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Conditional Indexation modelling

This document provides some context for Conditional Indexation (CI) pension scheme arrangements and a summary of modelling the Trustee has undertaken at the request of Universities UK (UUK).

For a high-level description of what a CI pension arrangement is see 'An Introduction to Conditional Indexation'. There are a number of technical references in this paper – a glossary can be found here.

1. Background

A CI arrangement is a defined benefit pension scheme design where the annual increases (also known as "revaluation" before retirement and "indexation" after retirement) applied to benefits built up are conditional on the funding position of the scheme.

Rather than guaranteeing the level of inflation protection paid in future years in full, a CI arrangement grants inflation increases on a discretionary basis subject to them being assessed as affordable by the scheme (and once granted an increase cannot be removed).

As such, CI can operate on a more stable contribution rate than a Defined Benefit (DB) arrangement with guaranteed increases, as there is an additional mechanism for dealing with any financial strains (i.e., by modifying the level of future discretionary increases).

CI is relatively new territory for the UK, but it has similarities with how many large UK pension schemes operated in the 1970s and '80s before more stringent legislation around revaluation and indexation was introduced.

CI has been operated in both Canada and The Netherlands, where different models for granting inflationary increases have been used.

The Canadian model, operated by the Ontario Teachers' Pension Plan (OTPP) and University Pension Plan Ontario (UPP), is more flexible and is covered by specific legislation that provides an exemption for these schemes from the solvency requirements in relation to scheme funding otherwise applicable to DB schemes in Canada.

The legislation was introduced specifically to facilitate the operation of certain schemes.

Flexibility in the Canadian arrangements is provided by having no guaranteed inflation protection on pensions in payment and on benefits for deferred members (those who stopped paying into their scheme before reaching retirement). Prior to retirement, increases in active members' benefits are linked to their salary. Details of the Canadian schemes can be found on their websites.

A degree of CI could potentially be introduced within current UK law but changes in legislation would be required to provide the same flexibility that is available to the Canadian schemes.

To understand this a little better, modelling has been requested by Universities UK (UUK), the body that represents employers in USS, and produced by the USS Trustee, in respect of the current benefits provided by USS, and other potential CI benefit packages.

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2. CI within the UK context

Within existing legislation, occupational DB schemes such as USS have to (at a minimum) guarantee annual increases on pensions in payment of CPI or 2.5%, whichever is the lower. Therefore, UK indexation legislation would need to change to provide the same flexibility on post-retirement increases as seen in the Canadian model.

Flexibility under UK legislation can be provided in respect of

- Increases on pensions in payment above the 2.5% minimum; and
- Increases before retirement[1].

Note, however, that non-guaranteed inflation protection prior to retirement does give rise to a challenge in respect of complying with automatic enrolment requirements. This is discussed further in section 12.

The modelling in this document allows for the UK post-retirement increase requirements of CPI increases guaranteed up to 2.5%, unless otherwise stated.

3. Conditions for granting CI increases

Under the Canadian model, CI increases are granted on the basis of an "aggregate valuation" based on the existing membership allowing for current assets, expected future contributions, expected future benefits, and inflation combined with best estimate investment returns used as the discount rate[2] to determine the Scheme's liabilities and the value of future contribution income.

CI increases at the desired level are granted if:

- the assets plus the value of future expected contributions; is equal or greater than

- the value of guaranteed benefits (past and future) plus the value of the desired level of CI on these past and future benefits.

If the desired level of CI cannot be supported, then the level of CI increases is adjusted down, and/or member and employer contributions are increased to ensure that:

- the assets plus the value of future expected contributions; is equal to

- the value of guaranteed benefits (past and future) plus the value of the level of CI to be granted on these past and future benefits.

Under UK legislation it is expected to be possible to operate a scheme that adopted a similar approach to granting CI increases; but there would be a need to demonstrate compliance with the UK funding regulatory framework for DB schemes, as well as automatic enrolment requirements.

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[1] Under the revaluation legislation, Career Average schemes (such as USS) do not need to provide inflation protection before retirement providing deferred pensioners are treated the same as active members.
[2] A number that is applied to all the benefits that members have already been promised to calculate their present-day value. We work out this rate using a forecast of investment returns and a margin for prudence, if appropriate.

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4. CI Modelling

As set out in 'An Introduction to Conditional Indexation' and in the opening paragraph of this report, the CI modelling is based upon a specification proposed by UUK as a basis to undertake initial work to test the viability of a CI model.

It is not intended to presume what design features stakeholders may wish to explore should they wish to develop the work undertaken to date. There is a wide range of possible options for stakeholders to consider, including different target benefits, different contribution rates, different ways of assessing whether the scheme can afford conditional increases, and different levels of confidence of being able to provide the conditional increases.

The specification for modelling broadly follows the Canadian model with fixed contributions, all adjustments to address deficits at each valuation are made via the level of CI increases considering benefits earned prior to the valuation date and those expected to be earned in the future. We have not considered increases to contributions for either employers or members as part of this modelling.

We have undertaken modelling on both a deterministic and stochastic basis.

- On a deterministic basis, we have considered:

    o The level of investment return required for different contribution levels to deliver a targeted level of inflation protection

    o How the Scheme could develop over time

    o The level of flexibility afforded by a CI approach to absorb adverse experience.

- On a stochastic basis, we have considered:

    o The range of potential outcomes for different levels of contributions based on a targeted level of accrual for pension and retirement lump sum

    o The impact of applying a funding test in determining the ability to provide the CI increases (see section 10 for an explanation of the UK funding test requirements and their potential impacts).

In both the deterministic and stochastic modelling, the outcomes have been considered with and without the existing accrued benefits. Calculations have been undertaken as at 31 March 2022 using the assumptions underlying the Trustee's 2022 Accelerated Year-end Review (AYR) and the related best estimate investment returns applied to the Scheme's current Valuation Investment Strategy (VIS). The membership data is that as at 31 March 2020 rolled forward to 31 March 2022. A full description of the underlying assumptions is provided in the annex.

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5. Benefits modelled

The key benefits we have modelled as per the initial request from UUK (as a basis to undertake initial work to test the viability of a CI model) are:

- An accrual rate of 1/75th for pension and a retirement lump sum of three times the pension.
- A DB salary threshold of £50,000
- Targeted Pre-retirement increase of up to 100% of CPI with a target level of CPI protection of 100%
- Targeted Post-retirement increases of up to 100% of CPI subject to a minimum of CPI up to 2.5% a year, with a desired level of CPI protection of 100%
- Contributions rates of 20%, 25% and 31% of salaries were selected after discussion with UUK In some cases, for the purpose of comparison, we have also modelled accrual rates of 1/80th and 1/85th (the current DB accrual rate in the Scheme).

No allowance has been made in the modelling for any contribution payable on salary above the DB salary threshold (over and above the 20% contributions (8% member and 12% employer) on salary in excess of the salary threshold that are paid into the DC section) that would possibly be available to the DB section of the scheme. Benefits relating to salary above the threshold have also been excluded

This initial work is not intended to presume what design features stakeholders may wish to explore should they decide to develop the work undertaken to date. More details of our approach to modelling are provided in the annex.

6. Deterministic modelling: required investment return to deliver the desired benefits

A measure used by the Canadian schemes which operate on a CI basis is to establish the investment return required over the lifetime of existing members to deliver the desired level of benefit.

Once the investment return required is established it can be compared with investment expectations for the investment portfolios to be held.

The investment return required is calculated from the following equation:

$$\textit{Assets} + \textit{Value of future contributions} = \textit{Value of guaranteed benefits} + \textit{Value of CI at the desired level}$$

Notes:

- The value of guaranteed benefits is the sum of those already accrued plus those which are expected to accrue in the future to current members
- No allowance is made for new entrants
- The "value" in each component above is the discounted value of the expected cashflow of that element
- The discount rate which fulfils the equation is the investment return required.

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Table 1 below summarises the required investment return (relative to CPI) to provide the targeted CI benefits for different accrual and contribution rates, with and without the benefits already accrued (i.e. those already built up in the scheme) and associated assets being included in the calculations. The figures in bold in Table 1 on the following page are highlighting the required returns that are less than those expected on the Valuation Investment Strategy portfolio at 31 March 2022.

The required investment returns under the scenarios with existing benefits are significantly lower than the corresponding returns under the scenarios without existing benefits.

Under the former approach, with existing accrued benefits, the future CI increases would benefit from the assets already held in relation to benefits already built up which have guaranteed increases and which would not be subject to CI.

Under the latter approach, without existing accrued benefits, the assets in respect of new benefits built up under the CI design would be separated from existing assets in respect of benefits already built up (note that in all circumstances the existing accrued benefits and the increases attached to them would continue to be guaranteed under the current Scheme rules). This is a matter of cross subsidy and design which is not addressed in the modelling covered in this document outside of setting out a range of possible outcomes.

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Table 1: Required investment return, expressed as a percentage relative to CPI, to deliver desired CI increases for different accrual rates and contributions

	Future service only			Future service plus accrued benefits		
Accrual rate	1/85	1/80	1/75	1/85	1/80	1/75
Contribution	CPI +	CPI +	CPI +	CPI +	CPI +	CPI +
20%	2.3%	2.4%	2.6%	**0.5%**	**0.6%**	**0.7%**
25%	**1.5%**	**1.7%**	**2.0%**	**0.3%**	**0.4%**	**0.5%**
31%	**0.4%**	**0.8%**	1.1%	**0.0%**	**0.1%**	**0.2%**

- The expected return on the assets in line with the Scheme's Valuation Investment Strategy (VIS) at 31 March 2022 was CPI+ 2.1%. At 30 June 2022 and 30 September 2022 the expected return on the VIS was CPI+3.0% and CPI +3.3% respectively. The figures in bold are those which are lower than the expected return on the VIS as at 31 March 2022.

- Note figures are based on the position at 31 March 2022 and use the actuarial assumptions adopted for the AYR at that date.

It can be noted from Table 1 that:

- The expected return on the VIS at 31 March 2022 (which was CPI+2.1%), was adequate to support the target CI benefits on future service with a joint contribution of 25% across the range

- The required investment return is lower for future service plus accrued benefits than for future service on its own. This reflects that the current assets held by the Scheme for the accrued benefits are greater than required on a best estimate basis (which in turn reflects the requirement under legislation and the DB funding code that Technical Provisions need to be set on a prudent basis).

The expected return of the VIS relative to CPI at 30 June and 30 September 2022 compared to that at 31 March 2022 has increased and as such would make the desired level of CI, for any given level of contribution, more achievable.

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7. The ability of CI to absorb adverse experience

The ability of CI to absorb adverse experience without increasing contributions comes from the ability to reduce the level of CI increases to be granted at any given time and in the future.

As the amount of CI related benefits grows relative to the overall assets and liabilities of the scheme so does the ability to absorb adverse experience (it should also be noted that there also exists the possibility of surpluses emerging which could be used to increase benefits further and/or reduce contributions).

Additional flexibility to absorb adverse experience or to limit reductions in CI increases can still come from increasing contributions. However, over time (all else equal and assuming the active membership population remains constant) the value of increasing contributions will only change slightly due to the real growth in the payroll (assumed to be 1.5% pa), whereas the value of CI as a mechanism to address funding pressures increases significantly.

Table 2 shows the development of the scheme's liabilities on an aggregate valuation basis assuming the scheme develops in line with the target level of CI increases being granted (i.e., 100% of CPI) from inception (year zero) to the end of years 5, 10 and 20. The aggregate valuation allows for benefits accrued to date and those expected to accrue to current members in the future, based on a future accrual rate of 1/75th. As such, at time zero there is recognition of the future expected CI benefits.

The figures in Table 2 are based on using best estimate investment returns of the VIS as at 31 March 2022 as the discount rate. The figures are expressed in real terms.

In Table 2 the liabilities develop as follows:

- The overall value of guaranteed benefits appears stable over time. This reflects:
  - o the current accrued benefits as at 31 March 2022 with guaranteed increases falls over time
  - o Whilst the value of guaranteed benefits under the CI arrangement grows over time as new members join and CI increases are granted.
- The level of CI increases available to absorb adverse experience grows over time as the potential for more discretionary CI increases grows.

Table 2: Development of the Scheme's liabilities under CI aggregate valuation (£bn)

Year	Zero	Five	Ten	Twenty
Aggregate Scheme liabilities for guaranteed benefit	73	72	72	72
Total Scheme liabilities including CI increases granted	78	82	85	94
Value of CI not guaranteed	5	10	13	22
Value of 1% change in contributions	0.75	0.8	0.9	1.0

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The effectiveness of CI as a mechanism to address funding pressures grows over time, as shown by the value of CI not guaranteed. Within a relatively short period of time – 5 to 10 years – there is already a substantial buffer (£10bn to £13bn) which can be used to manage adverse experience. This buffer is a more substantial lever than an increase in contributions for being able to deal with a deficit.

For example, assume that there is a deficit of £2bn at the end of year 5 and 20 the options that would be open to address the deficits are:

- Reduce the level of future CI increases that can be provided
- Increase contributions
- Some combination of reducing CI increases and increase in contribution requirements.

Table 2a sets out the effect of applying each of these actions. Note that this analysis purely relates to potential ways to address a "deficit" within the CI structure, allowing for future benefit accrual and future contributions. This does not consider the effect of a deficit under the scheme funding legislation, which would likely need to be dealt with differently.

Table 2a: Potential way of addressing a deficit of £2bn at the end of year 5 and 20

Effect of dealing with a deficit		
	End of year 5	**End of year 20**
Reduction of CI increases	Target CI increases reduced by 20%	Target CI increases reduced by 9%
Increase in contributions	2.5%	2%
50:50 split of deficit between CI increases and contribution increases	10% reduction in Target CI increases and 1.25% increase in contributions	4.5% reduction in Target CI increases and a 1% increase in contributions

8. Stochastic modelling

In our stochastic modelling we have focused on the potential outcomes in terms of the level of CI increases provided relative to both CPI and the level of benefits currently provided by the Scheme at the end of years 5, 10, 15 and 20.

We have first considered the potential outcomes without a funding test, that would be required under existing UK regulatory framework, and then considered the impact on the potential outcomes by introducing a funding test.

In the following tables the outcomes of our stochastic modelling have been quoted either as a probability of achieving a particular outcome or relative to a particular outcome.

Where two numbers are quoted in a single cell, the first relates to CI increases granted pre-retirement and the latter to CI increases granted post-retirement.

Where a single number is quoted, it relates to the objective being achieved in respect of pre- and post-retirement.

An overview of each of the metrics is given below in Table 3.

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Table 3:   Metric for the stochastic modelling

Metric	Description
Probability of granting full CPI in year X	This is the stand-alone probability of CPI being granted in the year in question
Cumulative Probability of granting full CPI	This is the probability of CPI having been granted in every year up to and including the year in question
Probability of granting full CPI by providing catch-up	This is the probability of cumulative CPI being able to be granted in the year in question. It is calculated as the sum of the cumulative probability of granting CPI, plus the probability of there being sufficient surplus to finance any foregone CPI increases from earlier years. No allowance has been made for payments foregone.
Percentage of CPI granted at 12.5th percentile	This is the percentage of CPI granted in the worst 12.5th percentile outcome. In 7 out of 8 cases the outcome is expected to be better than this.

9.   Outcomes before imposing a funding test

Table 4 shows the potential outcomes assuming a contribution rate of 25% and an accrual rate of 1/75th for future service only as well as for future service plus accrued benefits, prior to considering the tests in respect of the defined benefit funding requirements under UK regulations.

The points to note from Table 4 are:

- The probability of granting the desired level of CI increases (CPI) in any one year or cumulatively granting CPI is greater on future service plus accrued benefits than for future service only. This indicates that the existing funding is assumed to be used to support the ability to grant some of the CI increases
- The probability of being able to grant CPI each year improves over time (shown in the first row). This is the increase that the member would see and would improve over time because the expected investment return is expected to build surplus over time
- The cumulative probability of granting full CPI falls over time as individual scenarios fail to be able to provide full CPI increases in a particular year. In part this is explained by the volatility of investment returns
- Even at the 12.5th percentile a high proportion of CPI is provided between 82% and 94% for pre-retirement increases in respect of future service only
- The probability of granting full CPI via 'catch-up' increases improves over time and becomes relatively stable. This is driven by investment expectations being met over the long term
    - Please note, the figures associated with the probability of granting full CPI with catch up in tables 4, 5 and 6 are calculated on a discrete basis. In other words, they do not allow for the cumulative impact of applying catch up. The test establishes that there is sufficient surplus to grant the catch-up payment but is not then applied
    - We introduce the cumulative impact of applying retrospective catch up on an annual basis in section 11.

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- Under legislation[3], pensions in payment must be increased by a minimum of CPI up to 2.5%, and this is taken into account in the modelling work, the effect of which is a higher probability of post-retirement increases matching CPI due to this inherent underpin.

In each cell the first number relates to the probability of CI increases being granted pre-retirement and the second to the probability of CI increases being granted post-retirement. The higher probability of CI increases being granted post-retirement arises from the legislative requirement that increases of CPI up to 2.5% on pensions in payment are unconditional and must be granted.

In subsequent tables we have only quoted one figure which relates to the probability of CPI increases being granted to pre-retirement benefits. As this is lower than would apply for post-retirement increases but provided the probability of all members receiving CPI increases.

Table 4: Potential outcomes for an accrual rate of 1/75th with contributions of 25%

	Year	Five	Ten	Fifteen	Twenty
Future service only	Probability of granting full CPI in year	58%/76%	76%/86%	79%/88%	79%/89%
	Cumulative Probability of granting CPI	9%/38%	7%/32%	6%/29%	5%/25%
	Probability of granting full CPI by providing catch-up	56%	72%	75%	73%
	Percentage of CPI granted at 12.5th percentile	94%/97%	89%/95%	85%/94%	82%/92%
Future service plus accrued benefits	Probability of granting full CPI in year	78%/89%	80%/89%	83%/91%	85%/93%
	Cumulative Probability of granting CPI	60%/75%	53%/65%	48%/62%	45%/58%
	Probability of granting full CPI by providing catch-up	77%	77%	80%	80%
	Percentage of CPI granted at 12.5th percentile	96%/99%	90%/98%	86%/96%	84%/94%

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[3] Section 51 of the Pensions Act 1995.

10. The effect of imposing a funding test

Under the Pensions Act 2004 and the Occupational Pension Schemes (Scheme Funding) Regulations 2005 and associated code of practice issued by the Pensions Regulator, the Trustee will need to demonstrate the scheme is adequately funded in respect of accrued benefits.

Broadly speaking this requires the Trustee to hold assets to meet the benefits accrued to date. This level of assets is referred to as the Technical Provisions for the scheme. To the extent that the assets held by the scheme are less than the Technical Provisions the Trustee need to put in place a plan to reach Technical Provisions.

Under a CI arrangement we would expect that, at a minimum, adequate funding would need to be demonstrated in respect of guaranteed benefits accrued at each valuation date. It may also be appropriate to make some allowance for expected future increases depending on the terms of the CI arrangement, for example the degree to which the "conditional" increases are determined formulaically.

Further, a Schedule of Contributions (SoC) is needed with the proposed level of contribution to meet the scheme's future benefit accrual and any deficit on a Technical Provisions basis. A funding test will need to be developed as the governance model for CI is developed. For modelling purposes in this paper, a simplified approach has been adopted.

For modelling purposes:

- The funding test allows the CI increase to be granted if the assets held by the scheme are sufficient to cover the accrued guaranteed benefits following the granting of the CI increase (the CI funding test)
- The need to make allowance for any future CI increase in the CI funding test has been ignored.
- Requirements around contributions under the SoC being adequate to cover the accrual of guaranteed benefits and address any deficit have been ignored.

The exact funding test would need to be considered in the context of the ultimate design of the CI arrangement.

For modelling purposes only, the CI funding test uses accrued guaranteed benefits following the granting of the CI increases calculated as:

Self-sufficiency[4] Liability – the value of x% of future salaries over 30 years

This provides a consistent approach across the scenarios within the stochastic model.

The funding test we have applied is to set X% to **5%**, this results in a higher funding test than the scheme's current Technical Provisions but has been set at this level to more clearly demonstrate the potential impact of such a test. If X% had been set at a higher percentage, the funding test would have had less of an impact on the ability to provide CI increases. The Technical Provisions set for the 2020 valuation would have required X% to be set near to 10% in order for the formula to produce the same value.

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[4] The assets and low-risk investment strategy that provide a 95% chance of paying all accrued benefits without the need for additional contributions, while maintaining a high funding ratio.

Table 5 shows the output of three of the metrics for the same target benefit and contribution rate with and without the funding test, based on a contribution rate of 25%.

Table 5: Potential outcomes at different time horizons on 1/75th accrual rate with 25% contribution

	Funding Test Applied	Five	Ten	Fifteen	Twenty
Probability of granting full CPI in year	No	78%	80%	83%	85%
	Yes	61%	77%	83%	85%
Cumulative probability of granting full CPI	No	60%	53%	48%	45%
	Yes	18%	16%	15%	14%
Cumulative probability of granting full CPI allowing for catch-up	No	77%	78%	80%	80%
	Yes	77%	78%	80%	80%

Table 5 indicates that:

- In the earlier years, the funding test restricts the ability to grant full CPI increases but the probabilities become similar over time; both have a probability above 83% from year 15 onwards
- The cumulative probability where the funding test has been applied is lower due to the test biting in the early years
- The cumulative probabilities of granting full CPI allowing for catch-up are broadly the same from year 5.

The conclusion to be drawn from the above observation on Table 5 is that the funding test defers when CI increase can be granted, particularly in the short term when there will be less CI related benefits built up but should not impinge on the level of benefit that can be delivered from the arrangement over the longer term.

Different accrual and contribution rates

Table 6 compares the probability of granting full CPI in a year and of granting full CPI by providing catch-up for different contribution and accrual rates. It is no great surprise that higher contributions and lower accrual rates result in a higher probability of full CPI being provided.

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Table 6: Potential outcomes at different time horizons on different accrual rates with funding test

	Contribution	Accrual Rate	Five	Ten	Fifteen	Twenty
Probability of granting full CPI in year	25%	1/85	63%	79%	86%	88%
	25%	1/75	61%	77%	83%	85%
	20%	1/75	59%	73%	76%	77%
	31%	1/75	66%	82%	89%	90%
Probability of granting full CPI by providing catch-up	25%	1/85	83%	84%	85%	85%
	25%	1/75	77%	78%	80%	80%
	20%	1/75	70%	72%	72%	71%
	31%	1/75	87%	87%	88%	89%

11. Expected distribution of CI benefits compared with those currently provided by the Scheme

In this section we compare the expected benefit for a CI benefit structure based on an accrual rate of 1/75th and contribution rate of 25%, with the current defined benefits provided by the Scheme of 1/85th with guaranteed CPI increases on accrued benefits and pensions in payment of CPI capped at 2.5% a year. For ease of comparison, we have used a DB salary threshold of £50k for both benefit structures (i.e., an increase relative to the current salary threshold).

At 31 March 2022, when the Trustee undertook the Accelerated Year-end Review (AYR), the contribution requirement for the current defined benefits (with a £40,000 DB salary threshold, and prior to any adjustment for short-term pension increases and investment outperformance) was 18.3% of total salaries. This is approximately equivalent to 25% of salaries up to £40,000.

Table 7 shows the CI benefit as a percentage of the current defined benefit provided by the scheme (based on an adjusted £50k DB salary threshold) for various percentiles of the distribution of outcomes for contributions of 25%.

These figures include an allowance for the scheme's ability under CI to provide catch-up and continue to make such payments going forward. No allowance has been made for the surplus to be used to grant increases beyond full CPI.

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Table 7: Potential outcomes of CI with accrual rate of 1/75th and contribution of 25% compared to current benefits of 1/85th

	Year	Five	Ten	Fifteen	Twenty
Future plus accrued	12.5th percentile	102%	98%	108%	112%
	25th percentile	105%	113%	115%	116%
	50th percentile	113%	117%	120%	123%
	75th percentile	116%	126%	131%	139%

Note: Current benefits are based on 1/85th with CPI increases capped at 2.5% each year. Further, whilst current benefits cap salary at £40,000, for the purpose of this table a salary cap of £50,000 has been applied.
 Catch up is applied cumulatively in these figures.

Table 7 indicates that CI would be expected to deliver a higher level of benefit than that currently provided by the current Scheme in most cases. It should be noted that under many of the financial scenarios underlying the stochastic modelling, the required contribution for the existing defined benefits would be expected to fall and surpluses would be expected to emerge. This is not allowed for in the comparisons shown in Table 7.

12. Legal and governance challenges

There are currently restrictions to how flexible CI could be under UK legislation:

- In occupational pension schemes such as USS, pensions in payment must, at a minimum, be increased in line with CPI, capped at 2.5%
- to be compliant with automatic enrolment, the funding of a Career Revalued Benefits (CRB) scheme such as USS must assume revaluation of the lesser of 2.5%, CPI and RPI before retirement, meaning that for funding purposes any CI design wouldn't be fully reflected when determining the scheme's funding level.

There may be a number of ways to address these points, which would be for stakeholders to consider. There are also policy design principles to be considered including (among others):

- Governance around future decision making in relation to CI, when it is to be applied, and which body/bodies make that decision – and particularly the role of the Trustee, the JNC and the stakeholders, and any associated consultation requirements or formal roles and responsibilities
- The mechanism that would be used under the Scheme Rules to set increase rates, and any impact on the setting of contribution rates and potentially on the Scheme's funding requirements
- The overriding scheme-specific funding provisions under the Pensions Act 2004 must continue to be satisfied.

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Annex: Modelling assumptions and approach

All figures are indicative at this stage and have been developed as a proof-of-concept piece of work for UUK. This initial work is not intended to presume what design features stakeholders may wish to explore should they decide to develop the work undertaken to date.

Assumptions used in the modelling have been based on the Accelerated Year-end Review (AYR) as at 31 March 2022 as far as possible. There are some instances where the purpose of the assumption or its importance has changed (e.g., the level of pay growth). The approach to funding has been discussed with the Scheme Actuary and, in particular, the allowance which should be made in Technical Provisions for CI increases. Advice from the Scheme Actuary would need to be sought on all assumptions in due course.

Only salary up to the DB threshold has been considered, and it has been assumed that the threshold grows in line with salary (i.e., no DC/DB subsidy or drift has been allowed for). This means that the salary roll used in this modelling is around 15% lower than the total scheme salary roll.

The active membership is assumed to remain stable over time, and new entrants are effectively implicitly allowed to join the scheme over time.

The potential CI methodology considers only the expected membership at the applicable point in time. This means that at any given valuation date, only the contributions and benefits relating to the expected membership at that time are considered.

For the deterministic calculations, gilt yields have been assumed to evolve in line with the yield curve at 31 March 2022. In the stochastic calculations, the central path allows for some yield reversion over time in line with USSIM's expectations.

The calculations are based on the data underlying the 2020 actuarial valuation, approximately adjusted to 31 March 2022.

In calculating the liabilities for the Aggregate and Technical Provisions valuations within the stochastic modelling, payments made in each scheme year are assumed to be paid mid-year. However, for self-sufficiency within the Funding Test, each year's payments have been assumed to be made at the start of the year. This will slightly increase the self-sufficiency liability used with the Funding Test relative to that if payments would have been assumed to have been made mid-year. This dynamic does not have a material impact on the results.

For the purposes of the stochastic model development and to expedite result generation, a subset of the full economic scenario set was used to generate the results in sections 8-11 (500/5000 scenarios).

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