A brief guide **to LDI in Ireland**

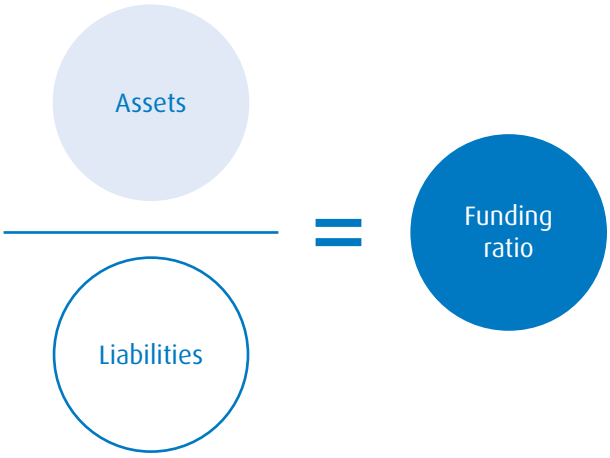
BMO Global Asset Management

The funding ratio

Defined benefit pension schemes' financial health can be measured using a simple metric known as the funding ratio.

This is calculated by dividing the value of the scheme's assets by the value of its liabilities and converting to a percentage. If a scheme has a funding ratio of 100% it is described as fully funded, less than 100% and it has a funding deficit, more than 100% and it has a funding surplus.

Historically, the pensions industry has focussed on the assets and on making them grow as much as possible, in the belief that this will, over the long term, lead to a strong funding position. However, the value of the liabilities can be highly volatile with changes in liability values having a knock-on effect to the funding ratio, irrespective of asset returns. Changes to accounting rules, regulatory pressure and falling interest rates have all put more focus on the liability side of a pension scheme's balance sheet. These factors have combined to drive the popularity of liability driven investment (LDI) strategies designed to manage and minimise the volatility of pension scheme funding ratios.



"LDI is about putting a scheme's liabilities at the heart of its investment strategy, in order to minimise adverse movements in the funding ratio."

Alex Soulsby, Head of LDI,
BMO Global Asset Management

What affects the value of liabilities?

There are three key factors which will affect the value of a scheme's liabilities as follows:

Liabilities =

Inflation expectations

A large proportion of most schemes' liabilities are linked to inflation in some way. For example, they are a promise to pay a fixed future benefit adjusted for inflation between now and then. If inflation is high, the value of the resulting pension payment will be high and vice versa. When valuing the liabilities, the scheme actuary will use a measure of expected inflation (which can be derived from investment market pricing). If inflation expectations rise then the value of the liabilities will rise and vice versa.

Interest rates

Having determined the likely monetary value of the future pension payment (either a fixed or inflation-linked payment) we need to convert this into a present value in order to make a direct comparison with the market value of the scheme's assets. This process is know as "discounting" and involves applying an assumed rate of return to the known future pension payments in order to work out how much money is required today to reach the scheme's target. The greater the assumed rate of return, the less money is needed today and vice versa. The assumed rate of return is known as the discount rate. If this rate rises then the present value of the liabilities will fall and vice versa. The rate used by the actuary will be linked to market rates and is typically based on a corporate bond yield, a government bond yield or a swap yield so as markets move, the value of the liabilities change. It should be stressed that these are long-term (up to 50 years) interest rates and should not be confused with the short-term central bank rate.

Longevity

Longevity risk is the risk that the members of the scheme live longer than anticipated. If this happens, the scheme has to pay benefits for longer and thus needs more money than anticipated. Longevity is generally rising, leading to an increase in pension scheme liabilities. There are very few longevity linked investments which mean it is difficult and expensive to hedge longevity risk. The majority of LDI strategies therefore focus only on managing interest rate and inflation risk. A lot of schemes simply take the pragmatic view that longevity will continue to rise and thus target a modest funding surplus to offset this.

"LDI can be a governance challenge for many pension schemes. It is therefore important that schemes remain focussed on the big picture and avoid getting distracted by second order details. This can be done by working with a specialist LDI manager and delegating day-to-day decisions to them. At the same time, we are always happy to provide tailored training sessions to help clients improve their understanding of LDI."

Simon Bentley, Head of LDI Client Portfolio Management, BMO Global Asset Management

Quantifying the risks

If asked, most schemes would probably cite equity market risk as the biggest risk they are running. However, the impact of changing interest rates and inflation expectations can be significantly greater than the impact of equity market moves.

Key risks

The value of investments can go down as well as up as a result of market movements; changes in interest rates (and inflation expectations) and investors may get back less than the original amount invested.

The average time to payment of most pension scheme liabilities is around 20 years. A 1% fall in interest rates means we assume that the scheme earns 1% per annum less each year for 20 years, which results in a 20% rise in the liability value (i.e. you need 20% more assets today to counteract the 1% p.a. lower yield you will achieve over the next 20 years). This sensitivity to interest rates is often referred to as duration. The higher the duration (measured in years) the greater the sensitivity to change so if duration is 10 years, a 1% interest rate fall would result in a 10% liability increase and if duration is 20 years, the increase would be 20%. The same sensitivity principle can be applied to inflation, albeit not all of the scheme's liabilities will be linked to inflation.

It is worth considering the impact of equity market moves as well. Equity markets could realistically go up or down by up to 20% in a year. If a scheme has a 50% allocation to equities then this will equate to a 10% funding ratio impact (assuming the scheme is fully funded). This is clearly a smaller impact than that caused by a 1% interest rate or inflation movement.

Rewarded and unrewarded risks

We often describe equity market risk (as well as other asset class risks) as rewarded risk because the scheme has taken an active decision to run the risk in the hope of generating a premium return. Interest rate and inflation risk on the other hand is often described as unrewarded because it is inherent in the mathematics of valuing the liabilities and is not a consciously sought risk. Therefore, LDI is about managing and minimising these unrewarded risks whilst continuing to take and potentially optimise the rewarded risks.

"Not only are the interest rate and inflation risks faced by a pension scheme significant, but they are usually viewed as unrewarded risks. As a result, schemes should minimise them as much as possible."

Lianne Walsh, Head of LDI Solution Structuring, BMO Global Asset Management

"Our commitment to the Irish market is unquestionable, from the largest to smallest pension fund, we have a complete offering via pooled funds or segregated mandates to allow Irish pension schemes to reduce their unrewarded risks."

Paul Myles, Director, Institutional Business, BMO Global Asset Management

How do we manage these risks?

We can immunise a pension scheme from interest rate and inflation risks by holding assets that behave in the same way as the liabilities. So any movement in the liabilities is offset by an equal movement in the assets.

Bonds

Bonds can be used to match liabilities:

- ⊕ A bond's price rises as interest rates fall and vice versa, just like a pension scheme's liabilities.
- ⊕ Inflation-linked bonds additionally provide protection against changing inflation.
- ⊕ Bonds issued by many European governments are low risk hedging assets.

But:

- ⊖ Bond availability is limited, meaning that it is not possible to create a perfect liability match using solely bonds.
- ⊖ Bonds are capital inefficient, €100 must be spent to hedge €100 of liabilities, constraining a pension scheme's ability to invest in growth assets.

Swaps

Swaps are invaluable hedging assets, overcoming a number of limitations inherent in bonds:

- ⊕ Swaps behave like bonds in that they rise in value when interest rates fall and vice versa. Additionally, inflation swaps provide explicit inflation protection.
- ⊕ Swaps are capital efficient. They have no value on day one and therefore do not consume capital upfront. Their value rises and falls from zero rather than €100 in the case of the bond.

But:

- ⊖ It is important to set aside some assets (collateral) to cover the scenario where the swap falls in value, for example setting aside 1/3 of the value of liabilities being hedged.
- ⊖ It is also important that your LDI manager has robust processes in place for managing counterparty risk.

Counterparty risk

Swaps are commonly used over the counter (OTC) derivatives and are traded directly with market counterparties who are typically investment banks. To eliminate the counterparty risk that this would otherwise introduce, the market employs a process known as central clearing. The terms of the trade are agreed between the bank and the investor but the trade is then instantaneously given up to a central clearing house by both parties. The central clearing house then becomes the counterparty to both the bank and the investor. This means that the investor faces the clearing house rather than facing the investment bank. The central clearing model is very similar to that used within the exchange traded derivative market. Variation margin is passed between the investor and the clearing house on a daily basis so any profit or loss is settled in cash each day. In addition, all transacting parties lodge initial margin with the clearing house which provides an additional security buffer over and above the daily variation margin. The clearing house then holds several further layers of capital and is highly regulated. In addition to the elimination of counterparty risk, central clearing generally provides the lowest dealing cost and highest liquidity trading environment for transacting swaps.

Because investors must post margin, both upfront and on a daily basis if the position should fall in value, some capital must be retained in the LDI portfolio to facilitate this margin requirement (e.g. the 33% referred to in the 'Swap' section).

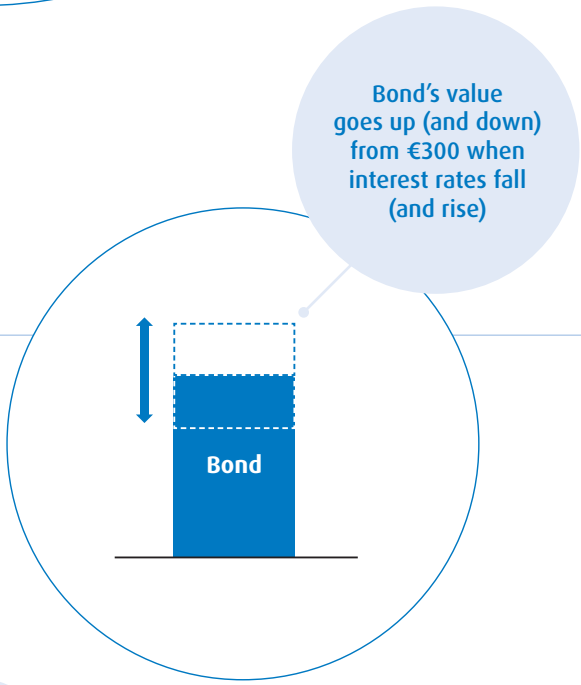
"LDI has been around for over 10 years and there are many tried and tested tools for hedging liability risks. These include swaps, bonds and bond-based derivatives."

Nicola Thorpe, LDI Client Portfolio Manager, BMO Global Asset Management

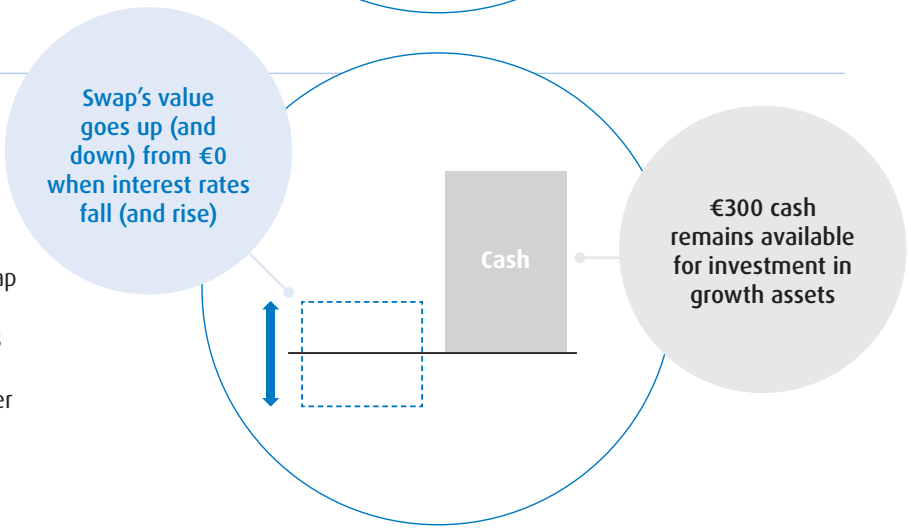
An example

Current
Let's imagine we have a €600 liability to pay in 20 years' time. 20-year interest rates are currently 3.5% so this liability has a present value of €300. If interest rates fall to 2.6% the present value of the liability rises to €360.

Matching using bonds
We could hedge this risk by buying a bond. Having paid €300 for the bond, its value would rise to €360 when interest rates fall. The liability risk has been matched but this is capital inefficient as we have tied up €300 of the scheme's assets in the bond.



Matching using swaps
Instead, we could enter into an interest rate swap. We retain the €300 and the swap has zero value initially. If interest rates fall the swap rises in value to €60, which in combination with the €300 cash, matches our liability. The swap behaves in the same way as the bond but rises and falls in value from zero rather than €300. This allows the scheme to invest the €300 in growth assets to help close the funding gap (noting earlier comments about collateral which would probably see €100 of this €300 set aside for collateral purposes).



Building the hedge

Trustees should expect a high level of support and guidance from their LDI manager to help them formulate the right strategy and portfolio structure for their individual requirements. The long-term and evolutionary nature of liability matching portfolios means that this support should be continuous.

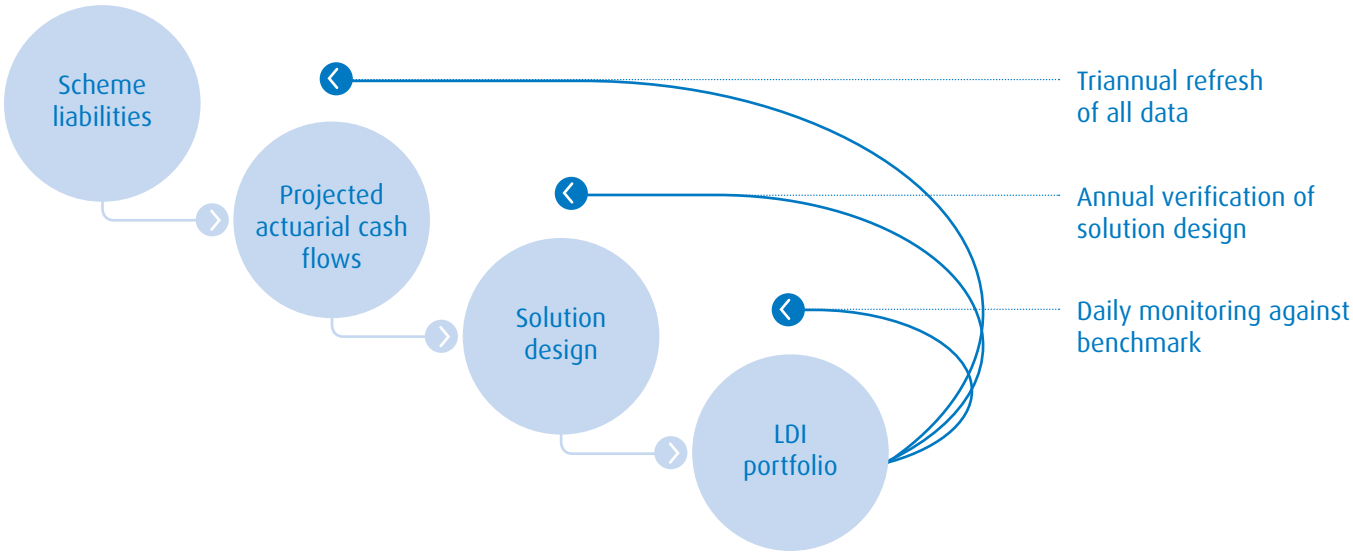
When building a liability hedge, we consider the interest rate and inflation sensitivity of a scheme's liabilities in each year and in aggregate, and then build a portfolio to match these sensitivities as closely as possible. The resulting portfolio will take account of any bond assets that the scheme may already hold to avoid doubling up on hedging that is already provided by these bonds.

LDI is not only a strategy for large pension schemes. It is appropriate for all defined benefit pension schemes and can be delivered in a variety of ways. Large schemes often use segregated portfolios and may combine LDI with other derivative based strategies. Smaller schemes, however, can use straightforward pooled funds in order to achieve an accurate and effective hedge in a governance friendly way. Investment amounts typically range from a couple of million euros up to several billion. Pooled fund ranges tend to comprise of a number of funds with different characteristics so that investors can cherry pick a blend of funds that best suit their requirements. This allows a degree of tailoring but without the complexity of a segregated portfolio.

Pooled funds, by their very nature, are designed to be appropriate for a range of investors and therefore tend to use a plain vanilla mix of interest rate and inflation swaps backed by cash collateral. Segregated portfolios may then additionally incorporate Eurozone government bonds. These bonds may offer a slightly higher yield than equivalent swaps, which enhances the return on the portfolio. This additional yield is usually the result of the credit risk associated with the government in question. Different clients have different appetites for including this type of risk in their portfolio which is why such allocations are appropriate for individual segregated portfolios but not necessarily for multi-investor pooled funds.

Once the portfolio is up and running it is important to monitor it on an ongoing basis and to refresh the portfolio design from time to time. For example, after a triennial valuation or if there are any specific changes to the scheme's liabilities.

Maintaining the effectiveness of the hedge



Considerations for the Irish market

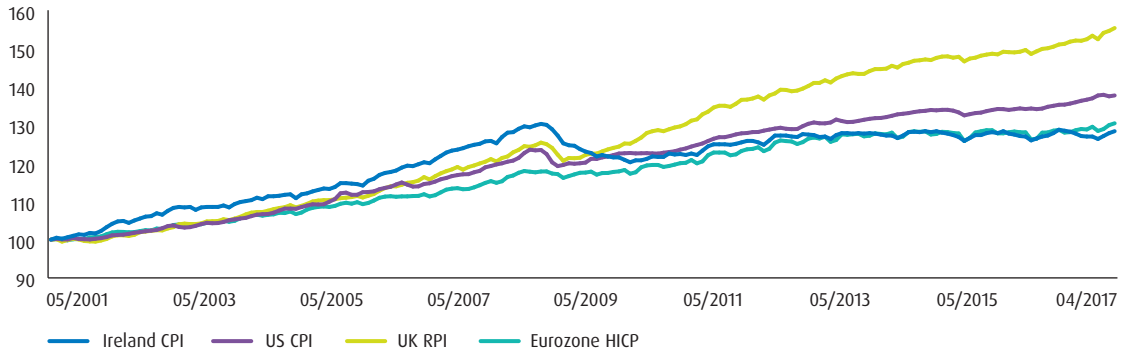
Each market contains its own idiosyncrasies and the Irish market is no different. We have summarised below the key features of the market that trustees should be aware of when setting a liability hedging strategy.

Inflation

Irish pension liabilities are generally linked to Irish inflation, however there is currently no meaningful market for investment instruments that are linked to this measure of inflation. We therefore need to invest in hedging instruments which offer a sensible proxy for Irish inflation. These tend to be swaps or government bonds which are linked to Eurozone HICPx – the Harmonised Index of Consumer Prices excluding tobacco. The correlation between Eurozone HICPx and Irish inflation is high and with Ireland being part of the Eurozone the common currency effect should result in a good and relatively stable long-term correlation.

As an aside, the National Treasury Management Agency issued its first inflation-linked bond in April 2017. This 2040 maturity bond is explicitly linked to HICPx for Ireland and was aimed at liability matching investors. Whilst the issue of a single bond does not in itself create a meaningful market it is possible that further similar issuance will follow in the future.

Regional inflation indices (rebased)



Source: Thomson Reuters Eikon, as at 14 May 2017.

Which liabilities to hedge?

The scheme actuary will typically calculate what is known as the ongoing liabilities. This values all of the liabilities using a market-based interest rate.

However, the Pensions Authority in Ireland defines a liability valuation basis called the Minimum Funding Standard (MFS). This specifies that pensioner liabilities are valued using market interest rates whereas non-pensioner liabilities are valued using a fixed discount rate linked to the scheme's expected return on its growth assets. This means that the MFS liabilities have materially less sensitivity to interest rates than the ongoing liabilities, albeit this sensitivity increases as the scheme becomes more mature. Fully hedging the ongoing liabilities will result in an over hedge relative to the MFS liabilities and vice versa.

This creates a dilemma for trustees as to which valuation basis to hedge. The answer will vary from scheme to scheme and trustees should be able to turn to their investment adviser and LDI manager for input when considering this point. For example, the scheme may elect to hedge the MFS liabilities initially but target hedging of the ongoing liabilities in the long term.

The MFS also includes the requirement to hold a 'risk reserve' which is defined as 10% of the MFS liabilities less any bonds and cash, but plus the impact of a 0.5% fall in interest rates on the value of the MFS liabilities. An LDI strategy therefore helps to reduce the risk reserve both through the deductibility of any bond and cash assets as well as through reducing the impact of a 0.5% interest rate fall.

Leaders in LDI

A market leader with a reputation for innovation, BMO Global Asset Management has a strong derivatives execution pedigree and is regarded by many clients as their derivative fund manager as well as LDI manager. We have a track record for delivering effective synthetic equity, foreign exchange and options-based solutions as well as offering the full range of traditional LDI solutions.

Forefront of the market since
2003

€100bn
of pension scheme liabilities

More than
400
clients

Leaders in LDI

BMO Global Asset Management is a leading provider of LDI solutions and has been at the forefront of the market since 2003. Our specialist team has won numerous industry awards and manages over €100bn of pension scheme liabilities for more than 400 clients, as at 31 December 2017. We are renowned within the industry for our innovation and have been first to market with a wide range of pooled fund solutions, in turn allowing schemes of all sizes to have access to strategies that have historically been the preserve of larger segregated schemes.

Team and resources

BMO Global Asset Management has 33 investors directly responsible for LDI portfolios. This includes specialists who are experts in derivatives, insurance, pensions, quantitative methods and fund management, with an average of 14 years in the industry. The team is well supported in its dealing activities by our client and business support functions. This includes a team of in-house lawyers, an independent risk oversight team, a large team of client directors supported by a client servicing team and a derivatives middle office team.

"We have always been impressed by your innovation and easy-to-understand approach to Liability Driven Investment. I've never worked with a team that is so knowledgeable, so professional and have generated so much trust and confidence."

Ben Fowler, Western United Group Pension Scheme

Award winning capabilities

Our expertise has been recognised through numerous industry awards, many of which have cited our high level of client service and support as features that set us apart from our peers.

LDI Manager of the Year 2018

Risk Management Provider of the Year 2018, 2017 and 2015

WINNER
Risk Management Award

WINNER
Risk Management Provider of the Year

WINNER
Risk Management Provider of the Year

UK LDI Manager of the Year 2018 and 2017

LDI Provider of the Year 2017, 2016, 2015, 2014, 2013 and 2012

LDI Manager of the Year 2016

LDI Manager of the Year 2013, 2012 and 2011

Past performance should not be seen as an indication of future performance.

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Telephone calls may be recorded.

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