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Funding DB pension schemes: Getting the numbers right

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Executive summary

There is considerable debate in the UK pensions industry as to whether the "gilts plus" valuation method remains appropriate for valuing Defined Benefit pension schemes in current market conditions.

In this paper we explore this issue at a high level:

- We look at the "gilts plus" method, consider how some alternative methods work, and consider their respective advantages and disadvantages.
- We demonstrate that liabilities and contribution requirements have increased over many years, regardless of which method is used, although it is true that the increases shown by some methods (notably "gilts plus") are greater than other methods.
- We show that different methods are suitable in different circumstances, and the most appropriate method depends on the underlying objectives and strategy that the pension scheme has. There are many situations where "gilts plus" remains the most appropriate method, but equally there are situations where its use should be questioned.
- We explain that a key flexibility that exists within the "gilts plus" method is to vary the "plus" to allow for current market conditions, but we also recognise how difficult that can be in practice.
- We suggest that trustees, sponsors and scheme actuaries remain open to the possibility of other methods, as well as the possibility of varying the "plus" to a greater extent than has typically been done in the past.

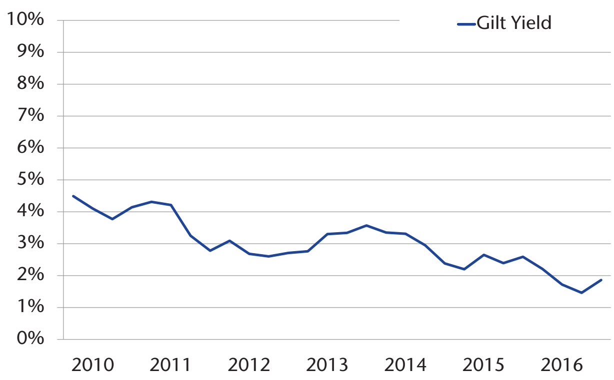
What is the underlying issue

The primary issue driving this debate is that gilt yields have again fallen to record lows. Although yields have been falling for over two decades, at certain times they fall faster than others, and in the first nine months of 2016 the yield on 20 year gilts fell by over 1% (see Chart 1).

As yields fell, the value placed on pension scheme liabilities increased, particularly for those schemes that set their discount rates as a margin above gilt yields. With a typical pension scheme seeing liabilities increase by around 15-20% for each 1% fall in yields, the fall in yields since the start of the decade has added around 50% to many schemes' liabilities. Asset prices simply haven't kept up, and deficits have therefore ballooned.

These increases in liabilities and deficits, particularly during 2016, re-ignited the argument about whether the "gilts plus" method remained suitable. It is a debate that has happened before, most recently in 2011 when yields also fell sharply, but at that time the main focus was on whether the "plus" in the method should increase. This time around there is more consideration of whether the method itself is simply broken.

Chart 1 – Gilt yields



Source : Bank of England

Is the criticism of the "gilts plus" method fair?

There are two main reasons why the "gilts plus" method might be used, which reflect the objectives of the pension scheme. For one of these the method remains absolutely valid. For the other it needs more careful thought.

The "close to secure" approach

The first way that the method is used is where a scheme has an objective to be at, or within a certain distance of, buyout or self-sufficiency.

A typical example would be a scheme that has a weak sponsor and would like to be fully funded in a way that is, for example, 10% away from being able to buy out. The rationale for that may be that such a gap is within the ability of the sponsor to pay, so leaves the scheme relatively secure. But such an objective is not just the preserve of weak sponsors. There are many schemes with strong sponsors that want to reduce reliance on the business over time and are hence using a self-sufficiency type measure.

Whatever the reason, faced with an objective of being "close to buyout", the actuary is likely to translate that into a target of being fully funded on something like a "gilts + 0.5% p.a." basis. Importantly, the assumption of "gilts + 0.5 p.a." has nothing to do with the expected return on the current assets, and everything to do with the covenant and long term target. The assumption in the Recovery Plan may be (and probably should be) substantially higher.

In such circumstances, falls in gilt and bond yields should, and do, flow straight through increases in the liabilities. As the cost of buyout increases, to target being within a certain distance means that the target also needs to increase.

The "prudent returns" approach

The second way that the method is used is by using "gilts plus" as a way of estimating a prudent expected return on the scheme's portfolio of assets.

The justification for this is that whatever returns are available on risk-free assets (i.e. gilts) investors will only buy higher risk assets (e.g. corporate bonds, equities etc) if the expected return on those assets is higher. If that expected return is too high then demand for those assets will increase, the price will rise and hence the expected return will fall. And vice versa. So the additional expected return over and above risk free assets is moderated by markets, and over long periods can be sensibly estimated. As an example, the expected return on equities over and above gilts (the "Equity Risk Premium") is often quoted as being around 4-5% p.a.

Knowing this, trustees can set a prudent assumed return on the portfolio that is somewhere above gilts, but somewhere less than the expected return. The overall margin above gilts reflects not only the mix of assets, but how much of the excess return trustees want to anticipate, which in turn should be based on how strong the covenant is.

It is this second approach that should be subject to most scrutiny, and specifically trustees should be asking a simple question:

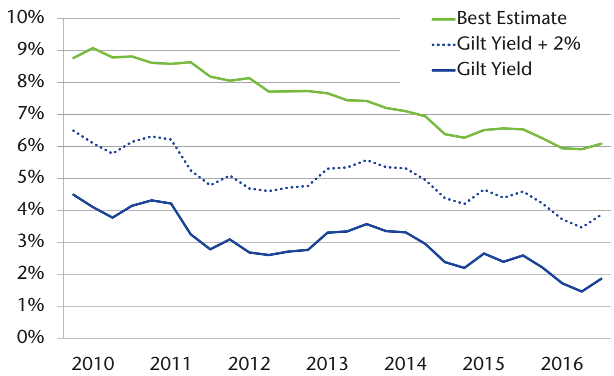
- Is "gilts plus a margin" a reasonable way to approximate a prudent assumed return on our portfolio?"

To answer that it is worth considering Chart 2, which shows three lines:

- Gilt yields
- Gilt yields plus 2% p.a. (a typical prudent assumption for a growth portfolio for UK pension schemes)
- Best estimate returns on a diversified portfolio of growth assets

What is clear from Chart 2 is that while expected returns have fallen over the long term by a similar amount to gilt yields (i.e. justifying the explanation outlined above), over shorter periods the two can get out of synch. As a result, the amount of prudence in the gilts plus assumption (i.e. the gap between the blue line and the blue dotted line) changes over time, sometimes by quite a lot. Therefore the "gilts plus 2%" assumption used in this example actually provides a very different measure of prudence at different dates.

Chart 2 – Gilt yields and expected returns



Source : Bank of England, Aon Hewitt

What are the alternatives?

For schemes that want to base their valuations on a prudent assessment of future returns (as opposed to "close to secure") there are a number of options.

The first is to vary the "plus" in the "gilts plus" method. There are strong reasons why the "plus" should vary from one valuation to the next, as market conditions change and the prudence implied by a fixed margin can change substantially. However, there are also barriers to change, including substantial anchoring effects:

- The margin will have been negotiated at length between trustee and sponsor, and neither party may feel inclined to re-open that debate. Whether the margin should be going up or down, one party or the other will want to resist.
- The margin will have been documented in various places, including the Statement of Funding Principles and possibly member communications.
- The Regulator will have been advised of the margin and will be expecting consistency from one valuation to the next.
- And the trustees will have monitored the funding position based on this margin, at least annually and probably quarterly, so re-enforcing its relevance.

These are real barriers, and they apply to actuaries as well as trustees and sponsors. But if the "gilts plus" method is to survive as a valid way of estimating prudent returns then this flexibility is needed.

Other than being flexible with the "gilts plus" method, there are other methods that schemes may want to consider. Three that are currently being actively considered are:

- "Best estimate minus"
- Stochastic valuation
- Cashflow driven

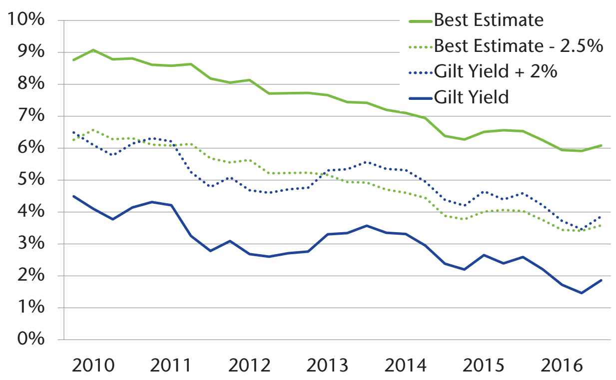
"Best estimate minus"

If the aim of the trustees is to set a prudent assumption for expected returns, then an alternative to adding a margin to gilt yields is to deduct a margin from best estimate returns. Chart 3 shows what that might look like, based on a deduction of 2.5% p.a.

On the face of it the green dotted line looks like a better way of estimating a prudent return – the level of prudence relative to expected returns remains constant over time. However, a key factor that needs to be borne in mind is that while a "gilts plus" discount rate can be objectively calculated at any point in time (gilts yields are published daily), a "best estimate minus" discount rate depends on a subjective view of best estimate returns. The green line below is Aon Hewitt's view as it was from 2010 to 2016. A different consultant (or manager or other organisation), would have a different view.

It's also worth re-iterating that both dotted lines are based on fixed margins. If the "gilts plus" method is used more flexibly, by adjusting the "plus" depending on market conditions, then it can easily be used to replicate the "best estimate minus" line.

Chart 3 – Alternate ways to set discount rates



Source : Bank of England, Aon Hewitt

Stochastic valuation

In both of the above methods a lot of time is spent working out the value of the liabilities, or Technical Provisions. But the value of the liabilities is not the point of a valuation – what is important is whether the assets are enough to pay members' benefits, and if they are not then what additional contributions are required. A stochastic valuation can answer those questions without ever placing a value on the liabilities.

The first step in a stochastic valuation is to project the assets of the scheme over time, allowing for the benefits that are paid out every year, the contributions that are paid in, and using economic models to generate parameters such as future asset returns and inflation. Thousands of simulations can be run, and based on those simulations it is possible to estimate how likely it is that the assets in the scheme, plus the contributions due, will be enough to pay the benefits.

If the modelling suggests you have a high enough chance of paying the members' benefits (perhaps in more than 70% of the simulations) then you are largely done. You don't need to do anything differently, and you've not actually placed a value on the liabilities.

However, if the modelling shows a chance of success that's not high enough (perhaps under 50%) then the question is how much more in contributions needs to be put in, and over what timescales, to increase that to a high enough chance. You can then model different contribution patterns (and different investment strategies if you wish) until you determine a contribution and investment strategy with an acceptably high chance of paying benefits.

On the face of it this avoids two interim steps – the need to make assumptions and the need to place a value on the liabilities. Unfortunately it's not that simple. There are still assumptions being made - it's just that they're hidden within the stochastic model, and they are an awful lot more complicated than in other methods. And although you might not need to place a value on the liabilities to work out your contributions, you still need one to disclose to the Regulator, the PPF and the members.

Cashflow-driven

The final method to consider is a cashflow-driven valuation. The principle underlying this is that the scheme invests in income-generating assets that generate cashflows that closely match the liabilities. Those might be gilts, swaps, bonds, property, infrastructure and so on. Those assets have implied yields, and those yields can then be used to discount the liabilities of the scheme. If that is done correctly, and if the cashflows are sufficient to pay the benefits, then the discounted value of the liabilities should be the same as the market value of the assets.

As an aside, a "gilts plus" method with a "plus" of zero is a special case of the cashflow driven valuation, and works well if the Scheme's matching assets are all gilts.

Such an approach removes the need to set a subjective assumption, as the discount rate is the yield on the underlying assets themselves.

However it does have drawbacks:

- The major limitation is that it only really works for schemes that have (or are expected to have) the necessary income-generating assets. For schemes with substantial growth portfolios it doesn't make sense.
- Even for schemes with this type of strategy, substantial underfunding causes difficulties for the method, as the method assumes that assets can be purchased at the same yield as existing assets, which clearly may not be the case.
- Finally, you need other subjective assumptions, such as how you allow for default risk, as well as what you assume about re-investment, as in practice not all of the cashflows from your portfolio will exactly match your liability payments. These can be very material, and should not be discounted.

So while the method has its advantages, it needs the right type of scheme and strategy to work well.

What else do I need to know about these methods?

Understanding the methods in detail requires more space than is available here, but it is worth flagging a few themes:

Complexity

It is clearly the case that some methods are more complex than others, and in particular the stochastic method involves substantially greater modelling than the others. However, many schemes already use such techniques for their investment strategy reviews, so also using it for funding discussions may not be a big step.

Subjectivity

Some methods appear more subjective than others, and a key feature of the cashflow driven method is that the discount rate is set objectively, based on the underlying assets. Even in that method, however, there is subjectivity in other assumptions such as default rates.

All of the other methods do have subjective elements, whether it is the "plus" in "gilts plus", the "best estimate" in "best estimate minus", or the overall stochastic model in the stochastic method. In the latter there is the additional subjectivity of deciding what chance of success is acceptable, as a relatively small change in the required percentage can have a substantial impact on the emerging contribution requirements.

Hedging

Hedging is about controlling the volatility of assets compared to liabilities. In the "gilts plus" method that is well understood, while in the cashflow method it is automatic, as changes in yields impact on assets and liabilities in the same way.

In the other two methods ("best estimate minus" and stochastic) hedging can't operate as effectively, as the primary driver of liability changes is movements in long term expected returns, and there are no market instruments that can hedge against that. The good news is that in the short term the two measures are more stable than the "gilts plus" method, as can be seen by the discount rates in Chart 3. However, over the longer term the methods can still see substantial changes in liability which it isn't possible to hedge effectively.

Monitoring

Many schemes now monitor funding levels on a frequent basis. With different valuation methods this brings different challenges.

Monitoring using the "gilts plus" method is easy because gilt yields are published every day. But best estimate returns, stochastic models and composite yields from a portfolio of assets are not generally available on a daily basis. So you have to do something else.

That something else might be "not bother looking" – and there are certainly some schemes that take the view that monitoring on a daily basis is pointless and spurious. Alternatively, a scheme could create a proxy that can be used. For example, if the scheme is using a best estimate return then you could re-set the return assumption once a quarter, but in the meantime assume it goes up and down in line with something available in the market such as a 10 year inflation forecast.

What does the Pensions Regulator think?

The Regulator's general view is that there is enough flexibility in the regulatory system for schemes and sponsors to achieve what they need to achieve.

That said, the Regulator does benchmark schemes using a "gilts plus" approach, which means anything else doesn't easily fit. And they do expect schemes to be consistent from one valuation to next, so making any change can be tricky.

Because of this, a scheme using a different method needs to be able to give some additional explanation. But in the end if it is doing something appropriate, for good reason, then the Regulator should not be a barrier.

So what should I do?

The right action for each pension scheme depends on their circumstances, and in particular what their long and short term objectives are. Objectives should drive funding methods, not the other way round.

Whichever method you use, it is worth remembering that in the end valuation methods do not pay benefits – only contributions and investment returns do that. So when expected investment returns have fallen (which they have) the amount of assets that we need to pay benefits goes up, and usually contributions need to increase. The only question is the extent of the increases.

In practice we expect schemes undertaking valuations this year to spend more time considering different approaches, as a way of looking at the scheme funding through more than one lens. That might be a completely different method, such as the ones outlined above. Or it might be just varying the "plus" in the "gilts plus" method. Either way, we think that just running a valuation on the same method and assumptions that were used previously will become less common.

Contacts

If you have any questions, please speak to your usual Aon consultant or contact one of the following members of our team:

Paul McGlone, Partner
+44 (0)1727 888613
+44 (0) 7779 702183
paul.mcglone@aonhewitt.com

Becky McGowan, Partner
+44 (0)1372 733740
+44 (0) 7733 263825
rebecca.mcgowan@aonhewitt.com

Jay Harvey, Partner
+44 (0)117 900 4439
+44 (0) 7834 259194
jay.harvey@aonhewitt.com

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Registered No: 4396810.

Registered Office:
The Aon Centre
The Leadenhall Building
122 Leadenhall Street

London EC3V 4AN

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