5.81%			4.88%	4.82%			3.57%	3.26%	3.93%	2.58%	3.58%	2.28%	2.91%
since 1920	9.82%	6.31%	6.13%	6.72%	5.49%	5.36%			3.66%	3.41%	4.80%	3.19%	3.13%	1.37%	2.41%
since 1930	9.24%	6.26%	6.08%	6.66%	5.49%	5.28%			3.63%	3.75%	5.39%	3.64%	4.16%	2.32%	3.34%
since 1971	9.93%	9.75%	9.39%	10.08%	8.18%	8.35%			5.36%	4.48%	9.36%	4.57%	8.05%	3.92%	5.54%
RETURNS BY DECADE															
1800-1809	8.09%				9.12%						0.00%	-2.84%			
1810-1819	4.91%				6.23%						0.00%	-4.63%			
1820-1829	6.94%				5.53%						0.00%	-1.63%			
1830-1839	5.34%				2.75%						0.67%	1.38%			
1840-1849	7.83%				7.47%				5.02%		-0.03%	-2.57%			
1850-1859	1.62%				3.98%				5.08%		0.00%	2.35%		5.70%	
1860-1869	18.34%				6.30%				5.04%		1.81%	1.90%	-12.73%	-1.80%	2.91%
1870-1879	7.73%				3.67%				4.11%		-1.78%	-2.05%	-14.26%	5.23%	-3.89%
1880-1889	5.68%				5.48%				3.04%		0.00%	-1.66%	-0.70%	-5.09%	-0.63%
1890-1899	5.37%				3.93%				2.33%		0.00%	-1.26%	4.88%	-1.21%	-0.54%
1900-1909	9.92%	4.38%			1.63%	2.17%			3.04%	1.97%	0.00%	-3.55%	-1.43%	6.06%	1.56%
1910-1919	4.35%	2.61%			2.52%	2.52%			3.28%	3.15%	0.00%	3.34%	13.33%	7.19%	9.09%
1920-1929	14.78%	6.73%	6.52%	7.27%	5.48%	6.05%			3.88%	0.65%	0.00%	-0.48%	-4.98%	-6.18%	-4.99%
1930-1939	-0.47%	6.46%	7.48%	6.31%	3.95%	5.49%			0.58%	-1.21%	5.41%	-3.51%	-1.81%	-2.22%	-1.25%
1940-1949	8.99%	3.92%	2.92%	5.42%	2.70%	2.42%			0.48%	8.12%	1.47%	4.00%	0.28%	7.64%	5.17%
1950-1959	19.26%	0.16%	-0.08%	0.59%	0.39%	-0.50%			2.02%	2.97%	-1.38%	5.96%	1.46%	-0.69%	-0.02%
1960-1969	7.76%	0.57%	0.42%	0.89%	2.76%	0.51%			4.06%	1.85%	0.04%	5.43%	0.78%	-2.96%	1.09%
1970-1979	5.77%	5.34%	5.02%	5.84%	6.08%	3.71%			6.48%	7.99%	32.23%	6.28%	28.04%	11.43%	15.61%
1980-1989	17.47%	13.72%	13.03%	14.43%	12.78%	12.64%			9.13%	6.78%	-2.85%	0.57%	-5.40%	-0.74%	-0.28%
1990-1999	18.21%	9.31%	8.84%	9.99%	7.98%	8.40%	10.59%	7.27%	4.95%	2.69%	-4.02%	-2.12%	1.67%	-6.31%	-1.15%
2000-2009	-0.95%	8.90%	8.91%	8.68%	6.63%	7.03%	6.57%	6.04%	2.74%	3.30%	14.32%	13.96%	11.91%	6.67%	7.75%
2010-2012	9.26%	14.58%	15.73%	12.86%	9.45%	16.45%	9.29%	5.22%	0.08%	-3.20%	13.76%	2.12%	3.52%	28.90%	6.56%
RETURNS BY HALF CENTURY															
1800-1849	6.61%				6.20%						0.13%	-2.08%			
1850-1899	7.61%				4.67%				3.91%		0.00%	-0.16%		0.48%	
1900-1949	7.39%	4.81%			3.25%	3.72%			2.24%	2.49%	1.35%	-0.09%	0.89%	2.34%	1.80%
1950-1999	13.55%	5.70%	5.33%	6.21%	5.91%	4.84%			5.30%	4.43%	4.00%	3.17%	4.72%	-0.03%	2.87%
2000-2012	1.32%	10.18%	10.45%	9.63%	7.28%	9.13%	7.19%	5.85%	2.12%	1.76%	14.19%	11.11%	9.92%	11.43%	7.47%

Note: 2012 Returns are calculated up to 31 July. So for example the last 5 years data is actually for 4 years and 7 months, 10 years for 9 years and 7 months.
Source: Deutsche Bank, Bloomberg finance LLP, GFD, Moody's, NBER, S&P

Figure 69: Real Returns for US Assets over Different Time Horizons

	Equity	Corp Bond	AAA Bond	BBB Bond	Treasury (10yr)	Treasury (30yr)	HY Bond	Treasury (HY Matched)	Treasury Bill	House Prices (Price Only)	Gold	Copper	Oil	Wheat	Commodities (Economist)
last 5yrs (2008-2012)	-0.80%	9.70%	9.78%	8.75%	5.69%	7.93%	7.08%	3.80%	-1.24%	-7.76%	12.35%	0.75%	-3.23%	0.16%	1.96%
last 10yrs (2003-2012)	4.21%	7.18%	6.99%	6.89%	3.33%	5.26%	7.20%	1.88%	-0.63%	-2.68%	13.97%	14.28%	8.41%	7.39%	7.18%
last 15yrs (1998-2012)	1.79%	6.45%	6.63%	6.10%	4.25%	5.63%	4.14%	3.16%	0.14%	0.19%	9.59%	7.80%	8.77%	4.31%	2.89%
last 25yrs (1988-2012)	6.57%	7.34%	7.27%	7.39%	5.05%	6.41%	5.74%	3.93%	0.89%	-0.24%	1.79%	0.62%	4.00%	1.42%	0.17%
last 50yrs (1963-2012)	5.32%	3.76%	3.51%	4.04%	3.13%	2.79%			1.12%	0.12%	3.67%	0.79%	2.78%	-1.20%	0.68%
last 75yrs (1938-2012)	6.75%	2.36%	2.07%	2.79%	1.84%	1.46%			0.19%	0.52%	1.43%	1.03%	1.24%	-0.65%	0.05%
last 100yrs (1913-2012)	6.12%	2.72%			2.01%	1.90%			0.43%	0.19%	1.21%	-0.18%	0.64%	-1.08%	-0.20%
last 125yrs (1888-2012)	5.98%				1.94%				0.66%		0.74%	-0.69%	0.92%	-0.82%	-0.19%
last 150yrs (1863-2012)	6.38%				2.43%				1.14%		0.35%	-0.83%	0.08%	-0.81%	-0.65%
last 175yrs (1838-2012)	6.49%				2.77%				1.71%		0.46%	-0.55%			
last 200yrs (1813-2012)															
since 1800															
since 1821	6.44%				2.91%						0.43%	-0.59%			
since 1900	6.06%	2.64%			1.74%	1.68%			0.47%	0.17%	0.82%	-0.49%	0.48%	-0.78%	-0.17%
since 1920	6.92%	3.50%	3.32%	3.90%	2.70%	2.58%			0.92%	0.67%	2.02%	0.46%	0.40%	-1.31%	-0.30%
since 1930	5.89%	3.00%	2.82%	3.38%	2.26%	2.05%			0.45%	0.56%	2.16%	0.46%	0.96%	-0.82%	0.17%
since 1971	5.44%	5.27%	4.93%	5.59%	3.77%	3.93%			1.07%	0.22%	4.90%	0.31%	3.64%	-0.32%	1.24%
RETURNS BY DECADE															
1800-1809															
1810-1819															
1820-1829															
1830-1839	3.23%				0.70%						-1.35%	-0.65%			
1840-1849	10.82%				10.45%				7.94%		2.75%	0.13%			
1850-1859	0.07%				2.39%				3.47%		-1.53%	0.79%		4.08%	
1860-1869	13.58%				2.02%				0.81%		-2.29%	-2.20%	-16.24%	-5.75%	-1.24%
1870-1879	10.20%				6.04%				6.50%		0.47%	0.19%	-12.30%	7.64%	-1.69%
1880-1889	5.68%				5.48%				3.04%		0.00%	-1.66%	-0.70%	-5.09%	-0.63%
1890-1899	5.23%				3.79%				2.19%		-0.13%	-1.39%	4.74%	-1.34%	-0.67%
1900-1909	7.36%	1.94%			-0.74%	-0.22%			0.63%	-0.41%	-2.34%	-5.80%	-3.73%	3.58%	-0.81%
1910-1919	-2.78%	-4.40%			-4.48%	-4.49%			-3.78%	-3.90%	-6.84%	-3.72%	5.59%	-0.14%	1.64%
1920-1929	15.87%	7.74%	7.53%	8.29%	6.48%	7.06%			4.87%	1.61%	0.95%	0.46%	-4.08%	-5.29%	-4.09%
1930-1939	1.60%	8.68%	9.72%	8.53%	6.11%	7.69%			2.67%	0.85%	7.60%	-1.50%	0.24%	-0.19%	0.81%
1940-1949	3.45%	-1.37%	-2.31%	0.06%	-2.52%	-2.79%			-4.63%	2.62%	-3.69%	-1.29%	-4.83%	2.17%	-0.18%
1950-1959	16.67%	-2.02%	-2.25%	-1.60%	-1.80%	-2.67%			-0.20%	0.74%	-3.52%	3.66%	-0.75%	-2.84%	-2.19%
1960-1969	5.11%	-1.89%	-2.05%	-1.59%	0.23%	-1.96%			1.51%	-0.65%	-2.41%	2.84%	-1.69%	-5.34%	-1.39%
1970-1979	-1.51%	-1.91%	-2.20%	-1.44%	-1.21%	-3.43%			-0.85%	0.56%	23.14%	-1.03%	19.23%	3.76%	7.65%
1980-1989	11.78%	8.22%	7.56%	8.89%	7.32%	7.19%			3.84%	1.61%	-7.55%	-4.30%	-9.98%	-5.54%	-5.10%
1990-1999	14.83%	6.19%	5.73%	6.85%	4.90%	5.30%	7.43%	4.20%	1.95%	-0.25%	-6.77%	-4.92%	-1.23%	-8.99%	-3.97%
2000-2009	-3.42%	6.18%	6.19%	5.96%	3.97%	4.36%	3.91%	3.39%	0.18%	0.72%	11.46%	11.12%	9.12%	4.01%	5.06%
2010-2012	7.41%	12.64%	13.78%	10.95%	7.61%	14.48%	7.44%	3.44%	-1.61%	-4.84%	11.84%	0.40%	1.77%	26.72%	4.76%
RETURNS BY HALF CENTURY															
1800-1849															
1850-1899	6.85%				3.93%				3.19%		-0.70%	-0.86%		-0.23%	
1900-1949	4.91%	2.39%			0.87%	1.33%			-0.11%	0.13%	-0.98%	-2.40%	-1.44%	-0.02%	-0.55%
1950-1999	9.17%	1.62%	1.27%	2.12%	1.83%	0.79%			1.24%	0.40%	-0.01%	-0.81%	0.68%	-3.88%	-1.10%
2000-2012	-1.02%	7.64%	7.90%	7.09%	4.80%	6.61%	4.72%	3.40%	-0.24%	-0.59%	11.55%	8.55%	7.38%	8.86%	4.99%

Note: 2012 Returns are calculated up to 31 July. So for example the last 5 years data is actually for 4 years and 7 months, 10 years for 9 years and 7 months.
Source: Deutsche Bank, Bloomberg finance LLP, GFD, Moody's, NBER, S&P

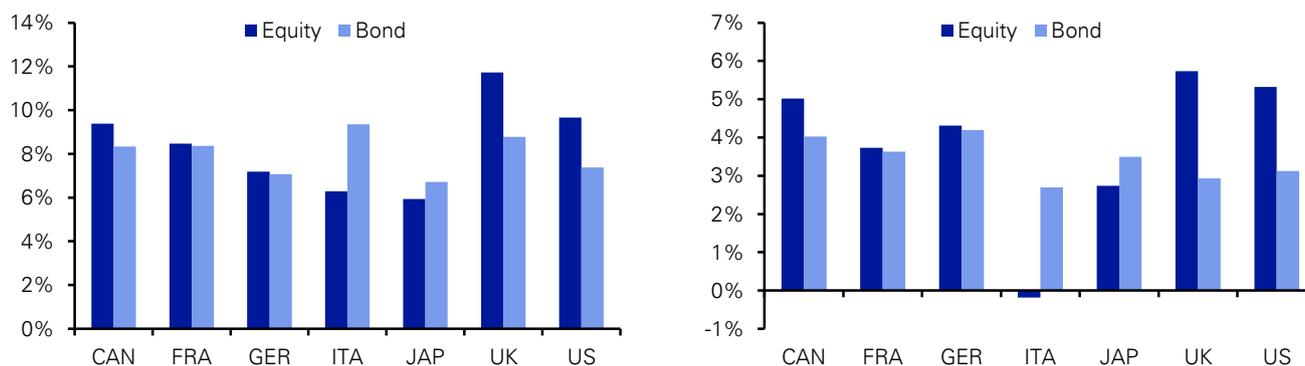
Historical international asset returns

Prior to last year's note our focus had always been mostly on historic US asset returns. Last year we collated data looking at returns for equity and fixed income markets across the G7 countries. This year we again look at G7 countries historical returns but also extend the analysis to include many other European countries as well as some other notable countries with a decent history. We once again look at nominal and real domestic local currency returns but also extend the analysis to look at the performance in USD terms as well as rebasing everything to Gold which is a fascinating exercise in this fiat currency world. The full tables split a variety of different ways are found at the back of this section (Figure 79-Figure 82). Before this we review some of the interesting findings, starting by focusing on the G7 member returns.

G7 return analysis

In Figure 70 we show the nominal and real returns over the last 50 years for all the G7 equity and bond markets (10 year).

Figure 70: Nominal (left) and Real (right) Annualised Equity and 10 Year Bond Returns over the Last 50 years

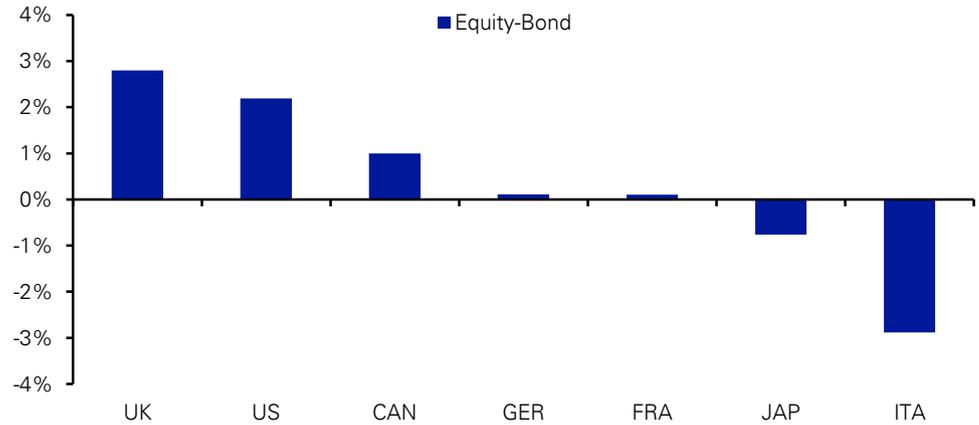


Source: Deutsche Bank, GFD

The negative real returns seen in Italian equities over the last 50 years mean that they have significantly underperformed bonds over this period – a remarkable statistic in a world where we are all used to seeing equity outperformance increase the longer you expand the time horizon. As Figure 71 shows, Italy is not alone in our study of the G7 countries; Japanese equities have also suffered the same fate relative to bonds. Elsewhere France and Germany have only seen equities marginally outperform 10 year bonds (c.0.1%) over this period. UK equity outperformance versus bonds (close to 3% higher) has been superior to all over the period and in the US, while equities have outperformed bonds by a respectable (relative to other G7 countries) 2.2% p.a., this is disappointing compared to the 4.3% p.a. seen since 1900. Nevertheless with the exception of the UK, US equities have seen superior returns on a relative basis than any of the other G7 countries and it's a reminder to us that caution needs to be applied when using US data to try to predict markets elsewhere in the developed world. The US has positive survivor bias status relative to most other developed countries.

It does beg the question as to what the correct equity risk premium is between equities and bonds around the world. Are equities now stunningly cheap in many countries relative to bonds or have the investment community over stated the potential returns in equities over the last few decades?

Figure 71: Difference between G7 Real Equity & Real Bond Annualised Returns over the Last 50 years

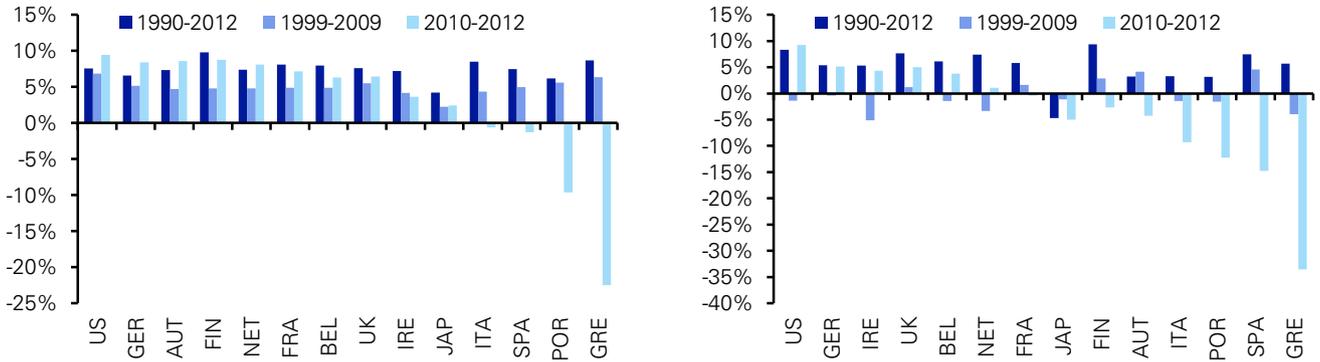


Source: Deutsche Bank, GFD

From convergence to divergence

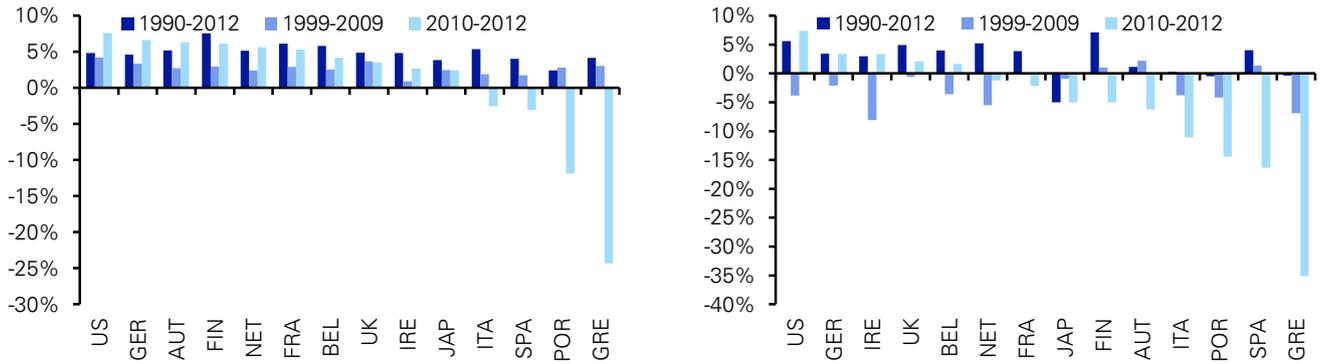
The under-performance of Japanese and Italian equity markets has been a multi-decade theme but in Figure 72 and Figure 73 we can see that overall global return divergence between countries has intensified since the Sovereign crisis escalated from the start of 2010. The graphs extend the analysis to include most of the EU-12 and show the general convergence and consistency of returns, especially bonds, in the 1990s before the last few years of strong returns divergence.

Figure 72: Nominal Bond (left) and Equity (right) Annualised Total Returns for Different Time Periods



Note: Bond data for Greece only starts in 1993.
Source: Deutsche Bank, GFD

Figure 73: Real Bond (left) and Equity (right) Annualised Total Returns for Different Time Periods



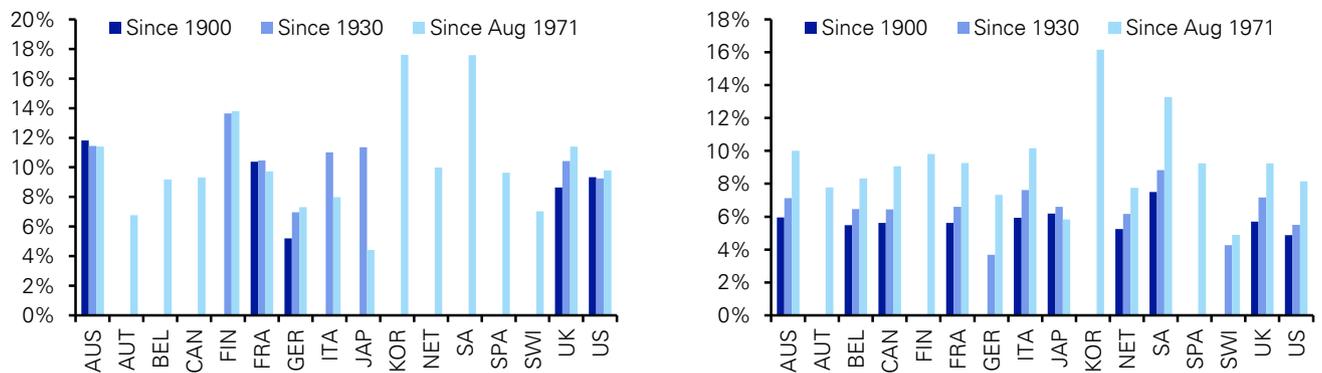
Note: Bond data for Greece only starts in 1993.
Source: Deutsche Bank, GFD

Comparing international returns in nominal, real, USD and Gold terms

In this section we look at international Equity and Bond returns and also the differential between them over different periods. Based on the tables at the back of this section we look at these returns in nominal, real, USD terms and also their performance relative to Gold. For Gold, we are particularly interested in how well assets have performed since the end of the ties to a Gold based monetary system in August 1971.

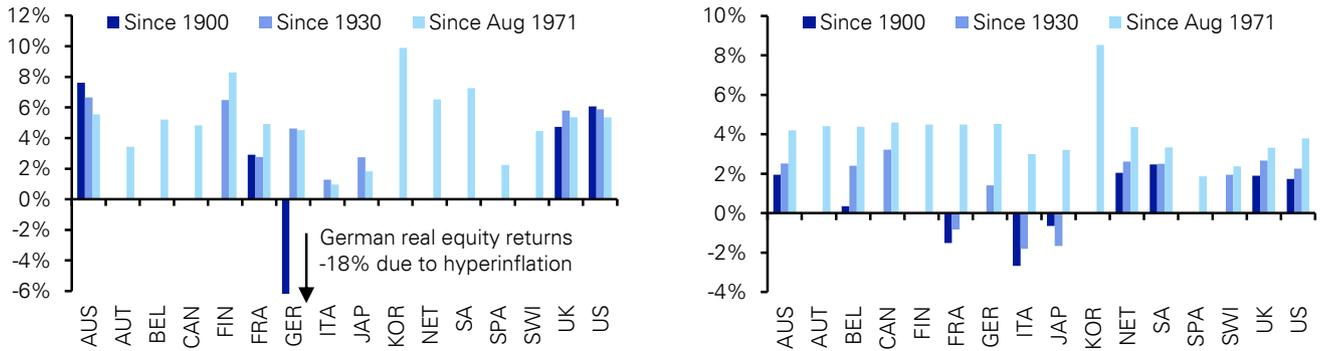
In Figure 74-Figure 77 we show the results in graph form for all the countries with a long enough history to be able to analyse from three start dates. Since 1900 to get the long-term prospective, from 1930 to get a slightly shorter one and from August 1971, the point we finally broke ties with a global monetary system based around Gold. We show this on a nominal, real, USD and Gold basis. For the two longer time periods we have less data available but have kept all the countries in the charts to allow uniformity in the charts and for ease of comparison.

Figure 74: Equity (left) and Bond (right) Nominal Total Returns for Different Time Periods



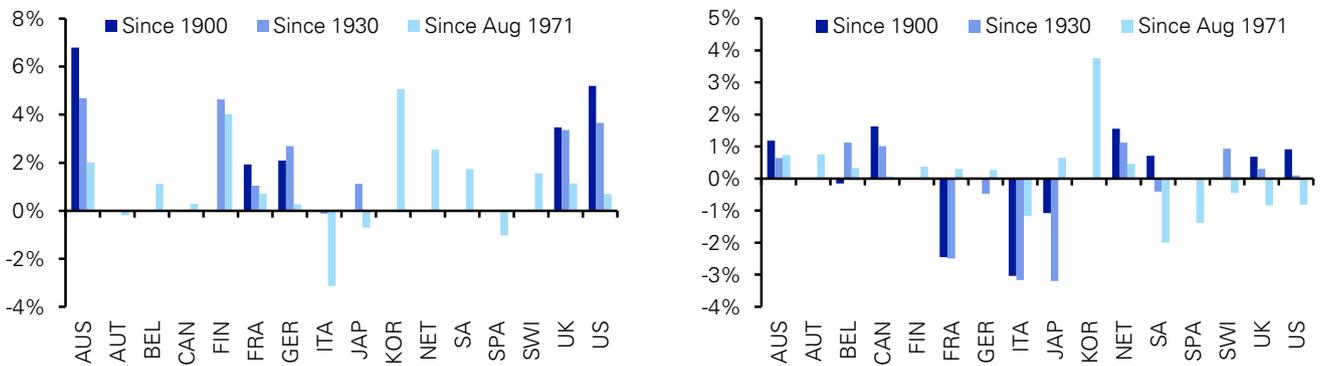
Source: Deutsche Bank, GFD

Figure 75: Equity (left) and Bond (right) Real Total Returns for Different Time Periods



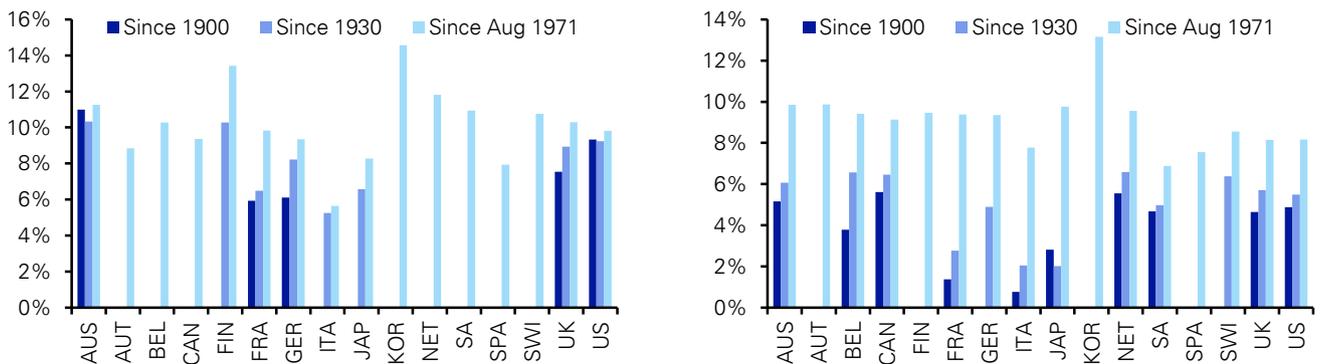
Source: Deutsche Bank, GFD

Figure 76: Equity (left) and Bond (right) Total Returns in Gold Terms for Different Time Periods



Source: Deutsche Bank, GFD

Figure 77: Equity (left) and Bond (right) Total Returns in USD Terms for Different Time Periods



Source: Deutsche Bank, GFD

Results – Equity returns

Interestingly, looking at both the nominal and real equity charts, for those countries with long-term data, returns aren't dramatically different whether the starting point is 1900, 1930 or August 1971. A noticeable exception is Germany which is distorted before the 1930 period by the hyper-inflation of the 1920s.

Overall when looking across the data it does feel that over the last four decades, policy has been conducted in a manner to keep nominal equity returns as high or consistent as possible with the past. Indeed we would argue that the fiat currency system post 1971 and a subsequent exponential increase in money creation has allowed nominal returns to keep

more elevated than they would have otherwise been. Indeed for most countries (Italy and Japan being notable exceptions) it is hard to notice any difference pre and post the abandonment of the Dollar/Gold Standard in 1971 for nominal returns.

However when we move to look at returns to Gold we see a fascinating trend where relative returns of equities since August 1971 are much lower than their long-term average. In the US, equities have only out-performed Gold by 0.7% p.a. since August 1971 as compared to 4.8% over the last 100 years and 3.7% since 1930. This performance of Gold over the last 41 years is impressive considering that Gold over the very long-run and certainly up to 1971 was largely considered a store of value only and one that couldn't compete with riskier assets over the long-run, especially given its lack of income generation.

Indeed across the G7 the equity returns to Gold since August 1971 range from 1.1% p.a for the UK market to -3.1% p.a. for Italy. All notably lower than their longer-term averages.

Results - Bond Returns

It's very interesting that bond returns since August 1971 are higher than earlier periods across virtually all of the sample. This seems counter intuitive considering that we've moved from a Gold based financial system to a complete fiat based one. However it's fair to say that if we break the returns down in periods we can understand the trend better. The first decade post August 1971 were disastrous for all bond and equity returns rebased in Gold (see Figure 82 for the 1970s overall returns that were typically double digit negative percentages per annum across the board). Then we saw a 25 year rally based on lower and lower inflation due to globalisation and perhaps central bank inflation targeting (the former far more important in our view). Then the last 5+ years have seen bond market rallies that are arguably due to money printing artificially driving down yields and/or due to the slow collapse of the credit creation/fiat currency regime that arguably started in 1971 and ended with the onset of the financial crisis in 2007. One could argue that so much money/credit/debt was created in the 36 years leading up to the financial crisis that when the crisis hit, the ensuing deflationary trends have overpowered the worries about being in a fiat currency system with endless money printing and inflation capabilities. It's fair to say that these battles continue and for now the deflationary collapse of the debt super-cycle system of 1971-2007 is winning out in core bond yield terms. The bond market is arguably saying that money printing is either a powerful weapon and likely to keep bond yields low enough for them to be a store of value and/or that money printing is not likely to be enough to offset the low inflation trend.

Some might feel that we are currently in a sweet spot for bonds. Enough money printing to provide an extra buyer of bonds and help prevent financing problems, but not enough to stimulate imminent inflation. Deflation can be very bad for bonds if it starts to impact solvency and inflation is obviously bad so perhaps current policy is as bond friendly as it could possibly get. It's clearly a very delicate balance though as Sovereign woes are prevalent outside of the core markets and current inflation is now running ahead of 10 year yields in most countries. If history is your guide, bonds seem like a big gamble to a longer-term investor.

If we look at the bond returns to Gold since 1971 the performance is perhaps more subdued, similar to that seen in equities. Indeed for the G7 bond markets we have Japan (+0.6% p.a.), Germany (+0.3%), France (+0.3%), Canada (+0.1%) only slightly out-performing, but with the US (-0.8%), the UK (-0.8%) and Italy (-1.2%) notably under-performing Gold.

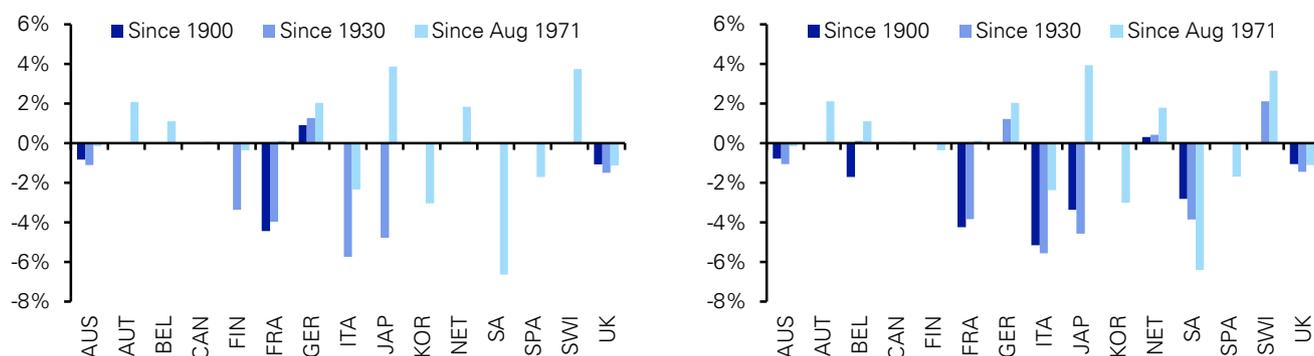
So the stunning bond market rally seen since August 1971 doesn't look so stunning relative to Gold over this period which is interesting and similar to what we saw for equities.

Results - Domestic vs USD returns

In the tables and graphs we've shown domestic bond and equity returns for a number of G20 and Eurozone countries and also these rebased in USD terms to allow for the purest cross currency comparison.

Figure 78 shows the difference between the domestic and USD returns over the same three periods graphed earlier in this mini-section.

Figure 78: Equity (left) and Bond (right) USD Based Minus Nominal Total Returns for Different Time Periods



Source: Deutsche Bank, GFD

Of the larger nations, those seeing their domestic performance dramatically under-perform their USD performance over the longer periods (since 1900 and since 1930) were largely those impacted by Wars (eg Italy, France and Japan).

Since 1971 it's mostly the core of Europe plus Japan and Switzerland that have seen their USD returns out-strip their domestic currency returns as their currencies have out-performed the Dollar. Of the larger countries, the UK, Spain and Italy have seen their returns drop when currency converting since 1971. Much of this is an inflation story leading to currency weakness over this period.

Conclusion

There are many ways of interpreting this data and we would recommend the four tables overleaf as a starting point to compare international returns. One obvious feature is that nominal returns since the links to Gold finally ended in 1971 are broadly similar to the long-run levels. Real adjusted they are slightly lower but not significantly. However, relative to Gold, returns have been weak over this 41 year period.

Does this mean that since we de-linked the globe's currencies to Gold, the precious metal suddenly turns from being an asset that only matches inflation (see the long-run returns in Figure 69) to one where it now competes with all other income producing assets? Such a long period of out-performance against inflation may as a minimum cast doubt on the quality of the inflation numbers seen since the fiat currency system began in 1971. Is Gold the real inflation measure that we should benchmark all other assets or has it been pushed towards bubble territory because of the system we have created. Such is the uniqueness of this situation that the answers are unknown.

Figure 79: Global Equity and Bond Nominal Total Returns

	Australia		Austria		Belgium		Canada		Finland		France		Germany		India		Ireland		Italy		Japan		Korea		Netherlands		Portugal		South Africa		Spain		Switzerland		UK		US											
	Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity										
Last 5yrs	-3.8%	10.3%	-12.2%	7.7%	-5.6%	6.8%	-0.7%	6.8%	-10.7%	8.3%	-5.5%	7.3%	-3.5%	8.1%	-3.6%	4.5%	-12.4%	3.5%	-13.1%	2.2%	-11.3%	2.4%	2.8%	6.9%	-5.9%	7.9%	-13.8%	-3.5%	7.9%	9.9%	-14.7%	1.7%	-3.1%	5.7%	1.1%	6.0%	0.8%	7.4%										
Last 10yrs	7.9%	7.1%	6.0%	5.8%	6.7%	5.3%	8.4%	6.4%	3.1%	6.1%	5.3%	5.5%	9.1%	5.9%	18.0%	3.5%	0.1%	3.5%	-0.1%	3.0%	0.2%	1.4%	13.6%	5.8%	4.1%	5.8%	2.0%	0.9%	16.1%	10.2%	2.6%	2.9%	6.2%	3.8%	8.0%	5.3%	6.6%	5.7%										
Last 25yrs	9.2%	10.3%	6.3%	7.0%	8.1%	7.5%	7.9%	8.9%	9.3%	9.5%	8.4%	8.4%	7.4%	6.3%	17.7%	8.6%		7.7%	4.7%	8.4%	-2.3%	4.1%	8.8%	10.9%	9.2%	7.0%		6.8%	15.4%	14.5%	7.9%	7.7%	8.5%	4.7%	8.8%	7.7%	9.5%	8.0%										
Last 50yrs	11.7%	9.0%		7.5%	8.8%	7.8%	9.4%	8.3%	13.4%	9.5%	8.5%	8.4%	7.2%	7.1%		7.1%		8.4%	6.3%	9.4%	5.9%	6.7%	20.0%	18.4%	9.7%	7.1%		16.8%	11.6%	11.0%	8.3%		4.7%	11.7%	8.8%	9.7%	7.4%											
Last 100yrs	11.7%	6.7%				6.0%		6.1%	13.7%		10.9%	6.1%	5.2%			5.5%				6.8%		6.3%				5.7%		7.9%					9.7%	6.3%	9.5%	5.3%												
Since Aug 71	11.4%	10.0%	6.8%	7.8%	9.2%	8.3%	9.3%	9.1%	13.8%	9.8%	9.7%	9.3%	7.3%	7.3%		7.5%		9.9%	8.0%	10.2%	4.4%	5.8%	17.6%	16.2%	10.0%	7.8%		17.6%	13.3%	9.6%	9.2%	7.0%	4.9%	11.4%	9.2%	9.8%	8.1%											
Since 1930	11.4%	7.1%				6.5%		6.4%	13.6%		10.5%	6.6%	7.0%	3.7%		6.1%		7.1%	11.0%	7.6%	11.4%	6.6%				6.2%			8.8%				4.3%	10.4%	7.2%	9.2%	5.5%											
Since 1900	11.8%	5.9%				5.5%		5.6%			10.4%	5.6%	5.2%			5.2%				5.9%		6.2%				5.2%			7.5%					8.6%	5.7%	9.3%	4.9%											
Since 1800																																		6.9%	4.9%		5.1%											
RETURNS BY DECADE																																																
1800-1809																																				8.1%	6.1%		9.1%									
1810-1819											6.4%					6.3%																				5.4%	4.1%	4.9%	6.2%									
1820-1829											12.9%					5.3%											8.8%									4.8%	7.2%	6.9%	5.5%									
1830-1839											1.8%					5.5%																				4.3%	3.3%	5.3%	2.8%									
1840-1849							3.3%				2.9%					4.5%																					4.8%	3.8%	7.8%	7.5%								
1850-1859							6.2%				6.7%					3.0%																					3.8%	3.3%	1.6%	4.0%								
1860-1869		5.3%					5.6%	5.2%			4.9%					5.1%																				4.4%	2.8%	18.3%	6.3%									
1870-1879		5.6%					4.6%	7.2%			6.0%	7.7%				4.2%			11.4%																	4.6%		4.9%	3.8%	7.7%	3.7%							
1880-1889		6.2%					5.3%	6.9%			4.6%	10.0%				4.1%				12.6%		7.0%														5.6%		5.5%	2.7%	5.7%	5.5%							
1890-1899	7.9%	5.2%					3.5%	3.4%			4.3%	5.1%				3.1%				5.1%		5.7%														2.6%		3.7%	3.0%	2.9%	5.4%	3.9%						
1900-1909	13.6%	1.6%					2.8%	2.2%			5.6%	3.1%	5.6%			2.3%				-1.4%		6.1%															2.6%		4.8%	0.6%	1.2%	9.9%	1.6%					
1910-1919	9.7%	0.7%					0.4%	2.2%			8.1%	-0.6%	-18.7%			0.5%				1.5%		2.9%															-1.2%		2.0%		1.5%	-1.1%	4.3%	2.5%				
1920-1929	15.4%	6.1%					5.4%	5.8%	8.7%		16.9%	6.6%	18.1%			5.9%				4.2%		6.2%																7.1%		4.8%		6.0%	9.5%	5.2%	14.8%	5.5%		
1930-1939	10.2%	5.9%					3.6%	5.2%	10.6%		-1.5%	3.8%	4.5%	7.5%		6.9%		4.4%	6.5%	5.3%	14.2%	5.7%																3.9%		4.8%		4.2%	1.9%	7.1%	-0.5%	4.0%		
1940-1949	10.1%	3.9%					4.9%	8.4%	3.5%	14.6%		20.7%	2.8%	-6.0%	-17.3%		6.2%		6.3%	30.4%	4.7%	15.9%	5.5%																7.8%		3.5%		4.1%	8.9%	3.3%	9.0%	2.7%	
1950-1959	15.3%	3.1%		8.1%			4.3%	13.3%	1.5%	18.5%		24.0%	4.8%	25.8%	5.9%		1.5%		4.9%	23.5%	5.3%	33.9%	6.0%																2.6%		5.3%	13.3%	5.1%	2.7%	17.2%	3.4%	19.3%	0.4%
1960-1969	14.0%	4.2%		4.6%	3.4%		4.4%	10.0%	3.7%	8.7%	7.3%	4.5%	4.3%	6.0%	5.8%		4.2%		3.4%	3.7%	5.0%	13.0%	12.3%		28.5%	6.1%	3.0%														4.9%	19.1%	4.8%	2.9%	8.3%	5.0%	7.8%	2.8%
1970-1979	8.6%	6.9%	6.5%	8.1%	7.2%		6.3%	10.4%	6.8%	13.8%	8.1%	6.8%	6.1%	2.2%	8.1%		4.9%		5.5%	-3.0%	6.5%	12.3%	6.8%	40.7%	27.2%	5.7%	7.5%		16.0%	7.4%	-1.2%	6.0%	2.0%								5.8%	10.2%	9.4%	5.8%	6.1%			
1980-1989	17.7%	12.4%	16.3%	8.7%	20.6%		12.0%	12.2%	13.4%	26.7%	10.8%	21.9%	14.9%	15.9%	8.2%		7.0%		18.4%	28.0%	17.3%	21.3%	9.2%	29.2%	22.1%	20.3%	9.6%		19.5%	24.1%	15.2%	27.4%	16.3%	10.6%								3.9%	23.9%	14.0%	17.5%	12.8%		
1990-1999	11.0%	12.9%	1.4%	8.5%	11.4%		10.4%	10.6%	10.7%	29.8%	14.0%	14.3%	10.7%	12.1%	6.9%	23.3%	10.5%	14.4%	10.6%	12.6%	14.3%	-4.3%	7.2%	4.6%	15.6%	20.6%	8.7%	11.1%	10.9%	13.9%	17.5%	18.7%	12.1%	16.0%								5.9%	14.9%	10.2%	18.2%	8.0%		
2000-2009	8.9%	6.7%	7.4%	5.8%	1.8%		6.0%	5.6%	6.8%	-4.6%		6.0%	-0.3%	5.9%	-0.9%	5.8%	14.9%	8.5%	-2.8%	5.1%	-1.5%	5.8%	-5.0%	1.8%	9.9%	7.7%	-2.6%	5.9%	0.6%	6.7%	14.7%	12.1%	4.3%	5.6%	1.1%							4.3%	1.6%	5.4%	-0.9%	6.6%		
2010-2012	-0.7%	12.0%	-4.2%	8.6%	3.8%		6.3%	2.1%	8.0%	-2.6%		8.8%	-0.4%	7.2%	5.1%	8.4%	-0.6%	3.2%	4.3%	3.6%	-9.3%	-0.6%	-5.0%	2.4%	6.0%	7.1%	1.1%		8.1%	-12.2%	-9.6%	11.5%	11.4%	-14.8%	-1.3%	1.7%						4.9%	5.0%	6.4%	9.3%	9.5%		

Note: 2012 Returns are calculated up to 31July. So for example the last 5 years data is actually for 4 years and 7 months, 10 years for 9 years and 7 months.
Source: Deutsche Bank, GFD

Figure 81: Global Equity and Bond Total Returns in USD

	Australia	Austria	Belgium	Canada	Finland	France	Germany	India	Ireland	Italy	Japan	Korea	Netherlands	Portugal	South Africa	Spain	Switzerland	UK	US																			
	Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity																		
Last 5yrs	-0.2%	14.4%	-15.2%	4.1%	-8.8%	3.2%	-0.9%	6.7%	-13.7%	4.7%	-8.7%	3.7%	-6.8%	4.4%	-10.1%	-2.5%	-15.3%	0.0%	-16.0%	-1.2%	-4.8%	10.0%	-1.1%	2.9%	-9.0%	4.3%	-16.7%	-6.8%	4.0%	5.8%	-17.5%	-1.7%	-0.2%	8.9%	-3.6%	1.1%	0.8%	7.4%
Last 10yrs	14.9%	14.0%	7.7%	7.5%	8.4%	7.0%	13.4%	11.3%	4.8%	7.7%	7.0%	7.2%	10.8%	7.6%	16.2%	2.0%	1.7%	5.2%	1.5%	4.7%	4.4%	5.7%	14.1%	6.3%	5.8%	7.5%	3.6%	2.5%	16.5%	10.6%	4.3%	4.5%	9.9%	7.4%	7.7%	5.0%	6.6%	5.7%
Last 25yrs	10.9%	12.0%	6.2%	7.0%	8.1%	7.6%	9.1%	10.1%	8.5%	8.7%	8.4%	8.4%	7.4%	6.3%	11.0%	2.4%		7.4%	3.4%	7.1%	-0.6%	5.9%	7.2%	9.3%	9.1%	6.9%		5.9%	8.9%	8.1%	6.9%	6.7%	9.6%	5.8%	8.0%	6.9%	9.5%	8.0%
Last 50yrs	11.5%	8.9%		9.3%	9.7%	8.7%	9.5%	8.5%	12.5%	8.6%	8.3%	8.2%	9.2%	9.1%		1.9%		7.1%	4.3%	7.3%	9.2%	10.0%	14.9%	13.4%	11.3%	8.6%		11.2%	6.3%	9.2%	6.6%	#N/A	7.8%	10.4%	7.5%	9.7%	7.4%	
Last 100yrs	10.8%	5.8%			4.1%		6.1%	8.7%		5.9%	1.3%	6.2%		2.5%						0.9%		2.5%				6.1%			4.7%					8.5%	5.1%	9.5%	5.3%	
Since Aug 71	11.3%	9.8%	8.8%	9.9%	10.3%	9.4%	9.4%	9.1%	13.4%	9.5%	9.8%	9.4%	9.3%	9.3%		2.5%		8.8%	5.6%	7.8%	8.3%	9.8%	14.6%	13.1%	11.8%	9.6%		10.9%	6.9%	7.9%	7.5%	10.8%	8.6%	10.3%	8.1%	9.8%	8.2%	
Since 1930	10.3%	6.1%			6.6%		6.5%	10.3%		6.5%	2.8%	8.2%	4.9%			2.3%		5.6%	5.3%	2.0%	6.6%	2.0%				6.6%			5.0%				6.4%	8.9%	5.7%	9.2%	5.5%	
Since 1900	11.0%	5.2%			3.8%		5.6%		5.9%	1.4%	6.1%					2.6%				0.8%		2.8%				5.5%			4.7%				7.5%	4.6%	9.3%	4.9%		
RETURNS BY DECADE																																						
1900-1909	13.6%	1.6%			2.7%		2.2%			5.6%	3.0%	5.6%		2.3%						-0.8%	#N/A	6.1%			2.6%			4.8%				0.6%	1.2%	9.9%	1.6%			
1910-1919	7.0%	-1.8%			-6.8%		1.4%			0.3%	-7.8%	-36.5%		3.7%						-7.5%	#N/A	2.9%			-2.0%			-0.6%				-1.1%	-3.6%	4.3%	2.5%			
1920-1929	18.2%	8.6%			-6.4%		6.5%	6.9%		7.5%	-2.0%	51.2%		3.8%						0.5%	#N/A	6.1%			7.9%			7.6%			6.9%	12.4%	8.0%	14.8%	5.5%			
1930-1939	5.6%	1.5%			5.5%		4.1%	8.2%		-6.9%	-1.9%	10.0%	13.2%	4.9%					2.2%	6.1%	4.9%	6.1%	-1.9%		6.8%			2.6%			5.7%	-0.2%	4.9%	-0.5%	4.0%			
1940-1949	6.4%	0.3%			-0.3%	8.5%	3.6%	-1.8%		-1.7%	-16.3%	-10.8%	-21.5%	2.5%					2.7%	-7.6%	-25.8%	-25.6%	-32.3%		0.5%			0.0%			4.5%	5.2%	-0.2%	9.0%	2.7%			
1950-1959	15.3%	3.1%		8.1%	4.3%	15.1%	3.2%	14.7%		19.9%	1.3%	25.9%	5.9%	1.4%				4.9%	23.6%	5.3%	33.9%	6.0%			2.7%			5.3%	3.8%	-3.7%	2.7%	17.2%	3.4%	19.3%	0.4%			
1960-1969	14.0%	4.2%		4.7%	3.4%	4.5%	8.7%	2.4%	5.8%	4.4%	3.2%	3.0%	7.3%	7.1%				-0.5%	1.8%	3.6%	4.9%	13.0%	12.3%		7.3%	6.5%	3.4%		4.9%	17.3%	3.2%	2.9%	6.7%	3.4%	7.8%	2.8%		
1970-1979	8.5%	6.8%	14.6%	16.3%	13.5%	12.6%	9.5%	5.9%	15.2%	9.4%	10.3%	9.6%	10.3%	16.7%		4.3%		4.3%	-5.4%	3.9%	16.9%	11.2%	34.3%	21.4%	12.7%	14.7%		14.3%	5.9%	-0.7%	6.6%	12.7%	16.9%	9.3%	8.6%	5.8%	6.1%	
1980-1989	13.8%	8.7%	16.8%	9.2%	17.8%	9.4%	12.3%	13.5%	25.6%	9.9%	17.6%	10.8%	16.1%	8.4%		-0.7%		14.6%	22.3%	12.1%	27.7%	14.9%	24.9%	18.0%	20.2%	9.6%	#N/A	7.2%	11.0%	3.0%	21.2%	10.6%	11.0%	4.3%	20.0%	10.4%	17.5%	12.8%
1990-1999	9.0%	10.9%	0.0%	7.0%	10.1%	9.2%	8.1%	8.2%	25.0%	9.8%	12.9%	9.4%	10.5%	5.4%	12.2%	0.5%	12.2%	8.4%	8.0%	9.6%	-0.9%	11.0%	-0.7%	9.8%	19.0%	7.3%	7.9%	7.7%	4.2%	7.6%	13.9%	7.6%	15.6%	5.6%	14.9%	10.2%	18.2%	8.0%
2000-2009	12.4%	10.1%	11.3%	9.6%	5.4%	9.8%	9.0%	10.2%	-1.2%	9.8%	3.3%	9.7%	2.7%	9.6%	14.1%	7.8%	0.7%	8.8%	2.1%	9.6%	-4.1%	2.8%	9.6%	7.5%	0.9%	9.6%	4.2%	10.5%	12.6%	10.1%	8.0%	9.4%	5.6%	8.9%	1.6%	5.4%	-0.9%	6.6%
2010-2012	4.6%	18.0%	-9.0%	3.2%	-1.3%	1.1%	3.8%	9.8%	-7.4%	3.4%	-5.3%	1.9%	-0.1%	3.0%	-6.4%	-2.9%	-0.8%	-1.5%	-13.8%	-5.5%	0.7%	8.5%	7.0%	8.1%	-3.9%	2.8%	-16.6%	-14.1%	7.5%	7.3%	-19.0%	-6.2%	3.7%	7.0%	3.9%	5.4%	9.3%	9.5%

Note: 2012 Returns are calculated up to 31 July. So for example the last 5 years data is actually for 4 years and 7 months, 10 years for 9 years and 7 months.
Source: Deutsche Bank, GFD

Figure 82: Global Equity and Bond Total Returns in Gold

	Australia	Austria	Belgium	Canada	Finland	France	Germany	India	Ireland	Italy	Japan	Korea	Netherlands	Portugal	South Africa	Spain	Switzerland	UK	US																			
	Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity	Bond Equity																		
Last 5yrs	-12.6%	0.2%	-25.7%	-8.8%	-20.1%	-9.6%	-13.1%	-6.6%	-24.4%	-8.3%	-20.0%	-9.2%	-18.3%	-8.5%	-21.2%	-14.6%	-25.8%	-12.4%	-26.4%	-13.5%	-16.6%	-3.7%	-13.3%	-9.8%	-20.3%	-8.6%	-27.0%	-18.3%	-8.9%	-7.3%	-27.7%	-13.9%	-12.5%	-4.6%	-15.5%	-11.4%	-11.7%	-5.9%
Last 10yrs	-1.5%	-2.3%	-7.6%	-7.8%	-7.1%	-8.3%	-2.8%	-4.6%	-10.1%	-7.6%	-8.3%	-8.1%	-5.0%	-7.7%	-0.4%	-12.6%	-12.8%	-9.8%	-12.9%	-10.3%	-10.5%	-9.3%	-2.1%	-8.8%	-9.3%	-7.9%	-11.2%	-12.1%	-0.1%	-5.2%	-10.6%	-10.4%	-5.7%	-7.9%	-7.6%	-9.9%	-8.6%	-9.3%
Last 25yrs	6.0%	7.1%	1.5%	2.3%	3.3%	2.8%	4.3%	5.2%	3.7%	3.9%	3.6%	3.7%	2.6%	1.6%	6.1%	-2.1%		2.7%	-1.2%	2.4%	-5.0%	1.3%	2.5%	4.5%	4.3%	2.2%		1.2%	4.1%	3.3%	2.2%	2.0%	4.8%	1.2%	3.3%	2.2%	4.7%	3.2%
Last 50yrs	3.3%	0.8%		1.3%	1.6%	0.7%	1.5%	0.5%	4.2%	0.6%	0.3%	0.2%	1.1%	1.0%		-5.6%		-0.7%	-3.3%	-0.6%	1.2%	1.9%	6.5%	5.0%	3.1%	0.6%		3.1%	-1.5%	1.2%	-1.3%		-0.1%	2.3%	-0.4%	1.6%	-0.5%	
Last 100yrs	6.0%	1.3%				-0.3%		1.6%	4.1%		1.4%	-3.1%	1.7%			-1.8%						-1.8%				1.5%		0.2%						3.8%	0.7%	4.8%	0.8%	
Since Aug 71	2.0%	0.7%	-0.2%	0.7%	1.1%	0.3%	0.3%	0.1%	4.0%	0.4%	0.7%	0.3%	0.3%	0.3%		-6.0%		-0.2%	-3.1%	-1.2%	-0.7%	0.6%	5.1%	3.8%	2.5%	0.5%		1.7%	-2.0%	-1.0%	-1.4%	1.6%	-0.5%	1.1%	-0.8%	0.7%	-0.8%	
Since 1930	4.7%	0.6%				1.1%		1.0%	4.6%		1.0%	-2.5%	2.7%	-0.5%		-2.9%		0.2%	-0.1%	-3.2%	1.1%	-3.2%			1.1%			-0.4%				0.9%	3.4%	0.3%	3.7%	0.1%		
Since 1900	6.8%	1.2%				-0.1%		1.6%			1.9%	-2.5%	2.1%			-1.3%						-3.0%			-1.1%		1.6%		0.7%				3.5%	0.7%	5.2%	0.9%		
RETURNS BY DECADE																																						
1900-1909	13.6%	1.6%				2.7%		2.2%			5.6%	3.0%	5.6%			2.3%					-0.8%	6.1%			2.6%			4.8%				0.6%	1.2%	9.9%	1.6%			
1910-1919	7.0%	-1.8%				-6.8%		1.4%			0.3%	-7.8%	-36.5%			3.7%					-7.5%	2.9%			-2.0%			-0.6%				-1.1%	-3.6%	4.3%	2.5%			
1920-1929	18.2%	8.6%				-6.4%		6.5%	6.9%		7.5%	-2.0%	51.2%			3.8%					0.5%	6.1%			7.9%			7.6%			6.9%	12.4%	8.0%	14.8%	5.5%			
1930-1939	0.2%	-3.7%				0.1%		-1.2%	2.7%		-11.7%	-6.9%	4.4%	7.4%		-0.5%		-3.0%	0.6%	-0.5%	0.6%	-6.9%			1.3%			-2.6%		0.3%	-5.3%	-0.5%	5.6%	-1.4%				
1940-1949	4.8%	-1.1%				-1.8%	6.9%	2.1%	-3.3%		-3.1%	-17.6%	-12.1%	-22.6%		1.0%		1.2%	-9.0%	-26.9%	-26.7%	-33.3%			-1.0%			-1.5%		3.0%	3.7%	-1.6%	7.4%	1.2%				
1950-1959	16.9%	4.5%		9.7%		5.8%	16.7%	4.6%	16.3%		21.6%	2.7%	27.7%	7.4%		2.9%		6.4%	25.4%	6.8%	35.8%	7.5%			4.1%			6.7%	5.2%	-2.4%	4.1%	18.9%	4.9%	20.9%	1.8%			
1960-1969	13.9%	4.2%		4.6%	3.4%	4.4%	8.6%	2.4%	5.8%	4.4%	3.2%	2.9%	7.2%	7.1%		-0.5%		1.7%	3.5%	4.9%	12.9%	12.2%		7.2%	6.5%	3.4%		4.9%	17.3%	3.2%	2.9%	6.6%	3.4%	7.7%	2.7%			
1970-1979	-18.0%	-19.2%	-13.4%	-12.0%	-14.2%	-14.9%	-17.2%	-19.9%	-12.9%	-17.3%	-16.6%	-17.1%	-16.6%	-11.8%		-21.1%		-21.1%	-28.5%	-21.4%	-11.6%	-15.9%	1.6%	-8.2%	-14.8%	-13.3%		-13.5%	-19.9%	-24.9%	-19.4%	-14.7%	-11.6%	-17.4%	-17.9%	-20.0%	-19.8%	
1980-1989	17.1%	11.9%	20.3%	12.4%	21.2%	12.6%	15.6%	16.9%	29.3%	13.1%	21.0%	14.1%	19.6%	11.6%		2.2%		18.0%	25.9%	15.4%	31.4%	18.3%	28.6%	21.4%	23.7%	12.8%		10.3%	14.2%	6.1%	24.7%	13.9%	14.2%	7.4%	23.5%	13.7%	20.9%	16.1%
1990-1999	13.6%	15.5%	4.2%	11.5%	14.7%	13.7%	12.7%	12.8%	30.2%	14.4%	17.6%	13.9%	15.1%	9.8%	16.9%	4.8%	16.9%	13.0%	12.5%	14.2%	3.2%	15.6%	3.5%	14.4%	24.0%	11.8%	12.5%	12.3%	8.6%	12.1%	18.7%	12.1%	20.5%	10.0%	19.8%	14.9%	23.2%	12.5%
2000-2009	-1.7%	-3.7%	-2.7%	-4.1%	-7.8%	-3.9%	-4.6%	-3.6%	-13.6%	-3.9%	-9.6%	-4.1%	-10.2%	-4.2%	-0.2%	-5.7%	-11.9%	-4.8%	-10.7%	-4.2%	-16.1%	-10.1%	-4.1%	-6.0%	-11.7%	-4.1%	-8.8%	-3.3%	-1.5%	-3.7%	-5.5%	-4.3%	-7.6%	-4.8%	-11.1%	-7.8%	-13.4%	-6.7%
2010-2012	-8.0%	3.7%	-20.0%	-9.3%	-13.3%	-11.2%	-8.8%	-3.5%	-18.7%	-9.1%	-16.8%	-10.5%	-12.2%	-9.4%	-17.8%	-14.7%	-12.9%	-13.4%	-24.2%	-17.0%	-11.5%	-4.6%	-5.9%	-5.0%	-15.5%	-9.7%	-26.7%	-24.5%	-5.5%	-5.7%	-28.8%	-17.5%	-8.9%	-5.9%	-8.7%	-7.4%	-4.0%	-3.8%

Note: 2012 Returns are calculated up to 31 July. So for example the last 5 years data is actually for 4 years and 7 months, 10 years for 9 years and 7 months.
Source: Deutsche Bank, GFD

Credit spreads tighter but still pricing recession

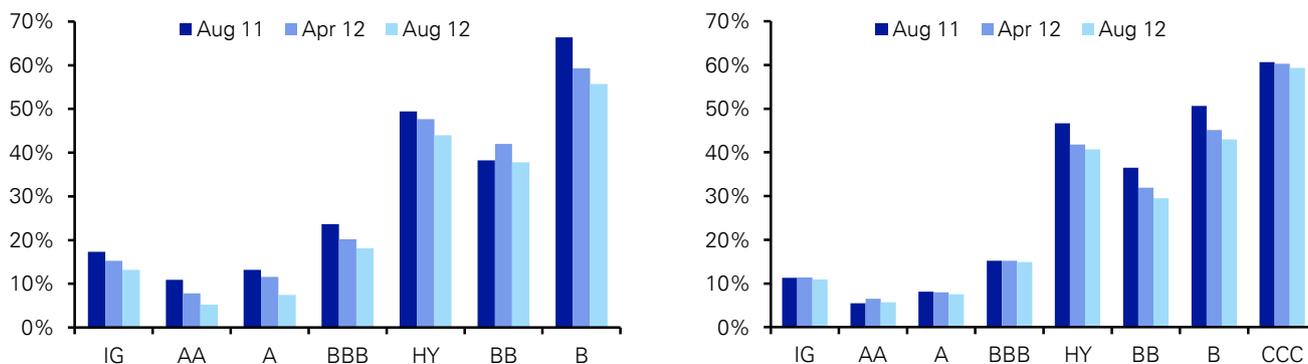
In the mean reversion section of this note we have highlighted that while corporate bonds are unlikely to see particularly attractive total returns if we do mean revert, excess returns could prove notably more attractive. In this section we delve a little deeper into the credit market and try to assess value for the longer-term buy and hold investor of the asset class. As usual we will focus initially on the levels of default that are priced into current spreads. Essentially updating some of the work from our annual default study.

When we published our latest default study back in April (“5yrs of crisis – The default bark far worse than the bite...”, 16 Apr 2012). We noted that despite having navigated our way through the worst financial crisis since the “Great Depression”, over the last 5 years or so, default rates had actually been close to their long-term averages which in our view owed much to the unprecedented levels of intervention from the authorities. In addition at the time credit spreads were still pricing in fairly extreme levels of default, particularly in Europe.

Implied default rates

We initially look to assess default rates implied by the current level of spreads in the cash market. Please see our latest default study for information on the calculation methodology. In Figure 83 we compare the current implied default levels for the non-financial cash indices (assuming a 40% recovery) with the levels from when we last published the default study as well as where they stood when we last published this note. There are probably two notable points to highlight. First of all implied default levels have fallen over the past year and secondly, EUR single-B bonds price in similar default levels to USD CCC bonds, initially suggesting (as we saw with the mean reversion exercise) that there may be more value in European HY credit.

Figure 83: EUR (left) and USD (right) Spread Implied 5 Year Cumulative Default Rates Assuming 40% Recovery



Note: Data to COB 31 Aug 2012 except USD HY which is to COB 30 Aug 2012.
Source: Deutsche Bank

So we can see that implied default levels have fallen over the course of the past year. In Figure 84 we take a closer look at implied default rates by rating band given different recovery assumptions and compare these with the average and worst case instances in history (going back to 1970). We have shaded the cells where the implied default rate is lower than either or both the average and the worst. The darker shading shows where the implied level is below the LT average and therefore also the worst case while the lighter shading shows where the implied rate is lower than just the worst case.

Figure 84: Non-Financial 5yr Cumulative Spread Implied Default Rates by Rating

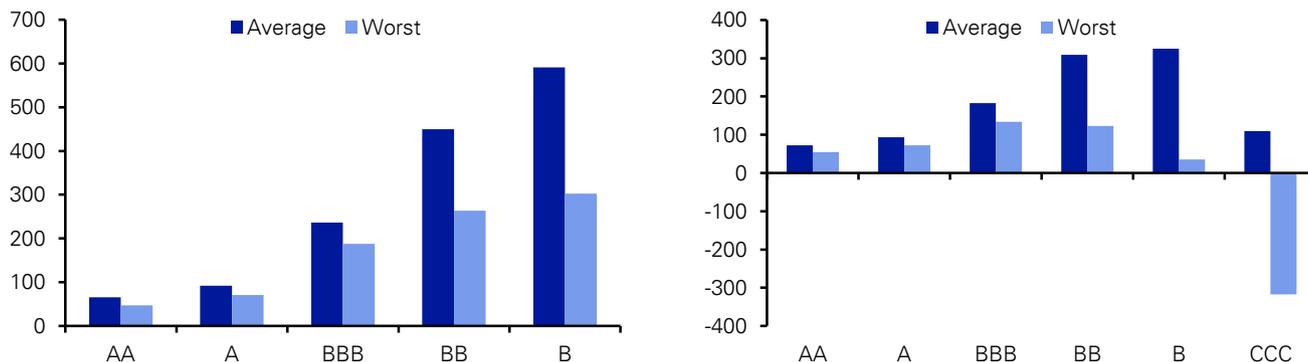
		5yr Spread	Implied 5yr Cumulative Default Rate			Actual 5yr Default Rates (since 1970)	
			0% Recovery	20% Recovery	40% Recovery	Worst	Average
EUR	IG Non-Fin	184	8.6%	10.4%	13.2%	2.4%	1.0%
	AA	69	3.5%	4.2%	5.3%	1.8%	0.4%
	A	101	4.9%	5.9%	7.4%	2.5%	0.8%
	BBB	259	11.8%	14.3%	18.1%	5.8%	1.9%
	HY Non-Fin	690	29.3%	35.2%	44.0%	31.6%	21.3%
	BB	577	25.1%	30.2%	37.8%	23.0%	10.1%
	B	937	37.6%	44.9%	55.7%	41.1%	25.0%
USD	IG Non-Fin	150	7.2%	8.7%	11.0%	2.4%	1.0%
	AA	77	3.7%	4.5%	5.7%	1.8%	0.4%
	A	103	4.9%	6.0%	7.6%	2.5%	0.8%
	BBB	206	9.9%	11.9%	14.9%	5.8%	1.9%
	HY Non-Fin	627	27.2%	32.7%	40.7%	31.6%	21.3%
	BB	437	19.6%	23.5%	29.5%	23.0%	10.1%
	B	670	29.1%	34.7%	43.0%	41.1%	25.0%
	CCC	986	39.9%	47.8%	59.3%	66.3%	51.8%
GBP	IG Non-Fin	208	9.7%	11.6%	14.4%	2.4%	1.0%
	AA	90	4.6%	5.6%	7.1%	1.8%	0.4%
	A	140	6.7%	8.0%	10.0%	2.5%	0.8%
	BBB	261	11.8%	14.2%	17.6%	5.8%	1.9%

Note: Analysis based on bonds with a remaining maturity of 4-6 years. Data to COB 31 Aug 2012 except USD HY which is to COB 30 Aug 2012.
Source: Deutsche Bank

As always tends to be the case, IG credit implies far higher default rates than anything we have seen through history. The rationale being that there are other more notable risks to be priced for an IG investor than pure default risk. As an example many IG investors may be more concerned with credit ratings being cut from IG to HY as they may not be able to hold HY bonds. For HY, with the exception of USD CCC credit, implied default rates are above the LT average even when we assume a zero recovery. In the EUR market BB credit actually implies a higher default rate than the worst case when assuming zero recovery while for single-B credit we would have to see a recovery somewhere between 0%-20%. For USD credit spreads don't look quite so attractive. CCC credit implies a default rate below even the average when assuming 0% and 20% recoveries and below the worst case when assuming 40% recovery. For single-B credit we are below the worst case when a 0% and 20% recovery is used and for BB when a 0% recovery is used. That said it's probably fair to say that HY credit is still pricing in fairly recessionary levels of default, particularly in Europe.

In order to get a sense of which rating bands might provide the best relative value we look at this analysis in a slightly different way. We compare current spreads with the spread implied by historic defaults. We have previously called this the default spread premium (DSP) and for the purposes of our analysis we have compared current spreads with the spread required to compensate for default over the average and worst (highest) 5 year cumulative default rate seen since 1970.

Figure 85: EUR (left) and USD (right) DSP Relative to the Average and Worst 5 Year Defaults (assuming 40% recovery)



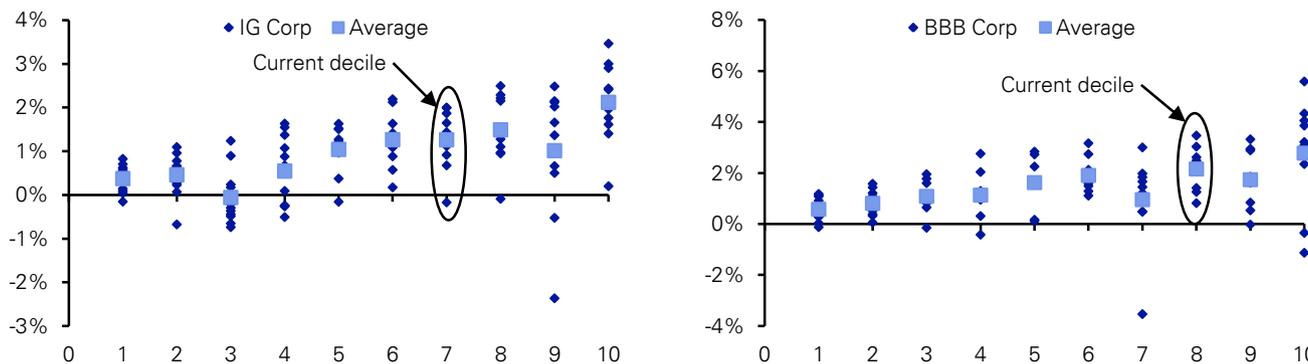
Note: Data to COB 31 Aug 2012 except USD HY which is to COB 30 Aug 2012. Source: Deutsche Bank

As we can see in Figure 85, in the EUR market it seems that it pays to take risk whether we look at average or worst case defaults. Single-B credit provides the widest DSP in both cases followed by BB and then BBB. In the USD market the story is somewhat more interesting. When assuming average defaults, single-B and BB credit offer the widest DSP. However if we assume something closer to the worst 5 year cumulative default rate then BBB credit actually offers the widest DSP. Now whilst BBB is only just wider than BB credit, single-A and AA credit offers a wider DSP than single-Bs.

Credit relative value

Another way of assessing the long-term value within credit is to update the relative value analysis we did in last year’s note, focusing on our LT corporate bond data series (all IG and BBB). As a quick recap we simply rank spreads historically into deciles, the tightest spreads score a 1 and the widest score a 10. We then plot this against the subsequent 10yr excess returns. We show the results in Figure 86.

Figure 86: IG Corp (left) and BBB Corp (right) Valuation Scores vs. Subsequent 10yr Excess Returns



Note: Data to COB 31 Jul 2012 Source: Deutsche Bank, GFD, Moody’s

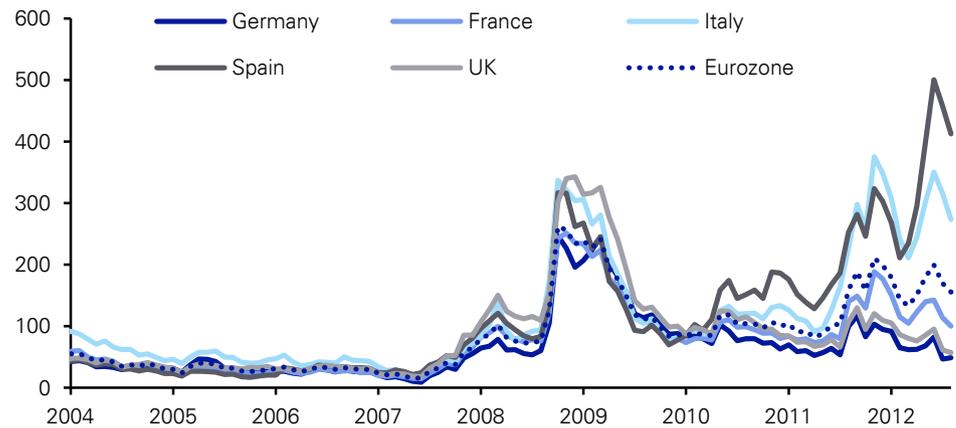
Overall credit spreads remain comfortably above their long-term average on this basis. The score for IG corporate is a 7, as it was in last year’s note, while the score for BBB is actually now an 8, having been a 6 a year ago. Therefore history would suggest that excess returns could be above the long-term averages (0.96% for IG corporate and 1.32% for BBB corporate). That said there are probably a couple of things worth noting. Our shorter business cycle theory may challenge the consistency of future returns and secondly we need to make the distinction between excess and total returns. While spread levels remain fairly elevated, the overall yields are at fairly low levels from a historical perspective owing to the significant rally we have continued to see in government bonds.

Geographic divergence in Europe

So far we have concluded that there does seem to be value in credit (from an excess return perspective) for the longer-term buy and hold type investor. However for European credit the sovereign crisis has left us with notable geographic divergences. Therefore taking advantage of the current spread levels may be somewhat more challenging.

Focusing first on the IG market we can see in Figure 87 that the past year or two has seen a notable divergence between corporate spread levels from core Europe, in this case France and Germany, and those from the peripheral. Here we focus on Italy and Spain. This arguably highlights that looking at the average spread on the index does not provide the full story. The more desirable German and French Corporates have spreads that are notably tighter than the average whilst the less desirable Italian and Spanish names are notably wider than the average. Therefore in order to take advantage of the overall average spread it would be necessary to take on risk in the peripheral. Given that the sovereign crisis is still far from over one has to weigh up the risks of taking excessive peripheral risks in these still uncertain times.

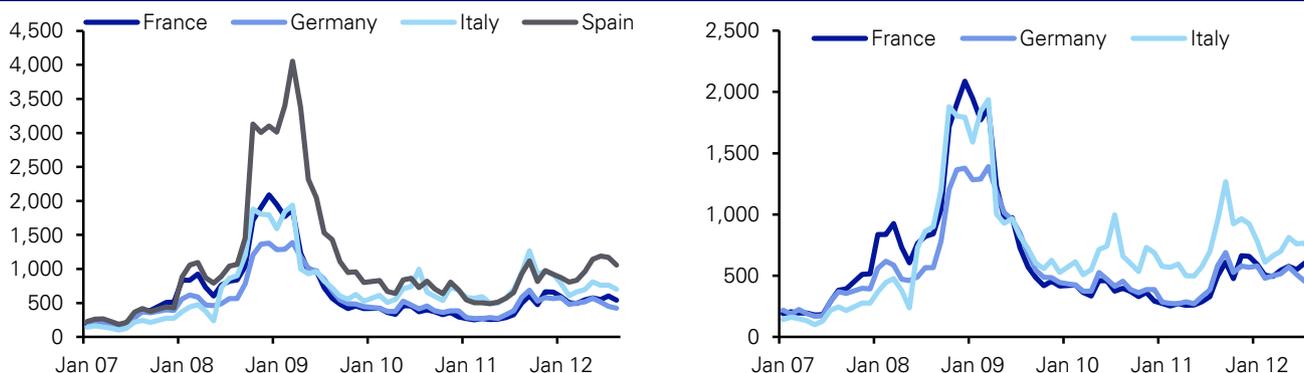
Figure 87: EUR iBoxx 3-7yr Non-Financial Benchmark Spreads by Country



Note: Data to COB 31 Aug 2012.
Source: Deutsche Bank

Trying to perform the same analysis for HY does not provide such conclusive results. This is probably due to the fact that HY companies do not have the same kind of linkage to the sovereign, either by credit rating or by possessing the same type of implicit government support as some IG companies. That said, in Figure 88 we plot similar geographic spread charts based on HY bonds and whilst the divergence is not as pronounced, we still see that German HY corporates offer the tightest spreads on average, followed by French, then Italian and finally Spanish corporates. So there is some evidence of divergence even in the HY universe. Although in the case of Spanish HY corporates this may have been present for some time now.

Figure 88: EUR iBoxx HY Non-Financial Benchmark Spreads by Country



Note: Data to COB 31 Aug 2012.
Source: Deutsche Bank

We probably have to be a little more careful when considering the rating make-up of the bonds in each geographic bucket. In Figure 89 we look at the breakdown for the current levels. Interestingly we can see that although Italian HY bonds have a larger proportion of BBs (92%) than both Germany and France their average spread is still close to 300bp wider than the German average and over 150bp wider than the French average. So this would give some credence to the geographical issues we have seen in the IG market. The spreads of Spanish HY bonds are notably wider than Italy and a key reason behind this is that more than half of the Spanish bonds have a rating in the single-B band whilst all three other countries have more than 50% in the BB band. Therefore the rating breakdown as well as geography is likely contributing to how wide Spanish HY spreads are.

Figure 89: EUR iBoxx HY Non-Financial Benchmark Spreads and Rating Breakdown by Country

	France	Germany	Italy	Spain
Average Spread	540	423	702	1,058
BB	34 / 77%	41 / 65%	23 / 92%	5 / 45%
B	8 / 18%	18 / 29%	1 / 4%	6 / 55%
CCC	2 / 5%	4 / 6%	1 / 4%	0 / 0%

Note: Data to COB 31 Aug 2012.
Source: Deutsche Bank

So in Europe the sovereign crisis has provided us with food for thought regarding the geography of the issuer with supposedly safer German corporates providing notably less upside than Italian or Spanish equivalents and therefore the overall index level.

Appendix - Mean Reversion Assumptions

In this section we outline the variables that we have mean reverted in order to calculate potential returns for the various asset classes discussed in this study.

Inflation

The starting point, which is essential for calculating possible future returns across all asset classes (including equities), is to get a future CPI time series. For this we have just reverted the YoY growth in CPI to its long-term average (around 3.2%).

Equities

For equities although we have used slightly different methodologies the broad principles were the same. Essentially we first calculate a mean reverted price series. We do this by first reverting real earnings back to their long-term trend line. We mean revert the current PE ratio back to its long-term average. Combining the reverted earnings and PE ratios we then calculate a price. In order to calculate total returns we have assumed real dividends revert back to their long-term trend line. By combining the prices and the dividends we calculate total returns. As already mentioned we used two slightly different methodologies the specific of which are outlined in the bullets below.

- **Method 1:** We revert earnings, PE ratios and dividends back to their long-term trend/averages using all available data back to 1871.
- **Method 2:** We revert earnings, PE ratios and dividends back to their long-term trend/averages based on data since 1958. As already mentioned this recognises that earnings growth may have increased (albeit slightly) post 1958 and the previously discussed dividend crossover.

Treasury/Government bond mean reversion

For Treasuries and other Government bond series we have reverted to the long-term average real yield which has been calculated by subtracting YoY CPI from the nominal bond yield. We can then use these yields to calculate prospective returns.

Corporate bond mean reversion (IG and HY)

For corporate bonds we mean revert credit spreads to their long-term average level. These spreads coupled with the already calculated Treasury/Government bond yields give us an overall corporate bond yield that can be used to calculate possible future returns. We have used appropriate duration matched Treasury/Government yields for the various different corporate bond series.

For the iBoxx indices, which only have data back to 1999, we have created a longer-term spread series by regressing the iBoxx spread data against the Moody's long-term spread series. The results of the regression can be used to calculate a longer-term spread series, which can be used to calculate the long-term average level that is then used for mean reversion purposes.

For further details on how we have calculated bond returns (both Government and corporate) please refer to a previous version of this report (100 Year of Corporate Bond Returns Revisited, 5th November 2008).

US property and commodity mean reversion

For both US property and the various commodity series we have calculated a real adjusted price series and simply mean reverted to the long-term average level of this series.

Appendix 1

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David Folkerts-Landau

Managing Director
Global Head of Research

Guy Ashton
Head
Global Research Product

Marcel Cassard
Global Head
Fixed Income Research

Stuart Parkinson
Associate Director
Company Research

Asia-Pacific

Fergus Lynch
Regional Head

Germany

Andreas Neubauer
Regional Head

Americas

Steve Pollard
Regional Head

Europe

Richard Smith
Regional Head

Principal Locations

Deutsche Bank AG London

1 Great Winchester Street
London EC2N 2EQ
Tel: (44) 20 7545 8000

Deutsche Bank AG New York

60 Wall Street
New York, NY 10005
United States of America
Tel: (1) 212 250-2500

Deutsche Bank AG Hong Kong

Filiale Hongkong
Intl. Commerce Centre
1 Austin Road West Kowloon,
Hong Kong
tel: (852) 2203 8888

Deutsche Securities Inc. Japan

2-11-1 Nagatacho
Sanno Park Tower
Chiyoda-ku, Tokyo 100-6171
Tel: (81) 3 5156 6770

Deutsche Bank AG Frankfurt

Große Gallusstraße 10-14
60272 Frankfurt am Main
Germany
Tel: (49) 69 910 00

Deutsche Bank Ltd.

Aurora business park
82 bld.2 Sadovnicheskaya street
Moscow, 115035
Russia
Tel: (7) 495 797-5000

Deutsche Bank AG Singapore

One Raffles Quay
South Tower
Singapore 048583
Tel: (65) 6423 8001

Deutsche Bank AG Australia

Deutsche Bank Place, Level 16
Corner of Hunter & Phillip Streets
Sydney NSW 2000
Tel: (61) 2 8258 1234

Deutsche Bank Dubai

Dubai International Financial Centre
The Gate, West Wing, Level 3
P.O. Box 504 902
Dubai City
Tel: (971) 4 3611 700

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Publication Address:

Deutsche Bank AG
London
1 Great Winchester Street
London EC2N 2EQ
Tel: (44) 20 7545 8000

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