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SESSIONAL MEETING DISCUSSION

Dynamic discount rates: considerations for pension schemes funding

[Institute and Faculty of Actuaries Sessional Webinar, Tuesday 27 February 2024]

Moderator (Mrs D. L. Webb, F.F.A.): Thank you very much for joining us today. Today's meeting and the related paper explore key considerations for adopting a dynamic discount rate (DDR) approach for pension schemes. The paper explores the impacts of doing so on areas such as funding volatility, investment strategy and end-game objectives. The working party considered the advantages and disadvantages of this approach from the perspective of a range of stakeholders, and the challenges that need to be overcome to fully implement and support this approach. The paper also considers how a DDR approach fits with the new proposed funding regulations. Finally, the paper puts forward recommendations for the IFoA, for scheme actuaries, and for The Pensions Regulator (TPR).

We will hear from the working party first and then take questions at the end of the presentation. Our speakers today include Gareth Connolly, who chaired the working party. He is a scheme actuary and senior director at WTW. Andrew Dodd has a background in pensions consulting and has also previously worked at the Government Actuaries Department. He is currently a lead actuary at TPR and has for many years been involved in developing the new regulations and the Code of Practice on scheme funding. Phil Hardingham has a background in investment consulting and has more recently focused on integrating modelling and digital capabilities into advisory services for Hymans Robertson. Luke Stratford-Higton has a background in both the life insurance and the pension sector, with his experience mainly focused on pension risk transfer pricing. He is currently an actuary at Clara Pensions.

Supporting our presenters are some other members of the working party. This includes David Fink, a partner in the de-risking team at LCP; Owen McCrossan, a senior solutions director at Aberdeen Standard Investments; and Kenny McIvor, head of trading at Phoenix Group Retirement Solutions.

Mr G. T. Connolly, F.I.A.: Thank you very much Debbie, and welcome all to this session. Before we start to talk about what is in the paper, I thought it was worth explaining the background to the formation of the working party. The catalyst was a recommendation in a 2021 report by the Target End-States for Defined Benefit Pensions Schemes Working Party. We have the recommendation here on the slide.

The phrase "dynamic discount rates" was new to me when I read the original paper. While the phrase was new, the potential for artificial volatility that some funding approaches can introduce in pension schemes was not a new concept to me. It was also something I was concerned about. This is currently relevant given the general improvements in pension scheme funding. For my clients, the trustees and sponsors seem to be more relaxed about funding fluctuations when a funding level is, say, around 80%, than when it is around 100%.

To put this potential volatility in context, and also to explain the driver for why we think there is a benefit in a DDR approach, we show a chart on the right-hand side of Figure 1 that is taken from the working party paper.

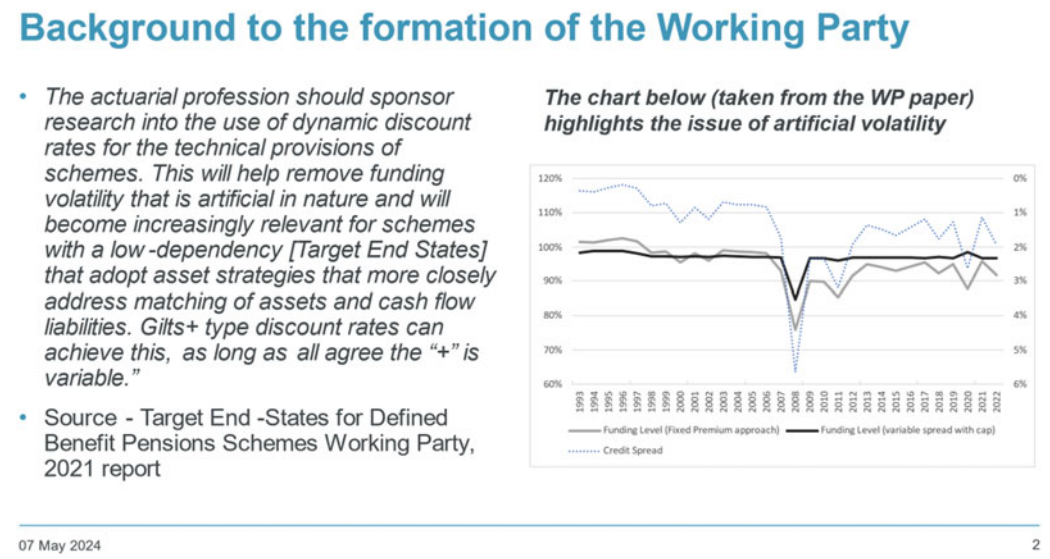

Figure 1. Background to the formation of the Working Party.

For a sample scheme that is invested in corporate bonds, and using market data over the last 30 years, Figure 1 shows the potential for volatility. There are three lines on Figure 1: a blue dashed line with an inverted scale on the right-hand side that is showing the credit spread on the asset portfolio; a grey line, which is a funding level for a Gilts plus fixed-margin approach, and there is a funding-level scale on the left-hand side; and a black line, which is the funding level for an approach that uses Gilts plus a proportion of the credit spread subject to a maximum value. The chart suggests that using a DDR for removing some of the potential for artificial volatility is worthwhile.

So, with the recommendation from the other working party in mind, a request for volunteers went out at the start of 2022. Since then, there have been a lot of developments affecting pension schemes: in no particular order, we have had the liability-driven investment crisis at the end of 2022, general improvements in funding levels, and TPR's consultation on the new funding regime. These three developments are discussed in our paper. One thing that we have not covered is the Mansion House proposals, largely because our paper was mostly written by the end of 2023 when those proposals were released.

As to the working party itself, its members bring a whole range of experiences and skill sets, and that was by design. Members were selected so we had this range of experience. All the individuals also gave a wide range of views on the various topics as we went through the paper. We found that the topic of dynamic discount rates is best considered from several angles. That is also a theme of the earlier target end states paper.

The first task was to agree our objectives.

All of the topics in Figure 2 were covered in the paper. We had to define what we mean by DDR and review current practice. We had to review stakeholder considerations, such as the trustee, the members, the sponsor, and the pensions regulator. When is a DDR approach beneficial? What can we learn from insurers? What does DDR look like in practice? (which is in Chapter 6 of the paper). What does DDR mean for other areas such as investment strategy and member options? Finally, what new skills would actuaries require who are advising on this approach, and what are the next steps that we recommend?

I will pick the one in the middle first. We have a definition of DDR, on the right side of Figure 2. It can be argued that this approach is not new, particularly as some actuaries have been using, say, an asset model to set discount rates. However, in our paper we are focusing on schemes with

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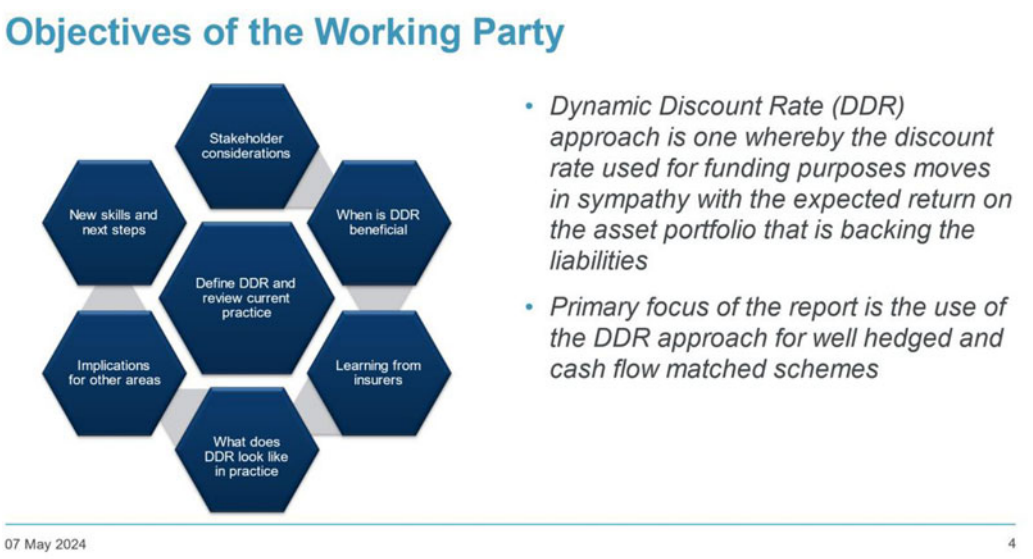

Figure 2. Objectives of the Working Party.

matching investment strategies where there is a large degree of contractual cash flows in a portfolio, such as corporate bonds, which are similar in nature to the pension scheme cash flows, and they are well hedged. In terms of the overview of current practice, there is not a huge amount of data available. We relied on anecdotal evidence from individual firms. The distinct lack of external data leads to one of the recommendations we make in our paper. More on that later.

In view of the amount of time we have today, we will focus on three items. I will now pass to Phil (Hardingham) who will cover the topic of stakeholder considerations.

Mr P. C. Hardingham, F.I.A.: Thanks Gareth. Good questions to ask at the outset are "What are the potential benefits of a DDR framework and who benefits from it?" We should also think about the potential drawbacks and risks to navigate when designing this type of approach. Let's focus on sponsors and trustees first and why they might be interested in this approach. From their perspective, there are two particular themes I would like to bring out.

The first theme is stability and predictability. By design, this approach creates a much closer link between assets and funding liabilities. Therefore, we would expect fewer fluctuations in the funding level over time. To build on that, where we do see a fall in the funding level, we would expect this to be a much more explicit signal that there is a forecast cash-flow shortfall, and for sponsors and trustees to then collaborate around how to remediate this.

To make that concrete, let's take the example of a fully funded scheme holding a significant allocation to credit. Under a traditional Gilt plus a fixed-margin-type approach, an increase in credit spreads, all else equal, would cause a deficit and send a signal for deficit recovery contributions. If the increase in credit spreads is driven by a liquidity squeeze rather than an increase in expected or actual defaults, then this is arguably an unhelpful dynamic; certainly on the part of the sponsor, if they believe this could lead to unnecessary contributions and then challenges around future surplus extraction.

That dynamic works in the other direction too. In a scenario where there is a flight to safety, say, leading to falling risk asset valuations and tighter credit spreads, it is feasible that the reduction in credit spreads could mask a weakening in the position of expected future cash flows under a traditional valuation approach. In both scenarios, a DDR approach facilitates a shift in focus away from the balance sheet position, and towards the underlying sufficiency of asset cash flows to meet benefit payments when they fall due. In turn, this is more closely coupled with the fundamental purpose of a pension scheme – to pay members an income in retirement.

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The second theme that I would like to bring out, implied indirectly by the first, is flexibility, particularly around asset allocation. In principle, this framework could maintain a stable funding level when investing in a broader range of cash-flow-generating contractual assets other than Gilts. Under this approach, trustees have the flexibility to allocate more to this type of asset class whilst sidestepping, at least in part, the disincentive of funding-level fluctuations. As an aside, these potential benefits make no reference to the cost of funding the scheme, although managing this cost is clearly an incentive on the part of the sponsor, in particular. It is worth flipping that around and calling this out as a particular risk. In a traditional valuation approach, the investment strategy is often tilted towards conservative asset classes, because the spread above Gilt within the funding basis is modest.

In a DDR approach, because the valuation methodology is driven off the asset strategy directly rather than vice versa, other channels are needed to limit the investment risk within the strategy to appropriate levels, given the covenant strength of the sponsor.

That is a good segway into thinking about the impact on members. If the DDR approach is underpinned by a risk-managed investment strategy delivering cash flows to meet benefit payments, it can deliver good member outcomes. But even if the reliance on the sponsor should be limited from the perspective of injecting cash if everything goes well, the continued support of the sponsor from the perspective of underwriting the investment risk is needed. It is needed as a security measure to provide a contingency to span the gap between the funding and the solvency bases. It is important that the security of members' benefits is not compromised if the scheme follows this type of approach, which implies that it should be done within a broader robust risk management framework to ensure that member security is not inadvertently reduced.

To continue on the theme of protecting members' interests, I will pass over to Andrew (Dodd) to provide some of the perspectives on how a DDR approach might sit alongside the funding code and broader regulations.

Mr A. J. Dodd, F.I.A.: Thanks Phil. Some new regulations have recently been laid before Parliament, the Funding and Investment Strategy regulations, which are building on the Pension Scheme Act 2021. These regulations will be followed by a funding code that TPR will issue later in the year. All this will come into force in the autumn. The new legislation introduced two new key aspects.

The first is to achieve low-dependency funding using a set of assumptions consistent with a low-dependency investment allocation by a relevant date no later than significant maturity. All these terms are set out in the regulations, with the concept of "low dependency" being that if you are fully funded on a low-dependency basis, you are not expected to require any further contributions from the employer. The exact point of what 'significant maturity' means is delegated to TPR's code.

The second key new requirement is that the technical provisions must be set consistently with this low dependency by the relevant date and based on a journey plan to get there, with the risk within that plan being supportable by the covenant of the sponsoring employer. Given this legislation, it is helpful to think about how many requirements apply to mature schemes and immature schemes separately.

At TPR, we expect that many mature schemes that want to achieve low dependency on the employer will be attracted to cash-flow matching strategies that lend themselves to a DDR approach. One of the benefits of DDR, which Gareth (Connolly) touched on earlier, is that it will limit the volatility in the scheme's funding level and hence the need for additional funding from the employer. Phil (Hardingham) explained very well how such an approach can be to the benefit of members in terms of securing benefits. In the draft code that was consulted on in December 2020, it was highlighted that DDRs could be used as part of a low-dependency funding basis where schemes have invested in a way to match their liabilities with a high degree of hedging.

Those of you who have looked carefully at the new regulations that are before Parliament now will see there has been a change to the definition of a low dependency investment allocation, and the "broadly matched" principle has been removed. But we still see that cash-flow matching with a

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DDR is a good fit for mature schemes wanting to achieve low dependency. For immature schemes, there is scope to invest in a wider range of asset classes and take more investment risk, if that can be supported by the employer's covenant. In theory, there is nothing in the legislation or draft code that would restrict the use of a DDR for a relatively immature scheme. Such schemes could adopt a cash-flow matching strategy if they can find suitable long-term investments to match payments far into the future. But in practice, they may be more likely to partially cash-flow match, which means they could use a discount rate that is partially dynamic. For example, an immature scheme could set a post-retirement rate that is dynamic based on having cash-flow matching for that portion, combined with a pre-retirement rate based on expected returns. The other thing I want to point out is Chapter 2 of our report, where we set out some examples of approaches to setting dynamic discount rates that could include an allowance for growth assets.

The other new aspect of the funding regime coming later this year is a twin-track assessment for demonstrating compliance that we will use at TPR: fast track and bespoke. Fast track represents the regulator's tolerated level of risk and schemes can compare themselves against a series of quantitative parameters on assets like the level of technical provisions, investment risk, and length and structure of the recovery plan. If they meet all of those parameters, they can use fast track. The alternative is to go down the bespoke route where you have greater flexibility to adopt a strategy that reflects the characteristics of your scheme and the employer. Trustees that go down the bespoke route will be expected to provide more evidence as to why their long-term strategy is appropriate, and that they can support the risk in a Statement of Strategy, which is another new requirement coming from the legislation. Note that TPR will be running a consultation on that statement shortly.

How is this applied to dynamic discount rates? The way the fast-track parameters have been set is based on a Gilts plus fixed-margin approach for discount rates, and that is for both low dependency and technical provisions. A DDR where the margin over a risk-free rate is varying in different market conditions may not necessarily fit well with fast track, although at any particular valuation, the assumptions could meet the parameters. It is likely a scheme using a DDR approach will go down the bespoke route. The trustees of that scheme can explain in their statement of strategy how the margin over risk-free rate has been determined at the valuation date and how it could vary at future dates.

I am now going to pass to Luke (Stratford-Higton) who will talk about how you can put the theory of DDR into practice.

Mr L. Stratford-Higton, F.I.A.: Thanks Andrew. As Andrew (Dodd) mentioned, we will now have a quick look at how a DDR approach could be implemented in practice. To help inform our thinking we built a model for a sample scheme. This modelling led us to a step-by-step framework for setting a DDR, which is outlined in Figure 3.

We think this framework is a good starting point for schemes that want to adopt a DDR approach in conjunction with a cash-flow matching investment strategy. The key feature of our approach is that it uses a discount rate of Gilts plus a variable margin, which is defined by steps 1 and 2, plus a prudence buffer which we define in steps 3-6. The buffer means that, from a funding perspective, the target to aim for is more than 100% funded on this basis. We think the prudence buffer has two main advantages over a more typical funding approach that targets 100% funding on the Gilts plus basis. Firstly, the margins for prudence are considered more explicitly through the derivation of the buffer; and secondly, as Phil (Hardingham) mentioned earlier, instead of determining a suitable investment strategy based on a defined Gilts+ margin discount rate, this approach starts with consideration of the investment strategy. We think this might encourage schemes to invest in a less constrained way, perhaps with greater consideration for higher-yielding assets.

We will now look at each of these steps in more detail using a worked example in Figure 4. For those interested, there is a lot more detail on this example in Chapter 6 of the paper.

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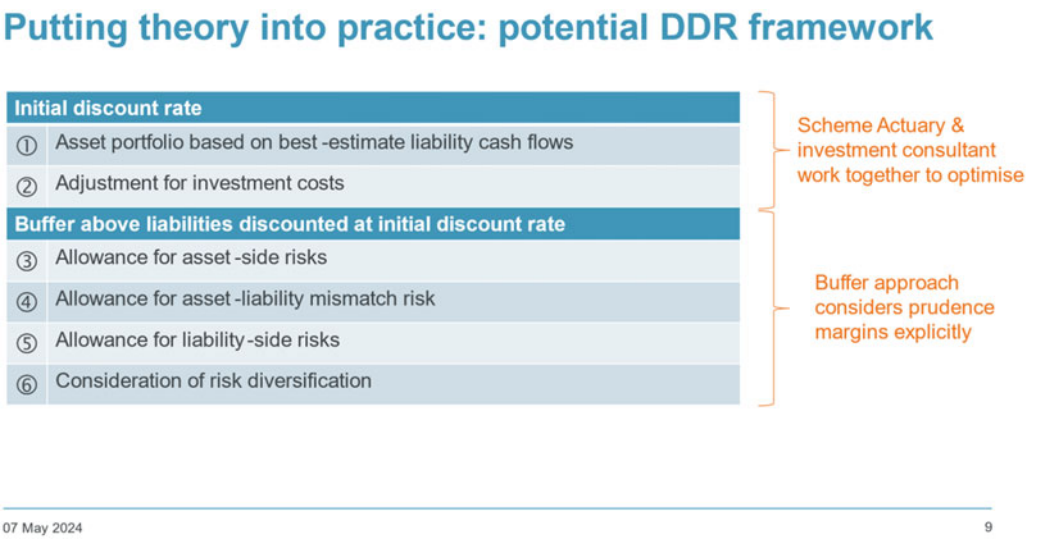

Figure 3. A step-by-step framework for setting a dynamic discount rate.

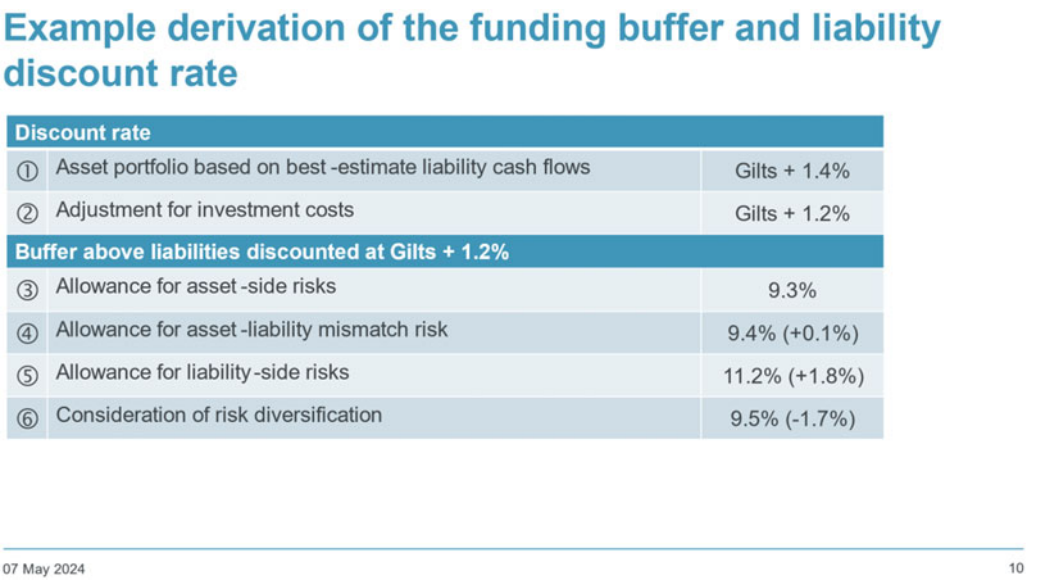

Figure 4. Example derivation of the funding buffer and liability discount rate.

Our starting point in step 1 is the best-estimate liability cash flows as calculated by the scheme actuary. Using these cash flows, the investment advisor can develop a suitable asset portfolio, as mentioned earlier, with a high degree of liability cash-flow matching. In our case, and for simplicity, we constructed an asset portfolio consisting mainly of investment-grade corporate bonds, and our optimisation process focused on minimising the difference between the asset cash flows in a given year and the liability cash flows in that year. As you can see in Figure 4, if we set the liabilities equal to the market value of the portfolio, this gave us a discount rate of Gilts plus 1.4%. The asset cash flows in step 1 made no allowance for investment cost, and therefore we need to consider these separately. In our case, we applied a deduction of 20 basis points, as you can see in the table, to allow for investment costs, which we thought was a reasonable proxy for a portfolio

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of corporate bonds based on historical data. Combining steps 1 and 2 gives us our initial discount rate of Gilts plus 1.2%. We now need to derive our funding buffer above the liabilities discounted at Gilts plus 1.2%. Another way of thinking about this buffer is that the calculations in the first two steps are on a best-estimate basis. Then we calculate the buffer to allow for margins for prudence, and we can consider these explicitly in the funding basis.

If we move on to steps 3–5, in each of these we consider the asset risk, asset-liability mismatch risk and liability risks separately. The risk to consider in these steps will depend on the scheme specifics, particularly the asset portfolio and also the liability profile. We think this framework, therefore, encourages trustees and their advisors to think carefully about the key risks faced by the scheme when they are deriving this buffer. Turning back to our example model, we considered some sample asset and liability stresses and the impact on the funding level in order to derive the buffer. If we start with step 3, asset risks, in our case the portfolio we used consisted mainly of corporate bonds, and therefore the key risks are credit default and rating downgrade. For simplicity, we applied the insurance Solvency II calibration for the probability of default and the cost of downgrade to assess the buffer. It is perhaps worth noting that the Solvency II assumptions are intended to be prudent and may not be deemed appropriate for pension scheme funding purposes. For those interested, we consider alternative approaches in the paper.

Moving on to step 4, where we look at asset-liability mismatch risk. At first glance, you might think that the buffer of 0.1% feels a bit low. This is because our asset portfolio is designed to closely match the liability cash flows, meaning that the difference in the asset and liability cash flows at each time step is relatively small, which leads to a relatively small buffer requirement. To illustrate this point, if we keep the same asset portfolio but use different liability cash flows (in the example we assume no cash commutation at retirement), then this buffer would increase to around 5.5%.

Moving on to step 5 we look at liability risks. Here we looked at two example scenarios and their impacts on the funding level. The first being that members live longer than expected; and the second being that there was less cash taken at retirement. If we take a step back, we have a total buffer at the end of step 5 of 11.2%. The final step, number 6, is to determine the overall buffer that we want to include in our funding basis. The key consideration here is how we combine the various buffers in steps 3 to 5. We felt it would be overly prudent to add the full increase in the buffer for each of steps 3 to 5, particularly as there is prudence applied when determining those buffers. For the example model, we made some simplified assumptions for the correlation of the risks assessed, the main one being that asset and liability risks were uncorrelated. As you can see from Figure 4, this reduced the buffer from 11.2% to 9.5%, so a reduction of around 15%.

That takes us quickly through the example, and again, there is more detail provided in the paper. A key question here is what do we do next? Once we have the detail of each of those steps agreed, again based on the scheme specifics, the scheme actuary and investment consultant can work together to consider alternative investment strategies and look to optimise the outcome. This optimisation process has similarities with that undertaken by insurers, and also with pension super funds under their respective regulatory regimes.

A final point: the framework I have described is focused on setting the discount rate and the buffer at the valuation date. For ongoing funding monitoring purposes, you can use sensitivity analysis to create a formula for the funding basis for changes in key parameters. Again, there is more detail on that approach in the paper.

We have touched on a few of the key modelling issues that need to be considered under this framework, such as the identification of asset and liability risks when determining the buffer. In practice, there may be other points to consider depending on their scheme and specifics. For example, in our model, we assume that the scheme has enough assets to fund the initial investment portfolio, and so we do not account for potential sponsor deficit contributions. If this was not the case and deficit contributions were being paid, it would be relatively straightforward to include these in the model as a series of fixed payments, similar to, say, a short-dated bond. Secondly, our

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model assumes that assets are held on a buy-and-hold basis with no changes to the investment strategy. Again, it would be relatively simple to allow for future changes in the asset allocation, for example, by adjusting the derivation of the initial discount rate or by making an adjustment to the prudence buffer.

Finally, a hot topic at the moment, given the recent improvement in funding levels, is discretionary pension increases. As our framework is focused on assets that match the expected benefit payments, one could argue that there might be less chance of surplus emerging. In turn, this could mean there is perhaps less chance of discretionary increases being paid in future. Again, this will depend on a number of factors, such as the current funding position of the scheme. So, if the scheme has a surplus versus the funding basis under this approach, then that may be less of an issue. I'll now hand over to Phil to talk about new skills.

Mr Hardingham: Thanks Luke. In light of Luke (Stratford-Higton)'s example, let's just fit in some of the new skills and knowledge that we within the actuarial profession, and the industry more broadly, might want to focus on if we want to implement this type of framework at scale. First off, to repeat a theme, you can fairly argue that these are not really truly new skills, but they are old skills applied in a new way. In any case, this type of framework leads to a much tighter coupling of assets and liabilities; and this means that actuaries, regardless of whether their background is liability side or asset side, get more comfortable with traversing both sides of the balance sheet. For example, scheme actuaries might want to get closer to understanding some of the details of credit assets, like prepayment risk, to build an intuition around the impact these factors would have on the funding position if they crystallise, and why. Investment consultants may need to engage much more directly with, say, the investment response to higher-than-expected transfer values, recognising that any resultant shift in asset allocations would have a direct impact on the funding position by design. Coupled with that, we need to not only understand these factors ourselves but be able to communicate them effectively. That is essentially an exercise in framing something relatively complex, in ways that are relatively simple and intuitive, if that is possible. This helps stakeholders to understand what is most material and what is less material without getting lost in the detail. We want to keep the focus on the underlying philosophy of this type of framework, which is monitoring that our assets are expected to deliver sufficient future cash flow to pay scheme benefits.

The final area I want to touch on is a little different, and it is around data considerations. Given the linkages between asset yields and the liability basis, there is a greater reliance on asset data to underpin liability estimates and roll-forwards. From a monitoring perspective, this linkage can introduce delays. So, finding pragmatic solutions to develop monitoring frameworks in the context of potentially missing or delayed data, whilst keeping the focus on the primary signal around whether there is sufficient cash flow to meet benefits, is really important if we are going to get the best value from this type of approach. There are lots of other skill sets that we can partner with to do that effectively at scale, like data engineering or data management or product management perspectives. The evolution of our actuarial skill set to work effectively within those multidisciplinary, digitally mature teams is a theme that impacts lots of other areas beyond just dynamic discount rates. Nonetheless, I think it will be important to inject these perspectives into the design of DDR risk management frameworks.

And I think that's a good point to land on and hand back to Gareth (Connolly) to discuss how we might build on some of this thinking and some next steps. Thanks Gareth.

Mr Connolly: Thank you very much. We have quite a few proposed next steps set out in the paper. We have separated these into actions for the IFoA, actions for TPR, and actions for scheme actuaries. We start with the IFoA. As this is very much a new area and it is likely to become more prevalent over time, we suggest that the IFoA looks at the training and guidance available to its members in a few areas.

First is a review of the curriculum for the actuarial exams. It would be sensible to include something there. Those at the start of their careers should understand this as a concept.

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It would also be helpful to consider issuing guidance on how assets can provide cash flows, which are fixed and bond-like in nature, but are perhaps more esoteric and less liquid than the usual suspects of Gilts and corporate credit. If guidance can be issued on those, and in particular how they can be incorporated into a DDR approach to funding, that would be good. The guidance should help actuaries to understand the risks inherent in those assets so that they can explain the positions clearly to the trustees and advise on an appropriate level of prudence in the funding assumptions.

The final action or proposed next step for the IFoA is in relation to further research. As part of the modelling in the paper, and so that we could focus on the discount rate aspects of the DDR modelling, we made quite a sweeping and simple assumption – that all the liability cash flows were inflation-hedged. But we are aware that, for schemes that have inflation-linked pension increases that are subject to caps and floors, there is further work that could be done in the area of funding and investment implications for those, because it is not straightforward. As well as that, we think it is also worth sponsoring further work in the area of correlation of liability-side risks. The correlation of these risks is important when considering the buffer that Luke (Stratford-Higton) explained for liability risks to incorporate them in a DDR approach. In combination with the hedging of inflationary risks, these risks will become more and more important to manage as schemes become more mature and adopt cash-flow-matching strategies.

In terms of the action for TPR, we recommend that, if practical, it captures information on a scheme's DDR approach regarding the way in which the margin is set above the risk-free rate; not only at the valuation date, but at future dates. This could be something that is brought out in the new Statement of Strategy, which Andrew (Dodd) mentioned earlier.

For scheme actuaries, we have two actions. A DDR approach relies on accurate modelling of benefit cash flows. Therefore we suggest that scheme actuaries encourage trustees to take appropriate legal advice on the benefits and entitlements for members to ensure that the modelling is capturing the right benefits. Accurate modelling also relies on the quality of the data held with respect to members' benefits. So, data-cleansing exercises will be helpful and will improve a DDR approach to the extent that there is uncertainty around the quality of the data. If there is uncertainty, then that should be built into the assessment of the liability side risks.

Now we move to the question-and-answer session.

Question: Would it be fair to say a DDR approach potentially locks the scheme into a permanent buyout deficit as the difference between expected and actual returns is likely to be lower than under the traditional Gilts plus fixed-margin approach?

Mr Connolly: It depends on how the basis is set. One thing we were quite clear on was we were not intending to give a view on the strength of basis that should be adopted. We saw that as an issue for the trustee and company to agree on and TPR to regulate. We are not saying that the basis should be materially weaker than a buyout position. We are simply saying it should be set having regard for the risks. One follow-up comment would be that we are aiming for an approach where the assets and liabilities move in sympathy, so you would not expect a material change in the funding level over time. To the extent that if the basis is a lot weaker than a buyout basis, then you would not expect that gap to close because of the way the assets and liabilities are intended to move. One consequence is there is a continued reliance on the sponsor covenant.

Mr Hardingham: I think it is an excellent question. The piece around the disconnect, and not coupling the strength of the basis or the degree of risk in the investment strategy with the underlying framework, is probably quite an important point to bring out. It is quite possible that you could follow a very conservative investment strategy with a substantial buffer under this type of framework, in such a way that you are implementing this type of approach to run off your scheme whilst maintaining a level of asset coverage above solvency funding on an ongoing basis. It is a double-edged sword. The framework gives flexibility around the level of investment risk that you might take and the breadth of assets that you can invest in. The optionality of that, I would argue, is a benefit. However, it clearly comes with risk, if it is used as a means to take an excessive

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level of investment risk that is incommensurate with the level of covenant strength and sponsor security, which would be less than ideal. Making sure that this is done in a way that has a strong, broader risk management framework around it, and is used as a way of breaking apart the signals of when you need to respond; and keeping the focus on the cash flows rather than the balance sheet position, I think that is the key factor around this type of approach rather than just the relevant cost of funding a scheme.

Question: If you choose an asset portfolio based on best-estimate cash flows then add a buffer, how do you invest the buffer? Do you take risk here? If you have more matching assets, are you over-hedging? Do you just hold cash?

Mr K. R. McIvor, F.F.A.: I can provide some input from an insurer's perspective if it helps, acknowledging there might be a difference in how the scheme would operate of course. I should probably first say that insurers consider interest rate swaps in their definition of risk-free rates, which means that when considering investing the buffer, as the question rightly implies, they will take a low-risk investment strategy. Gilts provide that kind of alternative. The one risk they do take there is movement; gilt swap spread movements result in stress for them in that respect, but there is some capital held potentially in addition for that. That usually gives them the strategy they need for the buffer.

Question: What were the working party's thoughts on term dependency of the margins above gilts?

Mr Hardingham: I can jump in around some of the term dependency piece if that's helpful. I think rather than landing really concretely on the right approaches to allow for term dependency or not, it is a good question to ask. The way to think about it is to consider what is that connection to assets and your investment strategy that is coming through. It is very feasible that at shorter durations you are able to have a broader range of asset classes that would deliver yield with a higher spread. That would reflect an approach where you did have that term dependency of a wider margin at the front end and then lower margin at longer terms, to reflect that maybe your matching assets at that point are Gilts or other longer term, higher-quality assets. The detail around that and how you get that tradeoff between pragmatism and complexity and making sure that you are keeping your focus on the underlying question, which is the level of risk and getting those cash flows, that is really the heart of implementing this. You must think in terms of whether you are getting drawn into the mechanics of it and taking your eye off what are you trying to do with it. Consider what the signals are that you are trying to use this framework to help you monitor and make sure that you are tightly coupling your design decision to what are you trying to achieve with this framework.

Moderator: The second part of the question is how one might hypothecate or exclude the terms from surplus assets and from future investment?

Mr Connolly: That was one point brought out by Luke (Stratford-Higton) concerning practical issues. If you are in the fortunate position where you already have more than enough money to cover the liabilities, a decision is needed as to how you hypothecate your existing assets to the liabilities and then what you do with the remainder. It is something we have considered as part of the paper. In that situation, you will have surplus assets, and we have no strong view on how they should be invested. In terms of the future reinvestment, there are two aspects to consider. One is that we do take into account reinvestment risk as part of the modelling. One of the artificial points about the model we produced was the extent of the asset and liability matching. It was very precise in practice. I expect in the real world we would have bigger margins there to reflect less precise matching. There is an assumption made in our modelling as to what happens to assets where you have too much cash in one particular year - what assumption do you make about the reinvestment? In our model, we assumed you could only invest the excess cash flow at a risk-free rate, so it was quite prudent. Obviously, you can devise another assumption for that, or you can advise your clients on another assumption. Another point on reinvestment, or changes in asset allocation, which was picked up by Luke, is that the chances of having all the assets for the

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scheme invested in the right way on day one is probably quite small. Some assumption will be needed in due course about how you change the assets that you currently have in the long-term cash flows, which are more likely to be more gilts, say, than corporate bonds, because of nature and duration. How do you swap those, and on what terms, as that duration comes in? When you sell gilts, say, and buy corporate bonds, what return, or what yield, are you expecting on those? That is another area where an assumption is needed. It is recognised in our paper as one of the practical points that needs to be covered in practice rather than in theory.

Question: Will the working party develop its work to cover dynamic discount rates in relation to equities (UK and overseas) and property, which will help to bring immature schemes and open schemes into their thinking?

Mr Dodd: In Chapter 2 of our report, we did look at the different ways that you can set a DDR, including those where you would have growth assets as part of your portfolio, and then the expected return on the growth assets compared to a risk-free rate would vary over time. We acknowledge that there are alternative ways to set a DDR using different types of investment strategies. We focused on the cash-flow matching. I think in part this is because, although for those other DDR approaches the liabilities will move more in sympathy with the assets, it is not as clear cut as with a cash-flow matching and well-hedged strategy where it is very much aligned.

Question: Your paper focuses on mostly corporate bonds being used for cash-flow matching. What other cash flow generative assets would you envisage being included in the portfolio, and how would you reflect them?

Mr Stratford-Higton: For the purposes of the paper, and it was mainly to make our model easier to use and build, we just looked at corporate bonds. There is an appendix to the paper, where we looked at other types of assets that have contractual cash flows. In summary, they broadly covered different types of bonds, loans, mortgage-backed securities, infrastructure etc. In terms of integrating those into the framework we set out, the approach would be very similar regarding what the expected asset cash flows are, how you think about the risks that are specific to those asset types, and those will differ from corporate bonds.

Moderator: One of the challenges with those other assets is that, with credit bonds, it is quite easy to work out what the yields are. For some of those assets, it is much harder to know what your current yields are and how to assess them. Presumably, that does make them rather more challenging?

Mr Stratford-Higton: Absolutely. When we were thinking about it, for example building the model at the outset, we did consider including more exotic assets and we encountered those complications very quickly.

Question: If a pension fund invests broadly, like an insurer for bulk annuities, then could you just use an annuity yield plus discount rate as a proxy for the DDR approach? Do you think that would work?

Mr Hardingham: How I am reading the question is that if your philosophy for funding the scheme is to mimic the approach of an insurer; then maybe from a data availability perspective getting a signal from the insurance market (annuity yields, annuity quotes), and using that as the basis for your discount rate could get to a similar place as the DDR approach. I think it is an interesting idea. You could remove some of the complexity of the very bottom-up approach, particularly if you have quite complex asset strategies coming through. And it gets you to a similar place where you do not have a tight coupling to gilts that would be coming through. It is probably a tradeoff. Does it help you to ask the right questions and focus on the right things? Does it help you to focus on buying cash flow and investing in a way that is delivering that cash flow over time, which is what an insurer is trying to do? Does it help you to manage that risk on an ongoing basis?

Mr D. Fink, F.I.A.: The challenge with that approach is there are a number of other factors that feed into insurer pricing that will not be possible to hedge. That is one of the benefits of removing

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funding volatility of this bottom-up approach. Close matching may fall away in the scenario of approaching it from an insurance pricing perspective.

Question: Have you looked at the impact on corporate accounts of using a DDR approach?

Mr Connolly: We haven't, because we are just trying to derive an approach for a pension scheme funding, for a sample pension scheme, rather than for corporate accounts.

Moderator: Corporate accounts still have to use the accounting standards that are based on credit, and that's what they are.

Question: A lot of this sounds like quite a lot of work. Do you think there is a minimum size of scheme for which the DDR approach is relevant? How many schemes do you think are likely to adopt it?

Mr Connolly: I think in terms of scheme size, there are a few factors to bear in mind. There's no automatic cut off. There are various factors feeding into it. One is governance. There is some work to set up this framework, to understand how the basis is derived, and what risks go in there. There are some practical issues for the smaller schemes, one being that the cash flows on the liability side are much more uncertain, so you have to be pragmatic about how it applies as the scheme gets smaller. The other one is that there might be certain asset classes that the small schemes may be less able to invest in. I think it is not so much that there is a cut off, it is more that the liability cashflows are uncertain for the smaller schemes. You just have to be proportionate and pragmatic. For instance, if you did have a quite small scheme, you could probably make a good attempt with a portfolio of high-quality corporate bonds, but you have to recognise that you would not be able to invest in some of the more esoteric assets.

Question: How would prudent reserves look from a very small scheme compared with a large scheme? Do you think you would do something differently? You have a lot more data on cash flow uncertainty with a very small scheme.

Mr Dodd: This is probably more of a personal view, and I may not be the biggest expert in this, but I would definitely start with a bigger prudent margin. I say that because of that uncertainty about the cash flows on the liability side; and potentially because of how well you can actually match your cash flows with the investments that you can get, so your matching may well not be as good when you've got a much larger payment.

Mr Fink: I agree with that Andrew, I think there is more uncertainty in liability cash flows, so you would start with the higher buffer there and probably fewer diversification benefits as well.

Question: Presumably the DDR approach means that changes in a scheme's investment strategy will have an overnight impact on a scheme's funding level. Might this drive asset allocation decisions that may not be in the best long-term interests of the members of the scheme?

Mr Hardingham: The implication of this approach would be that if you are moving assets from one area to another asset that has a higher yield, you would expect that to propagate into a direct funding impact. The logic behind that would be if you are substituting a series of cash flows for another series of cash flows, which is higher, and planning to deliver more cash flow overtime, you are recognising that signal upfront. As to whether that's a positive or a negative thing, that goes back to flexibility being a double-edged sword; in that it gives you the ability to fund in that type of way, but you have removed the prudence as a result of the valuation itself. Therefore, you don't have the link of a modest spread within a traditional low-risk dependency basis, which automatically drives you towards a relatively conservative investment strategy. As a result, you are putting more weight on the other controls that you are going to be leaning on to make sure you are not taking excessive investment risk. This comes with the caveat that, as long as you have those controls in place, and you're decoupling this from a valuation approach as to what's the right level of investment risk and the right level of prudence within that, I do not think it automatically leads to worse outcomes. I think it is just a different way of measuring and driving the way that you are funding pension schemes. You need to have those controls to complement that and support it.

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Moderator: Lots of people spoke tonight, so can I express my own thanks and the thanks of all of us to the members of the working party, and everybody who presented and asked questions today. Thank you.

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