Government Actuary's Department

# Setting the Personal Injury Discount Rate

Government Actuary's Department: Technical Memorandum

# Contents

# 1 Foreword

1.1 The Damages Act 1996, as amended by the Civil Liability Act 2018, requires the Lord Chancellor to consult the Government Actuary when reviewing the Personal Injury Discount Rate for the first time after the amendments made to the 1996 Act came into force.

1.2 The Personal Injury Discount Rate is used to determine lump sum damage awards for future financial loss made to claimants who suffer a serious personal injury. These awards are intended to provide victims of life changing events with full and fair compensation for all the expected losses and costs they are likely to incur as a result of their injuries.

1.3 This memorandum sets out the analytical approach that the Government Actuary's Department intends to adopt to support the Government Actuary's response to the Lord Chancellor as a part of the first review of the rate.

1.4 Within the memorandum we explain our fundamental methodology around modelling claimant outcomes, the significant assumptions we will make when considering the appropriate investment portfolios, damage profiles and economic scenarios and then outline the outputs that will be produced as part of our analysis.

1.5 The memorandum is being published for the information of interested parties, with the intention of being transparent in our approach. Although the approach outlined applies actuarial techniques to simulate the risks that personal injury victims faced, we recognise that there is ultimately a large degree of judgment that will be involved in interpreting the analysis and recommending a rate.

1.6 Although we are not specifically seeking views on our approach, if you have any feedback or comments you would like to share with us, or you would like to discuss our approach further, then please contact us using the details at the end of this memorandum.

**Martin Clarke**

**Government Actuary**

Government Actuary's Department

# Setting the Personal Injury Discount Rate

## Government Actuary's Department: Technical Memorandum


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# 2 Background and introduction

### Legislation and process

2.1 The Personal Injury Discount Rate ('PI discount rate') is used to determine lump sum damage awards to claimants who suffer a serious personal injury.

2.2 Historically the Damages Act 1996 provided for the Lord Chancellor to set the PI discount rate, and this was done on the basis of principles set out in case law, principally the decision of the House of Lords in Wells v Wells[1]. Under these principles the PI discount rate has been set with reference to yields on Index-Linked Gilts – resulting in a current rate of RPI-0.75%.

2.3 On 20 December 2018, the Civil Liability Act 2018 received Royal Assent, thus introducing a change to the way that the PI discount rate is to be set in the future under the Damages Act 1996 ('the Act').

2.4 The Act provides for the Lord Chancellor to set the PI discount rate with reference to the return that a claimant would reasonably expect to achieve if they invested in a "low risk" diversified portfolio[2]. In doing so, the Lord Chancellor is to have regard to the following when setting the rate:

- the actual investments made by claimants;
- the actual returns that are available to claimants; and
- the appropriate allowance for tax, inflation and investment fees.

2.5 The Act also requires the Lord Chancellor to consult, in the case of the first review of the rate, the Government Actuary, and for subsequent reviews, with an independent expert panel chaired by the Government Actuary and for all reviews, as at present, HM Treasury. Our understanding is that the consultation will take the form of a request from the Lord Chancellor to the Government Actuary for advice on matters relating to the setting of the discount rate; and that the terms of the Government Actuary's response will depend upon the questions asked. Under the terms of the Act, the Lord Chancellor must start the review within 90 days of Royal Assent.

[1] [1999] 1 AC 345

[2] The legislation states that it should be assumed that the damages are invested using an approach than involves –

i. more risk than a very low level of risk, but
ii. less risk than would ordinarily be accepted by a prudent and properly advised individual who has different financial aims.

### Analytical approach

2.6 This technical memorandum outlines the analytical approach that we intend to adopt to support the Government Actuary's response to the Lord Chancellor – in terms of:

- The methodology we intend to use
- The assumptions we intend to make
- The outputs and results we intend to inform our response

2.7 It is not intended to indicate when the Lord Chancellor will formally announce the first review of the PI discount rate, which must be done within 90 days of Royal Assent.

2.8 The approach will be reviewed and may be updated, following the information gathered in the Call for Evidence (see below) and the requirements of the Lord Chancellor's consultation. However, we believe that such changes are likely to be fairly minimal as the analytical approach outlined is fairly flexible and can be used in a variety of ways.

2.9 If any stakeholders have any views on the approach or assumptions set out in this memorandum then we would be happy to receive comments or discuss our approach further.

### Call for Evidence

2.10 To help inform the Lord Chancellor's decision on the PI discount rate, and the consultation with the Government Actuary, a Call for Evidence[3] has been issued in order to gather evidence of the investments available to claimants, investments that they make and other matters that may influence the rate. The Call for Evidence closes on 30 January 2019.

2.11 Evidence from the call will be collated and responses to that call will be separately summarised. It is likely that that collation covers the evidence gathered in respect of:

- Claimant profiles
- Portfolios
- Appropriate margins for tax
- Appropriate margins for expenses

2.12 The evidence collected from the call will be used to inform the Government Actuary's response to the Lord Chancellor and to set or test certain assumptions made in the modelling that is outlined in this memorandum. This memorandum is not dependent on the responses to the Call for Evidence, but where possible we have indicated assumptions that are reliant on the evidence collected from the Call for Evidence.

[3] https://www.gov.uk/government/consultations/setting-the-personal-injury-discount-rate-call-for-evidence

### Rest of this memorandum

2.13 In the rest of this memorandum:

- Section 3 outlines the methodology we have adopted in analysing claimant outcomes
- Section 4 outlines how the investment portfolios will be constructed and the assumptions made when constructing them
- Section 5 outlines the assumptions we have made about the claimant and the damages they receive
- Section 6 outlines the economic and financial assumptions used to analyse claimant outcomes, with Appendix A providing further details.
- Section 7 provides an outline of the outputs that are likely to be produced as part of our analysis.
- Section 8 provides an outline of how the adjustments for tax and expenses will be made in light of the responses received to the Call for Evidence.
- Section 9 provides a brief commentary on the potential sensitivities around the analysis we will carry out and discusses some factors that are likely to have a significant impact on the results which have not been considered here.
- Section 10 outlines details on providing feedback on the contents of the technical memorandum.

# 3 Methodology

### Fundamental approach

3.1 Our fundamental modelling approach is to focus on quantifying "claimant outcomes" – in terms of whether or not the claimant has sufficient funds to meet their assessed needs and, where the funds do not exactly meet these needs, quantifying the extent of any excess or shortfall.

3.2 Claimant outcomes will depend critically on a number of factors and decisions made by the claimant. In particular, claimant investment outcomes will be influenced by:

- The investment strategy adopted by the claimant – as this influences the returns on their investments and so whether the damages awarded are sufficient. All things being equal, a claimant taking more risk would be expected to achieve higher returns, but have a higher risk associated with those returns. Similarly a claimant taking less risk would be expected to achieve lower returns and have a lower risk associated with those returns.
- The lump sum assessment of a claimant's damages for future loss will depend on the claimant's expected damages, the PI discount rate and the outcome of negotiations between the claimant and defendant or the order of the court. All things being equal, a claimant with a larger settlement will have a higher chance of being able to meet their needs, and a higher chance of having excess funds.
- The damage needs and profile – as a claimant may need to make withdrawals from the fund that are different to what was expected. For example, a claimant may need to make withdrawals from their fund over a longer (or shorter) period, at different times and/or for different amounts than was originally expected.

3.3 Given the number of factors and issues that can affect claimant investment outcomes, analysing and allowing for all possible factors is likely to be difficult (if not impossible) and a variety of approaches are possible.

3.4 To reduce the number of factors in the model and simplify the analysis, we propose to analyse claimant outcomes for a fixed set of damage needs and profiles. This allows us to focus on the interdependency between the investment strategy adopted by the claimant and the lump sum they receive, in particular the PI discount rate on which damages are determined.

3.5 Our intended approach does this by consideration of how the claimant's fund might evolve over time under Monte Carlo (or 'stochastic') simulations for future asset returns and inflation. Monte Carlo simulations are a way of calculating or forecasting possible results and assessing risk by running a large number of simulations. This allows us to:

- show the range of potential outcomes;
- estimate a distribution of outcomes and different percentiles of this distribution; and
- estimate the probability of outcomes being worse or better than a given level.

3.6 Our analytical approach will focus on the risk of poor returns for a particular investment strategy for a claimant with a given damage profile. Whilst there are other risks faced by the claimant (e.g. mortality risk, inflation risk[4], or the risk that funds are required in a different manner than was expected when the award was granted) our consideration of these risks will be limited. These risks are discussed in further detail in Section 9. The sensitivity of the results to the damage profile chosen will be also be presented in our analysis to highlight the sensitivity to choosing different profiles.

**Outline of calculations**

3.7 The analysis will project a representative individual claimant's fund over a defined period over a large number of economic scenarios. In particular:

- We intend to use the Economic Scenario Generator (ESG) [5] in a third-party Asset Liability Model to generate 1,000 simulations of future investment returns and rates of inflation. More details on these assumptions are given in Section 5.
- The fund will then be projected into the future under 1,000 economic scenarios, such that the fund at the end of each year in each economic scenario will be determined with regard to:
  - The fund value at the beginning of the year in that scenario;
  - Increases to allow for the simulated returns[6] (in that scenario/year) on the investments held;
  - Reductions for withdrawals made from the fund to meet damages (which are inflated in line with projected inflation in the economic scenario).

3.8 The claimant's initial fund value will be determined based on:

- An assumed pattern of damages; and

[4] Inflation risk in this sense is defined as the risk of damage inflation not being as expected. The uncertainty inherent in future levels of inflation and the way in which the investments meet (or do not meet) this is included in the analysis because the Economic Scenario Generator provides stochastic projections of different economy wide inflation measures.

[5] An economic scenario generator (ESG) is a computer-based model of an economic environment that is used to produce simulations of the joint behaviour of financial market values and economic variables.

[6] In this context, returns includes both capital growth (i.e. changes in price) and income (e.g. dividends or coupons).

> An assumed PI discount rate.

3.9 We will compare this award value given to the claimant against the amount required for the claimant to run out of income exactly at the end of the term of his or her award. If the amount awarded in practice is larger than the amount required then the claimant will have surplus funds, and is described as "over-compensated". On the other hand, if the amount is less than required than the claimant will have a shortfall and is described as "under-compensated". This comparison will be calculated for each scenario, meaning that a distribution of outcomes is derived.

**Illustrative example**

3.10 This process is perhaps best demonstrated by a simplified illustrative example. We assume that the claimant needs to meet fixed damages of £10,000 in the next two years, that we ignore damage inflation for the time being and that the illustrative returns in the next two years for the purpose of this example are as follows:

***Table 1 – Illustrative investment returns***

| Economic Scenario | Returns in year 1 | Returns in year 2 |
|---|---|---|
| 1 | 11% | 1% |
| 2 | -6% | 18% |
| 3 | 20% | -11% |
| 4 | 2% | 3% |
| 5 | -3% | -10% |

*Note: these scenarios are only illustrative and are not intended to be representative of the projected range of returns.*

3.11 Assuming that withdrawals from the fund occur half-way through the year, and investment returns on the fund are achieved uniformly over the year, then we can determine the initial fund value required in each scenario to leave the fund fully exhausted after two years:

***Table 2 – Example fund projections***

| Economic Scenario | Initial Determined Fund Value (£) | Fund value at end of year 1 (£) | Fund value at end of year 2 (£) |
|---|---|---|---|
| 1 | 18,456 | 9,950 | **0** |
| 2 | 20,108 | 9,206 | **0** |
| 3 | 17,962 | 10,600 | **0** |
| 4 | 19,562 | 9,853 | **0** |
| 5 | 21,020 | 10,541 | **0** |

3.12 For example, the fund value at the end of year 1 in scenario 1 is determined as:

$$£9{,}950 = £18{,}456*(1.11)-£10{,}000*(1.11)^{½}$$

*Note: recall that we are ignoring inflation in this example so damages are assumed to be £10,000. See paragraph 3.16 below.*

3.13 Note that in all scenarios the fund is perfectly exhausted at the end of year 2 (i.e. there is no surplus or shortfall). In order for this to happen, a different starting fund value is required in each scenario – to reflect the different returns simulated within each scenario.

3.14 The initial fund values computed for each scenario are compared against the actual award size to determine the level of over or under-compensation.

3.15 For example, if the award PI discount rate is 0% then the claimant would be awarded £20,000 to meet the payments above. This is compared against the initial determined fund value in each scenario to determine the level of over or under-compensation. In the first scenario the claimant would be over-compensated by 8.4%.

***Table 3 – Example of over-/under-compensation determination***

| Economic Scenario | Initial Determined Fund Value (£) | Initial Fund value under award basis of 0% | Over / under-compensation |
|---|---|---|---|
| 1 | 18,456 | 20,000 | 8.4% |
| 2 | 20,108 | 20,000 | -0.5% |
| 3 | 17,962 | 20,000 | 11.3% |
| 4 | 19,562 | 20,000 | 2.2% |
| 5 | 21,020 | 20,000 | -4.9% |

3.16 An alternative interpretation of the over/under-compensation figures presented above is the extent to which the claimant would need to scale back or could boost their care need expenditure. So in the first scenario, the claimant would be able to boost their care need expenditure by 8.4%, whereas in the fifth scenario, the claimant would have to scale back their care need expenditure by 4.9%.

3.17 Whilst this example ignores the inflation indexation that is applied to the damages, the principle is the same if inflation is included in the calculations.

3.18 These calculations result in a distribution of claimant outcomes which can be used to assess the extent of any 'extreme' or 'poor' outcomes, the extent of any expected over-compensation or to assess the probability of outcomes being worse or better than a specified level.

3.19 The metrics that we will focus on using this analysis will depend on the requirements of the Lord Chancellor's consultation – but might include:

- The expected level of over or under-compensation
- The probability of the claimant being over or under-compensated
- The probability of the claimant being over or under compensated by x% or more

**Relevant considerations and alternative options**

3.20 The approach outlined above is not the only possible approach. The table below shows a list of pro/cons of the approach:

***Table 4 – pros and cons of intended approach***

| Pros | Cons |
|---|---|
| The investment risk is framed with reference to the claimant's needs/liabilities – i.e. in terms of the level of compensation (over/under) | The approach cannot be used as an "optimisation" tool – in order to determine the "best" investment strategy. Given that the Lord Chancellor is required, among other things, to take account of how claimants actually invest, and that the definition of "optimal" depends critically on individual circumstances, we do not believe this to be a significant limitation. |
| The approach considers the risks over the full term of the claimant's liabilities (rather than, say, just the risks over the next year) | The approach is not directly comparable to more "standard" techniques, such as mean-variance optimisation, which tend to focus on single time step investment decisions. |
| Long term investment characteristics (such as making regular withdrawals and expenses) do have significant impacts for longer term investors and are reflected in the calculations | |
| The use of stochastic techniques allows probabilistic assessments | The results depend significantly on the economic scenarios and stochastic assumptions |
| The use of stochastic techniques provides an illustration of risk profile and the distribution of possible outcomes | Limitations in the assumptions outlined above/below |

3.21 Alternative modelling approaches may overcome some of the shortcomings identified above – for example:

- Mean/variance portfolio techniques
- Non-stochastic techniques

3.22 However, we do not believe that they have the advantages of the proposed approach – in particular reflecting the full term of the liabilities.

# 4 Assumptions: Portfolio Construction

4.1 The Act requires that in setting the PI discount rate the Lord Chancellor has regard to the actual investment made by claimants and the investment returns actually available.

4.2 As such we expect that portfolios used in our analysis will be constructed with reference to responses to the Call for Evidence and may also consider other comparator portfolios that are available to benchmark these portfolios.

4.3 The significant assumptions with respect to the constructed portfolio are considered in turn below.

**Bond[7] duration profiling**

4.4 Where a constructed portfolio contains bond assets, we will assume that claimants hold bonds of an appropriate duration such that it is representative of the duration of their liabilities. This is to reduce the risks posed by rising interest rates explained in the box below.

**Box 1: Interest Rate Risk**

When interest rates rise (in particular bond yields), there is a reduction in the capital value of the bonds – since the fixed coupon proceeds are more heavily discounted.

As a result, an increase in interest rates may result in negative investment return for an individual holding bonds. This impact is more severe for bonds with longer periods to maturity.

If an investor buys bonds to redeem exactly when their liabilities are due then any changes in the capital values of the bond assets are not a concern. This is because whilst the long dated /bond held may reduce in value, the coupon payments and final redemption value are still expected to match the liabilities as they fall due.

Another way of looking at this is that, although there is a reduction in the value of the investment held (bonds), there is a corresponding and equal reduction in the value of the investors' liabilities.

[7] When we use the term bonds in this section we are referring to nominal gilts, index-linked gilts and investment grade credit

4.5 In our modelling, we will assume that the claimant alters their allocation to bonds of different duration (e.g. 'short', 'medium' and 'long' dated bonds) in accordance with the remaining profile of damages. This means that, for a claimant with a relatively long award profile, we would assume that they initially invest in a mix of short, medium and long dated gilts, gradually transitioning towards only short dated gilts by the end of the projection period.

4.6 Allocations to the bond funds of different duration are assumed to alter over the period of the award – with allocations determined such that the duration of holdings in the three bond funds is equivalent to the remaining duration of damages.

**Static investment strategy**

4.7 The portfolios considered in the modelling will be assumed to be 'static' in that claimants are assumed to rebalance their portfolios each year to maintain the asset allocations at the levels they were at the outset.

4.8 In practice we recognise that claimants are likely to change their strategy over time – for example to reflect different investment conditions or to alter the level of risk taken (to 'bank' periods of good returns, recover from periods of poor returns, reflect changes to circumstances or reflect the fact that the remaining period of the award has reduced).

4.9 Whilst it is possible to model these features within the analysis, we believe that it is difficult to predict and specify these changes or identify what emerging asset classes and trends are likely to be. As a result, to keep the analysis reasonably simple, we will assume that the investment strategy remains fixed[8].

4.10 As such the range of outcomes shown is likely to be different than that which claimants might achieve should they adopt these approaches. However, we believe that the approach taken is appropriate at capturing and illustrating the overall risk profile and differences between different investment approaches.

[8] Other than altering the type of bonds that the claimant invests in – as described above.

# 5 Assumptions: damage profile

5.1 The key assumptions relating to a claimant's damage profile are:

- Length of damages (e.g. 10 / 20 / 30 / 40 / 50 years)
- Shape of damages (e.g. level / increasing / decreasing / linked / time limited)
- Certainty of damages (e.g. mortality risks)

5.2 These assumptions will be set with reference to responses to evidence collated from the Call for Evidence where available and appropriate sensitivity testing will be carried out to assess their impact on the outcomes.

5.3 As for our previous advice, we propose to assume that the claimant has to meet a given level of damages per annum (e.g. £10,000 per annum) that is payable for a fixed period of time that increases with inflation.

**Length of damages**

5.4 One of the key assumptions made with regards to the damage profile is the length of time over which damages are applicable. This is because return expectations are different over different time periods – for example return expectations over the short term might (as now) be lower than return expectations over the longer term. As a result of this, currently, claimants with shorter award periods will typically achieve lower investment returns than claimants with longer award periods.

**Shape and certainty of damages**

5.5 Subject to the requirements contained within the Lord Chancellor's consultation, we propose to assume that inflation linked damages are payable for a fixed period (e.g. 10 / 20/ 30 / 40 / 50 years) with certainty. In other words, we do not propose to model the following, unless specifically required to do so as part of the Lord Chancellor's consultation:

- The "mortality/longevity risk" of the claimant living longer or shorter than for the assumed period.
- The "inflation risk" of the damages being different to a specified rate (e.g. RPI / CPI / CPI ± x% / earnings)
- The "needs risk" of the claimant's needs altering over time and so the need to alter the pace of level at which withdrawals are made from the award.
- Damages met from sources that are not lump sums, in particular in the form of a periodic payment order.

**Size of damages**

5.6 To some extent, the level of damages (i.e. £10,000 pa rather than £50,000 pa) does not influence the calculations – as it simply scales up or down the size of the award and does not influence the relative results which we focus on.

5.7 The level of damages does influence the size of the award which in turn is likely to influence the investment strategy that is adopted by the claimant and the level of fees payable by them (larger funds tend to attract lower expenses, expressed as a % of funds). We expect that the appropriate allowance or this feature will be considered with reference to responses to the Call for Evidence.

**Limitations and sensitivity analysis**

5.8 In practice the approach outlined above is a significant simplification of the claimant's position – for example the award is likely to be based on a 'rest of life' basis with inflation that is unique to each claimant. However this approach allows us to isolate the interdependency between the investment risk and award basis and the impact this has on claimant outcomes.

5.9 Subject to the requirements of the Lord Chancellor's consultation, we propose to show appropriate sensitivity analysis to the key assumptions outlined above.

# 6 Assumptions: economic scenarios

6.1 Some of the main assumptions that determine the simulated claimant outcomes outlined in this note are the economic scenario assumptions.

6.2 We will rely on economic scenarios generated from the Economic Scenario Generator ('ESG') in a proprietary third-party Asset Liability Model for this purpose.

6.3 We will generate 1,000 simulations of future investment returns starting from a recent and appropriate calibration date. We expect that this will be based on market conditions as at 31 December 2018.

6.4 We expect the calibration provided by the third party ESG to be within a range that could be considered reasonable. The analysis shown below in Table 6 reflects the previous calibration that we used, based on market conditions as at 31 December 2017. This is shown for illustrative purposes here and will be updated to reflect the latest financial conditions at the time the PI discount rate is reviewed (likely to be as at 31 December 2018).

**Inflation**

6.5 The table below shows the median level of RPI, CPI and earnings inflation which might be used as a basis to inflate damages in the analysis. The table shows that inflation expectations are not flat –with lower levels of projected inflation in the shorter term.

***Table 5 – Median inflation simulations***

| Rate of inflation over the period[9] %pa | 5 years | 10 years | 15 years | 20 years | 30 years | 50 years |
|---|---|---|---|---|---|---|
| Earnings | 2.3% | 2.5% | 2.6% | 2.6% | 2.7% | 2.7% |
| RPI | 2.4% | 2.4% | 2.6% | 2.7% | 2.8% | 2.8% |
| CPI | 1.8% | 1.7% | 1.8% | 1.8% | 1.9% | 2.0% |

*Source: Economic Scenario Generator calibrated at 31 December 2017*

**Asset returns**

6.6 Making regular withdrawals from a fund can have a significant impact on the effective returns achieved – for example, making a significant withdrawal from the fund following an early fall in asset values will hinder an investment manager's ability to recover the fund in subsequent periods.

[9] Note that the table records the rate of RPI over the period shown and not the rate of RPI inflation in the year shown. In other words, the 2.8% rate of inflation shown over 50 years will include RPI of 2.4% in the first 5-10 years and hence include higher RPI in the later years.

6.7 In technical terms – this is essentially the difference between Time-Weighted Rates of Return (which ignore withdrawals from the fund) and Money-Weighted Rates of Return (which are affected by withdrawals and additions to the fund). This feature is a significant risk for the assumed claimant included in this analysis as we are assuming that they have to finance regular withdrawals from the fund.

6.8 As such, references to projected returns in this memorandum allow for the specified assumed withdrawals from the fund and the table below shows the median annualised effective real return achieved on key asset classes that will be modelled. These returns are real (in excess of RPI) and assume that regular withdrawals are made from a fund that is solely invested in a representative broad index for each asset class.

***Table 6 – Median asset class return simulations (in excess of RPI)***

| Median money weighted real return %pa | 5 years | 10 years | 15 years | 20 years | 30 years | 50 years |
|---|---|---|---|---|---|---|
| Nominal gilts | -2.1% | -2.1% | -1.7% | -1.4% | -1.0% | -0.4% |
| Index-linked gilts | -4.2% | -5.8% | -5.2% | -4.4% | -3.3% | -2.1% |
| Investment grade credit | -1.3% | -1.0% | -0.7% | -0.4% | 0.1% | 0.6% |
| UK equities | 1.0% | 1.9% | 2.3% | 2.4% | 2.5% | 2.5% |
| Overseas equities | 1.5% | 2.3% | 2.7% | 2.4% | 2.5% | 2.5% |
| Cash | -1.9% | -1.6% | -1.4% | -1.3% | -1.0% | -0.6% |

*Source: Economic Scenario Generator calibrated at 31 December 2017*

6.9 For example, if the entire fund were invested in UK equities and used to provide regular RPI-linked damages over a 30 year period then the median effective real return is RPI+2.5%. Or equivalently, a PI discount rate of RPI+2.5% with an assumed investment strategy of 100% UK equities would result in the median level of over/under-compensation of 0%[10].

6.10 Assets with higher returns also have higher risk. As a result, although a claimant would expect to benefit from investing in an asset with a higher expected return they are also increasing the probability of experiencing poor returns and hence incurring poor outcomes.

6.11 Appendix A outlines this impact on projected returns and illustrates some of these investment risks by considering the mean and standard deviation of returns around the mean.

[10] Ignoring other risks and ignoring any allowance for expenses and tax.

**Sensitivity to ESG / benchmarking**

6.12 The asset class returns are generated using one particular calibration of one particular ESG. We recognise that other calibrations and scenario generation approaches are available. Given the importance of the economic scenario assumptions, we intend to consider the sensitivity of the results to economic scenarios assumptions produced by alternative ESGs.

6.13 We will also compare the returns produced by each of the ESGs against other publicly available views as a sense check of the ESG.

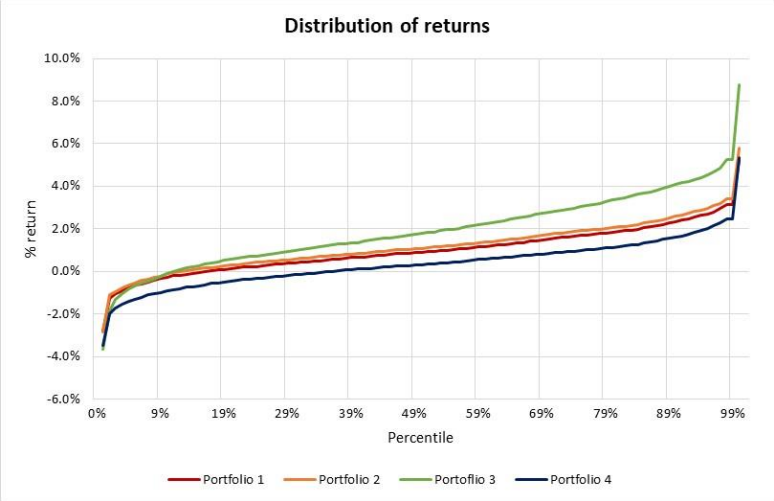
# 7 Claimant outcome simulation results

7.1 Using the set of 1,000 simulations generated as outlined in section 6, we aim to derive outputs in the form of graphs and tables to help support decisions on how to determine the appropriate PI discount rate.

7.2 Examples of potential outputs we would consider as part of this process are set out below:

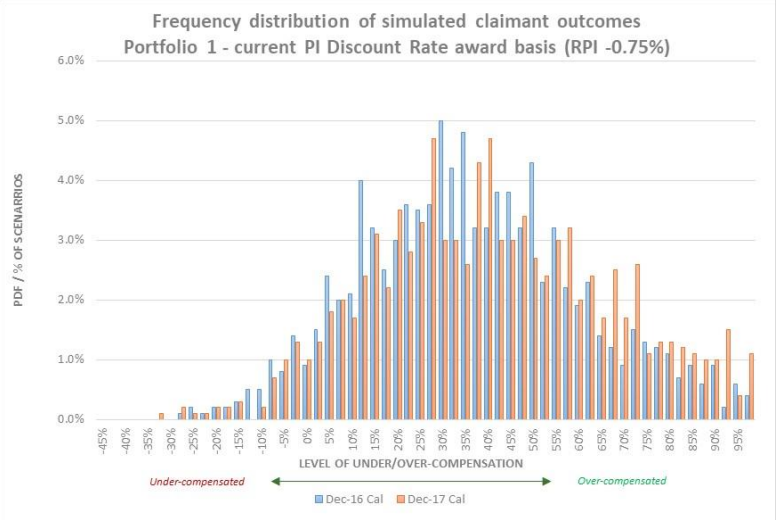
**Box 2: Portfolio returns outputs**

We intend to show the distributions of the returns generated by the portfolios constructed using the responses to the Call for Evidence and other evidence. For example this might show simulated returns at different percentiles for different portfolios as below:



**Box 3: Claimant outcomes**

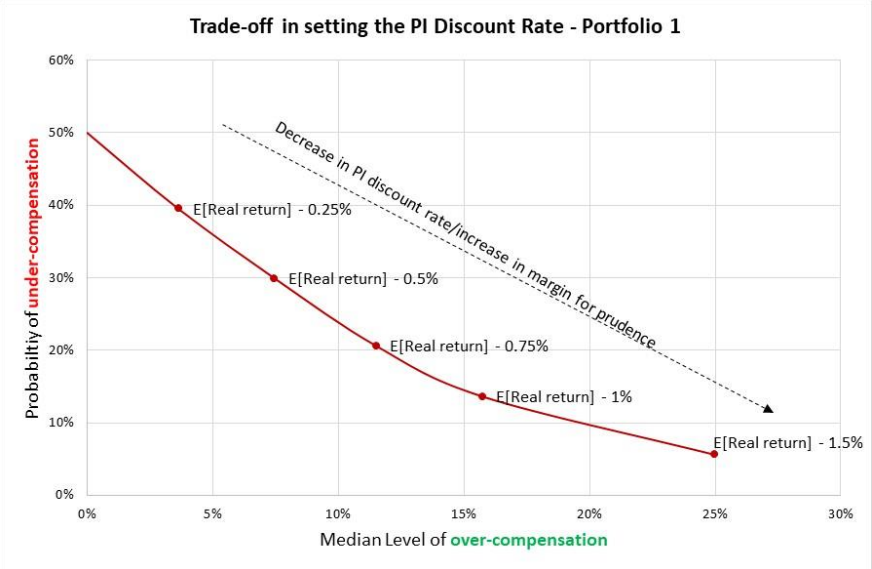
We intend to show the distribution of levels of over/under compensation under different award bases, at the different percentiles of the distribution. For example this might show simulated claimant outcomes as below:



**Box 4: Trade-offs involved**

We intend to show the trade-off associated with the impact of different award bases and the link between the median level of over-compensation and the probability of claimants being under-compensated.

For example this might show simulated claimant outcomes as below:



# 8 Adjustments for tax and expenses

8.1 It is likely that the returns derived from above will need to be adjusted in respect of costs incurred by claimants for tax and expenses.

8.2 We expect that the appropriate adjustments for tax and expenses will mainly be set with reference to the Call for Evidence.

**Tax**

8.3 The appropriate allowance for tax will be unique to each claimant and will depend critically upon both:

- individual circumstances – such as the claim amount, how this is invested, the interest and dividends earned on those investments and other sources of income; and
- the tax structure that is in force at the time – in terms of tax free allowances, tax thresholds and marginal tax rates.

8.4 Even for an individual claimant, the appropriate allowance for tax is unlikely to remain constant over the expected period of their damages because:

- The size of the claimant's fund will reduce as they make withdrawals from the fund – reducing the claimant's earned income and hence tax liability.
- The claimant's circumstances may change – for example their other sources of income may change as a result of retirement or a change in job.
- Investment conditions can change – for example higher interest rate environments may result in higher income from the fund.
- Tax regimes may change.

8.5 To illustrate how the impact of tax can vary, we intend to calculate the approximate tax liability for a number of illustrative claimant profiles under the current tax system. We believe that the analysis should be treated as high level and illustrative but that it should be sufficient at quantifying potential allowance for different claimants. The profiles are expected to be based on the evidence available from the Call for Evidence and other sources.

8.6 The key assumptions and variables considered in this analysis are:

- Whether claimants have other taxable income – which will reduce the level of income tax allowance that can be used on investment income.
- What investment strategy claimants adopt – as different assets attract different tax treatment.
- The assumed yields on the different investments.

> How claimants are assumed to invest, and in particular, how this might crystallise capital gains liable for capital gains tax.

8.7 The table below gives an illustration of the key assumptions and results that we intend to consider – split by different claimant profiles to illustrate the sensitivity of the analysis. We will update this analysis to reflect the responses to the Call for Evidence and other evidence,

***Table 7 – Illustrative tax drag on returns for different award amounts***

| | | Claimant Profile | | |
|---|---|---|---|---|
| | | A | B | C |
| **Description** | | Smaller claim | Medium claim | Larger claim |
| **Fund size (£)** | | 100k | 750k | 2m |
| **Other income (£ pa)** | | 25k | 25k | 25k |
| **Investment Strategy / Assumed income yield** | **Cash** | 10% / 1% | | |
| | **Bonds** | 60% / 2% | | |
| | **Equity** | 30% / 3.5% | | |
| **Tax drag on return**[11] | | **0.1%** | **0.3%** | **0.6%** |

*Note: we include an approximate allowance for capital gains tax on equities by assuming a proportion of the portfolio is sold and subject to capital gains tax on assumed capital growth.*

8.8 The tax drag has been calculated based on our understanding of how income and capital gains tax would apply to an individual investor, based on the assumptions shown. We will not be assuming sophisticated tax planning and intend for our analysis to provide a broad indication of tax impacts based on our understanding of the taxation of personal investments.

**Expenses**

8.9 The level of fees and expenses incurred by properly advised claimants will depend critically on the claimant's settlement, fund choice and investments approach. In particular:

> Larger funds typically pay lower fees (when expressed as a percentage of the fund size).

> Investment in passive funds, which track a particular index, will typically attract lower charges than active funds.

> Claimants may be willing to pay the higher charges that are typically charged by active funds in anticipation of higher expected future returns.

> Some funds charge entry fees, though many do not.

> Some funds charge performance fees.

[11] Tax liability expressed as a proportion of the claimant's fund size (per annum)

- Investments in different asset classes will attract different charges – for example investment in "alternative" illiquid investments will typically attract higher charges than liquid frequently traded investments.
- Different investment approaches will attract additional charges – for example some investment platforms also include custodian and other administrative functions.

8.10 At a high level, the typical expenses incurred by claimants could be broken down into the following types

- **Fund management fees** – charged by the fund that the investor invests in, and contribute towards the fund manager's profits whilst covering their costs such as researching and selecting investments for the fund.
- **Custodian/platform fees** – payable to the platform that administers the investments.
- **Trading costs** – these are the costs relating to buying/selling the underlying securities, for example bid/offer spreads, commission, dealing costs.
- **IFA servicing fee** – fees charged by Independent Financial Advisers for any advice provided on what investments/funds the investor should invest in.

8.11 We expect that the appropriate adjustments for tax and expenses will mainly be set with reference to the Call for Evidence, reflecting the long-term levels of tax and expenses.

# 9 Sensitivities

9.1 The results produced in our analysis to inform the PI discount rate will be highly sensitive to a number of key assumptions, and in particular the ones tabulated below.

***Table 8 – Sensitivity of analysis***

| Assumption | Potential impact / description |
|---|---|
| Economic assumptions | The analysis will be calculated on one set of economic simulations, calibrated at 31 December 2018. Alternative views on returns and correlations or a calibration based on a different date will result in different simulations for asset returns and inflation and will impact on projected outcomes. |
| Investment strategies | The analysis will be carried out using portfolios constructed based on the information received as part of the Call for Evidence and other evidence. In practice, claimants are likely to adopt a wide range of investment strategies. |
| Length of award | The lengths of awards will be determined by the information received as part of the Call for Evidence and other evidence. Claimants with different award periods will have different levels of over/under-compensation because:<br>> The impact of compounding means that any difference between the PI discount rate and the rate of return achieved on investments will be larger for claimants with longer awards.<br>> The rates of return over different periods vary in the economic simulations – for example, claimants with shorter awards might be relatively under-compensated because projected returns are lower over the period of their award. |
| Mortality / longevity risk | As we intend to model a fixed pattern of certain damages, to a large extent we intend to ignore any mortality risk faced by the claimant in our analysis. In practice, although mortality risks are included in the settlement through the use of Ogden tables, the uncertainty around how long the claimant lives for is likely to be one of the largest risks faced. As a result, for a given lump sum, even a very risk averse claimant might be inclined, and indeed advised, to accept more investment risk as a protection against longevity. |
| Inflation risk | We have assumed that damages are exactly linked to a specified rate (eg RPI, CPI, CPI ± x%, earnings) whereas in practice the inflation of each claimant's damages will not exactly match the index. As with mortality, the additional risk is likely to impact outcomes. |

9.2 To highlight the sensitivity to these assumptions we intend to carry out sensitivity testing, including:

> economic assumptions (different ESGs and calibrations);

> the investment strategies; and

> the lengths of awards.

9.3 Claimants who receive their damages, or to the extent they receive part of their damages, in the form of a periodic payment order are not modelled as part of the sensitivity analysis.

# 10 Comments and feedback

10.1 We are not specifically seeking views on the approach outlined but if you do have any comments or feedback you would like to share with us, or would like to discuss our approach further, then please contact us by using the following email address: PIDR-Technicalmemo@gad.gov.uk.

10.2 So that we can give consideration and make changes as necessary, we would be grateful to receive any comments or feedback by 18 February 2019, after which we intend to commence our preparatory analysis. Please note that this is not an indication of when the Lord Chancellor will formally announce the first review of PIDR, which must be done within 90 days of Royal Assent.

# Appendix A: Asset class return simulations

A.1 Returns for different asset classes shown in section 6 are "money weighted" – meaning that they allow for the fact that regular withdrawals will be made from the claimant's fund.

A.2 The table below:

- Illustrates the impact this feature has on projected returns – by showing the difference between time weighted and money weighted returns; and
- also illustrates the investment risks associated with different asset classes by considering the mean and standard deviation of returns around the mean.

***Table A1 – Annualised asset class return simulations for 30 year awards (in excess of RPI)***

| Annualised real rates of return for 30 year awards (%pa) | Money weighted | | | Time weighted | | |
|---|---|---|---|---|---|---|
| | Median | Mean | Std Dev | Median | Mean | Std Dev |
| Nominal gilts | -1.0% | -1.0% | 1.0% | -0.4% | -0.4% | 1.1% |
| Index-linked gilts | -3.3% | -3.4% | 0.4% | -2.1% | -2.2% | 0.6% |
| Investment grade credit | 0.1% | 0.0% | 1.0% | 0.8% | 0.8% | 1.2% |
| UK equities | 2.5% | 2.8% | 4.3% | 3.0% | 3.0% | 3.6% |
| Overseas equities | 2.5% | 2.8% | 4.0% | 2.9% | 2.9% | 3.4% |
| Cash | -1.0% | -1.0% | 0.9% | -0.6% | -0.6% | 0.9% |

*Source: Economic Scenario Generator calibrated at 31 December 2017*

A.3 The table above is intended to provide an illustration of the distribution of returns being assumed. We would stress that in order to avoid spurious accuracy, we do not intend to use the ESG to a particular percentile.