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INFLATION HEDGING FOR INSTITUTIONAL INVESTORS

Examining dynamic asset allocation strategies for high inflation scenarios and the effect of financial market changes on inflation hedging instruments

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INFLATION HEDGING FOR INSTITUTIONAL INVESTORS

May 2011

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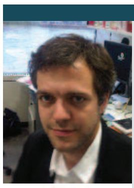
MACRO ECONOMIC ENVIRONMENT AND THE INFLATION OUTLOOK

What is the real trend for inflation over the short to long-term and what steps do European governments need to take to stabilise the economic recovery

Five Fallacies about Inflation



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Panellists:
Emmanuel van der Mensbrugghe, European Director, **International Monetary Fund**

Panellists:
Thomas Mayer,
Chief Economist,
Deutsche Bank

Panellists:
Trevor Williams, Chief Economist, **Lloyds TSB Corporate Markets,** and Member of the **Shadow Monetary Policy Committee**

What is the real trend for inflation over the short to long-term and what steps do European governments need to take to stabilise the economic recovery?

Daniel Pimlott: Thank-you to our panellists for joining me this afternoon. I'd like to start by asking each of you, what are your opinions on the outlook for inflation over the next 12 months?

Emmanuel van der Mensbrugghe: With reference to the Euro area, much of the inflation can be explained by the rise in fuel and commodity prices. As you know, the HITP inflation came in at 2.6% in March. Assuming that oil prices don't increase over the horizon, we would see inflation gradually go down over the 12 month horizon. For 2011 we will see inflation above the European Central Bank's target rate and going below in 2012. Indicators of inflation expectations seem to be stable. We do see an output gap from a slack in the economy and we see that money and credit has not been very large so this gives us some confidence that inflation is broadly under control over this time horizon.

Thomas Mayer: I have a similar pattern that inflation will reach around 3% this year on food and oil price pressure. Assuming these commodities do not go up on an exponential line, there will be some reduction again on inflation in 2012, which I would put slightly above 2%. This is similar to what Emmanuel pointed out, but there's a more important underlying development which is taking place, and that is a long term upward trend in inflation which is caused by too easy monetary policies globally, initiated by the Federal Reserve and exported to the emerging markets. Emerging markets are overheating. This is driving commodity prices, energy prices and also the goods which are exported from emerging markets. This creates a round trip of inflation, initiated by the Federal Reserve by exporting a too easy monetary policy into the emerging markets, which resist an appreciation of their exchange rates. From there the inflation is re-exported to the industrial countries. I would think that this is part of a bigger story, but it's not a very smooth trend upwards, it comes with jumps and pauses. This year we get a jump to 3%, next year will probably be a pause, then after that it will go up again.

"commodity prices are up and there's a risk that the loose monetary policy has an inflation effect in emerging markets"

Trevor Williams: I would agree with Emmanuel and Thomas's view that the rate of inflation will fall back through the course of next year, and head back towards 2% in the second half of next year and as we go into 2013. The factors that have been mentioned are the right ones; commodity prices are up and there's a risk that the loose monetary policy has an inflation effect in emerging markets. I'm not quite as pessimistic as Thomas about the reaction of central banks in the emerging market world. They have already acted and are acting in the right way, which leads one to remain more pessimistic about the inflation effect, which is to say they're raising interest rates, they're tightening fiscal policy and they're allowing their currencies to re-value somewhat. They will have to allow more of the latter. There is a deeper issue of course, which is the fact the structure of the world economy is shifting in so far as the fast growth that is taking place in the emerging world is leading to the raising of living standards. Growth is also leading to higher wage demands and the pool of available labour which has been sufficient to keep down global manufactured goods prices has had a lessening effect, meaning there is an upward creep of global inflation. Therefore the average level of interest rates globally is going to be higher than what we've seen in the last decade before the crisis. I suspect we will see weaker average growth as a result of that. It doesn't detract from the fact that as long as the inflation of prices doesn't become imbedded in wage inflation, which doesn't seem likely at the moment, then we're right in supposing that CPI inflation will fall back towards 2% over the next 18 months.

Daniel: Do you believe Emmanuel, that the commodity and energy price rises we saw before the crisis are going to persist in a more regular fashion now?

Emmanuel: I agree with Trevor. If you assume that there is no policy reaction, then that would spill over into higher inflation. We would expect to see some policy reaction in that. There's no doubt that there's over heating in the emerging market economies. In our deliberations with the Chinese in the G20 context, there has been greater flexibility in the currency movement. This would certainly assist the Chinese in trying to stem some of the inflation that they're encountering. It is a well taken point that with rises in incomes, their consumption habits have changed. There is greater pressure on the demand side, but one would eventually expect to see movement in the supply side as well.

Daniel: In light of that, one would question the ability of the Euro zone, the European Central Bank or the Bank of England; essentially central banks in advanced economies to do much to stem inflation that is basically the result of developments that are happening in emerging markets and in demands for energy and commodity goods. Would you expect Thomas, that the recent move by the European Central Bank to raise rates can do much to stem international price pressures?

Thomas: I don't think so. I'm a bit more sceptical than my two co-panellists. I believe that the emerging market central banks are way behind the curve; real rates are far too low when you look at a country such as China where the lending rate is 6%, inflation 5% and real growth between 9% and 10%, that's far too low. If you look at India they're at 6.5%, with inflation 8%, and real growth 8% which is far too low. I can't see them catching up very quickly, so I would expect them to remain behind the curve for the foreseeable future. As regards the industrial country central banks, the they would in principle have the option to stop the import of inflation by letting the currency appreciate, because after all, they could stop all that and de-link but they don't do that because they are too scared that this would undermine the other important objective that they now have to pursue: financial stability. For the sake of financial stability the Federal Reserve has kept interest rates very low for a very long time, and have engaged in two rounds of quantitative easing. In my view they're still far from raising rates when quantitative easing expires in June.

As far as the European Central Bank is concerned, they have sent a signal which is good, they're not sitting on their hands completely, but they will be very reluctant to adjust monetary policy to be consistent with price stability in the medium term. When you look at the growth outlook for the Euro area this year and next, I say let's be generous and expect an inflation and growth trend of 1.5%. That would give you nominal GDP growth of 3%. There is no way there will be a 3% interest rate anytime soon. They are afraid to go to a neutral level because they are afraid of the consequences that this will have on the weaker parts of the Euro area. As a result, monetary policy will also be behind the curve in industrial countries.

"the ECB is on a front foot. I believe they are pre-empting and they're moving policy quickly, especially in the larger economies"

Daniel: Can I come back to you on that point Emmanuel: you said that there are international efforts underway to try and allow and encourage emerging markets to let their currency depreciate, but there hasn't been any sign that this has been successful yet. To what extent should we be confident that this going to happen and is it clear that they've actually raised interest rates sufficiently to stem inflationary rate pressures Thomas was talking about?

Emmanuel: Firstly, I would comment that in Latin America you've definitely seen a constraining of monetary policy, including appreciation. I would therefore think we have to divide the world in essence. The Latin American's have done a lot. It's true in Asia that we haven't seen the types of monetary policy that we would be recommending.

I do want to come back on one issue, in terms of Europe, and that's, the recent strengthening of Euro certainly helps to counter-act inflationary pressures as commodity prices are largely denominated in dollars, plus other factors. That has helped keep inflation subdued going forward in the European context.

Daniel: The key element to this in the Euro zone has been that they've moved further than other regions in tightening rates. It's interesting though to follow-up on what Thomas said about the potential financial stability costs of this; do you think that this is the beginning of a series of rate hikes or do you think the potential damage is too great for there to be anything more than a 'gesture' of rate increases? Could you answer that Trevor?

Trevor: To answer the question directly; a point on Asia is that the reason they haven't raised rates by more is because of strong productivity growth. This is a sufficient reason in my view to mitigate rate rises though not prevent them. Unit labour costs aren't as troublesome as Thomas suggested. I believe the ECB is on a front foot. I believe they are pre-empting and they're moving policy quickly, especially in the larger economies. Also, they risk creating large instability in the banking sector for the peripheral economies by this action. The fact they are doing it shows they are serious about inflation risk, so that's got to be a good signal from a market perspective. It doesn't detract however in my view that they will continue to raise rates, it's not a one off. We've got 2 more quarter point hikes to come this year in the Euro zone, and 3 more hikes or so next year so I believe we're pushing towards 2½% by the end of next year.

Daniel: Do you believe there is a danger for raising rates too quickly, or even raising rates at all Emmanuel?

Emmanuel: I would expect to see this year a gradual normalisation of monetary policy. It is true that this has greater implications for the periphery countries. On the other hand, having interest rates so low, does allow for excessive risk taking. This could have a beneficial impact as well over time.

Daniel: It's difficult to talk about interest rates and monetary policy at the moment without the debt problems of Europe. From the perspective of someone who was concerned about the banking system, you might want to resolve the problems that European countries have before

going overly far in tightening monetary policy if the periphery countries are to survive. How acceptable is the current approach to resolving the fiscal crisis in Europe? What would you say Thomas about where we are at the moment in the fiscal crisis?

Thomas: Let's start with the good news; we have seen the graduation of Italy and Spain to no longer being a threat to the Euro area as a whole. The threat is now isolated to just a certain group of countries that fortunately encompasses a very small part of the Euro area. Spain, Italy and Belgium have to continue to work hard to maintain the confidence of the markets that they're now regained. That's the good news. The bad news is the programmes that have been designed for at least Greece and are continuing to

> **"Greece made a fiscal adjustment of 5% of GDP, which is massive"**

be designed for Portugal are unlikely to work within 3 years – the time horizon set to bring them back to the markets. This will result in very serious problems as European electorates, such as Finland, are getting tired of funding troubled countries for a very long period of time. I'm therefore afraid that when these programmes expire, the respective countries will not be credit worthy and thus will not get money from the market and will then have trouble securing new money from other Euro zone countries, as those countries, like Finland, will experience tax payer revolts. That will be 'crunch time'.

Daniel: Would you say Emmanuel, it is self-evident now that Ireland, Greece and Portugal are not going to be able to fully repay their debts because they're politically unstable, they're tied into those loans and they're not going to be able to repay them because they're not going to be able to grow? Do you believe that the European Union has made some mistakes in the method through which they've tried to resolve the crisis?

Emmanuel: We wouldn't take the view firstly, that's its self-evident. Let's just take for example Greece; we all know that the starting position is incredibly difficult. In the case of Greece, even if the debt was close to zero, they still had to undertake massive fiscal adjustment given where they were starting from, given the unsustainable fiscal position. In 2010, Greece made a fiscal adjustment of 5% of GDP, which is massive. There are not many countries that are capable of that kind of adjustment. They're undertaking very difficult programs and there have been some notable achievements there. We tend to focus on the liability side but there are also assets in these countries and we take the view that there is scope to utilise some of these assets to enhance their credit worthiness, but overall it's too early to make a general assessment.

Daniel: Do you think Trevor, that these countries, the central crisis countries, have now got plans in place that will help them stabilise their fiscal position and grow enough to deal with their problems?

Trevor: The short answer is no. For Greece, Ireland and Portugal it is almost inevitable that there has to be some restructuring, but it doesn't have to be by default. Clearly if you look at debt to GDP ratios, it's not approaching in Greece's case over 140%, in Ireland it's 130% heading up to 150%-160% and so on. Growth is key to meeting interest payments on debts. The growth for Portugal and Greece does not look sustainable enough to do that. For Ireland it's somewhat different, the Irish economy can grow fast enough to pay off its debt, but only if it gets rid of the burden of the interest payments that it currently has. What it means for these economies is the large negative output gap they have means there's no inflation pressure in these economies, so inflation pressure in the Euro zone is actually in the larger economies, where they're much closer to getting back to levels of output growth which is consistent with their long run potential.

Daniel: I've read some of your research recently Thomas; you seem to have similar views on the likelihood that these crisis economies can escape their debt trap, what's your view?

Thomas: I'm very sceptical and as I indicated we've moved from a discussion of the technical level, i.e a discussion that was taking place between the European Central Bank, the European Commission, the IMF and the respective finance ministers. We have moved on to a political level, at the level of the electorate and we're now seeing rebellion in the electorate at large. When I look at Finland, it is just a fore taste of what we will see elsewhere. When I look at the 2013 German federal elections, when we will have to discuss a new program for Greece, this is not going to fly. So therefore a miracle needs to happen for these countries be restored to the market when their programs expire. I don't believe in miracles, so as Trevor projected, we will have to have some sort of restructuring.

Daniel: Coming to our last question: do you think Emmanuel, that it would make sense for Germany, whose banks own a lot of the debt of these periphery countries, to simply accept that their banks are undercapitalised, to inject them with extra capital, and to go about it that way, rather than doing it by the back door, continuing to bail out the periphery countries?

Emmanuel: As you know they're in the process of doing stress tests on these major European banks. Part of the result of that process should be a credible stress test and should allow for different possibilities and create sufficient capital.

Trevor: The only question I would ask you Emmanuel is: do those stress tests include old government debt?

Emmanuel: As far as I know that is not the case.

Daniel: Doesn't that undermine the creditability of the stress tests?

Emmanuel: Then it's up to the supervising authorities to make those recommendations.

Daniel: That final note from Emmanuel does bring us to the end of our time. Thank you very much to all of the participants.

Deutsche Bank

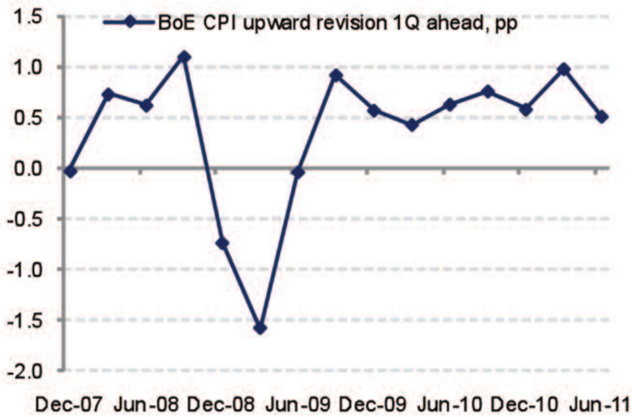
By **Markus Heider**
Global Head of Inflation Research,
Deutsche Bank

Five Fallacies about Inflation

Opinions as to whether too low or too high inflation is the main risk in the coming years remain deeply divided. We challenge the arguments in favour of further disinflation and suspect that inflation risks are skewed to the upside of central bank targets.

The uncertainty about the inflation outlook has risen substantially since the onset of the financial crisis in 2008. After 15 years or more of low and stable inflation, professional forecasters, investors and indeed central banks themselves now consider below and above target outcomes as possible, even probable. Among central banks, the ECB believes that inflation risks warrant higher policy rates, while the US Fed remains concerned about high unemployment weighing on inflation and is still completing QE2, i.e. remains in the process of loosening policy. But the best example of the divergence in views may be the BoE, with one MPC member arguing for further QE, while three others are advocating an immediate policy tightening.

What has led to this increase in uncertainty about the inflation outlook? On the one side of course the unusual depth of the economic crisis and associated emergence of excess supply which is feared to exert persistent downward pressures on prices. On the other, the non-standard reaction of economic policy during the crisis, record low real policy rates, the creation of vast amounts of central bank liquidity, the discussion about potential changes to monetary policy objectives and the run-up in public debt. Add to that uncertainty about the inflation implications of structural trends like globalisation as well as the worsening track-record of benchmark inflation models even before the crisis and it's easy to see why faith in our inflation forecasting ability has not exactly gone up. Since mid-2009, the BoE for example every quarter has revised up their one-quarter ahead CPI prediction by (on average) close to 0.7pp (see chart) and currently sees a probability of around 75% for inflation in two to three years time to be at least 0.5% away from their 2% target.



The view that downside risks to the inflation outlook are dominating rests above all on five arguments, which historical analysis suggests can be challenged.

1. The high level of unemployment implies significant excess productive capacity. The unemployment gap or output gap, i.e. the degree of excess capacity in the economy, is very difficult to measure in real time. Indeed, productive capacity is not observable and academic studies suggest that these concepts are of little use for forecasting or policy purposes in real time. This view is shared by the ECB, and the Bundesbank before it, which is considered to be one of the factors explaining Germany's superior inflation performance during the 1970s (see ECB, 2010).

2. A negative output gap leads to declining inflation. Even if we knew the size of the output gap with certainty, the implications for inflation would be unclear. There is in fact little empirical support for the standard model which predicts inflation will fall as long as the output gap is negative. Inflation may fall after an initial shock

to demand, but as long as inflation expectations are stable, it could return to target as growth recovers. Indeed, in periods of large shocks such as the current financial crisis and the Great Depression, the change in the output gap (as opposed to its level) appears to be a more robust predictor of the change in inflation. As a matter of fact, there is some evidence that professional forecasters rely on the change in the output gap rather than its level when forecasting inflation.

"Inflation may fall after an initial shock to demand, but as long as inflation expectations are stable, it could return to target as growth recovers."

3. EM countries export disinflation. For the better part of the last 15 years, the progressive integration of low cost EM countries into world trade has exerted disinflationary pressure on tradable manufactured goods prices. Since the mid-2000s, strong EM demand has however also put increasing upward pressure on commodity prices, so that the net impact on DM inflation appears less clear. Looking ahead, EM economies are likely to export inflation rather than disinflation as (a) their market share of global exports stabilises and their share of global imports increases, (b) domestically generated inflation exceeds the inflation level in DM and (c) EM growth may well mean structural upward pressures on commodity price inflation. This trend is likely to be reinforced by the desire of key emerging economies (such as China) to rebalance their growth model from exports to internal consumption.

4. Commodity price inflation is outside of central banks' control and should be ignored. It is tempting for central banks to individually treat commodity prices as an external factor outside of their control. However, it is difficult to argue that commodity prices are exogenous to monetary policy at the global level. One can find some evidence that commodity prices are correlated to loose monetary policy globally, and that the current level of global policy rates remains supportive of commodity price inflation. Moreover, ignoring commodity price inflation can only be justified if, in the long run, it averages out. This has clearly not been the case over the last 15 years, as 'headline' inflation has exceeded measures excluding food and energy ('core inflation').

5. Central banks' credibility will keep inflation expectations well anchored. Since the late 1980s, central banks have benefited from a benign growth/inflation nexus, which culminated with the Great Moderation. Going forward, the growth inflation trade-off in DM economies is likely to be more challenging, not only for the reasons discussed above. In setting monetary policy, central banks have also to account for unprecedented levels of budget deficits and concerns about financial stability. The risk is that these additional considerations will distract central banks from a pure inflation driven mandate. Ultimately, this could erode central banks' credibility capital accumulated since the 1980s. Also, the unconventional policy measures adopted during the crisis raise the risk of policy error.

These five issues are further exacerbated by the lack of global policy coordination. Indeed, the combination of a strong anti-deflation bias in the US on the one hand, and the desire of key EM central banks to control the nominal appreciation of their currency on the other, has resulted in the low level of US real rates being "imported" by EM countries, which in turn are exporting inflation back to DM economies. In sum, given pressure from commodity prices, US, UK and euro area inflation is likely to remain at relatively elevated levels through 2011. It may well ease again next year, but given the factors discussed above, chances are that it will remain above central bank targets.

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SUITABLE ASSET CLASSES AND INVESTMENT STRATEGIES TO TACKLE INFLATION

Designing your asset allocation 'journey' to full de-risking status: market timing, pricing and asset class contagion

Gilts - outlook for future gilt issuances

Property Derivatives and Inflation Hedging

Utilising property investments to build an inflation resistant portfolio and hedge inflation risk

A multi asset answer to inflation

Commodities remain an effective hedge against inflation

Impact of new clearing rules on the swaps market and investors

Moderator:
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David Brief, ex-Chief Investment Officer,
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Panellists:
Mark Hyde-Harrison,
Chief Executive Officer,
Barclays UK Retirement Fund

Designing your asset allocation 'journey' to full de-risking status: market timing, pricing and asset class contagion

Jerome Melcer: The subject of the debate is designing your asset allocation 'journey' to full de-risking status, in the context of inflation uncertainty. Clearly inflation risk has crept towards the top of the risk agenda, sitting alongside many other risks like longevity and sponsor covenant risk as ones to watch. This debate looks at perspectives on inflation risk, in particular the high uncertainty of what future inflation environment we are moving into. This is from the perspective of the impact inflation uncertainty has on issues such as, setting asset allocations, when to hedge inflation risk and more broadly, what asset classes are outside the conventional one might use to hedge that inflation risk. The first area to talk about is the impact of inflation uncertainty on setting asset allocations. I will start on this one from a UK perspective: there are specific issues within the UK, you've got upside risk on inflation coming out from the morning after hangover of quantitative easing sessions from the Bank of England, as well as the extended periods of rock bottom interest rates. Of course you've got the down side risks on inflation coming from a sluggish economy and the risk of a double dip. I'll start with Mark; clearly inflation risk is a material issue for the Barclays group. There was a notable statistic I saw when reading through the 2010 group accounts, which said for every .5% increase in future breakeven inflation, pension liabilities for Barclays as a group got went up by around 1.7 billion pounds, so clearly inflation is a big issue there. Given that, what extent are the present risks on the upside and downside confounding attempts to set a strategic asset allocation?

Mark Hyde-Harrison: When you're looking at the asset allocation you have to look at all risks and look at the various economic scenarios which you believe are possible, and consider the ramification on the assets, the liabilities and the sponsor covenant to see if the outcomes are acceptable or unattractive. Inflation is one of the key risks that we have alongside the real interest rates, the covenant risk being the other major ones; longevity risk would be more of a slow burn. Therefore when we're looking at the asset allocation model, inflation is important but you need to take it in the round, and not drive your asset allocation model looking at this particular risk on its own.

"There's historic data now over recent periods that are contradicting what stock markets do if inflation rises"

Jerome: Clearly BA Systems, David, has similar levels of inflation exposure as Barclays; how would their approach be compared to what Mark has just described?

David Brief: You can draw a distinction between the stochastic modelling world that leads you to your very long term strategic asset allocation. Within the stochastic outcomes of your asset liability model, there are outcomes which involve very high levels of inflation. To a certain extent, a full range of economic conditions has been considered in setting that long term asset allocation. We found the pricing of hedging inflation in the short term, in terms of trying to de-risk the fund over a long period to be unpalatable. We found the price of long term inflation quite stable, so we've tended to do more long term inflation hedging than short term inflation hedging.

Jerome: Across from the UK to the continent starting with Torbjörn: the AP3 pension fund has a demanding target return looking to achieve 4% per annum above inflation, so inflation pretty much sits at the core of your over arching objectives for the pension fund. To what extent does prevailing uncertainty around future inflation drive how you go about setting up an asset allocation?

Torbjörn Hamnmark: As you said, it is a very ambitious target and that basically means that you can't go the route of very low risk around inflation or your real return target, because that will make it impossible to reach the target. The only alternative is to manage a portfolio of various investment risks as risk premiums as it needs to be treated like other investments risks, and that is, one of your long term strategies to consider.

Jerome: Looking at your experiences from KBC, Edwin, do you have any comment to add to this in terms of the present inflation environment and how that might confound or challenge the way in which you set out your asset allocation.

Edwin Meysmans: Very recently, we tried to sketch the impact of higher inflation and assess what it will do to your portfolio, both looking at the liabilities and the assets. Take the pension liabilities, just try to imagine if inflation is really going up, what will that do to your liabilities? In Belgium, salaries are automatically linked to inflation, so if inflation goes up automatically salaries will go up. We still have a defined benefit final salary scheme so that means our pension liabilities go up, it becomes important to consider what inflation will do to your liabilities. It's much harder to try and figure out what will happen to the assets in your portfolio when there's inflation. There's historic data now over recent periods that are contradicting what stock markets do if inflation rises. The first thing to do is the scenario testing which we do; just imagine deflation and inflation and what would happen to your portfolio, assets and liabilities.

Jerome: If I can move onto the second question which is the option of dealing with inflation by hedging it out. Many schemes are keen to take such a step because it deals with the issue of trying to forecast what inflation will be in the future. We've found however that present break even rates and hedging options are just too high, so instead it's advisable to set aspirational triggers to establish when you may put hedges in place. Starting with the continent, is this trigger based approach something that is being commonly used and if so, what sort of factors will determine how triggers are set moving forward. If I can start with Edwin on that one?

Edwin: It's not really as if we are setting triggers saying, 'if that happens then we will be doing the hedging'. To us that's like trying to time markets which we know are almost impossible to do. What we have done is the scenario testing, so we've run various scenarios including moderate inflation, high inflation and hyper inflation. We now believe that inflation will go up and we've looked at the numbers in terms of what it will do to portfolio. We said to ourselves, 'is this something we can deal with without making any changes and we realised, we cannot'. The impact on the portfolio is far to high even if inflation only increases by 2 or 3 %, so we have to do something right now.

Jerome: How do aspects look from a Swedish perspective Torbjörn, in terms of setting points in which one will want to hedge in the future?

Torbjörn: I'm not talking from a defined benefit perspective. We are more like a sovereign wealth fund type of entity. I have worked in the past with the Swedish life insurance companies, and there it very much depends on their capital base and room for taking risk. There we can have triggers that really force you to decrease risk in certain inflation scenarios. But speaking from my own personal perspective, at AP3 we have the luxury of not being forced to do things or in that sense we were able to work with our long term evaluation model, and work from a contrary perspective to the market. We try to act when inflation expectations are very low or high and act accordingly as a reaction to the market pricing.

Jerome: In the UK, the setting of triggers is quite common amongst schemes. Having a bank as a sponsor, Mark, a bank that trades inflation as well, does it give you a particular perspective on this? Looking beyond the pure point of setting a point of hedging, what other factors do you think might drive the decision about how and when to hedge out inflation?

Mark: There are 2 distinct aspects when looking at the management of inflation. Whilst you want to take your asset allocation based upon a range of economic scenarios, the stress testing and realistic scenarios you may wish to be insured against. There is an element of, if you wish to buy inflation hedging to insure against particularly bad scenario outcomes where you're uncomfortable with the consequences if that comes to past. The second area of deciding where you trade would be, if you have made a strategic decision to have a long term de-risking plan, then you've got to decide how you would execute on that journey to maximize value and how you can ensure that the decisions you make along that journey are appropriate in terms of the speed of de-risking, actually achieving de-risking and being responsive to the environment you're in. When looking at that, trigger points have a place in the sense that they convey a broad price level by which you have made a judgement of the price at which you are willing to take risk off the table and secure the benefits. It is a very complex decision to take, and you need to give an effective mandate with appropriate discretion because the trigger may not apply universally across the whole duration of the yield curve. Granting an effective mandate to a person who has got the interest of the scheme at the core is key.

> ***"you need to give an effective mandate with appropriate discretion because the trigger may not apply universally across the whole duration of the yield curve"***

Jerome: If I can turn last on that to David; one aspect that is clearly an issue in the UK is setting trigger points that reflect what is embedded in the funding basis. On this

particular area, do you want to speak on funding as well?

David: Our approach to de-risking has been to use trigger based points on funding improvement in solvency margin, to broadly reduce equity risk. Beyond that you've got the full scale de-risking and matching your assets more closely to liability, in which I include inflation hedging and real interest rate hedging as we split the two. As Mark indicated, we take a much more flexible approach as I alluded to earlier; we found it a lot easier to take a view on where the inflation swap market has been at the long end, which is very consistently around 3.3% to 3.5%. In a certain sense, who is to know over 50 years whether that is a good or a bad rate, but it seems like a reasonable rate, it's much more difficult to accept the very short term costs, as you come towards nearer maturities.

Jerome: Moving on to the final question: in terms of how to hedge, rather than the timing of and what instruments do you use: there are a number of alternatives in the real asset class world for example, infrastructure, commodities and also synthetics which can all be used in some respect to hedge out inflation exposure. Can you give your view on those David, as I'm aware that infrastructure investments play a major part in the BA Systems investment strategy?

David: Not a major part, but we have been interested in them. The fund has about 3% in infrastructure, so not a huge part but it was a characteristic that made it an attractive asset class. As we've got on with the program, it's become a very difficult asset class because of how the investment managers have structured the funds. What we've got most out, is that we've always done a huge amount of property with long term inflation linked leases to undoubted covenants. That's about 40% of our property portfolio, so that's about 5-6% of the fund. That is a really interesting area but much more difficult to source now and much more expensive than it used to be.

Jerome: One observation I might have on both infrastructure and long lease properties is that, the cash flows clearly give you some inflation proofing, but looking at it from mark to market perspective, keeping a value hedge is much more challenging. Has that been your experience in looking at those portfolios, verses how your liability movements might respond to inflation changes?

David: Looking at inflation linked properties is like looking at the value of the inflation linked bond market. They see us as a quasi-bond, so it moves more in line with bond markets then it does with property.

Jerome: If I can move on to Torbjörn: looking beyond traditional inflation hedges, what asset classes does AP Pension Fonds look at in terms of giving a proxy hedge for inflation changes in the future.

Torbjörn: That is a very valid question: when you look beyond index linked bonds and the long term index linked asset classes, it is an excellent idea to have a diversified portfolio. Because various asset classes will behave very differently in different inflation scenarios. What we have been looking for this past year, is focusing more on the aspect effects and monitory policy and how these develop differently through time in various currencies and from various central banks. This might sound like a very short term approach, but central banks over time seem to react to these inflationary developments, which gives you a very strong link to the inflation development in those two dimensions, short term interest rates and currency strategies. The other thing I must mention is equities in certain inflation scenarios actually do quite well.

Edwin: For hedging inflation, we use traditional instruments where we would prefer inflation swaps over inflation linked bonds. Inflation linked bonds tend to be long in duration. We have a very specific issue we're concerned about: if you're trying to buy inflation linked bonds, then an issue with euro inflation linked bonds is that France, Italy and Greece make up a proportion, where you certainly don't want to have exposure too. Therefore, we prefer inflation linked swaps if they can be tailor made with much more flexibility. Other none traditional instruments are in line with what we would use; property with long inflation linked leases, some parts of infrastructure and some equities, that come in handy if you can find suitable companies. We've looked at commodities; our opinion is that it is a good hedge in the short run but in the long run it's not a god hedge.

Mark: I take a purist view on hedging, I do want the hedge to succeed, so that when times get more difficult, I would generally look to index link government bonds, and inflation swaps, and interest rate swaps combined. We tend to trade the government bonds in the UK, because index link swaps in the UK have quite a significant reduction in yield, which makes them less attractive. When you're moving into real assets, its part of a portfolio. You need to be conscious of the mark to market points that you've made, but equally the cash flows over the longer term could be active. When looking for matching assets, real assets and infrastructure provide that cash flow that's attractive.

Jerome: Thank you Mark for that final comment and thank-you to everyone for joining me in this discussion

"an issue with euro inflation linked bonds is that France, Italy and Greece make up a proportion"

Interview with
Robert Stheeman,
Chief Executive Officer,
UK Debt Management Office

Gilts - outlook for future gilt issuances

Noel Hillmann: Thank-you very much Robert for joining me on this interview. To start off with, would you mind explaining how the DMO works?

Robert Stheeman: We are an executive agency of HM Treasury. This means we're a legal entity of the Treasury and are not a completely separate organisation or any type of NDPB. However, we do operate separately and at arms length from ministers, hence we don't have an office in Whitehall. We are tasked with carrying out the Government's debt management objective of minimising cost, subject to risk over the long term and we provide advice to the Treasury on how to raise debt in the markets. Ministers ultimately decide on the debt management strategy based on advice they receive from us and colleagues in the Treasury. We are then tasked by ministers with going out and raising the necessary quantum and structure of financing which is required in each financial year.

Noel: At this particular point of time, in this climate, what is the advice you're giving to Ministers for the raising of new debt through gilt issuances?

Robert: To rewind that question on the current situation slightly; we've just had the Budget in March and associated with that is the financing, or debt management remit, for the financial year, which started at the beginning of April 2011. The advice which we've provided in the run-up to the Budget has influenced the remit that was announced on the day of the Budget and to which we intend to stick as much as possible throughout this year to March 2012. That advice has to be made in the light of a number of factors. Amongst those requirements is the size of the actual government cash requirement for the sale of gilts. To provide light on what that is, it's £167.5bn which is the second highest amount on record that the UK has had to raise. That quantum will clearly influence the advice that we'll give to Ministers. When we do that we take a number of factors into account: we look at aspects such as the maturity profile of existing debt; we look very closely at market conditions and how we expect market conditions to develop during the course of the year and we look at the overall pattern of demand. In the run-up to these decisions we consult with the market, our primary dealers, who are known as the Gilt-edged Market Makers (GEMMs) and we'll consult with end investors as well. All of those aspects contribute to the advice that we present to Ministers in the run up to the Budget. We however provide ongoing advice to the Treasury and Ministers about developments in the gilt market during the year but we try as much as possible to stick to that strategy as it's been set-out at the start of the year.

> ***"We believe that the fact gilt yields are so low at the short-end could suggest that investors are willing to pay a premium to buy paper in that part of the market"***

To be quite specific, we split our issuance into two broad categories, 1) conventional or nominal issuance, and 2) index or inflation linked issuance. The nominal issuance we split into three further categories, called short-, medium- and long-dated. Short-dated gilt issuance means any issuance with maturity dates up to 7 years; we're planning to sell £57.4bn of these bonds this financial year. Medium dated gilts have maturity dates of between 7 to 15 years; the target for this sector is £34.7bn. In long-dated conventional gilts we're issuing £37.4bn. The rest, £38.0bn, is being issued in inflation-linked bonds. That means that 22.7% of the total amount is going to be in inflation-linked issuance in this financial year.

Noel: What do you see as the current challenges and fears you find the market place has towards the raising of that amount of debt and how will that sentiment affect your progress towards succeeding in reaching your targets?

Robert: The most significant single factor this year is simply the amount of debt we need to raise. Not only are we conscious that £167.5bn is the second highest amount on record, so is the market. In designing the issuance program we take into account the input we're getting from the market as to where demand lies. It's probably fair to say that in the run-up to the budget, there were a number of key themes the end investors and GEMMs were saying back to us that were very influential at that particular point in time. We also need to take into account the shape of the yield curve, as this is the price at which we can issue debt. By historical standards, the nominal yield curve is currently unusually steep. That reflects one of the themes we're being told by the investor base that there is strong demand, in particular for short dated conventional gilts, which I would say is unsurprising if you consider the current monetary policy conditions here in the UK. Another key theme as you'll undoubtedly be aware is that for many years now we've had demand from the pension fund industry, notably for inflation-linked bonds but also for long-dated conventional gilts which is one of the reasons why if you look at the shape of our issuance this year compared to last year you'll see that what we've done is slightly increase issuance of short-dated conventional gilts and issuance of inflation- linked bonds in particular. Effectively to supply the market with the paper which we hear is being sought after most at the present time.

"Real gilt yields are slightly depressed at the very long end of the market and yield curve. That suggests to us that there's significant demand at the long end"

Noel: With the significant amount of debt that needs to be raised, do you hold any fears or concerns about how foreign investors will look at investing in UK gilts? Do you feel the take-up will be from the foreign community, the pension fund community, from the traditional asset management community or elsewhere?

Robert: I don't hold any particular fears for our ability to raise the necessary quantum of debt that we have been tasked to do this financial year. It may be the second highest but just two years ago we were raising £227bn. The reason, therefore, why I remain sanguine is that in recent years the gilt market in the UK has become extremely efficient and extremely flexible. At the beginning of the century we were issuing amounts that were much smaller. In the financial year 2000-01 we issued as little as £10bn. The market has been able to adjust very efficiently to the significant increase in supply largely reflecting improved liquidity in the gilt market; so as an overall comment I'm not concerned about raising that amount. That doesn't mean we are anyway complacent about the quantum that we have to issue. It doesn't mean that we'll think things will always go completely smoothly. We're talking here about a market and we've all found out over the last few years that can be volatile and a challenging environment in which to issue in. Those are things to which we are very aware of.

In terms of where demand comes from, the second part to your question, the most important aspect to mention is that we've slightly increased short-dated issuance to £57.4bn which is a very significant amount. Short-dated investors represent the broadest and most diverse part of the entire investor base. The short-end of the market includes international investors, domestic investors, the banking sector and building societies - all of whom have been and remain very active in the market. It's worth noting that overseas holdings of gilts are currently in excess of 30% of the entire gilt portfolio which is approximately £1 trillion. Compare that to 10 years ago, when overseas holdings consisted of around 15% or 16% of a much smaller market, of around £300bn in size. This trend has been noticeable in the last few years, particularly the last 2 to 3 years - with both a percentage increase combined with a much larger amount of issuance overall. The short-end of the market is also the deepest part of the market. One of the reasons why we issue at this part of the yield curve is for that reason. Another reason why we're accessing that market, and this goes back to the yield curve argument, is that the yield curve itself being so steep makes it cost-effective for us to issue gilts at short maturities. Clearly then, if you believe in such a thing as efficient markets, this cost effectiveness is reflective of specific investor demand. We believe that the fact gilt yields are so low at the short-end could suggest that investors are willing to pay a premium to buy paper in that part of the market. That same rationale is behind our decision to invest in inflation linked issuance as well, especially at the long end of the curve. I mentioned earlier that we have a very positive, or steep, yield curve in the conventional sector, we also continue to have a slightly inverse yield curve in the real or inflation linked sector. Real gilt yields are slightly depressed at the very long end of the market and yield curve. That suggests to us that there's significant demand at the long end. We consider that this demand comes from the domestic UK pension fund industry in particular.

Noel: To touch on the very specific issue of inflation rates and the impact this has on gilt prices; is there a real risk of foreign investors looking less favourably on UK gilts if inflation does continue above the Bank of England's inflation target. Do you believe this will have a material effect?

Robert: I can't categorically rule that out of hand but I do think it's quite unlikely and I don't think it's much of a risk at the moment. I mentioned before the available evidence and that would suggest the reverse is true. The data shows us that foreign investors keep on buying. We're actually at an absolute record in terms of nominal gilt holdings overseas. I therefore don't see that risk materialising at the moment.

Noel: Is that because you don't feel foreign investors are looking upon inflation as reached such an extent that it's going to have a substantially negative effect on their holdings or is it because of other factors.

Robert: You would have to ask them what the rationale is but clearly many overseas investors including what we would describe officially as institutions e.g. overseas central banks and sovereign wealth funds, are very comfortable with sterling, they're also very comfortable with holding investments in what they perceive to be a well functioning and liquid gilt market. All those factors seem to play a role in the market at the moment.

"Over the last few years gilts as a proportion of internationally bond indices… have actually increased rather than decreased"

Noel: How about their sentiment towards sterling in relation to other countries, do you feel the UK is going to drop down the list of favourite countries to invest in?

Robert: We don't see any sign of that and actually over the last few years gilts as a proportion of internationally bond indices, which is something overseas bond investors follow very closely, have actually increased rather than decreased. We've seen no sign of a decrease at the moment.

Noel: Coming to my last question of uncertainty in the UK economy, particularly the recent news of 0.5% growth in the UK economy, a fact that's splitting opinion on whether we're growing as a country or flat lining: is the DMO needing to communicate clearly on an economic level what is likely to happen to the economy in the next year and if gilts are as safe a haven as many believe?

Robert: It is not the role of the DMO to communicate on the state of the economy but there is a need for us to communicate fundamentally with our investor base and just because we enjoy the position of being the benchmark sovereign issuer in our own currency, it doesn't mean that we should not be in regular contact with as wide a number of our investor base as possible. We very much value their feedback on many wide-ranging issues. It's important that we don't become complacent with the scale of the task we have and just because events have gone well on the debt management front in the last few years, doesn't mean we're not vigilant watching for unexpected developments and investor shifts that could potentially make the distribution of gilts more difficult than we currently envisage.

Noel: Thank-you very much for your time Robert, it's most appreciated.

By **Jon Masters,**
Head of Property Derivatives,
BGC Partners

Property Derivatives and Inflation Hedging

This white paper will discuss the merits of using Property Derivatives to efficiently manage inflation risk. It analyses the performance of three real estate markets using their proxy indices (Halifax House Price Index, IPD UK All Property Total Returns Index & IPD UK Capital Returns Index) relative to inflation (RPI) over the period from 1983 – 2010 and explores the virtues of using Blended RPI / Property Linked Notes to protect portfolios against the erosive nature of inflation with no basis risk whilst giving property returns and capital guarantees in a quicker and more effectual way than buying or selling various sector specific assets within a property portfolio.

With the uncertain investment environment, high inflation and potential regulatory change it makes sense for Pension Funds to consider ways to protect investment returns using the latest Risk Management Tools. In the case of property this entails trading Derivatives.

Property Derivatives:

Property Derivatives are best described as Property Index Forwards. There are three types of product: a Swap, a Note and a Future. All three products enable investors to buy or sell Property Index Returns over a fixed period of time at a fixed price. Pension Fund managers can use these products to:

- gain quick and efficient synthetic exposure to property returns over a specified time period
- relinquish the management burden associated with physical assets
- reduce exposure (without selling any physical assets) whilst retaining the income generated from the underlying asset
- rebalance portfolios quickly, efficiently and in a cost effective manner

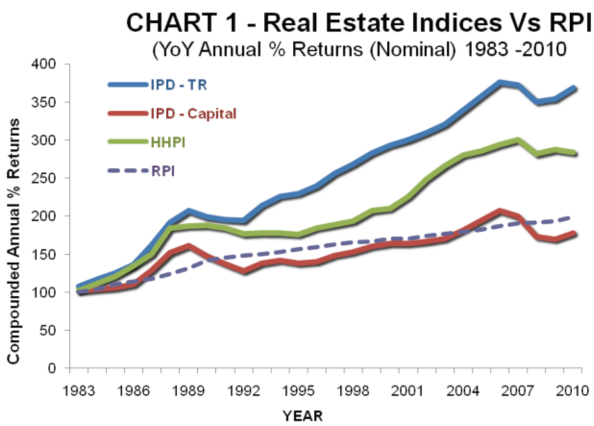


Chart 1 tracks the Year on Year Annual Percentage Returns of the IPD UK All Property Total Returns Index (IPD - TR), the IPD UK All Property Capital Index (IPD - Capital) and the Halifax House Price Index (HHPI) against the Inflation Index (RPI) between 1983 – 2010 using 1983 as the base year.

It is evident that over this time period, the IPD TR Index and the HHPI have outperformed inflation whereas the IPD Capital Index has consistently underperformed inflation. From this Chart, 2 key investment themes can be deduced from which Blended RPI / Property Linked Notes can be structured:

Firstly, in the case of Commercial Property Investment rental income vastly improves the performance of Commercial Real Estate returns relative to RPI. Therefore, it is sensible to protect the income element from the erosive nature of inflation (see Example 1: Commercial Property RPI Linked Note).

Secondly, the Residential Sector is a good inflationary hedge and diversifier within a portfolio (see Example 2: Residential RPI Linked Note). However, many pension funds have traditionally avoided investing in the residential sector because of the management burden associated with mass ownership of residential housing. Using Property Derivatives, it is now possible to gain synthetic exposure to the returns of the residential market without any of the traditional tenant / ethical dilemma risk or management burden.

Blended RPI / Property Linked Notes:

Many pension funds have restricted use of gearing in their mandates so fully funded bond like structured notes with coupons linked to index returns are the most suitable product by which to gain synthetic exposure.

Your Capital Guaranteed:

Such products can be structured with Capital Guarantees in order to remove any downside risk to the investor. These structures have a number of moving parts which can be flexed in order to meet a variety of investment objectives.

Zero Basis Risk:

In order to protect the income of a portfolio against inflation an investor could buy an RPI Linked Note - the nominal amount being equal to the income of the portfolio. This will give the investor a direct 1:1 correlation with RPI for a specified period of time and hence no basis risk or time lag. For example a 5 year Note could be structured that pays a guaranteed 20% or RPI, whichever is highest, at maturity. Alternatively if the investor requires income they can receive RPI +50bps annually with income floored at 50bps per annum.

Many property pension fund mandates stipulate that any investment needs to have a Real Estate element included. Given the flexible nature of Blended RPI / Property Linked Notes, it is possible to structure a product that pays out 100% of RPI with varying percentage participation in a chosen Property Index such as HHPI or IPD, depending on the investors' appetite for property returns / RPI over that specific time period.

The table below shows a mix of products, priced at Par (100) with differing percentage participation on the various Property Indices for a specified time duration. It is important to note that the percentage participation can be adjusted to suit the investor and this will have an impact on price.

Such blended notes enable investors to tactically manage their exposure to the Property sector whilst removing inflationary risks at various points in the property cycle.

Property Index	Maturity, *Years*	% Participation in RPI	% Participation in property index
IPD Capital Growth Index	5y	100%	23%
IPD Total Return Index	5y	100%	10%
HHPI	5y	100%	26%
HHPI	10y	100%	53%
HHPI	15y	100%	64%
HHPI	20y	100%	73%

* For all these products, your initial capital investment is guaranteed on maturity. Pricing as of 23rd May, 2011.

Liquidity:

When using such products liquidity can be a concern so to circumvent this, generally the issuer will guarantee to provide a market level Buy Back price, including breakdown costs, throughout the life of the note. This is written into the documentation for the avoidance of doubt. It is also possible to have the note listed if required and it may be possible to trade in the secondary market.

Example 1: RPI / Commercial Property Linked Note Example:

5 year Note paying Annual Coupons of Year-on-Year RPI+10bps, plus 20% Participation in Total Growth of IPD Capital Growth Index at Maturity

Maturity: 5 years
Coupon paid annually: Year-on-Year RPI + 10bps, YoY RPI floored at 0% (using March annual RPI fixings)
Redemption price: 100% + Additional Redemption payment equal to 20% participation in the Total Growth of the IPD Capital Growth Index, floored at 0%
Issue price: 100%
Pricing as of 23/5/11

Example 2: RPI / Residential Property Linked Note Example:

5 year Note paying Annual Coupons of Year-on-Year RPI+10bps, plus 23% Participation in Total Growth of HHPI at Maturity

Maturity: 5 years
Coupon paid annually: Year-on-Year RPI + 10bps, YoY RPI floored at 0% (using March annual RPI fixings)
Redemption price: 100% + Additional Redemption payment equal to 23% participation in the Total Growth of the HHPI, floored at 0%
Issue price: 100%
Pricing as of 23/5/11

Conclusion:

Blended RPI / Property Linked Notes are an innovative way for a Property Fund Manager to inflation proof their investment against RPI with no basis risk whilst guaranteeing their initial capital invested. Property Derivatives are inexpensive, flexible and efficient vehicles by which to help achieve your property investment strategies and goals.

For further information contact Jon Masters on: email: Jmasters@bgcpartners.com Tel: 020 7894 8734

Moderator:
Maggie Williams, Editor, **Engaged Investor**

Panellists:
William Nicoll, Head of Alternative Structures, **M&G Investments**

Panellists:
Richard Williams, Pensions Investment Controller, **RSA Group Pension Scheme**

Panellists:
Peter Dunscombe, Professional Pension Investments Manager

Panellists:
Lukasz Budzynski, Deputy Head of Asset Management and Pensions, **Sanofi-Aventis Pension Scheme**

Utilising property investments to build an inflation resistant portfolio and hedge inflation risk

Maggie: Thank-you everyone for joining me in this debate. We are talking today about property investments to go with an inflation resistant portfolio and to hedge inflation risk.

I will start with the first question which is to ask you your thoughts on allocating to real estate particularly where property may form the core of the sponsor company's own risk exposure. If I could start with you William for your thoughts on that?

William Nicoll: There are some simple points to make. Real estate is a major asset class and the way that M&G Investments is set-up implies that we think that real estate is a fundamental and important part of anyone's portfolio. One of the things that I would highlight at the moment is the number of transfers of properties from sponsor's to corporate pensions which clearly can be quite a significant change to the funding of pension schemes and may also be efficient, because I think it's more tax driven than investment driven for both the pension fund and the sponsor. So , I believe you're right to say that there are times when if you have a company which is very long on property risk and a pension fund that therefore has a large amount of property risk, that it's not necessarily obvious that taking external real estate is going to be the best way forward. It might be that you get more transfers happening between sponsor and pension schemes. That is one of the things that we've seen happening and that may grow in the next few years.

Maggie: If I could direct the same question at you Peter and ask your thoughts on allocating to real estate: is that something that your pension scheme gets involved with?

Peter Dunscombe: Yes we do. We've had an allocation for many years. We see real estate as an asset class. It was an asset class in the early 1970's and then in the early 90's it almost ceased to be an asset class, but we have seen it re-establish itself, particularly for the larger funds that can make direct allocations. We do need to differentiate between direct investment in properties and pooled vehicles. We regard pooled vehicles much more as an alternative asset where you have debt and probably more aggressive management. Of course, however, the dealing costs in property mean that it's more difficult to be aggressive and hold stock for short periods of time. We find the long term yield very attractive and the inflation hedging element also very attractive. From the sponsor's point of view, there are not very many companies now that have very high exposure to property assets. Most of them have either sold

"the dealing costs in property mean that it's more difficult to be aggressive and hold stock for short periods of time"

them or as William said, supplied them to their pension funds. Many companies have said we're not property companies we are not experts and it is not appropriate for us to hold it, it's much better for an institution to hold it, we'll lease it for ten years and then someone else might come and use it. If a company has got a very significant exposure, then I think it would be quite appropriate not to hold any property within the pension fund. I think that's the core of my answer.

Maggie: Same question to you Richard?

Richard Williams: We've got two large pension schemes, only one of which holds any real estate. Like Peter mentioned, we hold it in direct UK form and that's just because we think that's the best way to access the real estate market. We are concerned about liquidity and in order to try and get some liquid property holdings we've bought a small portfolio of shares in property companies worldwide both to give us a little bit of diversification and to provide a bit of liquidity. We accept that in the short term these are going to move very much like equities, but our belief is that over the long term they will reflect the broad property market trends. That's our reason for buying them. For the second half of the question I would agree that if you're a property company it seems a bit silly to invest in property but if you're not a property company it's unlikely that any moves in the property market are going to cause a sponsor insolvency or anything like that. I would say that you should be free to invest in property.

Maggie: Finally Lucas, what are your thoughts?

Lucas Budzynski: Actually for a pharmaceutical company, an exposure to property on the side of the corporate sponsor itself is rather limited. Therefore, risk exposure on the sponsor level is not the major consideration for us that would influence the strategic asset allocation in any of our pension funds. Real estate is one of the asset classes that today seems to be one of the most compelling alternatives within the alternatives space. We are increasing our allocations to real estate in our major pension funds. It's being done both in the UK and in our German schemes and as well as the existing allocation we've held for a long time in our US pension scheme.

Maggie: We are talking here specifically about real assets, so direct property investments. Are real assets such as property the most obvious choice for hedging inflation risk and what are the other factors that you need to think about in relation to that? Perhaps we could start with Peter?

Peter: Property is not the most obvious choice for hedging inflation risk. Of course we have got index linked investments as the most obvious choice and in recent years we have been looking for other asset classes which offer inflation hedging in a less directly linked way. It has been quite hard to find asset classes that do offer a good quality index linking exposure. The important aspect for property is that there is hedging against inflation but it's not necessarily correlated year by year. You have got to look at the long term. We obviously saw the big falls at the end of 2007 and 2008 as well as early 2009 in property values, which were totally unrepresentative of inflation. It's quite interesting because one of our UK property portfolios we measure against RPI over the cycle. That's proved quite problematic because the variation compared with the benchmark is very high and tends to follow the market more than the inflation. So, for long term hedging we look at property as land and buildings and obviously the buildings have inflation hedging but the land much less so, so we've tended to allocate to more industrial types of portfolios where the buildings are a much greater proportion of the overall value and therefore there is more index linking correlation. Industrial property also has the option of changing use to something with a higher value which can be an added bonus, so yes we do look upon it as a very good long term hedge but not a particularly good short term hedge.

Maggie: Similar question to you, Richard: are you using property for hedging inflation risk?

Richard: I would echo what Peter said, in that it's not a very good short term inflation hedge and that when the property market crashes it's not necessarily that inflation falls rapidly. I would look at real estate as a long term hedge, but maybe more closely tied to GDP and economic growth than pure inflation. Also, I don't regard all property the same in this area, in that if you have a property with a very long lease with an RPI linked leasing structure that's obviously a very good hedge for inflation. If you have something however with a two year fixed lease that you then need to re-let, then that's a lot more dependent on property specific factors. I think there is a spectrum across different properties, some of them will provide good inflation linkage and some of them it's a more general and long term real asset type of investment.

> ***"I would look at real estate as a long term hedge, but maybe more closely tied to GDP and economic growth than pure inflation"***

Maggie: And William, from your perspective, how does it affect you?

William: We tend to approach this from a slightly different angle in that we see that there is a relationship between property and inflation and there is a relationship between residential property and wages. All of these aspects are clearly linked together. We have been looking at where the closest inflation linkages are, and as Richard said, one of them is in inflation linked leases. Long-term inflation linked leases are a very attractive way for us to try and get some type of inflation hedging into a portfolio that is linked back to property risk.

Also, if you've got an underlying tenant who is very high quality then you can start seeing that almost as an inflation linked bond, rather than property, a type of inflation linked bond with an extra bit of property risk. You could also look at residential property which is difficult to invest in, for example in social housing where you have an explicit RPI linkage to the rents being paid into the housing associations. A bond backed by a housing association and secured on residential property could have a direct inflation linkage. You can go from a very low risk idea of social housing bonds to a higher risk idea of inflation linked leases and then on through to the direct property investment itself, which is then going to be significantly higher risk against inflation benchmarks as Peter said. We've looked at it in all ways and we've been quite interested that funds are looking at property in terms of how far they can deviate from their inflation linked benchmark. As both Richard and Peter said, it's a question of how long is your time horizon. If your time horizon is long enough then libor-linked investments, inflation and property would all tend to work together at some point. But clearly in the short term we've seen some very big differences.

Maggie: Finally Lucas to you?

Lucas: From the asset liability perspective we've been looking at inflation hedging capabilities of various asset classes. It's not only linkers but also asset classes like commodities and nominal bonds that all seem to have a high correlation with inflation linked bonds and with inflation levels. In the whole portfolio perspective these assets should give us, hopefully, some inflation hedging. The question that one is of course asking themselves is: how much can a pension fund allocate to real estate? That is certainly, in our case and in the markets, much lower than what one does in the case of government bonds or inflation linkers. That would be a comment on the hedging and other asset classes. In terms of real estate, what we found is that looking across various geographies and sectors can give a very different risk return and very different expectations. Also the question of using leverage is of highest importance. It might have been an excessive use of leverage that created this high volatility and correlation of the assets class as a whole with equity markets and with other risky assets during the credit crisis.

William: How many commodities do you use, Lucas, to try and look at inflation? If you're looking at commodities as helping to get some inflation linkage, then I would comment that the disparity between European inflation and commodities has been quite extreme over the past few years. Does it work together in the long term?

Lucas: Looking at commodities as an asset class, people usually think about oil and what's going on with bread prices. There tends to be various approaches in terms of commodity baskets and indexes. Over the long term, commodities do provide an inflation hedge. This could be obviously said of equities and other asset classes. In the shorter term this mechanism doesn't necessarily work and for commodities itself the argument that I used early in terms of how much a typical fund would be able to allocate to them is of course very valid. One cannot go with any high allocations to these asset classes. However, there is a clear macroeconomic link between commodities because it's price spikes in oil and others that create inflation.

Maggie: Moving to a question that is interesting for the reason that 3 or 4 years ago, we would never have considered the idea of investing in a residential market as well as a commercial market. The question is: would institutional investors be better to enter the residential or commercial marketplaces. Richard if you could answer that question first?

Richard: I would certainly say that the residential market has probably got a tighter link to wage growth than the other elements in the property market. Certainly if you are trying to back some active liabilities within your fund that does seem to be a pretty good investment. When we've discussed with our trustees the residential property, the three reasons why we haven't looked at it are a) with residential property, tenants have got stronger legal rights comparable to companies have with shops or offices in the commercial sector, b) there is a perception, which I'm not sure is born out of reality, that residential property is more volatile than commercial property; there was a view that it was riskier, but I haven't seen any figures to back that up, nevertheless it was a reason, and c) when push comes to shove the trustees don't like the idea of actually kicking people out of their homes and the sponsoring company wouldn't like the idea of people protesting outside their offices that 'the nasty schemes have thrown them out of their homes'! It's generally been considered that it's just more difficult than the commercial property market.

"if you've got an underlying tenant who is very high quality then you can start seeing that almost as an inflation linked bond... with an extra bit of property risk"

Maggie: William, how would you take those concerns that Richard's trustee have?

William: Clearly all those concerns are valid. The other aspect that is typical of residential is the size of the market and actually getting an institutional size of investment in the residential market is really difficult. Where do you find large enough pockets of residential investments? Student housing and social housing are two areas where you've got large landlords of residential property so you're one step away from tenancy difficulties and the fundamental difficulty of a pension fund being involved directly with people's housing. In that case, you tend to be lending to those organisations which is a way of investing in residential but in a fixed income format rather than in a real estate equity format. I echo the difficulties with going into residential rather than commercial property but for the reason the investment is driven by the size of the opportunity and the fact that it's relatively difficult to build a diversified portfolio quickly.

Maggie: Peter, how about you?

Peter: We have some modest exposure through buildings which have got residential apartments and buildings like that, but we still have limited experience. It's fair to say that Richard's point about the legal aspect is still a mild problem but nothing like as bad as it used to be thinking back to the 1950's and 1960's. To emphasise all the points that we've made: it's management intensive to invest small amounts of money and it's management intensive when someone rings up and says that they've got a leak. You've got to have a structure which will manage that very efficiently otherwise you get what Richard highlighted being people demonstrating outside your head offices which is not what anyone wants. As an example, we had a letter written to the Chairman of our trustees from a residential tenant which was not justified but absorbed much management time.

"it's management intensive to invest small amounts of money and it's management intensive when someone rings up and says that they've got a leak"

Maggie: Finally to you Lucas?

Lucas: We haven't invested in residential property. It was mentioned by our consultants, but all of the corporate sponsors thinking was of the quite recent developments in US, UK and other housing markets and the problems caused.

Maggie: I'm interested to hear your view Lucas as I expected as a European you might be more enthusiastic. If you talk to Dutch and German pension funds, they actually do have significant exposure. There is much less penetration of home ownership for individual but there are examples of geographical areas where there is heightened inflation into the domestic residential market.

Lucas: That is correct. In particular, in Continental Europe we didn't see a crisis or price declines that were observed elsewhere, such as Spain. In Germany there were many deals where even former industrial groups would be selling in one package their whole residential portfolio and this would be purchased sometimes by asset managers or asset managers would be looking for people interested in getting into it. However, I have the impression that this is less of an issue for the corporate pension funds but much more so for insurance companies.

Peter: One additional point I would make is to do with inflation linking: one interesting aspect is that retail rents are quite closely linked to inflation. Retailers look at the proportion of their turnover that goes on rent and over time that is relatively stable. That's quite interesting as inflation should then feed through into retail rental values.

William: You can go further than that and say that retailers are quite often happiest with inflation linked leases. We still think that if you want inflation hedging then to get as close as you can to real inflation is fundamentally important because real estate as a whole asset class is good long term but you really do need to make sure that you're building it from the bottom up with inflation linked assets. There are some inflation linked assets linked to real estate investments but one has to be careful.

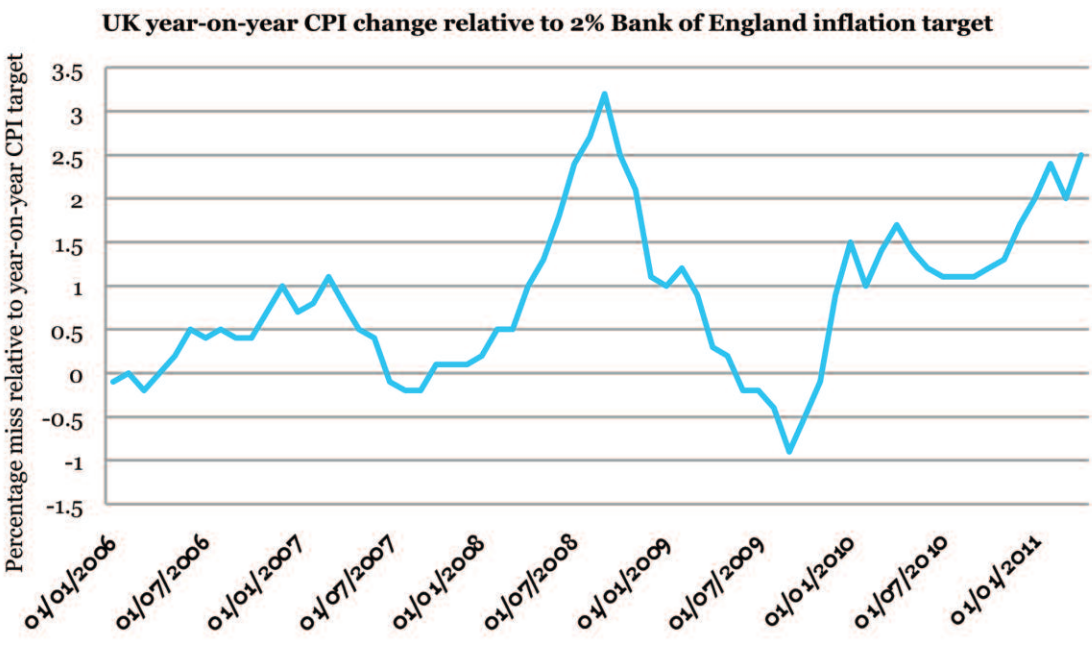
Maggie: Thank-you very much William for that final comment and thank-you everyone for joining me.

By **Stephen Jones,**
Co-Head of Fixed Income,
Aegon Asset Management

A multi asset answer to inflation

UK inflation – the year-on-year movement in the price of a predefined basket of goods and services – has been above the desired policy level for the vast majority of the last five years. The recent profile has been particularly worrying, with a significant overshoot of the 2% consumer prices index (CPI) target seen over the past year. These price pressures look set to continue despite only modest economic recovery and an assumption of a significant amount of spare capacity in the UK economy. Raw material costs, food, energy and tax changes have driven recent inflation events, and while the tax change effects will fall away in 2012, we believe that other price pressures will persist. Therefore it is likely that we have not yet seen the peak in UK inflation data, and inflation will stay higher than envisaged and desired into 2012.

Looking at economists' forecasts, JP Morgan sees CPI peaking at 4.7% in the autumn of this year, with the retail prices index (RPI) coming in around 5.5% at that time. Barclays Capital has a more concerning profile. It forecasts an inflation peak around the same time, but with a reading of 5% for CPI and an RPI print of 6.4%. Importantly, neither bank anticipates inflation approaching anything like the desired 2% level until the very end of 2012. Inflation is high and looks set to persist, eroding the value of low return assets and cash.



Source: AEGON Asset Management

The classic hedge for inflation

We believe that countering this threat (the emergence and persistence of inflation) requires a specific and dedicated investment response. The classic hedge for inflation has been index-linked government bonds. These bonds (issued in the same way as conventional gilts and used to fund government expenditure) have their coupon and final maturity value linked to the change in RPI over the period they are in issue. During periods of high inflation, both the final pay back of the principal and interest from these bonds increase, in order to protect the holders' ability to buy goods and services. The value of this inflation protection is also 'priced' by the market and expressed in the form of a real yield. A low real yield implies that the inflation protection in the bond is valuable, just as a low yield on a corporate bond says those fixed cash flows are valuable when cash interest rates are low. Higher yields and, as with all bond investments, lower prices occur when inflation is low and the inflation protecting attributes of index-linked bonds aren't valuable. Therefore, having index-linked gilts at the heart of any inflation fighting strategy makes sense given their unique attributes. For pension schemes with long-dated inflation liabilities, long-dated inflation-linked bonds are a particularly appropriate asset class. AEGON Asset Management's Inflation Linked Fund has as its benchmark an index of these bonds, and the design of the fund means that we aim to outperform the total return offered by index-linked gilts over the long term.

> ***"a major driver of UK inflation over the past few years has been currency depreciation"***

Whilst the optimum solution to hedge inflation is index-linked gilts, they are by most people's measures expensive in themselves. Real yields are low, and indeed at the short end of the maturity range (bonds out to five years maturity) they are negative. Index-linked bonds also react to the 'tail end' of the price pressure pipeline. They increase in value based on realised prices rather than those expected. Therefore, broadening the assets held in any inflation-fighting fund away from just index-linked gilts offers the opportunity to offset some of the expense in the core asset class with other assets, as well as allowing some capture of price rises seen in assets and commodities before they are included in monthly inflation calculations. Our Inflation Linked Fund seeks to deploy a multi asset approach to firstly offset some of the expense seen in the core index-linked asset, and secondly capture price moves at all stages of the price pressure pipeline. Therefore the fund can and does invest in commodities, equities, credit, foreign exchange and interest rates around a core holding of index-linked bonds sourced from the UK and overseas government markets. In so doing, we are taking exposure to the causes of inflation as well as assets that benefit from the end result.

Looking at the fund's current holdings best illustrates this approach. Around 60% of the fund is invested in index-linked gilts. In addition, a further 8% of the fund is invested in Australian government index-linked bonds offering exposure to a historically inflationary economy and a real yield that is over three times higher than that on offer in the UK. Finally within the index-linked holdings, we hold various corporate index-linked bonds issued by investment grade (usually defensive) companies. Away from index-linked, the fund has 15% exposure to real assets in the form of direct equity holdings. This exposure is implemented in a diversified way and draws on the stock picking expertise of our UK and global equity teams. The focus is on defensive names offering real and increasing dividend yields as well as stocks that will benefit from pricing power as prices rise. This high yield and value equity approach has been a strong performer relative to inflation historically and we expect this to continue over time.

'Cost-push' inflationary environment

Commodities are at the centre of the inflation 'push' that economies like the UK are currently experiencing. Using the freedoms embedded within the fund's UCITS structure we have accessed direct exposure to agricultural commodities, namely wheat, corn and soya beans. Increasing populations, the move up the protein chain in many developing nations' diets and climate change have kept and will continue to keep agricultural prices high. Capturing this before it gets into the inflation basket, as well as benefiting from it in the uplift in RPI it generates, seems sensible and appropriate. In addition, the fund holds gold as an ultra defensive real asset with strong anti inflation characteristics. Finally, a major driver of UK inflation over the past few years has been currency depreciation. Being flexible around the fund's sterling base currency exposure on occasion, and avoiding periods of sterling depreciation through exposure to other major currencies, can make money for the fund.

AEGON Inflation Linked Fund

In summary, we believe that the inflation headlines we are experiencing have been building for some time and are set to persist into the future. This new investment challenge merits a bespoke and specific approach to effectively counter it. Based on index-linked gilts, the AEGON Inflation Linked Fund takes a multi asset, unconstrained approach to investing in real assets and the drivers of inflation across bond, equity, commodity and credit markets. Managed with a fixed income mindset and drawing on the expertise in AEGON's multi asset and equity teams, the fund aims to outperform index-linked gilts over the long term.

By **David Donora,**
Head of Commodities,
Threadneedle Investments

Commodities remain an effective hedge against inflation

Commodities have long been recognised as a credible hedge against inflation, especially unexpected inflation. Recent volatility and an unexpected resurgence of what appears to be cost push inflation raises the question: is this still the case? I contend that commodities continue to provide protection against inflation and its destructive effects, particularly as long as emerging markets growth remains robust and developed market governments continue to deploy unorthodox economic policies.

Key driver 1: emerging markets demand

Rapid emerging markets economic growth has been a key driver of the recent rise in commodity prices. China accounts for the vast majority of commodity demand growth over the last decade, becoming the world's largest consumer of energy and industrial commodities. With urbanisation set to forge ahead there, followed by other countries such as India, demand for natural resources is set to continue to increase.

> ***"Response to an inflationary shock has best ... exemplified by Paul Volker's assault on US inflation pushing 3-month US government bond yields to over 15% in 1981"***

Emerging markets growth is highly commodity-intensive owing to the need to build infrastructure and improve the living standards for nearly half the world's population, so this trend appears well entrenched. Additionally, the extraction and production of hydrocarbons, particularly crude oil, is becoming increasingly difficult - current global demand for oil, at over 90m barrels per day, is approaching global production capacity. This leaves price as the only instrument to ration demand. Moreover, while energy is subsidised in many emerging market countries, and therefore not really a driver of inflation, higher world prices do not necessarily reduce demand there.

Commensurate with this growth has been relatively high inflation and, although China has been tightening monetary policy since early 2010, this is only a normalisation of policy following the tremendous fiscal stimulus of 2009, and only slightly mutes the second key driver of inflation.

Key driver 2: declining US dollar

The long-term value of the US dollar and its position as the world's reserve currency is being compromised through continuous issuance of debt at the Federal, State, municipal and consumer levels. On the current path, the best case scenario is that there will be a sustained decline in the value of the dollar. With commodity prices denominated in dollars, this means that the price of commodities will continue to climb. Other scenarios include the possibility of a US debt and currency crisis, which abruptly dislodges the dollar's reserve currency status and has broader implications for the global economy.

With these two macro drivers firmly entrenched, commodities will continue to be an effective store of value. This was well demonstrated by the 40% rally in commodity prices during the second half of 2010, which drove inflation higher globally in the first half of 2011. Given that investors can easily allocate 5-10% of their diversified portfolio to commodities, one has to ask why an investor would not hold part of their portfolio in the instruments whose prices cause the inflationary impact. This is particularly relevant for investors for whom inflation is an important component of their liabilities, such as pension funds. It would be difficult to justify not holding an allocation to the asset class that is most likely to cause an unexpected inflationary impact.

The return of geopolitical risk

If 2010's commodity price increases were driven by global demand and exacerbated by weather effects, 2011 has seen the resurgence of geopolitical risk as a market driver. The 24% increase in the price of crude oil in the first quarter of 2011 served as a gentle reminder of how powerful these forces can be. Late in 1973, after the US government had imposed price controls on oil in response to rapidly rising inflation, OPEC placed an embargo on selling oil to the US and increased the price of crude by 70%. Fast forward from October 1973 to January 1974 and the price of oil had increased from $3 to over $11 per barrel. A similar price shock was experienced after the Iranian revolution in 1979.

The response to an inflationary shock has historically been to raise interest rates, best exemplified by Paul Volker's assault on US inflation pushing 3-month US government bond yields to over 15% in 1981. This response would then benefit investors who could increase bond holdings once their yield had risen in response. Currently, there appears to be little prospect of developed economies increasing rates, which has a degree of logic, considering that the incremental demand for resources is being driven out of emerging markets.

Unsustainable debt

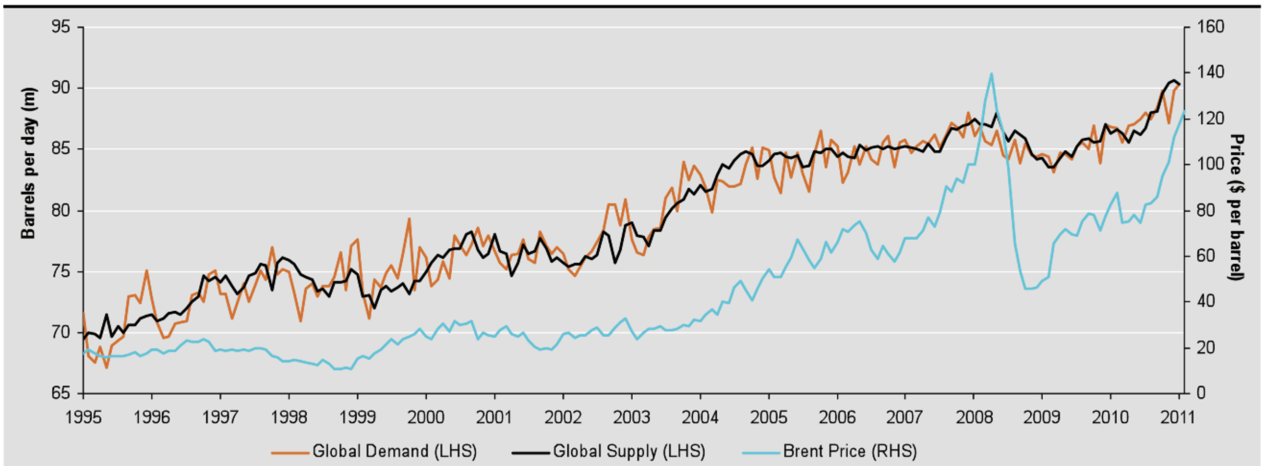
Additionally, given that much of the developed world is creaking under the weight of an unsustainable debt burden, the politically (in the short-term at least) less painful path is to allow the purchasing power of the currency to decline. This means that interest rates are unlikely to increase enough to attract capital back into cash for anything other than short-term tactical positioning. This is likely to lead to higher levels of volatility in commodity prices as financial flows wash in and out of the markets. However, until there is a credible and sustained effort to strengthen the dollar through higher interest rates, increased taxes and decreased public sector spending, money will be invested in hard assets. The risk of sharp increases in commodity prices therefore remains greater than normal.

Conclusion

Looking forward, while the risk is that we have to contend with a more volatile world, commodities continue to provide a safe haven for capital preservation and remain an effective hedge against inflation.

David Donora is Head of Commodities at Threadneedle Investments

Global oil market – inelastic demand and limited supply response



Source: Bloomberg as at 25 April 2011

Special Interview with
Stephane Salas,
Co-Global Head of Inflation Trading,
Deutsche Bank

Impact on new clearing rules on the swaps market and investors

Noel Hillmann: Thank-you very much for joining me Stephane to explain what impact new clearing rules will have on the swaps market and investors who use it. I would like to start off the interview with: what do you see to be the benefits of central clearing of inflation derivatives for the dealer community?

Stephane Salas: I do see several benefits, the first being, there will be reduced operational risk associated to inflation swaps specifically. 80% to 90% of the inter dealer market consists of zero coupon inflation swaps with no intermediate payment between value date and maturity date. There are increased risks associated to these products based on the fact that there's no intermediate payment. With central clearing, there will be an added layer of control that all swaps are accurately booked and valued.

The second advantage is that it will require the creation of a consensus curve with consensus seasonality, which will enhance transparency in our market. There are still slight discrepancies from dealer to dealer and moving towards central clearing will help build a market consensus, with a possibility once there's a consensus of having futures on a 10 year inflation swap for instance.

The third biggest immediate advantage would be to have mono currency discount methodology, which will harmonise valuations. Even in the inter dealer community, if you look at valuations of inflation swaps and asset swaps, it's a little bit complicated today because you have to look at the type of CSA you have and which currency or asset you exchange on the CSA. Some of the prices even for plain vanilla asset swaps are very different depending on the type of CSA, and central clearing will create a consensus in terms of the pricing of certain products. If you go to different banks today you would have quite different prices just because of different discounting methodologies.

The fourth advantage of clearing would naturally be to introduce a resolution mechanism in case of default of a major inflation derivatives counterparty. Central clearing will reduce systemic risk in the inflation derivatives market.

> ***"90% of the inter dealer market, consists of zero coupon inflation swaps with no intermediate payment between value date and maturity date"***

Noel: What do you see as the likely timeline for clearing of inflation derivatives, thinking particularly from the investor's perspective?

Stephane: It's going to take a few years unfortunately. My understanding is that LCH or the clearing houses are working on the finishing touches for clearing of swaptions. Inflation swaps are considered as a new product and working groups on clearing of inflation swaps have not unfortunately started yet. I'm hoping by the end of this year working groups will start, but the actual implementation of clearing of inflation derivatives will be more likely to happen by the end of 2012 or even 2013.

Noel: Which products do you feel should be cleared?

Stephane: Ideally all simple products should be cleared first, obviously zero coupon inflation swaps must be cleared because they represent the bulk of the volume out there. This is because as I mentioned earlier, there is that operational risk associated to the fact that is a zero coupon product. Secondly, clearing of asset swaps is really key if we want to maintain some form of liquidity in the asset swap market. This is because today if you look at different CSA's that different banks may have on 30 year inflation asset swap packages, you could have prices that are up to 10-15 basis points different depending on which CSA you have in front of you. That creates some problems in the market, so I believe asset swaps should definitely be included to reintroduce consensus on asset swap pricing. Third, options must be cleared as well. By that I'm referring to zero coupon options as well as the year on year options on yearly inflation. It is likely that clearing will only start with the most simple of products, meaning the swaps and asset swaps but the aim eventually is to clear every single product.

Noel: So how will the clearing of these swaps change the dynamic of the market place and what effects will the end institutional investor sector experience?

Stephane: A key benefit for end investors is that they will have central valuation. It's not just central clearing, it will be central valuation in a way. For instance, we have some clients who try to assign our competitors. It is really up to the competitors to accept putting us in front of them, instead of the client. It's all CSA dependent. For instance, the other day I quoted a price just on a plain vanilla zero coupon swap as an assignment to a client. Their answer was, 'ok we will trade with you' and at the end the answer was, 'by the way, the other bank doesn't allow that assignment because of a CSA issue and because of valuation impact on their side'. It means that currently clients have their hands tied. They need to have the approval of the bank with which they have the original derivative. If they want to unwind it they need to put another bank in, so lack of clearing therefore reduces market competition. These types of situations are not going to happen once clearing exists, because there's going to be a central valuation methodology.

On valuation of other products such as inflation options going through clearing, it will also allow clients to have the same central valuation facility. Today if you go from bank to bank you will see that there are some issues of valuing inflation options. All of these issues will have to be resolved on the way towards consensus building for central clearing and central valuation. Some hedge funds for instance prefer not to deal in inflation derivatives because they don't want to be captive to a valuation calculated by a bank with which they don't agree or which cannot be seen as transparent. If things move to central clearing, some people who are currently staying clear of inflation derivatives because of issues like valuation or counterparty risk are definitely going to start being more active.

> ***"Some hedge funds ... prefer not to deal in inflation derivatives because they don't want to be captive to a valuation calculated by a bank with which they don't agree"***

Noel: What exemptions are we likely to see in the move to central clearing? I'm thinking of how this can help or hinder the end investor.

Stephane: Part of the issue today is, there would be big profit and loss (P&L) profit and loss impacts if everybody was forced to just clear the entire stock of existing transactions. For example, if today we have an inflation derivative in sterling UK RPI, but with an institution with which we have a dollar cash CSA, moving that sterling mono currency derivative onto a central exchange will have a P&L impact due to discounting on a sonia as opposed to fed funds curve. It's quite unlikely that the backlog of existing transactions is going to be shifted to central exchanges, unless regulators force all banks to do so. In my opinion the most likely outcome will be that old transactions will probably be negotiated on a deal-by-deal basis. We will see if both parties agree on valuation and if there's an agreement to make a payment on the P&L impact one way or the other in exchange for clearing.

It is obvious in my mind that all new interdealer business will go through central clearing. However I would suspect that some flexibility will remain in terms of transactions with end investors, where opting for central clearing will likely be left to the discretion of clients. This question and many others will be addressed within the relevant working group that should be launched in the near future.

Noel: Thank-you very much Stephane for joining me on this interview and providing an insight into the impact of the move to central clearing.

MEASURING AND REPORTING INFLATION RISK AGAINST LIABILITIES

Examining the areas of sensitivity in a pension Plan to inflation and the effect on overall liabilities

Calculating your pension risks and the impact of inflation movements in an overall pension risk management plan

RPI to CPI - development of a nascent CPI market

The inflation options market - a realistic alternative to hedging?

By **Stephen Choi,**
Director, Asset-Liability Management,
Healthcare of Ontario Pension Plan

Examining the areas of sensitivity in a pension Plan to inflation and the effect on overall liabilities

Over time, money loses its value to inflation. An annual inflation rate of 10% will cut the purchasing power of a dollar in half in just 7 years. In order to maintain the quality of life of our retired workers, preserving the purchasing power of their pension money is particularly important and becomes a mission of most defined benefit (DB) pension plans.

At the turn of the 21st century, global equity and credit markets experienced severe shocks that depleted pension plans' net wealth significantly. Combined with rounds of quantitative easing, discount rates are at an extremely low level which put some DB plans in a substantially under-funded position. Maintaining a full and guaranteed indexation mandate becomes a major challenge.

Price inflation and wage inflation are highly correlated and they exhibit a similar relationship with interest rates but with some unpredictability. Interest rates are not always moving in-sync with inflation due to skewed market preference and heavy government intervention, e.g. quantitative easing prompts inflation fears, but excess liquidity keeps the nominal interest rates at bay and as a result, real interest rates are driven lower or even to a negative level according to Fisher's equation.

In order to put on an effective inflation hedge, hedgers not only have to understand how inflation impacts liability but also its interaction with other risk-factors, such as the discount rate. Sensitivity analysis is commonly adopted for studying the impact of inflation on liability by changing one risk factor at a time. For studying the joint impact of different risk factors, the test is conducted by changing two or more factors at a time.

The following sensitivity table displays the responsiveness of liability to change in respective risk factors of a hypothetical pension plan with 75% indexation policy and discount rate assumption of 6%.

	SENSITIVITY
Discount rate up 1%	**-12.67%**
Discount rate down 1%	**16.11%**
Price and Wage inflation both up 1%	**12.96%**
Price and Wage inflation both down 1%	**-10.73%**
Price, Wage inflation and discount rate all up 1%	**-2.39%**
Price, Wage inflation and discount rate all down 1%	**2.53%**

The table is a simplified version but still provides us with useful information about inflation and discount rates. It shows that liability is very sensitive to both inflation and the discount rate as both factors exhibit double-digit sensitivity. In our case, the two sensitivities are similar in magnitude but opposite in direction which makes the joint or resulting sensitivity relatively small.

Since inflation and discount rates are likely to move in tandem, people tend to pay more attention to the joint sensitivity rather than inflation sensitivity in isolation. Interestingly, the joint sensitivity can be further reduced by increasing indexation to a higher percentage, and at 100%, the simulation in our case shows the resulting sensitivity is reduced to almost zero.

From what we have observed, the joint risk of inflation and discount rate in theory can be reduced simply by increasing indexation, provided inflation and the discount rate are moving in-sync. It works mathematically, but the concept of mitigating risks by incurring more liabilities is indeed quite counter-intuitive; this concern will be addressed in the final paragraph of this paper.

A risk management approach can be applied for selection of the appropriate hedge. Risk is a function of exposure and uncertainty. A changing inflation assumption will change the value of future expected benefit payments, so inflation volatility introduces uncertainty to future cash flows. On the contrary, a change in the discount rate virtually has no impact on future cash flows; the discount rate only impacts the pension plan's valuation on a present value base. And the impact will diminish over time, because the discounted values will converge to their respective future values as time lapses. However, the dissipating effect may not be prominent for pension plans that operate as going-concerns with new entrants and are continuously accruing new service costs.

From a risk identification perspective, the discount rate only posts an interim marked-to-market risk but not a real financial threat to pension plans. Based on this point of view, for inflation risk mitigation, the appropriate inflation hedge is the one that is based on inflation only sensitivity.

"Price inflation and wage inflation are highly correlated and they exhibit a similar relationship with interest rates but with some unpredictability"

Liability is measured as the present value of probability weighted future benefit payments; estimated with actuarial assumptions and methods. There are two common risk mitigation methods in dealing with cash flows, i.e. cash flows matching and duration/sensitivity matching.

Cash flow matching is a simple concept but difficult to put into practice, because it is hard to acquire enough suitable assets for a perfect match, but once matched, it is risk free. Moreover, the liability's time line is extremely long, which may outlast all available index-linked assets and derivatives. As a practical alternative, inflation hedgers are more inclined to adopt the sensitivity matching methodology.

Sensitivity matching is an immunization technique. The objective is to close the sensitivity gap between assets and liabilities; it is efficient, but not flawless. It will still expose the pension plan to term-structure risk due to the uneven cash-flow profile of liability, so regular rebalancing is required.

Hedging inflation risk with sensitivity matching is a puzzling task; the hedger has decisions to make, because there are two sensitivities for matching – inflation only sensitivity and joint sensitivity. By constructing an inflation hedge based only on inflation sensitivity, the hedger exposes the plan to discount rate risk from a valuation perspective. If it is based on joint sensitivity, the hedger has to consider whether to hedge inflation and discount rate separately or on net basis. It may save hedging costs if it is done on a net basis, but it is more difficult to execute because relationship between inflation and discount rate is fickle.

The conclusion also raises an interesting question – If a discount rate is not a real financial threat to pension plans, do we still need to hedge it?

Since a pension plan's minimum funding requirement is governed by pension regulations, until appropriate changes are made to current accounting standards and pension regulations, I believe most pension plans will still focus on mitigating discount rate risk even for a mistaken purpose.

For those who choose to hedge both inflation and discount rate risks, they should consider hedging the risks separately instead of on net basis, by referring to the sensitivity table. The direction of joint sensitivity is opposite to inflation only sensitivity. That means if the inflation hedge based on joint sensitivity is efficient, the hedge will lose value equal to 2.39% of liability if the inflation and discount rates both go up 1%. This is opposed to what inflation hedgers are trying to achieve, they want to be compensated instead of paying away in a rising inflation environment. In fact, the offsetting effect of inflation and discount rate risks gives us a false sense of comfort which we should not count on.

Moderator:
Adam Gillespie,
Senior Consultant,
Punter Southall

Panellists:
Ian Chisholm,
General Manager of
Trustee Services Unit,
Shell

Panellists:
Evan Morris,
Head of Asset Liability
Management Structuring,
Deutsche Bank

Panellists:
Martin Mannion,
Director, Pensions
Finance and Risk,
Glaxo Smith Kline

Calculating your pension risks and the impact of inflation movements in an overall pension risk management plan

Adam: What level of inflation risk does the panel believe they are exposed too?

Martin Mannion: It's the highest order of risk we believe. For us we've got the unusual situation of one third of our members by value grow with our Retail Price Index (RPI) capped at 5%, two thirds are capped at 12% per the deeds and rules. That at a basic level is the risk that we face. The big tail risk that you have is that inflation crystallises in a benefit whenever you set your measurement date, so it's plus 10% one year and minus 10% the next for the consumer, it's nil over the period. The pensioner however exits having a 10% pay rise and of course we never pay less than zero so the real risk is in a double digit, high single digit inflation for several years in a row which will increase the obligation substantially.

Ian Chisholm: We're very similar to Martin. We've got inflation risk clearly defined in the trust deed, so my fund, the Shell Contributory Pension Fund, pays RPI capped at 7% for member's pre 2009 and then pays RPI capped at 5% post 2009 - and then of course you've got the inflation increases for deferreds and the actives. The summary is that we've got approximately 90% of our liabilities inflation linked. As Martin already mentioned, deflation is also an issue although it seems to have receded in terms of likelihood in the last few months but certainly it's a major concern so we're looking into both ends of the spectrum here.

Evan Morris: We don't have a scheme ourselves but when we do analysis of schemes we see a similar risk profile; it tends to be LPI based exposure. The interesting question is for open schemes with a final salary linkage, when you're linking wage information to RPI, how do you manage the relationship between the two? However, for a closed scheme, when you're providing regular increases and you're linking to RPI, then inflation exposure is measurable and hedge-able.

> ***"... in 2011, if inflation exceeds the cap, there will be no appetite on the sponsor side for breaching it"***

Adam: I believe everyone at this table is coming from a corporate perspective, how do you engage your trustees with inflation risk and do you think they understand the level of inflation risk they're exposed too?

Ian: They very clearly understand inflation risk. It's obviously a major assumption in our liability calculation and we get quarterly updates on our funding position from the actuaries that have got stress tests on inflation, so we see the impact of movement in inflation on those liabilities. It is certainly a high profile risk for the trustee but it's reasonably well understood.

Adam: Inflation is an intuitive risk to understand. Pension schemes pay inflation-linked benefits and rising inflation simply makes these cash flows higher. How have you found dealing with the trustees over inflation risk Martin?

Martin: The corporate are fully in line and aware of the problem. The issue with inflation is that you have to add longevity. If inflation runs away at x% and you are paying a member for longer than you thought and paying a larger amount each year than you thought. The law of compounding comes back to a very big deficit. Add to that the fact prudence built into the way they calculate deficits, you know the numbers are going up all the time, the employer sees it through their costs and the trustees sees it through their deficit calculations, so they're both fully aware.

Adam: Do you use a particular measure when explaining inflation risk? Do you talk about it a high level or do you go into more detail adopting 'Inflation 01 sensitivities'?

Martin: You have to at a simple level at the duration of your liabilities and at the inflation over that period. You can look at a bank curve or a swap curve, but I don't believe there is any disagreement on how you measure the figure for inflation and how you compute it. There is a debate going on about the level of prudence that is built in on actual technical reserve basis for the actuary or accountants.

Adam: Evan, when you're dealing with your clients, how do you communicate inflation risk?

Evan: We tend to show inflation changes in a freshman way, which is really to explain to people just how sensitive they are to change in break evens. Most of our world revolves around break evens rather than projected inflation. For instance, we will always look at the market consistent levels, so it's about demonstrating that this is the level where you can exit inflation, this is your sensitivity to keeping that inflation on and this is your exposure. We often provide stress tests where we show that if you have this type of scenario, this is the ultimate outcome with respect to the deficit position.

Ian: There is possibly one area where the trustee might have some confusion and that is looking at long term expectations and breakeven inflation. All the news is about inflation last month, so there is a disconnect between long term expectations and a news flow which you have to explain and translate to the trustee. The question is whether there is actually a movement in the long term expectations.

Adam: Dealing with long term expectations, what's the panel's outlook for the volatility of inflation? How rapidly could long term expectations change over the coming months?

Evan: It's an interesting question. If you look at market implied volatilities so looking at inflation options, there is a huge skew that gets brought in to both the deflation side and to the high inflation side. It is a significantly greater skew than we see in most other options markets which indicates the general uncertainty factor in the market but also supply and demand dynamics. On that basis, what you're looking at is a position where the market is saying that there could be very high levels of unexpected inflation on the upside and deflation on the downside. When we think through economist's forecasts though, it tends to be a much narrower band because it is a lot harder to predict inflation by definition. What has made inflation such a difficult risk to manage is that it is unpredictable.. Central banks have managed to keep inflation within tight bands but it is the unmanageable risk, the runaway inflation or the deflation environment that really scares people.

Adam: Martin, would it be fair to say, inflation expectations are going to be very volatile?

Martin: Not being an economist it is quite difficult to answer. It's a very strange economic recovery so you're not seeing an alignment of various aspects of recovery; you're seeing very low economic growth. You usually see employment inflation and economic growth follow the same track but they are not really doing that. The other issue you have is that all the fiscal policy tools have been played. There is nothing more governments can do to manage the situation. Inflation is above bank expectation level, but we don't read much into that these days!

Ian: The Bank of England is obviously in a very difficult position, and they've said in statements that they are more concerned about wage inflation. Wage inflation seems to be subdued. There are external factors such as the commodity price increases and VAT increases that are causing increases in inflation currently. You look at their inflation curves every quarter and their curves come down in twelve to eighteen months' time but then they have been doing that for the last two years. Therefore there is a point where the Bank of England loses credibility. Certainly there is a declining amount of credibility at the moment.

Evan: You're also looking at the components that make up RPI. A one off commodity increase will result in a one off increase in RPI which will then become stable again. To have continual increases in inflation you have to have a continual increase in the pressure points, whether its commodity increases, VAT increases or wage inflation - which that has a tendency to be self-reinforcing and what historically has driven up inflation rates. You may get a once off shock, which can be detrimental to the pension fund in that when inflation recovers, you don't necessarily reduce liabilities. But the runaway inflation scenario will not necessarily be driven by a once off shock. , It's got to be something more systematic.

Adam: What do you think is currently driving inflation rises and what could really push inflation up over the next couple of years?

Evan: It's a good question. A lot of what we've seen here has come from the one off increases: VAT rise and increases in commodity prices. Given the high tax on petrol, oil prices haven't been as big a contributor but all of them contributed. I don't know what the big driver would be, but guess it would have to come from wage inflation. When we need higher wages to cover the higher prices that then feeds through to manufacturers pricing levels. That leads to prices increasing which will then feed back into people saying, 'hold on, we're not being paid enough'. You need to have that sort of circular impact, to really drive inflation. Higher interest rates could help manage this risk the limiting factor right now is the ability to raise interest rates due to overall weakness of the economy. But again, this option exists if inflation becomes a problem. Inflation is about expectations, so as long as you can manage people's expectations and prevent a wage/price spiral, inflation should stay in line.

> ***"If inflation is rising at 20% a year, equities will go up, however, will it be 15% or 25%, you can't tell"***

Ian: Currently expectations are relatively subdued. We know the government has set expectations in terms of the whole austerity package; public sector increases being very limited and certainly in the private sector as well. There is still a subdued view of wage inflation but the question is: does that at some point switch? Do people start saying 'hold on I've had enough of this' and things start to move upwards.

Adam: As a question directly for Ian: you've got a 7% annual cap on some of your benefits, which is high compared to the norm. If inflation does stay above 5% (or goes above 7%,) from your scheme's view point do you think that's a good thing? Do you see this cap controlling some of your risk?

Ian: In theory, yes, so as you say, if you've got a cap on your liabilities, cap on the inflation and other liabilities then you should see a net improvement in funding. The practice is going to be interesting. Shell has been around a long time and we went through the high inflation period in the seventies and there was some expectation from the pensioners that they would be compensated. Expectations have obviously changed over the last thirty years and in 2011, if inflation exceeds the cap, there will be no appetite on the sponsor side for breaching it. So a sustained period of high inflation over the caps is going to be very tricky for companies to manage in terms of the membership. It's going to be an open issue for a lot of companies.

Evan: It depends on whether what you're seeing is a short term blip in inflation or a change in inflation expectations, because the latter will impact asset returns. Even then the outcome is not clear. Does the fund in some way get pressurised into accommodating the pensioners and paying through the caps? You also want to consider the impact on asset returns. If rates go up as a result I can discount at a higher rate getting lower liabilities which may be beneficial. Also, you would expect good equity returns. Either of those facts mean stronger performance of the assets will make it beneficial. But it is going to then depend upon the relationship of asset returns with high inflation and how much of that upside do you get to?

Martin: Years back when we ran open schemes, if you had high inflation then they were correlated with each other, you had an escalating wage base, liability base and a growing asset base. So you might have had a bit of volatility between them. Nowadays most schemes are closed to members or to new accruals so the biggest exposure is to inflation.

Adam: Can you truly calculate inflation risk in your pension plan or is any attempt to do so complicated by uncertainties surrounding future life expectancies and volatility with market expectations? Ian would you like to start?

Ian: You can always make estimates of any kind of risk in a pension plan. The question is: how accurate are those estimates? Any kind of estimate needs some assumptions to then feed into a model. Again, it's back to the accuracy of those assumptions and the accuracy of that model. It's clear that higher inflation leads to higher liabilities and we've got the caps that we have. You can therefore make some reasonable estimates of your liabilities. The big question is, what the impact of inflation on your assets is and how much inflation linkage is there in asset classes that are not directly matching inflation. There are clearly a lot of different views around the market in terms of how much inflation protection you get through equities and through property. Many people will tell you different stories. Therefore there is an estimate to be made there and a judgement call to be made by trustees in terms of what they are prepared to do in terms of their non-matching assets.

Martin: The answer to that is both yes and no. Given that people go into the market and get a risk management tool from banks to cover inflation like a swap, they know the price, therefore if all you're buying is a risk management asset you know you price that risk. I go back to your comment, 'how useful is it to measure inflation risk?'. How much more can you say about it to actually add colour to the trustees and the decision making process at the corporate level? Like car insurance, you know how much you pay, is it worth it? You can see the imputed risk by how much the prices are at the swap market.

Evan: That is very much a similar approach to what we do. The swap market sets the price of inflation and you can then accurately measure the sensitivity of your liabilities and hedge this. The question is how to measure the impact of inflation on your asset portfolio, especially if you're trying to use some form of factor model in your overall portfolio modelling: what does the inflation component contribute to equity, property, fixed income returns, etcetera. Therefore, on the liability side you can get a very accurate result of your inflation sensitivity. On the asset side it's a question then of the type of model that you use.

Adam: It would be interesting to move the debate to what things schemes can do on the asset side to help control inflation risk. Bespoke inflation swaps are available and can be a very effective way of removing some or all of your inflation risk, but let's first look at the return seeking part of portfolios. How do you think equities respond to changes in inflation? Evan would you like to start?

Evan: Some of the evidence shows that equities seem to perform best when you have low continuous inflation. The 2-3% continuous inflation environment is positive for equities. However a super high spike in inflation creates uncertainty which isn't necessarily good for equities. In a high inflationary environment you'd expect real assets to perform but what the relationship is, is very hard to tell. If inflation is rising at 20% a year, equities will go up, however, will it be 15% or 25% you can't tell.

Adam: So if you were designing a product to a pension scheme and you were analysing the inflation risk in its liabilities and the natural protection from its current asset portfolio, how much inflation protection would you assume would be provide by equity investments?

Evan: It tends to be very little. What we tend to focus on is to hedge the inflation risk in the liabilities with a swap, just get rid of it, then you know you're hedged. You can then focus on defining the risk profile of your asset portfolio. The only time that you're going to bring inflation into the asset portfolio is when you start implementing factor models in saying, 'can I

"Equities do fall drastically in value but all of us then believe that they will come back otherwise we'd get out of the game entirely"

extract an inflation delta from my assets'. Generally speaking, we wouldn't do that. What we'd look at is the projected risk and return of the assets and look to optimise a portfolio on this basis.

Adam: Pension schemes who have not entered into inflation swaps tend to rely on protection from index linked bonds. Martin, can you talk about how your scheme deals with inflation risk on the asset side?

Martin: We've not yet bought swaps, we've only bought physical. We own quite a chunk of UK index bonds. We last year bought two very substantial insurance products they're both in annuities and they are in the public domain. They name individuals on the policies (on a notional basis) and will pay the future benefits due in respect of them, so they are 100% covered for longevity in inflation. Going further than that it is tremendously difficult to say what the inflation coverage is in the other assets that we own. Anytime you get a capital instrument you've got a combination of inflation, DDP, and risk proportion. The problem being that, what these instruments theoretically do in practical terms, they do not appear to do very often.

Adam: Ian I know you said your scheme has done some interesting de-risking over the last three years, perhaps you could give us a quick summary?

Ian: We took the decision in 2007 to move 25% of the fund out of equities and into inflation and interest rate swaps. Obviously it was a good time to do that and that's helped to protect us through the crisis period. We currently have 40% of the fund in our liability hedge portfolio and the other 60% is return seeking assets, but in fact over the last two years we've moved out of the inflation swaps and into the physical gilts purely because of the pickup in yield we could get from that. You've got to be flexible when you look at the liability hedging assets but I agree with Martin that it's very hard to say that anything other than purely matching assets gives you that much inflation protection.

Adam: How does inflation risk relate to the other risks that a typical pension scheme runs, Martin?

Martin: It is the highest order risk because it affects your entire liability base and is irreversible.. Equities do fall drastically in value but all of us then believe that they will come back otherwise we'd get out of the game entirely.

Ian: The real interest rate risk is the biggest risk in the fund. You can then disaggregate that into nominal rate movement and inflation expectations. Over the longer term you would expect real and nominal rates to move to a similar degree but again you will have periods where there is divergence so you do need to be looking at hedging both the interest rate side and the inflation side. The next big risk is the equity risk, I agree with Martin there, and for us certainly at the moment longevity is a risk that is there and being talked about but it's third compared to interest rate and equity risk.

> ***"The range of investments should be driven by the returns you expect with those investments rather than your fear of inflation"***

Evan: For funds where we've run the analyses we see a very similar sort of metric - inflation is the key risk and then nominal rates and the longevity.

Adam: Everyone has identified inflation as the key risk. Moving to our last question I'd like to put to Evan: does this mean schemes should be focusing on assets that help address the impact of rising inflation?

Evan: We have been hinting at this point whilst we've been talking: as you start moving into inflation bonds it begins to exclude the ability to invest in equities. If you wanted it to be 100% inflation hedge it would almost entirely be in inflation bonds with no cash available to invest in equities. This is where the overlay strategies come in, and as a provider of LDI solutions, we're a big proponent of overlay strategies. If you hedge out your inflation risk in swaps, and then you've got 100% of your assets available to be invested in performance generating assets. That could be an inflation bond which just reduces the amount of swap that you need. You'd buy the inflation bond when the spread on an asset swap basis is very attractive. There have been some fantastic opportunities in that space. Similarly with equities there should be nothing stopping you hedging out inflation and investing 100% in equities, or hedging out inflation and investing in hedge funds, private equity or commodities. The range of investments should be driven by the returns you expect with those investments rather than your fear of inflation. Inflation can be hedge on an isolated basis which should give you the flexibility to then carve out an investment portfolio which targets your views and your long term expectations.

Adam: I like the appeal of these overlay strategies and they can be very cost-effective, especially for small to medium sized schemes. However, given that they rely on derivatives are they too complicated for your typical pension scheme?

Evan: I think it does take time and education because derivatives have had a very bad reputation in the markets. What you're trying to explain is that the derivatives give you the flexibility to isolate and hedge specific risks; this allows you reduce your liability exposure which in turn allows for a bigger risk budget to focus on your assets. Once you've allowed for risk budgeting both for liabilities and assets then the logic behind derivative overlay starts to come out. However, it is complicated and it takes both time and energy to explain.

Adam: Unfortunately that's come to the end of our time. I'd like to thank-you all for joining me.

Moderator:
Daragh McDevitt,
Global Head of Inflation Structuring,
Deutsche Bank

Panellists:
Tony Deeley,
Trustee, **GKN**

Panellists:
Simon McClean,
Head of Investment Committee, **Commerzbank Pension Scheme**

Panellists:
David Adkins,
Chief Investment Officer,
The Pensions Trust

RPI to CPI - Development of a Nascent CPI market

Daragh McDevitt: Thank-you everyone for joining us. May I start this debate with you Simon by asking: do you feel schemes are essentially at the mercy of their contracts as regards moving from an RPI to CPI basis for their scheme?

Simon McClean: In brief, the schemes are at the mercy of the contracts but I think we're also more at the mercy of the actual relationship the trustees have with the sponsoring company.

Daragh: Could you outline where this move from CPI started? What sort of process and contracts do you have right now?

Simon: It is not appropriate for me to comment specifically, however, we were taken by surprise by the speed with which the government and the pensions Department for Work and Pensions (DWP) moved on this. Their views were pretty much that they are going ahead - buy into this process.

Daragh: In terms of your relationship with the sponsoring company, is that hinting at what intent there is in the agreement between the workers and the employers; in terms of what they feel they should get in terms of inflation indexation?

Simon: The scheme takes a very paternalistic view towards it's employees being a German bank. Therefore we are confident we will have a win-win outcome on this. We are confident that we will have the right outcome for the scheme members and the sponsoring company on this issue.

Tony Deeley: We have a situation with the majority of our pensioners in that the main section is wired into RPI by the rules. I don't see at this point the company moving to change that. Simon is right that it does depend on the relationship between the sponsoring company and the trustees. We're in a situation where we both want the best outcome. We do have a membership section acquired from another group where the rules are slightly different. In their particular rules the deferred pensioners are based on the government measurement. It's already been indicated that it will move to CPI in line with the government. We do have this position now where different sections of the membership will be treated in slightly different ways, even amongst the deferred population. When we discussed this several months ago with the Pensions Minister, raising the point that ours and other schemes would be effected in similar ways, we made a request that he kept it as simple as it could be made. We asked him not to bring about overriding legislation, to essentially not force us and other schemes into a corner and allow us the maximum flexibility to do what is best for our own particular members. Thankfully that is how the government has chosen to go.

"It is looking like CPI is going to be the order of the day as far as our future pension increases are concerned"

Daragh: Can you, David, outline The Pensions Trust as a corporate entity and what sort of criteria you have within your own pension scheme and how this debate has influenced events in your scheme?

David Adkins: The Pensions Trust is slightly unusual. Although it's a one trust vehicle, we've got 36 defined benefit schemes under that one umbrella, each with its own set of assets and liabilities. It has its own valuations and so forth. The advice we've had regarding the structure of our rules is that we have to split it into two. For deferred pension revaluation before retirement, we stick with the RPI measure, but for pension increases in payment the rules track, via the regulations, to use of the CPI measure. Therefore, we have a RPI - CPI combination. As a trustee body, we have to follow the rules, if we do nothing then that is the combination we pay out. The employer has the option though to decide whether he wants to change the benefit and make payments linked to RPI. The onus is on the employer rather than the trustee.

Daragh: Have you reached this situation because there are differences in the actual wording of contracts or is it general wording, in terms of 'the government's inflation indexation of the day'?

David: All of the schemes are affected in the same way. This is because there is only one Trustee Deed & Rules, albeit with certain combinations that are selected. For all of the schemes you follow it back and you'll come up with CPI as the reference index for pensions in payment. It puts the onus for any reversal on the employer not the trustee and so far to date the experience has been not to revert back to RPI, because the employer doesn't want to bear the cost given the current climate. The schemes are underfunded so this is not the sort of environment where they want to change the pension promise. It is looking like CPI is going to be the order of the day as far as our future pension increases are concerned.

"if and when RPI turns down we need to be bang on that hedge ratio to make sure we're not over-hedged in a falling market"

Daragh: That leads us into the question of, how can trustees hedge that CPI risk given right now the entire swaps market and the government bond markets have roughly £300 billion of bonds linked to RPI? We've heard whilst some pension schemes will have hard wired RPI increases into their contracts, some employers might be incentivised in a paternalistic way to insure RPI indexation as the arguable fulfilment of their implicit contract to their former employees. Never the less, many will have made that shift to CPI indexation.

For those of your members who don't have hard wired RPI indexation, could you outline Tony what your hedging policy is with respect to inflation right now and then how that will change given the limited number of pensioners you have where the risk so to speak is switched to CPI?

Tony: I wouldn't say we have a specific policy on hedging inflation. We did some work over the last 12- 15 months on setting out a strategy to bring that about with an interest rate and inflation hedge using swaps. It has not yet been enacted. Our protection from RPI inflation lies with our index linked bonds.

Daragh: So in a degree the move to CPI is a minor one?

Tony: If you wanted to, you could work out your risk and then cover that by using RPI swaps, adjusting the amount to take note of the slightly lower rate of risk that CPI may bring about?

Daragh: Yes but I suppose it's debatable that when you finish with all these regressions, you can either end up with the same indexation but just having a different number, so effectively CPI + 1, or you can end up with CPI being .8. There is lots of analysis to be done working with my associates on that.

David, could you tell us how you go about inflation hedging at the moment and then how that may change given the CPI indexation?

David: At the moment, we are across most of our schemes substantially short of inflation protection. This is one aspect I've been looking to correct since joining The Pensions Trust a year ago. We are looking to implement a policy targeting 20% hedge ratio across all of our schemes, when expressed as a percentage of the solvency liability. Some of the schemes don't have any inflation protection at all. As far as CPI is concerned, I would rather have RPI protection than no protection. The big picture for us is to get some inflation protection. The fact that it's RPI not CPI doesn't worry me particularly as there will be a correlation between CPI and RPI inflation. It's one of those aspects you can finesse later on once you've got a substantial amount of protection behind you but right now it's pretty much about getting RPI protection in place and then when CPI instruments come along, finesse it at that point.

Daragh: I understand you believe the first order is to get rid of the bulk of the risk and the second order is to get rid of whatever basis there might be left? If you're looking at a 20% indexation anyway then I guess you're getting rid of the majority on the basis that it will float through into the un-hedged portion?

David: There will be a bit of basis risk there because of the difference between the two but it will be marginal compared with the bigger risk of inflation. We've set some triggers in place to up that hedge ratio if and when the yields get more attractive, but as I say the CPI aspect is less of a consideration for us at the moment.

Simon: When I took over the investment subcommittee at Commerzbank, the first thing I did was to look at the risks, look at the assets and look at the liabilities. Immediately what popped out was that in most schemes, including ours, the inflation link is RPI based but subject to a 0% floor and a 5% cap. And that automatically introduces a level of optionality into the equation. I struggled to get an answer from our former investment consultants as to what work they were doing on the RPI hedge. They didn't understand that the second order effects are very subtle but they are actually quite important because when you are close to that 5% cap, which we are with RPI, different things start happening to the required hedge ratio. As you pointed out David, it's far more important to get a hedge in than to worry about the extent of the ratio whether it's 3% or 4% over and under. Looking at any move to CPI it is clear that although there is quite a level of correlation, different things happen to CPI and RPI when you are close to these 0% and 5% boundaries. We've addressed the whole inflation business in a very holistic way at Commerzbank. We realised that there were so many unknowns as even with any CPI based move the volatility of CPI is different to the volatility of RPI. So again there is more work that needs to be done on that.

Daragh: I guess the assumption you use there depends on credible monetary policy targeting. Where you get these surprises is that the MPC has a tough job controlling inflation on a two year horizon, resulting in them not possibly imagining what the oil prices are going to be in a year and then two years later and what the path for energy is. It's effective in hedging that tail risk, but you say you were capped at 5% anyway, so to some degree any surprises in inflation beyond that you're relatively hedged against?

they're not going to take on the CPI risk themselves as they'd want to pass it off. We would need to see some index linked gilts, linked to CPI. We would probably need to see other investment vehicles that are throwing off CPI cash flows, maybe PFI infrastructure projects. Then you'd see the banks being more willing to enter into the swaps market place with CPI being on an attractive basis. There's also liquidity concerns but we'd want to see some CPI index linked gilts.

Daragh: If we assume the government starts issuing CPI bonds and they have two curves, it's perfectly liquid and there's auctions and syndications going forward; when does it become interesting to you? If it were, for example, 80 basis points being fair value; if it was only 7 or 8 basis point difference, you're giving up 72-73 basis points. Right now you wouldn't get it for flat, so the question is: at what point is it worth getting rid of that basis risk?

"Current real yields are around 0.7%, so if you started adding 70 basis points to that, then you've got something that is probably interesting"

Simon: We have a pick-up with an RPI linked scheme with hedges that are RPI based. My big concern is if and when RPI turns down we need to be bang on that hedge ratio to make sure we're not over-hedged in a falling market. With a move to CPI it doesn't matter how credible government policy is on monetary matters, if we've got a RPI link in a pension fund and we've got RPI linked assets; it's a one-for-one correlation.

Tony: You may have a scheme like ours where the rates of increases in certain sections of membership are split. I'll give you one example: I'm a pensioner. Provided there is any inflation, be that .001%, I'm guaranteed a 2.5% increase on my pension. If you throw that into the mix and try and match it in the market place, it's very hard.

Daragh: Bringing us on to the next question: when will a CPI swaps market become attractive? Starting with the experience of LPI where we have a very large theoretical demand, not everyone hedges at the prices currently available. But it means that where, for example, you might have break evens of 3.6%, you'd expect the 5% cap to be much closer to the 3.6%. That means it should effectively have a higher value or a higher delta. It's roughly worth the same as the 0% floor which is obviously nearly double the distance from that strike. You've got a very heavy 'skew' in terms of what the implied volatility is. In other words, it is much more likely to go down then go up which is the opposite of economic theory. Therefore David, at what point do you prefer the CPI hedge to get rid of the basis to the RPI?

David: One would need to see several market developments before it became attractive because the banks would want to be able to see that

David: I would convert that into an index linked gilt yield. Current real yields are around 0.7%, so if you started adding 70 basis points to that, then you've got something that is probably interesting. Much below that and one would start to think, 'I might as well check out the RPI market and take the risk of the difference'.

Daragh: And the potential benefit as a consequence?

D**David:** That is a very rough rule of thumb but it's probably about fair for getting more precise cash flow matching in return.

Daragh: You've currently invested in RPI bonds Tony: is it only the less concern you have on CPI that makes it not a value proposition for you?

Tony: It is. Like my colleague Simon, our scheme over the years has built a proportion of its portfolios in alternative markets as a way of both diversifying and offering some inflation protection. They say that property is an alternative investment. When I joined the board of trustees in 1982, we had property then and the percentage hasn't changed! I find it difficult to understand why property is now regarded as an alternative. Obviously private equity, hedge funds, absolute return bond funds; we have all of these, we have about 20% of our assets in alternatives. So that is one strategy.

The other aspect I find difficult to understand is the government's perspective on this issue. I can see why they'd want CPI, it's cheaper for them as the sponsoring authority. This idea that it is somehow a better measurement of pensions and cost is to me absolutely absurd. But they are reluctant to actually go ahead and issue CPI linked bonds. Until

> ***"When you've got a policy to move to CPI for a large section of the public sector, the Treasury must respond by providing the wherewithal to achieve that"***

they start doing it there will be reluctance on the part of the investment community to take them up when they become available and for banks to go out and do it themselves.

David: My understanding is that the Debt Management Office (DMO) finds it a lot easier to sell £10bn pounds worth of debt to UK and overseas investors through the conventional fixed income market than through some esoteric CPI market.

Tony: Also they will muddy the waters by coming forward and saying in the future they may look and broaden the CPI to take some relevance of housing cost. If that were factored into CPI, a great deal of the difference between that and RPI disappears surely. It becomes an expensive exercise to achieve very little. I consider reluctance of pension funds and banks to start the ball rolling because they're waiting on a lead from the government who started this in the first place.

Daragh: I believe the DMO's view is they'll always look at anything, so if there is demand for CPI as opposed to RPI, if you issue it the investors will come. It's basically, they will look into it, discuss it for a while and then decide whether they will elect to use it or not.

Tony: Surely when you've got a policy to move to CPI for a large section of the public sector, the Treasury must respond by providing the wherewithal to achieve that. At the moment that doesn't seem to be happening.

Daragh: You're uncertain Simon as to what the actual underlying indexation will be. However, let's put it both ways. Assuming it does move to CPI because it is deemed to be more affordable for the sponsor; what would make it attractive to you bearing in mind the liquidity and pricing?

Simon: What makes it attractive to me on the cost side is your get -in cost but more importantly your get-out cost if you need to take that hedge off. We don't have a very good universe of CPI linked pricing at the moment so getting a forward curve and looking at break evens is a bit of a hazy exercise. If we assume there is a spread between RPI and CPI then we know what the getting out cost is. We can take a view on how much we actually are paying to our providers. But I'm also concerned if we ever needed to take that hedge off, what the cost would be to get out. This often isn't in SLA documentation, but that's one of the aspects we look for.

Daragh: From a market's perspective there's two interesting aspects that have come up in this debate. First was that the bid offer is taken by the hedge provider, which I can assure you is not the case! The second is the idea that you'd be hard pressed to find anyone now who would supply you CPI at any price. Certainly I wouldn't see that at pricing underneath RPI, so certainly the proposition that's on the table today, should anyone be able to hedge, is one where you're definitely paying away value to remove risk. The interesting take away here, is that there's already risk on the table, either because there's large amounts of un-hedged inflation risk that's already there or there is a perception that the bulk of the risk will be hedged via RPI. Therefore there is a reluctance let's say to put money on the table to get rid of this CPI - RPI basis. Would you say as a final comment David, that's fair?

David: I believe so. The pioneers for CPI hedging is going to be those really ultra mature schemes who have got very low allocations of growth assets, a lot in the hedging sphere who for them cash flow matching is very important. For whatever reason they've chosen not to go down the insurance route, but are doing it themselves. For other schemes like ourselves who have a significant amount in growth assets, the issue of RPI versus CPI is quite small relative to a number of other bigger issues and risks that the scheme is running.

Daragh: On that final point I'll have to wrap up and thank everyone for joining me.

Moderator:
Noel Hillmann,
Managing Director and Head of Publishing,
Clear Path Analysis

Panellists:
Jacob Bourne,
Head of US Fixed Income,
Capstone

Panellists:
Robert Gall,
Head of market strategy,
Insight

Panellists:
Martin Hegarty,
Co-head of Global Inflation-linked Portfolios,
Blackrock

Panellists:
Nicolas Tabardel,
Global Head of Inflation Volatility and Exotics,
Deutsche Bank

The inflation options market - a realistic alternative to hedging?

Noel Hillmann: I'd like to start with this question: what is the rationale for utilising inflation options as part of an inflation-hedging portfolio? What's your view Jacob?

Jacob Bourne: The rationale is the same as using any type of option and that is, it allows you to have a levered outcome. If you're long on it then it is much more of a known cost, which makes it look much more like an insurance policy. If you're talking about hedging inflation risk, it makes sense to hedge your inflation risk with insurance-like products.

> ***"the [floor] market is developing much quicker than the cap market"***

Robert Gall: In the UK one of the other reasons there's been such interest in the inflation options market is that the liabilities that pension funds are seeking to hedge often have option-like characteristics in them, so they can have 0% floors or be capped at 3% or 5% percent, so you need to refine your inflation hedge from being symmetric to asymmetric. As a result there is a need for these options to refine the form of hedging that you need but that has then led onto the fact that some of them have got very expensive, so actually you then get a relative value question as well, 'are there cheaper, better methods of hedging?' and as Jacob said, also getting the levered outcomes you might be looking for to take advantage of views on the market.

Noel: Being based in the USA, what are your views Martin on inflation options from a US standpoint?

Martin Hegarty: Jacob summed it up succinctly and I agree with his view: when you need to hedge something and you know what your upfront costs are, it is like owning an insurance contract. The same with what Robert pointed out, being the suitability; you can tailor whatever structure you want to suit your need. They [Inflation options] can be quite a sharp instrument to hedge exactly what's intended.

Noel: You're obviously coming from a different side to this as a provider in the marketplace Nicolas. What are your views on the rationale of utilising inflation options?

Nicolas Tabardel: I see all of these reasons to use inflation options that our other panelists mentioned. Many of our clients are exposed to inflation risk and inflation volatility risk in one form or another. We see pension funds that have LPI liabilities; we see real estate investors receive LPI linked rent and we see bond investors buy tips and therefore hold inflation flow. We also see insurance companies who have equity portfolios or risky assets who think they would do poorly in a deflation scenario and want to buy tail risk protection. All of these are good reasons to use inflation options.

Noel: Do you feel, Robert, that pension schemes clearly understand inflation options and appreciate the rationale for their use?

Robert: I believe they do. The fact that the optionality is embedded within their liabilities takes it out of the world of just being a financial instrument into a very practical thing that they can get their arms around because they know that part of their liabilities cannot fall if inflation goes negative. Therefore, there is a floor there that then needs to be hedged. Exactly how that gets executed in the market in terms of the use of LPI or inflation options is a matter they pass onto their professional advisors, because the exact nature of hedging these liabilities when the options get expensive is a matter many trustees wouldn't need to get used to with delta hedging being more complex.

Noel: How is the inflation options market developing in the U.S Jacob?

Jacob: The floor side of the options market seems to be developing quite nicely in that there are now more active participants, more liquidity and more visibility on prices. Some of that is just that there are, at least in the U.S., a lot more structures that have embedded floors in them so people had to get a handle on how to value them. The cap market is developing but I would say that at a slower pace and some of that is just because it's very difficult to sell cap in the same way that you're able to sell floors. This is because with cap you really do have an unlimited liability if you're selling them, whereas with the floors, even if you get a repeat of the financial crises, inflation only drops so much. I believe people have been more interested in the floors; there's been more visibility of them so that side of the market is developing much quicker than the cap market.

Martin: To add to that, the volume in the inter-dealer market from clients such as ourselves continues to grow. We have become a lot more active in looking at valuing the floors inherent in every single (?tips?) issue. I can remember three years ago when a new (?tips?) issue was brought to market, no one really looked at the floor valuations until after 2008. There was a story in the Wall Street Journal about a year ago between a Canadian insurance company and various real money managers selling floors through dealers. To them the volumes have picked up reasonably well and if I look at the volume of colour and dialogue that we get from various counter bodies in the street it used to be entirely related to tips and break-evens and now I would say it's definitely shifting more into the derivative world with much greater vigour than it has been in the past.

Noel: From your perspective Nicolas, how is the inflation options market developing and what is driving it?

Nicolas: The growth in inflation option volumes has been phenomenal. Last year we had a growth spurt in the market, combined inter-bank volumes for Europe and the US trebled from $13bn in 2009 to $50bn in 2010. If you look back, in 2004 this market didn't exist and in 2005 we maybe traded $1bn. Volumes have been roughly doubling every year on average, so it's a very fast growth. After the growth spurt we had last year we'll see some consolidation. If we can do the same volumes this year as we did last year it'll be fantastic. But I've been saying that for the last five years!

> ***"If you look at the nineteenth and twentieth century, inflation volatility was about 5.5%. For the last twenty years it was 1.3%"***

Noel: Do you believe volumes will be sustained Robert?

Robert: I hope it isn't going to slow down in the UK because the UK hasn't really recovered post credit crunch. The liquidity in the caps and the floors was better a few years ago than it is now but that's perhaps because there's a limited supply and there's ever greater demand. It does mean we've seen the skew become more elevated due to the common desire to buy the floor and sell the cap. The market in the UK hasn't been developing as fast as it has been developing elsewhere due to the limitations of supply and the one way nature of the market. I'm hoping that the pricing anomalies that have now come in will draw other players into the markets who are attracted from a different perspective, maybe from a relative value perspective, and that might then improve liquidity going forward.

Noel: Is the US growth sustainable Jacob?

Jacob: From our perspective I believe the growth is much more sustainable in the US than in Europe. In Europe you don't have the same exact supply versus demand imbalance, where as in the UK specifically you have one particular group of investors who are all going the same way therefore any relative value opportunities might take quite some time before you realise them. Because of that we tend to look much more at the inflation options market in the US and in Europe where we feel there is a chance of some two-way flow. This is as opposed to in the UK which we see as a much more difficult market to get involved in.

Noel: You're seeing this from a UK, US and European context Martin; do you think there is going to be a parting of ways between the two areas?

Martin: Speaking for the US division specifically, we haven't had the supply and demand situation that has happened in the UK, so I believe the US investor has been very slow to adapt and integrate these types of product in their strategy and I believe the US could continue to grow quicker than the other markets overseas.

Noel: Nicholas, do you feel that there is going to be substantial amounts of volatility?

Nicolas: Yes. We've become used to low and stable inflation in the last twenty years. If you take a long term historical perspective, that's an exception. If you look at the nineteenth and twentieth century, inflation volatility was about 5.5%, for the last twenty years it was 1.3%, so it is quite possible that over the next five to ten years inflation volatility will be much higher, which makes it more important to use options to hedge that options risk. Just doing delta hedging is not going to be enough.

Noel: Martin, do you feel that the important lessons still need to be learnt or that some people are going to be burnt?

Martin: I can see it from both sides. If I think back to 2008 there were some very harsh lessons learnt on all sides but the level of education is improving. Given the inflation targeting in the world in which we are moving toward, even the

UK which has an inflation target that it doesn't appear to keen to stick to, there's definitely going to be opinion in both camps.

Jacob: In the US I believe people are under hedged inflation, possibly as a result of the US having not experienced inflation in this form in some time. I think that people are really involved in protecting themselves from a dramatic rise in inflation, so people are very likely to get burned. What makes it very difficult this time around was that the last time people got burned on inflation in the 1970's, there wasn't much you could do, where as this time there are a number of tools that people can utilise to protect themselves from that. Therefore if people are going to get burned again it's much less excusable than the last time.

Noel: Do you believe short term memory will prevail Robert, or will many look further back in history given we're in very different scenario to what we've seen in the last couple of decades?

Robert: People in the UK have certainly got a memory that stretches back in terms of inflation because many people have experienced higher inflation and they've not forgotten it yet. The lesson recently though has been the idea of deflation coming onto the cards, which certainly in the UK economy in the last fifty years hasn't been something we've worried about. As a result, both outcomes have been conditions that people have had to think about and bring into their investment thinking. This does mean that the concept of higher inflation has been on the agenda. The thing is the level you can hedge inflation at in the UK, that has put people off, so whilst people are cognizant that inflation could be higher they're not all rushing out to hedge at the levels that are available in the market because if they expect the Bank of England's to deliver on their target then the long end of the RPI market is in a different place. That is the issue that is holding people back and is maybe where people could be being a little bit myopic because the Bank's target could change.

Noel: I'd like to ask the panel: what are your thoughts on the main trading themes in the inflation volatility market? Nicolas?

"One of the main trading themes here in the U.S. is that caps look relatively cheap to floors, with inflation likely to be well above 3% in year on year CPI"

Nicolas: The themes are different in the U.S., Europe and the UK. Europe and the U.S. are fairly similar markets, and the UK has its own idiosyncracies. Selling volatility has been a very good tactical trade in any form so far in Europe and the U.S., and we have seen many accounts sell floors since the end of 2010. Trading focuses mainly on floors because they are embedded in bonds and therefore people have to trade them. It's much harder to trade caps because there's no natural supply. That's where the UK market is very interesting because in the UK we have demand for floors from pension schemes but we also have supply of caps, so that's the only market where caps are available in large size and are cheap. The problem is that the dislocation is so large that investors are reluctant to go against it. Generally, it seems that everybody wants to buy inflation caps, the only place where caps are cheap is the UK but nobody wants to buy them here.

Noel: Do you agree, Jacob?

Jacob: One of the main trading themes here in the U.S. is that caps look relatively cheap to floors, with inflation likely to be well above 3% in year on year CPI, at a time when the Fed Funds rates are zero. What is that going to do to people's perception of if the Federal Reserve has lost control of inflation? Alternatively, are people going to look past this and think, 'well, oil prices have gone up but they've sort of stabilised'? That's the big question. This autumn when we're likely to see very high inflation but will this really create high demand for caps relative to floors and will there be people willing to supply those caps to the market?

Noel: What are your thoughts on the main trading themes Robert in the inflation volatility market?

Robert: The main thing that we have in the UK is this enormous skew between the caps and the floors and really it's about seeing if there's a catalyst that can change that around. People are reluctant to fight the trend that is there that the predominant investor groups all wants to do the same thing of buying the floor and selling the cap. If prices get pushed far enough it should provoke some relative value interest. It's a question of; do you go in the other direction and take advantage of the cheapness of the caps/expensiveness of the floors? That's the theme we're looking too, the long term trade that's in place: can you find a catalyst to turn it around?

Noel: On that point we can finish the debate. Thank-you to everyone for joining me and sharing your views.

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