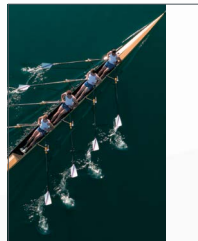HYMANS # ROBERTSON
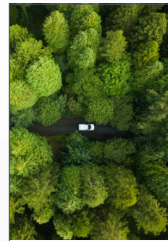
2020 valuation toolkit

Home

01 Our valuation principles

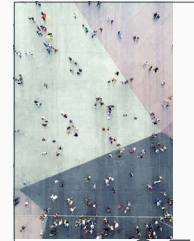**02** Getting valuation ready

03 Asset tracking

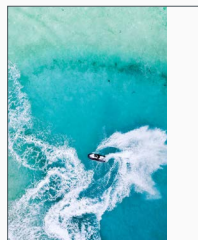**04** Key funding decisions

05 Employer risk based funding
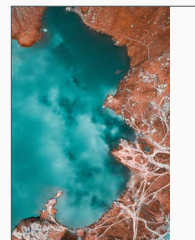
06 Understanding ALMs

07 Longevity and other demographic assumptions

08 Financial assumptions

09 Measuring a funding level

10 Impact of COVID-19 on the 2020 valuation

11 Allowing for McCloud and Cost Cap mechanism

Our valuation
principles
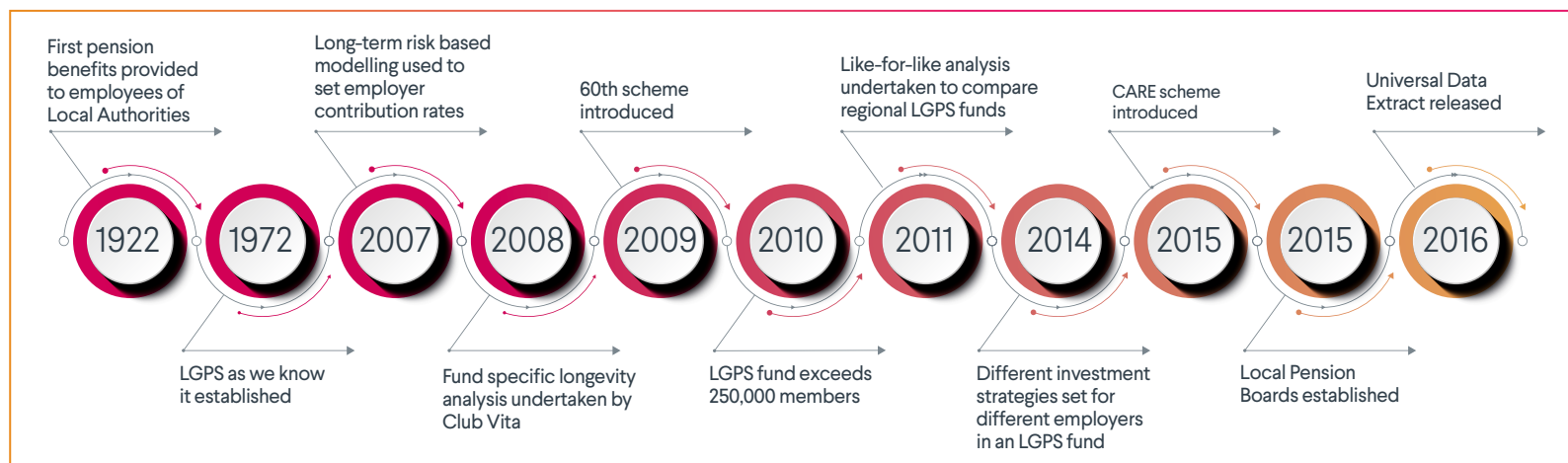
01

Our valuation principles

Background

We are delighted to introduce our 2020 valuation toolkit, a series of short notes which aim to guide you through the actuarial valuation process and help make the 2020 valuation a success.

We believe the foundations of a successful valuation are a smooth and efficient process, informed decision making and effective stakeholder engagement. This toolkit contains advice on operational issues, such as preparing for the valuation, and technical issues such as funding methodology and assumptions. We hope this toolkit serves as a useful reference tool throughout the 2020 valuation.

The LGPS through the years

We believe the actuarial valuation isn't simply a task that's revisited once every three years. For us, the 2020 valuation exercise commenced the moment we signed the 2017 valuation report. We see LGPS funding as a continuous, constantly evolving process, not least because the LGPS itself is constantly evolving!

As we prepare for the 2020 valuation exercise, we can look back through history to see just how much LGPS funds have had to successfully evolve to meet ever changing demands.

First pension benefits provided to employees of Local Authorities — **1922**

LGPS as we know it established — **1972**

Long-term risk based modelling used to set employer contribution rates — **2007**

Fund specific longevity analysis undertaken by Club Vita — **2008**

60th scheme introduced — **2009**

LGPS fund exceeds 250,000 members — **2010**

Like-for-like analysis undertaken to compare regional LGPS funds — **2011**

Different investment strategies set for different employers in an LGPS fund — **2014**

CARE scheme introduced — **2015**

Local Pension Boards established — **2015**

Universal Data Extract released — **2016**

It's fair to say the LGPS has come a long way since its humble beginnings in 1922. Whilst no one can know what's in store for the LGPS in future, we can be certain that we will be with you every step of the way – helping you drive the LGPS forward and deliver the best outcomes for your fund and your employers.
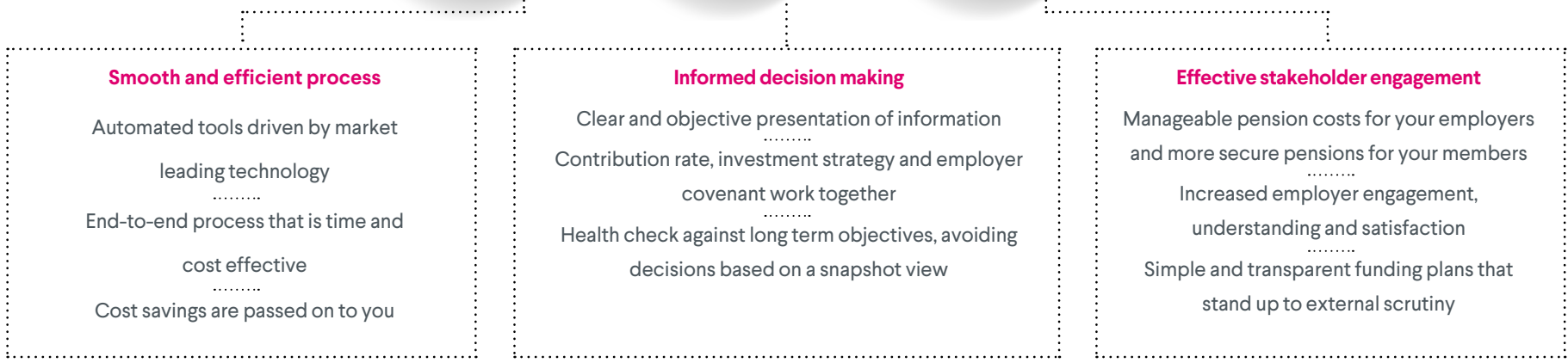
Our valuation principles

We provide valuation advice to more funds in the LGPS than any other advisor. We have a team of 17 qualified actuaries working with 49 different LGPS funds. These funds and their advisors face similar challenges but each fund has different priorities and objectives, bringing their unique perspective and expertise to bear on issues. Our actuaries work closely with their funds and each other and are continually identifying and refining the best ideas and solutions. We don't impose a valuation approach on you – we believe your valuation should reflect your own beliefs. Our commitment to you is to deliver a valuation focused on three areas which comprise our valuation principles.

"we believe your valuation should reflect your own beliefs"

Our valuation principles

Home

Our valuation principles

1 — SMOOTH AND EFFICIENT PROCESS

2 — INFORMED DECISION MAKING

3 — EFFECTIVE STAKEHOLDER ENGAGEMENT

Smooth and efficient process

Automated tools driven by market leading technology

....

End-to-end process that is time and cost effective

....

Cost savings are passed on to you

Informed decision making

Clear and objective presentation of information

....

Contribution rate, investment strategy and employer covenant work together

....

Health check against long term objectives, avoiding decisions based on a snapshot view

Effective stakeholder engagement

Manageable pension costs for your employers and more secure pensions for your members

....

Increased employer engagement, understanding and satisfaction

....

Simple and transparent funding plans that stand up to external scrutiny

Getting
valuation ready

02

Getting
valuation ready

Background

It's never too early to start preparing for your next formal valuation. Effective planning will lead to a smooth 2020 valuation process and early completion of the main calculations, leaving you more time to focus on what really matters – liaising with your stakeholders and reaching the best possible funding solutions for your fund and employers.

There are some steps you can take in the lead up to the 2020 valuation to save time and effort during the process itself.

A smooth and efficient process

Data cleansing

Looking back to 2017, and with the complexities introduced by the CARE scheme, the most significant barrier to a smooth and efficient valuation was data quality. In the lead up to your 2020 valuation (and indeed at any time) you can use our Data Portal tool to cleanse and validate your fund's data, completely free of charge. The Data Portal can now be used to check both membership data and employer cash flow data, meaning every aspect of your valuation is covered.

Funds that carry out data cleansing ahead of 2020 will benefit from:

- Ensuring membership data is up to date and reflected correctly in the Universal Data Extract

- Ensuring there is consistency between membership data and cashflow data
- An early warning if some new employer opening positions have not been calculated

Good quality membership and cashflow data is imperative for a successful funding valuation. We would advise all LGPS funds to upload their data to the Data Portal today to understand if any updates are required for membership and cashflow data to be 100% valuation ready. Your Hymans Robertson team will be on hand to help you with advice and practical assistance with any issues that arise.

Updating employer assets

In the past, employer assets have been calculated once every 3 years as part of the formal valuation process. This is because the approach previously used to allocating assets relied on the membership data provided for the valuation. With our HEAT (Hymans Robertson Employer Asset Tracker) system, this is no longer the case – we can track your employers' assets on a monthly basis meaning they will be readily available when it comes to valuation time. Further information about our HEAT system, and employer assets in general, is included in guide 3 - 'Asset tracking'.

Informed decision making

comPASS modelling

Our approach to setting contribution rates for long-term, secure employers, such as councils, doesn't rely on market conditions on the valuation date. We view the valuation as a health check against your long-term objectives, rather than making decisions based on a snapshot view. To do this we use our LGPS specific asset liability model called comPASS. The comPASS model tests contribution strategies for employers by considering how market conditions and assets may evolve in future, rather than considering market conditions and asset values on the valuation date only.

This approach means the precise timing of the health check is less important, and we don't need to wait until after 31 March 2020 to test and review contribution strategies for long-term, secure employers. This gives advance warning of contribution rates payable from 1 April 2021, allowing more time for you to engage with employers and for them to build any changes into budget planning processes.

Employer risk review

We want to help you look at the bigger picture, taking contribution rates, investment strategy and employer covenant all into account. Setting funding plans is getting a balance between affordability for the employer and security for the fund.

For a financially healthy employer, the balance can be tipped more towards affordability as there is a higher likelihood that the employer will be able to fund an increase in contribution rates if experience is worse than expected. Conversely, for a financially weaker employer, the balance needs to favour security for the fund as the employer is less likely to be able to fund any future unexpected costs.

During the 2020 valuation we will help you put in place funding plans which are tailored to each employer's individual circumstances. Understanding the risk associated with each of your employers is an important factor when setting these plans. Carrying out a review and investigation into each employer's funding profile and financial covenant now will give you time to engage with high risk employers so you can work together to agree a plan which provides both affordability for the employer and security for the fund.

Effective stakeholder engagement

Early engagement

The statutory deadline of 31 March 2021 to complete the valuation may seem like a long way away, but those of us who have been through a valuation before will know how quickly one year can pass! As such, time in a valuation year is precious and needs to be spent as efficiently as possible. During the valuation exercise, often a disproportionate amount of fund officers' time is spent liaising with a small number of employers. You may wish to invite some of these employers to meet with officers now on a one-to-one basis to discuss and understand their individual circumstances.

We also encourage you to engage with all of your employers as early as possible to build up knowledge and understanding of any particular new situations that may affect participation in the fund before the valuation calculations commence. An employer forum in 2018 on the valuation will be helpful for new employers and employers who have experienced changes in key personnel so they can gain an understanding of what a valuation will mean for them.

Stakeholder liaison plan

The actuarial valuation is a large exercise with many different stakeholders who need to be informed, engaged and consulted with. Work with your actuary now to agree a valuation timetable and plan the agendas for your 2020 Pensions Committee, Local Pension Board and Employer meetings. This will give you increased clarity on deliverables and allow you to identify and plan for times of peak activity. Everyone feels better when there is a plan in place!

"engage with all of your employers as early as possible to build up knowledge and understanding"

03

Background

One of the most frequently asked queries from LGPS employers and their auditors is "How did you calculate my assets?". Until recently, the answer to this question has been a complicated one.

The assets of a LGPS fund are managed at whole fund level, therefore in order to monitor a funding position for each participating employer, we must have some method for notionally tracking their share of the fund's assets.

The historical solution

The method all LGPS actuaries funds used to calculate employers' assets at each triennial valuation was the 'analysis of surplus' approach. Broadly speaking, the actuary analysed around 20 items of asset and membership experience that may have caused an employer's funding position to change since the previous valuation. Using this information the actuary would know the employer's surplus/deficit at the current valuation and, by adding this to the employer's liability value (calculated using the supplied membership data), the employer's asset value was derived.

This method may seem counter-intuitive and convoluted but it has been used for many years by LGPS actuaries and produced sufficiently accurate results when there were fewer, and less diverse, employers in the fund. However, as the LGPS has evolved in recent years with the increase in number and diversity of employers, more movement of staff between employers and the introduction of more complexity in the benefit structure, this method is becoming increasingly limited and outdated.

Given this, we believe that there is now a better method for tracking assets in today's LGPS funds.
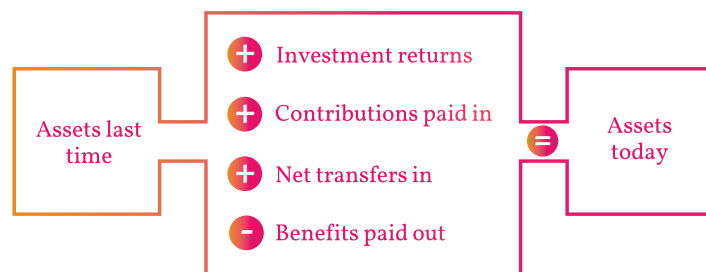
Asset tracking

The 21st century solution

At the 2020 valuation we will calculate employers' asset shares using a cashflow approach. Historically, this approach was not possible as some of the information required was not available at employer level. However, as record keeping and accounting requirements have evolved, the benefit has been to make this information more readily available.

Under a cashflow approach, each employer's assets are calculated as follows:

Aside from being very simple, we prefer this approach due to its increased transparency, ease of calculation and, above all, accuracy.

There are various methods for tracking assets using a cashflow approach and each has a differing level of accuracy. To get the most optimal balance of accuracy and pragmatism, we have developed an asset tracking tool, Hymans Robertson Employer Asset Tracker (HEAT), which we believe represents best practice for LGPS funds in terms of governance, transparency and risk reduction.

HEAT provides an efficient way of accurately tracking assets for individual employers on a monthly basis. It allows for employer cashflows and investment returns achieved by the fund in the same way as a bank account or investment fund operates. It is a simpler, pragmatic form of an unitisation process proportionate to the needs of the LGPS.

For more information about the HEAT system or to discuss an alternative approach to tracking your employers' assets, please speak to your Hymans Robertson team.

Assets last time + Investment returns + Contributions paid in + Net transfers in − Benefits paid out = Assets today

Key funding decisions

04

Key funding decisions

Background

The formal valuation is your fund's budgeting exercise. The purpose of the valuation is to review your funding strategy and ensure that you have a contribution plan and investment strategy in place that enables your fund to pay members' benefits. Budgeting exercises for open defined benefit pension funds are complex. Firstly, the projected budgeting period is very long; benefits earned in the LGPS today will be paid out over a period of the next 80 years. Secondly, the LGPS remains a defined benefit scheme so there are large uncertainties in the final cost of the benefits to be paid. Finally, in order to keep contributions low, LGPS funds typically invest in higher return investment strategies which will naturally include high levels of volatility and risk.

Our valuation approach recognises the uncertainties and risks posed to funding by these factors and provides a framework for funds to set clear funding targets and manage their funding risks.

We believe that the key funding decisions can be addressed by answering the following three questions.

1 What is your funding target?

2 How long do you want to give yourself to get to this target?

3 How sure do you want to be that you will reach the target?

Key funding
decisions

What is your funding target?

The LGPS is open to future benefit accrual and new members. Budgeting for future benefit payments therefore requires LGPS funds to consider a funding strategy that will meet the cost of both benefits accrued to date and benefits being earned in future. An LGPS fund with a long term funding plan must consider: what level of assets does the fund want to hold in the future to meet the cost of both benefits earned today and benefits earned in the future? The answer to this question is the funding target.

In a defined benefit scheme, the actual cost and amount of assets required to fund benefits is only known after the last payment to members has been made. Given that we are funding benefits in advance of their payment, the funding target will be an estimate and based on informed assumptions about the size and timing of future pension payments. At the valuation, we work with each fund to determine its own long-term funding assumptions based on transparent and objective analysis. Further detail on the key economic and demographic assumptions that determine the funding target will be included in guide 7 – "Longevity and other demographic assumptions" and guide 8 – "Financial assumptions" (to be issued in due course).

04

How long do you want to give yourself to get to your funding target?

You need to decide over what time horizon you will aim to achieve the funding target. LGPS funds are open both to new members and future accrual so there is no natural end date by which a funding plan must meet its target. When deciding a funding time horizon LGPS funds will have regard to both affordability and long term cost efficiency.

In deciding the appropriate time horizon, consideration should be given to covenant and cashflow position. Additionally, external scrutineers are increasingly interested in inter-generational fairness and ensuring costs are not unreasonably deferred.

In order to test and understand the risk inherent in funding plans, we use an Asset Liability Model ("ALM") with both inputs and outputs specifically tailored for LGPS funds.

How sure do you want to be that you will reach your funding target?

Funds will need to rely on both contributions and investment returns to pay members' benefits in the future. As with the long term funding target, the more a fund relies on investment return, the less employers need to pay in contributions. However, to generate high investment returns funds need to take extra risk – which can lead to short term volatility.

ALMs are discussed in more detail in guide 6 - "Understanding ALMs"

Key funding decisions

Home

We use this model to compare the projected results for the fund when different combinations of investment strategy or contribution strategy are implemented. Decision makers are presented with key metrics as in the table below. This enables them to choose the combination of contribution and investment strategy that gives, both an acceptable likelihood of meeting the funding target over the required time horizon, and manages the downside risks in both the short and long term.

Contribution Strategy	Investment Strategy	Prudence/Solvency		Affordability/ Long Term Cost Efficiency
		Likelihood of full funding in 2041	1 in 20 downside funding level in 2041	Highest median contribution rate during the next 21 years
Strategy A	Current	71%	66%	19%
Strategy B	Current	74%	73%	32%
Strategy A	Lower risk	60%	57%	23%

Employer risk based funding

05

Background

Traditionally, formal valuations of the fund were a calculation exercise with contribution rates being set for all employers based on a single set of assumptions about the future (a "deterministic approach"). The disadvantage of a deterministic approach is that it does not allow the fund, employer or fund actuary to assess the risk associated with the proposed contribution rate. Risk in this context means the likelihood that the funding plan will not achieve the funding target over an agreed time horizon.

With continuing scrutiny on the LGPS, and the requirement to consider covenant strength of the employer when setting contributions, there is an increased focus on using the valuation as an opportunity to assess and understand risk.

This part of our guide sets out how we set contribution rates for employers participating in your fund by adopting a "risk-based" approach. The risk based approach allows for thousands of possible future economic scenarios, rather than a single outcome (which is dependent on the choice of assumptions under the deterministic approach). This allows the fund to quantify the risk of an employer not meeting their funding target given a proposed contribution plan and investment strategy, e.g. if the employer met their funding target in 4000 out of 5000 possible future economic scenarios, there would be an 80% likelihood of the funding plan being successful.

Home

Why adopt a risk based approach?

There are many more employers participating in the LGPS and they are more diverse than ever before. They have different funding profiles (funding level, cash flow position, maturity) and may have different funding objectives. For example, one employer may be well funded, consist purely of active members and will continue to participate in the fund whereas another may have few active members, be poorly funded and be planning to exit the fund in the near future. For each of these employers, the contribution and investment strategy that will help them best meet their obligations to the fund will be different.

A 'one size fits all' contribution and investment strategy is unlikely to lead to optimum funding outcomes for all employers. Tailoring contribution and investment strategies for employers in the fund reduces the risk of adverse outcomes for employers and the risk of complaints against the administering authority (and the associated reputational damage).

Risk-based contributions

The risk based approach can easily and transparently reflect these different contribution and investment strategies in employer fund plans. The approach also ensures stability and affordability of contributions for employers while providing a robust approach that assures the fund that employer contributions are sufficient to meet the employer's funding target.

Setting contribution rates using a risk based approach requires the fund to consider for each employer:

(1) The employer's funding target

(2) How long the employer has to reach the funding target (the 'funding time horizon')

(3) An appropriate likelihood of meeting the target ('likelihood of success') e.g. 2/3rds, 75%

The outcome of these decisions are documented in the fund's Funding Strategy Statement.

Further details of this approach are provided in guide 4 "Key Funding Decisions".

Employer risk based funding

The first two decisions, using a pragmatic approach, are a function of:

- Employer body type
- Approach to new entrants

Setting an appropriate likelihood of success for each employer requires further analysis. To set funding strategies under this risk based approach, the fund should understand the wider business outlook and financial strength for each employer. The fund should also consider if the failure of an individual employer has a material impact on other employers in the fund (who will need to make good any funding deficit that cannot be met by the employer).

To help build up this understanding for each employer, the following information/metrics may be analysed:

- Magnitude of funding deficit/surplus;
- Security provided to the fund in the form of a guarantee or an additional asset;
- Inspection of company accounts/financial statements;
- Evidence provided that there are no competing calls for cash;
- Formal covenant analysis;
- Understanding the business outlook; and
- Outlook for the sector the employer participates in.

Combining the above factors will allow the fund to build up a comprehensive picture of each employer in the fund while maintaining a pragmatic and cost-effective approach.

More detail of the model used to assess the risk-based contributions is provided in guide 6 - "Understanding ALMs"

The results

Following this approach, each employer in the fund will have a funding plan with an aligned contribution and investment strategy, which reflects their risk profile both within and outside the fund.

Understanding ALMs

06

Background

ALM stands for 'Asset Liability Model'. They have become widely used in the actuarial world to project the future evolution of assets that are invested to meet liabilities, like in pension funds. The key feature of an Asset Liability Model is that they show how the funding outcomes for a pension fund are dependent on the interrelated behaviour of both the assets and liabilities in different economic scenarios. This enables the pension fund to optimise both the investment and contribution strategy to meet the liabilities and identify key funding risks. At Hymans Robertson, we use an LGPS specific ALM called comPASS as part of the valuation process to provide funds with extra information to inform decision making when setting funding plans.

How does comPASS work?

Cashflows

Our ALM, comPASS, is specifically tailored to work for LGPS funds. The actuarial team use the membership data at the valuation to project the liability cashflows for the fund (the benefits that have to be paid to members in the future) and the contributions that will be received from members and employers. As the LGPS is an open fund, both to future accrual and to new members, a projection of benefits to be paid in the future to new members not yet in the fund is also included.

Testing Contribution and Investment Strategies

We input into comPASS proposed combinations of investment and employer contribution strategies with the aim of testing which combinations produce the best outcomes for the fund under different possible future economic conditions.

For employer contributions, we can model the effectiveness of different types of contribution patterns including:

- Specified short term contribution rates;
- Stabilisation mechanisms, where changes in employer contributions are constrained to a maximum increase or decrease each year;
- Payment of lump sums into the fund;
- Fixed contribution rates; and
- Contribution rate caps and floors.

Understanding ALMs

We can also test the impact of changes in employer membership over time if significant workforce changes are anticipated.

We use comPASS to test the impact of different investment strategy decisions such as;

- Different asset allocations;
- Impact of hedging;
- Impact of diversification; and
- Setting triggers for changes in level of investment risk.

Scenarios

The different economic conditions are modelled using our propriety economic scenario generator model (ESS). The model is stochastic, meaning it uses probability distributions to project a range of 5,000 different possible outcomes for the future behaviour of asset returns and economic variables, such as inflation, up to 30 years into the future.

Some of the parameters of the model are dependent on the current state of financial markets and are updated each month (for example, the current level of equity market volatility) while other longer term parameters are more subjective and based on economic theory and long term market and Government views.

Key subjective assumptions are the average excess equity return over the risk free asset, the volatility of equity returns and the level and volatility of yields, credit spreads, inflation and expected (breakeven) inflation.
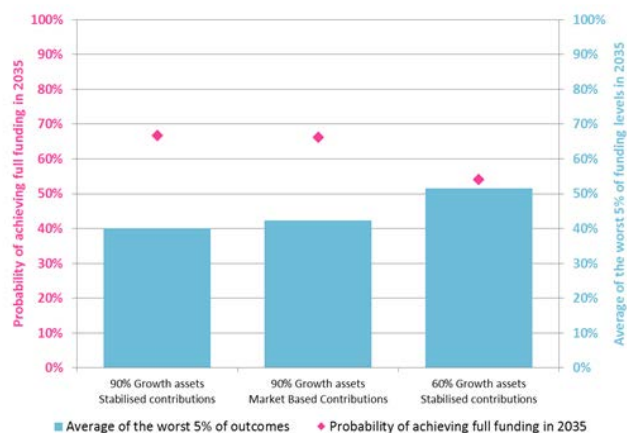
Output from comPASS

Output from comPASS shows what happens to the funding level and other key metrics under each of the 5,000 scenarios and we can capture these metrics from comPASS at any future point. We summarise the output for decision makers using charts like the one shown below.

The pink diamonds and blue bars summarise the key funding plan risk metrics for each combination of investment and contribution strategy tested (shown along the x-axis). The pink diamonds show the percentage of the 5000 outcomes where the funding target was achieved i.e. the likelihood that the strategy is successful. The blue bars show a measure of downside risk – the average funding level in the worst 5% of outcomes - to understand the relative risk of each strategy. As well as funding level, we can analyse future employer contributions requirements and project funding deficits.

Advantages of using an ALM

The key advantage of using an ALM, like comPASS, as part of the funding valuation is that it allows you to consider the contribution strategy and investment strategy together in the same process, rather than the traditional methodology of setting the contributions first and then considering the investment strategy. This leads to the contribution and investment strategy working together, leading to optimised funding plans and considerable efficiency savings. The ability to consider 5000 scenarios, rather than relying on a single set of valuation assumptions about the future, also results in a better understanding of risk and a more robust funding plan.

Governance

The model provides useful information to aid decision makers when setting funding plans. Additionally, the simple summary output make the documentation of the decision making process straight-forward and transparent.

Longevity and other demographic assumptions

07

Home

Background

The first step of the actuarial valuation calculations is to project the benefits that will be paid to members in the future. As there are uncertainties in both the timing and amount of payments to be made from the Fund over a long time horizon, we have to make assumptions. Demographic assumptions impact the timing of payments and financial assumptions impact the amount of payments. Employer contribution rates are sensitive to these assumptions, so the choice of assumption has to be reasoned and robust.

To set appropriate demographic assumptions, we undertake a comprehensive review of membership trends and experience in the LGPS, based on the data we hold across all of our LGPS clients. We also seek input from Club Vita and other sources, including national statistics. Some assumptions are best informed by reference to national statistics or trends across the LGPS as a whole, whereas other assumptions are best determined with a stronger weighting on local knowledge.

This part of the valuation toolkit sets out the key demographic assumptions and the results of our national analysis (financial assumptions are considered in guide 8). Your Fund Actuary will work with you to determine the best assumptions suitable for your fund.

Longevity

The most significant demographic assumption is the longevity of LGPS members.

A quick look at the LGPS Life Expectancy Index[1] shows that life expectancy in the LGPS has been increasing fairly steadily over the last 20 years, albeit the most recent decade has seen slower increases than the decade before.

Generally, over the period since 2011, there have been more deaths than expected. This has given rise to a slower increase in life expectancy than previously experienced. The increase in deaths has been attributed to a range of different factors, including limited scope for future improvements in cardio-vascular mortality (after decades of strong improvements), increases in deaths attributable to dementia and an increasingly frail elderly population. Some commentators have recently suggested that changes in the amount and availability of health and social care, linked to austerity policies, may also be a contributing factor.

It is also important to consider that this "slowdown" in life expectancy increases has been experienced to differing extents by individuals across the socio-economic spectrum – with affluent individuals more resilient to the slowdown effect.

[1]LGPS Life Expectancy Index has been developed as a joint venture between Hymans Robertson, Club Vita and the Local Government Association

Longevity and other demographic assumptions

Mortality is volatile from year-to-year (highlighting the need for regular monitoring) and more recently, 2019 saw a relatively light year for mortality (driven primarily by low deaths in the first quarter) and the start of 2020 also saw below average numbers of deaths. Of course, that changed with the impact of COVID-19, and the associated rapid increase in deaths from late March.

The full effects of COVID-19 have yet to be seen. It is too early to predict the impact of the pandemic on pension funds. One argument is that the increased death rate will result in a fall in liabilities. The counterargument is that it may, in general terms, be the more frail and elderly members of society whose death rate increases, so the overall impact on pension funds is less pronounced. There is also the possibility that the remaining population will be stronger, fitter and healthier and, as such, we might see improvements in longevity going forwards. Given these uncertainties, we do not plan to build in a specific allowance for COVID-19 into the assumption for the 2020 valuation. For the latest COVID-19 longevity analysis please visit **www.clubvita.co.uk.**

Experience since 2017

For a typical LGPS Fund, we would anticipate that there have been more deaths of LGPS pensioners than implied by the assumptions set at the 2017 valuation. We would therefore anticipate there to be fewer pensions in payment in 2020 than expected in 2017. This will, for a typical fund, lead to a modest reduction in liabilities at the 2020 valuation, all else being equal. The actual effect will vary across different funds and employers depending on the specific characteristics and experience of their members.

2020 valuation assumption

The longevity assumption set at the valuation is split into two separate parts:

- Baseline longevity - how long we expect members to live based on current death rates; and
- Future improvements in longevity - how death rates are expected to change in the future.

The effect of some of the recent experience will be taken into account in the 2020 valuation baseline longevity assumption. However, this recent, heavier, experience does need careful consideration when setting the assumption around future improvements due to the volatility and differing impacts across the socio-economic spectrum.

Baseline longevity

The baseline longevity assumption for all Hymans Robertson advised LGPS funds will be set using information from Club Vita. For funds subscribing to the full Club Vita service, the baseline assumptions will be a bespoke set of VitaCurves that are tailored to each member depending on their characteristics (age, sex, affluence, retirement health, occupation). For all other funds, a fund level specific tailored assumption will be created based on the characteristics of each fund's membership and experience. Either method is more accurate than trying to fit standard mortality tables to reflect a given fund's membership.

Evidence has shown over the years that Club Vita assumptions closely reflect the actual experience of LGPS funds, meaning that there are rarely any significant surprises in terms of the financial effect of baseline mortality.

Longevity and other demographic assumptions

Future improvements in longevity

The much reported evidence of a slow down in the rate of life expectancy improvements is based on national population data but is also seen to an extent in the pension scheme data held by Club Vita. However, life expectancy has not changed uniformly across all pensioners. Therefore it is important to understand the changes in life expectancy being experienced by different groups of the LGPS membership.

Recent analysis from Club Vita has shown that more affluent pensioners (those with high pensions or living in affluent areas associated with positive lifestyles) appear to have seen less of a downturn in the rate of increase of life expectancy over recent years than less affluent pensioners, and the wider population. Such affluent members will typically represent less than one-third of the membership of a fund, but they will represent over 50% of its liabilities and, as a result, we need to be cautious about assuming future improvements for a LGPS fund will follow the same trajectory as the general population. Instead, we need to make an assumption which is appropriate for the membership of each fund.

At the 2017 valuation, the assumption for future longevity improvements was based on the 2016 version of the Continuous Mortality Investigation (CMI) longevity improvements model, which is published by the Actuarial Profession, and allowed for the most recent mortality experience observed at the time.

We assumed that the initial rates of improvement from this model would tail off to a long term improvement rate of 1.25% p.a., reflecting our view of longevity improvements from the 2050's.

Our recommended assumption for the 2020 valuation is based on the latest (2019) version of CMI longevity improvements model, which is calibrated with general population data up to the end of 2019. We will adjust the CMI model to reflect Club Vita's experience data of UK occupational pension schemes so it is a better fit for the LGPS. This also allows us to reflect the different patterns of longevity improvement experienced by more and less affluent LGPS members.

Since the 2017 valuation, there have not been any events which have altered our overall view of the longer term trend in life expectancy improvements. As the latest CMI model reflects the recent lower level of improvements experienced, we have increased the assumption about the long term rate of improvement to 1.5% p.a. to provide a projection of how members' life expectancy will increase in the long term that is broadly equivalent to that assumed at the 2017 valuation.

Summary

Overall we would describe these assumptions as reflecting recent longevity experience for LGPS members, whilst seeking to avoid understating rates of longevity improvement in the short term and reflecting a realistic view of longevity improvements over the longer term.

For the average fund, we would expect a modest reduction in liabilities by adopting the above longevity assumptions. If you wish to understand more about your fund's longevity experience and assumptions, please speak to your usual Hymans Robertson contact.

Other demographic assumptions

At each valuation, we carry out a review of all other demographic assumptions using experience data for all the Scottish LGPS funds we advise (nine of the eleven funds). We investigate the extent to which actual experience has compared to the assumptions made at the previous valuation. We also draw on data from Club Vita and other sources, including national statistics and data from the English and Welsh valuations in the previous year. This analysis allows us to set robust demographic assumptions that are appropriate for the LGPS.

Whilst we believe our nationwide assumptions are suitable across the LGPS as a whole, we understand that there may well be local factors which influence certain trends, or some funds with markedly different experience.

At the 2020 valuation, we are offering LGPS funds the opportunity to undertake detailed analysis of their own fund's demographic experience, meaning a more tailored assumption can be made. This option can be discussed further with your Hymans Robertson contact.

The rest of this guide focusses on the results of our analysis of national experience which underpins our nationwide assumptions.

Withdrawal rates

Analysis of the experience data indicates that there have been more withdrawals than expected based on our assumption in 2017, particularly for full time workers. We are therefore increasing our withdrawal assumption, in line with this experience data. This will result in a marginal reduction to liabilities and contribution rates.

Pre-retirement mortality

Analysis of the experience data indicates that there have been slightly less pre-retirement deaths than expected based on our assumption in 2017. The assumed pre-retirement deaths will be slightly reduced for the 2020 for the valuation.

Salary scale

When considering the financial assumptions, we set a long term annual inflationary salary increase assumption. In addition to this, we also consider the long term impact of promotions on members' salaries. Analysis of relevant data indicates the continued existence of a promotional scale. The salary scale varies by age, typically with larger increases at younger ages and is consistent between males and females to reflect the continued narrowing of the gender pay gap. It has been developed over many years to reflect the experience across our LGPS Funds. For the 2020 valuation, the assumption will be unchanged from the 2017 valuation.

Longevity and other demographic assumptions

Ill health retirement

The national analysis suggests a lower than assumed incidence of ill health retirements, particularly for Tier 2. This experience is consistent with what we have seen from the 2019 valuations in England and Wales as well as ill health liability insurance data. We have therefore reduced our assumed incidence of ill health retirement across both tiers 1 and 2 for the 2020 valuation.

The effect of this will be a marginal reduction in liabilities and a reduction to the primary contribution rate of around 0.2% of pay, although this is dependent on the profile of active members and will vary between employers.

50:50 option

At the 2017 valuation, our experience data showed actual take-up of the 50:50 option to be considerably less than assumed at the 2014 valuation, which resulted in most funds opting to reduce the assumed uptake substantially.

Based on the most recent experience data, take-up of the 50:50 option has been around 0.2% of active members across the LGPS. This will vary between funds and therefore we would expect the choice of 50:50 take up assumption to be fund specific and discussed with your Hymans Robertson contact.

Financial assumptions

08
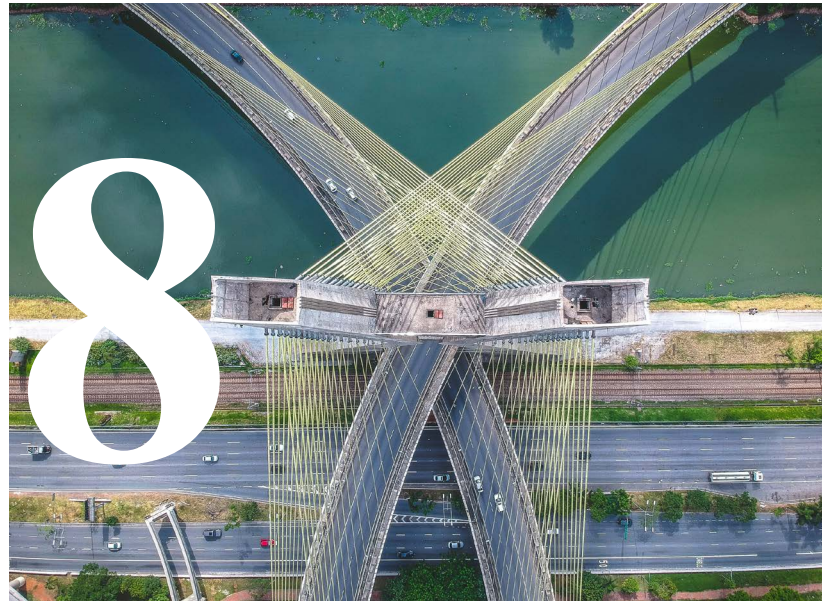
Financial assumptions

Background

The purpose of the valuation is to set employer contribution rates that have a sufficient likelihood of being able to meet the cost of future benefit payments. We use a risk based approach in setting employer contribution rates to allow funds and employers to understand and quantify the level of risk inherent in funding plans. This approach is described in more detail in guide 5 "Employer risk based funding".

Under the risk based valuation approach, each employer's future benefit payments, contributions and investment returns are projected into the future under 5,000 possible economic scenarios. Future inflation (and therefore benefit payments) and investment returns for each asset class (and therefore employer asset values) are variables in the projections. By projecting the evolution of an employer's assets and benefit payments 5,000 times, we can select a contribution rate that results in a sufficient number of these future projections being successful. This approach reflects that the future is uncertain and cannot be predicted using a single set of assumptions linked to market conditions at the valuation date alone.

For many employers it is likely that that benefits will be paid many years into the future (75 years or more). In theory we could carry out the full scenario-based modelling described above for this entire period, allowing us to determine if each year's benefit payments could be met from the projected assets available. In practice however, when projecting further and further into the future, the uncertainty surrounding the projections eventually becomes too high to be meaningful. Instead, as discussed in guide 4, we select an appropriate funding time horizon for each employer and aim to meet the employer's funding target at the end of that time horizon (in a sufficient number of projections).

Financial assumptions

Setting employer contribution rates requires two types of assumptions to be made about the future:

ESS assumptions   Funding target assumptions

0

Time (years)

Funding time horizon
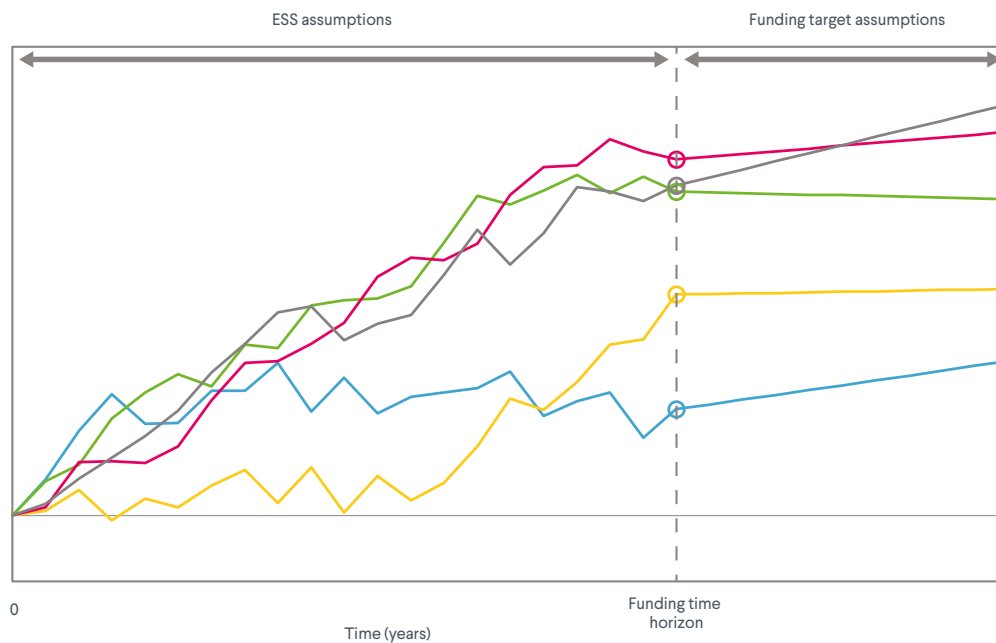
1 Assumptions to project the employer's assets, benefits and cashflows to the end of the funding time horizon – for this purpose we use our Economic Scenario Service ("ESS"), our propriety stochastic economic model.

2 Assumptions to assess whether, for a given projection, the funding target is satisfied at the time horizon – for this purpose we work with each fund to set long term financial assumptions which determine the funding target

Financial assumptions

5,000 projections of the future – our Economic Scenario Service (ESS)

We use the ESS to project a range of possible outcomes for the future behaviour of asset returns and economic variables. With this type of modelling, there is no single figure for an assumption about future inflation or investment returns. Instead, there is a range of what future inflation or returns will be which leads to likelihoods of the assumption being higher or lower than a certain value.

The ESS is a complex model to reflect the interactions and correlations between different asset classes and wider economic variables. The table below shows the calibration of the model as at 31 March 2020. All returns are shown net of fees and are the annualised total returns over 5, 10 and 20 years, except for the yields which refer to the simulated yields at that time horizon.

		Cash	Index Linked Gilts (medium)	Fixed Interest Gilts (medium)	UK Equity	Overseas Equity	Property	Corp Medium A	Inflation	17 year real yield	17 year yield
5 years	16th %'ile	-0.6%	-3.0%	-2.9%	-5.3%	-5.2%	-3.7%	-2.1%	1.3%	-2.7%	0.2%
	50th %'ile	0.2%	0.0%	-0.3%	3.7%	3.9%	2.1%	1.3%	2.8%	-1.8%	1.3%
	84th %'ile	1.0%	3.0%	2.5%	13.6%	13.4%	8.7%	4.5%	4.3%	-0.9%	2.5%
10 years	16th %'ile	-0.4%	-2.5%	-2.0%	-2.1%	-2.1%	-1.8%	-1.1%	1.4%	-2.2%	0.6%
	50th %'ile	0.6%	-0.4%	-0.5%	4.3%	4.3%	2.5%	0.8%	2.9%	-0.9%	2.0%
	84th %'ile	1.7%	1.8%	1.0%	10.7%	10.5%	7.2%	2.6%	4.6%	0.3%	3.8%
20 years	16th %'ile	0.2%	-1.5%	-0.6%	0.6%	0.8%	0.2%	0.2%	1.4%	-1.6%	1.2%
	50th %'ile	1.6%	0.2%	0.2%	5.2%	5.3%	3.6%	1.3%	2.9%	0.1%	3.1%
	84th %'ile	3.3%	1.9%	1.0%	9.9%	10.0%	7.4%	2.4%	4.5%	1.9%	5.7%
Volatility (Disp) (1 yr)		0%	7%	8%	27%	28%	14%	10%	1%		

(column header: Annualised total returns)

For example, the highlighted figures in the table above show that over the first 5 years of the model:

- in 800 of 5,000 scenarios (84th percentile), UK equity returns were greater than 13.6% per annum;
- in 2,500 of 5,000 scenarios (50th percentile), UK equity returns were less than 3.7% per annum; and
- in 4,200 of 5,000 scenarios (16th percentile), UK equity returns were greater than -5.3% per annum (implying that in 800 scenarios, UK equity returns were less than -5.3% per annum).

Financial assumptions

Funding target assumptions

At the end of an employer's funding time horizon, an assessment will be made – for each of the 5,000 projections – of how the assets held compared to the value of assets required to meet the future benefit payments. Valuing the cost of future benefits requires the actuary to make assumptions about the following financial factors:

- Benefit increases and CARE revaluation
- Salary growth
- Investment returns (the "discount rate")

When setting these assumptions, we need to be aware that each of the 5,000 projections represents a different prevailing economic environment at the end of the funding time horizon and so a single, fixed value for each assumption is unlikely to be appropriate for every projection. For example, a high discount rate would not be prudent in projections with a weak outlook for economic growth. Instead, of using a fixed value for each assumption, we need to reference economic indicators to ensure the assumptions remain appropriate for the prevailing economic environment in each projection. For convenience, the economic indicators we use are: future inflation expectations and the prevailing risk free rate of return (we use the yield on long term UK government bonds as a proxy for this rate).

Financial assumptions

Benefit increases and CARE revaluation

In the LGPS, pension increases and CARE benefit revaluation orders are set with reference to the Consumer Price Index (CPI). Unlike the Retail Price Index (RPI), there is not a deep market for CPI linked investments upon which to base an inflation assumption. Therefore, we adjust the RPI inflation measure to obtain an assumption for CPI. Our estimate is based on analysis of past and emerging future trends in the gap between these indices. When setting a CPI assumption, we also take account of the Bank of England's long-term rate of CPI inflation of 2% p.a. For the 2020 valuation, our recommended benefit increases and CARE revaluation assumption is RPI less 0.9% (note this is a slight increase from our assumption at the 2017 valuation which was RPI less 1.0%).

Salary growth

Nearly all stakeholders in a LGPS fund have a view on what future salary growth will be, and sometimes these views can be very different. At the 2020 valuation, we will work with each fund to determine an inflationary salary increase assumption that reflects the fund's views on both short term and long term salary expectations. The long term salary growth assumption will continue to be linked to inflation as in past valuations.

Investment returns

To help funds set the assumed long term investment return, we have to analyse the future expected return on assets at the end of the funding time horizon. By analysing the distribution of returns generated by the model over the 20 years after the funding time horizon and considering the level of prudence that is consistent with the fund's risk appetite, an appropriate long term target return (or discount rate) can be set. The level of prudence is based on the likelihood of the fund's investments returning above a given assumption. The assumed long term return is set as a margin above the risk free rate so it remains appropriate in each of the 5,000 projections. Sample output of the analysis is shown below

Assumed return above risk free rate (% p.a.)	1.6%	2.0%	2.4%
Liklihood of returns above assumption	74%	69%	63%

At the 2020 valuation, we will work with each fund to determine an assumed return which reflects both their risk appetite and possible long term investment strategy.

Measuring a funding level

09

Measuring a funding level

Background

The ultimate objective of an LGPS fund is to be able to pay members' benefits as they fall due. For an open, ongoing scheme like the LGPS, the main purpose of the valuation is to set employer contribution rates that, together with future investment returns on the employer's assets, have a high likelihood of meeting this ultimate objective.

Our valuation approach focuses on optimising both the investment and contribution strategy to meet the fund's future benefit payments and identify key funding risks. We do this by determining a long term funding target (see guide 4 – "Key funding decisions") and then assessing the effectiveness of different investment strategies and contribution patterns to meet that target using our Asset Liability Model, comPASS. This approach is discussed in more detail in guide 6 – "Understanding ALMs".

A secondary output from the valuation is the calculation of a funding position at the valuation date: in other words, to what extent do the assets held by the fund at 31 March 2020 cover the accrued benefits (liabilities)? LGPS funds typically report two measures of the funding position: a funding level (the ratio of assets to liabilities) and a funding surplus/deficit (the difference between the asset and liabilities values).

In this guide we consider the purpose of the funding level measure and explain our approach to calculating this at the 2020 valuation.

Measuring a funding level

The purpose of a funding level

For many LGPS stakeholders, a funding level is one of, if not the, key valuation output. This is because, traditionally, a funding level provided an indication of the funding gap that must be made good via future employer deficit recovery contributions.

However, considering the current funding position in this way has the following limitations:

- A funding level is calculated on a single set of assumptions about the future, and is very sensitive to the choice of assumptions. Within a funding level there is no insight into the likelihood of the assumptions being borne out in practice within the current economic environment or the fund's investment strategy.

- A funding level is based on the market value of the assets at the valuation date. As the LGPS is generally invested in volatile assets (e.g. equities) there can be significant shifts in a funding level on a daily basis.

- A funding level only considers the benefits accrued to date. Funding these benefits are only one part of the cost that employers must meet in a LGPS fund. For the majority of employers, the contributions required to meet the cost of future benefit accrual (primary contributions) are higher than those required in respect of accrued benefits (secondary contributions).

Given these limitations, the way we set employer contribution rates in 2020 does not rely only on a funding level at the valuation date. Rather, the process for setting contribution rates considers how the assets and liabilities (in relation to both past and future service) will evolve over time. A funding level will therefore not indicate directly how contributions have moved or provide an in-depth assessment of the risk inherent in the funding plans.

Measuring a funding level

However, a funding level is helpful to:

- provide a high-level snapshot of the position of the fund at 31 March 2020 relative to other dates; and
- to help employers gain an understanding of the factors that cause their pension costs to change, and in particular, the impact of their decisions around risks they control (for example, salary awards and early retirement enhancements).

Tracking a funding level over time can also still be useful for LGPS funds. Provided the reasons for any change in that funding level are identified and understood, understanding how the assets and liabilities are changing over time can help the fund identify opportunities that arise following genuine improvements in the underlying funding position. For example, an improvement in funding position caused by a period of strong asset returns may identify an opportunity to 'lock in' the investment gains by reducing investment risk.

Calculating a funding level

To calculate a current funding level, we compare the market value of assets against a value of the benefits accrued to date. The value of assets is easily obtained via market valuations. Placing a single value on the benefits requires assumptions about when and how much benefits will be paid i.e. demographic and financial assumptions. These are discussed in further detail in guides 7 and 8.

Whilst these are discussed further in guides 7 and 8, for the purpose of calculating a single funding level, we need to take a slightly different approach to derive the financial assumptions. Instead of 5,000 different assumptions about future investment returns and inflation, we use a single value for each.

To derive an assumption about future inflation (which underlies the benefit increase, salary increase and CARE revaluation assumptions), we can compare the difference on fixed interest and index linked long term government bonds. This provides us with the financial market's view of long term inflation.

Measuring a funding level

The choice over a single assumed return on the fund's assets is less straightforward (and therefore more subjective) due to the various different types of assets each fund is invested in and the limitation of reliable indicators about the financial market's expected long term view. We need to consider what choice of investment return assumption will provide the most meaningful funding level for stakeholders.

At the 2017 valuation, for the purpose of showing a funding level at the valuation date, our approach was to report an assumed investment return that was based on a given margin above the risk-free interest rate at 31 March 2017 (specifically, the yield on long term UK government bonds). At the 2020 valuation, we are pleased to extend the evolution we made at the last valuation to our contribution rate setting methodology to the calculation of the assumed future investment return used in assessing the current funding position.

We believe valuation outputs are more meaningful when stakeholders can understand the likelihood attached to them. Instead of using an assumption based on one market indicator (a deterministic approach), we can use an assumption that reflects the range of possible future investment returns and the likelihood of a fund's assets returning this assumption (a stochastic approach). We do this by using the current investment strategy and our proprietary economic model, the Economic Scenario Service (ESS), to generate a distribution of possible annual investment returns over the next 20 years. A sample distribution is shown here.
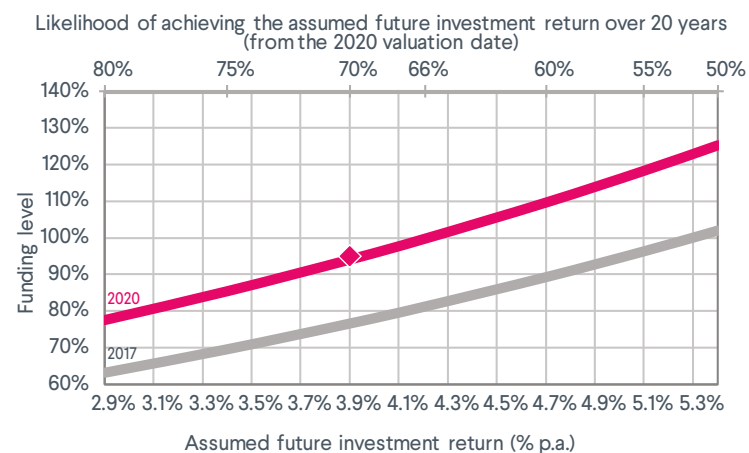
Current Strategy

Annualised returns from year 0 to year 20 (% p.a.)
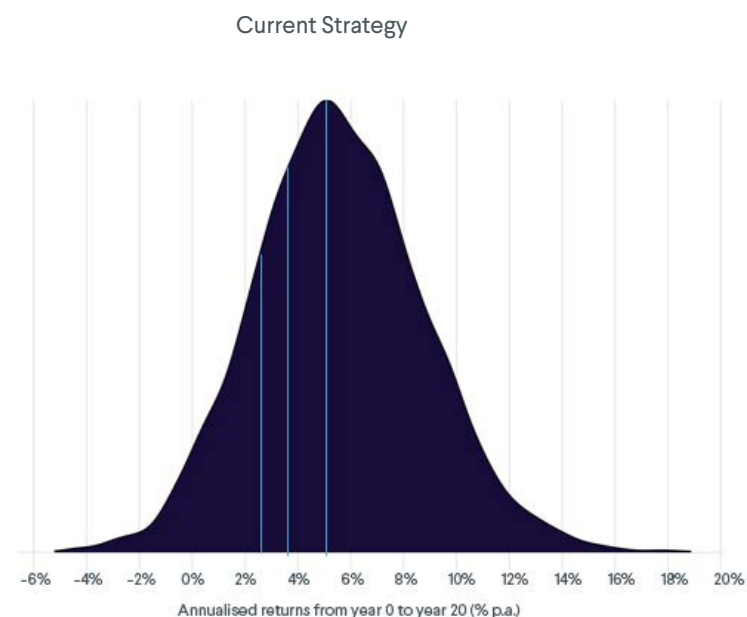
Measuring a funding level

The above chart illustrates that, for the sample fund shown:

- the median expected return on the fund's assets over the next 20 years is around 5.4% p.a. (i.e. there is a 50% likelihood that the fund's assets will return at least this level in the 5,000 scenarios modelled);

- the fund's assets can be expected to return at least 3.9% p.a. in 70% of the 5,000 scenarios modelled; and

- the fund's assets can be expected to return at least 2.9% p.a. in 80% of the 5,000 scenarios modelled.

As funds are required to take a prudent approach in the valuation, and all other assumptions are best estimate, the assumption for future investment returns needs to be prudent. The following chart demonstrates how the funding level varies with the level of prudence in the future investment return assumption. For comparison, the funding level associated with the same choice of investment return assumption at the 2017 valuation is also shown.

When communicating valuation results, LGPS funds need to present a single funding level. The above analysis allows funds to do this by selecting their level of prudence in the calculation of the funding position and reading off the associated funding level.

Likelihood of achieving the assumed future investment return over 20 years (from the 2020 valuation date)
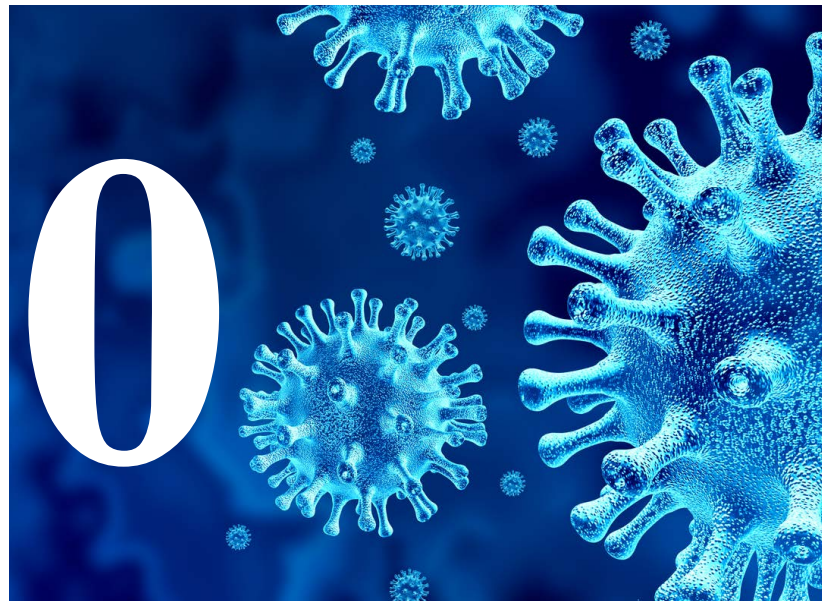

This approach at the 2020 valuation to measuring a current funding level allows stakeholders to have a better appreciation and understanding of the risk inherent in their strategy when looking at the funding level metric. All this information will be presented during the initial results stage of the valuation.

Impact of COVID-19
on the 2020 valuation

10

Impact of COVID-19
on the 2020 valuation

Background

With a valuation date of 31 March 2020, this round of valuations in Scotland is directly affected by the COVID-19 pandemic. For defined benefit pension schemes like the LGPS, the impact has been felt in the value of scheme assets. The chart below shows the evolution of a typical LGPS fund's asset value between 1 April 2017 and 31 March 2020.

It is very easy to look at this chart, automatically assume the worst for the upcoming valuation and start to plan for increases to contribution rates. Yet this is not necessarily the case.

The funding level disclosed at 31 March 2020 is based on the asset value as at this date, so funding levels will be lower than we would have expected at the start of the year. However, the funding level is only a snapshot of the Fund at one particular day so, as an indicator of the long-term health of the Fund and funding plans, it is of limited use.

The LGPS is an open scheme in which the participating employers generally have a strong covenant. This allows us to take a long-term view when considering the general funding plan implications of events such as this. No one knows what the long-term impact of the COVID-19 pandemic may be on the economy (future investment returns and inflation). A lot of the recent market movements have been driven by this very uncertainty and fear, instead of hard facts about changes to long term economic growth prospects. Further uncertainty also arises from not knowing what, if any, impact the pandemic will have on long-term life expectancy – will we see a one-off blip or are there longer-term consequences? So, whilst the impact on the 31 March 2020 funding level is black and white, when considering contribution rates at this valuation we will be dealing with many shades of grey. To help you navigate this uncertain time, we will continue to use our risk-based approach to setting contribution rates so you can understand the level of prudence and downside risk under a variety of future economic scenarios for every employer.

Impact of COVID-19 on the 2020 valuation

Of course, we have been here before with the "Credit Crunch", the "Dot Com bubble" and "Black Wednesday". Our approach at this valuation will be the same as it was during those times – to continue to assist funds in setting contribution rates based on the long-term with the aims of stability, affordability and having enough money to pay future benefits. There will be decisions to be made in every fund about whether contribution rates will stay the same, increase or decrease and they will differ depending on each fund's attitude to prudence and their views on the future, including but not limited to COVID-19 implications. Our key role will be ensuring the fund has sufficient information to make informed decisions.

Whilst most employers in the LGPS are long-term in nature with a strong covenant, there are some where this is not the case. For these employers the current COVID-19 situation will require further consideration and management before, during and after the valuation.

Short term employers

Those employers with a much shorter funding time horizon are likely to be admission bodies (contractors or community of interest) who will cease participation in the near future with any exit payment or credit being based on their funding balance sheet at the cessation date. The main aim of the funding plan for these employers is to set a contribution rate such that the employer leaves fully funded i.e. with no surplus or deficit. Given that the ongoing volatility in asset prices means that funding positions move significantly on a daily basis, this makes setting a funding plan much more difficult (it's always more difficult to hit a moving target).

For the 2020 valuation, each fund will need to carefully consider how to set contribution rates for employers in this situation. We want to avoid setting a rate that either results in material under-funding at cessation (as the employer may not be able to afford to make good the deficit) or is too high and unaffordable. To manage these risks, funds may need to consider possible risk management options such as:

- **Factoring in post 31 March 2020 market movements when setting contribution rates**

- **Putting in place in contingent contribution plans which are triggered based on a combination of funding level and time until exit**

- **Reserving the right to review and amend contribution rates during the intervaluation period**

Deteriorating employer covenants

We have already seen the impact the current uncertainty can and will have on some businesses. We expect that in some individual cases an employer's covenant will have significantly deteriorated. In these cases, any change in contribution rate as a result of the 2020 valuation, or even continuing to participate at all in the LGPS, may be problematic.

In such cases, it is better to be aware of the issues as early as possible instead of waiting to find them out later on in the valuation year. With that in mind, we would advise that funds review their employer database to identify any employers that are especially exposed to the current issues in the economic and social environment. The fund should then open a dialogue with these employers as soon as possible to gain some understanding and reassurance (or otherwise) about their:

- ability to fund their LGPS pension obligations
- ability to fund any cessation deficit if/when they leave the fund
- future pension provision arrangements and whether COVID-19 has accelerated their thinking

Practical issues

At the time of writing (April 2020), it seems unlikely that life will be returning to normal anytime soon so COVID-19 will have an impact on how the 2020 valuation is operationally carried out. Whilst technology and adaptability of staff have allowed most day to day processes to carry on uninterrupted, a significant possible source of disruption could be around collation and submission of year end data. For example, some smaller employers may be unable to access their offices and files to submit data to the fund or key members of staff may be unwell during the next few months. Any delay in data provision may then have a knock-on impact to the rest of the valuation. Communication with your employers and actuary during the next couple of months will help manage this risk.

We do not anticipate any issues or problems with being able to process your valuation data and calculations and delivering results under the current work from home environment.

The current situation is evolving on a daily basis and, as such, we will continue to closely monitor any developments and keep you up to date. If you wish to discuss any of the issues mentioned, please contact your usual Hymans Robertson consultant.

Allowing for McCloud and the Cost Cap mechanism

11

Allowing for McCloud and the Cost Cap mechanism

Background

Two Court of Appeal judgements in December 2018 (collectively referred to as the 'McCloud' judgement) ruled that transitional protections in the new 2015 Firefighters' and Judges' pension schemes amounted to unlawful discrimination against younger members (and indirectly against women and ethnic minorities). Since then there has been anticipation to see how the issue is resolved across all public sector pension schemes, including the LGPS.

In the LGPS in Scotland, the transitional protections introduced an underpin where the benefit received by an eligible member for service from 1 April 2015 is the greater of the 2009 1/60th final salary scheme or the 2015 1/49th CARE scheme.

At the time of writing (June 2020), the exact details of the solution to McCloud have yet to be confirmed although a consultation is expected imminently. The ongoing uncertainty around the benefit structure as a result of McCloud does present difficulties when assessing the funding position of a LGPS fund and its employers and setting contribution rates at the 2020 valuation. The benefit structure uncertainty is a funding risk which will need to be managed by each fund in their funding plans and strategies.

Helpfully, in May 2020, the Scottish Public Pensions Agency (SPPA) set out their expectations for how funds should allow for the uncertainty around McCloud at the 2020 valuation. SPPA's expectations are that an allowance should be made by valuing members' benefits as per the various Regulations in force at 31 March 2020 except for the following assumptions:

- The current underpin (which only applies to those members within 10 years of their NPA at 31 March 2012) will be revised and apply to all members who were active in the scheme at 31 March 2012.
- The extension of the underpin will apply to all those members who were active at 31 March 2012 but have left active status since 1 April 2015.
- The underpin will apply to all service accrued between 1 April 2015 and 31 March 2022.

This approach is not mandatory, but we would expect most (if not all funds to follow SPPA's expectations. The rest of this guide explains how we will make allowance at the 2020 valuation for the above.

Please note that the contents of this guide have been written to act as a reference source for further advice during the valuation process and are of a technical nature. It has been necessary to include a high level of detail in this guide to ensure the advice we deliver during the 2020 valuation complies with Actuarial Professional Standards.

How will the McCloud remedy affect the benefits paid out in future?

The above assumptions mean that, when an eligible member retires, the benefit accrued between 1 April 2015 and 31 March 2022 would be calculated in two ways:

- 2015 scheme: CARE with a 49ths accrual rate, and a normal retirement age equal to state pension age

- 2009 scheme: Final salary with a 60ths accrual rate, and a normal retirement age of 65

Allowance would also need to be made for any retirement age protections and any early or late retirement factors.

The member would then receive the better of the two benefits. There are four key elements which determine which method ends up giving the more generous benefit:

Element	Explanation	Which is more generous?	Level of uncertainty
Accrual rate	How quickly pension benefits build up each year	2015, by over 22% (except for the very small number of members in the 50:50 scheme)	None.
Retirement age and early/late retirement factors	Benefits are adjusted for members retiring before/after their normal retirement age for each scheme	Generally 2009, as the retirement age is generally lower, although many members will see no difference due to protections	Retirement age is uncertain as members have freedom to choose. Factors are reviewed periodically by the Government Actuary's Department (GAD) but are otherwise fixed
Real salary increases (versus CPI inflation) from 2015	2009 scheme depends on pensionable pay at date of retirement (or deferment for deferred members)	Generally 2009, although depends on pay increases versus CPI inflation – would expect pay increases to be higher than CPI inflation in the long term	Very high – future salary increases will vary significantly by year and by member depending on career progression
Rate of withdrawal from active service	The longer members remain active contributors in the LGPS, the longer the 2009 benefit will be linked to salary increases	The lower the rate of withdrawals, the more likely the 2009 benefit will overtake the 2015 benefit	Moderate – will vary by member depending on their career choices but is historically more predictable than salary increases at whole fund level

Because of the uncertainty over future pay progression and retirement age it is impossible to determine in advance which scheme will give a higher benefit. The answer will only be known for each member when they retire and benefits can be calculated accurately under both methods.

Allowing for McCloud and the Cost Cap mechanism

How will we estimate the cost impact?

Active members

For each member we will estimate their benefit at retirement (based on service up to the valuation date) under both schemes, and then take whichever is greater.

The process can be summarised as follows:

1. Identify which members are eligible for the extended protections i.e. those active at 31 March 2012.

2. Multiply the member's existing CARE pot by 49/60 as an estimate of the equivalent benefit under the 2009 scheme.

3. Generate a random salary increase in each year, based on the assumption described below, allowing for the likelihood that the member is still active in that year.

4. Calculate the cumulative salary increase up to retirement.

5. At the members 2009 scheme retirement age, apply any early or late retirement factors and compare the two benefits, taking whichever is greater.

By repeating this process for every active member in a fund, we can analyse how much greater members' benefits will be as a result of the McCloud ruling, split by age and member group (i.e. male/female, full-time/part-time etc). The results of this analysis are then fed into the rest of our valuation calculations to adjust liabilities and contribution rates accordingly. For example, if our analysis shows that female employees working full-time and born in 1975-1980 are likely to see a 15% benefit increase thanks to McCloud, we will increase their liabilities for post-2015 service (up to 31 March 2022) by 15%.

Deferred and pensioner members

The McCloud ruling applies to all service earned from 1 April 2015, so pensioners and deferred pensioners who were active at some point since 2015 could also be affected.

We have not allowed for any impact on pensioners on the assumption that virtually all who have retired since 2015 will have been eligible for the underpin anyway.

For deferred members, we will make a flat increase of 1% to the liability for all members who became deferred since 2015. These members are unlikely to benefit from McCloud as they lose the 'final salary link' when moving to deferred status. However, some members could still benefit if they return to active service or if they had a substantial pay rise before they left. The 1% loading is an approximate way to allow for these factors.

Allowing for McCloud and the Cost Cap mechanism

What assumptions will we make?

Salary increases

The salary increase assumption has a very significant impact on which scheme is most generous, and yet an individual member's future salary growth is very uncertain.

Traditionally, when we carry out an actuarial valuation, the salary growth assumption is comprised of a fixed 'inflationary' element (e.g. CPI inflation + 1.0% p.a.) and an age-dependent 'promotional' scale based on analysis of historical trends and future expectations. These assumptions are described further in guides 7 and 8. Using a fixed assumption in this way is appropriate for most valuation purposes but is unsuitable for modelling the impact of McCloud as it means everyone in the same category (defined by age, sex, retirement age etc) will have exactly the same salary progression up to retirement. The underpin will therefore either 'bite' for everyone in a certain category or bite for no one at all, which is not realistic in practice and leads to 'cliff-edges' in the results.

Instead, to capture both the uncertainty and variability of salary increases, we will model them stochastically. This means that every member has a different salary increase for each year in the future, generated randomly from a specified probability distribution. The probability distribution has been designed so that the median value at each age mirrors very closely the simple assumption made elsewhere in the valuation (including the promotional element). This ensures that the allowance for McCloud is consistent with the rest of the valuation calculations.

For example, for a fund whose inflationary pay growth assumption is CPI + 1% p.a., the parameters of the distribution are as follows:

Age band	Lognormal probability distribution			
	All pay increases are expressed in real terms, i.e. net of CPI inflation			
	Promotion-al element (p.a.)	Inflationary element (p.a.)	Combined median (p.a.)	Standard deviation
16 – 25	2.5%		3.5%	
26 – 35	2.0%		3.0%	
36 – 45	1.0%	1.0%	2.0%	2.0%
46 – 55	0.0%		1.0%	
56 – 65	0.0%		1.0%	
66+	0.0%		1.0%	

Allowing for McCloud and the Cost Cap mechanism

Based on these parameters, the resulting distribution of pay increases at ages 30 and 50 is shown below:

Model distribution of annual real pay increases at age 30 vs age 50
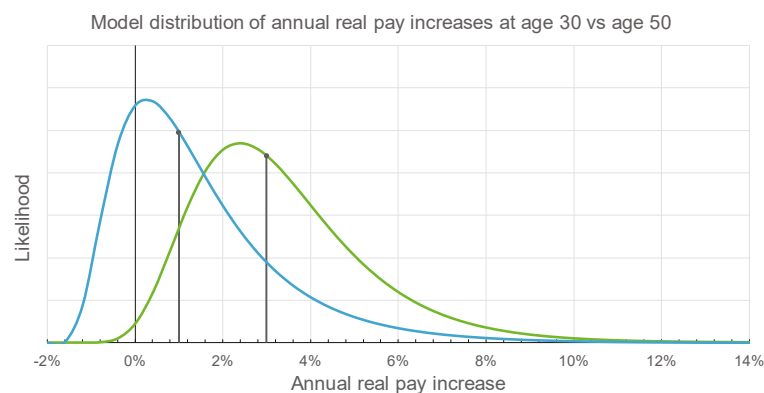
The distribution allows for the possibility of negative real pay increases (i.e. pay rises below inflation) as well as large positive increases. Real terms pay cuts are likely to happen when pay is frozen but inflation continues, whereas pay rises could be very high depending on promotions and career progression. This is why the shape of the distribution is not symmetrical.

Withdrawal from active service

For the McCloud analysis, we will adopt the same withdrawal assumption used for your 2020 actuarial valuation. The withdrawal decrements at sample ages will be shown in your fund's Initial Results Report and the final Valuation Report.

Other assumptions

To calculate the reduction or uplift to pensions taken before/after normal retirement age, we will use the LGPS Scotland early and late retirement guidance and factors in force at the time of writing, i.e.

- Early Retirement: Guidance dated 17 April 2020 and factors effective from 12 March 2019

- Late Retirement: Guidance dated 10 September 2019

To estimate each member's 2009 scheme benefit for the period 1 April 2015 to 31 March 2020 we will multiply their CARE pot by 49/60. This implicitly assumes that:

- All members have been in the main section of the 2015 scheme (rather than the 50:50 section)

- Pay increases since 2015 have been in line with CPI inflation

- The pay definition for the 2009 scheme and 2015 scheme is identical

Allowing for McCloud and the Cost Cap mechanism

Other points to note

We believe the above assumptions are appropriate and proportionate given the data available and the expected financial impact of McCloud on liabilities. The impact of McCloud is sensitive to the assumptions outlined above. If any of the factors feeding into these assumptions were to change then it may have a significant impact on the funding impact of McCloud.

Our model allows for all the significant factors influencing the cost impact of the McCloud ruling. Given the uncertainty around the design of the remedy, the data available and the complexity of the LGPS benefit structure, there are some elements that we will not allow for:

- Active members leaving the scheme before retirement age due to ill-health retirement (the incidence rates of ill-health retirements are typically very low).
- Active members in the 50:50 scheme (who elect to pay lower employee contributions in return for lower benefits). Given the low take-up rate of this option, we do not believe this will have a material impact on the allowance.

We will not allow for the impact of the McCloud ruling on service after 31 March 2020. Given that we expect the McCloud 'tranche' of benefits to end on 31 March 2022, we do not believe this is a material omission and will not significantly affect the primary rates calculated at the 2020 valuation (which come into payment from 1 April 2021 onwards).

Cost Cap

Background

Alongside McCloud, there is another ongoing national process which is resulting in current uncertainty around the benefit structure of the LGPS – the "Cost Cap".

As part of the public sector pension scheme reforms in the first half of the 2010s, a mechanism was put in place which sought to put in a safety valve and protect employers from significant increases in future pension costs. Historically, any variations in pension costs fell to the employer to fund. The mechanism sought to re-distribute the risk and share any cost variations with members.

The mechanism was originally intended to act as a capping mechanism on costs i.e. action would only be taken if costs were higher than expected. However, during the reform implementation, the mechanism was amended to a symmetrical design i.e. there would be a cap and a floor on cost. Therefore, if costs were less than expected, then action would be taken to improve the benefit structure. In essence, the Cost Cap became Cost Sharing.

Allowing for McCloud and the
Cost Cap mechanism

The first Cost Cap valuations were carried out as at 31 March 2016 for the unfunded pension schemes (e.g. NHS, Teachers, Police, Fire etc.) with initial results communicated in Autumn/Winter 2018 to the relevant Scheme Advisory Boards. These valuations showed a significant reduction in the assessed cost of pension provision. The typical result was a saving of around 3-5% of pay. This was mainly attributable to reductions in life expectancy and an extension of restricted salary increases.

Impact on LGPS Scotland

The first Cost Cap valuation of LGPS Scotland was set to be as at 31 March 2017, however this is currently on hold until McCloud is resolved.

Given the factors that gave rise to the savings observed at the 2016 valuation of other public service pension schemes were life expectancy and salary increases i.e. national factors, it is reasonable to expect that the result of LGPS Scotland's Cost Cap valuation will be similar i.e. a saving of around 3-5% of pay. This would result in a change to the scheme benefit structure or employee contribution rates from 1 April 2020.

Impact on the 2020 valuation

If the LGPS Scotland Cost Cap results are similar to the savings observed in the 2016 Cost Cap valuations then this represents a significant source of upward pressure on employer contribution rates, which may not be balanced out by McCloud remedy costs.

Ideally, funds would start communicating such pressure with employers with as much notice as possible. However, this is currently not possible until information about the results are communicated by the Government Actuary's Department (GAD). We are hopeful that GAD will be able to share more information before the 2020 valuation results are prepared.

In the absence of any further information, each LGPS fund will need to consider how best to manage the uncertainty around the cost of benefits due to the Cost Cap during the 2020 valuation process. Possible options include:

- Add an explicit loading onto employer contribution rates e.g. x% of pay;
- Increase the level of prudence in the funding plan; or
- Do nothing

Regardless of the approach taken, careful communication with employers and other stakeholders will be required. This issue will be closely monitored and discussed throughout the 2020 valuation and any approach will need to be clearly set out in the Funding Strategy Statement.

If you wish to discuss any of the points covered in this guide, or require further information on either McCloud or the Cost Cap for your stakeholders, please get in touch with your usual Hymans Robertson contact.