

Regulation, risk and (defined benefit) pensions

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- In 1998 David Hyman brought legal case against Equitable Life.
- case hinged on the issue of guaranteed annuity rates (GARs).
- Annuity rates (interest rate) determine cost of an annuity (essentially a pension).
- Normally, annuity rate not determined until you retire.
- But Equitable had been offering (with profits) savings policies with a GAR (profits are distributed by awarding annual and terminal 'bonuses').

Valuing annuities

How do you cost an annuity?

- method dates back to Jan de Witt (1671)¹.
- choose suitable mortality table (e.g. a S1NMA_L, aged 65).
- This gives, for each t , probability of survival (p_t) to the end of year t .
- Assume for simplicity that payments are annual at the end of each year.

¹In the mid-seventeenth century, sales of life annuities were a common source of local and national finance in Holland and some other European countries. Standard practice of the day dictated selling annuities at one price regardless of the age of the life/nominee

- If the rate is r , value of annuity is taken to be expectation of stream of discounted payments:

$$V(r) = \sum_{t=1}^{\infty} \frac{p_t}{(1+r)^t}.$$

- Key question is “what discount rate should we use (Current Annuity Rate or CAR)?”
- Insurance co. chooses this at retirement based on bond yields.
- So, in advance, CAR at retirement is a r.v., R say.
- Saver with a GAR with guaranteed rate g pays $\min(V(R), V(g))$ and the insurance company loses $(V(g) - V(R))^+$.

- Until 1975 g was 4% (base rate hadn't been below 4% since 1952) and then it was raised to 7%.
- Equitable did not value the risk that the CAR would fall below the GAR in its accounts!
- In 1993 CAR fell below GAR, prompting GAR policyholders to exercise their rights.
- According to actuary Christopher Headdon, policies issued from 1975 to 1988 were worth approximately 25% more than CAR value; total difference amounted to some £1 billion to £1.5 billion.

- “From the 1980s onwards, Equitable was aware of the GAR risk. ... At no time did Equitable ever hedge or reinsure adequately against the GAR risk ...
- Reason was Equitable’s belief that it could ... neutralise the potential effect of the GAR risk through the exercise of its discretion to allocate final bonuses for with profits policies.”
- So valuations didn’t price the option, relying instead on reducing with profits bonuses *only for those with GARs*.

- From 1994, Equitable reduced terminal bonuses of GAR policies, negating effect of guarantee (while preserving bonuses for non-GAR policyholders).
- **Judgement** House of Lords concluded that GAR policies *required* that GAR was applied to calculate the annuity cost; and that ... differential terminal bonus rates ... were not lawful.

Aftermath

- ▶ Equitable was effectively broke and immediately reduced policy values substantially.
A whole rash of enquiries followed, including:
- ▶ Penrose report 2004.
- ▶ Morris Review 2005
- ▶ EU Parliamentary Report 2007
- ▶ Pension Ombudsman's Report 2008

- **Penrose report** This found:
 - ▶ primary responsibility lay with Equitable's executive directors (all actuaries)
 - ▶ actuarial profession produced no real guidance on either the GAR or over-bonusing issues
 - ▶ regulatory system was misconceived, with neither of the parties (DTI/GAD) having both the power and the expertise to do a proper job

- **Morris Review** - we'll come back to this.
- **EU report (Europarl) 2007** "The committee is of the opinion that the application of the 3rd Life Directive by the UK in respect of the Equitable case was deficient and that UK regulators and authorities did not adequately respect the ultimate purpose of the Directive."

Abraham (Pensions's Ombudsman) Report 2008 - *A Decade of Regulatory Failure*

- ▶ found ten instances of maladministration (DTI - 1, GAD - 4 FSA - 5)
- ▶ held that the Government had failed to protect policyholders . . .failing to verify solvency of Equitable and failing to make sure that the information available to the public was reliable.
- ▶ recommended substantial compensation scheme to put people in the position they would have been in but for the maladministration.

Response

- ▶ Abraham follow-up in May 2009, Injustice Unremedied. Government attitude "begged a rather larger question as to what the purpose of regulation was supposed to be".
- ▶ Accused government of twisting the findings of her report by suggesting that whatever the regulators had done, it would have made no difference to the events which followed.
- ▶ March 2010, Public Administration Select Committee described government response as "morally unacceptable", and repeated Ombudsman's criticism that it had acted as judge on its own behalf.
- ▶ May 2010, Government announced that it would propose a Bill to implement Abraham's recommendations. then backtracked, appointing an " independent commission", which she rejected.

- ▶ March 2012 – payments were only one third expected and PAC chair criticized Treasury for destroying details of 353,000 policyholders 'on data protection grounds'.
- ▶ 2013 – PAC said 200,000 people could miss out, called on the Treasury to "get their act together".
- ▶ In response, a Government Treasury spokesman criticized Labour party for ignoring the problem for ten years.

Morris Review of the Actuarial Profession 2005 - identified problems:

- ▶ insularity;
- ▶ insufficient emphasis on uncertainty;
- ▶ too little transparency;

and expressed

- ▶ concern about legally reserving certain roles to actuaries;
- ▶ widespread perception that actuarial profession had not responded effectively or fast to major changes in demographics and economic conditions in UK.

Former pres. of IFoA: *“saying “trust me I’m an actuary” is like Harold Shipman saying “trust me I’m a doctor”*

Sir Derek proposed independent oversight of :

- ▶ standard setting;
- ▶ compliance with technical and ethical standards,
- ▶ actuarial training and CPD;
- ▶ actuarial advice;

and

- ▶ clearer lines of accountability of actuaries to regulators, to the profession and to clients and employers

The Morris Review resulted in increased involvement in education by non-actuaries and greater oversight (but not 'full regulation') of the profession.

Actuaries are now subject to oversight by at least five 'regulators':

- ▶ the Pensions Regulator (tPR)
- ▶ The Financial Reporting Council (FRC)
- ▶ The Prudential Regulation Authority (PRA)
- ▶ The Financial Conduct Authority (FCA), the successor to the FSA,

and, of course,

- ▶ the Institute and Faculty of Actuaries (IFoA), their own professional body.

A brief summary of (DB) pensions history

- ▶ The Romans started them
- ▶ In the UK they started with the military
- ▶ Anthony Trollope missed out on one from the PO
- ▶ Took off in the 1890's
- ▶ government gold-plated benefits starting in the 1980s
- ▶ FRS17 (superseded by IFRS102) interpreted to mean current values used for investments in actuarial valuations
- ▶ after 2008 and QE, interest rates made gilts-based valuations look unaffordable

Not easy being a regulator. Things go well - called interfering, things go wrong - vilified by public, press and parliament.

tPR's 6 objectives:

1. To protect the benefits of members of occupational schemes
2. To protect the benefits of members of personal pension schemes where direct payment arrangements are in place
3. *To reduce risk of situations which may lead to compensation being payable from Pension Protection Fund (PPF)*
4. *In relation to ... DB scheme funding only, to minimise adverse impact on the sustainable growth of an employer*
5. To maximise employer compliance with employer duties and the employment safeguards introduced by the Pensions Act 2008
6. Promote, and improve understanding of, good administration of work-based pension schemes

tPR recently completed *consultation on the defined benefit funding code of practice*. Targets were:

- ▶ trustees removing risk,
- ▶ reduced reliance on the employer “covenant”
- ▶ fast correction of pension deficits, with a standard approach involving gilts-based approach for most schemes and a bespoke approach for some.

‘Covenant’ is a term of art essentially meaning the reliability of the employer’s commitment to pay the necessary contributions.
‘visibility’ refers to how long the covenant appears definitely reliable.

tPR seems to me to be unhappy with viewing any covenant as ‘visible’ for more than 6 years.

Some comments by pensions lawyers in response to the consultation

Removal of risk

- ▶ not duty of trustees to remove risk from the funding of pension schemes.
- ▶ Trustees' duties are specified by law [not tPR, is the inference].
- ▶ Trustees are *not under a duty to remove any risks* arising from the employer covenant at the expense of other relevant considerations.
- ▶ nothing in the legislation suggests that a move to minimise dependence on the employer's covenant will always be appropriate . . . it could well be inconsistent with [objective 4].
- ▶ Does not seem to take sufficient account of the fact there may be advantages to incentivising employers to [provide additional benefits or to keep scheme open].

Q: Covenant visibility a. Prudent for reliance on employer covenant to be reduced beyond [visibility period]? If not, why not? b. ... reasonable ... to assume reduced visibility beyond 3-5 years?

- ▶ Do not believe it appropriate to assume that the covenant lessens beyond visibility. Not legal duty of pension trustees to ensure that there is no reliance [beyond visibility].
- ▶ under-reliance on the employer covenant capital-inefficient and may result in [increased costs] — not consistent with the duty of trustees or with statutory objective of the Pensions Regulator [Objective 4]

Q: Open schemes, past service –Do you think it would be good practice for trustees to ensure that the provision of future accruals does not compromise the security of accrued benefits?

- ▶ trustees should not be encouraged in one or the other direction . . .do not believe it is correct to assert that provision of future accrual should only be in circumstances where the security of accrued benefits can be shown not to be compromised.

Objective 3 - protect the PPF

Exactly how much risk is there for the PPF? Ian Clacher and Con Keating's (Sept 2020) blog comments about proportion of DB funds failing *A sense of proportion*:

- ▶ Last year [2019] DB pension schemes paid £65 billion in pension benefits to pensioners; the PPF paid £775 million, just 1.2% of the total.
- ▶ Insolvency rate by liabilities is just 0.1% p.a. [for comparison, the levy is about .04%p.a.² and acquired assets will ameliorate costs substantially, particularly as PPF will apply a 'haircut' of 15% to benefits]

²£620m total levy on liabilities of c£1,550bn.

- ▶ Better than experience of the German PSV and the Swedish PRI-PG where it averages just under 0.3%.
- ▶ we cannot reliably predict the credit standing of most companies beyond about ten years.
- ▶ Mistake to assume companies have rising likelihoods of failure – an assumption that the Regulator seems to believe. The evidence is that insolvency rates are cyclical around a steady average.
- ▶ a majority of companies in the latest CBI survey of their members reported that their DB funding costs are constraining their investment in both people and technology.

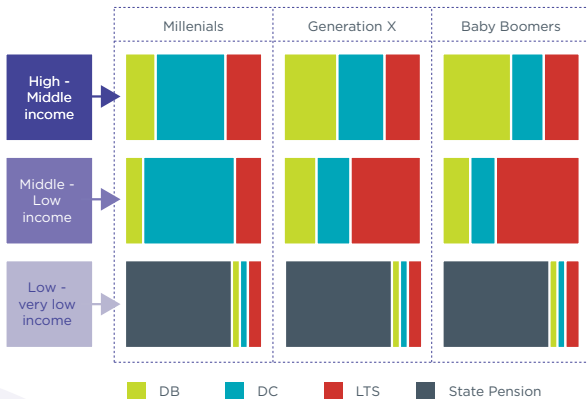
tPR's has recently issued a leaflet *Pensions of the future– A discussion on our strategy*, with a strapline of “Putting the saver at the heart of all that we do”, apparently ignoring fact that other regulators (FCA, PRA, BoE) are supposed to look after “savers”

The graphic from p 5 gives some cause for concern:

3. Pension savers and how they will evolve


We think about savers by considering their age (where they are in their working lives and how long they may be saving for) and their levels of income. We use data and insight to analyse the challenges that different groups face so that we can tailor our approaches to all types of pension saver.

This graphic depicts our estimation of the relative reliance that different saver groups are likely to place on DB, DC and other long-term savings (LTS). If our focus shifts over time towards younger generations, this in turn has implications for which markets we focus upon.



Type of mean gross weekly income of pensioners by quintile
2016/17 to 2018/19

Quintile	1st	2nd	3rd	4th	5th	mean	pens ⁿ
Couples							
Gross income	298	443	571	779	1,708	760	270³
Benefit income	231	288	301	282	252	271	270
Occup ^l pension	30	84	166	299	594	234	-
Personal pension	12	18	24	32	73	32	-
Invest income	7	12	17	37	253	65	-
Earned income	17	40	61	127	518	153	-
Other income	2	2	2	3	18	5	-

³basic state pension $\times 2 = 47\%$ of median gross income 

Type of mean gross weekly income of pensioners by quintile
2016/17 to 2018/19

Quintile	1st	2nd	3rd	4th	5th	mean	pens ⁿ
Single pens ^r							
Gross income	156	236	294	374	704	353	135 ⁴
Benefit income	139	186	223	241	225	203	135
Occup ^l pension	8	32	49	99	277	93	-
Personal pension	3	6	6	8	26	10	-
Invest income	3	6	7	12	72	20	-
Earned income	2	4	7	11	95	24	-
Other income	2	2	2	3	10	4	-

⁴basic state pension= 46% of median gross income

What do actuaries do now to value pension funds?

- ▶ Things are more sophisticated .
- ▶ ‘Scenarios’ are used and financial modelling is done,
- ▶ many simulations to provide a ‘statistical universe’.
- ▶ (Forward) interest rate curves are used for valuing pension annuities.

But, at a deep level, little has changed. Statutory requirement to show a fixed rate for triennial valuation-which ascertains value for liabilities. This still forms basis for valuation. Valuations are meant to be ‘prudent’, but prudence is not quantified.

Some fallacies These are all (still) standard actuarial assertions.

- 1 *Lower volatility assets such as gilts are less risky.* Volatility of returns on the 15 yr gilt index over the decade since 2008 is higher than that of the FTSE All share or 250 over the same period. Returns in the latter have been higher too.
- 2 *Gilts are more highly correlated with pension fund liabilities, so as assets they do a better job of asset-liability matching.* This is nonsense. The correlation is introduced by the valuation method. The actual liabilities are not correlated with gilts in any obvious way.
- 3 *The yield curve is the market expectation of future short rates of interest.*
- 4 *We can use the gap between nominal and real forward rates to predict inflation (after subtracting a risk premium)*

The yield curve is the market expectation of future rates of interest

- Not clear why current yield curve should make predictions about future interest rates.
- In Hamza, Jacka and Klebaner (2005) we described *all* risk-neutral models for the term-structure of interest rates. The only ones where forward rates are unbiased predictors of future rates are non-random models.
- Current supply and future uncertainty are relevant economic factors. The Pensions Regulator encouraging “low-risk investment” gives strong push to invest in gilts whatever their perceived characteristics.

Schroeders (2017) analysed demand for ILGs:

- “Over 15-year index-linked gilt market was valued at . . . £338 billion in June 2016.
- Pension scheme holdings amounted to over 80% of the total.
- Concludes supply and demand rather than economic fundamentals (future rates of inflation and interest) is price determinant .

Turning to conventional gilts/bonds:

- “Situation is not quite as stark in the fixed-interest gilt market, but here too pension funds are a key investor, wielding significant influence alongside insurance companies.”

We can use the gap between nominal and real forward rates to predict inflation (after subtracting a risk premium)

So we set the risk premium inherent in forward interest rates **to zero** when we estimated future yields (both nominal and real) but **we will assume a risk premium** in the price of nominal yield assets (over ILGs).

Go consistency!

Valuations again Valuations now have underlying simulation models based on bespoke economic/financial models.

But the quantification of prudence is wildly internally inconsistent:

- 66th (actually 33rd) percentile for some things,
- qualitatively pessimistic estimates, with no allowance for variation, for mortality and other demographic assumptions (such as withdrawal rates).
- Inflation estimates from yield curves as above (still assume deterministic).

Liabilities are generally valued using a gilts based-approach to discount rates.

- ▶ Leads to spurious correlations between gilts and liabilities,
- ▶ pushing funds to invest in woefully poor gilt returns,
- ▶ despite knowledge that QE⁵ avowedly seeks to make gilts unattractive to encourage investment in productive assets.
- ▶ So pension funds fail to aid the aims of QE instead merely funding its rollout by buying gilts at pathetic yields.
- ▶ Generally no quantification of the ability to diversify risk over asset class and time.

⁵Quantitative Easing

- Stated purpose is to lower long-term interest rates and to encourage increased investment in other assets.
- There is a strong argument that this has strongly distorted the market's 'statement' of the time value of money.
- Arguing otherwise is to discount the idea that monetary policy has any effect.

What about actuarial transparency?

- ▶ All focused on communicating with the numerically challenged.
- ▶ Obscurantism in presentation of outcomes of valuation - “we used a financial model”.
- ▶ In recent discussions about GMP equalisation with a “technical actuary”. I asked for formulae, having explained that all the trustee directors were “highly numerate”. Actuary had a melt-down, complaining that I had disrupted their presentation.

My experience dealing with tPR—they were very polite. *They listen to you very nicely and then go out and do precisely what they want.*

- In my opinion, they exhibit a rank failure to pursue Objective 4 re employers through over-emphasis (see stats above) on Objective 3.

Conclusion

- ▶ As the Equitable Life debacle shows, you should be afraid of regulators and government.
- ▶ If they get it wrong, it will take 30 years to get redress — if you ever do—expect to die first.

Three things for pension fund valuation:

- ▶ Estimation of variability of investment returns (not based on a bespoke and proprietary model, rather publicly visible and open to criticism) which respects price of risk and ability to diversify.
- ▶ Quantification of other uncertainties and correlation and a systematic, statistical approach to prudence.
- ▶ Revisit valuation methodology - how do you account for the employer covenant and to what extent should you? (see legal comments)

Three things for the regulator:

- ▶ Recognise the balance of risks (cf CDC arrangements)
- ▶ Stop letting the perfect be the enemy of the good. If worried about “high-risk” investments, increase the PPF levy on them. Even 8 basis points is small for investors.
- ▶ Systematically and explicitly address the issue of employer sustainability

Only point of light on the horizon is CDCs — all credit to Simon Eagle and his team at Willis Towers Watson and to the management and union at Royal Mail. However, I confidently expect the regulators to make life very difficult for them in the future.

Statistics in regulation: like Western civilisation, I think it would be a good idea.