Contents

1 Introduction

There is a TAS P requirement that in each valuation, the Scheme Funding Report should include projections of the funding level at the expected effective date of the next Scheme Funding assessment on the solvency basis and the technical provisions basis.

This could potentially mean projecting the Technical provisions, Solvency and the level of PPF Benefits on a Solvency basis by three years.

Because of the nature of the PPF benefit this is a difficult calculation. We have leveraged the current functionality of SuperVal to carry out this calculation. Even so, our approach involves several approximations and gaining a full understanding of the approach is not easy.

The approach is described in the remainder of this note.

2 Technical Approach

2.1 Overview

Calculating the PPF benefit in the event of discontinuance in 3 years time involves:

- Projecting the scheme benefits for 3 years allowing for decrements, pension increases and the other valuation assumptions
- Converting the scheme benefit to an accrued PPF benefit at that point – so capping and reducing by 10% where appropriate, and splitting the resulting pension or deferred pension into pre and post 1997 components with the pre 97 having no increases and post 97 increasing at LPI (2.5%).
- Valuing the resulting accrued PPF benefits.

To value the PPF level of benefits on a Solvency basis we would refer users to the In-Focus document on Non-PPF Capped Runs. To project the benefits for example by 3 years a user could run the Actives with a Solvency basis on a 3 year PUC. Once the run is consolidated the system will have the projected benefits listed in the Excel output. This will project the benefits to the end of the year and then value the accrued benefits at that point.

SuperVal also supports the Defined Accrued Benefit method of valuation. The essence of this method is to project the scheme benefits over a defined control period and then calculate the value of accrued discontinuance benefits at that point.

Both of these methods are suitable for valuing PPF benefits on a Solvency basis, though the PUC run may be more familiar to users. The main change from the normal PUC and DAB approach is that the accrued benefit at the end of the period is converted to a PPF benefit before being valued. We have introduced a "capping" concept into the batching parameters to enable SuperVal users to carry out the PPF capping. Typically the control period will be 3 years.

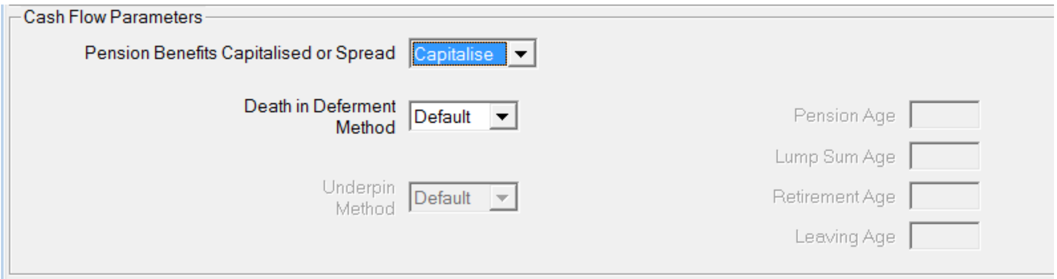
Projected Accrued Benefits

Projected Accrued Benefits

Client: *Training*
Valn Method: *PUC*
Valn Date: *31/12/2016*

					Discontinuance Liabilities at each Year									
Duration	Year		Projected		Status at Valuation Date					Total		Death in Deferment		
Start	Start Date	Projected	Benefit	Funding	Actives		Deferreds		Pensioners	Discontinuance	Funding			
Year	31/12	Assets	Obligation	Ratio	GMP	Excess + DID	GMP	Excess + DID		Liability	Ratio	GMP	Excess	Total
0	2016	5,000,000	11,425,224	44%	248,105	6,799,369	197,634	5,046,866	505,701	12,797,675	39%	7,078	2,907,281	2,914,359
1	2017	7,256,556	11,955,216	61%	259,135	5,904,984	205,696	5,227,326	494,639	12,091,779	60%	6,264	2,536,883	2,543,147
2	2018	9,580,387	12,429,355	77%	267,438	6,252,719	212,190	5,414,268	480,240	12,626,854	76%	5,424	2,598,580	2,604,005
3	2019	12,299,125	13,271,131	93%	282,057	6,788,785	225,135	5,766,614	475,921	13,538,513	91%	4,752	2,733,219	2,737,971
4	2020	13,501,539	13,595,293	99%	286,962	6,907,113	236,572	6,081,178	463,881	13,975,706	97%	4,265	2,852,499	2,856,764
5	2021	14,931,878	14,075,060	106%	292,246	7,084,627	248,646	6,411,281	450,849	14,487,649	103%	3,695	2,971,602	2,975,297
6	2022	16,519,301	14,652,565	113%	297,471	7,352,231	261,388	6,757,779	436,796	15,105,665	109%	3,179	3,088,242	3,091,421
7	2023	18,186,253	15,246,764	119%	302,665	7,625,221	274,831	7,121,560	421,692	15,745,970	115%	2,711	3,200,734	3,203,444
8	2024	19,936,191	15,857,425	126%	307,856	7,902,762	289,015	7,503,622	405,515	16,408,769	121%	2,287	3,307,421	3,309,708
9	2025	21,365,571	16,021,316	133%	313,040	8,183,863	295,085	7,450,976	388,243	16,631,207	128%	1,900	3,406,706	3,408,606

As, only Accrued Benefits at the Valuation Date are shown in the valuation output, in order to get the figures required for projection purposes, valuation runs should be consolidated. This value is obtained from the AB1 column on the consolidation output. In order to get intelligible figures, all benefits must be capitalised. **The cashflows can be set to "Capitalise" using the Cash flow Parameters on the Main tab**.



2.2 Capping Parameters

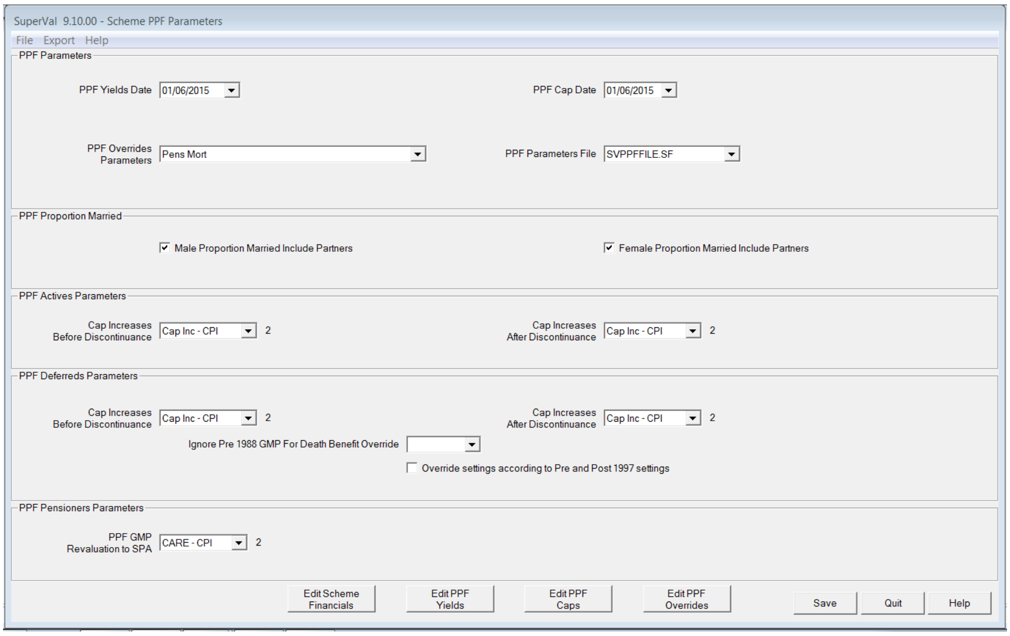
Users must set the capping parameters as follows.

Ensure the valuation batch capping parameter is set to “Cap Accrued Benefits”.

On the Scheme PPF Parameter settings specify:

- Amount of the Cap at age 65 at the valuation date
- Cap age adjustment factor to allow for varying PPF NRAs
- Cash factors to allow for Cash on Top benefits which must also be capped.
- Cap increase rate before discontinuance and after discontinuance. The after discontinuance parameter allows users to adjust the Cap for the period between the discontinuance date and NRA.
- PPF Cap date

The Pre-97 and Post-97 pension increases to be applied to the discontinuance benefits (i.e. increases after the end of the control period) can be specified on the PPF/Cap tab. Note that the increase rates in the control period are those in the valuation basis for the scheme benefits.



2.3 Emerging Benefits and Discontinuance

Emerging benefits are those relating to decrements in the control period (e.g. retirements from active, death in deferment).

Discontinuance benefits are those relating to members staying in the same status throughout the control period and then discontinuing. This includes Actives discontinuing to Deferred status with PPF benefits at the end of the control period, and Deferreds converting to PPF benefits.

The sum of the discontinuance and emerging benefits is the total scheme benefits assuming discontinuance at the end of the control period on PPF terms.

Broadly, the capping parameters are applied to Discontinuance benefits and not to Emerging Benefits. So Emerging benefits are treated in the same way as before but discontinuance benefits are not. This has implications for the parameter settings as described in this document.

Emerging Benefits and Discontinuance benefits are handled differently as follows:

- Capping is only applied to Discontinuance benefits
- 10% reduction only applied to discontinuance benefits
- The Pre-97 and Post-97 pension increases to be applied after the control period are only applied to the discontinuance benefits

3 Setting up the Basis Modules

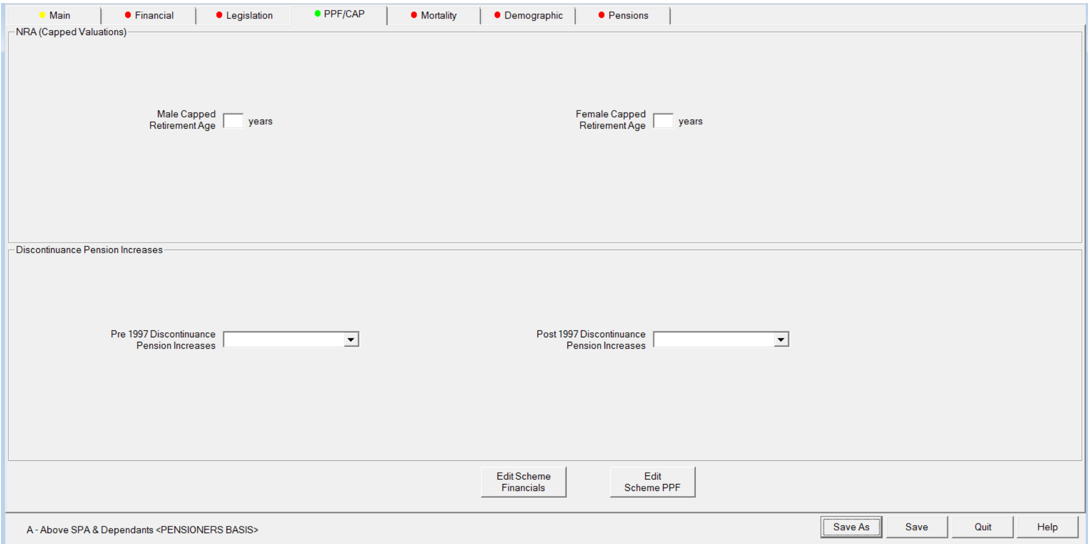
Assuming we are looking at a 3 year control period where normal benefits will be valued for 3 years and after that, PPF level benefits will be valued.

3.1 Pensioners

To value PPF benefits after 3 years, the pension increase rates for the years after the end of the control period must be set to the Pre-97 and Post-97 PPF increase rates as appropriate for each Pension Definition. So each increase will require a vector value such as “2, 2, 2, 0” the first 3 relating to scheme benefits in the control period and the last to PPF benefits after discontinuance.

The capping applied in the Pensioner module will be based on the a member having the “MemorSp” Member or Spouse indicator set to “M”, if the ceasing age for a pension definition is 120 and if the age is less than the NRA specified on the PPF/Cap tab. Dependants who have the “S” “MemorSp” indicator will not be subject to capping. Temporary pensions with ceasing ages less than 120 are also uncapped. Please see the PPF (S179) note for more information on the PPF cap.

When calculating discontinuance benefits, the Pre-97 rate (as defined on the PPF/Cap tab) is used for all Pre-97 PUPs (as defined by “Pre 97” PPF Service Period indicator) and the Post-97 rate is used for all other PUPs. The Pre-97 rate is the default.



3.2 Deferreds

Emerging benefits

If the decrement is retirement from deferred, this will be at NRA so capping etc. will not be required and is not applied. However the conversion to PPF benefits at the end of the control period will need to be handled. To enable this, the pension increase rates for the years after the end of the control period must be set to the Pre-97 and Post-97 PPF increase rates as appropriate for each PUP. Note that for each type of increase, this will almost always require a vector value – e.g. "3.5,3.5,3.5,0" the first 3 relating to scheme benefits in the control period and the last to PPF benefits after discontinuance.

Discontinuance Benefits

These will always result from the conversion from a scheme benefit to a PPF benefit at the end of the control period. Capping, 90% and the Pre-97 and Post-97 pension increases will be applied to the discontinuance benefits**.** Death in deferment is handled in line**.** When calculating discontinuance benefits, the Pre-97 rate (as defined on the PPF/Cap tab) is used for all Pre-97 PUPs (as defined by "Pre 97" PPF Service Period indicator) and the Post-97 rate is used for all other PUPs. The Pre-97 rate is the default.

3.3 Actives

Emerging benefits

If the decrement is normal retirement, then the approach is analogous to deferred retiring, but using the pension increase parameters for actives in the control period. Note that for each type of increase, this will almost always require a vector value – e.g. "3,3,3,2.25" the first 3 relating to scheme benefits in the control period and the last to PPF benefits after discontinuance.

For example, if the Salary Increase rate is 3% and the Deferred Revaluation rate is 2%, then the Salary Increase parameter in the Basis file could be "3 3 3 2" to ensure that only 3 salary increases are applied.

If the decrement is for early retirement or withdrawal then capping and reduction will not be applied. So the best approach will normally be to ignore early retirement and withdrawal. If the decrement is for ill health then again the capping will not be applied, but as PPF capping does not normally apply to such retirements this may well be OK. It would be normal to have a death decrement.

Discontinuance Benefits

These will always result from the conversion from a scheme benefit to a PPF benefit at the end of the control period. Capping, 90% and the Pre-97 and Post-97 pension increases will be applied to the discontinuance benefits**.** The Pre-97 rate, set on the PPF/CAP tab, is used for all Pre-97 slices (as defined by offset slice) and the Post-97 rate is used for the other slices.

4 Miscellaneous

- For death in deferment, if such benefits as lump sums are not required they should be set to zero.
- For completeness, projected PPF solvency is also calculated for the years in the control period. These calculations are less accurate – one reason being that they assume the changeover to PPF pension increase rates come into force at the end of the control period for emerging benefits.
- PPF NRA and PPF Proportions married are not used in the calculations.
- For actives, the Pre-97 benefits as at the valuation date are compared with the GMPs as at the valuation date and are increased as appropriate. The GMPs are then reset to zero.
- For enhanced deferreds the GMPs are treated as Pre97 irrespective of the parameters on the GMP tab. They are then costed as Pre-97 pension and the GMPs reset to zero. If franking in deferment is set to Yes the GMPs are ignored. No comparison is made with the total PUPs at the valuation date.
- Underpin is ignored
- The cap applied to Actives DID is the cap applicable to the NRA and not the cap applicable at the date of death.
- The adjusted benefits at the valuation date are then fed through the existing accrued benefit calculations
- Actives cash on top is ignored unless it is a multiple of pension (2.25, 3 or user defined) or 3/80ths for each year of service.
- Enhanced Deferreds cash on top is ignored unless it is a multiple of pension
- Capping can also be applied to other valuation methods.
- No amendments have been made to the treatment of the assets and contributions in the cashflows.