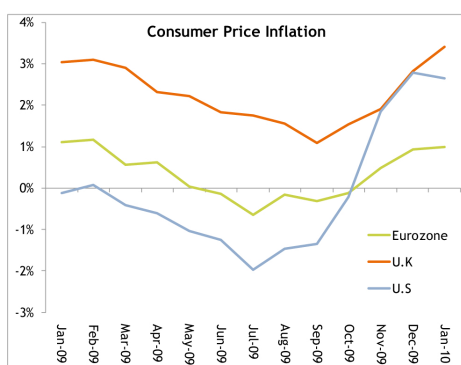




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## Inflation risk for P&C Insurers

Any firm with assets or liabilities linked to prices within a particular region or sector will be able to improve its understanding of the risks it faces by explicitly modelling the inflation rates of those prices. Aggregated price indices such as the CPI can only ever proxy the distinct inflation risk profile faced by individual companies. This note focuses on the potential divergence of country specific inflation rates in the Eurozone and Medical cost inflation in the U.S from their aggregated counterparts.

### Inflation: a growing concern

In the wake of the severe deflationary shocks of 2008 and ensuing economic stagnation of 2009, the sudden and pronounced increase in the rate of inflation raises some important questions for risk managers. In the UK and US inflation is now above its target rate (and in the UK this has prompted a letter of reassurance from the central bank to government). The financial support packages recently implemented by the governments and central banks of some of the world's major economies are by no means guaranteed to unwind as planned or in an economically sterile fashion, especially with regards to inflation.

Even in more regular circumstances it is important to be aware that reported aggregate (i.e. CPI) inflation rates are made up of a number of other specific inflation rates that have their own dynamics and can be subject to unique shocks. The inflation exposure of any individual or firm will be defined exactly by these disaggregated inflation rates, which are not explicitly considered by central banks with an inflation target. Whilst aggregate CPI in an economy will be a good proxy for sectoral or regional inflation over the very long term, non trivial short to medium term differences can and do exist between "micro" and "macro" inflation rates: In the prevailing climate of economic uncertainty taking account for such differences within risk models can offer important insight into the potential pitfalls that the future holds.

### Inflation in Eurozone countries

The birth of the Euro in 1999 marked an unprecedented step towards the creation of a single market in Europe and went further in the direction of aligning the futures of European economies than any trade or currency agreement before it. The single currency also meant that member states would surrender sovereignty over monetary policy to the newly created European Central Bank, which would be tasked with setting base rates to effect price stability and inflation of "close to, but below" 2% across the Eurozone.

It is therefore important to think about how appropriate an average inflation rate across the entire Eurozone is as a proxy measure of the inflation rate specific to any single Eurozone country. Let us take Greece as an example.

*...Given the current situation, it would not be unwise to model Greek inflation rates with elevated volatility...*

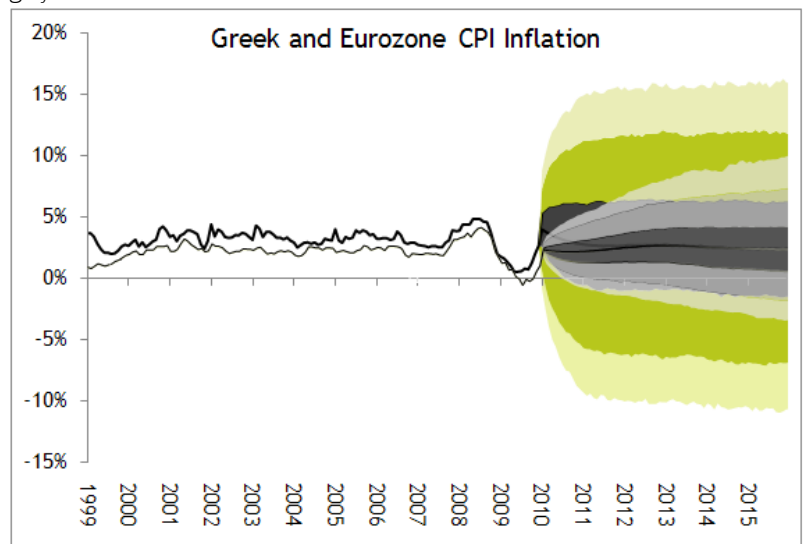
## Real liabilities in Greece

Recent fears about sovereign debt default in Greece have led to speculation about the feasibility of the country's continued membership of the Euro-club. The combination of huge government debt, dismal future growth prospects, and the lack of any devaluation option, has created a vortex of fear in financial markets. Despite reassurances from Eurozone heavyweights that action would be taken should the Euro come under threat and the Greek government outlining its most austere fiscal package in decades, market sentiment does not appear to have been assuaged.

The problems currently faced by Greece serve as a good example of why it would not be unwise to model the extra inflation risk that each Eurozone country carries individually. Indeed, even in normal circumstances inflation rates can be significantly divergent between Eurozone economies. For example over the decade since the inception of the Euro inflation rates in Greece have been persistently higher than for the aggregate Eurozone; a real liability in sold in 1999 and maturing in 2009 was 10% undervalued by the aggregate index. Figure 1 demonstrates this difference and shows projections of Greek CPI inflation compared to the core Euro-area rate (both are calibrated to historical data). Such short to medium term divergences have also been exhibited by a number of other Eurozone countries; in Spain and Ireland since 1999 average annual inflation rates have been respectively 1% and 1.5% higher than the aggregate Eurozone measure.

**Figure 1**

Historical and projected Greek (green/black bold) and aggregate Eurozone (grey/black) CPI inflation rates



Source: IMF and B&H calculations

## Medical cost inflation in the United States

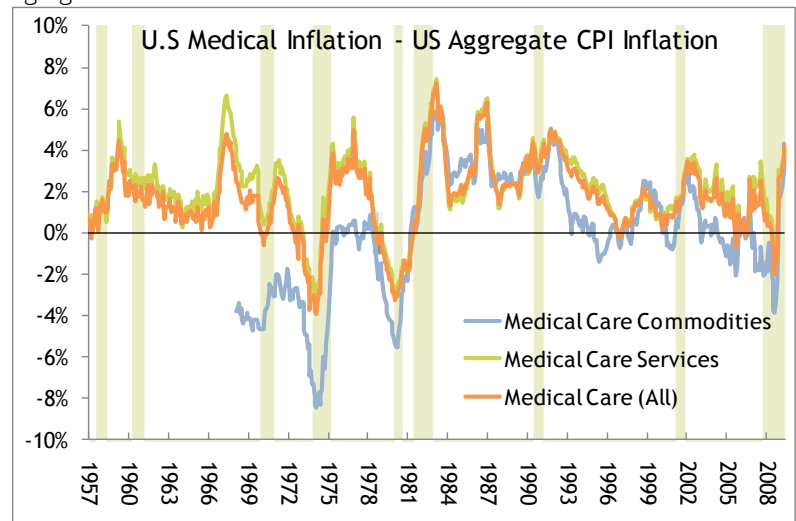
For reasons similar to those outlined in the previous section, there is potential for the divergence of inflation rates within between sectors within an economy. A good example of one sector in which this issue is especially salient is healthcare. The cost of medical care in many countries is strongly influenced by the reigning political consensus within government. As well as this, the demand for healthcare services can be highly inelastic, meaning that wider economic shocks can have a unique impact upon medical cost inflation.

The United States illustrates these points. Figure 2 shows the difference (or wedge) between medical inflation rates and core CPI inflation rates in the United States (specified as medical rate minus aggregate CPI rate). The chart demonstrates that in recessions medical care inflation can behave very differently from CPI inflation: the oil shocks of the 1970s and the resultant recessions cause a significant decline in the gap between the two rates, whereas the deflationary shock of 2008 caused it to increase. Furthermore, Obama's recently proposed healthcare bill serves as a good example of how political factors might directly impact the medical sector: if the bill is passed it

is likely that medical inflation in the United States will be suppressed over the short to medium term.

**Figure 2**

Historical series of U.S medical inflation minus core U.S CPI, NBER recession periods highlighted



Source: Bureau of Labour Statistics and the NBER

### Inflation risks are diverse

In the Eurozone, to fully understand the risks associated with inflation it is important to account for the specific shocks that could impact prices in individual countries. Similarly, within any economy, there are a number of sectors which will either be vulnerable to very specific risks or will be asymmetrically exposed to shocks to the macro-economy. Inflation Wedge Models can be applied to capture these diverse risks.

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