AllenbridgeEpic
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REPORT PREPARED FOR

London Borough of Islington Pension Fund

Liability Hedging

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This report provides an explanation of liability hedging and why it is important for a pension fund. It gives a basic introduction to the theory behind liability hedging and then looks at some of the practical ways in which a pension fund can introduce a liability hedging approach into an investment strategy.

1. Understanding Liabilities – going back to basics

1.1. Local Government Pension Scheme (LGPS) **liabilities** are pension payments that the pension scheme must pay out to its members in the future. There are three types of members in the scheme:

- Pensioners (these payments are known with a relatively high degree of certainty and are already being paid out)
- Deferreds (future pensions that relate to former employees who have yet to reach retirement age, known with a reasonable degree of certainty but not yet being paid out)
- Actives (pensions that relate to current employees who are still accruing pension rights , some uncertainty about the future cash-flow)

1.2. In order to assess how much these pension payments in the future will be, the scheme actuary has to make several assumptions about the future including mortality, salary increases, inflation, demographics and regulatory changes.

1.3. Once these assumptions have been agreed, the actuary then assesses how much money needs to be put aside *today*, in order to meet that estimated cash-flow in the future. Any money put aside today can earn an investment return so the amount required today should be less than the future value of all those payments.

1.4. A prudent assumption is to say that the money invested today will be put into long-dated gilts, as a low-risk investment. Some gilts have a long time horizon (like the Scheme liabilities), and because they are issued by the UK government, they are generally assumed to be secure investments. Those gilts will pay a coupon every six months and, on maturity, they will return the principal to the investor.

1.5. In simple terms, the actuary **discounts** the value of the future liability cash-flow,taking all the future coupon payments from gilts into account. To do this, the actuary uses the current **yield** that could be earned by investing in gilts in order to work out how much money needs to be put to one side today.(In Mercer's presentation to the Pensions Sub-Committee in November 2013, the preliminary results for March 2013 valued the liabilities, on this basis, at £1.312 billion.)

1.6. This is one of the key outputs from the actuarial valuation.

1.7. This valuation methodology means that there is a direct relationship between the *present value* of the liabilities and interest rates. The higher the yield on gilts, the greater the return on the money invested, so the lower the present value of the liabilities (i.e. money needed today) will be, and vice versa. In simplified terms, this is rather like a see-saw.

Chart 1

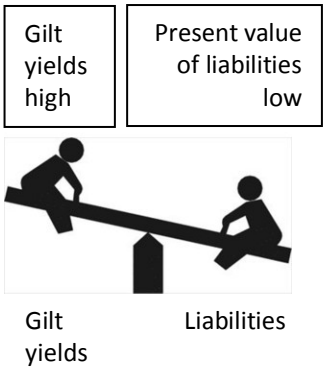
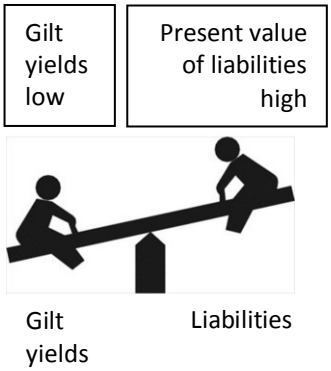


Chart 2



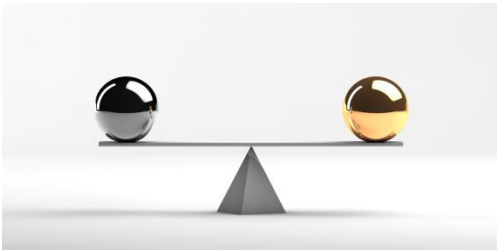
2. The Basics of Hedging ... in a Utopian World

2.1. Let us now make some bold assumptions, for the purposes of introducing the concept of hedging. Let us assume that inflation, longevity, demographics and all the other assumptions that the actuary makes are known with certainty. That would mean we would have a high degree of certainty about all the future cash-flows that the pension fund will need to make. The actuary can work out the present value of the liabilities with a high degree of confidence.

2.2. Let us also assume that there are no constraints on the local authority as to how much money can be put to one side for those future payments.

2.3. If the local authority now invests the present value of the liabilities in gilts, which earn exactly the same yield as the yield used by the actuary in determining the present value of the liabilities, the pension fund will be in a harmonious position. The see-saw will be perfectly balanced, as in Chart 3. The liabilities are represented by the silver (left hand) ball: the gilts are represented by the gold (right hand) ball.

Chart 3



2.4. If **yields rise**, the current value of the **liabilities will fall** (as in Chart 1) but **the gilt portfolio will also fall** in value by the same amount. The fund remains in harmony, as in Chart 3. If yields **fall**, on the other hand, the current value of the **liabilities will rise** (Chart 2), but the **value of the gilt portfolio will also rise** in value by the same amount. The pension fund is **fully hedged**. In other words, it is able to meet its future pension payments with certainty, independently of how the markets move. This is a highly desirable outcome for both members of the scheme and the authority.

2.5. The way the portfolio can hedge in this way is to invest in a portfolio of gilts whose average ***duration*** is broadly the same as the average duration of the liabilities. By matching the duration, both assets and liabilities have the same sensitivity to a given move in interest rates.

2.6. Unfortunately, there were a number of assumptions in the process just described which make liability hedging a much less certain strategy. Inflation, mortality, demographics etc. are all difficult to predict. An incorrect assumption in any of these variables will mean that the scheme will not be perfectly hedged even if it is entirely invested in gilts. In addition, budget constraints mean the local authority is not immediately able to top up the value of the investments to ensure a fully funded position. Because of this, the pension fund is obliged to invest in more risky assets (earning a higher rate of return than gilts) in order to reduce the *funding deficit* over time.

2.7. That having been said, a liability-hedged position is still a desirable outcome for the pension fund, and working towards this should be an ultimate goal for the Pensions Committee.

2.8. The remainder of this paper looks at some different ways to achieve this.

3. Growth versus Defensive Assets

3.1. One of the first steps is to broadly split the investments in a pension fund into two groups: growth assets and defensive assets.

3.2. Growth assets are there to help reduce the funding deficit (or protect against higher than expected inflation) by earning a higher rate of return than the gilt yield used by the actuary to value the liabilities. In the current portfolio, nearly 80% of the portfolio is invested in growth assets (equities, private equity and property).

3.3. The defensive assets are there to provide protection against adverse moves in gilt yields so that the investments continue to meet the cash-flow requirements of the pension scheme. In the current portfolio, just over 20% is invested in a corporate bond portfolio managed by Standard Life.

3.4. The scheme has invested in corporate bonds instead of gilts, because they have, for the past few years, offered an attractive yield premium over gilts. This has worked well for the pension scheme. Over the three year period to December 2013, for example, gilts return +6.9% per annum. Standard Life, however, delivered a return of +7.7% (source: WM). Please remember though that past performance is not necessarily a guide to future returns and that this excess return is a reflection of increased default risk.

4. A Review of Mercer's Recommendation for the Defensive Assets

4.1. Mercer is now recommending a new approach for the fixed income portfolio. They are suggesting moving the corporate bond portfolio to a combination of gilts and multi-asset credit. Spreads on corporate bonds, relative to gilts, have narrowed, and opportunities to add value are more likely in some of the relative plays implemented by multi-asset credit.

4.2. **What is multi-asset credit?** This is a strategy where the bond manager is given an unconstrained mandate within fixed interest assets, so has the freedom to choose

whichever bond classes they believe are likely to add value, be it emerging market debt, convertible bonds, or high yielding assets. Very often, the manager is making a relative bet on the direction of the spread between two credit segments, so these strategies aren't always as risky as the underlying bond investments might suggest. However, they do employ complex strategies and utilise derivatives in order to make speedy decisions, and this can make it harder for a lay person to unravel what is going on, than for a traditional bond portfolio.

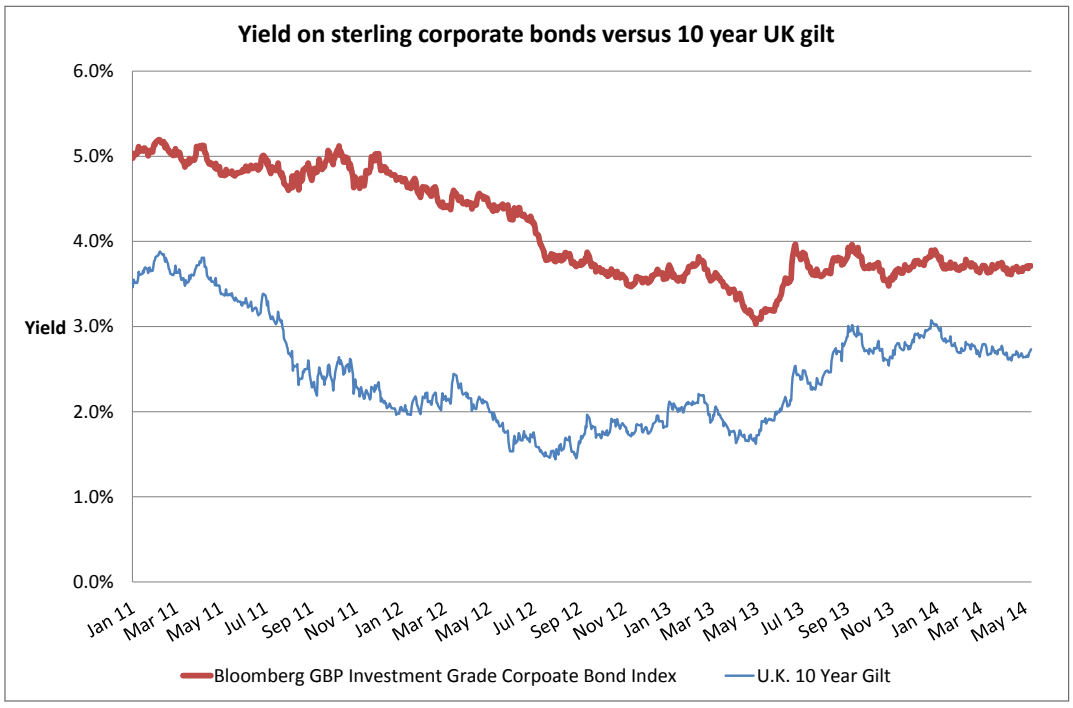
4.3. One important feature of multi-asset credit is that the **duration** of the bond portfolio is normally much lower than for a traditional portfolio (like the one currently being managed by Standard Life). This means that the new portfolio should deliver the value-added premium, relative to gilts, but it is no longer an ideal **hedge** for the liabilities. The defensive portfolio has become less defensive and the scheme is more exposed to shifts in gilt yields than before.

4.4. Mercer is therefore recommending that the multi-asset credit portfolio is **combined with a traditional gilt portfolio** which will contribute the necessary liability hedging characteristics back into the portfolio. The arguments in favour of such a move are outlined in Section 2.

5. Market Environment

5.1. Perhaps the difficult question to answer, about the move recommended by Mercer in Section 4, is when the timing of such a switch should take place. There are certainly arguments in favour of going forward with the multi-asset credit element because the excess return potential is greater than in corporate bonds in the current market environment - Chart 4 shows how the yield premium (return opportunity) has narrowed since 2011. But despite that narrowing, corporate bonds are still trading at a slight premium **relative to gilts**. Default rates remain low and many corporates are in a strong position as the economy recovers. It may still make sense to continue to earn that smaller return premium relative to gilts.

5.2. **Chart 4 – Spread in yields between corporate bonds and UK gilts**



Source: Bloomberg

5.3. **Are interest rates going to rise?** In the UK, the economy grew by 0.7% in Q4 2013, and by 1.9% for 2013 as a whole. The Bank of England expects UK GDP growth to be around 3.4% in 2014. In January 2014, unemployment fell to 7.1% which was close to the "threshold" rate of 7.0% indicated in Mark Carney's speech some six months earlier. He had at that time indicated that he would keep interest rates at 0.5% until UK unemployment fell below 7%, provided inflation did not rise above 2.5%. This was anticipated, at that time, to take place in 2016. As the threshold trigger loomed close, Carney began to suggest that forward guidance would no longer need to apply and the trigger was indeed formally abandoned in February 2014. The threat of rising interest rates, in the short term, at least, was reduced.

5.4. However, consensus over likely future interest rate levels in the medium term remains somewhat mixed. Mark Carney predicts that rates could rise as much as 3% by 2017. It certainly seems likely that a slow and gradual upward drift will be seen over the next two to three years.

5.5. The difficulty for the pension fund is that moving into a gilt portfolio today, whilst hedging the liabilities, does mean that the **capital value** of that portfolio is likely to be eroded over the next three years as interest rates rise. (Of course, rising interest rates will also mean that the value of the liabilities will fall).

5.6. One option for the Pensions Committee, instead of moving into gilts, is to retain an allocation in the corporate bond portfolio. The yield premium earned might – at least partially - compensate for the anticipated loss in capital value in the portfolio, if interest rates do indeed rise. Yet the longer duration of the corporate bond portfolio, compared with the multi-asset credit portfolio, means that the bond portfolio is still providing hedging security with respect to the liabilities.

5.7. This is a difficult timing decision, and the Committee may wish to seek the advice of (for example) Standard Life as to the optimal time to implement such a switch.

6. Other Liability Hedging Assets

6.1. Other assets can also provide some protection against moves in the value of the liabilities. Asset classes such as infrastructure and private debt offer relatively secure, long term cash-flows, and some offer an element of inflation-protection, as well.

6.2. There are a number of decisions for the Committee, before investing in these assets. For infrastructure, for example, this includes:

- Whether to access infrastructure equity or infrastructure debt (this is a question of risk versus return, the higher the risk/return the more the asset moves into the growth portfolio rather than the defensive portfolio).
- Whether to access infrastructure domestically or globally (there are diversification benefits with a global investment but this introduces currency risk).
- Whether to access the asset class via a closed-ended fund (with a finite time horizon) or an open-ended fund.

6.3. These decisions will ultimately depend on the role infrastructure and/or private debt is required to play in the portfolio and is part of a wider debate that will follow in

future meetings. Many of these assets sit on the boundary between growth assets and defensive assets and so can be introduced as part of the scheme's path to a fully funded position, if they are financed by the sale of other growth assets.

7. Summary

7.1. There are strong arguments in favour of maintaining some hedging strategies, relative to the liabilities, within the pension fund investments.

7.2. Multi-asset credit offers a greater opportunity to add value over a gilt yield in the current environment, compared to a traditional corporate bond strategy.

7.3. This, however, needs to be complemented by a longer duration portfolio of gilts in order to maintain the liability-hedging characteristics within the overall fixed income allocation.

7.4. That having been said, the timing of the move from corporate bonds to gilts (for that element of the bond allocation) may be something to review.

7.5. Alternative liability hedging assets may also have a role in the pension scheme's investments as the fund continues towards its goal of becoming a fully funded scheme.

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