

# REDVIEWS

Happy 6<sup>th</sup> Birthday LDI:  
The anniversary of a  
landmark trade



**On December 3<sup>rd</sup> 2003, Friends Provident with the help of Merrill Lynch implemented the first full Liability Driven Investment (LDI) transaction changing pensions risk management for good.**

*Our previous RedViews discussing the idea of Enhanced Transfer Values which can be found on our [website](#).*

## The birth of LDI

Six years ago, **Friends Provident Pension Scheme** set a new trend as being the first non-bank to implement an LDI hedging strategy. In this release we will look at the following topics:

- I. What is LDI?
- II. What solutions are offered?
- III. Market trends in LDI
- IV. The evolution of LDI

### 1. What is LDI

LDI refers to the market which has developed for hedging Defined Benefit pension scheme liabilities using interest rate and inflation derivatives. The solutions being offered today differ greatly from its inception.

#### 1.1. LDI Hedging Instruments

Initial cashflow matching techniques involved matching liability cash flows with those of nominal and index-linked bonds. More sophisticated strategies included the use of interest rate and inflation swaps as well as caps, floors and swaptions, all with the goal of reducing the volatility and hence risk associated with **changing real rates** (inflation adjusted interest rates).

There are several different ways to implement swaps which will be discussed below:

**Trigger based:** Pre-agreeing trigger levels with asset managers executing the hedges when interest rates and inflation reach the set levels.

**Yield bands:** As the name suggests, allows more flexibility as the asset manager is given a wider target in which they can operate.



*Bonds, swaps caps, floors, swaptions... the list has become more sophisticated*



*Aviva Staff Pension Scheme started their hedging in Q2 2008 and finished by early 2009 using this dynamic method.*

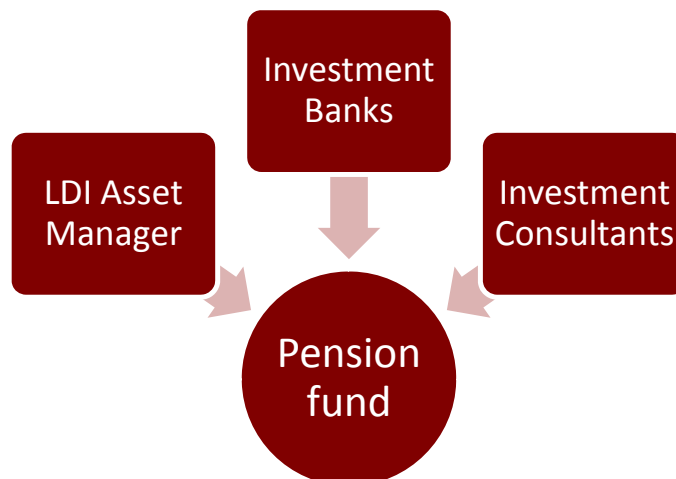
**Tactical hedging:** This involves deciding strategically when to hedge based on market conditions. The most recent example at Redington includes that of Aviva Staff Pension Scheme. During the market dislocations last summer, hedging was done in selective tranches when market levels were most favourable- ie hedging the 10-30y area of the nominal rates curve when interest rates were high. Similarly with inflation, the 30y inflation was above 50y. Thus, hedging was only done in the 50y maturity buckets. Alternative strategies were sought complete the desired total PV01 of hedging.

The trade was facilitated by having an **Implemented Working Party (IWP)** which was in constant contact though conference calls etc with their advisors, Redington Ltd. For more details on this, please refer to **The Investors Journal** (Aviva Investors, March 2009).

## 2. The market participants and the solutions

Since the inaugural LDI trade in 2003, the LDI market has developed into a complex web of asset managers, investments consultants, and investment banks in addition to the individual pension funds.

*Chart 1: LDI market participants*



### 2.1 Asset Managers/Product Providers

Initially there were only a few LDI product providers but this has expanded rapidly over the last few years. These are used by the pension funds as **execution agents** implementing the pre-agreed hedging strategies. The solutions they have offered fall into two categories:

- Pooled solutions
- Segregated solutions

The following table will seek to highlight the main differences between the two:

	Pooled Solutions	Segregated Solutions
ISDA required?	No	Yes
Collateral costs	Low	Yes- higher than pooled
Exact hedge	No	Yes
Can you do selective hedging?	Yes- can invest in specific pools reflecting different maturities	Yes- can hedge total PV01 in buckets
Use of triggers?	No	Yes

### 3. Trends in Markets since 2003.

The last year has seen a significant change in financial markets which has had a huge impact on pension scheme funding levels. In their report, **Accounting for Pensions 2009** by Lane Clark and Peacock it stated that “Under IAS19, the aggregate FTSE 100 UK pensions deficit stood at **£96 billion** at mid-July, the highest deficit ever recorded”. In this section we will analyse some of the market movements that could have attributed to this.

#### 3.1 Real Yields- the most important part!

Chart 2: Movements in 30y gilt real yield since early 2004



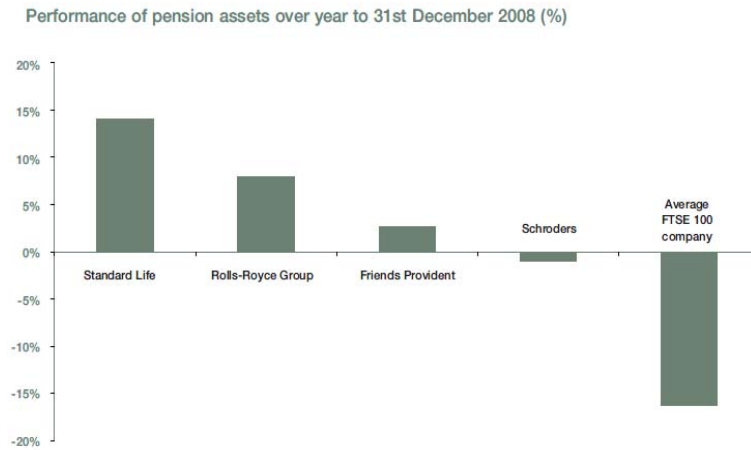
Source: Bloomberg, Redington

Crucially, it is the combined effect of changes in interest rates and inflation that will affect the pensions scheme funding level (depending on their level of indexation)- i.e. the real yield. Since early 2004, 30y gilt real yields have fallen dramatically (by around **1.26%**) and are now at almost zero! At the short end, real rates are already negative! Below is a chart from **Accounting for Pensions 2009** (Lane Clark and Peacock) which serves to highlight the

difference between schemes that hedged using LDI solutions and those that didn't.

Chart 4:

*The difference between pension schemes that hedged and those that didn't is stark*

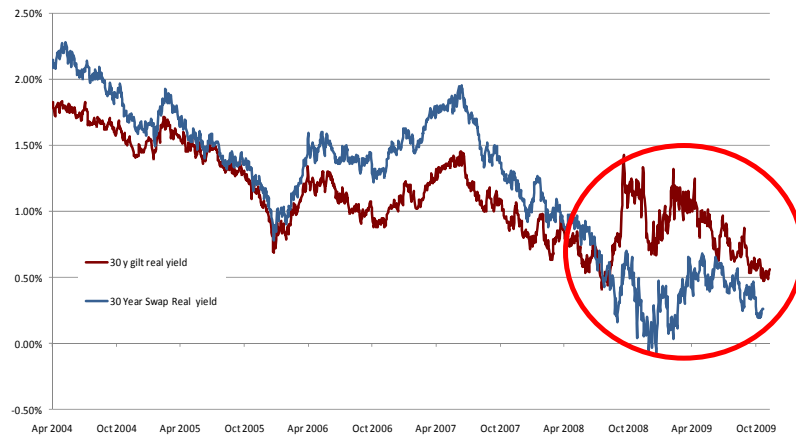


Source: Lane Clark & Peacock

#### 4. Different times require different measures:

Chart 5:

*The gilt-swap dislocation last year meant an evolution was a necessity for the LD market.*



Source: Bloomberg, Redington

The dislocations in financial markets which began last year, brought about an abnormality in the rates and inflation market. The resultant effect was that **better real yields could be obtained through the gilt market than via swaps** (which is the reverse of the usual scenario). This is best demonstrated using the graph of the 30y gilt real yields.

As a result of this, pension schemes began to hedge using the gilt market. The only drawback with this method was the **initial outlay of cash** required for the bonds. As swaps were synthetic instruments, there was **no initial cash outlay required**.

One possible method of doing this was as follows:

- Liquidate a pension scheme's equity portfolio and replicate the exposure by buying equity futures.
- Use the proceeds of the sales to buy inflation-linked gilts whose cashflows can match those of the liabilities.
- As a result, a better real yield is being obtained than using the swap market.

## 5. Where now?

Where we go from here is probably the most interesting part. Market events over the last 18 months have completely upset the status quo. Pension schemes will now seek to find hedging strategies that can reduce risk and generate excess return to help them close their deficits. Two main opportunities spring to mind:

- Long leases
- Longevity swaps

### 5.1 Long Leases

*Long-leases have characteristics of inflation-linked bonds, corporate credit and property*

As stated earlier, the majority of pension scheme liabilities are index-linked. Although yields for entering into inflation swaps is favourable, long dated nominal rates are significantly below their 2007 highs and thus the ability for real rate hedging is limited. The advantage of using long leases is three-fold:

- **Rental income** streams are **RPI linked** or have fixed inflation uplifts and are **long dated (eg 25 years)** thus provide a stream of constant real cash flows to match the long-dated nature of the liabilities as well as helping to reduce the duration mismatch that exists between assets and liabilities.
- **Excess return** can be obtained from the leases relative to corporate bonds issued by the same company. The lease has the added benefit of being **secured** against the value of the underlying property unlike a bond which is unsecured.
- Returns can also be obtained from **capital appreciation** of the underlying property.

A recent example of a long lease like this involved a Tesco Extra Store in Banbury:



- Let to Tesco Property Holding with a guarantee from Tesco Stores Ltd.
- Lease period of **24** years.
- Rent increases are **RPI linked** with a floor at **2%** and cap at **5%** in the first 5 years and **0%** and **5%** thereafter.

- Based on our analysis we predict that if the property rises in line with RPI, the yield on the lease is expected to be **350bps** above that of a Tesco corporate bond of the same maturity.

Source: M&G

## 5.2 Longevity swaps

This is an exciting new development. In this, a pension scheme agrees to pay a fixed rate based on agreed longevity assumptions and receives floating payments linked to the realised longevity of a group of people. There are currently 3 forms of longevity swaps being offered which differ based on the reference group of people taken for pre-agreed longevity assumptions:

- **Population index** (based on the country population)
- **Sample index** (based on a smaller sample population)
- **Scheme specific**

In May 2009, **Babcock** International with the help of Credit Suisse executed the first longevity swap covering almost half their liabilities which amounted to **£800m**.

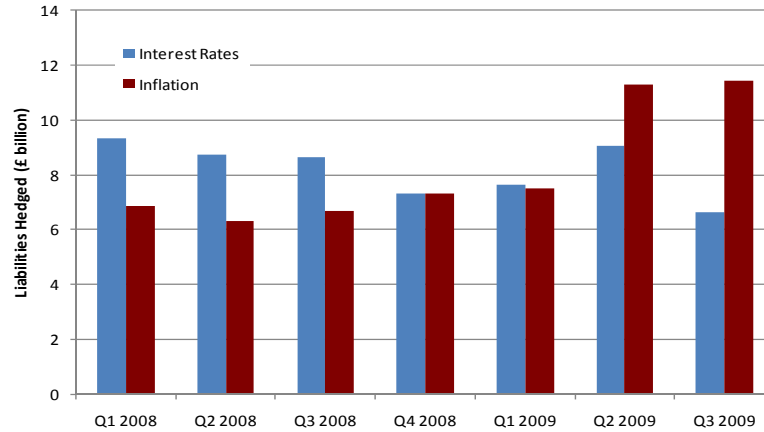


## 6. Conclusion

The fact that we are now in an environment of record deficits demonstrates that there is still a lot of work left to do for the whole pensions industry. Citing **Jerome Melcer**, Partner at LCP is quoted as saying in **Accounting for Pensions 2009** "The disparity in pension performance between those that took steps to reduce risk and FTSE 100 companies generally raises the question of whether some companies are paying sufficient attention to their pension risks".

Despite the fall in transaction volumes towards the end of last year which was a result of many factors including the bankruptcy of Lehman Brothers, a major swap counterparty, some parts of the market have picked up. According to the **F&C LDI Survey**, **£11.4billion** of liabilities were hedged with respect to inflation during the third quarter of the year compared with only **£6.7 billion** the year before. This was a direct result of the pension schemes taking advantage of low inflation levels.

**Chart 6: Change in total amount of liabilities hedged since beginning of 2008.**



Source: F&C LDI Survey

The past year has forced pension funds and their advisors to seek out new and innovative ways to evolve LDI so that it can tackle issues such as unattractive swap levels and counterparty risk. LDI has moved far beyond the early swaps-only transactions and LDI pooled funds and we expect this progress to continue over 2010 as market uncertainty makes liability driven investment strategies more necessary than ever. Pension funds and their trustees need to fully understand their capacity for risk, the impact of their current risks and set a framework for managing that risk going forward. This framework should also enable them to assess other potential investment opportunities as they arise, for example gilts, swaps, swaptions, secured leases, ground rents, social housing or any other sources of long-dated inflation linked cashflows.

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