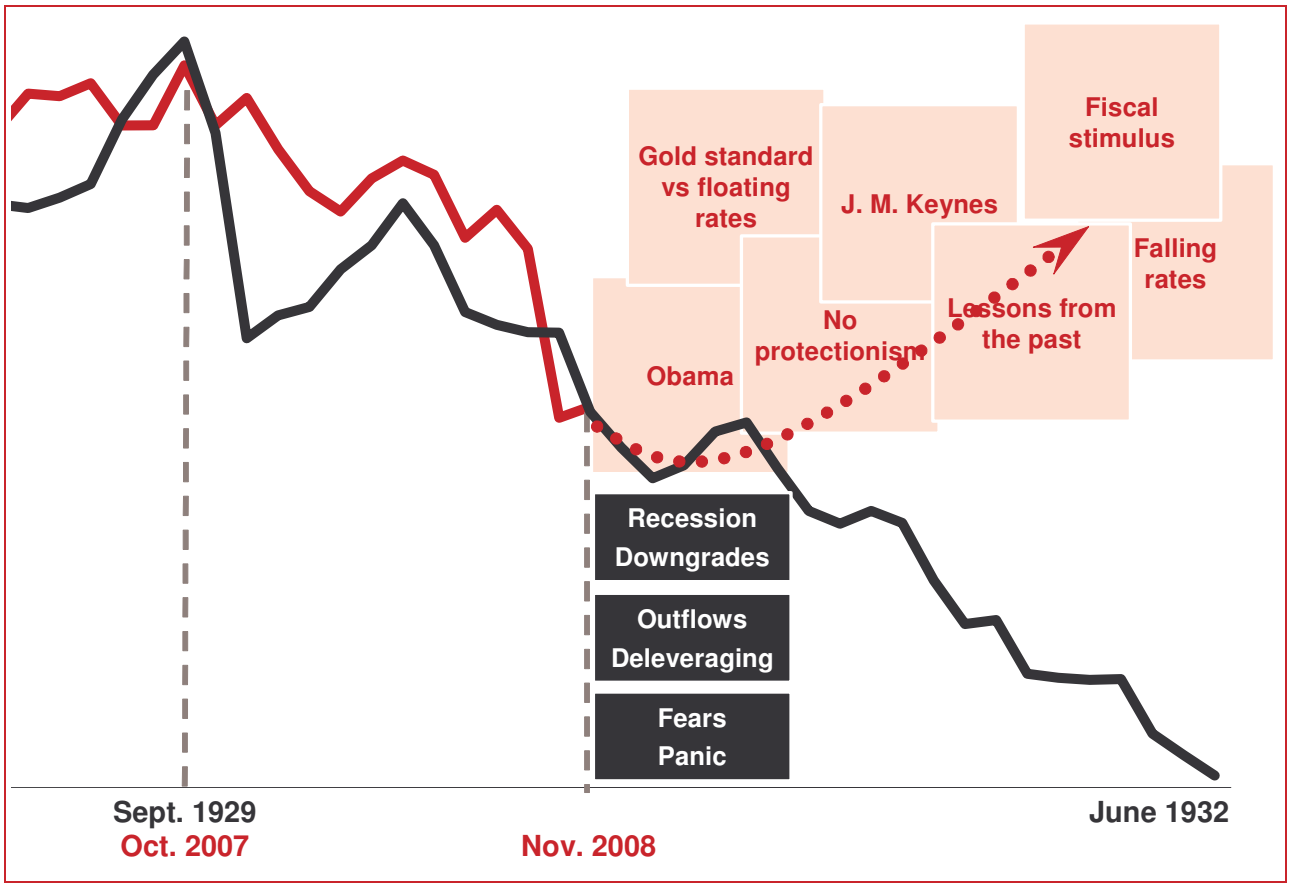
It started like 1929…



Source : Shiller, Standard & Poors, SG European Equity and Cross Asset Strategy

- Deflation fears are rational as, after all, it started like 1929
- Risky assets suffer from a sharp economic contraction and outflows
- Lessons from the past (US, 1929 and Japan during the "lost decade") have been learnt. Policy response is massive. Depression will be avoided
- Risky assets, priced for the worst, should start to stabilise by summer 2009

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Contents

Where does SG most probable scenario stand from now?

Where does SG's most probable scenario stand from now?

■ **From rate cuts (2008) to quantitative easing (2009)**. 2008 is likely to be seen as the year when most central banks changed stance from anti-inflationary to a top priority fight against a full-blown recession. In this context, 2008 is likely to be remembered as the year of rate cuts. We see 2009 as set to be the year of quantitative easing, as fears of depression appear, with further very bad quarters expected (Q4 08 and Q1 09). Central banks are likely to expand their balance sheets. In simple terms, the error of letting Lehman Brothers go bankrupt, which was followed by a significant rise in risk aversion, triggered a new but impressive move toward money printing and state intervention.

■ **A deep recession is on the cards, not depression**. Past excesses of debt accumulation and rising inflation thanks to booming commodity prices are likely to negatively affect immediate cyclical prospects. Coincident global rate cuts (trending to zero), non-conventional monetary policy measures and fiscal stimulus (US, UK, and China) are gaining momentum. Expect the deflation scenario to lose force during the second part of next year.

■ **When will the US economy bottom?** Cyclically speaking, although Q4 08 and Q1 09 are likely to be disastrous (SGe below market consensus for those two quarters), central bank action (conventional or not) and stimulus plans should reflate the global scenario.

■ With a longer-term horizon, for an economist, a full economic recovery means a return to potential growth, currently estimated at 2.50-2.75%. This is when the unemployment rate starts to go down, excess capacity starts to shrink and businesses can begin to expand again. For the US, this is still several quarters away and probably won't happen until 2010.

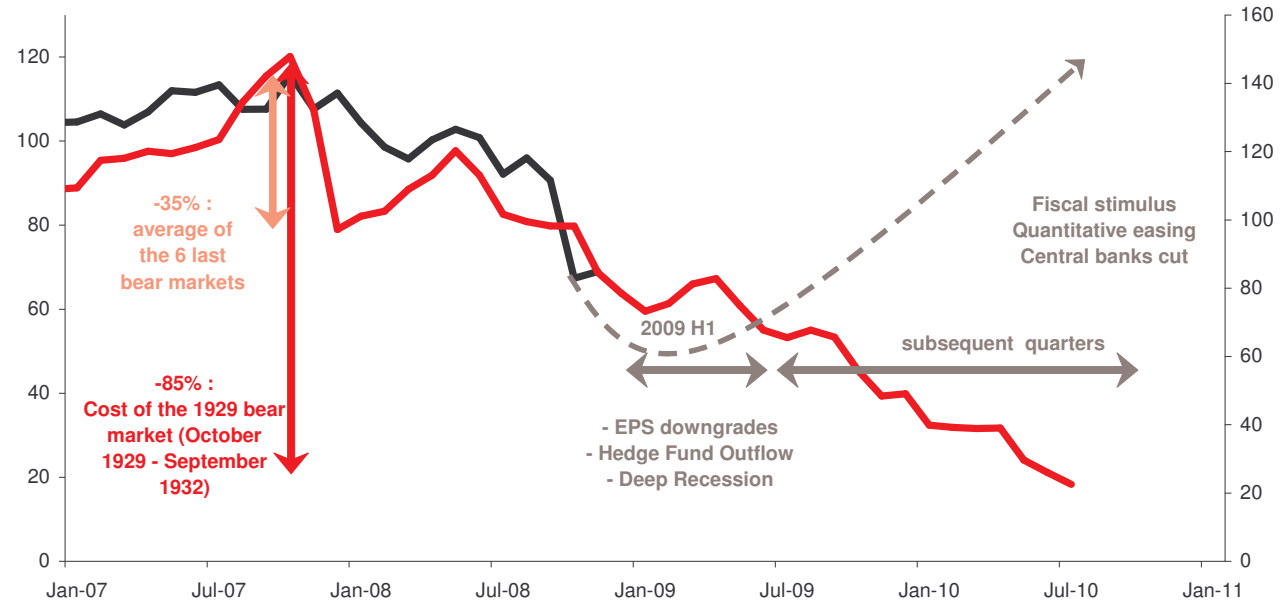
■ **A pause in the US dollar rise**. In a free-floating foreign exchange system, the volatility of currencies should stay high for a while. Even if the US$ remains fundamentally cheap, significant risks being taken by US policy makers may mean a temporary halt in the USD rise in the quarters to come.

■ **When will equity markets bottom?** During Q4 08 and early 2009, earnings expectations should return to more reasonable levels (read: significantly down), and we see major outflows from the asset management industry, mainly Hedge Funds. President-elect Barack Obama will take up office and one should expect a new fiscal stimulus, representing between $300 and $500bn. Overall, although H1 09 could continue to be a shaky period for equity markets, we expect H2 09 to be better as the market is likely to look at the potential recovery in 2010.

■ **Banks: Q408 set to be another "clean-up" quarter, but consumer sectors and Banks should be the first to recover when equity markets stop falling.** We expect Q408 to be another time for banks to "kitchen sink" results to provide a clean slate for 2009, at least in terms of remaining exposure to "legacy" assets from the credit crisis.

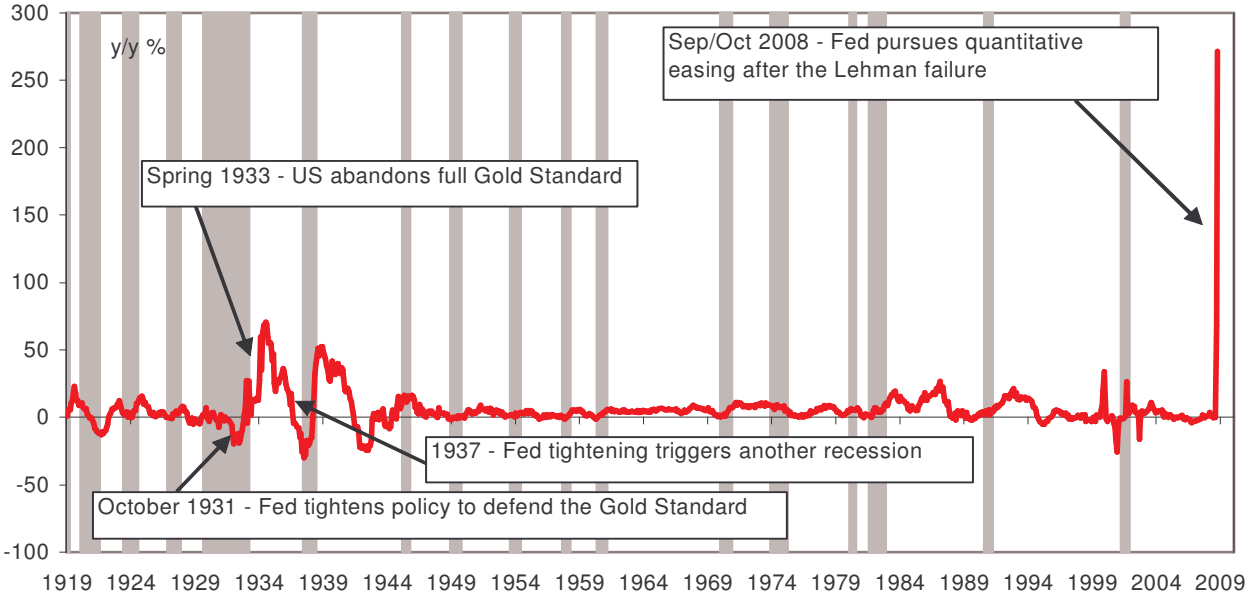
There has been little discrimination in 2008 between banks as investors sought common denominators to understand the severity of the crisis. In 2009, banks will need to keep higher levels of capital than their business mix needs. As it becomes clearer which banks have been more successful at managing risk in anticipation of a downturn, greater discrimination will once again become apparent, allowing capital pressures for some to ease, increasing the opportunity to gain market share and even acquire cheap assets. We maintain our preference for the Universal banking model in Europe, with a focus on Unicredit (Buy TP €2.8) and Crédit Agricole SA (Buy TP €13.5). The fate of weaker players remains in the balance and we are reluctant to invest in banks where the risk of significant state interference remains high.

SG view on the economy and equity markets



In black : 2007 - now ; in red : 1929-1932 Source: Datastream, S&P, SG Equity Research

US bank reserves: quick positive reaction to the Fed's policy



Source: Federal Reserve Bank of St. Louis

It started like 1929

In many ways, the current crisis began like 1929: a growth cycle based on leverage and income inequality leading to high risk-taking investments at the wrong time. Falling asset prices like property, credit, commodity and equities led subsequent banking crisis, in the 1920s in the US, in 1995 in Japan, and today on a global basis.

Economic constraints and policy errors were numerous in the early 1930s in the US and also in the 10 years following 1995 in Japan ("the lost decade"). Some policy errors have been identified in the current crisis, like the Paulson's experiments with the bailout plans or the bankruptcy of Lehman Brothers, which we consider to have been too big to fail.

The policy reaction is gaining momentum, all over the world for what is the first crisis of globalisation.

The key purpose of this piece of research is to highlight the main differences in the policy reaction, from central banks, governments (through stimulus plans), corporations (thanks to transparency) and international organizations like the IMF for their support to damaged economies.

The fight against deflation has started, and nobody can be sure it will be won. But it is gaining momentum fast, all over the world, reducing the probability of the already-deep initial crisis turning into a long-lasting period of heavy contractions in the global economy and sparking a decline in prices.

Four teams have contributed their analysis, and all arrive at conclusions that lend weight to our "hope" scenario:

- The US economics team, for their knowledge of the 1920s crisis,
- The Asian economics team, for their analysis of the "lost decade" in Japan,
- The strategy team, to highlight necessary correlation matrix and asset allocation changes when the scenario oscillates between inflation and deflation regimes,
- The banking team, to highlight how swifltly banks have recapitalised when needed.

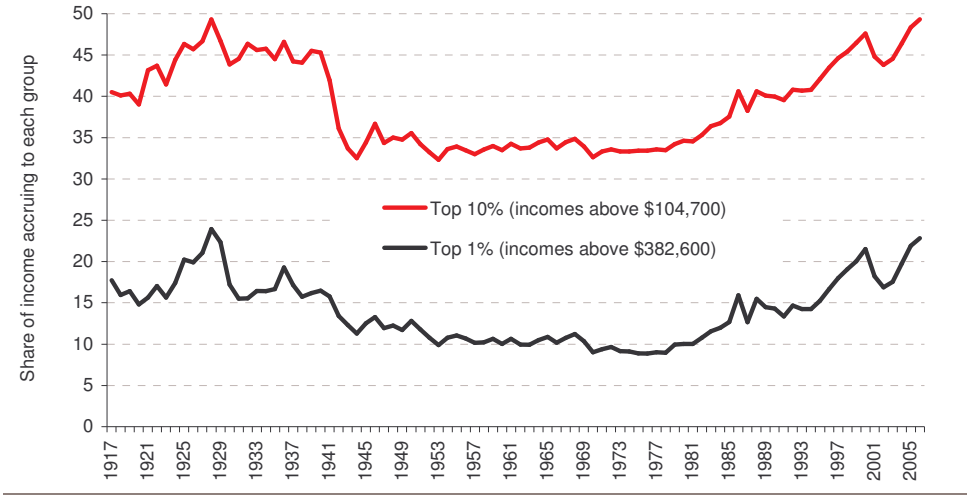
A similar start

Like the roaring twenties, the last 10 years were a period of great prosperity triggered by technological progress. As was the case in the 1920s, prosperity led to excess, which was exacerbated by lose monetary policy. Asset bubbles developed in both equity and credit markets – in the 1920s they developed simultaneously; more recently they developed one after the other. In both cases, the credit bubble was closely tied to record income inequality (1928, 2006). When the credit bubble burst and borrowing stopped, the economy retrenched. Asset price deflation weakened many banks, some to the point of failure.

- Macro economic conditions: low cost of capital, low aversion to risk and income inequality leading to leverage.
- Some similarities in the macro economic conditions prevailed prior to the burst of the Sub Prime crisis during the summer of 2007.
- Leverage: Economic cycles prior to the crisis itself had been based on leverage in a large number of countries. Consumer debt has risen to unprecedented levels, and leverage finance has followed a fast-track indeed,

■ Excessive income inequality: Mass production requires mass consumption. When a majority of national income accrues to capital owners rather than labour, mass consumption can only be maintained via borrowing,

Income distribution in the US

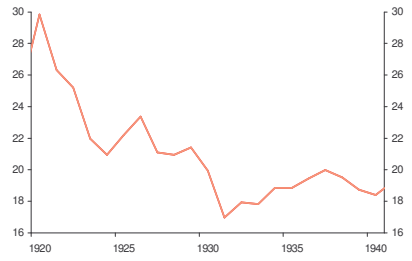


Source: Emmanuel Saez, University of California

■ High-flying valuations for risky assets: Corporate bonds and equities all showed very high valuation levels in the 1920s and during the early 2000s,

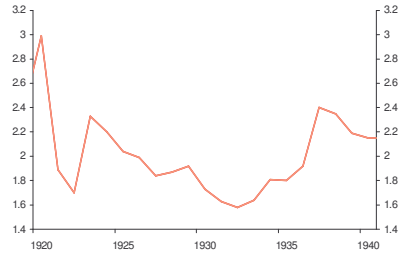
■ A commodity price boom developed during the 1920s, and was followed by a severe downturn in commodity prices in the subsequent years.

Gasoline Pump price $



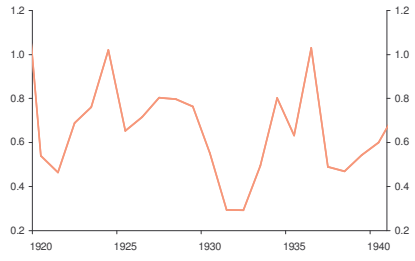
Annual Average Price. Source: EIA, Bureau of Labor Statistics leaded regular

Steel price



Annual Average Hot-Rolled Steel Bar Price in $ per 100 pounds. Source: American Metal Market

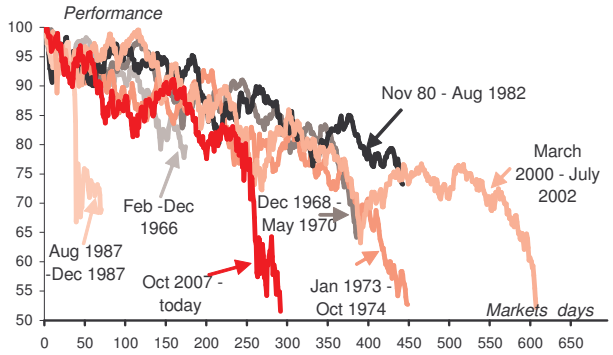
Corn price



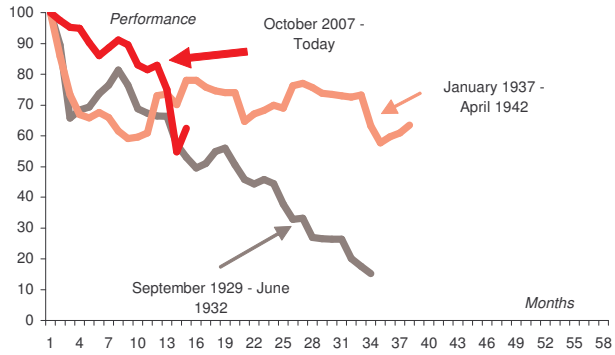
Season average price (in US Dollar per bushel). Source: USDA

■ A severe stock market crisis triggers bank losses and severe damage to the real economy.

History of bear market during recessions (100 =beginning of the bear market)



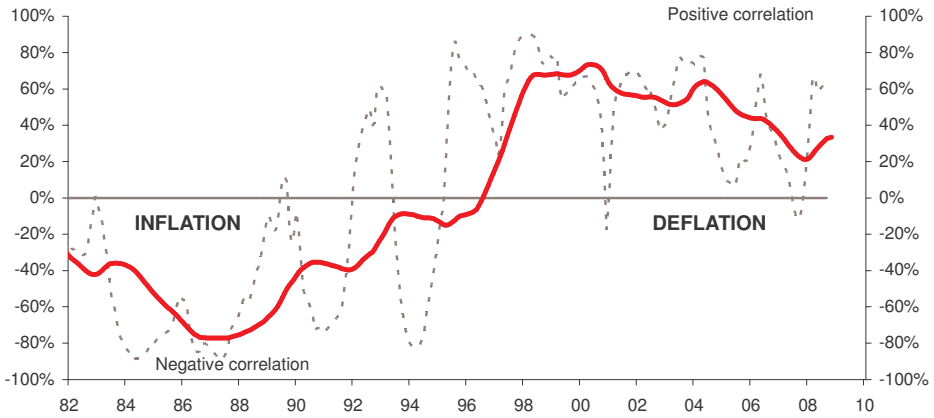
History of bear markets during depressions and war (100 =beginning of the bear market)



Bear market are defined as a drop of 20% of the index after a local top. The index used is the S&P500. Latest data at 14/11/08
Source: Shiller, Standard & Poors, SG European Equity & Cross Asset Strategy

■ The equity volatility regime changes dramatically.

The correlation between equities and bonds change sign with a change in inflation regime

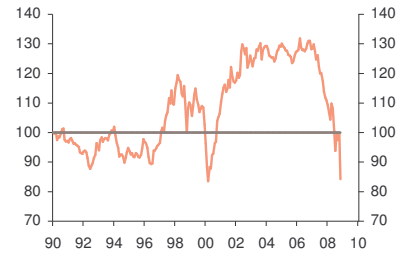


Dotted line: 2 year correlation between 10 year bond yield and PE ratio. Bold line= 3 year moving average of the dotted line. Source: SG European Equity and Cross-Asset Strategy

Some policy errors have been repeated…

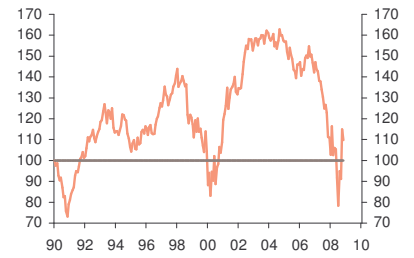
■ We're going to punish the golden boys! At an initial stage, the sentiment towards the banking sector amounted to scepticism, with nobody being there to highlight that initial damages to the banking sector would potentially turn into a credit crunch and no-one to prevent inaction.

Europe - Banking sector relative performance



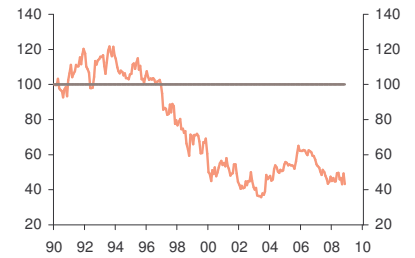
Rebased at 01/01/90. Source: Datastream, SG European Equity & Cross Asset Strategy.

US - Banking sector relative performance



Rebased at 01/01/90. Source: Datastream, SG European Equity & Cross Asset Strategy

Japan - Banking sector relative performance



Rebased at 01/01/90. Source: Datastream, SG European Equity & Cross Asset Strategy

■ Lehman Brothers' bankruptcy was very probably another significant policy error. Although central banks had dealt in the past with systemic risk following the LTCM failure in 1998, never before had a top 5 investment bank failed since WWII; and this led to further dislocation in credit markets

■ Experiments with the bailout: The Troubled Assets Relief Programme or TARP initiated by the head of the US Treasury, Mr Paulson, has given great hope of a massive injection of $700bn in public capital. Recent newsflow nevertheless highlighted, a few weeks later, that a better and more efficient way had been found, injecting directly into the capital bases of the banks, to allow for bank lending.

Major policy differences - lessons from the past, errors not being repeated this time

■ **Global response with no protectionist attitude**: Many found the result of the G20 meeting of the most powerful countries disappointing. We did not, as it provided us with two key messages which contrast with the management of past crises: 1) the first was global coordination, as the crisis itself was global 2) the second illustrated that authorities understand a protectionist attitude would endanger global trade and the capacity for the economy to recover early. These messages differ substantially from the US administration back in the early 1930 where protectionism accelerated the cyclical downturn and the capital destruction process.

■ **Transparency and nationalization when needed**: one of the lessons from the "lost decade" in Japan was that hiding the truth of capital destruction and losses was an error. It delayed the problem, rather than giving policy makers the incentive to respond appropriately. Also, back in the 1930s in the US, the ideology which prevailed at the time backed the invisible hand, and bank runs were analysed as a normal phenomenon. This time, banks around the world admitted to the extent of their leverage and losses, allowing for an appropriate response to the problem. In some case, the solution was partial or even full nationalisation to avoid failures of these banks.

Following the recapitalisations, almost half of the UK mortgage market will be government owned!

INDEPENDENT		GOVERNMENT-OWNED		
Bank	Market share	Bank	SGe Max. ownership	Market share
Nationwide	12%	HBOS	58%	20%
Abbey (includes Alliance & Leicester)	12%	Lloyds	30%	9%

Barclays	6%		RBS	58%	6%
HSBC	3%		Northern Rock*	100%	8%
Other	21%		Bradford & Bingley*	100%	3%
Total	**54%**		**Total**		**46%**

*Note: The government is in the process of shrinking Northern Rock's loan book and it intends to wind down Bradford & Bingley's loan book
Source: SG Equity Research

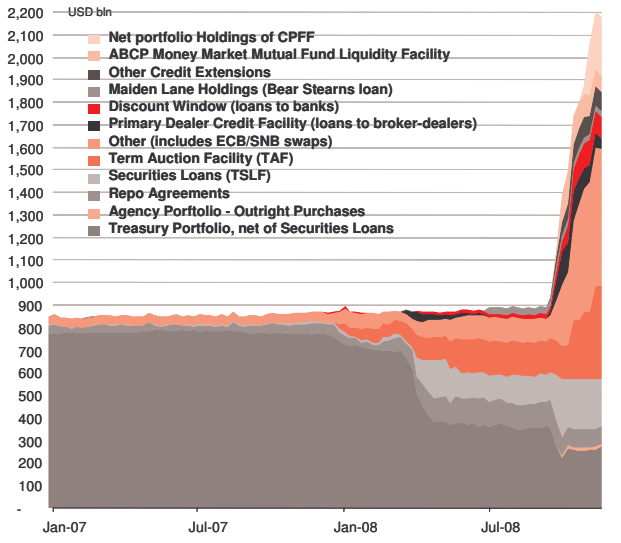
■ **Free-floating versus gold standard exchange rate system**. In 1929, the prevailing policy conditions were constrained by the gold standard, "a monetary system in which a region's common media of exchange are paper notes that are normally freely convertible into a pre-set, fixed quantities of gold". Because of its deflationary effects, the British government finally abandoned the standard in September 1931, and other governments soon followed. Even the US government, which possessed most of the world's gold, moved to cushion the effects of the great depression by raising the official price of gold from $20 to $35 per ounce.

Today, the free-floating exchange rate system allows countries to respond in an appropriate way (flexibility, quantity) in order to print enough money. For the first time since the creation of the European Monetary Union, question marks have arisen concerning the lack of policy response within member countries, and this may appear as a weakness.

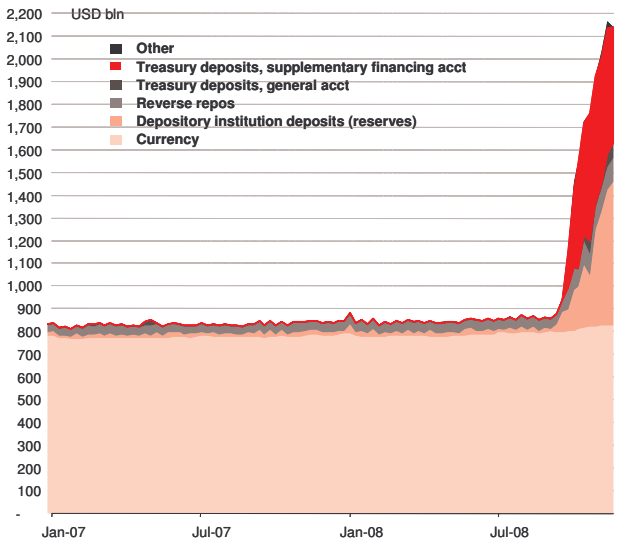
In this environment, the US Federal Reserve expanded in a significant way its balance sheet, shifting to a quantitative easing process since the failure of Lehman Brothers.

FED BALANCE SHEET

Fed Assets - Reserve Bank Credit



Fed Liabilities



Source: Federal Reserve, SG Global Economic Research

■ **Stimulus plans delivered speedily**: Although the stock market crisis started in October 1929 (the trough for the S&P was in September 1932), the New Deal stimulus plan initiated by Roosevelt was only implemented from end-1933, more than four years after the recession started. In the meantime, unemployment went up to 25%.

This time, although it is said that the recession started in Q1 08, stimulus plans are now being developed all over the world. When President-elect Obama comes into power mid-January 2009, he is expected to inject between $300bn and $500bn to boost the property market, consumer confidence and the job market.

These plans are unlikely to prevent a recession in 2009, however. Their key target will be to avoid a second round of bank provisioning and losses, the latter preventing the economic cycle from growing for several years thereafter.

Quantitative easing and fiscal stimulus in sight

Quantitative easing and fiscal stimulus in sight

In many ways, the current crisis began like 1929

Like the Roaring Twenties, the last 10 years were a period of great prosperity triggered by technological progress. As was the case in the 1920s, prosperity led to excess, which was exacerbated by loose monetary policy. Asset bubbles developed in both equity and credit markets – then they developed simultaneously; more recently they developed in a sequential pattern. In both cases, the credit bubble was closely tied to record income inequality (1928, 2006). When the credit bubble burst and borrowing stopped, the economy retrenched. Asset price deflation weakened many banks, some to the point of failure.

Policy mistakes were responsible for setting off the deflationary spiral

We believe that two crucial policy failures were responsible for setting off the deflationary spiral that led to a much deeper economic downturn than would have occurred otherwise:

- The Fed failed to ease monetary policy in the aftermath of the Great Crash, partly due to constraints under the gold standard and partly due to fears of re-igniting speculative forces. In 1931, the Fed tightened policy substantially to defend the gold standard following a speculative attack on the dollar.
- Banks were allowed to fail and nothing was done to prevent bank runs. Here, the Fed failed to fulfil its mission of lender of last resort. During this period, about half of all US banks failed or were taken over.

The combination of these two factors led to a sharp contraction in the money supply. This is how asset price deflation translated into deflation in the real economy. From peak to trough, consumer prices fell by 25%. In the spring of 1933, the US was finally taken off the gold standard and the Fed was able to inject significant amounts of reserves into the system. Following a four-day "banking holiday", healthy banks were reopened with fresh capital from the Treasury and liquidity lines from the Fed. Confidence was restored and a large amount of currency was re-deposited into banks. Soon after, prices stabilized and the depression came to an end.

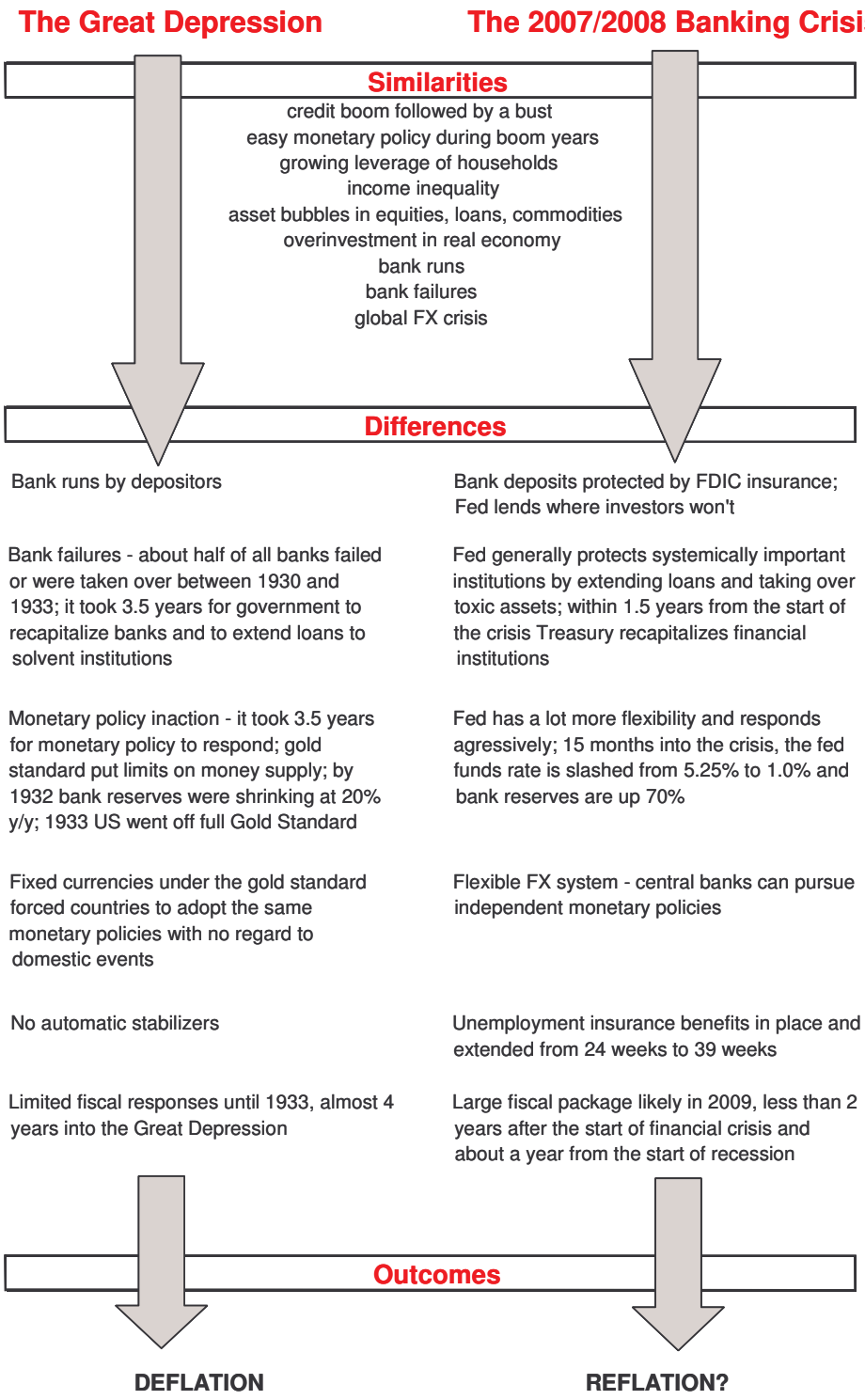
Lessons from the Great Depression

The Great Depression produced a template of "what not to do" for future policymakers, and today Fed officials are sticking closely to the script. Japan's "lost decade" also offers lessons of what eventually worked to halt deflation, and the Fed is taking queues by deploying quantitative easing long before deflationary forces are present in the real economy. For these reasons, we believe that the US economy will avoid a deflation trap that turns a normal recession into a depression.

When will the economy bottom?

For an economist a full economic recovery means a return to potential growth, currently estimated between 2.50-2.75%. This is when the unemployment rate starts to decline, excess capacity starts to shrink and businesses can begin to expand again. For the US, that is still several quarters away and probably will not happen until 2010. There are important stabilizing forces underway – falling gas prices, more fiscal stimulus – that will cushion the economy in 2009, but a real self-sustaining recovery needs something else. In a normal recession-recovery cycle, the economy is driven out of the slump by two sectors: residential investment and consumer spending on durable goods. Both of these areas are heavily dependent on credit. While the Fed has done its job to revive credit markets, ultimately the banks will have to do theirs before credit can start flowing freely again. We do not expect that to happen until very late 2009, or more likely H1 2010.

Crisis comparison: Great Depression vs Current Crisis



Source: SG Research

Anatomy of a financial crisis

Most financial crises – at least the ones that prove to be lasting shocks, not just temporary market dislocations – tend to be caused by bursting asset bubbles. In a typical episode, asset price deflation begins spreading to the economy via the banking sector. Institutions with significant exposure to troubled assets become insolvent and fail, but even those without serious solvency issues can come under pressure as investors/depositors pull out their funding. As weak banks fail and strong banks try to strengthen their positions by de-leveraging their balance sheets, credit contracts. This process transmits the financial shock into the real economy.

This is where we are today. The big question – what comes next? Past episodes suggest that the economy can take various paths from this point forward. In a positive outcome, policymakers intervene quickly to stabilize the banking system. The recession is usually deep, but does not inflict long-lasting damage on the economy. The Swedish banking crisis serves as a potential blueprint for this type of scenario.

In the worst-case scenario, economic weakness produces further credit losses, thus feeding back into more banking weakness and "more" credit crunch. If the vicious cycle is not broken, asset price deflation eventually spreads to the real economy. Once deflationary forces set in, the economy gets locked into a deflation trap where expectations of price declines hurt demand, further weakening price trends. At this point, re-stimulating the economy via traditional monetary policy becomes more difficult. These severe deflationary pressures can turn a normal recession into a Great Depression or a Japanese "lost decade".

The current episode: debt crisis and FX crisis combined

No two financial crises are alike. The current banking crisis that originated in the US in many ways resembles the S&L crisis of the early 1990s. The financial shock produced by the current episode is more pronounced, but the two crises nonetheless share many of the same attributes. Both were triggered by the lax lending standards that led to price bubbles and overinvestment in residential and commercial real estate. When the bubbles deflated, many financial institutions failed or were weakened substantially. The key difference between the sub-prime crisis and the S&L crisis is the global reach of the current turmoil.

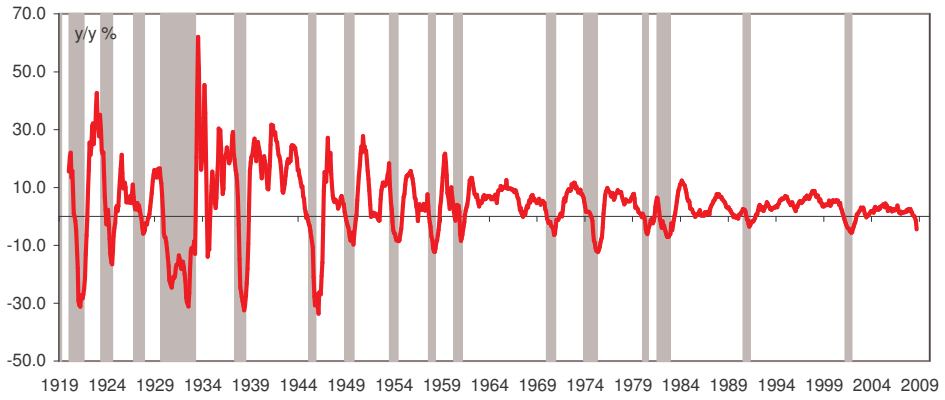
In the current episode, the toxic assets tied to US real estate were held by banks around the world, not just in the US. As trust eroded, financial institutions faced great funding difficulties, and many were forced to reduce their bloated balance sheets by selling off other assets and cutting credit lines to hedge funds. The de-leveraging process has put pressure on all risky assets, including commodities and emerging market assets. This is how the debt crisis was transformed into an FX crisis. The global reach of the current debt and banking crisis makes it more like the Great Depression.

What will the outcome be? The US economy currently stands at a crossroads. The credit crunch has already spread to the real economy. Credit losses are being revised up as the weak economy raises expectations on corporate defaults. A negative feedback loop is already in place and has to be broken. Can disaster be avoided? As mentioned earlier, history indicates that there were a variety of outcomes for economies experiencing situations similar to the one being experienced today. Some went down the path of deflation and protracted economic weakness, while others recovered relatively quickly after experiencing deep recessions. The key factor differentiating the two outcomes is policy response. Below we discuss the two most serious debt crises of the past century: the Great Depression and the Japanese "lost decade". Both episodes offer some important lessons that are being applied by policymakers today.

Current Crisis vs Great Depression

The Great Depression was the greatest economic crisis in modern history. In the US, the recession began in September 1929 and continued until March 1933. By the end of the 3.5-year long downturn, industrial production shrank by half, consumer prices dropped by over a quarter and unemployment surged from 3.2% to nearly 25%.

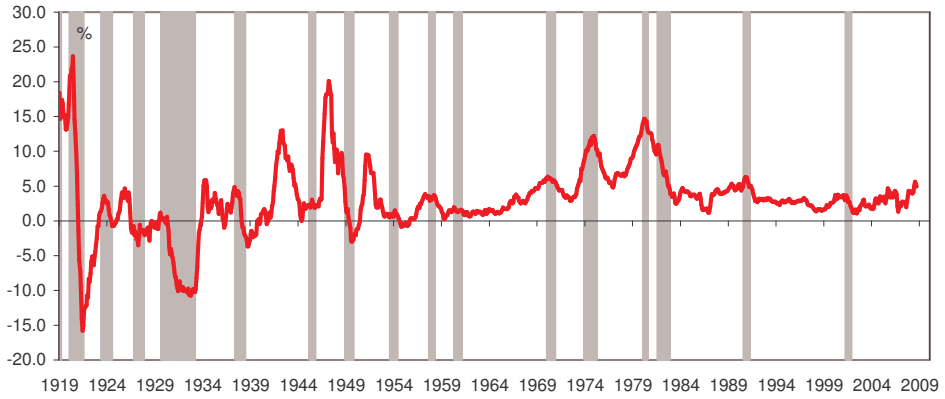
US industrial production



Source: US Census

The prevailing mainstream economic belief today is that monetary policy errors transformed what may have been a normal recession in the early 1930s into the Great Depression. Some even think that the Federal Reserve caused the Great Crash and the subsequent economic downturn by tightening policy in order to deflate the asset bubble brewing in the equity markets. Indeed, the Fed tightened from the spring of 1928 until the Great Crash despite tepid economic performance.

US inflation

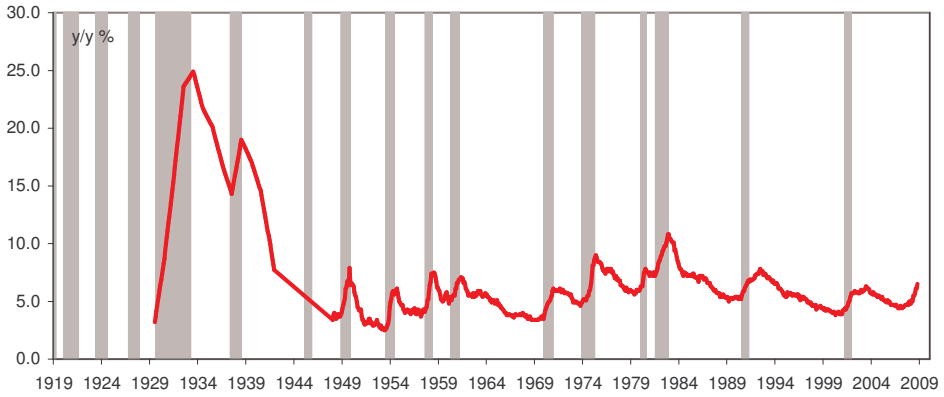


Source: BLS

Many Fed officials at the time believed that speculative investment was unproductive and had to be stopped. This belief was part of the "real bills" doctrine, which held that if banks limited their lending to sound businesses, the proper amount of money would be automatically generated. Therefore the Fed's role was to limit any other kind of lending, especially loans for buying stocks or bonds. The "real

bills" doctrine resulted in a pro-cyclical monetary policy, because business loans tend to expand and contract with the economic cycle. This pro-cyclical monetary policy and the desire to stop speculative investment are factors that contributed to the Great Depression.

US unemployment rate



Source: BLS

Similarities

To be sure, there are many similarities between the current crisis and the Great Depression. Each episode was the product of an extraordinary credit boom that led to too much leverage and overinvestment in the real economy. The bust that followed weakened financial institutions, many to the point of failure. Bank runs were an important feature in both episodes – then runs by depositors, more recently runs by investors.

The global nature of both crises is another important similarity, although driven by very different forces. In the 1930s, the main global linkage was the gold standard, whereas today the linkage is global financial integration. We will discuss the implications of the gold standard in more detail later.

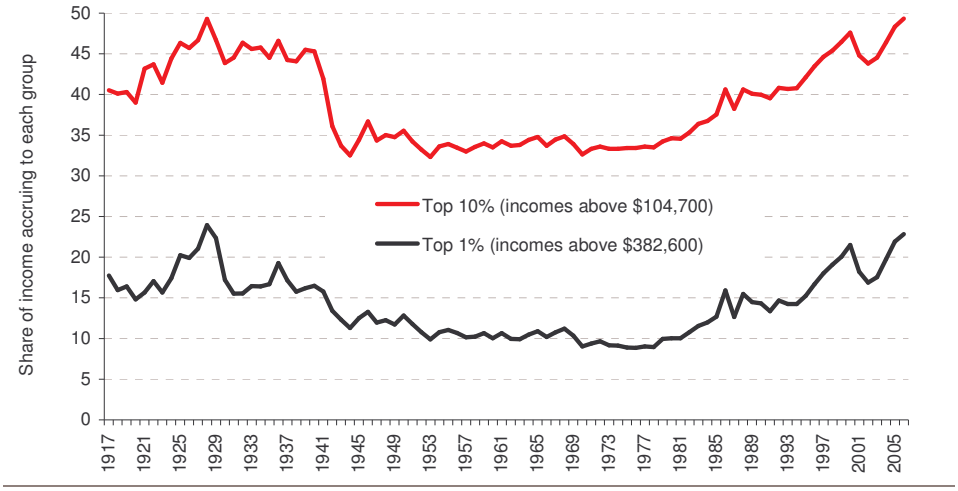
The two crises share many similarities in their early progression, and they also share many of the same root causes. The Roaring Twenties, like the 1990s and 2000s, were a period of great prosperity driven by technological improvement, then in radio, automobiles and chemicals, and more recently in information technology and later in finance. These technological improvements fuelled a belief in the "new economy", which in turn fuelled asset price inflation.

Another similarity between the 1920s and 2000s is income inequality, an issue closely tied to the extensive leverage taken on by households. Income inequality in the US has been growing since the 1970s, and some studies suggest that it has climbed to the highest levels since the 1920s. For example, one study estimates that the top 1% of all income earners reported 22.9% of all income in 2006, the highest since 1928, when the top percentile earned almost 24% of all income. The share of income for the top 10% is even more staggering. The top 10% earned 49.7% of all income in 2006, a level that surpasses 1928, the peak of the Roaring Twenties.

The problem with excessive income inequality is that propensity to consume declines at high income levels. Mass production requires mass consumption. When a majority of national income accrues to capital owners rather than labour, mass consumption can only be maintained via borrowing. This was particularly true during the Roaring Twenties as well as the 1990s and 2000s, when technological improvements produced a new array of consumer goods. In order to buy the goods, the lower and

middle classes had to borrow extensively. When borrowing stopped, the ability to consume was impaired and the economy contracted.

Income distribution in the US



Source: Emmanuel Saez, University of California

The Fed's actions in the years leading up to the crisis may have also contributed to the problem. The Fed's easy monetary policies in the mid 1920s helped to drive the credit bubble as they did in the middle of the first decade of the 21st century. From 1924 until 1927, the Federal Reserve pursued easy monetary policies that may have fuelled speculative investment. There were two motivations behind the policy easing: a desire to promote domestic recovery from a recession and, more controversial, an effort to redirect the international flow of gold away from the US and towards the UK. This was part of a drive to help Britain return to the gold standard following WWI. Britain's efforts to restore convertibility to gold at the pre-war parity rate had generated significant deflationary pressures in its economy. By inflating its own currency, the Fed helped Britain return to the gold standard while avoiding deflation. The unintended consequence was to create an asset bubble which later led to far more serious problems for the global economy.

Differences

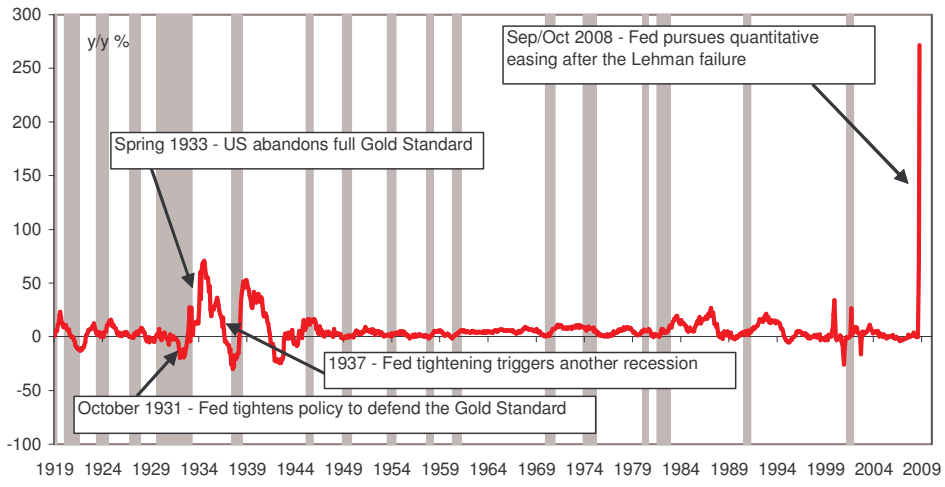
The two crises share many similarities, both in their root causes and in their early progression. However, once the credit bubble burst and the banking crisis became an obvious threat to the economy, the similarities stop and the two episodes become a lesson in contrast.

While overinvestment in the real economy needed to be corrected and a recession was inevitable in the early 1930s, it was poor policy responses and grave policy errors that tipped the scale from a deep recession to a deflationary spiral and eventually the Great Depression.

Monetary policy

After the stock market crash and the economic contraction that followed, monetary policy did little to support the markets and the economy. This was partly a deliberate action by Fed officials who feared that policy easing may reignite financial speculation and who believed that purging the excesses was good for the economy. But the Fed's hands were also tied by the Gold Standard, which put limits on its ability to expand bank reserves. Under the gold standard, the value of US dollar – as well as other currencies – was fixed in terms of gold. Expanding bank reserves and the money supply too aggressively posed a risk of a speculative attack on the dollar. In fact, in September and October 1931 following numerous bank failures in the US, investors turned their attention to the US dollar and demanded gold in return. The Fed responded by tightening monetary policy in order to stop the outflow of gold and defend the dollar's convertibility under the gold standard. As a result of this action, bank reserves contracted by 20% between 1931 and 1932. This exacerbated economic and banking woes.

US bank reserves



Source: Federal Reserve Bank of St. Louis

Monetary policy hiccups continued in the following years. In the spring of 1932, Congress put considerable pressure on the Fed to ease monetary conditions. The Fed complied with hesitance; interest rates fell and appeared to arrest the declines in prices and economic activity. However, some Fed officials continued to believe that the 1920s build-up of excesses needed to be purged and that easy monetary policy would only delay the inevitable. When Congress adjourned in July 1932, the Fed reversed policy. By the end of the year, the economy relapsed again.

Bank failures

The second major error on the part of the Fed was the lack of response to bank failures. Between 1930 and 1933 about half of all banks failed or were absorbed by other institutions. The banks that survived retrenched sharply as they defended themselves against runs on deposits. The Fed was already conducting tight monetary policy during this time, and bank reserves were shrinking, but on top of that the closing of many banks and cash hoarding by depositors further exacerbated the impact on the money supply.

The Fed could have lent more cash to banks or put more cash in circulation, which may have stopped bank runs and prevented bank failures. Yet the Fed chose not to do so, failing to fulfil its mission. Why? Many Fed and Treasury officials at the time subscribed to "liquidationist" theories, which held that weeding out weak institutions was a necessary step toward a recovery of the banking system. Instead, allowing bank runs to continue exacerbated the impact on the money supply and deflationary forces.

The wave of bank failures was finally halted in March 1933 when President Roosevelt announced a "banking holiday", which halted all financial transactions for four days. During that time, new legislation was passed allowing banks to sell preferred stock to Reconstruction Finance Corp. The new laws also ensured that banks could meet all redemption requests as long as they had sound assets by pledging these assets to the Fed in exchange for loans. At the end of the banking holiday, only sound banks were allowed to reopen, and when they did, confidence returned and a large amount of currency was re-deposited.

The Gold Standard

Another important distinction between the Great Depression the banking crisis of 2007/2008 is the global financial backdrop. Prior to Great Depression of the 1930s, much of the developed world was on the gold standard, which meant that exchange rates were effectively fixed for countries within the system. The problem with fixing exchange rates was that it forced countries to adopt the same monetary policies. If one country within the system tightened policy, all others had to follow suit or risk losing gold reserves. As a result, countries on the gold standard were often forced to tighten monetary policy with no regard for domestic events.

Another problem with the gold standard was that fixing exchange rates made currencies prone to speculative attacks if investors doubted the ability of a country to maintain the value of its currency at fixed parity to gold. For example, in September 1931, speculators attacked the British pound by demanding gold in exchange for pounds. The Bank of England quickly ran out of gold reserves and was forced to abandon the gold standard. Later that year, the Fed chose a different path and tightened monetary policy in the midst of a deep recession in order to defend the gold standard.

Eventually, most countries abandoned the gold standard during the course of the 1930s. Generally those that abandoned it early on – Great Britain, Japan and Scandinavia – were the first ones to recover from the Great Depression. Counties that defended it the longest, namely France, Belgium and Switzerland, took the longest to recover. These cross-country experiences confirm the importance of monetary developments in driving the deflationary forces of the Great Depression. Today, flexible exchange systems and the ability of central banks to conduct fully independent monetary policy eliminate many of the challenges faced by central banks in 1930s.

Fiscal stimulus

Fiscal policy also failed to respond immediately to the Great Depression. In fact, prior to the 1930s, active fiscal policy was non-existent. In 1930, government spending accounted for just 3.3% of total GDP vs 20% today. It was not until the 1930s that the government began to pursue economic

stabilization policies under the strong influence of John Maynard Keynes. Keynes believed that people did not have enough income to buy everything the economy could produce, so prices fell and businesses went bankrupt. He argued that government could halt the vicious cycle by increasing spending on its own or by cutting taxes. Either way, incomes would rise and people would spend more. If the government had to run up a deficit, so be it, because the alternative would be much worse.

The government under President Roosevelt followed Keynes' advice and launched massive increases in deficit spending under the New Deal that included large public works and the launch of many social safety nets. However, the programmes took a while to roll out. For example, the Works Progress Administration that employed millions of displaced workers was passed into law in 1935 – over five years after the start of the Great Depression.

Fast forward to 2008 and Keynesian theories are back in vogue. There is growing consensus on Wall Street and in Washington that a large fiscal stimulus package is needed to offset the significant slowdown in private demand. Details are not yet available, but the government is expected to announce a $300-500bn fiscal spending plan including infrastructure project, public works and aid to states and local governments. If these plans materialize, the government aid would come within two years from the start of financial crisis and within one year of the start of recession.

Lessons from Japan's "lost" decade

Lessons from Japan's "lost" decade

Japan's stagnant, deflationary, income-destroying "lost" decade of the 1990s is the modern economic practitioner's handbook on how not to conduct monetary and fiscal policy in response to a crisis.

Given the eventual 60% decline in the Nikkei and 75% decline in land prices, some economic pain was unavoidable. However a decade of economic stagnation was an avoidable outcome. It required persistently wrong policy decisions that ignored the lessons learned in America's Great Depression.

Japan made three main errors:

1) The problem was not recognised in a timely manner and toxic assets were allowed to linger on balance sheets for the best part of a decade.

2) Fiscal policy tightened for the four years subsequent to the bubble bursting. Easing when it came was too little, too late, and poorly targeted.

3) Monetary policy responded too slowly and became completely ineffective.

Japan took two particularly brave decisions:

1) The Bank of Japan moved into the unprecedented territory of quantitative easing. It changed its operating target from the cost of funds to the amount of funds.

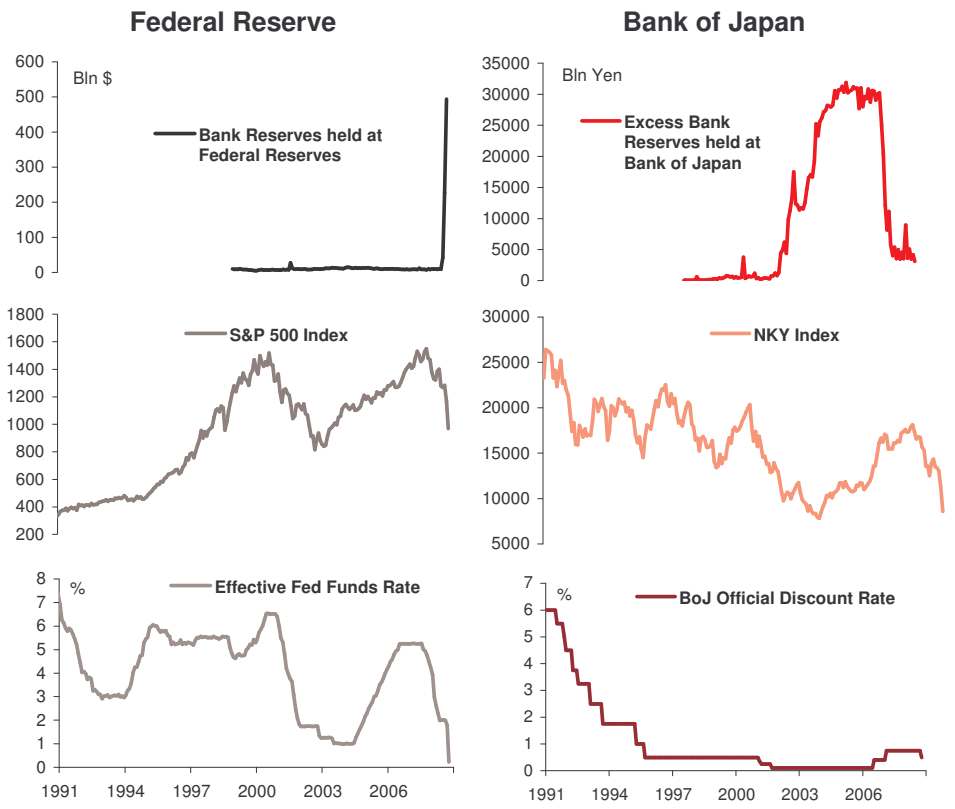
2) Japan introduced a "Duration Effect" for quantitative easing. It told the markets it would keep on pumping in excess reserves until prices started rising. This provided the banking system with certainty on funding.

Japan's principal error was the incredible lag from the bursting of the bubble-economy to the implementation of appropriate monetary and fiscal policy. As monetary policy rapidly loses traction in an environment where the banking system is impaired, the most potent policy weapon becomes fiscal policy. Japanese fiscal policy was actually tightened in the immediate aftermath of the bubble bursting and did not move to stimulatory.

A final interesting comparison is that Japan did not get serious on economic policy and business and consumer sentiment did not gain traction until 2001-02. A relatively young charismatic Prime Minister, Koizumi, had just won a landslide election. Japan appeared finally to have change that mattered.

Current crisis vs Japan's "lost decade"

Responses to Crisis - Federal Reserve vs. Bank of Japan



Source: Federal Reserve Bank of St. Louis

Outcomes and lessons for the future

The Great Depression and later the Japanese "Lost Decade" have taught economists and policymakers many important lessons. The current consensus belief among mainstream economists is that the Great Depression was caused by poor government responses and monetary policy errors which failed to halt bank failures and exacerbated the deflationary spiral triggered by a bursting asset bubble. Today, the Fed and Treasury are reversing every policy error made in the 1930s.

While today's crisis resembles the 1930s in many ways, the vastly different policy responses could lead to vastly different outcomes. If the Fed's and Treasury's policies are successful in reopening broken credit channels, then inflation, rather than deflation, could be the next big problem discussed a year or two from now. The Fed is injecting tremendous amounts of liquidity into the system and financing much of those injections by "printing money". This is a classic "helicopter drop" that Bernanke alluded to back in 2003. If these cash injections are not reversed quickly enough once the economy recovers, the Fed's extremely stimulative monetary policy could set off another wave of serious inflationary pressures in 2010-2011

Japan's post-bubble nightmare

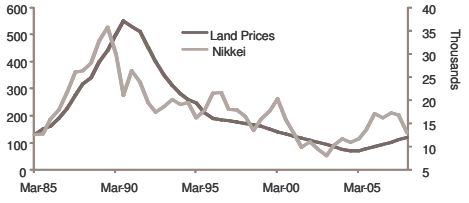
A "what-not-to-do" template for global policy makers

In considering the exit profile of the US economy from the financial stresses associated with sub-prime (V-shaped, W-shaped, U-shaped, L-shaped?) we are seeing increasing comment suggesting the financial aftermath of Japan's 1980s asset bubbles (both land and equity) may be replicated in the US. There are some important similarities in financial sector behaviour in Japan in the 1980s and the US in the period before sub-prime. These include a significant relaxation of lending standards and lending decisions based on underlying collateral rather than ability to service that debt.

In the immediate aftermath of sub-prime we find that falling asset prices are triggering defaults and damage in the wider financial sector similar to what happened in Japan immediately after the bursting of the land and equity bubble. Moreover, the extent of financial market stresses is difficult to gauge given the complex derivative instruments that have been used to bundle debt obligations in the US. This is similar to Japan where the Keiretsu nature of Banking-Corporate relationships and a lack of strict corporate governance disguised the extent of financial market and lending impairment for a considerable period of time and losses were shifted rather than addressed.

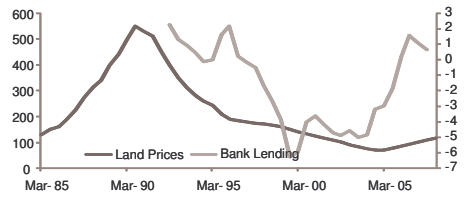
However, we find several key aspects that make the Japanese asset bubble and subsequent impairment of the banking system uniquely Japanese. Moreover, these aspects have not been and are not going to be replicated in the US.

The Japanese land & equity bubbles



Source: CEIC

Bank lending after the bubble



Source: CEIC

Relaxed lending standards and the bubble

Like other financial crises that have gone before it, the US sub-prime crisis has its roots in lax lending standards and lending criteria based on assumptions of increased asset price inflation for the underlying collateral. As the underlying collateral falls in price (house prices in the US, land prices in Japan) defaults on these least credit worthy borrowers are rising and this is placing stress on the wider financial sector. The Japanese banking crisis that began after the deflation of the 1980s land and equity bubble, however, has several distinct characteristics that have not been replicated in the US;

- **The sheer size and the time it was allowed to continue accumulating**. Most estimates suggest that non-performing loans peaked at 10% of GDP in the late 1990s though the range of plausible estimates has extended to 15% of GDP. The non-performing loan problem was, more importantly, not aggressively tackled till nearly a decade after the bursting of the bubble.

- **Macroeconomic feedback mechanisms were stronger due to the Keiretsu nature of companies**. Japan's economic miracle of the 1970s to 1980s was guided by the uber-powerful MOF and MET ministries that persuaded conglomerate-like groupings to take shape, made up of a large bank and several corporations (both vertically and horizontally integrated). Within this conglomerate structure, bank lending often exceeded the market capitalisation of the smaller integrated corporations.

- **The corporate sector had a much higher dependence on bank lending than any other OECD economy**. Over 80% of corporate sector financing was through the Banking sector given the Keiretsu nature described above. This amplified the credit crunch as alternative sources of financing were simply not present.

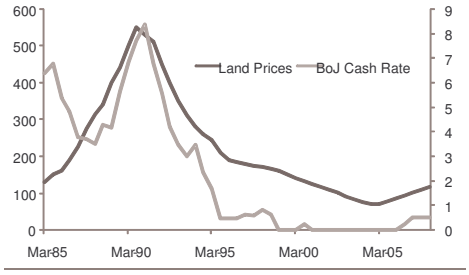
- **The widespread use of land at inflated prices as collateral**. Further to this, the significant cross holding of shares within the Keiretsu by the "Main Bank" and horizontally and vertically integrated companies. These shareholdings were not unwound as equity prices plummeted.

- **The lack of clear transparent corporate governance** meant there was a lack of information on foreclosed collateral and the extent of losses. This impeded the recognition and selling of distressed assets – an essential process in the clean-up – was delayed for several years.

- **The Ministry of Finance "convoy system"** that forced larger banks to absorb capital-impaired smaller banks rather than allowing them to fail. Hence, problem loans were shifted to other banks rather than written off.

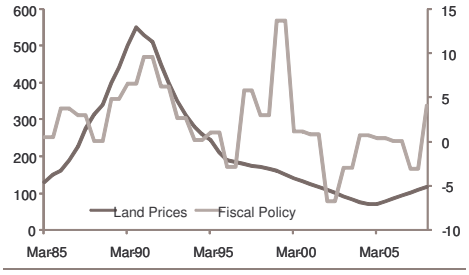
- **The lack of a significant monetary and fiscal policy bolster** to assist the clean-up of bad loans.

The monetary policy response



Source: CEIC

The fiscal policy response



Source: CEIC

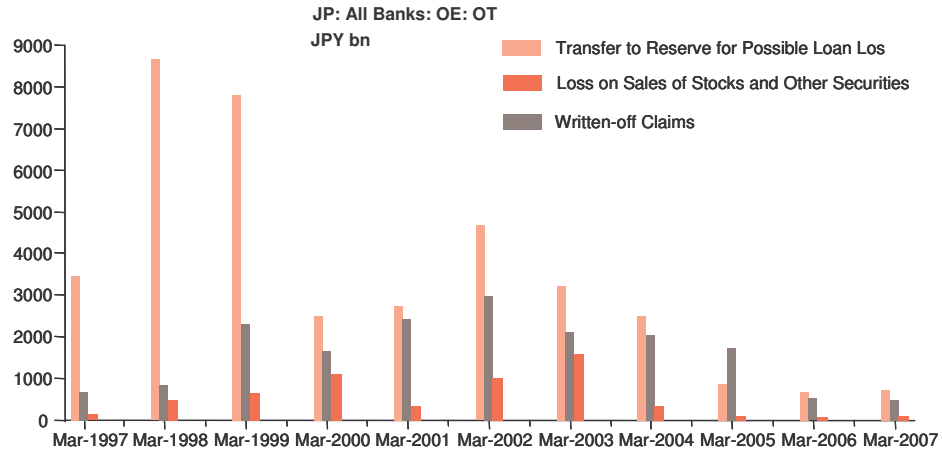
In terms of the monetary policy response, policy continued to be tightened for 18 months after the turn in the equity market and for a further 6 months after the turn in land prices. The process of

monetary policy easing was extraordinarily slow with the Overnight Call Rate (OCR) not returned to the level that was in place before policy attempted to deflate the bubble until March 1994, i.e. nearly five years after the turn in the equity market. It was nearly 8 years after the turn in asset markets that policy moved towards what now would be considered the appropriate monetary policy response to a deflating asset bubble –extremely accommodative monetary policy complemented by non-traditional measures such as quantitative easing. Hence, the monetary policy response in the US today is clearly much more aggressive and proactive than the Japanese response in the 1990s.

Fiscal policy was actually tightened in the immediate aftermath of the bubble bursting. If we take the change in government expenditures as a proxy for the stance of fiscal policy, in the six years immediately after asset prices turned down fiscal policy became progressively tighter. The Japanese government was also extremely slow with the provision of public funds to the banking sector. The first public money for protecting depositors in the event of a bank failure was not obtained until after the financial panic of 1997. In 1998, the Japanese parliament (Diet) approved a JPY30trn injection of public funds into the banking sector however only a small portion of these funds were actually utilised.

In the fall of 1998 the Diet passed a set of laws that enabled the government to spend a much larger sum of public money – JPY60trn (around 10% of GDP) – on the resolution of the bad loans problem and to use the "bridge bank" idea to help handle insolvent banks. The Long-Term Credit Bank of Japan and the Nippon Credit Bank had been declared insolvent and were controlled by management teams selected by the government under the bridge bank scheme. The recapitalisation of the top 15 banks was carried out at the end of March 1999. This was almost a decade after the bursting of the asset bubble.

The delayed recognition and write-off of problem and non-performing loans



Source: CEIC, SG Economic Research

In the absence of public funds to shore up the capital base of the major banks, the banking sector was extremely slow to officially recognise and write off the problem loans that had occurred in the early 1990s due to the bursting of the asset price bubbles. In fact, it was only in 1998 and 1999 that the banks made any meaningful progress in the disposal of non-performing loans. This process was further enhanced by the Bank of Japan moving to buy equities directly from the major banks from March 2000 onwards – a process that did not peak until March 2003.

With the benefit of hindsight, the policy and regulatory response to the bursting of the asset bubble in Japan was simply woeful. It is in stark contrast to the aggressive front-loaded easing of monetary and fiscal policy currently underway in the US.

The role of financial innovation in inflating the bubble

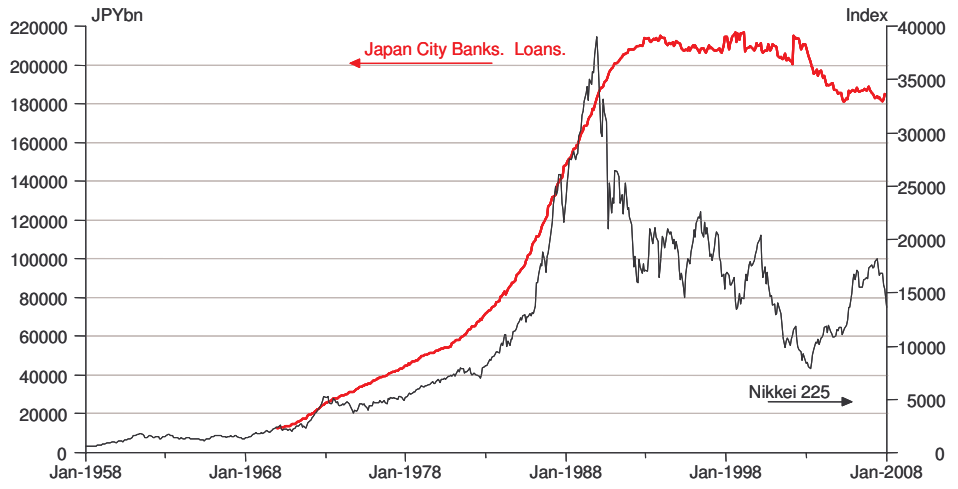
Financial innovation, a lowered cost of funds and a greater penetration of home lending by non-bank lenders saw an explosion of low-documentation lending in the US over the past decade.

Financial liberalisation in Japan in the 1970s and a gradual reduction in the "segmentation" approach to financial reform all ushered in key structural changes in Japanese bank lending in the 1980s. Greater competition for traditional banking services saw all major Japanese banks move aggressively into real estate lending in the 1980s.

In both the US and Japan these key changes were not accompanied by any tightening of regulatory standards.

Cross-sectional analysis consistently finds that those banks that most aggressively lent to the real estate sector in the second half of the 1980s had the most problematic non-performing loans through the 1990s.

Total lending by City Banks and the Nikkei



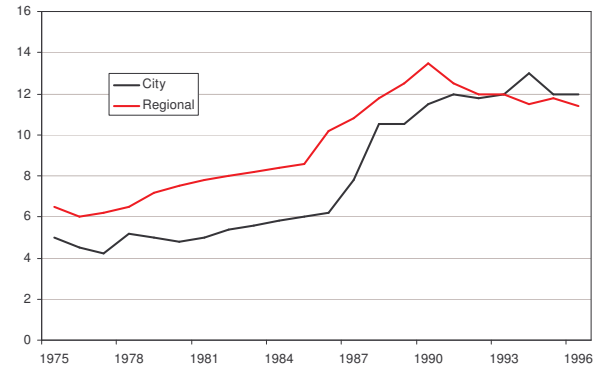
Source: CEIC

Over the past ten years, the US saw an explosion in the availability of mortgage credit for low and moderate income families with less-than-perfect credit. The total amount of low-documentation or sub-prime lending went from largely being a niche market in the early 1990s to increasing twenty-fold by 2006 when one in every five home loans originated was a sub-prime loan. A lowered cost of funds and greater penetration of the market by non-bank lenders (mortgage originators) were key innovations in this period that allowed such explosive growth in low-documentation lending.

Financial liberalisation in Japan in the 1970s and a gradual reduction in the "segmentation" approach to financial reform all ushered in key structural changes in Japanese bank lending. Greater competition in the loans market saw small to medium sized banks move into real estate loans in particular. Given this type of lending was new for many of these banks; the risk management infrastructure was not adequate to price these loans. Indeed, in many cases, the only decision that was used in approving

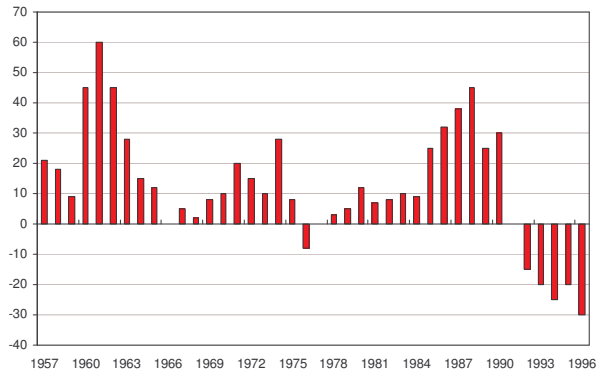
these loans was a forecast of where land prices (more often than not the underlying collateral) were heading.

Real estate loans as a % of total lending



Source: CEIC

Japanese land prices yoy



Source: CEIC

Financial deregulation leads to booming bank lending

Rapid financial liberalisation with no corresponding tightening of regulatory standards or bank supervision is now seen as one of the root causes of the 1980s asset price inflation and subsequent non-performing loan problem.

Japanese financial deregulation commenced in the 1970s in response to a number of pressures including the growing issuance of Japanese bonds and increasing pressure from the US to open up Japanese financial markets (sounds familiar). Two uniquely Japanese approaches can be identified to this deregulation which was clearly not the "big bang" financial deregulation many other OECD economies were pursing at the time. The two key features of Japanese deregulation were "gradualism" but also the maintenance of the "segmentation" approach to the financial industry. An example of the former would be the gradual approach to deregulation of interest rate control on time deposits. The deregulation started in 1985 but was completed nine years later. An example of "segmentation" related to this is that different financial services continued to be performed by different types of financial institutions with fairly strict barriers between segments of the financial industry. Thus, long-term banking and short-term banking remained separated. Small banks were encouraged to lend to small borrowers and large banks to large corporations and generally this was all guided by the powerful MoF and METI economic ministries.

The first major implication of the gradualist and segmented approach to deregulation was that the securities industry was deregulated before the banking industry. This had the immediate impact of increased competition for bank lending and a rapid loss in market share for the large Japanese City Banks. When the segmented approach to liberalisation was relaxed, major banks responded to this by moving into areas of new lending they were not familiar with – real estate loans in particular.

The policy of segmentation, when coupled with liberalisation in other fields such as developments of the securities markets, led to serious difficulties for some banks in the late 1970s and early 1980s. Long-term credit and trust banks, for instance, were created as financial institutions specialising in loans to large firms. Under deregulation, these firms increasingly lost large borrowers to the bond and equity markets but segmentation prevented them from being able to move aggressively into other activities such as investment banking. In many cases, as a result of segmentation, real estate loans were the only section of the market that many banks could easily move into. This forced the major banks to look for lending opportunities with low screening costs. An easy place to go was real estate

loans where the credit analysis on these loans was simply a matter of estimating the future path of real estate prices. The perceived risk of such loans was extremely low given that real estate prices had grown by nearly double digit figures in every year in the post-war period. Over the second half of the 1980s, lending for real estate as a proportion of total lending almost doubled for major City and Regional Banks.

Kasuo Ueda – a former BoJ policy board member and current University of Tokyo economics professor considered a good outside change to be nominated for BoJ governor if Muto is blocked by the DPJ - used cross section data on the top 148 banks to analyse the relationship between real estate loans up to 1990 and the bad loan problems in the 1990s. He found that banks with higher exposure to the real estate industry suffered more from the bad loans problems in the 1990s. He also found that real estate loans in the late 1980s were larger for banks that did not have a good customer base among small firms or non-real-estate sectors and for banks that experienced larger increases in their deposit rates than others. In short, he found that it was the process of financial deregulation that forced some banks to expand real estate loans, ultimately contributing to the non-performing loan problem of the 1990s.

That, however, only represents part of the problem. One of the more puzzling features of the Japanese economy was the growth in bad loans despite early attempts to write them off. As of March 1993, official bad loans outstanding totalled JPY12.8trn for the top 20 banks (or around 2.5% of GDP – slightly less than the US Savings and Loans Crisis). In the five years to March 1998, however, banks wrote off JPY37.6trn of bad loans. Even after this, they were still straddled with bad loans of JPY40trn. As of March 1998, bad loans were more than double what they were in March 1993. Over this five year period, banks were writing off on average JPY7.5trn of bad loans each year (that is nearly 45% of bad loans outstanding were being written off each year, but they had to face an even larger increase in new bad loans each year.

This basically represented two factors. First, underestimation and slow reporting of bad loans in the first place. Second, genuine increases in bad loans from the economic stagnation of the economy that arose from the banking crisis.

The key point in assessing the US situation appears to be the speed at which write offs and capital injections occur. In Japan, write offs and capital injections did not occur on any meaningful level until a decade after the bursting of the asset bubble. In the meantime, a decade of economic stagnation led to a new generation of non-performing loans well in excess of those that originated from the collapse of the asset bubble. Hence, the almost coincident recognition and write off of non-performing loans is an important distinction between Japan and the USA. Moreover, the speed at which capital injections have been provided by the Sovereign Wealth Sector has allowed these disposals to occur almost instantaneously on their recognition. **This is perhaps a crucial difference between the Japanese and US banking crises.**

The Delay in recognising and removing toxic assets from the Banking system

The major US banks have moved quickly to write off sub-prime losses. This is a process that did not occur in Japan. Indeed, a woeful response to the first round of NPLs allowed a second round of NPLs to emerge that dwarfed the original NPLs. Three factors were at work.

The first was the slow and inaccurate recognition of non-performing loans.

The second was the persistence of "zombie lending" (forebearance) where banks were reluctant to write off NPLs and the persistence of "gamble for resurrection" lending where banks added to the already-growing stock of bad loans, convinced land and equity prices could fall no further.

The third was the MoF's convoy system which guided large banks to absorb failing banks – hence shifting NPLs rather than addressing them.

The deterioration in corporate balance sheets due to the collapse of land prices was responsible for a first round rise in NPLs. The failure to quickly address this distorted real economic performance via a malfunctioning banking sector. The Ministry of Finance exacerbated this malfunctioning banking sector to such an extent that the efficiency of resource allocation was severely compromised in the second half of the 1990s. The resulting credit crunch and extended period of below-trend economic performance generated a much greater NPL problem.

By 2005, the cumulative amount of NPL disposal (cost of loan loss provisioning, write-offs and others) stood at about JPY96trn. This is equivalent to around 85% of the increase in loans during the 1980s.

Disposal of Non-Performing Loans JPY trn

Fiscal Year	1992	93	94	95	96	97	98	99	2000	01	02	03	04	05	Total
All Banks	1.6	3.9	5.2	13.4	7.8	13.3	13.6	6.9	6.1	9.7	6.1	5.0	3.5	1.0	**96.2**
City Banks	1.6	3.9	5.2	11.1	6.2	10.8	10.4	5.4	4.3	7.7	5.0	3.0	2.0	0.0	**76.7**

Source: Bank of Japan

One of the key differences between the US now and Japan in the 1990s is the speed with which bad loans are being recognised and written down in the US. More importantly, the recapitalisation of US banks, via sovereign wealth funds, is occurring simultaneously with those writedowns. This was not the case in Japan where the "convoy system" or "purchase and assumption" rescue of Japanese banks did not lead to an accurate recognition of non-performing loans. Where writedowns of non-performing loans did occur, the convoy system forced the weakening of otherwise healthy, solvent banks.

The origins of the "convoy system" can be traced back to the forced mergers of weak commercial banks with stronger ones in the 1930s. During the 1960s and 1970s the rescues took the form of healthy banks not only offering financial support but also personal assistance to a failing bank. In 1965, Takachiho Sogo Bank saw a sharp increase in its holdings of non-performing loans. The government forced Nishi-Nihon Sogo Bank to provide financial support, personnel assistance and business support to Takachiho- Sogo Bank.

Over the course of the 1980s, with land and asset prices rising dramatically, corporate Japan embarked on aggressive investment in land, heavily borrowing from banks by offering stock and land as collateral. This positive feedback loop began to unwind when land prices began to fall in 1991 and stock prices in 1992, putting a number of corporate borrowers under heavy debt burdens. However,

non-performing loans had already started to rise at a number of smaller and regional banks during the 1980s. In 1986, the large bank Heiwa Sogo failed and the government pressured Sumitomo (then Japan's third largest bank) to acquire Heiwa and write off all its bad loans. This write-off cost Sumitomo JPY111bn in 1986, or about 130% of Sumitomo's 1985 profits.

As problem loans mounted in the 1990s, the frequency of convoy rescues rose dramatically. The first suggestion that some public funds should be made available to the banks came in 1992 when Prime Minister Kiichi Miyazawa referred to the need to inject public funds into banks to bail them out of their bad loan problem. It was concluded, however, that an infusion of public funds would be unnecessary as the decline in the Nikkei was likely to be a temporary phenomenon and that, when the equity market rebounded, banks would be able to recapitalise themselves. A number of small financial institutions subsequently failed in 1993 but the convoy system was used to see these institutions absorbed by healthy banks.

The first real evidence of significant financial stress came in 1995 when a number of "Jusen" or housing loan companies failed. The Jusen were largely finance companies set up by agricultural cooperatives to lend to the real estate market. Given the lack of expertise in this area, it was not surprising that the Jusen failed with massive soured assets and liabilities to banks. Given the significant political muscle rural constituencies have had in Japan, legislators backed by farmers were able to secure a JPY685bn injection of public funds to solve the Jusen problem. However, this scheme was intensely unpopular and was seen as a classic example of political pork-barrelling or rural constituents. The extent of the adverse reaction in urban areas saw the use of public funds to help dispose of non-performing loans essentially become a taboo subject in Japanese politics for several years afterwards.

Hence, in 1997 the "convoy system" enjoyed its last hurrah with the failure of Nippon Credit Bank when it was rendered insolvent after a dramatic rise in non-performing loans wiped out its capital. The government strongly pressured Nippon Credit's creditor banks to swap the debt for shares. The financial institutions initially rejected the government pressure arguing that debt-equity swaps would weaken their own financial positions. Eventually they relented under strong pressure from the government. Even with this fresh capital, Nippon Credit was not viable, and the bank failed and was subsequently nationalised.

The use of the convoy system as late as 1997 led to a dramatic rise in the so-called "Japan premium". Offshore loans to a Japanese bank are not backed by any formal guarantees of payment in the event of a failure by that bank. As such, those loans will carry an additional risk premium. The premium increased rapidly in response to a series of failures of banks and other major Japanese financial institutions and foreign banks began to charge higher interest rates for interbank loans to Japanese banks, whether weak of strong. The rise in the risk premium was clearly not without substance.

In the fall of 1997 the Japanese financial system teetered on the brink of implosion when three major financial institutions failed - Sanyo Securities Co. in October, followed by Hokkaido Takushoku Bank and Yamaichi Securities Co. in November. Over the course of late 1997 and early 1998 the Japanese economy was showing every sign of a major financial crisis. Ordinary savers were fleeing the Banks and putting their savings either under the mattress or with the Japan Post. The government approved JPY30trn for capital injections into the banks in March 1998 but only JPY7-8trn was actually utilised.

In October 1998 the Long Term Credit Bank of Japan goes under. This prompted the Diet to pass the Bank Recapitalization Law, thereby setting aside a total of ¥60 trillion in public funds for the recapitalisation of banks. In March 1999, the major banks in Japan were finally recapitalised.

From 1992 to 1999, the government policy towards banks had highly detrimental impacts that allowed the non-performing loan problem to grow dramatically. At the end of the 1992 fiscal year, official problem loans outstanding were JPY12.8trn (at around 2.5% of GDP this is somewhat less than the cost of the US S&L bailout). By the end of the 2005 fiscal year, the cumulative cost of NPL write-offs was around JPY96trn, over seven times the 1993 figure, or more ominously equivalent to around 85% of the total lending that occurred in the second half of the 1980s. How did non-performing loans jump so dramatically over this period?

In the first part of this period, weak banks were kept open in the hope that an economic recovery, or a recovery in land and equity prices, would eventually allow banks to recover their distressed loans. This implicitly sanctioned bank managers continuing to rollover outstanding loans to already troubled borrowers rather than writing off the losses. At its absolute nadir, banks were actually extending loans to troubled borrowers just so they could meet their repayments on their stock of existing problem loans. This perverse situation, known as the "gamble for resurrection" betted that equity and land prices simply could not fall any further and must rebound soon, thereby banks continued to gamble for resurrection and add to the stock of bad loans.

Also, during the first half of the 1990s, banks were able to rely on unrealised gains on equity positions to prop up capital ratios. Despite the fall in equity prices, the book value of stocks held was well below their market valuation, hence banks still had unrealised gains, or hidden reserves, on equity holdings. At the end of the 1992 fiscal year, the market value of shares held by banks was around JPY56trn compared to a market value of JPY35trn. Banks were allowed to use 45% of these unrealised gains (around JPY22trn) towards their Tier 2 Capital. However, this situation was exhausted by the mid-1990s when share prices fell significantly below their book value and the complete capital inadequacy of the Japanese banking system became painfully apparent.

The ongoing use of the "convoy system" which led banks to gamble for resurrection and the temporary savings grace of unrealised latent gains from the equity market bubble allowed the non-performing loan problem to effectively increase sevenfold before it was eventually tackled. With the benefit of Japan as a template, it is clear that these errors are not being replicated in the current US crisis.

Inflation or Deflation: impact on Asset Allocation

Inflation or Deflation: impact on Asset Allocation

Lessons from past deflation periods

■ **Parallel falls in ROE and equity valuations**. History tells us that a deflationary environment triggers a significant fall in corporate return on equity (ROE), down to zero for 10 years in the Japanese case. In Japan this trend triggered a substantial fall in equity valuations, bringing them to a price to book value of one in the previous case.

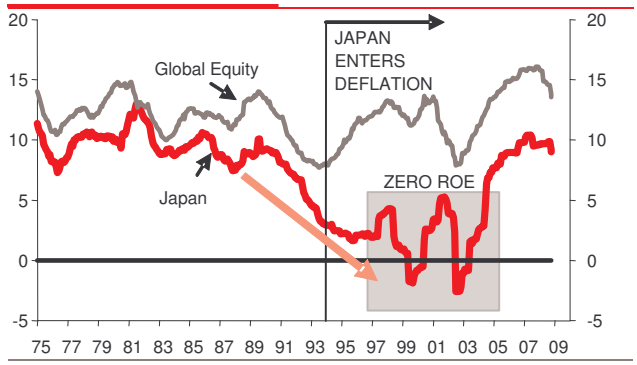
■ **Deflation, default rate and credit market**. Deflation triggers a significant rise in default rates, and therefore puts pressure on credit spreads. Current spreads are higher than at the deepest point of the 1929 crisis, showing the lack of tradability and reflecting panic behaviour.

■ **Deflation is also a crisis of volatility**. Volatility spikes happened before, when the macro economic cycle was destabilised. Only during periods of deflation does volatility trend so high, as seen during the 1929 crisis and during the 'lost decade' in Japan.

■ **The correlation matrix is heavily disturbed**. Under normal market conditions, when bond yields fall, equity valuations (and prices) tend to rise, therefore the correlation matrix is negative between the equity and the bond asset class. Under a deflation scenario, the matrix becomes inverted, as both bond yields and equity prices fall. This peculiar market behaviour occurred during the lost decade in Japan.

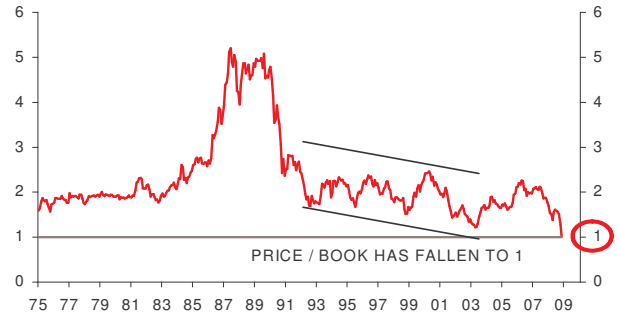
■ **Much cheaper equities, but Risk/Reward Indicator (R2i) disturbed by excessively high volatility**. We've built a proprietary tool to underline the current problem in risky assets. Their valuation has substantially fallen over the last quarters, so their expected return has moved up. Nevertheless, as the risk content (volatility) of these assets has gone through the roof, the risk/reward indicator has fallen, meaning that risk has developed quicker than the expected return improvement.

Much lower ROE…



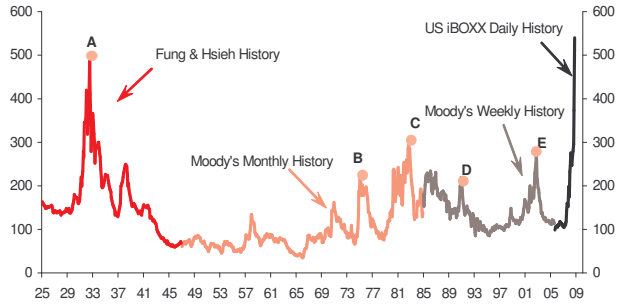
Return on Equity based on MSCI indices. Source: SG European Equity and Cross-Asset Strategy

…triggers a significant fall in equity valuations



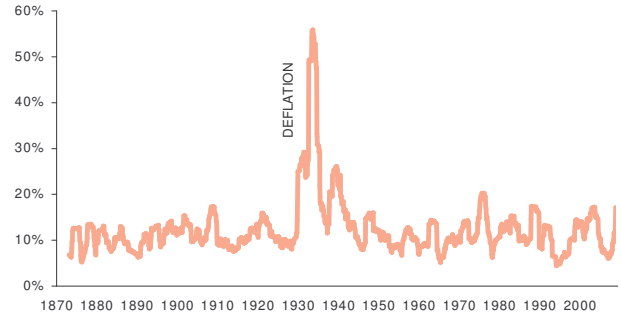
Source: SG European Equity and Cross-Asset Strategy

Deflation: peak in credit spreads



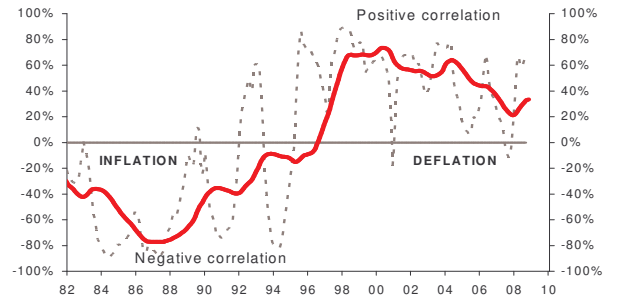
iBoxx indices cover the US investment-grade market. Source: SG Credit Research

Deflation: peak in equity volatility



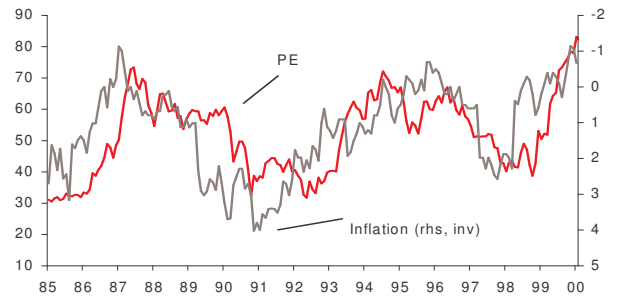
Volatility based on 2 year monthly S&P composite data. Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

Inverted correlation matrix between bonds & equities



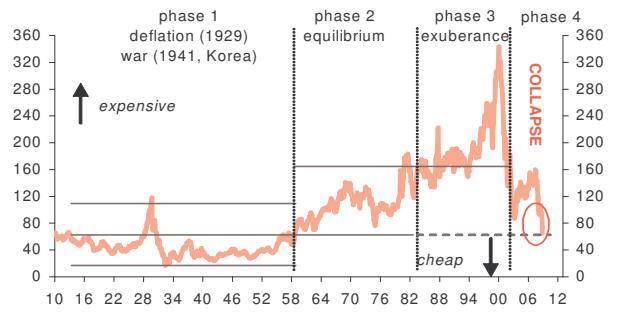
Dotted line: 2 year correlation between 10 year bond yield and PE ratio. Bold line= 3 year moving average of the dotted line. Source: SG European Equity and Cross-Asset Strategy

Equity PE and inflation in Japan (1995-2000)



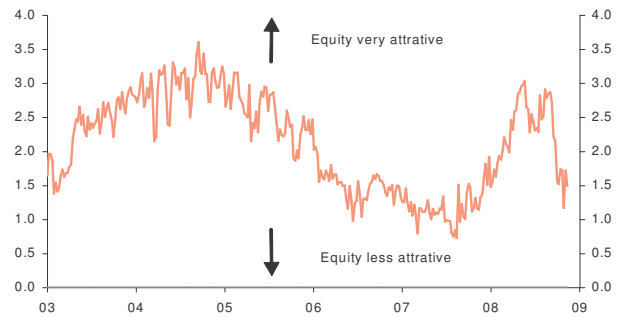
Source: SG European Equity and Cross-Asset Strategy, MSCI

Much cheaper equities…



This adjusted Fed model compares the nominal yield of government bonds with the inverse of prices to ten year average earnings. Source: SG European Equity & Cross Asset Strategy, Shiller

…but risk reward indicator (R2i) needs lower volatility



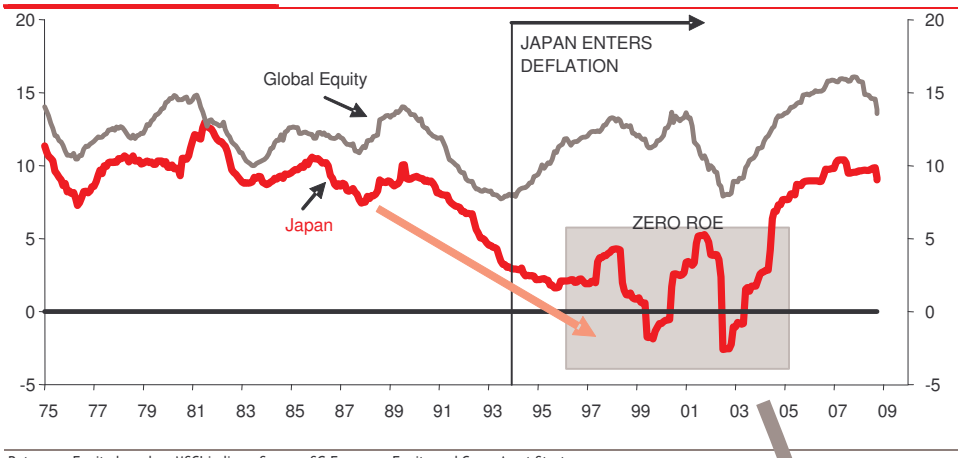
The R2I is a SG proprietary Risk/Reward Indicator. It is calculated as: R2I= [(1/12mPE)-3m rate]/VIX index *10. Source: SG European Equity and Cross-Asset Strategy

Deflation pushes the Return on Equity to 0%, so price to book value is under heavy pressure

During the Japanese deflation period of the 1990s, the return on equity (i.e. profitability of equity capital) of Japanese companies fell to 0%. As a consequence, earnings-based valuation tools are skewed during a period of deflation, as a lot of companies report losses and may even be close to bankruptcy.

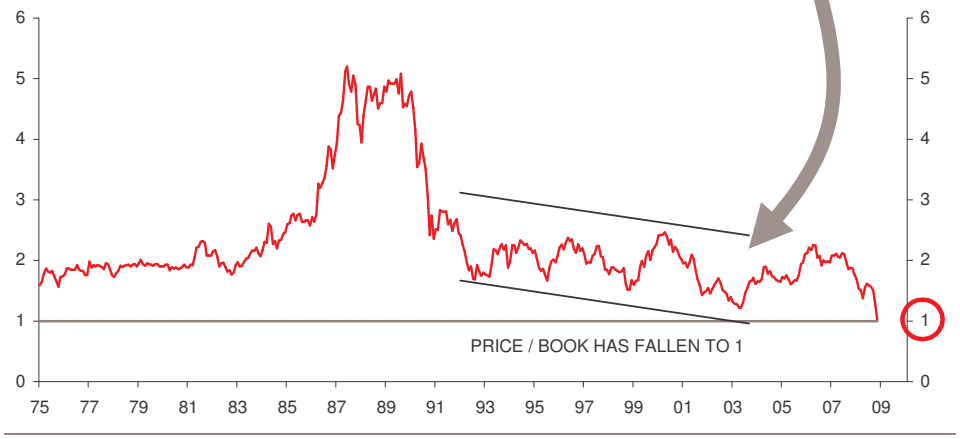
The Japanese equity market ROE fell to zero for ten years (1995-2005) when Japan experienced a period of deflation.

During Japanese deflation, the return on equity fell to 0%!



Return on Equity based on MSCI indices. Source: SG European Equity and Cross-Asset Strategy

Under a Zero ROE environment, price to book value is under heavy pressure



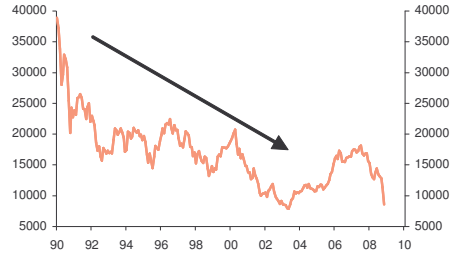
Source: SG European Equity and Cross-Asset Strategy

Beware of the change in the correlation matrix, when changing from deflation/inflation regime

Under normal macro economic conditions, the relationship between equities and bonds is clear: when interest rates fall, equities tend to go higher (and vice versa). The correlation between the two assets is therefore negative when the inflation regime is positive.

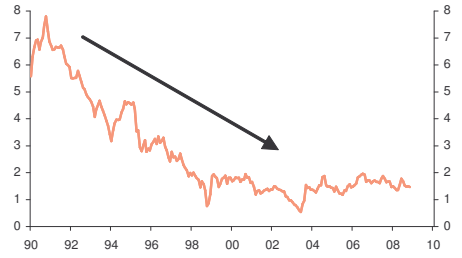
We show in the previous paragraph that, when a deflation regime materialises, equity valuations fall and interest rates also decline. Thus, in a deflationary environment, the correlation changes sign and becomes positive: bond yields and equity prices fall at the same time.

Nikkei over 1990-2010



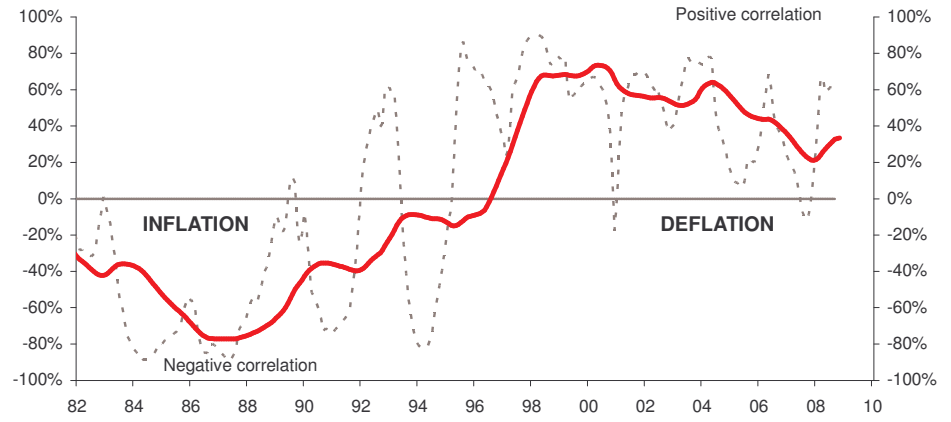
Source: SG European Equity and Cross-Asset Strategy

Japanese Long Term interest rate (%)



Source: SG European Equity and Cross-Asset Strategy

The correlation between equities and bonds changes sign with a switch in inflation regime



Dotted line: 2 year correlation between 10 year bond yield and PE ratio. Bold line= 3 year moving average of the dotted line. Source: SG European Equity and Cross-Asset Strategy

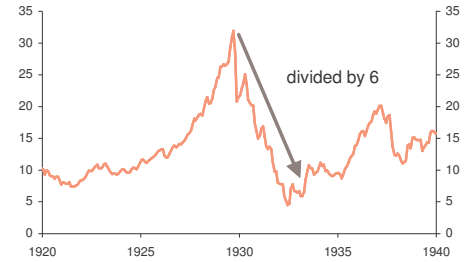
Equities are much cheaper, but…

US equities are now back to much more reasonable valuation levels. One should note that the peak in global equity valuations occurred some time before the start of the financial crisis: the all-time peak valuation levels occurred in 2000, in fact. Valuations are now close to the lower end of the historical range. Only during periods of war (WW1 and WWII), deflation (1930 and subsequent years) and very high inflation (two oil shocks during the 1970s and 1980s), have valuations been lower than current levels.

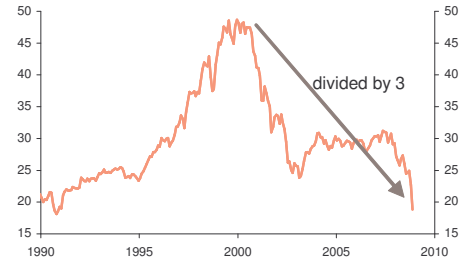
US equities were de-rated during the 1930s crisis: their PE ratios were divided by more than 6 between 1929 and 1932.

Since March 2000, the US equity PE ratio has been divided by around 3.

US Price-Earnings Ratio
Zoom on 1920 / 1940 period



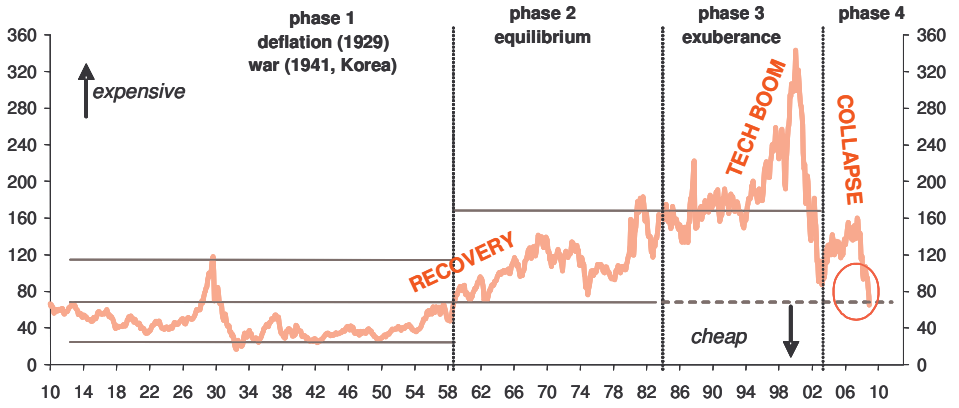
US Price-Earnings Ratio
Zoom on 1990 / 2010 period



Normalised EPS= 10 year moving average of reported EPS. Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

The model using normalised earnings highlights the current relative cheapness of equities, at the bottom of the range from the 1960s-1970s. However, it also highlights that this relative valuation could go further in a case of deflation (as in the 1930s) with the bond yield offering much lower rewards than equity earning yield!

Equity valuation versus bonds (on normalised earnings): cheapness around



This adjusted Fed model compares the nominal yield of government bonds with the inverse of prices to ten year average earnings. It therefore shows the attractiveness of equities relative to bonds. Source: SG European Equity & Cross Asset Strategy, Datastream, Shiller

Deflation is also a credit crisis

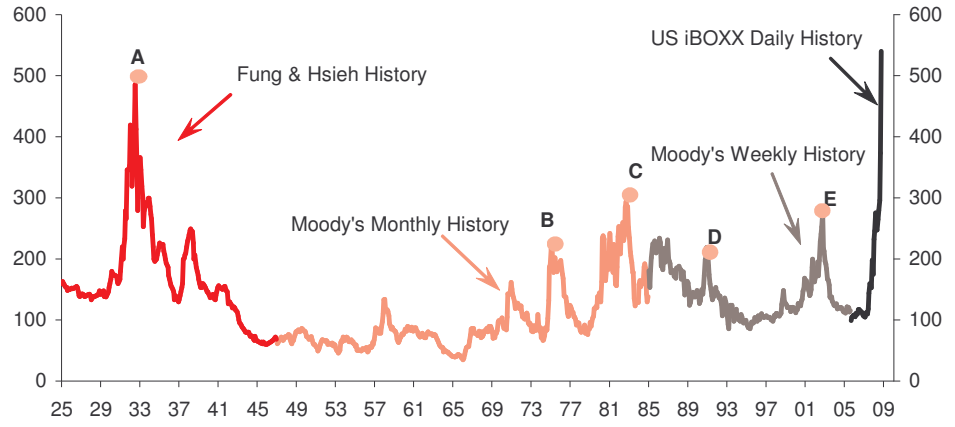
This time, policy makers are doing their best to *reflate* the banking sector and the credit market

The credit spread is a direct function of default rate and liquidity issues. Deflation is also a though environment for the credit market as the number of bankruptcy spikes. Furthermore, financial institutions, who manage the liquidity, are more vulnerable (if not directly hurt!).

In line with equity volatility, credit spreads are also negatively impacted during deflation

The Credit market appears also very risk (rising default rates) against a deflationary backdrop.

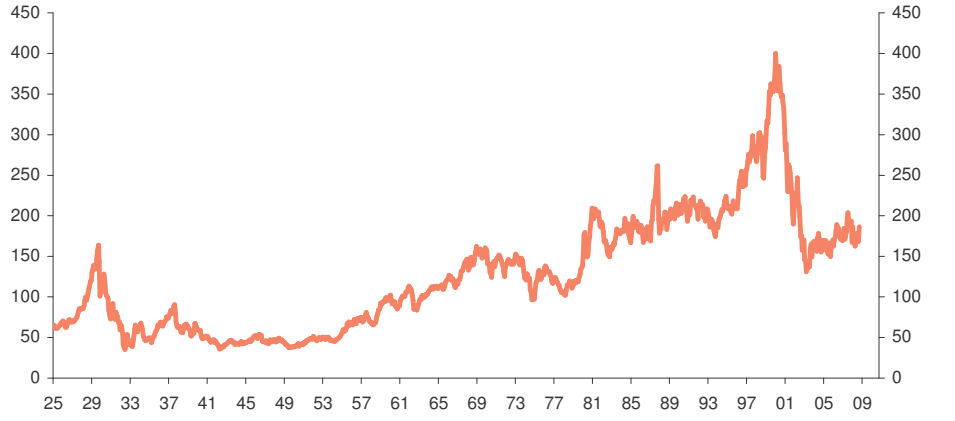
A = 1930 crisis
B= 1st oil crisis
C= 2nd crisis
D=1990 recession
E= 2002 debt crisis



iBoxx indices cover the US investment-grade market. Source: SG European Equity & Cross Asset Strategy, SG Credit Research

Equity valuation versus credit (on *normalised* earnings)

Equities look fair value or even slightly expensive vis-à-vis the credit market.



This adjusted Fed model divides the nominal yield of corporate bonds by the inverse of prices to ten year average earnings. It therefore shows the attractiveness of equities relative to credit. Source: SG European Equity & Cross Asset Strategy, Datastream, Shiller

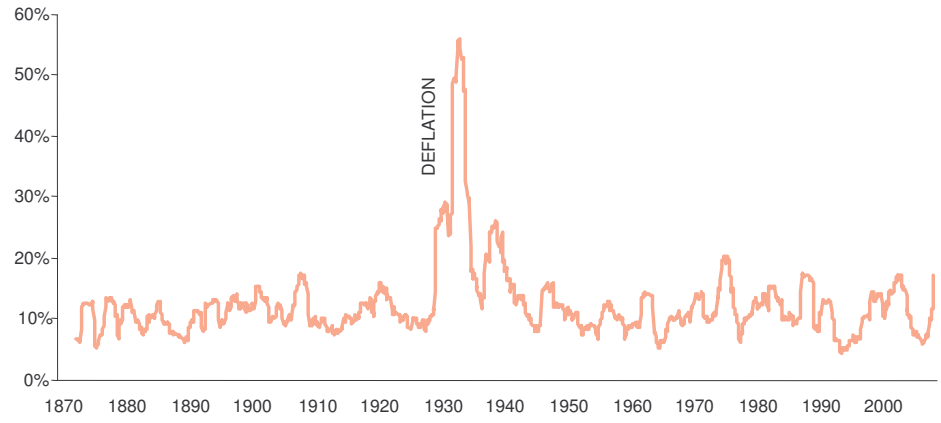
Deflation is also a crisis of volatility

Deflation triggers a peak in volatility

As the start of a deflation period, asset allocators are likely to sell equity first. Equity, with credit, is the most impacted asset class. During a deflation crisis, the risk on equity increases sharply; for the Great Depression, the peak in two-year volatility was reached in August 1933.

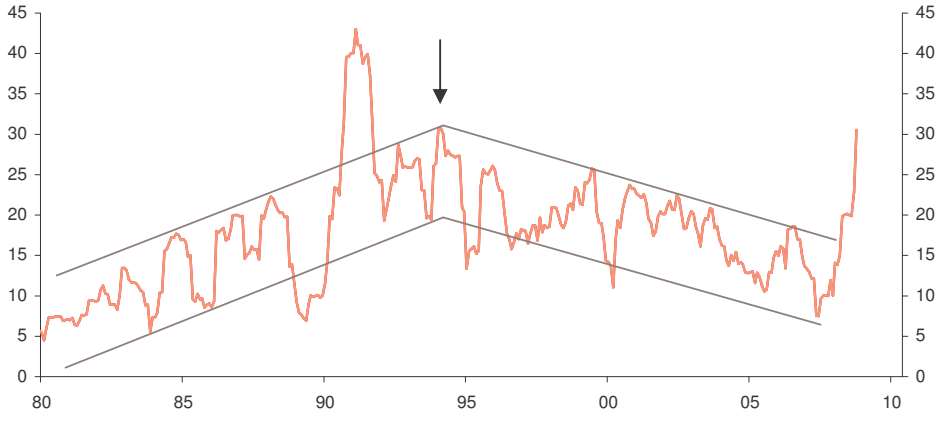
Using the same methodology to calculate volatility, current levels are still very far from the volatility level seen during the 1930s.

Deflation triggers a peak in volatility



Volatility based on 2 year monthly S&P composite data. Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

Deflation triggers a peak in volatility (2)- Example of Japan during the 1990s



Volatility based on 1 year monthly Nikkei data. Source: SG European Equity and Cross-Asset Strategy

Volatility spikes faster than the fall in equity valuations - the importance of zero rate policy in deflation

Valuation, volatility and risk-free rate: three key but linked variables

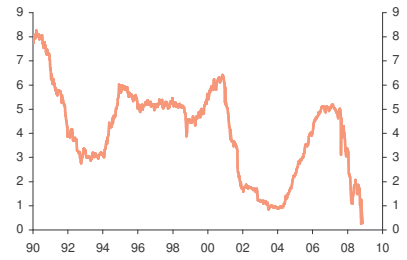
In order to illustrate how volatility, valuation and cash reward impact the attractiveness of equity as an asset class, we have build a proprietary indicator based on the Sharpe ratio. This Risk/Reward Indicator, called R2I, measures the excess return (i.e. kind of equity risk premium) per unit of risk (i.e. the volatility). We use the following variables in the Sharpe ratio in order to build the R2I:

- **Valuation**: we use the 12 month forward price earning ratio. The inverse of the PE ratio, named the earning yield ratio, could be considered as the immediate expected return of the equity asset class.
- **Risk-free rate**: we use the three-month Treasury bill rate, which is more a reflection of the risk-free rate than the Fed Funds during a liquidity crisis.
- **Volatility:** in order to work with the risk forward, we use the implied volatility as measured by the VIX index.

Earning Yield Ratio

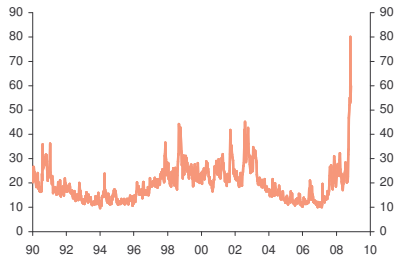
Inverse of the 12m PE ratio on MSCI USA Index. Source: SG European Equity and Cross-Asset Strategy, IBES, MSCI

Risk-free rate: 3m treasury rate



3m US treasury rate. Source: SG European Equity and Cross-Asset Strategy, Federal Reserve

Risk indicator: volatility index



Volatility measures by the VIX index. Source: SG European Equity and Cross-Asset Strategy

R2I is equal to the difference between the earning yield ratio and the risk-free rate divided by the implied volatility. R2I indicates how much 10% volatility is rewarding (in excess return).

$$R2i = [(1/PE) - Rf)]/\sigma$$

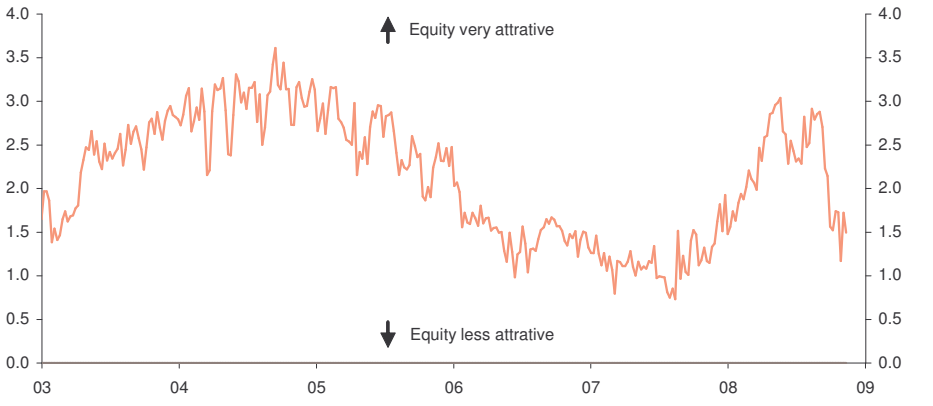
Where: PE = 12 months forward PE; Rf = 3 months Treasury bill rates; σ = VIX index

SG R2I (proprietary Risk/Reward Indicator) on US equity

The recent surge in volatility has taken place at a faster pace than valuation revisions. This has pushed down the risk/reward indicator.

A R2I of 2 indicate that 10% volatility is rewarded by 2% of expected return (above risk free rate).

A negative R2I highlights that the expected return on equity is lower than the risk-free rate.



The R2I is a SG proprietary Risk/Reward Indicator. It is calculated as: R2I= [(1/12mPE)-3m rate]/VIX index *10. Source: SG European Equity and Cross-Asset Strategy

European banking sector
More of the same?

European banking sector - More of the same?

Share prices of European banks now reflect a consensus view that history will repeat itself. The growing tally of private capital raisings and state-sponsored bailouts show that both banks and regulators recognise the issues and are trying to deflect what some see as inevitable, through major capital injections designed to restore confidence of investors and avert the lending drought that was so ruinous to the US in the 1930s and Japan in the 1990s.

What is different this time?

In Europe, there is a wish to learn from previous crises in not making things worse. This is balanced partly by the need for politicians to be seen to punish bank managements where losses have been excessive and lending practices, with hindsight, reckless.

2008 crisis	Previous crises
Prompt recognition of losses, demanded by IFRS accounting	Inability to recognise the scale of the problem quickly. Industry segmentation exacerbated exposures
Regulators force banks to increase capital quickly	Two-year delay before recapitalisation began
Emergency measures, e.g. reinforcing deposit guarantees and supporting interbank lending	Little was done to prevent runs on bank deposits
Huge efforts to avoid banks going bankrupt post Lehman.	Multiple banking failures were permitted before recapitalisation finally took place
Maintaining lending to the economy high priority	Lending was allowed to shrink noticeably

Q4 08 will be another "clean-up" quarter

We expect Q4 08 to be another opportunity for banks to "kitchen sink" results to provide a clean slate for 2009, at least in terms of remaining exposures to "legacy" assets from the credit crisis. The opportunity for banks to reclassify securities into their banking books as a result of changes to IAS 39 provides flexibility, and some banks already took this opportunity in Q3 08. Market volatility suggests another bad quarter for investment banking.

H1 08 provides a tough base line for core banking businesses in H1 09

For 2009, we expect to see the focus pass fully to the slowdown in underlying businesses. Comparisons with H1 08 will be tough and we would not expect to see any signs of bottoming out before Q3 09 at the earliest. The recapitalisation process is far from finished and there is no clarity on what the sustainable regulatory capital targets will be (though anything below 7% is currently viewed as insufficient). Deleveraging is progressing slowly and may accelerate if governments cannot instil confidence into external sources of funding.

Another tough year ahead but we expect strongest banks to win through

There has been little discrimination in 2008 between banks as investors sought common denominators to understand the severity of the crisis. In 2009, banks will need to keep higher levels of capital than their business mix needs. As it becomes clearer which banks have been more successful at managing risk in anticipation of a downturn, greater discrimination will once again become apparent, allowing capital pressures for some to ease, increasing the opportunity to gain market share and even acquire cheap assets. We maintain our preference for the Universal banking model in Europe, with a focus on Unicredit (Buy, TP €2.8) and Credit Agricole SA (Buy, TP €13.5). The fate of weaker players remains in the balance and we are reluctant to invest in banks where the risk of significant state interference remains high.

As banks, regulators and governments in Europe seek to prevent the financial crisis that is pervading Europe's banks spreading into an economic slump, there is no shortage of commentary as to how to go about preventing such an outcome. It is too early to see whether the measures that are in the process of being implemented by individual European Governments will be sufficient to restore confidence and maintain the availability of credit for consumers and corporates in Europe, but past crises do provide a list of "do's and don'ts" for those charged with trying to sort out the legacy of the US housing crisis and its extraordinary impact on financial markets. The overview we provide of how the previous crises in the US in the 1930s and Japan in the 1990s were handled by the banks themselves and the authorities in response should help us analyse the effectiveness of the current attempts to limit the damage from the credit market fallout in Europe.

Our view on European banks - still in the eye of the storm

Our view on the European banking sector currently is that we are now in the eye of the storm. There is no longer any possibility to avoid the storm, only the opportunity to secure enough of a capital cushion to see it through. Already in some cases, the storm has claimed its victims – Lehman, Merrill Lynch, Washington Mutual, Wachovia, Fortis, Northern Rock, Hypo Real Estate, and HBOS to give some examples. The common theme of the problems that led these banks into failure, bailout or sale is the over reliance on the glut of cheap wholesale finance to expand the business during the good times.

Betting on prudent banks is best

Those banks that were more prudent during the good times, both in their retention of capital and their expansion have a far greater chance to emerge battered but not beaten from this crisis. Some may even emerge stronger. We favour the universal banking business model which favours diversity, particularly when based on strong retail banking foundation. What is clear is that the banking environment will remain tough for some time to come. It is impossible to be categorical at this stage that the action taken by the banks and their governments/regulators will be sufficient. Thus it makes sense to focus only on the stronger banks, however deep the valuation discounts of the weaker ones may appear.

A faster response this time around brings hope of a shorter and less brutal impact

The good news is that whilst in Q3 07 and early Q4 07 the European banks went through their own period of denial and the authorities saw no particular concerns in seeing Investment banking bonuses erode, by December 2007 the severity of the problem was hitting European banks' managements in the face. The capital raisings that have been achieved since that time were a rapid response from those banks impacted directly by the write-down of US mortgage-related assets, although the relentless fall in the ABX indices and the broadening out of the crisis to adjacent securities (e.g. Alt-A mortgages, Commercial Real Estate securities and LBO inventories as the securitization markets dried up) meant that Banks managements were not able to get ahead of the problem, especially as there was no spill-over into broader economic activity at that time. Nevertheless, we shall see from history that one of the keys to solving a financial crisis is a rapid response and certainly this time around there is less of the inertia that was evident both at the time of the US Depression and Japanese banking crisis.

Capital raising during the current credit crisis by European banks

€bn	Rights issue	Sales of common shares	Hybrid	Other	TOTAL
UBS		10.76	12.80	1.13	24.7
Credit Suisse			1.20	7.96	9.2
Deutsche Bank		2	2.60		4.6
Commerzbank				8.2	8.2
Unicredit		4.2	3		7.2
Erste Bank			2.7		2.7
BNP Paribas			2.55		2.6
CASA	5.9		3		8.9
Dexia		6	0.376		6.4
KBC			3.5		3.5
Natixis	1.5	3.7	0.60		5.8
Societe Generale	5.5		2.7		8.2
Santander	7.2				7.2
Barclays		8.36	12.46	0.39	21.2
HBOS		14.95	3.59		18.5
Lloyds TSB Group		5.38	3.29	1.98	10.7
Royal Bank of Scotland	14.71	17.94	5.98	0.60	39.2
HSBC			3.58	0.35	3.9
TOTAL	34.81	73.29	63.93	20.61	192.63

Source: SG Equity Research

As the following chart shows, the relief rally in the summer of 2008, as the bailout of Fannie and Freddie in the US gathered pace and the idea of the TARP was floated, was short-lived, and the Lehman bankruptcy heralded the start of direct state intervention in the US and Europe. The issue now is whether the focus of Europe's plan to limit the damage is the right one and whether it is sufficient in its scope.

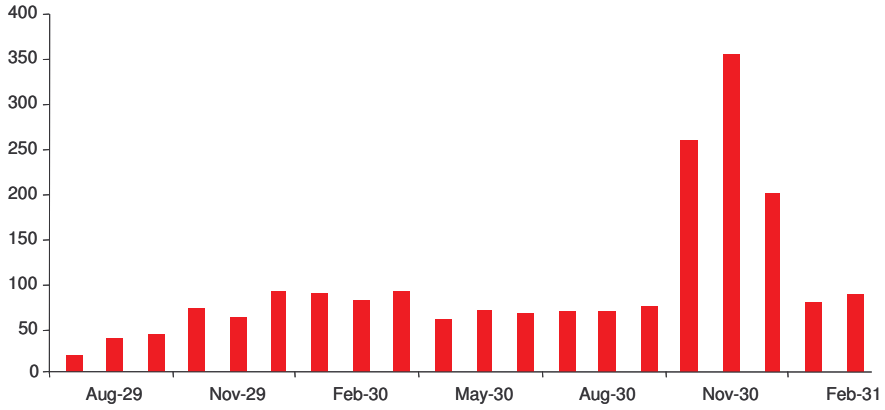
FTSE Euro Banks vs FTSE Eur 300

Source: SG Equity Research

The tipping point from history and today

The banking panic during the Great Depression was not triggered by a single event nor did it take place in a single moment. On the contrary, it was the outcome of different single episodes of panic (four at least) during the periods November 1930 – January 1931, April – August 1931, September 1931 – October 1931 and February - March 1933. Furthermore, these episodes did not have a single cause though single triggers have been identified in the failure of Caldwell & Co for the first panic, the bust of regional real estate bubbles for the second and third and the fear of devaluation for the fourth. Overall, the weak structure of the US banking industry at that time – a high number of small banks, overbanking of rural areas, deep involvement in stock exchange speculation and a weak balance sheet with highly liquid liabilities and illiquid assets – may be deemed as the ultimate cause.

Number of banks suspensions (1929-1931)



Source: SG Equity Research

The tipping point for the Japanese financial crisis took place in 1997 as the first large and high profile financial institutions entered effective bankruptcy. In an all too familiar fashion, a sharp decline in inter-bank lending followed, with the consequent sell-off of banking stocks and an increased cost of funding in the international inter-bank markets. Prior to 1997, there had already been a 52% drop in the stockmarkets and a 22% decline in property prices from their peaks in 1989 and 1991 respectively and this served as the prelude to the banking collapse.

In Europe, today's crisis has been due to over-reliance by bank managements on cheap wholesale funding, innovation in the structuring of credit products and an insatiable appetite for yield in a low interest-rate environment from investors, combining to create the illusion that credit risk was dead. Today the origins go back as far as the failures of the US Mortgage originators in early 2007 and particularly to the Bear Stearns money market fund crisis in the summer of 2007, the precedent of the liquidity squeeze seen particularly for UK banks over that period.

Today's response vs the US and Japanese experience

The examples coming from the US Banking crisis in the 1930s and the Japanese banking crisis in the 1990s provide a list of "do's and don'ts" for the European Regulators wrestling with their own banking crises today. Hindsight is a luxury not always available to help sort out crises but we find the following retrospective observations on the Japanese crisis illuminating.

- Prompt and accurate recognition of losses is essential
- Toxic assets need to be taken off the balance sheet
- Undercapitalisation of financial firms needs to be addressed by injecting public funds if necessary
- Blanket guarantee on bank deposits and temporary nationalisation of troubled banks should be considered in exceptional circumstances.

Prompt and accurate recognition

In Europe, IFRS accounting has effectively forced banks to disclose their exposures early, given the need to mark securities held for trading to market. However, the lack of physical assets and the lack of market pricing for many illiquid structures created from the US Housing market assets did initially have the impact of banks being able to ascribe subjective values to their assets in terms of the inputs into the pricing models. The existence of synthetic indices (e.g. ABX Indices for US subprime CDO paper) though imperfect, did show up those banks that initially took a "credit view" of their "toxic" assets, which enabled them initially to write-down less of the assets than the ABX indices were suggesting should be done.

Remove toxic assets from the balance sheet

The illiquid nature of many of the toxic assets left on banking balance sheets in Europe has made it tough for banks to sell these assets when the natural buyers, including hedge funds, were being forced to delever as liquidity dried up. Asset sales began to kick-in only following significant markdowns on assets (70%+) such as US Subprime CDO's and often with the selling bank providing loans to the buyer to finance the purchase. So far, the European governments' solutions have stopped short of buying toxic assets from banks and have preferred to recapitalise the banks and provide interbank lending guarantees in order to encourage banks to lend again to each other. This buys time for the banks to sort out their own legacy problems but does not clean-up balance sheets.

UBS did turn to its own Regulator to bail it out through the sale of a portfolio of $60bn of legacy assets, financed by a $54bn loan from the Swiss government. However this was a last attempt to solve its legacy asset problem and came after capital raisings and write-downs approaching SF40bn.

Recapitalise banks that need it

Recapitalisation has taken different forms in Europe and the US. In the 1930s the US Reconstruction Financial Corporation (RFC) ended up owning one-third of the capital in the banking system through its purchases of preferred stock, which began only two years after the initial onset of the banking crisis at the end of 1930. In Japan, the slowness of the response of the authorities in the early years of the crisis led to the Japanese authorities having to recapitalise a large number of banks.

In Europe, the responses have been varied, with the UK government opting for the most draconian option of becoming a major shareholder in three UK banks, partly due to the severity of the UK downturn but also because the utilisation of hybrid capital in the UK was significantly higher than among most continental European peers. So far in Europe, the response has been focused on supplying preference (core Tier 1 in the case of Austria and Benelux) and Tier 1 capital in the case of France and Germany. There is a "punitive" element to politicians' help in terms of bonus limitations

and balance sheet growth (in the UK) and the EU is expected to demand some level of consistency in the support given by governments to their banks. Support for interbank lending is a common theme in order to try to kick start banks lending to each other. It remains unclear whether the changes to TARP may invoke changes in the way the European authorities are managing the present crisis.

Invoke necessary temporary measures to restore confidence

Deposit guarantees were invoked in Japan to cover all deposits but only in 1997. In the US, it was not until 1933 that a Federal deposit insurance scheme was implemented for retail deposits. In today's crisis, Ireland made the most extreme promise to guarantee all deposits whilst Germany gave a "political" guarantee that it would do the same. In other countries, the amounts guaranteed have been raised, in order to protect depositor confidence.

The lessons we can draw from history

In the US, the banking crisis had a devastating effect in profits, share prices and lending patterns of American commercial banks. Net profits of FED member banks fell from a peak of $557 million in 1929 to a maximum loss of $356 million in 1933. Consequently, dividend pay-out ratio fell from a peak of 7.8 percent in Dec 1929 to a low of 2.8 percent in December 1933. So far in the current crisis, a number of European banks have seen significant losses caused by their exposures to the US Mortgage crisis but a very limited impact from the consequences of their own economic slowdown. Volumes are slowing and bad debts are trending upwards but the rapidity of the slowdown has certainly not been felt in numbers yet, making it clear that we are at the early stages of the downturn in banking profits, which has been masked by the impact of US mortgage related write-downs.

Valuation multiples in the US crisis fell to similar levels that we see today

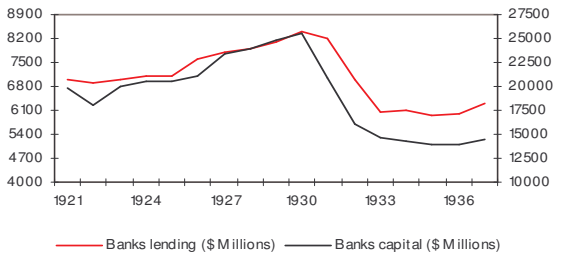
Financial ratios fell; market value divided by book value reached a maximum of 3.82 in 1928 and a low of 0.88 in 1933 and average market value of assets peaked at $1,045 million in 1929 and reached its lowest value with $641 million in 1933. In the current crisis, the average Price:NAV for European banks is close to 0.8x, though the range is between 0.2x-1.5x.

The key is to avoid a contraction of the whole economy

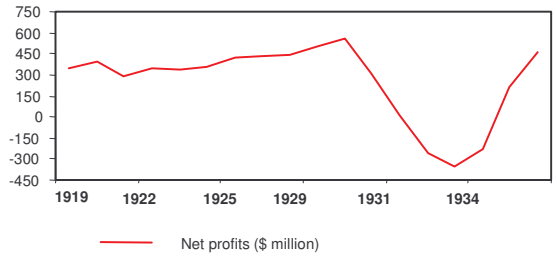
Perhaps the key "takeaway" from the US banking crisis was that Banks reacted to tightening lending to private sectors and contributed greatly to the contraction of the whole economy. The reactions of the European governments, which are in fact different from the initial TARP plan in the US, has been to seek guarantees on lending volumes in return for providing more capital to cushion banks against the forthcoming downturn, replace the capital lost from US mortgage exposures and satisfy the demands of investors that banks should carry higher capital levels in future. Capital adequacy is now judged in terms of both regulatory capital i.e. Tier 1 and core Tier 1 ratios as well as by balance sheet leverage (equity/assets). The consequences of banks that do not lend because of a lack of capital are significant, as the charts below illustrate well.

Impact of the US Banking crisis in 1930s

US Bank Capital and Bank lending ($m)



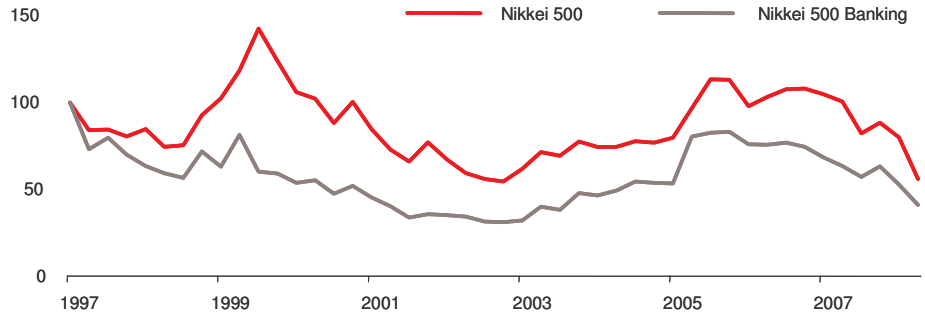
Net profits of FED Member banks



Source: SG Equity Research

In Japan in the 1990s, banking stocks declined a further 37% (Nikkei 500 Banking) within a year of the banking crisis unravelling and significantly underperformed the market.

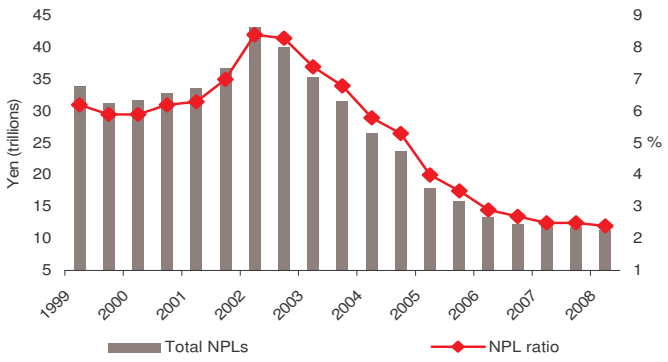
Nikko 500 banking vs Nikko 500



Source: SG Equity Research

Non-performing loans rose to a high of ¥43.2 trillion (USD $441bn) in 2002 representing 8.4% of total loans. Furthermore, there was a significant curtailment in banking activity with lending of domestically licensed banks down 15% by 2005 as banks grappled with their bad loans problem.

Non-performing loans in Japan



Source: SG Equity Research

Total loans of domestically licensed banks, ¥ trillion

Source: SG Equity Research

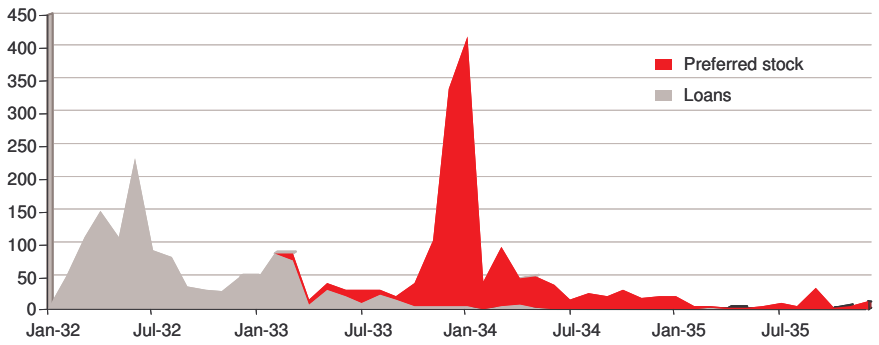
Financial institutions in Japan were limited in their own response due to the severity of this crisis. Only four banks were able to raise capital prior to 1997 and none were able to recapitalize in the open market subsequently. There were some subordinated debt issuances in private offerings to

institutional investors; however, it was left to the Japanese government to implement measures for restoring financial stability.

Response of the authorities - then and now

The first panics in the US did not receive a consistent or appropriate response. A "liquidationist" approach was adopted by authorities, combined with the traditional counter-cyclical monetary policy and lending facilities at tight terms. After the last panic, in March 1933, President Roosevelt enacted different measures to contain the free fall of the nation's financial system; these included: 1) a national bank holiday decreed to contain panic; 2) a federal deposit insurance scheme implemented for small deposit accounts; 3) permission granted to the RFC, the Reconstruction Financial Corporation, to purchase preferred stock in banks. Finally, suspended banks were examined and those deemed solvent were allowed to go back to business. The rest were recapitalized and brought back to business or liquidated.

RFC recapitalization of open banks (in $ millions)



Source: SG Equity Research

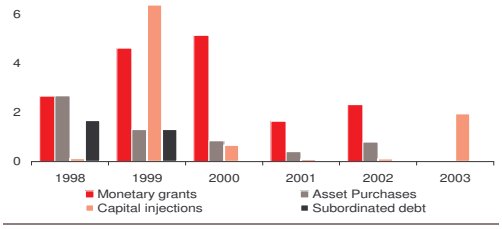
By late 1997, the Japanese authorities had little option but to utilise public funds and adopt a range of measures in order to ease the strain on their banking system. The deposit guarantee scheme was extended to cover all deposits and financial assistance measures were implemented. A total spend of ¥46.8 trillion (USD $478bn) can be broken down as follows:

- Monetary grants: the government paid out ¥18.6 trillion.
- Capital injections: ¥12.4 trillion was injected into 37 different banks, predominantly in the form of mandatory convertible notes. According to the Commissioner of the Financial Services Agency in Japan, ¥9.2 trillion has now been repaid which includes capital gains of ¥1.3 trillion and a cumulative dividend of ¥0.8 trillion has also been earned on the investments.
- Purchase of assets: ¥9.8 trillion worth of assets were purchased from ailing banks.
- Other sources of liquidity such as compensation for losses and provision of loans (¥6 trillion).

Resolution of failed financial institutions

The Japanese authorities were appointed as financial administrators in 11 cases to manage and dispose of assets as well as to broker the sale of the failed institutions. In addition to this there were two instances of nationalisation – Long-Term Credit Bank in October 1998 and Nippon Credit Bank in December 1998. The net worth of these banks had become negative by the time of nationalisation.

Breakdown of financial assistance and recovery measures, ¥ trillion



Source: SG Equity Research

The road to recovery

By June 1935, the RFC held more than one-third of the outstanding capital of the US banking system and the Glass-Steagall Act had split banking activities among commercial and investment banks. The bulk of the problems in the US had been addressed but US banks only experienced a true recovery in terms of capital ($5 billion), lending (about $15 billion) and profits at the end of 1937, prior the Second World War.

The acute financial problems facing the banking industry in Japan were resolved within the first two years of the crisis, with capital injections peaking at ¥6.4 trillion in 1998 and monetary grants at ¥5.4 trillion in 1999. However the process of recovery was a prolonged one with the first signs only emerging in 2005:

- The deposit guarantee scheme was not removed fully until 2005.
- Sustained loan growth did not resume until 2005
- The NPL ratio began to stabilize below 3% only as recently as 2006, eight years on!

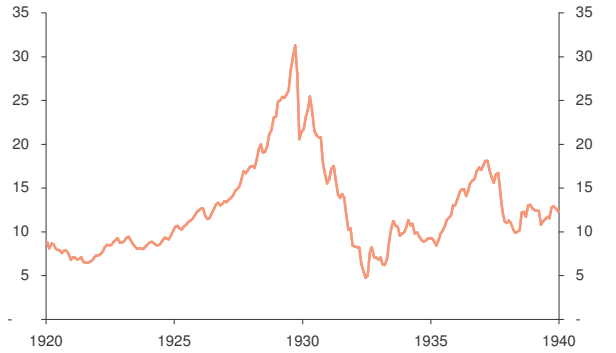
This time around, the original US TARP plan has not attempted to answer all four of the responses we mentioned earlier in this note. The criticisms levelled against it were whether $700bn is enough and if too much focus has been on supporting well capitalised banks and not enough in helping out the weaker ones, as well as the consumer and the wider economy. The bankruptcy of Lehman Brothers galvanised the authorities into action but the rescue of Washington Mutual by JP Morgan and that of Wachovia by Wells Fargo may prove to have been a too generous response to those banks' difficulties. The same charges may be levelled at the UK Authorities as they prepare to become shareholders in three major UK banks – RBS, HBOS and Lloyds.

The recent refocusing on TARP towards the consumer and the abandoning of plans to purchase troubled mortgage assets has provided part of the answer to the initial concerns, but leaves considerable uncertainty as to how banks will manage remaining US mortgage assets and how they will value them. Recent changes to IAS 39 may allow some transfers from the trading to banking books, limiting the need for further write-downs. Nevertheless, with the focus now on providing banks with capital rather than buying assets off them, at least one of the criteria above is not really being met.

Appendix

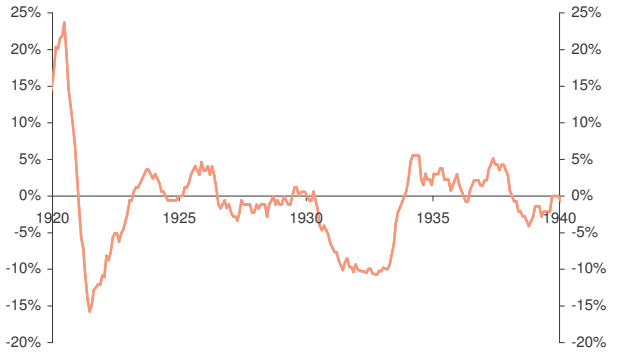
Zoom on US over 1920-1940

Equity price (S&P Composite)



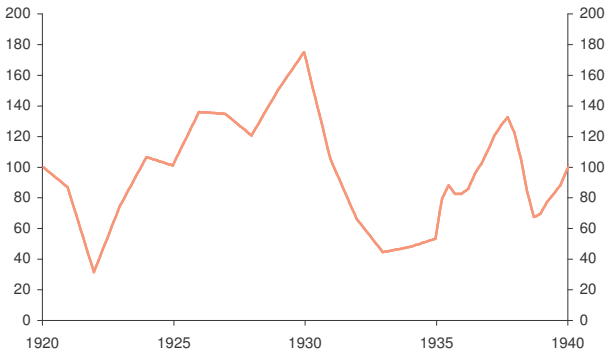
Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

Inflation rate (%, CPI yoy)



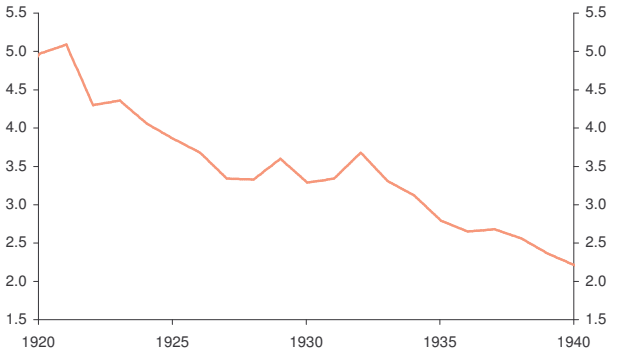
Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

Earnings (reported)



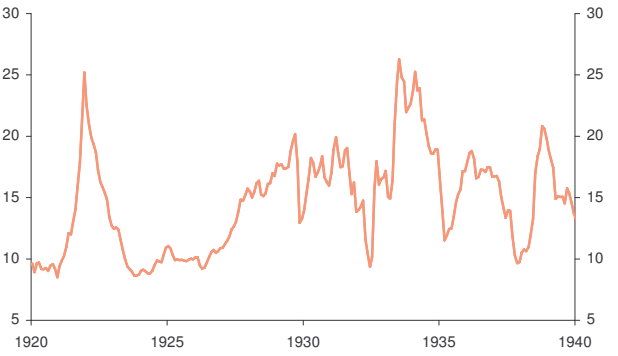
Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

US Long Term interest rate (%)



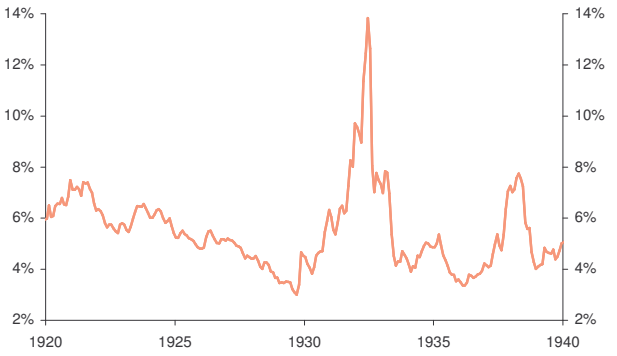
Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

Price Earning Ratio (based on reported earnings)



Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

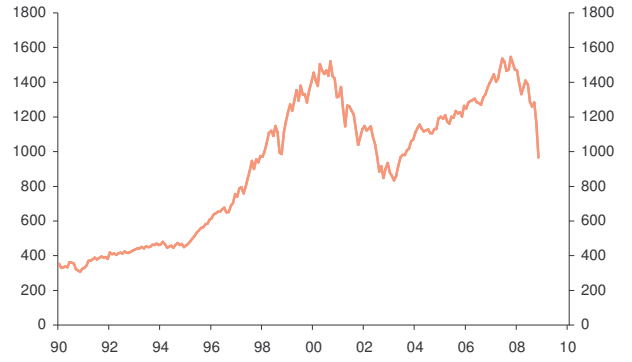
Dividend yield (%)



Source: SG European Equity and Cross-Asset Strategy, Robert Shiller (Yale University)

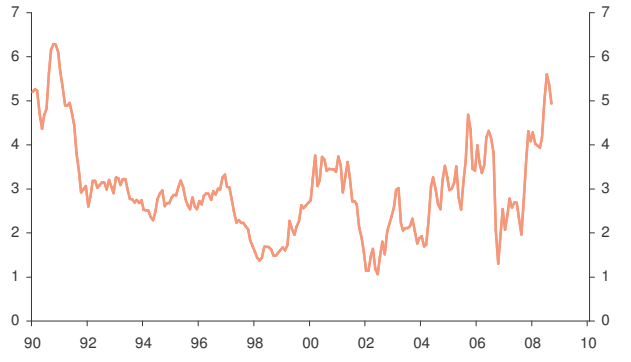
Zoom on US over 1990-2010

Equity price (S&P Composite)



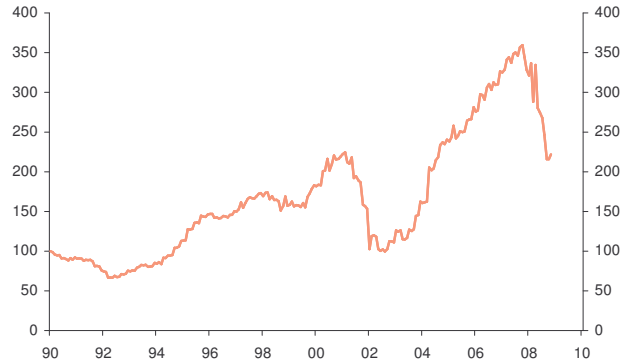
S&P composite index. Source: SG European Equity and Cross-Asset Strategy)

Inflation rate (%, CPI yoy)



Source: SG European Equity and Cross-Asset Strategy)

Earnings (reported)

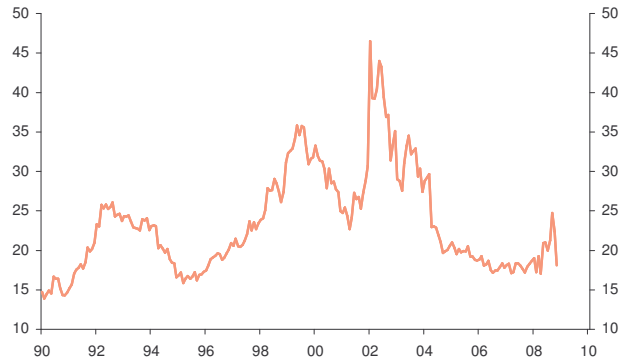


Source: SG European Equity and Cross-Asset Strategy)

US Long Term interest rate (%)

Source: SG European Equity and Cross-Asset Strategy)

Price Earning Ratio (based on reported earnings)



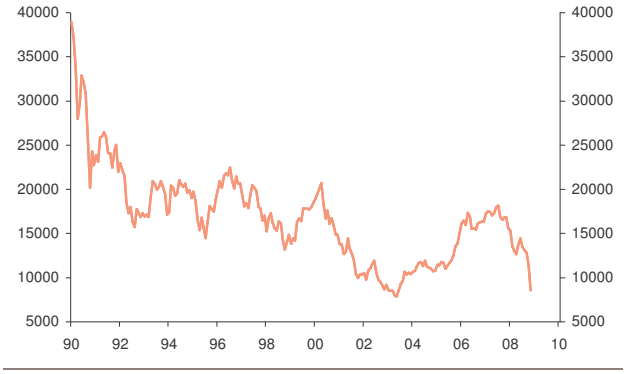
Source: SG European Equity and Cross-Asset Strategy)

Dividend yield (%)

Source: SG European Equity and Cross-Asset Strategy)

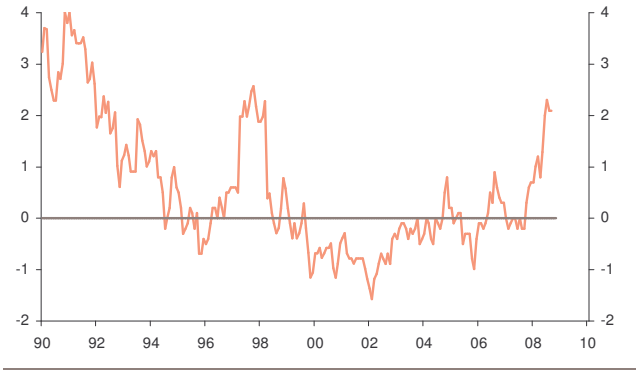
Zoom on Japan over 1990-2010

Equity price (Nikkei 225)



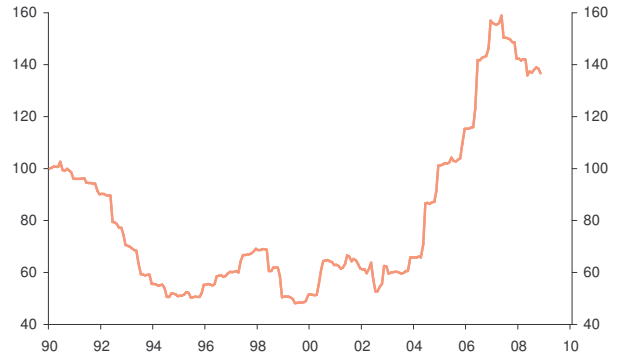
Nikkei index. Source: SG European Equity and Cross-Asset Strategy)

Inflation rate (%, CPI yoy)



Source: SG European Equity and Cross-Asset Strategy)

Earnings (reported)



Source: SG European Equity and Cross-Asset Strategy)

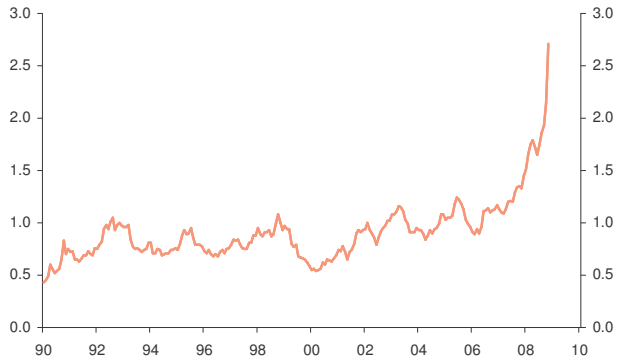
Japanese Long Term interest rate (%)

Source: SG European Equity and Cross-Asset Strategy)

Price Earning Ratio (based on reported earnings)

Source: SG European Equity and Cross-Asset Strategy)

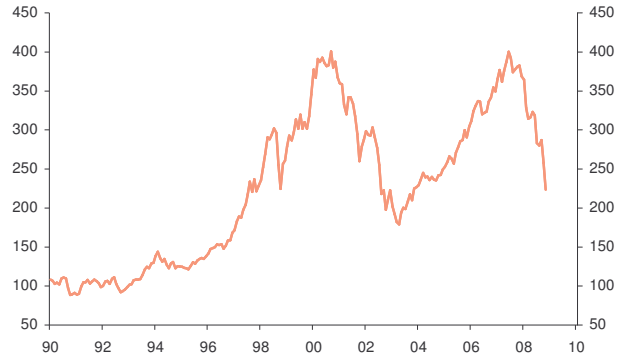
Dividend yield (%)



Source: SG European Equity and Cross-Asset Strategy)

Zoom on Europe over 1990-2010

Equity price (DJ Stoxx 600)

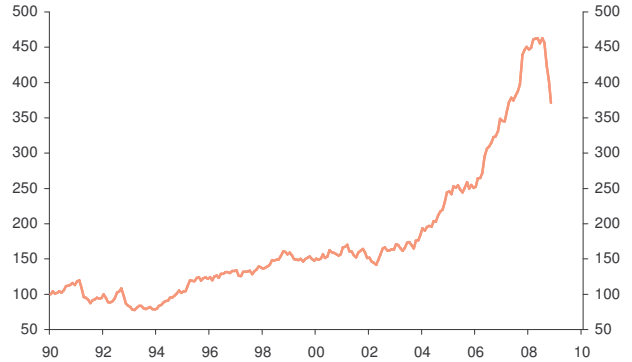


S&P composite index. Source: SG European Equity and Cross-Asset Strategy)

Inflation rate (%, CPI yoy)

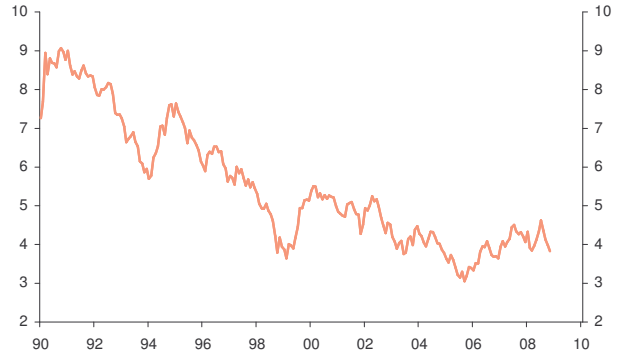
German inflation is taken as a proxy of European inflation. Source: SG European Equity and Cross-Asset Strategy)

Earnings (reported)



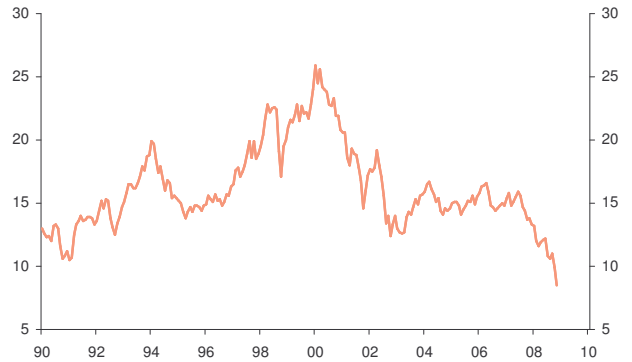
Source: SG European Equity and Cross-Asset Strategy)

European Long Term interest rate (%)



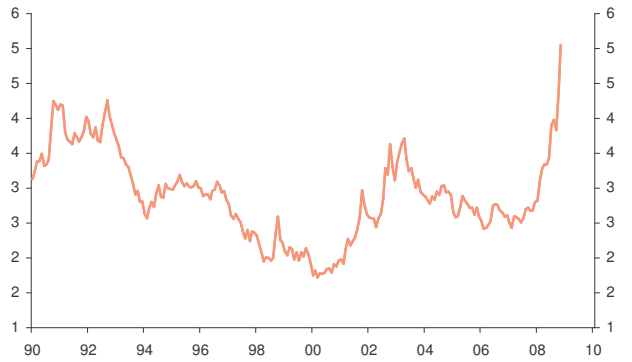
German rates are taken as a proxy of European rates. Source: SG European Equity and Cross-Asset Strategy)

Price Earning Ratio (based on reported earnings)



Source: SG European Equity and Cross-Asset Strategy)

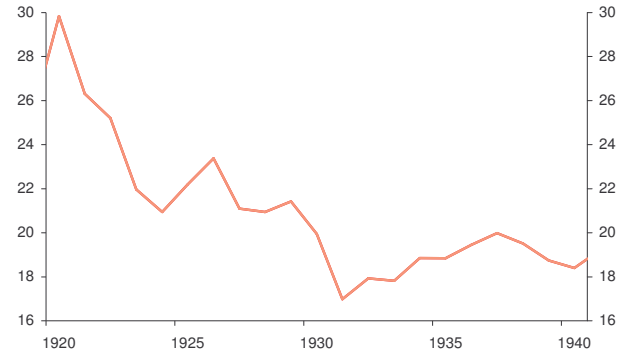
Dividend yield (%)



Source: SG European Equity and Cross-Asset Strategy)

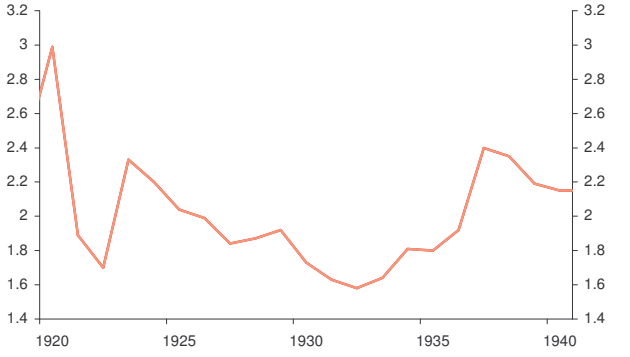
Zoom on Commodities over 1920-1940

Gasoline Pump price



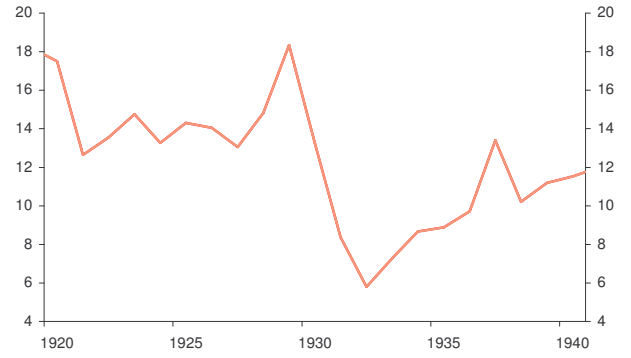
Annual Average Price. Source: EIA, Bureau of Labor Statistics leaded regular

Steel price



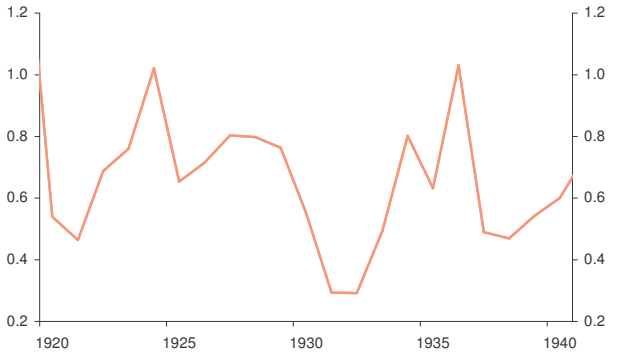
Annual Average Hot-Rolled Steel Bar Price in $ per 100 pounds. Source: American Metal Market

Copper price



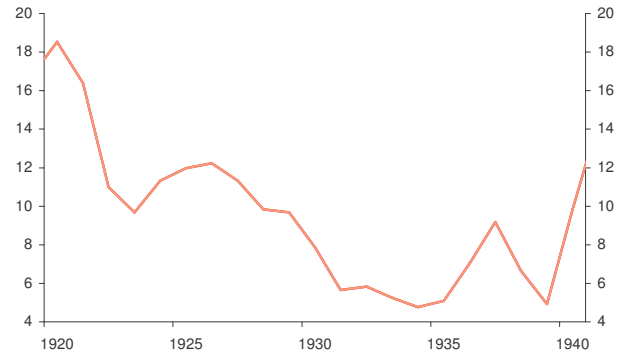
Annual Average US Producer Copper Price. Source: American Metal Market

Corn price



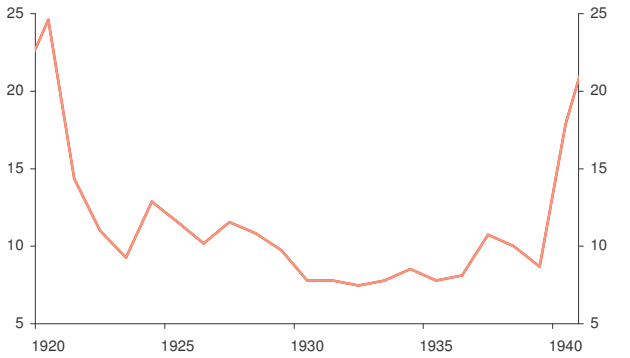
Season average price (in US Dollar per bushet). Source: USDA

Wheat price



UK annual average, ex-farm prices, £ per tonne. Source: Ministry of Agriculture, Fisheries and Food, UK (Corn Returns, England and Wales)

Barley price



UK annual average, ex-farm prices, £ per tonne. Source: Ministry of Agriculture, Fisheries and Food, UK (Corn Returns, England and Wales)

Sensitivity of R2i

The table below highlights the impact of volatility and risk premiums on R2I. An increase in volatility would obviously have a negative impact on the attractiveness of equities. For example, a switch from a 'normal' regime (around 20%) to the current volatility regime (around 60%) divided the R2I by 3. This illustrates the lake of attractiveness during periods of high volatility, such as when deflation materialises.

Sensitivity of R2I to volatility and risk-premium

Volatility -> Risk Premium	10%	20%	30%	40%	50%	60%	70%	80%	90%
1%	0.10	0.05	0.03	0.03	0.02	0.02	0.01	0.01	0.01
2%	0.20	0.10	0.07	0.05	0.04	0.03	0.03	0.03	0.02
3%	0.30	0.15	0.10	0.08	0.06	0.05	0.04	0.04	0.03
4%	0.40	0.20	0.13	0.10	0.08	0.07	0.06	0.05	0.04
5%	0.50	0.25	0.17	0.13	0.10	0.08	0.07	0.06	0.06
6%	0.60	0.30	0.20	0.15	0.12	0.10	0.09	0.08	0.07
7%	0.70	0.35	0.23	0.18	**0.14**	**0.12**	0.10	0.09	0.08
8%	0.80	0.40	0.27	0.20	**0.16**	**0.13**	0.11	0.10	0.09
9%	0.90	0.45	0.30	0.23	**0.18**	**0.15**	0.13	0.11	0.10
10%	1.00	0.50	0.33	0.25	0.20	0.17	0.14	0.13	0.11

Source: SG European Equity and Cross-Asset Strategy

The pink area highlights the current situation: very high volatility and very high equity risk premium.

The equity risk premium is a direct function of two variables according to this approach: the valuation and the short-term rate. The latter is very sensitive to deflation newsflow as it benefits from the "flight to safety" mechanism and is a direct function of monetary policy. The policy makers are "forced" to decrease interest rates (until quantitative easing) to stimulate investments.

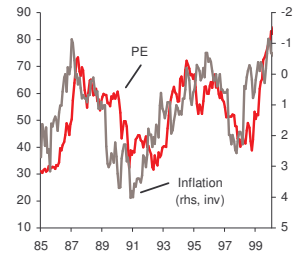
Sensitivity of Equity Risk Premium to valuation and short term rate

PE ratio -> Short Term rate	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0
1%	19%	12%	**9%**	**7%**	6%	5%	4%	3%	3%
2%	18%	11%	8%	6%	5%	4%	3%	2%	2%
3%	17%	10%	7%	5%	4%	3%	2%	1%	1%
4%	16%	9%	6%	4%	3%	2%	1%	0%	0%
5%	15%	8%	5%	3%	2%	1%	0%	-1%	-1%
6%	14%	7%	4%	2%	1%	0%	-1%	-2%	-2%
7%	13%	6%	3%	1%	0%	-1%	-2%	-3%	-3%
8%	12%	5%	2%	0%	-1%	-2%	-3%	-4%	-4%
9%	11%	4%	1%	-1%	-2%	-3%	-4%	-5%	-5%
10%	10%	3%	0%	-2%	-3%	-4%	-5%	-6%	-6%

Source: SG European Equity and Cross-Asset Strategy

Currently (highlighted by the pink area), we are at an excess return of 8.3% in the US.

Japanese equity during 90s



Source: SG European Equity and Cross-Asset Strategy, MSCI

Equity valuations increase during periods of deflation companies earnings are obviously negatively impacted. However, equity markets move faster than analysts and, as a consequence, the PE ratio tends to contract first before expanding. A switch from a PE of 10 to a PE of 25 (i.e. EPS revisied down by 60%) cuts the R2I by 60% to 90% (the exact figure is obviously depending of the risk free rate level).

IMPORTANT DISCLOSURES

American Water Works	*SG acted as co-manager in American Water Works' IPO*
BNP Paribas	*SG is acting as financial advisor to SFPI, 100% owned by the Belgium State, which holds a 49.9% stake in Fortis Bank SA/NV*
Crédit Agricole SA	*SG acted as co-lead Manager in Credit Agricole's rights issue*
Dexia	*SG holds 80% of Crédit du Nord and Dexia the remaining 20%*
Fortis	*SG is acting as financial advisor to SFPI, 100% owned by the Belgium State, which holds a 49.9% stake in Fortis Bank SA/NV*
Natixis	*SG acted as Co-lead manager of Natixis right issue*
Société Générale	*SG issues no recommendation on Société Générale's own financial instruments.*
Unicredit Group	*SG makes a market in Unicredito warrants*
Vivendi	*SGSP is managing a liquidity contract on behalf of Vivendi.*
Vivendi	*SG acted as co-manager on Vivendi's Senior Unsecured debt offering in US dollars.*
Vivendi	*SG acted as financial advisor to Vivendi and SFR and sponsor of the public offer for NeufCegetel's shares*
Vivendi	*SG acted as Bookrunner and Mandated Lead Arranger in the acquisition financing of Neuf Cegetel by Vivendi*

US THIRD PARTY FOREIGN AFFILIATE RESEARCH DISCLOSURES:

SG and its affiliates beneficially own 1% or more of any class of common equity of April Group.
SG and its affiliates beneficially own 1% or more of any class of common equity of BNP Paribas.
SG and its affiliates beneficially own 1% or more of any class of common equity of Commerzbank.
SG and its affiliates beneficially own 1% or more of any class of common equity of Deutsche Bank.
SG and its affiliates beneficially own 1% or more of any class of common equity of Fortis.
SG and its affiliates beneficially own 1% or more of any class of common equity of Hypo Real Estate.
SG and its affiliates beneficially own 1% or more of any class of common equity of ING Group.
SG and its affiliates beneficially own 1% or more of any class of common equity of Royal Bank of Scotland.
SG and its affiliates beneficially own 1% or more of any class of common equity of Santander Central Hispano.
SG and its affiliates beneficially own 1% or more of any class of common equity of Société Générale.
SG and its affiliates beneficially own 1% or more of any class of common equity of Total.
SG and its affiliates beneficially own 1% or more of any class of common equity of Unicredit Group.
SG or its affiliates act as market maker or liquidity provider in the equities securities of BNP Paribas.
SG or its affiliates act as market maker or liquidity provider in the equities securities of Crédit Agricole SA.
SG or its affiliates act as market maker or liquidity provider in the equities securities of Credit Suisse.
SG or its affiliates act as market maker or liquidity provider in the equities securities of Deutsche Bank.
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SG or its affiliates act as market maker or liquidity provider in the equities securities of Unicredit Group.
SG or its affiliates act as market maker or liquidity provider in the equities securities of Vivendi.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from American Water Works.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Barclays.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Credit Suisse.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Deutsche Bank.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Erste Bank.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Fortis.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from HBOS.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Lloyds TSB Group.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Munich RE.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Natixis.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Total.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Unicredit Group.
SG or its affiliates expect to receive or intend to seek compensation for investment banking services in the next 3 months from Vivendi.
SG or its affiliates have received compensation for investment banking services in the past 12 months of American Water Works.
SG or its affiliates have received compensation for investment banking services in the past 12 months of Crédit Agricole SA.
SG or its affiliates have received compensation for investment banking services in the past 12 months of Natixis.
SG or its affiliates have received compensation for investment banking services in the past 12 months of Vivendi.
SG or its affiliates managed or co-managed in the past 12 months a public offering of securities of American Water Works.
SG or its affiliates managed or co-managed in the past 12 months a public offering of securities of Crédit Agricole SA.
SG or its affiliates managed or co-managed in the past 12 months a public offering of securities of Natixis.
SG or its affiliates managed or co-managed in the past 12 months a public offering of securities of Vivendi.