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SESSIONAL MEETING DISCUSSION

Actuarial valuations to monitor defined benefit pension funding

[Institute and Faculty of Actuaries, Sessional Event, 9 March 2020]

The Chair (Mrs D. L. Webb, F.F.A.): Hello and welcome to today's webinar on defined benefit (DB) pension scheme funding. I will be providing a short introduction, following which Chris O'Brien will take you through the highlights of his paper. You will be able to submit questions at any time using the Q&A button on your screens, and we will take as many of these as we can at the end of Chris (O'Brien)'s presentation.

Today's discussion is very well-timed. With the Pensions Bill currently being considered by Parliament and the regulator's consultation having come out only last week, it is very helpful to once again be considering the key principles regarding the practice and regulation of DB funding. The Institute and Faculty of Actuaries (IFoA)'s 2012 paper on discount rates highlighted two key different approaches to valuing pension funds: a matching approach, which is used primarily as a matter of benefits security, and a budgeting approach, used primarily as a means of deriving contributions. To date, the legislation and indeed member disclosure are primarily focused on the technical provisions, with guidance from The Pensions Regulator (TPR) and the legislation itself again supportive of a budgeting approach to such calculations. A solvency funding position is also, however, required and is generally included in the files provided to trustees and valuation reports, and some funding statements to members.

The Department for Work and Pensions (DWP)'s 2018 White Paper argued that the scheme-specific funding regime is not broken, but that there are a small minority of situations where the current flexibilities are abused. The changes proposed by the Pensions Bill will add a third element to the funding calculations, namely the long-term funding target. Many schemes already have such targets in place, although these may not be formally agreed to by sponsors and are currently often not communicated to members. Schemes will now all be required to set such a target and to set out in a new strategy statement their intended approach to achieving full funding on this target over an agreed period. This will include highlighting the intended investment strategy over time, identifying key risks to the strategy, and setting out how these are to be managed. No significant changes are currently proposed to the scheme disclosure to members – and perhaps we should think about that given the comments in Chris (O'Brien)'s paper.

The regulator's consultation also sets out a new approach to how they intend to regulate DB schemes, including a description of a prescribed fast-track route and a more bespoke route for scheme funding. They further set out their initial views on the likely long-term targets, and how scheme maturity can be used to set a timeframe for reaching such a target. One of the ideas they suggested, and asked for comment on, is whether such a target should be covenant-independent. This target would assume discount rates of between gilts plus 25 basis points and gilts plus 50 basis points. Reading Chris (O'Brien)'s very topical paper, it occurred to me there were a number of similarities between TPRs proposed long-term targets and his benchmark evaluation.

I would like to welcome Chris O'Brien. He was educated at Manchester Grammar School and at Christ's College, Cambridge, where he read Economics. He joined Royal Insurance in Liverpool,

qualifying as an actuary in 1975 and became Chief Actuary at the UK life division of Royal Sun Alliance in 1998. In 2000, he moved to Nottingham where he was director of the Centre for Risk and Insurance Studies at Nottingham University Business School. He published research on subjects that include insurance company and pension schemes valuation and management. He has been a member of several committees at the IFoA, including the Research and Thought Leadership Board. He has also served on a number of working parties, and this is the third solo author paper that he has presented at a sessional event. He retired in 2014 and, like many actuaries I know, is a keen cricket fan. He has also written a biography of cricket writer Neville Cardus.

Mr C. D. O'Brien, F.I.A.: Thank you, Debbie (Webb). Research is a major part of the profession. We are very fortunate that this is a profession where many members do research and present it, and it is published in the British Actuarial Journal – free online and an important means of disseminating the latest thinking. That research gives the profession an opportunity to pursue its role in supporting the public interest.

Funding of defined pensions is topical, with the Pensions Regulator having only last Tuesday issued its consultation document on the DB funding code of practice. I was really pleased that the regulator, in its document, calls for clarity and an objective funding standard. I fully applaud those as objectives.

The starting point, briefly, is that we have a current annual funding statement, where the results of two valuations are disclosed in the information given to scheme members and, of course, also included in the actuary's report to trustees. One is the so-called ongoing valuation, where we compare the assets with the technical provisions, and the other is the buyout valuation, comparing the assets with the price needed to transfer the liabilities to an insurance company. Looking at statements to members suggests that trustees typically downplay the importance of the buyout valuation. The argument is that "we are not planning to close the scheme; we provide the information because the rules require us to do so; and a valuation of liabilities on the basis that they would transfer to an insurer may well produce a higher figure than a valuation assuming the employer fulfils its obligation to provide the benefits". For example, insurers have to meet solvency regulation requirements, and impose a profit margin. Hence, many people would say that the buyout valuation is artificial.

This reminds me of the debate on International Financial Reporting Standard (IFRS) 17, which is an accounting standard for insurance companies (not yet effective). It was originally proposed that insurance company liabilities be calculated on the basis that they transfer their liabilities. However, insurance companies argued that they do not in practice transfer their liabilities. They pay claims and fulfil their obligations in that way. As a result, the standard was changed to a fulfilment basis. That is, what is the cost of the insurer fulfilling its obligations, not transferring them? I know that today's topic is pensions, not insurance. I know that it is not about accounts. However, I think that the concept of fulfilment versus transfer is an important one that we can use.

The problem with the buyout valuation means that it is the ongoing valuation that is the focus in the annual funding statement. Here, the assets are typically at market value, and the technical provisions are defined by regulation as needing to be prudent, with discounting at the prudent expected rate of return on the assets and/or the gilt yield.

What does the resulting funding ratio mean on that basis? A member reads the funding ratio is 90%. There is no discount rate disclosed. Suppose 90% reflects a rate that is a prudent expected rate of return. Suppose also, that it would be 85% if a more prudent (i.e. lower) rate had been used, and 75% if the gilt yield had been used. This variation results from the discretion available in determining the expected rate of return, whether to use gilt yields, and the discretion on the prudence margin. I do not think that this is meaningful or sensible. The problem I have is that under

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TPR's proposals, it can still happen. So, I wonder what happened to clarity? What happened to objectivity?

Scheme-specific funding, which Debbie (Webb) mentioned, was recommended by Lord Myners in 2001. It is clearly the case that employer circumstances are relevant to member security and how funding can best be arranged. The employer may need cash for the business and produce a high discount rate to produce low liabilities. Maybe the covenant is weak. Perhaps, there would then be a relatively low discount rate producing high liabilities, although there is little evidence in practice that the covenant is linked to the discount rate. The flexibility in the discount rate and the choice of prudence enable the valuation result to be adjusted to suit employer circumstances.

Scheme-specific management is clearly right. The employer covenant is very relevant to managing it. But scheme-specific valuation is dangerous, I believe. It is right to reflect scheme mortality, etc., but not to adjust the discount rate and prudence to meet employer needs. The liabilities which we are valuing depend upon service, salary, mortality and so on, not on employer needs. Changing the discount rate and prudence in the valuation in a scheme-specific way means we can fail to understand and communicate the underlying strength of the scheme. The outcome is that we can "fudge" the valuation results. I believe that a valuation approach that is consistent over time will provide clarity and help manage the scheme, and TPR says it wants clarity.

Is it a problem in practice? Looking at the DWP documents, there are considerable changes in the assumed outperformance over time. 13.9% of schemes had more than a 0.75% increase in assumed outperformance over 20-year gilts from one valuation to the next. TPR reported that, in regard to outperformance over 20-year gilts, there is an upper quartile of 1.33% and a lower quartile of 0.42%.

Further, these differences are not random. An average discount rate of 2.892% was applied where there was a deficit and a recovery plan of more than 10 years, but only 2.653% if the recovery plan was over less than 5 years. Some research that I did with my colleagues concerning the assumptions in firms' accounts showed that firms with weak pension schemes tended to use relatively high discount rates, lower salary growth, and inflation assumptions. We were able to identify this effect even though the rules regarding firms' accounts limit the amount of discretion that firms can use.

So, I propose a benchmark valuation, a valuation that would illustrate the security of members' benefits. Is this not why the fund is built up? It is a solvency valuation, but does not regard solvency as merely something for regulatory purposes, overly prudent and artificial. It is very relevant to management. It is not intended to be a valuation that assesses the contributions that are needed for the scheme. That benchmark is then a base, from which the effect of alternative assumptions can be tested.

Looking at TPR's latest document, they say that having a clear benchmark against which to assess schemes will help the regulator. When thinking of what the valuation on the benchmark should be, then, I suggest that it needs to be based on sound principles with reference to the actuarial and accounting literature. It needs to be objective and fair, and neutral in the sense of not biased to the needs of one party, either the firm or the members. It needs to be transparent and able to be communicated, and it should be feasible for all schemes, including small ones as well as large.

I also think that it needs to be prescribed by regulation to avoid the "fudging" that can come with discretion. I would hope that it produces clarity to aid understanding in the management and the regulation of schemes.

The first question is, what are the benefits to be valued? I propose that the benefits to be valued are those to arise on the discontinuance of the scheme. I would omit future salary increases because the benefits from future salary increases are not really an economic liability. Accountants think of constructive or present obligations as needed to justify a status as a liability. Arguably, salary-related increases are not. We know, after all, that many firms have removed future salary increases from their benefit structure. This is consistent with a number of papers

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in the British Actuarial Journal. However, I do realise that some schemes will wish to fund for benefits from future salary increases, which, of course, they can do. In that event, they have a higher target funding ratio than if there is no salary increase built-in.

The value of assets – I would propose that we use market value, consistent with much of the movement in actuarial and accounting practice. The alternatives include smoothed values and amortised values of bonds, but I believe that they reduce clarity and can lead to inconsistencies. However, market values may be wrong, one might argue. Therefore, the valuations do need risk sensitivities to show what the values of assets and liabilities could be in alternative economic conditions.

Moving onto the valuation of liabilities: should we use the fulfilment basis or the transfer basis? The transfer basis, or buyout cost, is not appropriate if the firm intends to fulfil its obligations, and we know that when it is disclosed, trustees tend to downplay its importance. We should, therefore, calculate liabilities on the basis that the employer will fulfil its obligations.

This then leads onto the next question, to which Debbie (Webb) alluded: do we use a matching approach or a budgeting approach? Here, the report of the discount rate project is important.[1] That was a project which covered insurance, pensions, and finance specialists. The matching approach that they described involves discounting the liabilities at a risk-free rate. It is the rate of return on assets that match the liabilities, not the rate on the assets that the scheme actually has. They regarded the matching approach as suitable for assessing solvency. An annuity has cash flows that match those of a risk-free bond. Assets and liabilities are largely different sides of the same coin. The conclusion is, then, that we should discount liabilities at risk-free rates, such as gilts. Also, we could use swaps, allowing for default risk. There may be other asset yields that we could use with some adjustment. In contrast to the matching approach, the budgeting approach would discount at the expected return on the assets, which could help to assess contribution rates.

My conclusion that the matching approach is the one that is appropriate for measuring solvency is not new. I quote in my paper seven articles in the British Actuarial Journal (BAJ) in the past 25 years that have come to the same conclusion. What about the papers that have said the opposite? There are certainly comments in the papers that have been delivered where people express concern, but there are no published papers that recommend that we should use the budgeting approach to monitor solvency.

I told that there is a debate in the actuarial profession as to whether we should use the risk-free rate or the estimated rate of return on the assets to discount liabilities. If I look at the published papers, that result seems to have been decided. Do we need extra time? I am not quite sure, but the Cowling *et al.* paper of 2012, the discount project, concluded that for the purposes of estimating pension scheme solvency, a matching framework should be used. If the actuarial profession wants to come up with a different conclusion, then we really ought to finish the debate off quickly, and make sure we have a conclusion. I believe that the conclusion is already there.

What about discounting at the expected rate of return? This is the budgeting valuation relevant to assessing the contributions required, though, of course, with the risk that the assets will fall in value. Significant judgement is clearly involved. Would you propose a maximum on the expected rate of return? How optimistic can you be? What do you do about unfunded schemes which have no assets? The bigger point is that the liabilities depend upon service, salary, and mortality, etc. They do not magically go lower if you switch to assets that you think will give a better return. Discretion and the undefined prudence can lead to "fudging" the answer. My conclusion is that, for monitoring funding, you do not discount using an equity-risk premium that may not materialise.

What about the budgeting approach in member communications? I have already referred to the annual funding statement and my concerns. In the discount rate project, the comments were from the members' perspective. This information, the funding ratio using the technical provisions,

[1]Cowling, C., Frankland, R., Hails, R., Kemp, M., Loseby, R., Orr, J., & Smith, A. (2012). Developing a framework for the use of discount rates in actuarial work. *British Actuarial Journal, 17*(1), 153–211. doi: 10.1017/S1357321712000050

is of limited use. In disclosing the funding position to trustees, regulators, and members, the focus should be on the solvency position and how it is expected to develop. In the Cowling *et al.* paper of 2017, the conclusion was that using the budgeting calculation gives misleading information about the security of members' benefits. And this is important: 25% of schemes use outperformance over gilts of at least 1.33%. I believe that the profession's public interest role means that we must press for change.

Can we reconcile the two approaches? There is a very interesting paper by Hatchett *et al.* in the BAJ in 2013. Their example is, we have a scheme with market-valued assets of 57, and the liabilities discounted at a risk-free rate, 4% p.a. gilt yield, gives 67. We have a deficit of 10. If you took the budgeting approach, then you would say that 50% of the fund is in growth assets, yielding an extra 3% for 5 years. That gives you 4.8 to meet the deficit, leading to contributions needed of 5.2. In other words, changing to discounting at a risk-free rate need not lead to an increase in the deficit repair contributions.

What about cash flows that are uncertain? Should we not add margins of prudence? I believe that prudence in managing the scheme is right. We have people's pensions at stake. We do not want to be reckless. However, prudence in management does not mean that we should be prudent in the sense of having margins that increase liabilities above their expected value. This might lead to unwarranted complacency. Exaggerating liabilities might have undesirable effects, and discretion on prudence means that the answers are less easy to interpret. Changing the level of prudence hides what is happening and allows the results to be "fudged".

An interesting perspective on prudence is given by the International Accounting Standards Board, who define prudence as "the exercise of caution in making judgments under uncertainty: it does not mean that liabilities should be overstated". I, therefore, concluded that the valuation and the benchmark should use the expected cash flows without margins for prudence on top.

Some people refer to a risk margin. The risk margin could be added to liabilities to reflect uncertainty. Quantification is not necessarily easy. Various possibilities exist, such as types of Values at Risk. Some would suggest, rather than probabilistic measures, using stress tests, although with judgement needed on how onerous they should be. Or maybe the buyout cost? If the assets are there to provide security in the event of the employer's insolvency, what happens in that event is important. It is the buyout cost that matters and its disclosure, as we have it, can be helpful. In other words, we need to understand risks, but this is extra information, not part of the reported liabilities. That would mean overstating them.

I mentioned some other considerations in the paper. The first one is that we recognise that pensions are illiquid liabilities. There could therefore be an illiquidity adjustment to the discount rate which, I believe, is acceptable in principle but it is difficult to assess and may be small. Perhaps, some further research on that would be helpful.

I would make no allowance for the employer's credit risk. We need to compare the assets with the benefits that are expected and defined in the contract. We should not reduce liabilities for employer's insolvency risk. We should use the expected values of future cash flows. I would say that they should be probability-weighted, a more appropriate term than best estimate, and without a margin for prudence, which avoids the problem of defining what a prudent margin should be.

Returning to the topic of risk: to deal with risk, the trustees could prefer that some margin for risk was included within the fund. Arguably that should not be a regulatory requirement. There is no objective answer. What is right depends upon the circumstances of the firm, and proposals for a risk capital requirement under an amended directive were rejected. We do need risk disclosures – stress tests which could be relatively straightforward such as using the Pension Protection Fund (PPF) stresses or some kind of stochastic analysis. While I propose constraints on valuation assumptions, the really important job for the actuaries is using their judgement to assess and manage risk.

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What do regulators do? At the end of the day, the regulations are a political decision, but actuaries do have a public interest role to advise. I believe that the DWP should change the regulations in order to require discounting at a risk-free rate for the purpose of assessing security and disclosure to trustees, regulators, and members. That is strengthening workers' rights. And they should continue to require disclosure of the buyout cost.

Regulators need a new process, therefore, for possible intervention. I appreciate that the psychology of the target rate under 100% is difficult to accept, but immediate action to restore 100% funding is probably not the right answer. It depends upon the circumstance of schemes and firms, where the employer covenant is clearly critical. I applaud TPR for looking to develop a more structured approach as regards to that intervention.

What do I conclude from the research? I believe the way ahead to tell us about the security provided by a scheme is a valuation that discounts at a risk-free rate, possibly with an illiquidity adjustment, and uses the expected cash flows without margins of prudence or risk, together with disclosures of risk and the buyout cost. I believe that we need to reduce the flexibility and the "fudging" that can result. I am in favour of constraints if they lead to clarity and consistency. I therefore propose a new benchmark valuation from which alternative assumptions can be tested as appropriate. I believe that gives us potential for better quality information, better management, and better regulation.

A great deal of work has gone into TPR's consultation. I just pick out one or two points.

It sets a low-dependency funding basis involving discounting at rates of gilts plus 0.25/0.5%, applying to a mature scheme. It seems very close to what I am suggesting as regards to discounting at a risk-free rate and it should not be too difficult to make a suitable comparison of the two. The technical provisions, though, can continue to be calculated using gilt yields or expected rate of return. That can be acceptable to use in the fast-track procedure provided they are at least a specified percentage of the low-dependency funding basis technical provisions, depending upon covenant and duration. There are alternative ways of expressing that are suggested.

I refer to one extract from TPR's document: covenant strength could underpin the assumed level of risk in the technical provisions. There is also a bespoke basis and I am not intending to go into that. I suggest that TPR's technical provisions are not really liabilities. They are the level of assets it regards as satisfactory, equivalent to what it thinks is an acceptable recovery plan.

What might I then add as my conclusion? I would expect that the actuarial profession should, in its response, highlight to TPR the research in the BAJ. That is what we do with research. We publish it and then that should form the contribution to how we respond in terms of public interest matters. I would expect the IFoA to say that the right thing to do is to discount at a risk-free rate. Using the expected rate of return may work for assessing contributions, but it does not work for monitoring funding. It is inconsistent with basic economics. It results in misleading information for members and the discretion available can lead to fudging. TPR wanted clarity and objectivity. I hope that my proposal for expected cash flows without margins for prudence or risk would also be part of what the IFoA were happy about.

I will also say that to regard technical provisions as acceptable assets fails on clarity. The technical provisions are no longer a suitable measure of liabilities. The asset mix and employer covenant are irrelevant in determining the liabilities. If we want an actuarial valuation of assets and liabilities, then I do think this is seriously unsatisfactory. TPR is right to say, what might the unintended consequences be?

I also focus members' disclosure on the relationship between assets and the low-dependency funding basis technical provisions. At the moment from what we see in the consultation document, there might be a disclosure of a scheme that is fully funded, but it is only 74% funded on the basis of using the low-funding dependency basis. I do not think that is right as regards members' communications unless we start doing things differently.

I have said what I think is the right thing to do. I just want the actuarial profession to do the right thing.

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The Chair: I would like now to open the discussion to the audience.

I think you have given a very comprehensive summary of why you see the benchmark approach and the risk-free approach as appropriate for security. You touched quite briefly on contributions and how those are determined, noting that you could use expected returns in some way to do that. For most valuations that I am involved in, that is the key outcome of the valuation from both the company's and the trustees' perspectives. Perhaps you can talk a little bit more about how you see that working, and how you see that in any way being different to the current environment in terms of the flexibilities that currently exist. The outcome in terms of results seems to be not that different from the current technical funding approach.

Mr O'Brien: I am perfectly happy that schemes can make assumptions about future expected returns on the basis of the assets that they hold and expect to hold. That is important for determining the contributions that should be paid, which, as you say, is a key issue. That is what firms want to know – what they are required to pay into the pension fund. That is one question and one answer. Another question which needs an answer is, how secure are members' benefits? Then I would discount the liabilities using the risk-free rate. That would then be disclosed to members and I think that I, as a trustee, would want that information. It shows me, on a consistent basis over time, how the scheme is faring. If the scheme is prepared to take risks with its investment strategy, which it may well be, then we want to monitor what the outcome is and how secure the members' benefits are. Discretion comes into the assumptions about expected rate of return and funding. Whilst I am perfectly happy with scheme-specific management, I worry about scheme-specific valuation, if that is intended to distort the valuation.

The Chair: You did not really touch on something you talked about in your paper about minimum cost, and a debate that I know has been had about whether gilts or swaps should be used. I think I am supportive of the idea of minimum cost. I would make an observation though that, in my experience, particularly over the last couple of years, of asking insurers for valuations for pensioner liabilities, I suspect those valuations have sometimes come out as less than your benchmark valuation for those same liabilities would be. I am just wondering whether you would apply that same minimum cost approach, or whether you would say that that is not relevant information?

Mr O'Brien: I am conscious that I have written a paper in accordance with principles. What I would really like to know is what, in practice, does that mean in terms of numbers? TPR has put forward its proposal for a low-dependency funding basis. I do not know how that would compare in practice with what I am saying with regards to the risk-free rate of return. I refer to the debate about should it be gilts, should it be swaps, should it be minimum cost? I have some sympathy with it being minimum cost, but I can see that there are some issues. I can see that there are also issues about an illiquidity adjustment. I am not in a position to do the calculations to compare them, but I think that it would be useful to do, in order to have a series of figures to inform us. We can then also compare that with what, as you say, insurance companies might be quoting. That numerical research, as opposed to my research based upon principles, is also needed so that we can then have a more concrete basis for coming to a decision.

Mr S. P. Rees, F.I.A.: Actuaries have a tendency to over-engineer things. For pensions actuaries, I believe that it is useful to remember that there are really only two calculations that we ever do, setting aside calculations that are prescribed, such as International Accounting Standard 19 (IAS 19) or the PPF valuation. These calculations answer one or the other of two simple questions. "What do we think is going to happen over the future?", or "what would happen if there was no long-term future and we had to settle the pensions scheme liabilities now?" These two calculations are often labelled as an ongoing calculation and a discontinuance or solvency calculation.

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The times when we get into a mess are the times when we try to combine these two distinct assessments. The current legislation fortunately reflects the approach of recognising the two separate questions and their separate calculations. It uses the unfortunate expression "technical provisions" in relation to the ongoing calculation, which is slightly unhelpful, but it does separately require the actuary to estimate the solvency position. The legislation, the regulations, and the work of TPR give much more prominence to the technical provisions and the ongoing provision than to the solvency provision. This might or might not be appropriate, but I am sure that it reflects four things. (1) The ongoing position is the more likely one. (2) The ongoing calculations are more subjective because they deal with the reality that the future is uncertain. (3) The ongoing calculations make a difference to the contributions to be paid into the scheme in the future. (4) The actuary provides advice, but is not the decision-maker.

During the late 1990s and early 2000s, there were many disagreements within the profession, often linked to papers referred to in this paper. Many of those papers did not command universal acceptance and indeed generated much argument. The IFoA then instigated the project that led to the 2005 paper that is so often referred to in this paper. The main thrust of the 2005 paper was that it encouraged actuaries to consider where they were completing budgeting calculations, such as an ongoing calculation, or a valuation calculation, such as a solvency calculation. It was therefore very consistent with the legislation on scheme-specific pension scheme funding that had recently been enacted. It explained that the way that an actuary chooses discount rates should be different in the two situations.

I apologise for the boring summary of history, but it explains why I disagree with the two main elements of the paper. (1) I do not agree that pension scheme funding should be based on solvency calculations and (2) I do not agree with the proposed approach to completing a solvency calculation.

We have a well-established, insured annuity market that is used in 99% of cases where a pension scheme does have to settle its liabilities, unless it has to use the PPF. I see little value in calculations based on similar risk-free investments, adjusted for re-investment risk, liquidity differences, assumed mortality rates, etc. The annuity market offers the perfect market-consistent calculation, and indeed I believe that solvency advice not based on the annuity market would often be bad advice. Instead, I support TPR in continuing with its work on how to make the scheme-specific funding system work better. I want the profession to contribute to that process of improvement, rather than to pretend that an artificial single calculation provides good advice for the different circumstances of different pension schemes.

Whilst I disagree with most of sections three, four, seven, and ten, there are, however, two areas where I think that I agree with the paper. One is that we allow our advice on solvency to be given too little prominence. The solvency position is often unwelcome information for both the employer and trustee clients, and we do need to find a way of rectifying this position. Perhaps the next point will help.

My second area of agreement is that the quality of information provided to scheme members is typically very poor. I agree that it ought to be based more on the solvency position than the ongoing position, obviously with carefully crafted explanations. However, I would not communicate it in terms of actuarial numbers; I would communicate it in terms of benefit amounts.

Mr O'Brien: Clearly, we cannot have one valuation that answers all questions, so we do need more than one valuation. Or, if you like, we need valuations with alternative assumptions. I hope I have been quite clear that for the purpose of assessing contributions, using the expected rate of return can be the right thing to do, provided you understand what the investment risks are.

I think the confusion is in respect of the discontinuance valuation, and not the ongoing valuation. The difference between these is whether you are transferring your liabilities or fulfilling them. In the insurance context, the original idea for accounting for insurance liabilities was: what is the market price if you transfer your liabilities to someone else? Insurance companies said, "Yes, but that will produce an artificially high answer. In practice, we fulfil our claims." So the development

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was the use of the fulfilment basis for insurance liabilities, which involves discounting the expected cash flows at a risk-free rate.

In a pensions context, if you were to tell me that employers are not expecting to fulfil their obligations and that they will transfer them to an insurance company, which, of course, many of them are doing, although many of them obviously are not, then if they were transferring them to insurance companies then that would be the relevant measure of the liabilities for that purpose. However, if you look at the funding statements that trustees issue, they say things like: "We are not intending to close the scheme. We are not intending to transfer the liabilities. The insurance companies' cost is artificially high because they have to meet solvency margins. They have to make profits." Therefore, "don't take much notice of it" is the implicit comment.

The alternative to the ongoing valuation is not so much the discontinuance valuation, but the cost of fulfilling your obligations in the ordinary course of events. That involves discounting at the risk-free rate with no prudence margins on top.

The discontinuance valuation is a measure that would suitably be disclosed to indicate risk because, if things go pear-shaped, that is what would be needed to transfer the liabilities to an insurance company.

However, a fulfilment basis is one that is in between, which is more reflective of current circumstances. So, we have the ongoing valuation, which is a budgeting calculation, to determine the contributions to the scheme. We have the discontinuance basis for transferring the obligations to an insurer, but that latter is arguably too high, many people say, as a fair indication of the liabilities of the employer. Hence, it is the fulfilment basis that is the proper alternative to the ongoing basis, which involves discounting at a risk-free rate.

Again, I am perfectly happy to accept that it would be very good to have some calculations in front of us to show us what numbers would typically come out in practice. As I say, the principle issue that I have is that we have two valuations at the moment, the ongoing and the discontinuance, but what we do not have is the valuation on a fulfilment basis, whereby the pension scheme fulfils its obligations in the ordinary course of events.

The Chair: My view is that for an insurance company, the fulfilment basis makes a lot of sense, and that is what most are intending to do. One of the big differences between insurers and pension schemes is scale. The largest pension schemes can operate like insurers and do have the sophistication and the scale to do a long-term run-off that would essentially work like an insurance company would work in terms of running a low-risk portfolio over a long period of time. Most small schemes do not have that scale. So, for most small schemes, fulfilment is transfer. That, at some point, becomes the only way they can cost-effectively settle all the liabilities. It would just make no sense for them, given their scale, to run-off the scheme. I cannot remember the regulator's statistics, but the number of small schemes is huge. For the vast majority of those, that would seem to me to be where the two approaches coincide, which is different to the insurance world where scale is much greater.

Mr O'Brien: That may well be fair. I have looked at a number of annual funding statements. It would be interesting to look at what small schemes are saying in their annual funding statements. Maybe they are saying that it is the cost of the insurance buyout that is relevant.

The Chair: I think what you are highlighting, and I think we all agree, is that communications to members are often lacking. I would say that what those schemes are saying on their trustee boards and what the trustees are saying amongst each other is probably quite different from what is reported to the members. I do think the new regulatory focus on the new strategy statement is going to make a lot of that which is currently implicit, and perhaps discussed quietly within trustee boards, more explicit going forward.

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Mr M. T. Shaw, F.I.A.: How would you apply the solvency approach outlined in the paper and presentation in a possible regulatory regime for superfunds?

Mr O'Brien: It would be wrong to have liabilities calculated in different ways, if that then produced regulatory arbitrage.

Consider a set of liabilities which are currently under a pension scheme, although they might alternatively be under an insurance company, or under a superfund. In the pension scheme, I would value the liabilities as I have described.

I would also like to comment, for the pension scheme, that the basis I have proposed would also be suitable for the IAS 19 valuation. If people are concerned about multiplying the number of valuations to be done, I have reduced that by one because you would use the same thing here for IAS 19.

If the liabilities were transferred to an insurance company, then the insurance company would show the liabilities in its accounts in accordance with the standard IFRS 17, which, since we are dealing with no salary increases, being in a transfer situation, the insurance company accounting basis is, again, very similar to what I have proposed in the paper. The main difference is that IFRS 17 includes a risk margin. I have alluded, in my paper, to the fact that I think that the risk margin does not make sense and it should not be there, but that is another story. Insurance companies then have to comply with Solvency II, and that means calculating things differently. That is essentially saying that there needs to be further money to provide the capital backing in the event of adverse events.

For a superfund, then, I would say that the liabilities should be calculated as I have here. Liabilities are the same wherever they are. However, in terms of the extra amount that the superfund needs to hold above this benchmark, that is a matter on which the regulators should come to a conclusion. It will come to the conclusion for that to be a lower amount of capital backing than for an insurance company.

The consultation document that was issued did have a number of suggestions. It was largely concerned with stochastic modelling. I might add that the TPR document gives more weight to stress tests. I wonder whether, when it comes to regulation, stress tests might play more of a role in determining the superfund capital requirement.

Mr G. A. Devenney, F.F.A.: Does your proposed illiquidity adjustment not bring with it its own "fudge"? Are you really recommending a fulfilment basis that does not reflect how a particular scheme or sponsor intends to fulfil its promise?

Mr O'Brien: The illiquidity adjustment is a difficult area. I acknowledge that and say that further work is needed to establish what it might be and how it might be calculated. Indeed, TPR has put forward a basis in terms of gilts plus 0.25% or 0.5%.

My view is that it would be helpful for TPR to come to a comparison of its low-dependency funding basis and a risk-free valuation and look at what an illiquidity premium might or might not be. If we are talking about a conclusion, whether it is 0.25% or 0.5%, I think the illiquidity premium would play quite a small role in that.

Some research would be needed to come to a conclusion. Whilst, at the moment, I am not clear on what that illiquidity premium would be, I would hope that the research would clarify the position.

For the second part of the question, I can see that if the sponsor intends to transfer to an insurance company, then that transfer basis is the appropriate one to use for liabilities. I am not quite sure what the different ways of fulfilment might be.

The Chair: I suspect that the speaker is referring to investing in assets that have some risk attached to them.

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Mr O'Brien: I think the assets are irrelevant to determining the liabilities. The way that they are fulfilled is regardless of how we are going to invest the monies. You need that to assess the contributions, but you then need to take stock and say: What has happened? Where are we? What security do we have? That is where I think the basis I have described is relevant.

Mr R. R. Vassiliades, F.I.A.: The distinction we need to make clear is the purpose of the valuation. The triennial valuation has become a budgeting exercise, and there is nothing wrong with that. However, its use for communicating funding levels is misleading – so is the accounting standard. Are there any unintended consequences of communicating solvency?

Mr O'Brien: TPR has asked, in terms of its own proposals, whether there are any unintended consequences. Whenever you introduce a new regime that is a question you need to ask. My starting point would be that, if you have clarity and objectivity at the outset and have a proper justification, then I think the outcome – here, the basis that I have proposed – is the right one.

The consequences are more likely to be right than if you start off with something that might look acceptable to start with, but is not really right and is more likely to go wrong. As an example, when the minimum funding regime was introduced some years ago, it looked all right at the outset, but it was not really sound. It went wrong.

If the proposals are sound, then the consequences are more likely to be sound. However, I agree, as TPR has said, we do need to think through if there are any unintended consequences.

Mr J. G. Spain, F.I.A.: Together, the words "prudent" and "prudence" appear 38 times in your paper. Where is the best estimate against which, alone, prudence can be determined?

Mr O'Brien: What I have said is that the cash flows that should be used are the ones that are expected to occur. They should be, in principle, probability-weighted. What are the pensions that we expect to pay? What is the rate of inflation that we expect? What are the mortality rates that we expect? I would expect people to have a view about those factors and recognise that, yes, there are some uncertainties with regard to what inflation will be, what mortality will be, and so on.

In principle, you have probability-weighted expectations. I would imagine that, in some areas such as mortality, you might say that our expectation is the mortality table X and that would be adequate as a proxy for a set of probability-weighted expectations. In other words, what would you expect with probability weights attached?

Mr K. R. Wesbroom, F.I.A.: Let us suppose that technical provisions currently equal 70 and the scheme is fully funded on this basis, but under the new proposed benchmark measure, they are 100. Do we think it is going to be credible to say to members that there is a deficit of 30, but no contributions are payable because they will all be met by expected investment returns? This is, I think a consequence of having a different approach for solvency than for determining the contributions.

Mr O'Brien: I talked about the reconciliation of the budgeting and matching approaches. You should not immediately jump to the conclusion that we need to increase deficit repair contributions because we have a deficit. If the implication is that the contributions are lower than otherwise because the scheme is investing in growth assets then, of course, that may well have a consequence for members' contributions. It may well be that investing in growth assets not only reduces the firm's contributions below what they would otherwise be, but it reduces members' contributions below what they would otherwise be. Clearly there is a communication exercise to be considered, but I believe in doing the right thing. If I believe that the right way to measure solvency is using risk-free rates of return, then that is what I think we should do.

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The Chair: I guess what Kevin (Wesbroom) is asking is, that it might be what we should do, but does it not make it even harder to communicate to members?

Mr O'Brien: That may be a consequence of the way that we have communicated in the past, which I believe has been flawed. We have to live with that and move to what we think is right.

Mr A. D. Smith, Hon. F.I.A.: I agree with your summary of the research. You could have mentioned the last paper which did attempt to justify the use of equity-risk premiums, which was Thornton and Wilson in 1992. Why do you think that the IFoA has been slow to accept the science?

Mr O'Brien: I am not sure I can give a response on behalf of the IFoA. One thing that I have put forward in this paper, and in this discussion, is the insurance accounting standard. Originally, a transfer basis was proposed, and that was changed to a fulfilment basis, where the fulfilment basis means discounting insurance cash flows at the risk-free rate. That distinction between transfer and fulfilment had not really been thought through and emphasised sufficiently before then.

I also do not think that it has been emphasised sufficiently in the pensions literature. Having brought it to attention gives an extra impetus to moving towards a risk-free discount rate. It may well be that there has been a reluctance to change approach. Pensions actuaries have been accustomed to perform valuations, ongoing, and discontinuance. These have been regarded by many people as satisfactory. I do not think they have been satisfactory and, certainly, when it comes to member communications, they have not.

I think that inputting the idea of the fulfilment basis as an alternative to discontinuance gives an extra motivation for saying we need to rethink. In my view, that helps the conclusion of the seven papers to which I have referred. I did refer to papers in the last 25 years, and 1992 was before the last 25 years.

Mr P. D. G. Tompkins, F.I.A.: I am concerned with the idea that we have three sets of valuations: (1) budgeting, (2) matching assets, and (3) solvency results. Would this not be too many? Your main purpose is to see that members have enough and to see the right contributions set. I would like to ask if you would not prefer to see just two, a budgeting one and your new proposal for a matching valuation, which could then replace the solvency approach.

Mr O'Brien: I think not because the matching valuation is one that looks at the expected situation, with expected cash flows, without prudence margins. We recognise that these assumptions are assumptions, and we need to have some risk measures. I put forward retaining the buyout valuation as being a measure that has a different perspective, with the backup if the employer were insolvent and having to transfer the liabilities to an insurance company.

I think two valuations would not serve as adequate. These matters are complicated. In any event, I have eliminated one other because I would put the IAS 19 valuation beside my proposal. As I say in the paper, the real problem with IAS 19 is discounting at the corporate bond yield. When corporate bond yields differed greatly from gilt yields in 2009, the valuation went pear-shaped. The Accounting Standards Board in the UK has said that they think discounting should be at a risk-free rate, and that produces pretty much what I have suggested.

Mr R. M. Thouless, F.I.A.: In addition to the valuations which Peter (Tompkins) listed, there is also a PPF levy valuation which we are required to do, which is again a different kind of solvency valuation.

The profession should be pragmatic where possible, and could we not choose one of these bases to meet all three purposes?

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Mr O'Brien: I confess I do not know the details of the PPF basis.

The Chair: The PPF basis is fundamentally different because it does not value the scheme benefits; it values PPF compensation. From my perspective, that is the one which is not relevant to anything else. This perhaps comes into the unintended consequences of what you might communicate on solvency. What it does give is the priority order in which liabilities would be met if a scheme became insolvent.

There are two challenges with communicating solvency numbers, in terms of how members see them. One is that, if you say to a member your scheme is 70% funded on a solvency basis, they might interpret that as there being a 70% chance that they are going to receive their benefits. Clearly, reality is nothing of the sort, particularly if they have a strong employer who is able to stand behind the scheme and ensure its obligations are fully met. What is more, and this is where the PPF number comes in, even if it was to become insolvent, everybody would not receive 70% of their benefits. This is because the PPF priority order, and indeed the scheme priority order on top of that, would determine what individual members receive. That is a much more complicated communication than a single number could suggest.

Mr O'Brien: That is entirely right. Considerable care is needed in that member communication. Schemes differ in terms of the way that they are designed in terms of priorities. On the PPF basis, I appreciate that the PPF compensation is based upon PPF benefits and you cannot change that. What I do not know is, what are the rules about the assumptions to be made in that PPF valuation?

The Chair: It is a prescribed basis that is insurance basis-like, but not the same as the insurance assumptions. It is also intended to be a matching-type valuation basis that is similar to the insurance basis, but has slightly different assumptions and would probably have, again, slightly different assumptions to what you might have for benchmark valuation purposes.

Mr O'Brien: That adds to my comment that what would be beneficial would be for one group – a working party or a group falling under TPR's responsibility – to take a sample of schemes, or a sample of notional schemes, and look at what these different measures produce, and to what extent there are differences. Are those differences major or minor? Upon what do they depend? That would be a helpful contribution to the debate.

I appreciate the concern that we are adding to the number of valuations and whether this is beneficial. I hope I have contributed in terms of the type of basis that I would like. But the numbers would be very helpful.

Mr D. O. Cule, F.I.A.: Should actuaries be required to include the option value of the sponsor "put" when advising on the price of future benefits? This would be low with matching investments and high with risky investments. The gross price would be the same, which it should be for the same benefits.

Mr O'Brien: I would not say that they should be required to do so. My concern was that the benefits to be valued should be the benefits payable under the contract – what the employees are entitled to under their contract of employment and the pension scheme as part of that. With regard to what the employer would end up paying out, there would be a proportion of cases where the employer will become insolvent and will end up not paying the contributions that would otherwise have been made. In terms of shareholder value, that may well be a question that the firm would want to ask. If the firm asks that and wants to know, then I can see actuaries doing some calculations for them, but I would not prescribe that approach.

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Mr A. J. Dodd, F.I.A.: Currently, the buyout cost is likely to be less than the liabilities on a risk-free rate for very mature schemes because pensioners can often be bought out at gilt plus a margin. For such schemes, how would disclosing the buyout costs demonstrate the additional risks the scheme is running?

Mr O'Brien: I take the point that there will be some circumstances where the order of numbers may be different. As I say, there are several schemes where one looks at the annual funding statements and the trustees say that the buyout cost will be artificial because insurance companies have extra costs.

As I have mentioned before, it would inform the debate, for a number of schemes and a sample of different types of schemes, to quantify, on the different bases, the value of the liabilities.

The Chair: I think you will find that all the major consultancies produce quite significant buyout surveys, where they produce numbers on what they are seeing in the buyout market, and what current pricing is.

Mr Rees: When so few pension schemes could operate independently without an employer, exactly whose question is best answered by a fulfilment calculation rather than a solvency calculation?

Mr O'Brien: The fulfilment calculation is for the employer that is currently backing the scheme. If the employer expects to be continuing in business and expects to have the scheme, then the fulfilment basis is what is appropriate.

Mr C. Keating: How would you respond to the suggestion that the proposed benchmark is just another counter-factual rate in common with the legislative rates and buyout?

Mr O'Brien: The benchmark provides useful information on the security of members' benefits. The employer and the trustees take investment risks and have an expected rate of return assumption to determine the contributions. However, from time to time, you need to take stock. Have those risks worked out well? Where are we? This means comparing the assets and liabilities, and taking stock with regard to the level of security that is being provided.

The Chair: Another question, again on unintended consequences and how members interpret solvency. It is the idea that you could be using a perfectly consistent basis for two schemes. They could both have the same funding on your disclosed measure, but one scheme has a parent who is an AA-rated insurer with very healthy solvency margins. The other is a very small employer that is much smaller than the size of their scheme, and struggling to make ends meet. The level of security is not remotely the same, even though the numbers appear the same.

Mr O'Brien: I agree. Clearly, there are differences in the employer covenant.

The Chair: The point is that focusing only on the solvency number does not give the full picture to members in terms of whether their benefits are likely to be met. It is only one element of a much bigger picture.

Mr O'Brien: Yes, it is a number to which we can add the context of the employer and how large, how financially strong, and how committed they are. That context is always going to be part of solvency. However, I would augment that context with a number that I regard as appropriate rather than a number that I regard as inappropriate.

The Chair: Thank you for a very thought-provoking paper and a great discussion.

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You have argued about a central measure, which you have called the benchmark liability, based on risk-free discount rates and, as far as possible, neutral demographic assumptions. You have certainly highlighted the challenges in communicating to members the funding position of their schemes. I think if there has been something that has received full support in this discussion, it is that being able to communicate clearly to members could do with an overhaul. Current summary funding statements are not totally clear or helpful in this regard. You acknowledge that the current technical provisions framework in the sense of expected returns is useful for setting contributions, but you think that the regulatory focus should nevertheless switch to the benchmark return.

We have had quite an interesting debate with challenge on whether this new benchmark proposal is a useful addition, or whether it is simply seeking to replace the solvency valuation that clearly a number of respondents felt still did a very similar job to the job which you are anticipating this proposal will do. No doubt there will be plenty of further discussion on that as time goes by.

I would also say, on behalf of the Pensions Board, that we are very interested in any comments people do have on the current scheme funding consultation. Clearly, the Board itself will be responding, and we would be very interested to hear from any members who have points they would like to see included in that response to the consultation.

Mr O'Brien: Can I also thank people for their contributions? They have been much appreciated.

If I did have one point to add, I think it would be very helpful – and I do not know whether it is either TPR or the Pensions Board – to do some specimen calculations on what both TPR is proposing in its basis, what I have been proposing, and the different valuation bases for different types of schemes. I think that would really inform the debate.

The Chair: I note that TPR in their next consultation will be putting down the actual numbers for their proposed fast-track approach and are promising some analysis to go with that. It will be quite interesting to see what comes out of that, following consultation later in the year.

Written Contributions

Following the meeting, two written contributions were received. These are reprinted below, along with Mr O'Brien's answers.

Mr I. Clacher, Mr A. Duboisee de Ricquebourg, and Mr C. Keating: We share the author's stated ambition "that regulators should require a valuation that is based on sound principles, objective, fair, neutral, transparent and feasible." Unfortunately, we do not believe that the analysis and proposals made in this paper are advances towards that ambition. Much of the paper is concerned with proposals for the management of schemes and funds and not with the topic of its title.

The paper spends considerable time rehearsing the arguments for and against the existing statutorily required methods, expected return on assets, and gilts or high-quality bonds. This is well travelled territory, with starkly polarised, unresolved views evident. This is not surprising, as both of these approaches are counterfactuals rather than accurate representations of the current accrued value of the benefits contracted. The trajectory of a liability is in fact fully determined by its terms of award, the contributions made, and projected benefits expected. This determines an endogenous, time consistent rate, which we have referred to elsewhere as the contractual accrual rate (CAR) accrual.[2] This rate satisfies all the criteria of the ambition.

Existing methods and those proposed in this paper are exogenous and not time consistent. They have contributed greatly and unnecessarily to the demise of DB. While this decline may well have happened for a multitude of reasons, what is very clear is that historical and current approaches to

[2]https://www.longfinance.net/publications/long-finance-reports/a-primer-on-the-risk-structure-and-contractual-accrual-rate-of-db-pensions/

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the valuation of pension liabilities have forced the maturity of all DB schemes and accelerated their decline. It is also worth noting the human cost of this is significant as is the misallocation of corporate capital and investment to satisfy "deficits" which are an artifice of the approach to valuation.

It should be recognised that it is a property of corporate liabilities that, unless specifically contracted to the contrary, their cost (value) is independent of the manner in which they are financed. This resolves, by rendering their consideration redundant, many of the issues discussed in this sessional paper. Among these are questions of issuer credit and liquidity of assets held. Neither enter the derivation of the CAR that is determined by the contribution and projected benefits payable. For completeness, we should note that the uncertainties associated with those pension projections give rise to a distribution for the CAR. These uncertainties resolve with experience and the passage of time but unwind in relation to the evolution of the scheme and long-run economic trends as opposed to short-term volatility and the animal instincts of the financial markets.

The paper considers prudence and risk management for the scheme and fund. Prudence is paradoxical in this context; it biases upwards liability estimates, but prudence on the part of a member would be to bias these estimates downwards. This brings us to a basic problem in the so-called financial economics viewpoint. The relation between the cost (value) of a liability to its obligor company and the value of the corresponding asset to its holder – this relation is not one of reciprocating rigid rotation. The value of an asset is not equal to the value of the corresponding liability. The credit standing of the obligor and the liquidity of the specific instrument are among the relevant concerns to the asset-holder.

The author discusses risk management of the scheme and fund, when this rightly belongs within the sponsor, who initiated and effectively guarantees the contract. The viewpoint of the paper is that the fund exists to pay the pensions as they become due rather than that the fund is security for members of the accrued promises made by the sponsor under the scheme. This is a point of view promoted by regulation and the root cause of many of the "problems" of DB schemes. It should be recalled that the terms of award made by a sponsor are not related to the expected returns of capital markets, making awards which are more generous would add to the ease of recruiting and retaining employees.

The sufficiency of today's assets for the purpose of meeting scheme liabilities as they fall due is a meaningful management statistic; it informs as to the potential degree of dependence upon the sponsor. However, its estimation is fraught with difficulties. It would be simpler to estimate the required rate of return on scheme assets necessary to achieve full discharge of the projected benefits. The likelihood of achieving this may be estimated by standard econometric methods.

The paper considers disclosures of funding ratios to members. We wonder not only as to the ability of members to understand the published figures but also to the relevance of the information disclosed.[3] The sole risk faced by scheme members is sponsor insolvency, and this is mitigated in consequence by the presence of the PPF. The question of sponsor insolvency is not a simple point in time affair; the time dimension also matters. The members of a DB scheme are heterogeneous in many regards, including the proximity in time of their claims. This means that different members actually face different risks regardless of the funding status of the scheme.

The paper suggests that valuations should be as if the scheme had discontinued and that as discontinuance would free sponsors from future salary increases on the existing awards, this would result in lower liability levels. This is simply not true.

Among the conclusions to the paper is a recommendation that schemes should produce a "Statement of Financial Management Principles", yet this idea warrants only a cursory and confused discussion in section 9.7.

[3]It is worth noting the confusion that members suffer when multiple ratios are presented, for example, accounting versus technical provisions vs buyout. See current debates around USS for an example of this.

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It is clear that there is much that is wrong with current regulation, and this paper demonstrates some of those issues. If this paper prompts a root and branch review of current practice and regulation as input to the Regulator's revised Code of Practice, it has served good purpose.

Response from Mr O'Brien

I believe that the focus of the paper is on the form of actuarial valuations as in the title.

I understand the preference for an approach based on the contract accrual rate (CAR). I still believe in the merit of summary measures of assets and liabilities, provided that proper care is taken on their interpretation and that they are accompanied by other data, in particular related to risks. The approach I have suggested can also be applied to unfunded schemes, where no contributions have been made.

I agree that several reasons may have contributed to the decline of DB schemes, and some further research on those reasons could be useful.

I agree that credit and liquidity issues mean that it is not straightforward to regard the assets of cash flows as identical to the liability of those cash flows. I also agree that liabilities for the purpose of monitoring funding should not reflect issuer risk and should be independent of the liquidity of the assets held, and this is what the paper concludes.

I do not believe it is appropriate to apply prudence as meaning liabilities are either over- or under-stated, and I use the approach to prudence of the IASB to justify this.

Scheme members face the risk of sponsor insolvency. The finances of the scheme may also lead an employer to reduce or remove non-accrued benefits or to reduce wage increases. I refer to this in section 9 as reasons to ensure members have suitable information on fund finances. I agree that scheme members differ in their rights, and this should be taken into account in designing disclosures.

The scheme liabilities are the future cash flows. I would expect that, in the ordinary course of events, and over the long term, salary increases would exceed price increases as applied to pensions on discontinuance, and that this would also be the case when account is taken of increases being capped. However, I accept that there can be some circumstances where it is appropriate to assume otherwise.

I could have pursued the subject of the suggested Statement of Financial Management Principles, although felt that this may have been at such length that it detracted from the focus on valuation methodology.

I would be delighted if the paper prompts a root and branch review of current practice and regulation.

Written Contribution by Mr J. G. Spain, F.I.A.

The author is to be commended for allowing actuaries to have another discussion but I am afraid that is as far as it goes. That he assumes everything published in the British Actuarial Journal (BAJ) is correct and is somewhat surprising. His favoured reference points are all based upon the concept that "financial economics" has any relevance to long-term entities such as DB pension schemes, for which there is an abundant lack of evidence and is being challenged elsewhere. "Path dependence" is totally ignored; it really matters as opposed to just one year at a time.

I shall consider the main themes which I believe should have been addressed:

- the discounting process
- one set of outcomes
- prudence requires best estimate
- using market values for long-term entities
- lack of evidence for financial economics for long-term entities
- starting from current regulations (innovation?)

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- risk quantification is very poorly captured by scalars
- UK actuarial professionalism problem
- detailed problems
- conclusion

The Discounting Process

The discounting principle has been known for over 2 millennia. Converting future cash flows to the present only consistently works out in reality if the discount rate is the inverse of the investment return. As the future is unknowable, there can be no uniquely correct discount rate.

One Set of Outcomes

There will be one set of outcomes but nobody, not even an actuary, knows what that set will be. The author appears to consider that only one interpretation can be permitted. Using the evidence available is necessary and there must be room for valid differences of opinion. Equity risk premia are realistic, and bonds may fail.

Prudence Requires a Best Estimate

Together, the words "prudent" and "prudence" appear 38 times in the paper, but it has not been defined at all. The author decries discretion because it can obscure the true finances of the scheme [3.2.4] and considers it problematic that a best estimate is open to differing interpretations [7.5.2]. In fact, the degree of prudence (if any) present can only be identified relative to a best estimate. We are asked to consider the position if the discount rate was calculated with a greater degree of prudence [3.2.5] but why would one need to use a "more prudent" discount rate when prudence has not even been quantified? Later, the author queries whether or not the assumptions should be prudent [7.6.1] but that also requires some sort of definition which has not been addressed.

Using Market Values for Long-Term Entities

While market values at some future time will be relevant [6.10], current market values have no predictive power (Fama, 1965).

Lack of Evidence for Financial Economics for Long-Term Entities

The author quotes Hatchett *et al.* (2013) [7.2.8, bullet 6], who concluded that a valuation based on financial economics, have several benefits. However, there is no evidence that financial economics can successfully be applied to long-term entities. None of the papers in BAJ referenced by the author fill that gap other than by assertion. Older techniques could be refined, but they were aimed at treating income and outgo consistently.

Starting from Current Regulations (Innovation?)

The author states that he has started from the current regulatory focus on funding [1.8] but why assume that is the right place to start? This approach rules out innovation. On 31 January 2020, the President chaired the "Great Risk Transfer" event at Staple Inn (neither the transcript nor a recording are available). At one point, he stated that, as professionals, we should tell regulators if and when we believe that the regulations make little sense, which is likely to become even more the case given TPR's recent suggested guidance (March 2020), upon which I shall comment separately.

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Risk Quantification Is Very Poorly Captured by Scalars

This is especially the case when liquidity problems cannot be identified in advance, the huge concentration on risk, without reward recognition, is, in my view, unbalanced. In the real world, risks are only taken because of potential rewards (see Maurice Ewing interview, "The Actuary", October 2018), not a new idea. Indeed, as far back as 1952, Redington wrote that avoiding losses is the same as avoiding profits. The real problem is that single numbers are not appropriate results for representing many future uncertainties, especially when we do not even say what the result means (mean? median? mode? specified percentile?). In reality, scalars are grossly inadequate for indicating uncertainty of many possible outcomes so that discounting is inappropriate. Instead, we should be looking at multi-dimensional results with confidence intervals but we cannot do that with a deterministic approach. Although the author actually recognised that [7.8.3], he failed to take it any further. For long-term financial entities, not just pension schemes, future cash flows are the key elements, which are clearly far from certain. The financials are far more significant than the demographics, which needs to be recognised. The author appears to tentatively be in favour of stochastic processes as a way forward [7.92]. Capitalisation is not a solution; it is the problem. Instead of using discount rates alone, actuaries and regulators should show the uncertainty to the sponsors and trustees, using robustly supported stochastic projections.

UK Actuarial Professionalism Problem

This arises under the TAS regime in force since July2017, to which little attention appears to have been paid. Under paragraph [3.2] of the Framework Reliability Objective definition, transparency of assumptions is required together with communication of any inherent uncertainty. Under TAS 300 (pensions), communications shall explain comparison **between** discount rates used (or proposed) **against** expected assets return according to stated strategy. How can scalar results comply with those?

Detailed Points

It is highly unlikely that one approach to assessment of future cash flows will allow all users to use the results for their varying purposes [1.6]. While it existed, trustees and sponsors rarely relied upon MFR alone [3.1.1]. Although the author is concerned about manipulation, he accepts that IAS19 is far from being that easy to influence, with the third sentence of [3.2.8] contradicting the first sentence. Long-standing preservation requirements appear to have been misunderstood [5.2], in that any higher later accrual rates cannot just be disregarded. Indeed, statutory revaluation may be higher than pay increases, especially if limited. The author suggests introducing sensitivities into the valuation results [6.14]. Given that this is already required for other aspects of funding valuations, this hardly seems necessary. Further, users would have no way of deciding how much sensitivity they need to see. A risk margin [7.7] is yet another element of prudence, not being defined in any sense.

Conclusion

The UK actuarial profession had the opportunity 3 years ago to explain why the current system is unfit for purpose. That chance was wasted and we are now faced with an even worse version. The author concludes by stating that IFoA should seek to influence TPR to ensure that trustees and their actuaries are required to follow the paper's framework. Yes, we must pray for change – in exactly the opposite direction. Let us have many more simulations rather than utterly misleading scalars – and very much less dissimulation.

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Response by Mr O'Brien

I can assure you that I do not accept everything in the BAJ as correct; for example, I disagree with the view of Cowling *et al.* (2005) that negative options should be allowed for fully. However, I find the consistency of views on the discount rate, and the difference from current practice quite remarkable.

I realise that the subject has different views and that judgements are needed; a "risk-free rate" is easier in theory than in practice. Equity risk premiums may encourage schemes to take risks, but I believe that trustees need a benchmark, without mismatched assets affecting the discount rate, to monitor funding.

Yes, I believe that "prudence" can be vague and can have pitfalls. That is why I use the IASB approach to interpreting prudence and reject adding a margin for prudence on top of liabilities derived from probability-weighted expectations.

My paper takes the lead from financial economics to value cash flows similarly whether they are assets or liabilities (there are issues regarding credit risk and liquidity). As for the evidence, there are data on pension liabilities when transferred and it would be of interest to compare such values with those calculated in accordance with the benchmark I propose. There are, as I discuss, valid reasons for differences. I think that the concern about evidence for the validity of financial economics in general is a wider issue.

Since I am criticising present pension regulation and practice, I think it makes sense to start with the current regime and say why I believe it is deficient; I do not believe that this rules out concluding that a different approach is preferable. I accept that current (if not quite universal) use of market values is suitable provided that there is an investigation and understanding of risks around this; that means re-assessing both assets and liabilities in the alternative conditions, which I believe is necessary.

I appreciate that risk quantification is important, although it can be difficult. Stochastic projections can be enlightening and be important in understanding and managing risks, although I believe that stress tests have a helpful part to play in risk measurement. The limitations of all measures need to be understood.

I can see a case for reviewing the appropriateness of and compliance with the TAS regime for pensions.

I should explain an IAS19 issue more fully; there is no contradiction. The discretion on the discount rate is limited by the rules but is still there; and the evidence suggests that this is used in a way consistent with bias.

You are right: preservation requirements mean that later high accrual is reflected in the discontinuance benefits.

I do not define what risk margin should be included in the liabilities as it is something I have rejected.

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