The Trustee toolkit downloadable

Funding your DB scheme

Tutorial four: Impact of assumptions

By the end of this tutorial you will better understand:

- how changes in the assumptions affect both the value of the liabilities and the scheme's funding level
- different types of assumptions used
- what influences the prudence of approach when setting assumptions under the scheme funding measure
- where trustees can find statements from The Pensions Regulator (TPR) on the use of assumptions

This tutorial is part of Scenario two.

Glossary

A detailed glossary of technical terms can be downloaded from the Resources tab when you log in at www.trusteetoolkit.com

The Pensions Regulator

Impact of assumptions

In this tutorial we will look at how changes in the assumptions used affect the value of the scheme liabilities by way of two case studies.

Integrated approach to risk management

As the trustees go about setting their statutory funding objective they need to take account of the scheme and employer's characteristics, such as investment risk and the strength of the covenant. They should do so in an integrated manner because changes to any one of the employer covenant, investment performance and scheme funding level will impact the other two.

Trustees need to understand risks across all of these strands so they can set parameters for each within which they will seek to manage the scheme. These will set the balance between risks which the trustees think appropriate given the circumstances of both the scheme and the employer.

Setting assumptions

Under the statutory funding objective rules, the setting of assumptions is the trustees' responsibility after taking the advice of their scheme actuary. However trustees will, depending on the scheme's rules, need to consult with the employer to secure its agreement to the assumptions they have chosen.

When the trustees come to setting those assumptions, they need to bear in mind that the legislation requires them to set prudent assumptions. Moreover TPR has stated that trustees should be particularly vigilant when economic conditions might have reduced the strength of the employer covenant.

'Market-related' valuations

Most valuations are 'market-related', ie they look at the current market value of the assets and use 'market' return for calculating liabilities.

When setting the market discount rate for valuation of the liabilities, the starting point could be the current yield on (long term government bonds) long term gilts or the overall expected return of the assets held by the scheme.

Whichever approach is adopted, trustees should ensure that the discount rate is set at a prudent level in view of the scheme's investment strategy and the employer covenant, and they should satisfy themselves that the employer is sufficiently strong to support a range of likely adverse outcomes from the level of risk being run by the scheme.

Interaction of assumptions

All the assumptions they make interact with each other. The most important thing is to recognise that the way in which the financial assumptions relate to each other has a more important effect than each assumption on its own. For example, you need to consider the rate of salary increases and the discount rate together, and it's the difference between the two that really counts.

Example

Some trustees assume that the discount rate will be 2% pa higher than the rate of salary increases.This is a key decision. Having decided on that 2% pa difference, the effect on liabilities will be very similar whether the actual assumptions are 6% pa and 4% pa or 7% pa and 5% pa. On the other hand, if the difference were 3% pa (eg 6% pa and 3% pa) rather than 2% pa (eg 6% pa and 4% pa), the effect would be a marked reduction in the liabilities.

Case study: Forest Group Hotels

This case study follows the Forest Group Hotels scheme which is a medium sized, ongoing DB scheme. We will look at a smaller closed scheme later in this tutorial. The scheme has assets of £180 million. We will look at four assumptions and how changes in these affect the value of the scheme's liabilities.

- Discount rate (investment return): 5%, 6% and 7%
- Salary increase: 3.5%, 4% and 4.5%
- Price inflation: 2.5%, 3% and 3.5%
- Length of retirement: 24, 25 and 26 years

Using the middle options for all four assumptions, the scheme has liabilities of £210 million. This is broken down to:

- Active members: £90 million
- Deferred members: £50 million
- Pensioner members: £70 million

Changes to the discount rate

We will look at changes to the discount rate first whilst keeping the middle options for each of the other assumptions.

- Salary increase: 4% pa.
- Price inflation: 3% pa.
- Length of retirement: 25 years.

What would be the scheme's liabilities for each of the assumed discount rates?

- With an assumed discount rate of 5% pa, the Forest Group scheme's liabilities would be £281 million, leaving them with a deficit of £101 million. This is the strongest of the three example assumptions.
- With an assumed discount rate of 6% pa, the Forest Group scheme's liabilities would be £210 million and there will be a deficit of £30 million.
- With an assumed discount rate of 7% pa, the Forest Group scheme would have liabilities of only £161 million and there would be a surplus of £19 million. This is the weakest of the three example assumptions.

If the trustees of the Forest Group scheme are prudent and assume a 5% pa discount rate, the deficit will be bigger. If they are more optimistic and assume a 7% pa discount rate, the scheme will have a surplus.

Changes to salary increases

We will now look at changes to salary increases whilst keeping the middle options for each of the other assumptions.

- Discount rate: 6% pa.
- Price inflation: 3% pa.
- Length of retirement: 25 years.

What would be the scheme's liabilities for each of the assumed salary increase rates?

- With an assumed salary increase of 3.5% pa, the Forest Group scheme's liabilities would be £205 million and their deficit would be £25 million. This is the weakest of the three example assumptions.
- With an assumed salary increase of 4% pa, the Forest Group scheme liabilities would be £210 million and the deficit would be £30 million.
- With an assumed salary increase of 4.5% pa, the Forest Group scheme liabilities would be £215 million and the deficit would be £35 million. This is the strongest of the three example assumptions.

This shows that the bigger the assumed salary increase is, the bigger the deficit will be. However, assumptions about salary increases in this case have a much smaller effect than assumptions about the discount rate.

Changes to price inflation

We will now look at changes to price inflation whilst keeping the middle options for each of the other assumptions.

- Discount rate: 6% pa
- Salary increase: 4% pa
- Length of retirement: 25 years

What would be the scheme's liabilities for each of the assumed price inflation rates?

- With an assumed price inflation of 2.5% pa, the Forest Group scheme's liabilities will be £187 million and their deficit would be £7 million. This is the weakest of the three example assumptions.
- With an assumed price inflation of 3% pa, the Forest Group scheme liabilities will rise to £210 million, and the deficit will become £30 million.
- If price inflation is assumed to be 3.5% pa, the Forest Group scheme's liabilities will rise to £237 million and the deficit will become £57 million. This is the strongest of the three example assumptions.

The trustees of the Forest Group can see that the bigger price inflation is assumed to be, the bigger their liabilities will be too. In the case of this scheme, the inflation rate has a greater effect on the size of the liabilities (and therefore on the deficit) than the rate for salary increases but this is not always the case.

Changes to length of retirement

In this final example for Forest Group Hotels, we will look at changes to the length of retirement whilst keeping the middle options for each of the other assumptions.

- Discount rate: 6% pa
- Salary increase: 4% pa
- Price inflation: 4% pa

What would be the scheme's liabilities for each of the assumed lengths of retirement?

- If we assume that all the Forest Group scheme members will be retired and in receipt of a pension for 24 years, then the scheme's liabilities will be £204 million and the deficit will be £24 million. This is the weakest of the three example assumptions.
- If we assume that the length of retirement will be 25 years, the Forest Group scheme's liabilities will be £210 million, resulting in a deficit of £30 million.
- If we assume 26 years for the length of retirement, then the Forest Group scheme would have liabilities of £216 million and a deficit of £36 million. This is the strongest of the three example assumption.

The length of retirement is a way of expressing the effect of the mortality rate. The longer the retirement, the longer we expect a pension to be paid, the greater the liability (and the deficit). In the range of assumptions here, the variation in the length of retirement considered has much less impact than the variation in the discount rate.

Case study: Hartington scheme

This case study follows the Hartington scheme which is very different to the Forest Group Hotels scheme. This scheme is closed to new entrants and future accrual. It is smaller and very mature, the average age of the members is 48 years old. The scheme has assets of £50 million.

We will look at the same four assumptions and how changes in these affect the value of the scheme's liabilities. Note that the ranges are slightly different in this case study which will be explained as we look at the assumptions.

- Discount rate (investment return): 4%, 5% and 6%
- Salary increase: 3%, 3.5% and 4%
- Price inflation: 2.5%, 3% and 3.5%
- Length of retirement: 23, 24 and 25 years

Using the middle options for all four assumptions, the scheme has liabilities of £65 million. This is broken down to:

- Active members: £0 million
- Deferred members: £25 million
- Pensioner members: £40 million

Changes to discount rate

We will look at changes to the discount rate first whilst keeping the middle options for each of the other assumptions.

- Salary increase: 3.5% pa
- Price inflation: 3% pa
- Length of retirement: 24 years

What would be the scheme's liabilities for each of the assumed discount rates?

- Assuming a discount rate of 4% pa, the Hartington scheme's liabilities would be £76 million and the deficit would be £26 million. This is the strongest of the three example assumptions.
- If the Hartington scheme's trustees assumed a discount rate of 5% pa, the liabilities would be £65 million and the deficit would be £15 million.
- An assumed discount rate of 6% pa would mean liabilities of £56 million liabilities and a deficit to £6 million. This is the weakest of the example three assumptions.

The Hartington trustees consider a different range of assumptions from those used by the Forest Group trustees. As a high proportion of the members are already receiving pensions, a high proportion of their fund may be in gilts and bonds to match those liabilities. This has the effect of reducing the expected investment return and should be reflected in the discount rate. Even if the trustees assume a discount rate of 6%, the scheme would still show a deficit.

Changes to salary increases

We will now look at changes to salary increases whilst keeping the middle options for each of the other assumptions. The results of the change in assumption is very different in this scheme.

- Discount rate: 5% pa.
- Price inflation: 3% pa
- Length of retirement: 24 years

What would be the scheme's liabilities for each of the assumed salary increases?

- If the salary increase was assumed to be 3% pa, the liabilities would be £65 million and the deficit would be £15 million. In this scheme this assumption has no impact.
- If the salary increase was assumed to be 3.5% pa would give the Hartington scheme liabilities of £65 million, and a deficit of £15 million. In this scheme this assumption has no impact.
- If the salary increase was assumed to be 4% pa, the Hartington scheme would have £65 million liabilities and a deficit of £15 million. In this scheme this assumption has no impact.

Changes to this assumption has no impact in this scheme because all the members are either deferred or pensioners, so there are no salary increases to be taken into account. Salary increases are only relevant for active members. In other words, where there are no active members, there is no need for a salary increase assumption.

Changes to price inflation

We will now look at changes to price inflation whilst keeping the middle options for each of the other assumptions.

- Discount rate: 5% pa
- Salary increase: 3.5% pa
- Length of retirement: 24 years

What would be the scheme's liabilities for each of the assumed price inflation rates?

- If price inflation was assumed to be 2.5% pa, the liabilities would be £60, and there would be a deficit of £10 million. This is the weakest of the three example assumptions.

- If price inflation was assumed to be 3% pa the Hartington scheme would have £65 million liabilities and a deficit of £15 million.
- If price inflation was assumed to be 3.5% pa, the Hartington scheme liabilities would be £70 million and they would have a deficit of £20 million. This is the strongest of the three example assumptions.

The assumptions for price inflation are likely to fall in the same range for both the Hartington and Forest Group schemes. The inflation rate assumption is the only one likely to be unaffected by the characteristics of the scheme in question.

In the case of these schemes the size of the liabilities and the deficit are affected by the assumption in a similar way. This will not always be the case as the impact of the inflation assumption varies according to the scheme.

Changes to length of retirement

We will now look at changes to the length of retirement whilst keeping the middle options for each of the other assumptions. The range of assumptions about retirement length used for the Hartington scheme reflects the age and employment status of the members.

- Discount rate: 5% pa
- Salary increase: 3.5% pa
- Price inflation: 3% pa

What would be the scheme's liabilities for each of the assumed lengths of retirement?

- If we assume that the Hartington scheme's members will be retired for 23 years, the liabilities will be £63 million and there would be a deficit of £13 million. This is the weakest of the three example assumptions.
- If we assume that the Hartington scheme's members will be retired for 24 years, the scheme will have liabilities of £65 million and a deficit of £15 million.
- If we assume that the Hartington scheme's members will be retired for 25 years, the scheme will have liabilities of £67 million and a deficit of £17 million. This is the strongest of the three example assumptions.

As the Hartington scheme's members are either retired or close to retirement they are considerably older than the Forest Group members.

Younger people are more likely to benefit from advances in medicine, so the younger a membership is, the longer the members are likely to live in retirement, given the same retirement age. So the range of possible assumptions for the Hartington scheme is lower, which reduces the liabilities.

In other words, the mortality rate assumption in a scheme with older members is likely to be weaker than one with younger members.

Combined impact: Forest Group scheme

As we worked through each assumption we said which one was the weakest and strongest.

If the trustees choose the weaker assumptions in each of these examples, the scheme could be shown to have a surplus of £42 million. Conversely, if they choose stronger assumptions in each of these examples, the scheme could be shown to have a deficit of £160 million.

Remember that the difference between assumptions can be as important as any one assumption on its own and that assumptions should be chosen prudently and have regard to the strength of the employer covenant and the level of investment risk in the scheme.

Combined impact: Hartington scheme

As we worked through each assumption we said which one was the weakest and strongest. Appropriate assumptions for one scheme may not be appropriate for another. For example, the Forest Group trustees may decide to use the relatively weaker assumptions in this example for discount rate because 43% of their liabilities relate to actives and for those they may feel they can afford a long term risk.

Hartington has no actives and the scheme is very mature. As such they may not wish to take any equity risk. This is why we used a lower range of possible assumptions in the example. If the Hartington scheme trustees choose the weaker assumptions in each of these examples, the scheme could be shown to have a deficit of £1 million. Conversely, if they choose stronger assumptions in each of these examples, the scheme could be shown to have a deficit of £37 million.

Remember that the difference between assumptions can be as important as any one assumption on its own and that assumptions should be chosen prudently and have regard to the strength of the employer covenant and the level of investment risk in the scheme.

The role of TPR

Although there is some flexibility in how the trustees set their assumptions, the law requires that these assumptions must, taken overall, be chosen prudently taking into account the scheme and employer circumstances.

Code of practice

TPR has issued a code of practice on the funding of DB schemes. The code sets out matters that trustees ought to consider in setting their assumptions. It can be viewed at www.tpr.gov.uk/code3.

Employer covenant

When setting assumptions a further factor is the strength of the employer covenant. TPR has stated in its guidance that it considers it essential that the trustees form an objective assessment of the employer's financial position and prospects so that they can understand

its ability to continue to fund the scheme's benefits. The guidance can be viewed at www.tpr.gov.uk/covenant-guidance.

If the employer covenant is weak, it is less likely to be appropriate for the trustees to invest in assets with higher expected investment returns. This is because such assets tend to have volatile values and the employer is less likely to be able to pay sufficient contributions to recover any significant worsening in the financial position of the scheme caused by poor asset returns.

If the expected investment return is lower, then the discount rate used to calculate the present value of a scheme's liabilities should be lower.

Sustainable growth

Trustees do need to recognise that an employer may have plans to invest in the sustainable growth of its business and may wish to prioritise this over making funding available to the scheme. In this case trustees will need to understand how this impacts on the employer's covenant to the scheme. It is possible that this investment by the employer might strengthen its covenant in turn helping trustees to achieve their objective to pay promised benefits as they fall due.

The amount of risk taken in setting the assumptions will affect the ability to balance scheme funding with the employer's plans for sustainable growth.

Length of retirement

In September 2008 TPR published guidance on assumptions to be used when considering the length of retirement. The guidance aims to help trustees get to grips with what prudence means in the context of choosing mortality assumptions, and to highlight that trends in mortality have changed significantly in recent years as pension scheme members appear to be living longer and longer in retirement. The mortality assumptions guidance can be viewed at www.tpr.gov.uk/assumptions.

TPR's statements

Each year TPR sets out their key messages on current market conditions for schemes carrying out valuations in that year, and how trustees and employers can agree appropriate funding plans. Statements can be found at www.tpr.gov.uk/statements.

Annual returns

Schemes have to fill in annual returns to report their funding position to TPR. It is as a result of considering these returns that TPR determines whether or not to request further information regarding the funding of a scheme.

In scrutinising valuations and recovery plans TPR will consider whether, in its view, the assumptions and level of investment risk are sufficiently prudent in the light of the strength of the employer covenant.