THE PENSIONS TRUST – SOCIAL HOUSING PENSION SCHEME (SHPS)

Discussion of FRS 102 Assumptions

For month ends from 31 March 2024 to 28 February 2025

11 April 2024

A business of Marsh McLennan

We have prepared this report for TPT Retirement Solutions Limited ("TPT").

This report has been commissioned by TPT. The sole purpose of this report is to provide TPT with a recommended approach to deriving key assumptions when preparing accounting disclosures under Section 28 of FRS 102 for employers participating in the Social Housing Pension Scheme ("SHPS").

This report sets out a proposed approach for setting the assumptions for month ends between 31 March 2024 and 28 February 2025 ("2024/25 month ends").

The views expressed in this report are based on our latest opinions and experience of the wider practice of setting FRS 102 assumptions. This report does not contain any recommendations made specifically for any particular participating employer(s). As such, we have not taken into account any employer-specific information that we may otherwise have considered if recommending an approach to deriving assumptions on an individual employer basis. The contents of this report should not be taken as advice to individual employers as to what assumptions they should ultimately adopt, rather as generic (non-employer specific) recommendations to TPT as to what approach should be taken for setting "default" assumptions. Our understanding is that TPT's online accounting tool gives individual employers flexibility to adjust assumptions where they wish to do so.

The advice in this paper should be considered alongside the Appendix "Supporting Information on Accounting Valuation Assumptions".

The following table provides a summary of the proposed approach for setting the assumptions to use for the 2024/25 month ends, alongside the approach adopted for month ends between 31 March 2023 and 29 February 2024 ("2023/24 month ends") for comparison, along with the rationale for any changes in estimation approach.

The benefit obligations for different participating employers in SHPS will have different durations, and the financial assumptions used for each employer should appropriately reflect this.

Derivation of principal financial assumptions

	2023/24 approach	**Proposed** 2024/25 approach	Rationale for change in estimation approach
Discount rate:	Single equivalent discount rate derived using the UK Mercer Yield Curve for AA corporate bond yields and sample cashflows with appropriate duration.	Single equivalent discount rate derived using the UK Mercer Yield Curve for AA corporate bond yields and sample cashflows with appropriate duration. Updated from Prior Year to use the "expanded dataset" curve.	Updates to Mercer Yield Curve to use the expanded dataset version represent an improvement due to increased stability of the curve. Further details are set out below the tables.
Retail Price Inflation (RPI):	Single equivalent rate derived using UK Mercer implied inflation curve less an inflation risk premium of 0.3% p.a.	Single equivalent rate derived using UK Mercer implied inflation curve less an inflation risk premium of 0.3% p.a.	No change
Consumer Price Inflation (CPI):	Derived from the RPI assumption above, less a single equivalent "gap" for the expected average difference between RPI and CPI over the long term, derived assuming an RPI/CPI gap of 1.0% p.a. before 2030 and 0% p.a. from 2030.	Derived from the RPI assumption above, less a single equivalent "gap" for the expected average difference between RPI and CPI over the long term, derived assuming an RPI/CPI gap of 1.0% p.a. before 2030 and 0% p.a. from 2030.	No change
Earnings growth:	CPI plus 1.0% p.a.	CPI plus 1.0% p.a.	No change

	2023/24 approach	**Proposed** 2024/25 approach	Rationale for change in estimation approach
Deferred revaluations:	We recommend that the assumption for revaluation of deferred pensions is set equal to the relevant inflation assumption, subject to the maximum annual cap.	We recommend that the assumption for revaluation of deferred pensions is set equal to the relevant inflation assumption, subject to the maximum annual cap.	No change
Pension increases:	We propose allowing for the impact of caps and floors using a Black Scholes model with assumed annual volatility of 1.75% p.a.	We propose allowing for the impact of caps and floors using a Black Scholes model with assumed annual volatility of 1.75% p.a.	No change

Derivation of principal demographic assumptions

	2023/24 assumption	Proposed 2024/25 assumption	Rationale for change in estimation approach
Mortality: Base table	Pre-retirement: No allowance Post-retirement: 114% of S3PxA	Pre-retirement: No allowance Post-retirement: 117% of S3PxA	The base table weighting has been updated in line with the proposed assumption in the 30 September 2023 funding valuation, with the margin for prudence removed. Equivalent to using 2023 VitaCurves for individual members as provided by Club Vita adjusted for a study of the SHPS mortality experience also carried out by Club Vita.
Future improvements	CMI_2021 [S=7; 1.25%, A=0.25%, w20=0, w21=10%] for males CMI_2021 [S=7; 1.25%, A=0.25%, w20=0, w21=10%] for females	CMI_2022 [S=7; 1.25%, A=0.25%] for males CMI_2022 [S=7; 1.25%, A=0.25%] for females	Continued use of the assumption for the prior year but updated for the latest CMI_2022 model. Weighting factors have been updated to be in line with core parameters in the absence of any specific Trustee analysis. The A parameter remains unchanged and based on the Trustee specific analysis. The Trustee commissions Club Vita to provide analysis on longevity trends across TPT membership, which indicates higher annualised mortality improvement for its membership than the core CMI model.

	2023/24 assumption	Proposed 2024/25 assumption	Rationale for change in estimation approach
Commutation	75% of members take the maximum cash at retirement using Trustees notional cash commutation rates for triennial valuations as in force at 31 December 2022	75% of members take the maximum cash at retirement using Trustees notional cash commutation rates for triennial valuations as in force at 31 December 2023	No change, factors used to be updated if more recent analysis is available
Retirement	As per the most recent Technical Provisions assumptions, note all members over the assumed retirement age at the valuation date will be assumed to retire in 1 year's time for both past service liabilities and future service.	As per the most recent Technical Provisions assumptions, note all members over the assumed retirement age at the valuation date will be assumed to retire in 1 year's time for both past service liabilities and future service.	No change

Other demographic assumptions (proportions married or in a civil partnership, spouses' age difference, early retirements, turnover and no explicit allowance for transfers out etc.) are proposed to be in line with the most recent Technical Provisions assumptions.

Discount rate recommendation

We propose using single discount rates which, when used to discount the projected benefit cashflows with durations relevant to each employer, would give broadly the same result as using a full AA corporate bond yield curve to discount the same cashflows. This approach will therefore result in different single discount rates being derived for different employers, dependent on the duration profile of the relevant benefit obligations. The following table provides single equivalent discount rates by duration, derived using the recommended approach at various dates:

Duration Profiles[1]	2023/24 approach	Proposed 2024/25 approach	
	As at 31.3.23	As at 30.9.23	As at 31.3.24
6 years	4.95% p.a.	5.75% p.a.	4.75% p.a.
10 years	4.91% p.a.	5.72% p.a.	4.84% p.a.
14 years	4.88% p.a.	5.68% p.a.	4.90% p.a.
18 years	4.84% p.a.	5.63% p.a.	4.92% p.a.
22 years	4.82% p.a.	5.59% p.a.	4.94% p.a.
26 years	4.77% p.a.	5.53% p.a.	4.94% p.a.
30 years	4.72% p.a.	5.47% p.a.	4.91% p.a.

[1] The duration profiles are based on sample cashflows for different scheme maturities. The duration is based on those sample cashflows and Mercer Yield Curve for AA Corporate Bond Yields as at 30 September 2023. The duration for the profiles is not updated for changes in market conditions after 30 September 2023, as the profile selected for each employer is based on the durations determined from the discount rate sensitivity calculations provided in the 30 September 2023 APT information.

RPI inflation recommendation

As with the discount rate, setting RPI inflation assumptions based on the duration profile of the relevant benefit obligations will result in different RPI assumptions being derived for different employers. The following table provides sample single equivalent RPI inflation rates by duration, allowing for the 0.3% p.a. inflation risk premium recommended for 2023/24 and 2024/25 month ends:

Duration Profiles[2]	2023/24 approach	Proposed 2024/25 approach	
	As at 31.3.23	As at 30.9.23	As at 31.3.24
6 years	3.11% p.a.	3.32% p.a.	3.31% p.a.
10 years	3.21% p.a.	3.31% p.a.	3.22% p.a.
14 years	3.20% p.a.	3.26% p.a.	3.15% p.a.
18 years	3.17% p.a.	3.21% p.a.	3.09% p.a.
22 years	3.15% p.a.	3.18% p.a.	3.06% p.a.
26 years	3.11% p.a.	3.14% p.a.	3.01% p.a.
30 years	3.08% p.a.	3.10% p.a.	2.97% p.a.

[2] The duration profiles are based on those derived for the single equivalent discount rate i.e. based on sample cashflows and Mercer Yield Curve for AA Corporate Bond Yields as at 30 September 2023. The duration for the profiles is not updated for changes in market conditions after the 30 September 2023, as the profile selected for each employer is based on the durations determined from the discount rate sensitivity calculations provided in the 30 September 2023 APT information.

CPI inflation recommendation

We recommend single average RPI/CPI gaps based on a 1.0% p.a. assumed gap before 2030 and a 0% p.a. gap thereafter, suitably weighted to reflect each employer's exposure to CPI liabilities (based on their duration profile).

The following table provides single equivalent CPI inflation rates at various dates, derived by duration profile:

Duration Profile[3]	2023/24 approach	Proposed 2024/25 approach	
	As at 31.3.23	As at 30.9.23	As at 31.3.24
6 years	2.32% p.a.	2.61% p.a.	2.60% p.a.
10 years	2.64% p.a.	2.83% p.a.	2.74% p.a.
14 years	2.74% p.a.	2.89% p.a.	2.78% p.a.
18 years	2.79% p.a.	2.91% p.a.	2.79% p.a.
22 years	2.83% p.a.	2.92% p.a.	2.80% p.a.
26 years	2.83% p.a.	2.92% p.a.	2.79% p.a.
30 years	2.83% p.a.	2.90% p.a.	2.77% p.a.

[3] The duration profiles are based on those derived for the single equivalent discount rate i.e. based on sample cashflows and Mercer Yield Curve for AA Corporate Bond Yields as at 30 September 2023. The duration for the profiles is not updated for changes in market conditions after the 30 September 2023, as the profile selected for each employer is based on the durations determined from the discount rate sensitivity calculations provided in the 30 September 2023 APT information.

Mercer Yield Curve – expanded dataset

A new version of the UK Mercer Yield Curve (with expanded dataset) is being introduced from 31 March 2024 to expand the bond universe and improve the stability of the curve from month to month. The existing UK Mercer Yield Curve (without options) remains available. Some background to the two version of the UK Mercer Yield Curve is provided in the Appendix "Supporting Information on setting Accounting Valuation Assumptions" and further technical details are available on request.

Given our understanding of your objectives for the discount rate selection, we recommend that you transition to the "UK Mercer Yield Curve – expanded dataset" from 31 March 2024 in order to expand the bond dataset used to make better use of available data and to improve the stability of the discount rate curve over time. We expect this approach would move your sample discount rates closer to the UK market median. The feedback that we have received from the main audit firms is that they do not have any concerns over the "expanded dataset" approach. The estimated impact of using the "UK Mercer Yield Curve – expanded dataset" rather than the previously used "UK Mercer Yield Curve – without options" approach is to reduce your sample discount rates at 31 March 2024 by approximately 0.2% p.a. If the difference between these discount rates is material, a footnote disclosure in the pensions note may need to be agreed with your auditors to explain the rationale for the change in your discount rate selection and its impact.

Re-weighting of baseline mortality assumption to be consistent with CMI_2022

Many baseline mortality studies, including those provided by Club Vita, provide estimated death rates at a recent effective date. Weightings are applied as an adjustment to scale the standard mortality tables up or down to match (on a liability-equivalent basis) the death rates at the effective date of the mortality study. As the S3 tables apply in 2013, this involves calibrating the weightings to allow for mortality improvements between 2013 and the effective date.

Each time a new CMI projection model is issued for mortality improvements, it re-estimates past mortality improvements from the date at which the base table applies until the date of the CMI model. As a result, baseline mortality studies for S3 tables that are weighted to reflect an effective date after 2013 need to consider re-weighting the scaling factors to be consistent with the latest CMI projection model if it significantly re-estimates past mortality improvements.

For the CMI projection models published between 2020 and 2022, the impact of the re-estimation of past mortality improvements was not generally significant when considered in the context of the uncertainty over the impact of the COVID-19 pandemic on projected mortality improvements. However, the CMI_2022 projection model is more significantly different and it is probable that weightings will differ. The weightings used were determined using CMI_2022 and calculated as part of the funding valuation as at 30 September 2023, and so no additional re-weighting calculations are required.

Re-weighting of baseline mortality assumption to be consistent with S4 industry tables

The latest industry baseline tables, the S4 tables applying in 2017, were published in February 2024. Typically the results of the mortality studies are applied to the standard baseline tables available at the time of the study. As the S4 tables update the "currency" in which the baseline tables are expressed but are not expected to fundamentally change the baseline mortality assumption, we would recommend retaining the existing S3 tables until a new scheme specific mortality study is carried out.

Adjustment for inflation

The gilt implied inflation curve reflects future inflation expectations from the current point in time. However, because revaluation and pension increases are calculated based on inflation on specific month-ends, forthcoming revaluation and pension increases are also affected by actual inflation between the reference date and the accounting date.

We propose to continue to allow for this within the inflation experience of the Accounting Projection Tool ("APT") by reflecting known changes in RPI/CPI since the last reference month used for pension revaluation in deferment and pension increases in payment.

Decisions required

In accordance with FRS 102, each employer will need to decide on the assumptions to be used for the preparation of their year-end disclosures, and ensure that their auditor is comfortable with the approach adopted. The Appendix "Supporting information on Accounting Valuation Assumptions" provides further information on the proposed estimation approach. If you would like to discuss anything included in this report further then please let us know.

Significant events

This report does not consider any adjustments or alternative assumptions that may be required following a special event (e.g. a settlement or curtailment).

Miles Woodhouse FIA
Mercer Limited

Important Notes

Compliance with technical actuarial standards

This paper is provided under the terms of the Project Agreement between TPT and Mercer dated 26 January 2024 and should be read in conjunction with the Appendix "Supporting Information on Accounting Valuation Assumptions" dated March 2024 and our prior assumptions paper dated 24 April 2023. This paper, and the work done in its preparation, is compliant with Technical Actuarial Standard 100 General Actuarial Standards (TAS 100 v2) which is issued by the Financial Reporting Council.

Confidentiality, scope and third parties

Mercer is providing this advice in its capacity as external adviser to TPT, not as an adviser to individual employers. TPT is ultimately responsible for the assumptions it uses when producing accounting disclosures and individual employers are ultimately responsible for selecting the accounting policies, methods and assumptions they wish to apply. Individual employers are responsible for obtaining formal confirmation from their auditors that their accounting policies are compliant with all necessary accounting standards.

The advice in this report has been supplied by Mercer on the following basis:

Unless otherwise stated, we have relied on the information and data TPT Retirement Solutions Limited have supplied to us in preparing the report and information from other third party sources, without independent verification. Save for where such third party is connected to, associated with or an affiliate of Mercer, we will not be responsible for any inaccuracy in the advice that is a direct result of any incorrect information provided to us. As such, Mercer (i) makes no representations or warranties as to the accuracy of the information presented by you or any third party and ii) takes no responsibility or liability (including for indirect, consequential or incidental damages), for any error, omission or inaccuracy in the data supplied by any third party, save in each case where the third party or parties is or are connected to, associated with or an affiliate of Mercer.

Appendix: Supporting information on Accounting Valuation Assumptions

The purpose of an accounting valuation for a defined benefit pension plan in the UK is to determine the values of assets and liabilities that are required to be shown on the plan sponsor's balance sheet, along with the pension cost charged or credited to the statement of profit or loss (P&L), under the relevant accounting standard (IFRS, US GAAP or UK GAAP).

These accounting standards also require various disclosures about the defined benefit pension plan including details of the assets held and a reconciliation of the movements in the assets and liabilities between the relevant disclosure dates.

The accounting valuation results depend on a number of assumptions that are used to measure the present value of the defined benefit pension plan liabilities. The accounting assumptions used in an employer's financial statements are ultimately the responsibility of the employer.

This guide provides a general overview of accounting valuation assumptions for UK defined benefit plans. It does not constitute advice specific to your defined benefit plan or individual employers financial statements and individual employers are responsible for obtaining such advice.

Accounting standards

The accounting standards set out the underlying principles for the actuarial assumptions (for example assumptions should be based on a 'best estimate' of future experience), and clear direction on the basis for the discount rate. In the context of setting actuarial assumptions for accounting disclosures, 'best estimate' means an unbiased estimate whereby the actual outcome is expected to be equally likely to be higher or lower than the assumption used.

The assumptions also need to reflect market conditions as at the reporting date.

Reasonable range for assumptions

For each of the assumptions used, there is a range of acceptable decisions that the employer could make, supported by different methods and approaches. Different assumptions within this reasonable range can have a material impact on the year-end position. The approach chosen may depend on the employer's objectives and where it wishes to position itself relative to other companies.

Relevance of funding assumptions

The selection of the assumptions to be used for accounting purposes is largely independent of the assumptions used for funding purposes. Importantly, the accounting valuation usually has no direct impact on the pension contributions payable by the plan sponsor. However, many of the same principles and data will be applicable to both the funding and accounting valuations. This is particularly the case in relation to the demographic assumptions (i.e. assumptions used to provide estimates of the likelihood and timing of benefits being paid), such as how long members live for, when members retire and the rate at which members exchange pension for a cash lump sum at retirement.

Impact of decisions

The assumptions selected at the year-end will affect the year-end balance sheet position and the following year's P&L cost. The decisions made do not affect the current year's P&L cost, which continues to be based on the assumptions agreed a year ago. Auditors are likely to focus on whether any approach at the year-end is a disclosable change in accounting principles.

Impact of climate change

As part of assessing climate related risks and wider reporting requirements being introduced by the FCA (Financial Conduct Authority) and the International Sustainability Standards Board (ISSB), companies may wish to consider applying climate change scenario analysis to the pension disclosures.

In terms of assumption setting, as the economic assumptions are set on a market related basis consistent with the principles of the accounting standards, they allow implicitly for climate change to the extent that the market allows for it.

The impact of climate change on demographic assumptions would primarily be expected to impact the mortality assumptions, particularly future mortality improvements. Based on the evidence currently available, we do not consider climate change to be any more material than many of the other uncertainties linked to future mortality expectations and so we do not propose making any explicit allowance for climate change within the mortality assumption. This should be kept under review, along with other factors which affect longevity risk.

Explanation of key assumptions

The most important assumptions used for an accounting valuation of a defined benefit scheme are usually the discount rate, the price inflation assumptions (which often includes assumptions for pension increases) and the mortality assumption (i.e. the life expectancy of members and their dependants). Each of these assumptions is explained over the following pages.

Financial Assumptions

Deriving a discount rate

The discount rate is the rate of interest used to discount retirement benefit obligations in order to express expected future benefit payments as a single value at a present date. The accounting standards generally require the discount rate to be determined by the yields on high quality corporate bonds at the measurement date. For this purpose, a high quality corporate bond is taken as a bond that has been rated at the level of AA or equivalent status. The currency and term of the corporate bonds should be consistent with the currency and estimated term of the retirement benefit liabilities.

Since the retirement benefit obligation payments are made over many years into the future, in theory AA corporate bond spot rates are needed for all terms at which payments may be due. The assumed discount rate is then the single discount rate equivalent to discounting these liability payments, or cash flows, at the term-dependent spot rates. In practice, more pragmatic methods are often used to estimate a single equivalent discount rate.

Judgement is required when deriving the yield curve or discount rate, mainly in respect to the bond universe selected, the approach to fitting the yield curve and the approach to extrapolating the yield curve at long durations once there ceases to be a deep market in corporate bonds. These judgements can typically lead to differences of around 0.1% p.a. to 0.2% p.a. in the discount rate derivation.

Review of the UK Mercer Yield Curve

A new version of the UK Mercer Yield Curve (with expanded dataset) is being introduced from 31 March 2024 to expand the bond universe and

improve the stability of the curve from month to month. The existing UK Mercer Yield Curve (without options) remains available. We consider both versions of the UK Mercer Yield Curve to be appropriate for setting the discount rate under IAS 19. Judgement is required when selecting which version of the UK Mercer Yield Curve to use from 31 March 2024. Below is a summary of some potential advantages of each approach.

Potential advantages of the additional "UK Mercer Yield Curve – expanded dataset" that is being produced from 31 March 2024 are:

- Uses extra high quality corporate bond data, particularly at longer durations where the existing "without options" version of the UK Mercer Yield Curve has limited data
- Produces more stable results from month to month based on our back-testing and due to the additional data points and the smoothing of exclusion of outliers
- Over the past year, it produces discount rates which are generally closer to the market median rate than the existing "UK Mercer Yield Curve – without options"

Potential advantages of continuing to use the existing "UK Mercer Yield Curve – without options" are:

- Continued use of this approach would avoid the need to explain (to auditors or in the disclosure footnotes) any change in estimation approach or methodology for selecting the discount rate (although we note that it is also possible audit firms will ask for justification of not adopting the expanded dataset version)
- It has consistently been used for many years and complies with all the main accounting standards
- Over the past year, it has produced discount rates which were generally above the market median rate and sometimes towards the higher end of auditor ranges

There are three features of the UK Mercer Yield Curve to highlight:

- Stability: in recent months, the position of the "UK Mercer Yield Curve – without options" has varied within the range of typical market practice from towards the upper end (at 31 December 2023 and 29 February 2024) to close to market median (at 31 January 2024) – this is due to

volatility in the way the small number of longer dated bonds are fitted and the potential for some of these bonds to be excluded as outliers. The adjustments that result in the "UK Mercer Yield Curve – expanded dataset" seek to reduce this volatility and improve the month to month stability of the curve. This helps ensure that the expanded dataset curve is future-proofed against changes in the bond universe.

- Use of bonds with embedded options: in the past, bonds with embedded options were excluded from the UK Mercer Yield Curve due to the objective of using bonds with predictable cash flows. The expanded dataset is using bonds with options (make whole callable provisions, and longer dated bonds with a call option that can only be exercised within six months of maturity) as we consider these types of option to be less likely to have a significant impact on the cash flows or yield of the bonds. Therefore, the benefit of the additional bond information is likely to outweigh any yield uncertainty from these bonds.
- University bonds: the inclusion of make whole callable bonds leads to four University bonds being included in the "UK Mercer Yield Curve – expanded dataset". It is debatable whether University bonds are "corporate" in nature – they could be argued as being "government related" on the basis of their source of funding. While this argument is credible, we have concluded they should be included given the changes in University funding over recent decades. If the four University bonds are excluded from the "UK Mercer Yield Curve – expanded dataset" then the discount rates produced in recent months are similar to the "UK Mercer Yield Curve – without options" for many common scheme profiles.

The "UK Mercer Yield Curve – expanded dataset" uses the same methodology for the curve construction, curve fitting and extrapolation as the existing Mercer Yield Curve, which is tried and tested over many years. The expansion of the bond dataset is consistent with the approach that has been taken for the US Mercer Yield Curve, so there is established practice of this criteria for selection of the bond universe being applied for accounting disclosures.

Details on the judgements used by the Mercer Yield Curve model to derive a discount rate, under both the "expanded dataset" and "without options" version, are available to clients on request.

Deriving an inflation assumption

The headline assumption for price inflation is important as it is used to set a number of other inflation-linked assumptions. Examples include assumptions for inflation-linked pension increases in payment and pension increases in deferment for early leavers. If some of the pension

benefits are linked to salary increases, then price inflation is also typically used as the basis for setting the long term assumption for salary increases.

From 2011, statutory price inflation for pension increases in payment and deferment became linked to increases in the Consumer Prices Index (CPI) in place of the Retail Prices Index (RPI).

Retail Prices Index (RPI) Inflation

Market practice in the UK has historically based the RPI inflation assumption on the gilt implied inflation yield curve, reflecting the duration of the pension plan cash flows in a consistent way to the discount rate. The gilt implied inflation yield curve is derived based on the market implied yields available from fixed-interest and index-linked Government bonds ('gilts') and represents the rate of RPI in the future that would give investors the same total return from these stocks. Judgements are required when fitting a 'gilt market implied' inflation curve, particularly with regard to durations where data is limited and any allowance made for RPI reform (see below), which can typically lead to differences of around 0.1% p.a. in the average 'gilt market implied' RPI rate.

Details of the judgements used to determine the Mercer gilt implied inflation yield curve are available to clients on request.

The 'gilt market implied' rate is the starting point for the future RPI assumption. This approach results in a risk that the 'market implied' rate is different from actual expectations for future inflation. In particular, the market implied rate may be overstated because some investors are prepared to pay a premium to hedge their inflation risk, and due to the excess demand and short supply of inflation protection in the gilt market, artificially increasing the market's perceived expectation of future inflation. The difference between market implied inflation expectations and actual (expected) inflation is known as an inflation risk premium.

RPI reform

Following a consultation process, the UK Government announced in November 2020 that the calculation of the RPI would be amended to match the Consumer Price Index including Housing (CPIH) from 2030. CPIH is expected to be materially lower than the current definition of RPI.

Inflation risk premium

There is no objective method of determining the correct level of the future inflation risk premium adjustment (if indeed there is any), particularly when gilt yields are distorted. Historically, adjustments of up to 0.3% p.a. to the rate of future RPI implied by the gilt market are supported by academic research and research published by the Bank of England, and so may be considered reasonable. In theory, an inflation risk premium adjustment should vary by term and there is generally likely to be more inflation uncertainty at longer durations.

In recent years, commentary from the UK Debt Management Office and LDI investment managers suggested that the supply/demand imbalance of inflation protection at terms after 2030 may be causing a greater inflation risk premium at longer durations than historic norms. Greater fear of inflation risk has arguably contributed to more demand for inflation hedging protection and caused a greater inflation risk premium.

The size of the inflation risk premium is a matter of judgement and it is common in financial reporting to use a constant inflation risk premium adjustment rather than to use a model to estimate changes in the inflation risk premium over time. This is because any such model would require subjective judgements on the long term outlook for RPI inflation and the likelihood of the Bank of England inflation target being met.

Although defined benefit pension plans often have some inflation hedging in place through Liability Driven Investments or index-linked gilts, this hedging is an investment decision that affects future asset returns and provides insurance against the financial implications of unexpected future inflation. The best estimate of the expected plan cash flows is independent of the assets held by a plan, so inflation hedging does not necessarily lead to an adjustment to the inflation risk premium used to determine the inflation assumption for accounting valuations.

Consumer Prices Index (CPI) Inflation and the RPI/CPI gap

Historically, there has been no reliable indicator for market expectations of CPI inflation. Hence, the assumption for CPI has commonly been derived by making an adjustment for the expected long term gap between RPI and CPI. This has generally been viewed as more credible than fixing the assumption based on the Bank of England CPI inflation target. This may change going forward, especially from 2030, when RPI is moved to CPIH.

In the past, the rate of change in RPI has been higher than CPI, on average. The difference results from the fact that the two indices are calculated in a slightly different way (the 'formula effect') and that the constituents of the indices are not the same.

Evidence as to the size of the gap (before any allowance for RPI reform), from sources such as the UK's Office for National Statistics, the Bank of England and the Government Actuary's Department, has typically supported a gap between RPI and CPI of 1% p.a. before 2030.

The Office for Budget Responsibility's (OBR) Economic and Fiscal Outlook reports have historically cited an estimated long run RPI/CPI gap (before 2030) of 1.0% p.a., although this reduced to 0.9% p.a. in December 2019. The March 2024 version of this report forecasts a c. 0.85% p.a. RPI/CPI gap over the 5 years from 2024 to 2028. Similarly, the February 2024 medium-term inflation forecasts pubslihed by HM Treasury suggesting that the RPI/CPI gap may average around 1.0% p.a. from 2024 to 2028.

From 2030, when RPI will be aligned with CPIH, the CPI assumption can be derived by considering the long term gap between CPIH and CPI. The main difference between CPIH and CPI is the allowance made in CPIH for owner occupied housing, along with some differences in the weights given to different categories of goods within the inflation indices. Over long periods of time and economic cycles, the difference is expected to be close to zero.

The ONS announced on 1 December 2023 some changes to the way it calculates CPI and CPIH, introducing improved statistics for private rents and second-hand car prices. It estimates that between January 2018 and October 2023, these changes would have increased the annual rate of CPI by under 0.1% while the annual rate of CPIH would have been increased by 0.2%. Our view is that the impact of these changes is not expected to be significant when measured over a full economic cycle.

Salary growth assumption (if relevant)

The salary growth assumption (if relevant) is generally set by reference to price inflation as, over the long term, there is evidence that general pay growth keeps up with increases in the cost of living. It is therefore common to set an assumption for salary increases relative to the price inflation assumption (this is known as "real salary growth"). Real salary growth could be considered by reference to RPI or CPI inflation.

Real salary growth is expected to be positive over the long term as it must take into account not only inflationary increases, but also promotional increases.

Significant variation is possible in salary growth depending on industry sector specific factors and the extent of promotional increases.

Deriving deferred revaluation assumptions

Assumptions are usually required for pension indexation before retirement that are based on inflation, subject to a minimum or maximum level of annual increase measured over the whole period of deferment. Where the increase is linked to inflation, an assumption is set by taking the relevant inflation assumption and applying the caps and collars directly to this.

Deriving pension increase assumptions

Assumptions are required for pension indexation after retirement that are based on inflation and are subject to minimum and maximum amounts. Generally, for pension increases in payment the level of inflation is compared to the cap and / or collar in each individual year. To allow for this, the assumption is typically set by considering the likelihood of inflation being above the cap or below the collar in future years, and applying an adjustment to the relevant inflation assumption to reflect this.

The adjustments could be derived as a simple deterministic amendment, using a Black option pricing model or using a more sophisticated stochastic model such as the Jarrow Yildirim model.

If a model is used to estimate the impact of caps and floors when deriving the pension increase assumption, details on the judgements used by the model are available to clients on request.

Demographic Assumptions

Mortality assumption

The mortality assumption can be broken down into two distinct parts:

- A 'baseline' assumption about current mortality rates that takes into account the profile of a defined benefit pension plan's membership.

- A 'future improvement' assumption about how these 'baseline' rates should be projected into the future.

Deriving a baseline mortality assumption

The 'baseline" assumption is typically set by reference to standard mortality tables for UK occupational pension schemes (e.g. the S3 tables) with an adjustment to reflect how the plan members differ to the population underlying the standards tables. These adjustments are often expressed as a percentage weighting of the table or an age rating deduction.

The adjustments are usually based on a plan specific mortality study carried out for the latest statutory funding valuation (excluding any prudence), although they can be determined more generally by reference to occupation, location or wealth of the members.

S4 base tables published on 26 February 2024 update the "currency" in which baseline tables are expressed but are not expected to fundamentally change the baseline mortality assumption where this has previously been determined based on a scheme specific mortality study expressed in terms of S3 base tables.

Deriving a future mortality improvement assumption

The Continuous Mortality Investigation (CMI) of the Institute and Faculty of Actuaries publish a model for projecting future mortality improvements that is updated each year to build in its latest analysis of mortality rates over the previous year.

The most recent version of the model (as at March 2024), CMI_2022 was published in June 2023.

In response to the COVID-19 pandemic which caused exceptional mortality experience in 2020 and 2021, the CMI model includes flexibility for users to make allowances for the possible impact of COVID-19 on future mortality projections by applying bespoke weightings on mortality data for individual years from 2020 onwards.

The default parameters for the CMI_2021 model are to place no weight on the 2020 or 2021 data, and full weight on all previous years, essentially setting aside the 2020 and 2021 experience on the basis that they were seen as "outliers" and unlikely to be a helpful predictor of future improvements.

In 2023, the CMI_2022 consultation considered the extent to which the CMI_2022 mortality projections should, as a default approach, allow for 2022 mortality data. The mortality (and excess deaths) in 2022 is expected to be more predictive of future mortality than 2020 or 2021, because 2022 was not obviously an "outlier year", death experience was less volatile and the heavier mortality was not all directly caused by COVID. However the drivers of the excess deaths in 2022, including delayed medical interventions, may be indirect consequences of the pandemic that could persist for a number of years. The CMI decided that the core CMI_2022 model should take partial account of the most recent 2022 data by giving it a 25% weighting adjustment.

Our analysis suggests that the overall impact of the mortality evidence being incorporated into CMI_2022 will be typically about a 1%-1.5% reduction in life expectancy for a joint life annuity at age 65 when switching from CMI_2021. The actual impact for a plan will vary depending on a number of plan specific features.

The CMI launched its latest consultation in February 2024 which set out its proposals for the Core version of CMI_2023 model and seeks Subscriber views. The CMI_2023 version of the model is due for release in April 2024. There are no proposed changes to the model parameters from the 2022 version of the model with the exception of the weighting applied to 2022 data, and the weighing introduced for 2023 data, which is considered below. If the proposed core version of the model is adopted there is expected to be minimal change in liabilities compared to CMI_2022.

Responsiveness of the CMI model to new data

The smoothing parameter (s-kappa) in the CMI model controls how responsive the model is to incorporating the latest population improvement data. The CMI_2022 consultation considered whether it is appropriate to adopt a value of 7.5 for this parameter, which would slow down the "speed" at which new annual mortality experience is incorporated within future projections compared to its current core value of 7.0 for this parameter. However, the consultation concluded that it was appropriate to retain a core s-kappa parameter of 7.0 in conjunction with the partial 25% weighting to 2022 data.

For CMI_2023 the proposals are that the most recent years of data from 2022 and 2023 are given a 10% weighting adjustment. Whilst the proposed reduction in weighting to 2022 would appear to give less weight than the previous model, the overall parametrisation combined with the 10% weighting for 2023 would in fact lead to very similar results as for the CMI_2022 model with a 25% weighting to 2022.

Potential adjustment for socio-economic groups

It is possible that some of the underlying causes of excess deaths (for example COVID related strains on the NHS, high seasonal flu, financial hardship, rise in mental health issues) may affect population wide mortality to a greater extent than the defined pension plan population (particularly those with the largest liabilities, who may see little impact from financial hardship). The CMI model is based on general population data for England & Wales. There is evidence published by the Office for National Statistics that individuals in higher socio-economic groups, as shown by a higher Index of Multiple Deprivation (IMD), have seen better mortality improvements in recent history. These population disparities appear to have been amplified by early COVID experience, which caused greater excess death experience amongst lower socio-economic groups. It is unclear whether this trend will continue and the counter-argument is that lower socio-economic groups have more potential to experience greater future longevity improvements.

The initial addition "A" parameter within the CMI model allows users to adjust initial rates of mortality and is commonly used to reflect socio-economic differences in mortality improvement that are expected in the short term. This parameter has a core value in the CMI model of 0. Additional analysis of a defined benefit pension plan membership can be carried out to determine if an "A" parameter greater than zero is justifiable.

Long-term mortality improvement rate

The CMI's projection models use historic data to establish a "current" rate of improvement, and use the model's parameters to create a trend line joining the current rate to the long-term rate selected by the model's user. Consequently, the long-term improvement rate is a key parameter within the mortality assumptions.

Research suggests that the long-term improvement rate for life expectancy, which applies from 20 or so years into the future, is expected to be more influenced by long-term economic growth, healthcare system performance, lifestyle improvements and medical advances than with recent past experience for mortality improvements.

Other Demographic Assumptions

Other assumptions adopted will typically reflect any plan specific evidence, which is often reviewed every three years alongside the statutory funding valuation of the pension plan carried out by the Trustees. It is also common to consider whether assumptions for member options, particularly the option to exchange part of the pension at retirement for a cash sum, need to be updated to reflect changes in the terms of the available member options.

Mercer Limited
March 2024