EQUINITI

Global Parameters and Accurate Scenario Modelling

EQUINITI

CONTENTS

1. OVERVIEW

This document sets out how Equiniti has implemented the Accurate Scenario Model (ASM).

This module includes globalising additional parameters from the basis in order to cover the usual range of parameters varied by users when looking at alternate scenarios in their valuation basis.

All parameters that are globalised are varied in the Accurate Scenario Modelling module for a Scenario without having to change the underlying basis. Equiniti have taken on board the feedback from the clients from the SuperVal User Group and globalised the parameters as per their suggestions.

ASM will enable users to run multiple runs including:

- Step by step change of basis analysis
- Sensitivity runs and buy out valuations
- What-if scenarios
- Updating bases from previous to current valuation basis
- Carrying out valuations at a different valuation date. (Note: this does not take into account salary increases and pension increases).

This document will explain in detail how the Accurate Scenario Model works.

2. NEW FEATURES

Equiniti have introduced new features in V9.10 which support the running of ASM.

2.1 New Retirement Age Related Rates

New RR (Retirement Decrement Rate Table) and ER, FR, GR and HR (Age-related Factor Tables) have been introduced. These are 2 Dimensional Rate Tables that contains Rates by Age and by Retirement Age (e.g. the 60th column will contain Rates that apply when NRA is 60 and the 65th column will contain Rates that apply when NRA is 65).

This will enable changes of Normal Retirement Age (see 4.5) without necessitating a change to different Retirement Decrement Tables and any Age-related Factor Tables such as Retirement Factors or Commutation Factors.

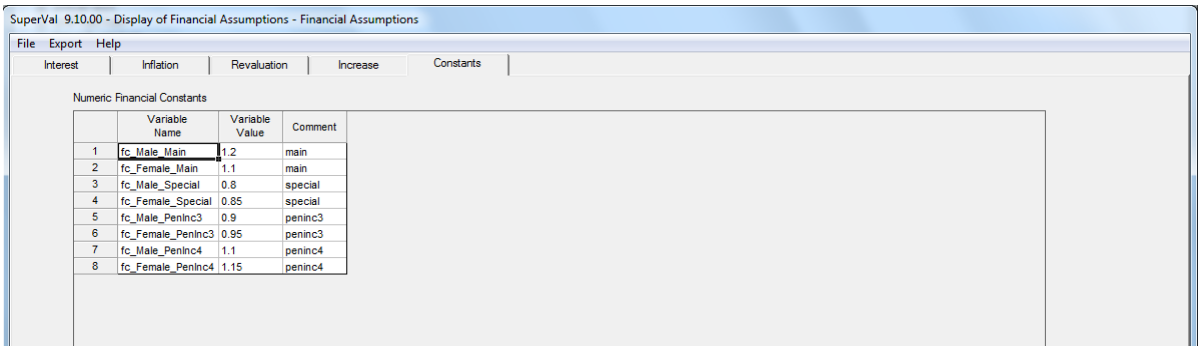
This type of Table can also be used to store all Tables (of a particular type) used for a single scheme - where they differ only because of a different retirement age.

2.2 Financial Constants

Financial Constants have been introduced into a Financial Parameter set. These should be used for any constant that is dependent on the Financial Basis assumed (e.g. Barber Factors). When a different set of Financials parameters is chosen, the Financial Constants in the selected Financials Parameter set will be used.

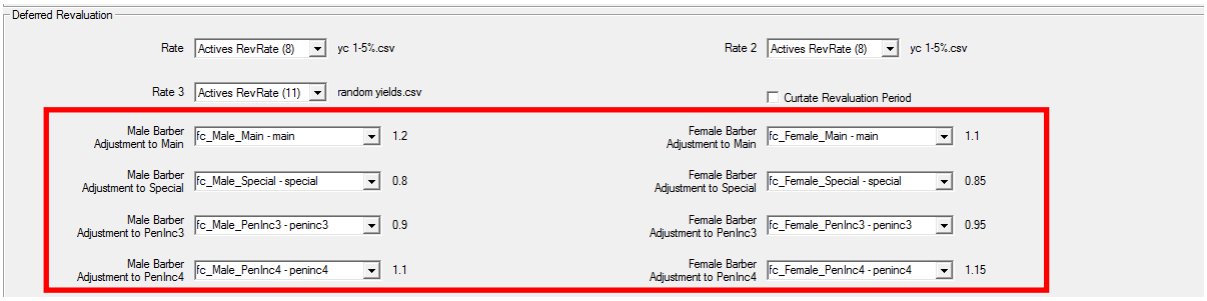
The use of these Financial Constants is rolled out to all "Adjustment Factors" used throughout the system.

To set up Financial Constants, fill out the grid as shown below.



	Variable Name	Variable Value	Comment
1	fc_Male_Main	1.2	main
2	fc_Female_Main	1.1	main
3	fc_Male_Special	0.8	special
4	fc_Female_Special	0.85	special
5	fc_Male_PenInc3	0.9	peninc3
6	fc_Female_PenInc3	0.95	peninc3
7	fc_Male_PenInc4	1.1	peninc4
8	fc_Female_PenInc4	1.15	peninc4

The above can then be used, for example, under the Financial tab (Actives only) as shown below:



Financial Constants can also be used for Adjustment Factors in the Salaries/Slices/Alt Slices/Ind Slices parameters under the Actives module or in the GMP/PUPs/Ind PUPs/NSPUPs /Cash Cap parameters under the Deferreds module or in the GMP/Pensions parameters under the Pensioners module.

2.3 Retirement Factors and Commutation Factors

Retirement Factors and Commutation Factors can now be stored as Exact Age Rates. These factors can be used for any Normal Retirement Age with mid-point values determined by linear interpolation.

3. GLOBAL PARAMETERS

3.1 Background

The range of global parameter sets available has been extended in Version 9.10.

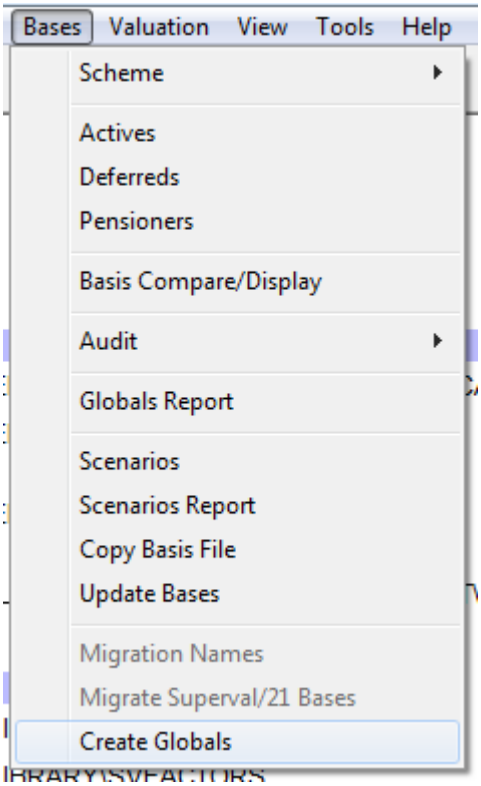
V9.00 (*Compulsory* via S21 Migration Wizard)	V9.10 (*Optional* via Create Globals Wizard)
- Financials (Interest Rates, Revaluation Rates, Inflation Rate, Pension Increase Rate) - Mortality Rates - Mortality Improvement Rates - Contribution Assumptions - New Entrants Parameters	- Decrement Rates (gender specific Actives and Deferreds) - Spouse Parameters (Actives, Deferreds and Pensioners) - Retirement Age (gender specific Actives and Deferreds) - Retirement Factors (gender specific Actives and Deferreds separately for Early/Late and Pension/Cash on Top) - Retirement Cash (Actives and Deferreds separately for Retirement/Ill-Health and Commutation/Cash on Top) - Commutation Tables (gender specific Actives and Deferreds separately for Retirement/Ill-Health) - Spreading Dates (Actives separately for Death/Ill-Health and Pension/Cash)

Unlike the parameter sets created by the S21 Migration Wizard, the new parameter sets are optional. The Create Globals Wizard gives the user the option to select which parameter sets they wish to create from the basis.

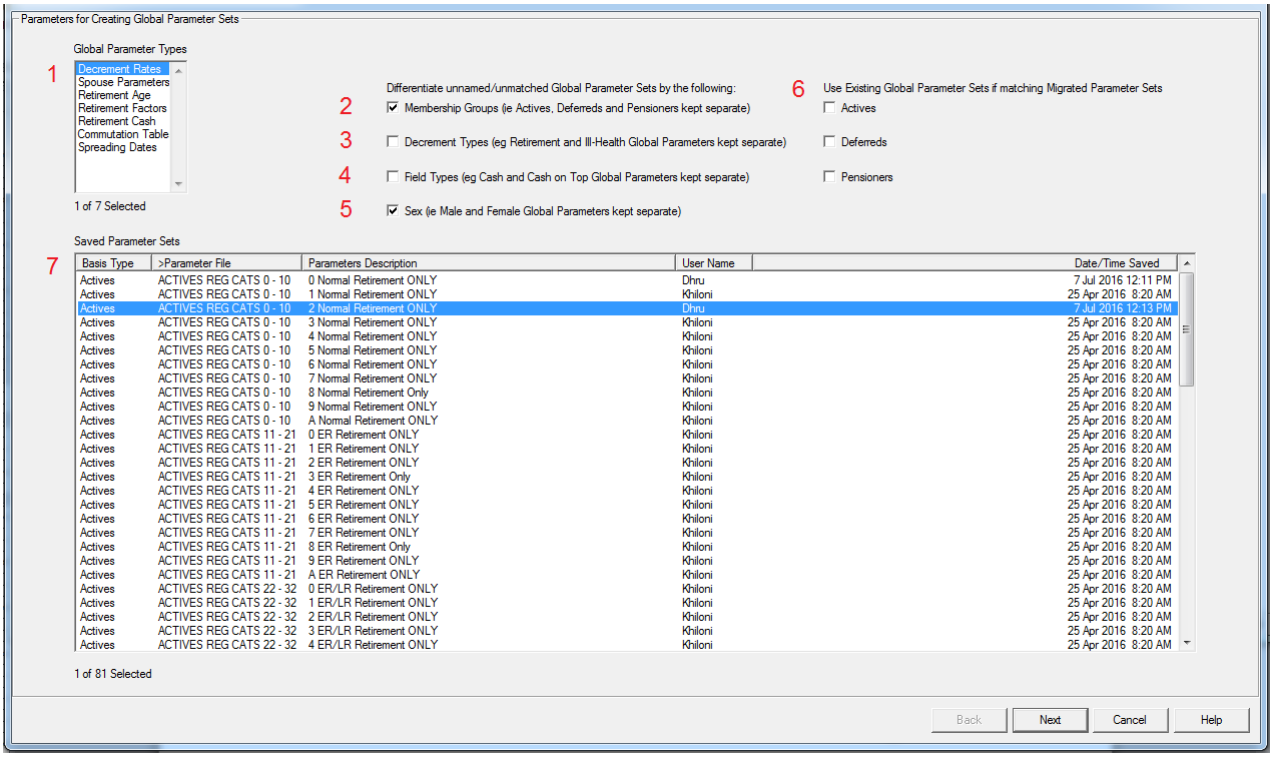
To maximise the use of the Global Parameter functionality in SuperVal V9.10, thought should be given to the names and use of each global assumptions in the Create Globals Wizard.

3.2 The Create Globals Wizard

The Create Globals Wizard will identify variables from Version 9 basis files which can be bundled into Global Parameter Sets. The process is started by Bases > Create Globals.



The Creation of Global Parameter Sets screen (shown below) allows the user to make a number of choices about how the parameter sets will be formed. See below for more information on each of these.

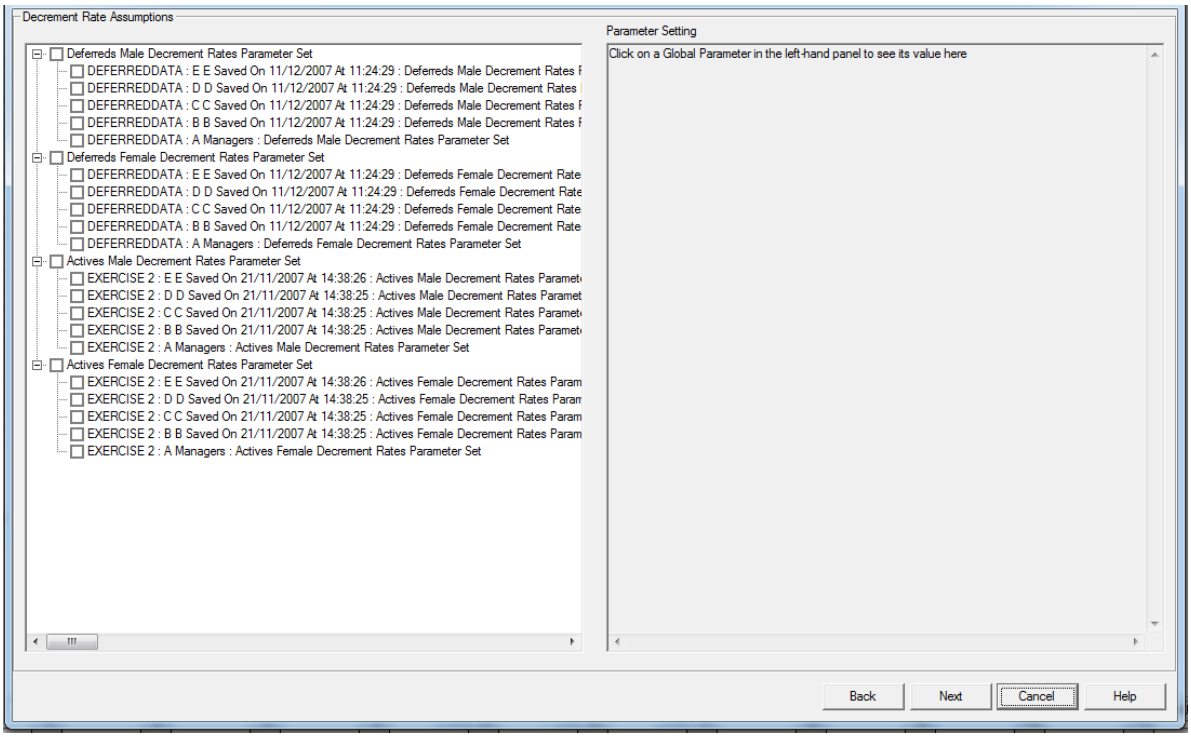


1	Here you can select the type(s) of Global Parameter set you wish to create. Use Ctrl+Left-Click to select multiple types.
2	If different Membership Groups are run in one folder then different Financial Global Parameters can be set up for each group by checking this box. This will create a separate set of pointers for each of the Actives, Deferreds and Pensioners which will enable separate management of the migrated financial assumptions by membership group. To create a single pointer for a similar assumption, leave this box unchecked.
3	If separate pointers should be created for Retirement and Ill-Health decrement types with the same value, then check this box. To create a single pointer then leave unchecked.
4	If separate pointers should be created for Cash and Cash on Top field types with the same value, then check this box. To create a single pointer then leave unchecked.
5	If separate pointers should be created for Male and Female field types with the same value, then check this box. To create a single pointer then leave unchecked.
6	If an existing parameter set has been previously migrated then the user can use the existing global parameter sets as pointers rather than creating new global parameters. To do this the user should check the box for the relevant module(s).
7	Here you can select the basis file(s) from which to create Global Parameter sets .Use Ctrl+Left-Click to select multiple basis files. Users should only select those categories they wish to globalise. Categories that have not been globalised will not pick up the scenarios parameters that will be set and will continue to use the original parameters.

Click ‘Next’ to proceed.

The Create Globals Wizard will show the structure of pointers and the values that will be created for each of the Global Assumptions.

Under each pointer will be a list of all the categories where it will be used, as shown below:



If required, the pointer names can be amended, cloned or deleted via the Right Click Menu. Equiniti recommends that the user ensures all names and descriptions are generic so that if the value of the assumption changes in future the pointer name is still valid.

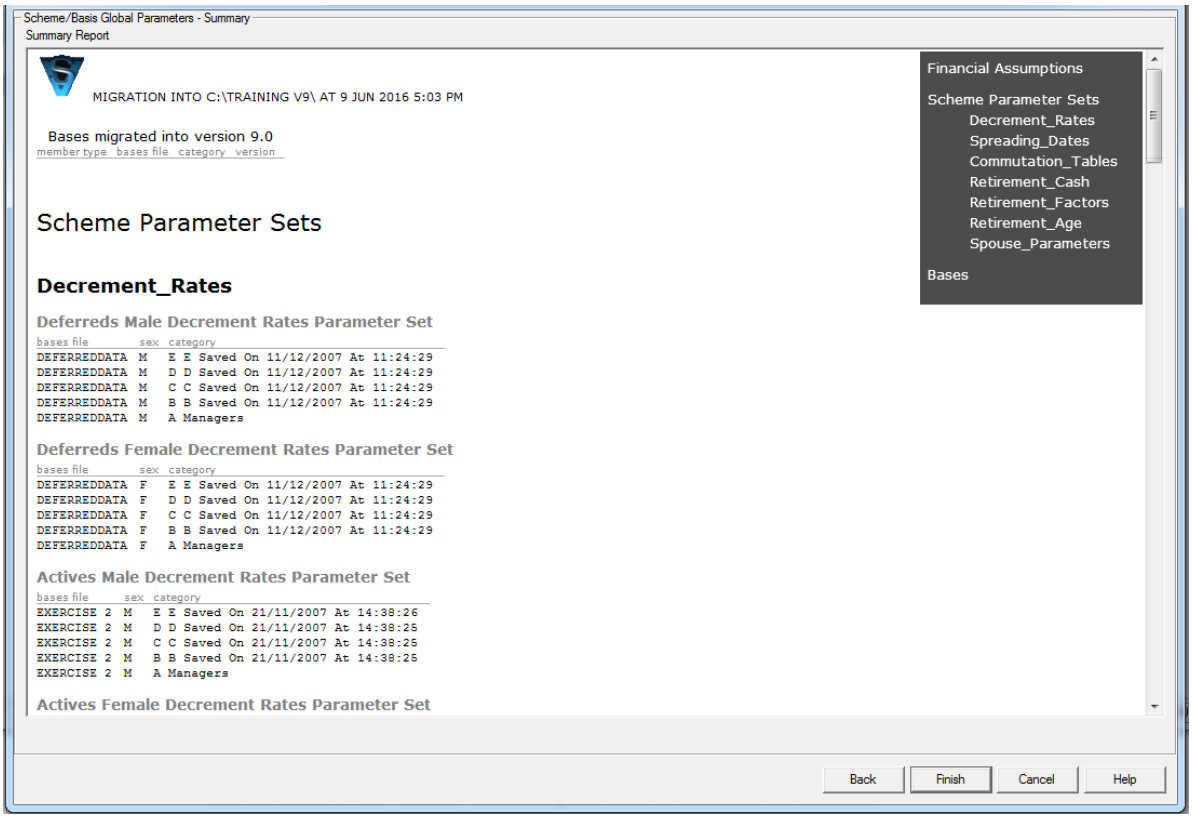
To amend the pointer name, click once slowly and a box will appear around the existing name. This can then be changed.

To clone a pointer, right click once on the pointer you wish to clone. This can then be renamed. Any existing Global Variables that should be underneath this pointer can be moved using "click and drag".

To delete a pointer, right click and select delete. This option is only available if there are no categories using this pointer.

The user should also ensure that the pointers established are a true and accurate reflection of all the different possible assumptions required to value the scheme going forward. In particular, taking care to set up separate pointers for assumptions that by co-incidence were the same at the previous valuation but may not be at future valuations.

The user will then be presented with a summary report, which displays the final migration details before any changes are confirmed. This will contain details of the Global Parameter created and a list of where in the Scheme Basis Files this will be used. (See below.)



3.3 Notes to the Create Globals Wizard

1. Some fields can use a member specific Data Item which can only be specified when editing the Basis. These fields will be shown as blank in the Globals definition. If these parameters are left blank in the "Global" definition, the value in the Basis will be used.

   This applies to: Retirement Cash and Spreading Dates parameter sets.

2. A Global Parameter Set will only be set up if the Parameter Set dropdown in that basis is empty (if not, a Global Parameter Set already exists).

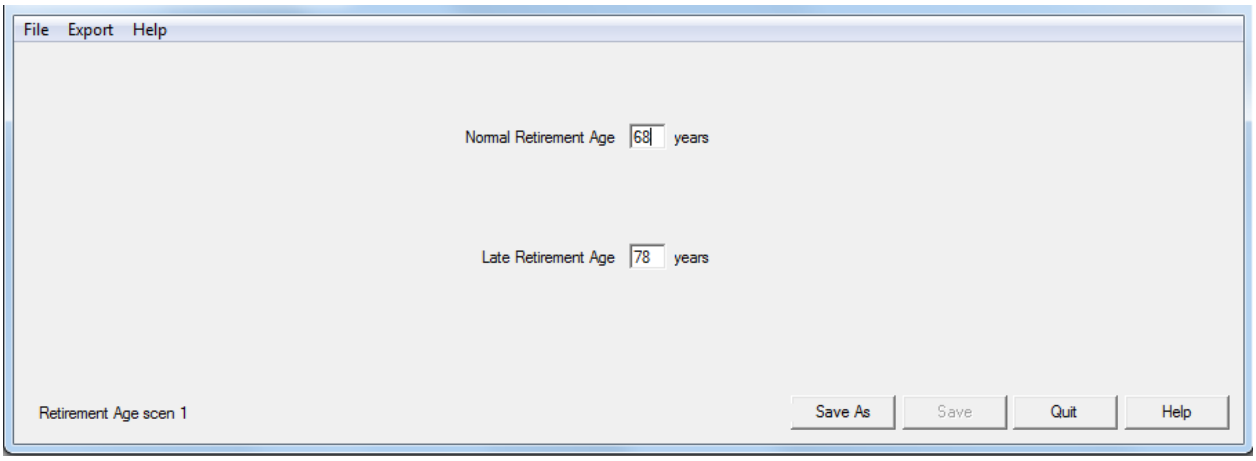
3. If the range of checkboxes (2 to 6 described above) do not enable the optimal assignment of Global pointer names in your Bases (or the amount of cloning and renaming pointer names becomes excessive), fine tuning of these Global pointer names can be achieved using the new Update Bases functionality.

3.4 Retirement Age

A new Global parameter has been created for Retirement Age:

Normal Retirement Age
Late Retirement Age (Actives and GAD only)

A separate global Parameter set has been created for males and females in Actives and Deferreds bases.


File
Export
Help
Normal Retirement Age
68
years
Late Retirement Age
78
years
Retirement Age scen 1
Save As
Save
Quit
Help

3.5 Decrement Rates

A new global Parameter has been created for Decrement Rates containing:

Retirement Decrement
Ill-Health Decrement (Actives only)
Leaving Service Decrement (Actives only)
Leaving Service Durational Weight (Actives only)

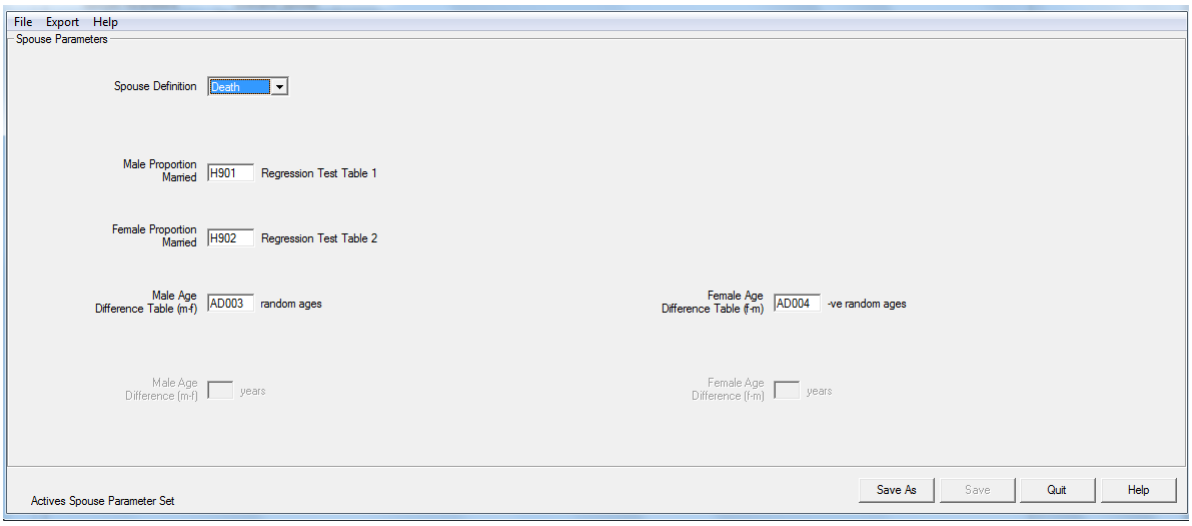
A separate global Parameter Set has been specified for males and females in Actives and Deferreds bases.

3.6 Spouse Parameters

A new global Parameter has been created for Spouse Parameters containing:

Spouse Definition
Male Proportion Married Table
Female Proportion Married Table
Male Spouse Age Difference Table (GAD only)
Female Spouse Age Difference Table (GAD only)
Male Spouse Age Difference
Female Spouse Age Difference

A global Parameter set has been created in Actives, Deferreds and Pensioners bases.

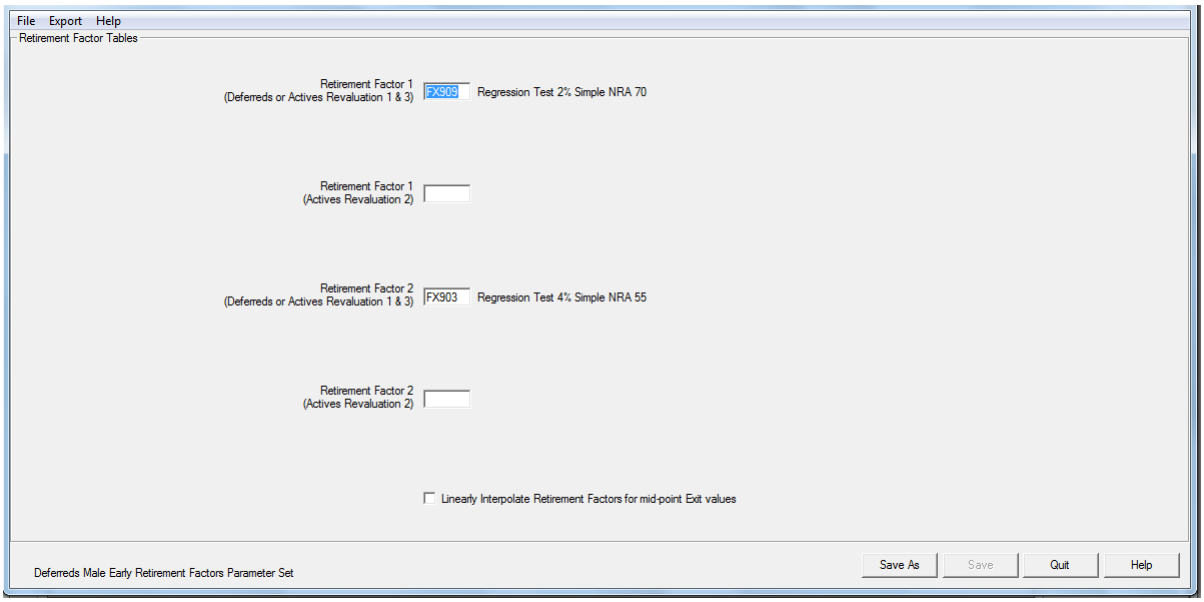


3.7 Retirement Factors

A new Global parameter has been created for Retirement Factors containing:

Retirement Factor 1 (Actives Revaluation 1 + 3 or Deferreds)
Retirement Factor 2 (Actives Revaluation 1 + 3 or Deferreds)
Retirement Factor 1 (Actives Revaluation 2)
Retirement Factor 2 (Actives Revaluation 2)

A separate global Parameter set has been created for males and females, Early (and Late for GAD only) Retirement, Pension and Cash on Top in Actives and Deferreds bases (although only the first two tables are used for Deferreds).



A flag has been introduced to indicate if Factors are exact age based (current Rate Tables must be mid-year based pre NRA making them NRA specific). All tables must be one type or the other.

Note that if a change in the Normal Retirement Age is to be assumed, it will be preferable to specify Retirement Factors that are based on exact age (Factors at non-integral ages will be determined by linear interpolation) as this may enable the same Factor Rate Table to be used for each valuation/scenario (unless Factors vary by Normal Retirement Age assumed).

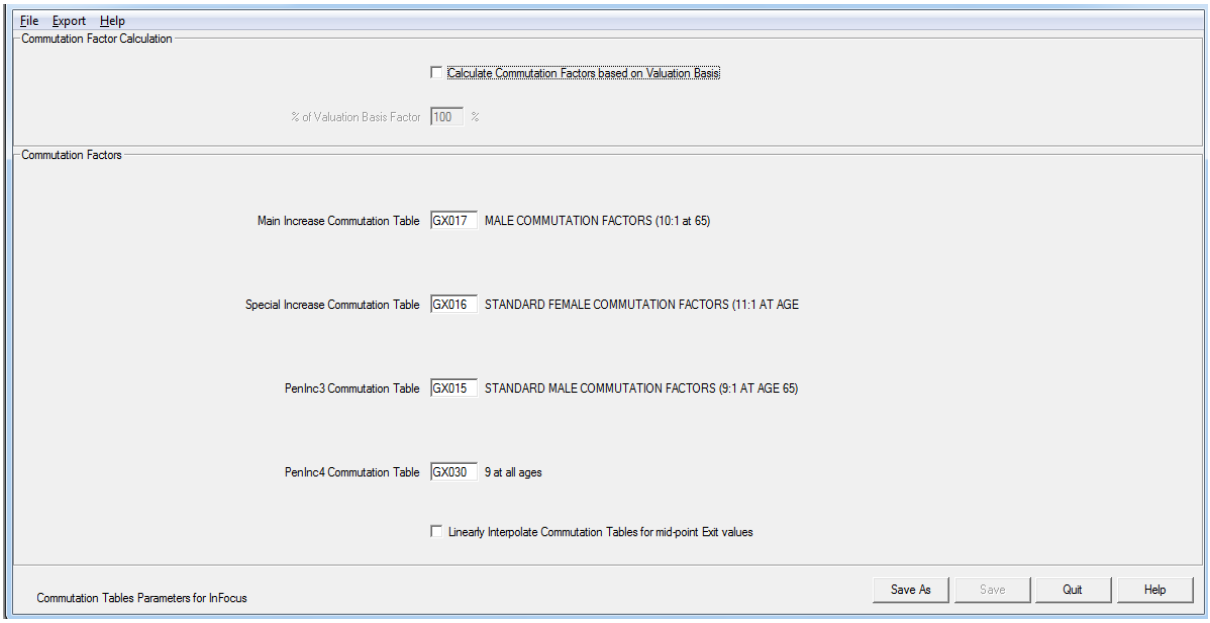
If Retirement Factors specified are one-dimensional and mid-year based, a different set will generally be required for each Normal Retirement Age (assuming the factor is calculated with reference to NRA).

3.8 Commutation Factors

A new Global parameter has been created for Commutation Factors containing:

Main Increases Commutation Table
Special Increases Commutation Table
PenInc3 Increases Commutation Table
PenInc4 Increases Commutation Table

A separate global Parameter set has been created for males and females, Retirement and Ill-Health (Actives only), in Actives and Deferreds bases.



A flag has been introduced to indicate if Factors are exact age based (current Rate Tables must be mid-year based pre NRA making them NRA specific). All tables must be one type or the other.

Note that if a change in the Normal Retirement Age is to be assumed, it will be preferable to specify Commutation Factors that are based on exact age (Factors at non-integral ages will be determined by linear interpolation) as this may enable the same Factor Rate Table to be used for each valuation/scenario (unless Factors vary by Normal Retirement Age assumed).

If Commutation Factors specified are one-dimensional and mid-year based, a different set will generally be required for each Normal Retirement Age (assuming the Commutation Factors are age-based).

3.9 Cash Benefits

A new global Parameter has been created for Cash Benefits Basis.

This global parameter will be used for both Actives and Deferreds, Retirement and Ill-Health (Actives only) and Commutation and Cash on Top.

The Benefit Bases have been standardised for Actives and Deferreds to the following:

Neutral or Nil
IR Maximum
Accrual x Salary for each year
Multiple of Pension
% of Pension (Actives is currently effectively Proportion of Pension)

Notes:

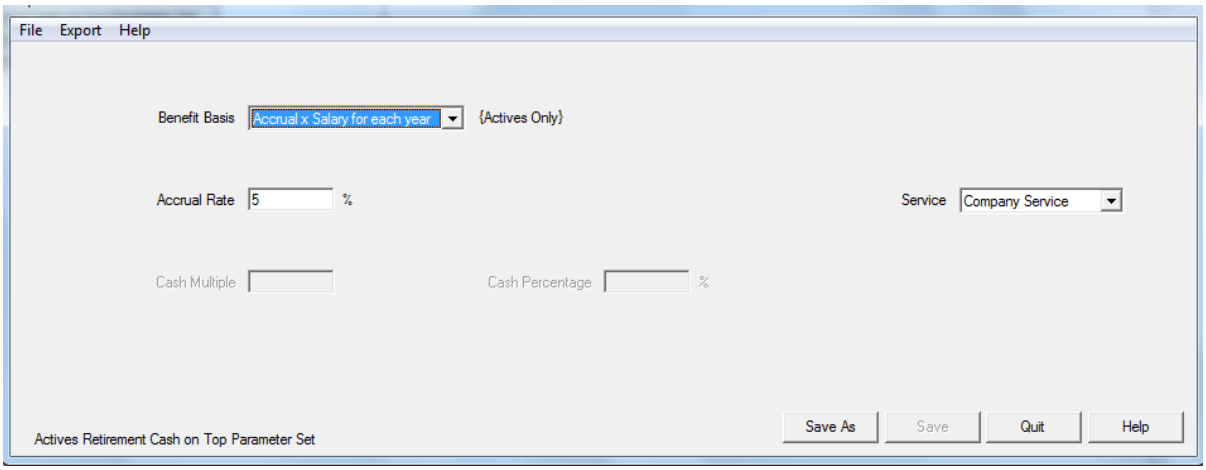
1. IR Maximum and Accrual x Salary for each year is restricted for use with Actives only.
2. The % of Pension parameter field has been standardised - Actives currently uses a Pension Proportion rather than a %. This will require any member specific Cash Proportions in Actives bases to be amended in the member data to a percentage.

The list of fields in the Cash Benefit Basis global parameter are:

Benefit Basis
Accrual Rate
Service Definition
Cash Multiple (numeric value only)
Cash Percentage (numeric value only)

Note:

1. The Salary field required for the Accrual x Salary for each year remains as a Basis parameter (as Salaries are defined as part of the Basis).
2. The Member specific values for Cash Multiple or Cash Percentage remain as Basis Parameters (as these are related to the Data Format used in the Basis). If a Member specific value applies, the parameters in the Cash Basis Global Parameter Set should be left blank.



A separate global Parameter Set will be specified for males and females for each of the Cash amounts for Retirement and Ill-Health (Actives only) and Commutation and Cash on Top.

3.10 Spreading Basis

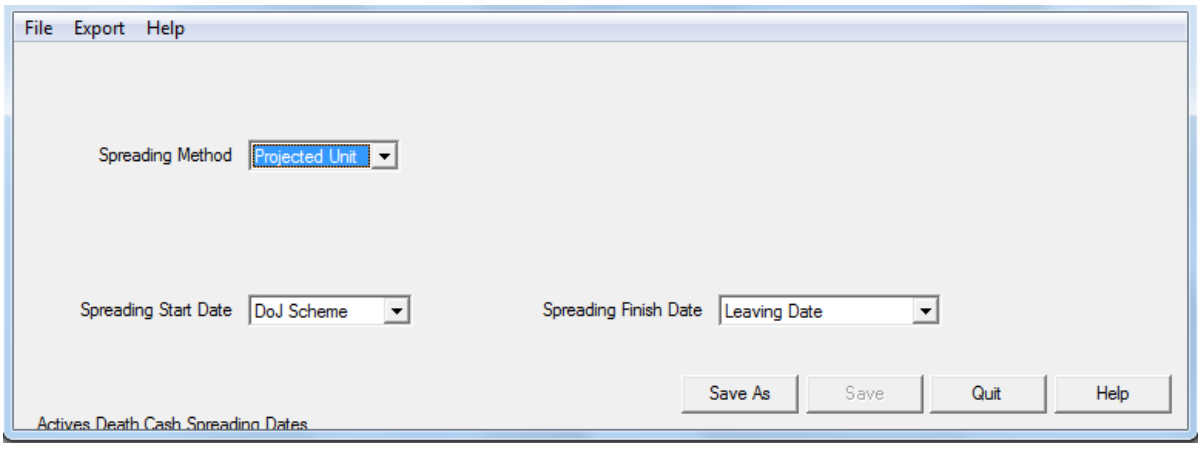
A new global Parameter has been created for the spreading options for Death and Ill Health benefits.

This global parameter will be used for Pension and Cash and will include the following parameters:

Funding methods - PUC and FAS (Extended Parameters only)
Spreading Start date
Spreading End date

Note:

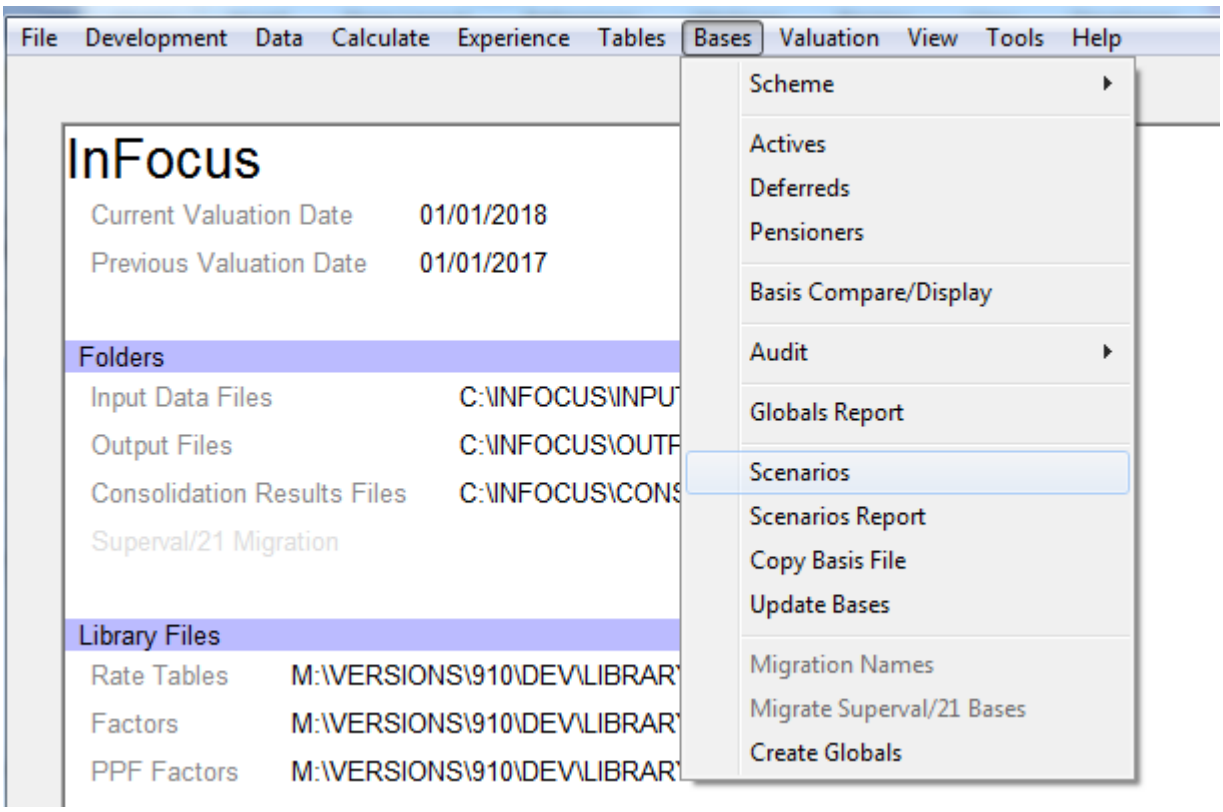
1. The Member specific Dates for Spreading Start and End remain as Basis Parameters (as these are related to the Data Format used in the Basis). If a Member specific date applies, the parameters in the Spreading Dates Global Parameter Set should be left blank.



A separate global Parameter Set will be specified for each of the Death and Ill-Health benefits.

4. ACCURATE SCENARIO MODELLING

To set up scenarios, Select Bases > Scenarios, as shown below:

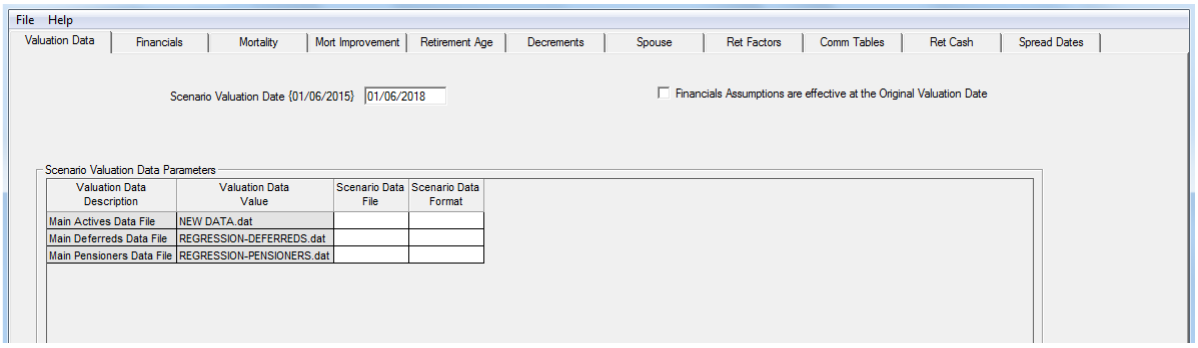


The tabs shown on this form will depend on the Global Parameters Sets used in the Scheme's Bases.

4.1 Valuation Data

The valuation data can be varied in a scenario by either:

- specifying a new valuation date; and/ or
- a new data file (and its corresponding data format) where Data Files have been specified in the Scheme Details form.



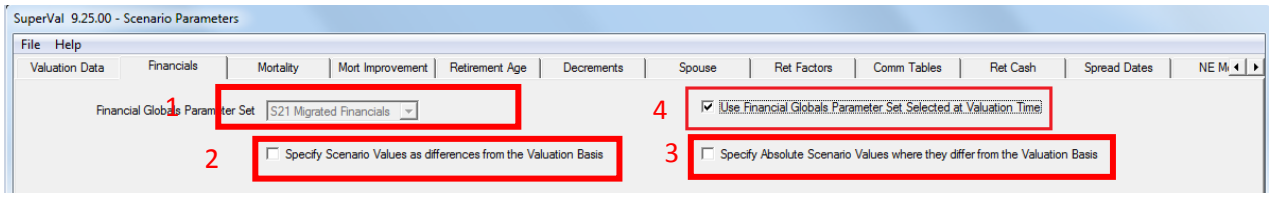
For the alternate Files functionality to work, the Bases must be saved with Data Filenames and Data Formats linked to the Scheme Details parameters.

If the "Financials Assumptions are effective at the Original Valuation Date" field is left un-ticked, SuperVal will assume the financials will apply from the Scenario Valuation Date populated above.

If the field is ticked and the user is using vectors or yield curves, the financial assumptions that applied for the period from the Original Valuation Date to the new Scenario Valuation Date will be dropped from the start of each financial assumption - using linear interpolation if the period is a non-integral number of years.

4.2 Financials

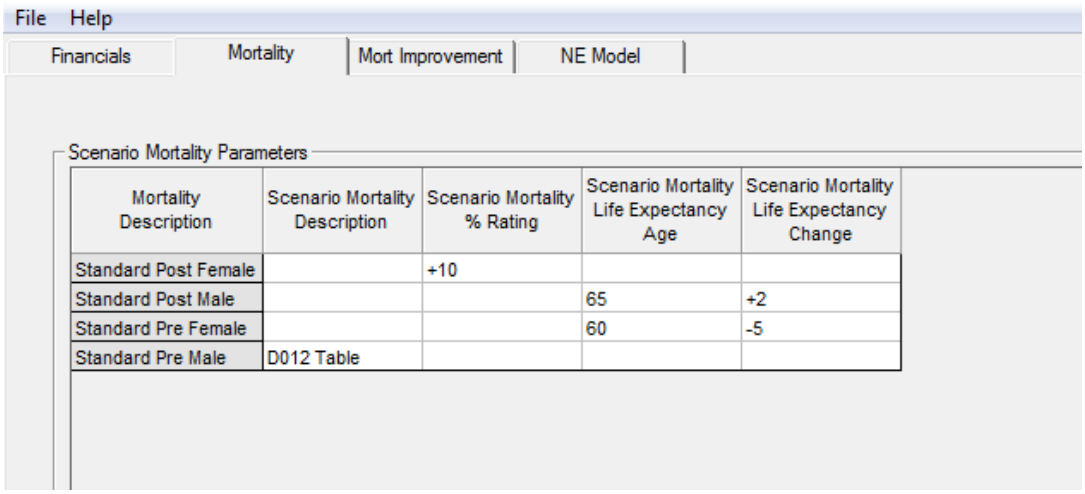
The current Financials global parameter can be varied in a scenario by either:



1. select a different financial global parameter set; or
2. relative adjustment(s) (+/-) made to Financial values in the Currently Selected Financials Parameter Set (either a scalar value, a vector or a Yield Curve file). The adjustments will be added or subtracted from the value in the Financials Set; or
3. specify new values where they differ from the Currently Selected Financials Set (either a scalar value, a vector or a Yield Curve file). The new values will replace the value in Financials Parameter Set.
4. select this field to use the currently selected financial parameters at the time of the Scenario run.

4.3 Mortality

In a scenario, each Mortality Parameter set currently used can be either:

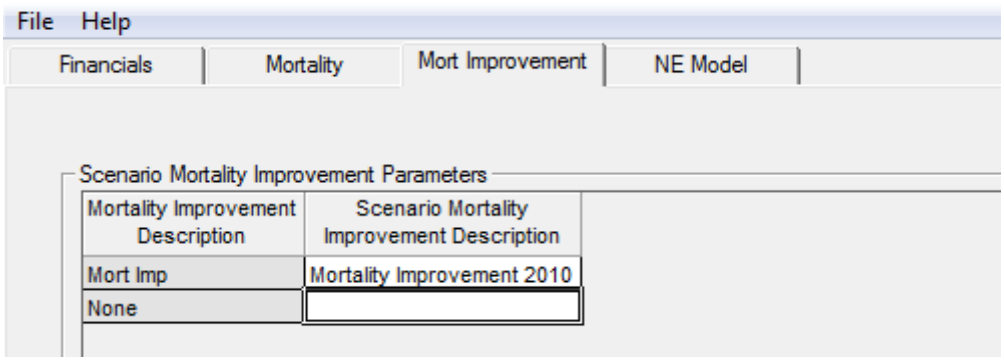


- assigned a different Mortality Parameter set; and/or
- loaded with an additional (+/-) % Rating. Please note this field will use the relative amount of the additional % Rating e.g. if user has already used a % rating in their mortality global parameters for their primary basis, this will be applied in addition to that; or
- adjusted for a life expectancy change (+/-) at a specified age (note the life expectancy change is on Mortality Table only as Mortality Improvement Table is specified separately) e.g. if Life Expectancy Age is set to 65 and the change is set to +2, ASM will back-solve it by using a scaling factor.

Note that the Loading and the Life Expectancy change can be applied to either the existing Mortality Parameter Set or the specified alternate Mortality Parameter Set.

4.4 Mortality Improvement

In a scenario, each Mortality Improvement Parameter set currently used can be assigned a different Mortality Improvement Parameter set.



4.5 Retirement Age

A new Global parameter has been created for Retirement Age:

- Normal Retirement Age
- Late Retirement Age (GAD only)

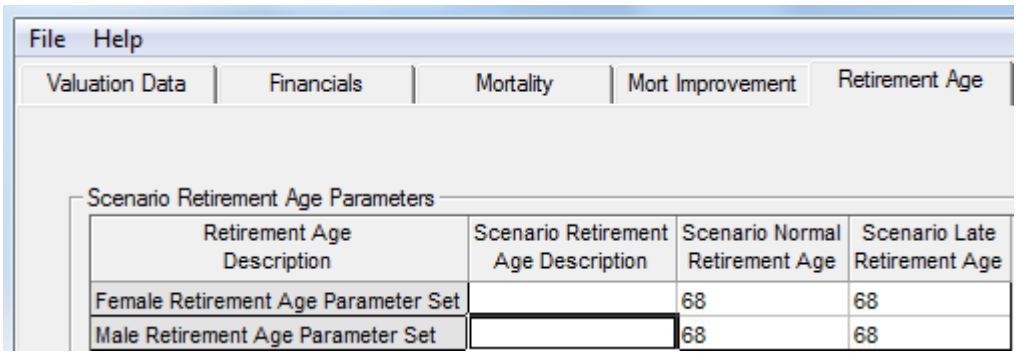
A separate global Parameter set has been specified for males and females.

In a scenario, each Retirement Age Parameter set currently used, can be either:

- assigned a different Retirement Age Parameter Set; or
- changed to specified Normal (and Late for GAD) Retirement Ages.

If the Retirement Decrement will change when the Normal Retirement Age is changed, the new RR Retirement Decrement Table can be used to specify different Decrement Rates at different Retirement Ages or if the Retirement Factors will change when the Normal Retirement Age is changed, the new ER, FR, GR, and HR Retirement Factor Tables can be used to specify different Retirement Factors at different Retirement Ages (see 2.1).

These new Retirement Age related Rate Tables will remove the need to create and specify new Parameter Sets for each of these assumptions within a Scenario (when a change in Retirement Age is made).



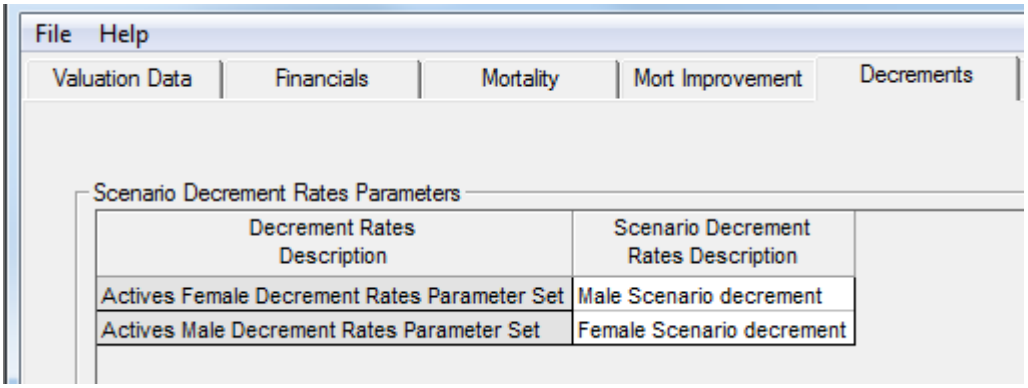
4.6 Decrement Rates

A new global Parameter has been created for Decrement Rates containing:

- Retirement Decrement
- Ill-Health Decrement (Actives only)
- Leaving Service Decrement (Actives only)
- Leaving Service Durational Weight (Actives only)

A separate global Parameter Set has been specified for males and females.

In a scenario, each Decrement Rates Parameter set currently used can be assigned a different Decrement Rates Parameter set.

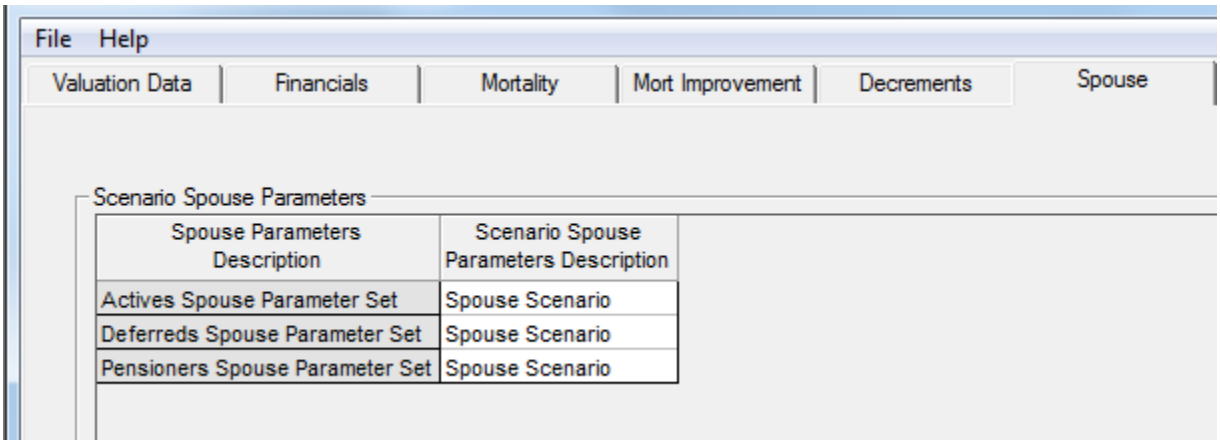


4.7 Spouse Parameters

A new global Parameter has been created for Spouse Parameters containing:

- Spouse Definition
- Male Proportion Married Table
- Female Proportion Married Table
- Male Spouse Age Difference Table
- Female Spouse Age Difference Table
- Male Spouse Age Difference
- Female Spouse Age Difference

In a scenario, each Spouse Parameters set currently used can be assigned a different Spouse Parameter set.

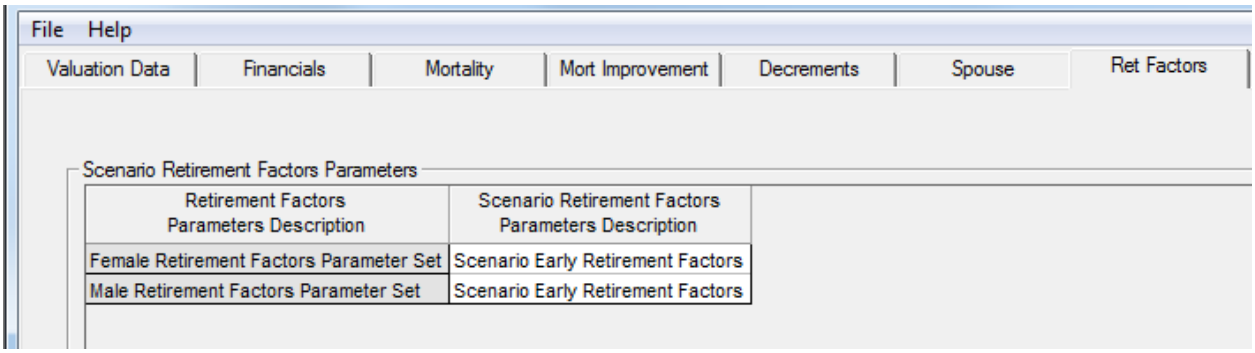


4.8 Retirement Factors

A new Global parameter has been created for Retirement Factors containing:

- Retirement Factor 1 (Actives Revaluation 1 + 3 or Deferreds)
- Retirement Factor 2 (Actives Revaluation 1 + 3 or Deferreds)
- Retirement Factor 1 (Actives Revaluation 2)
- Retirement Factor 2 (Actives Revaluation 2)

In a scenario, each Retirement Factors Parameter set currently used can be assigned a different Retirement Factors Parameter set.

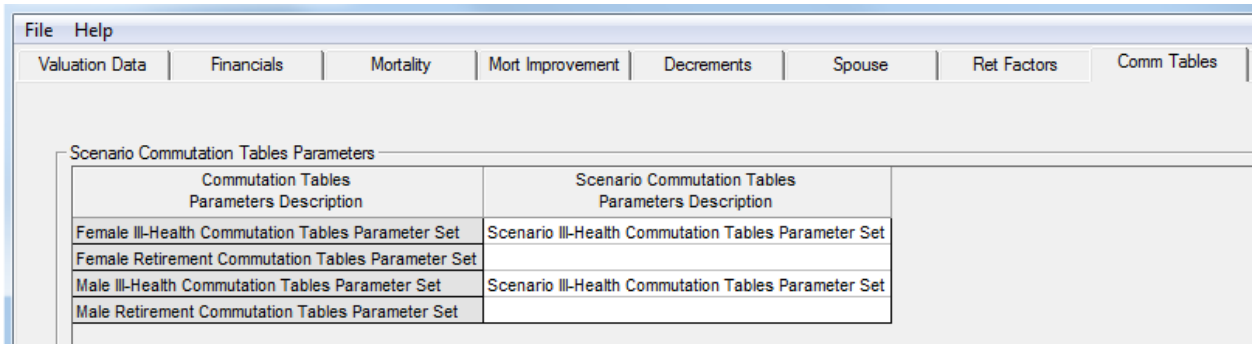


4.9 Commutation Factors

A new Global parameter has been created for Commutation Factors containing:

- Main Increases Commutation Table
- Special Increases Commutation Table
- PenInc3 Increases Commutation Table
- PenInc4 Increases Commutation Table

In a scenario, each Commutation Factors Parameter set currently used can be assigned a different Commutation Factors Parameter set.

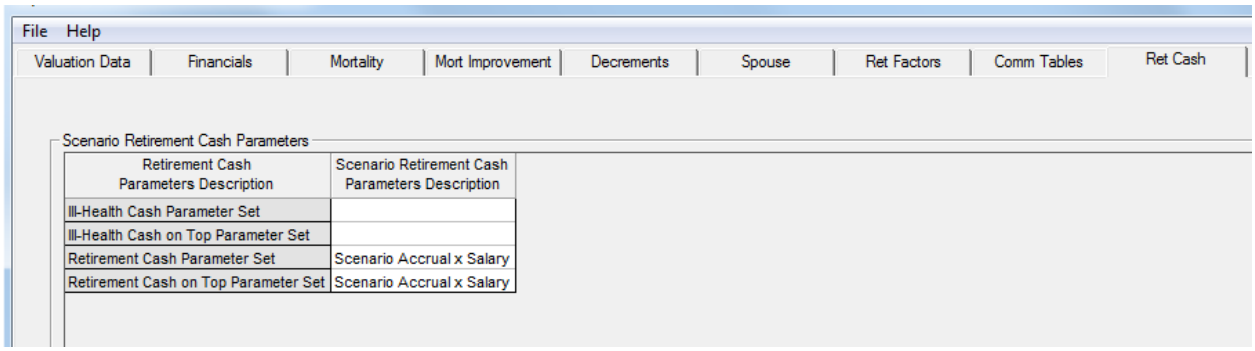


4.10 Cash Benefits

A new global Parameter has been created for Cash Basis containing:

- Benefit Basis
- Accrual Rate
- Service Definition
- Cash Multiple
- Cash Percentage

In a scenario, each Cash Basis Parameter set currently used can be assigned a different Cash Basis Parameter set.

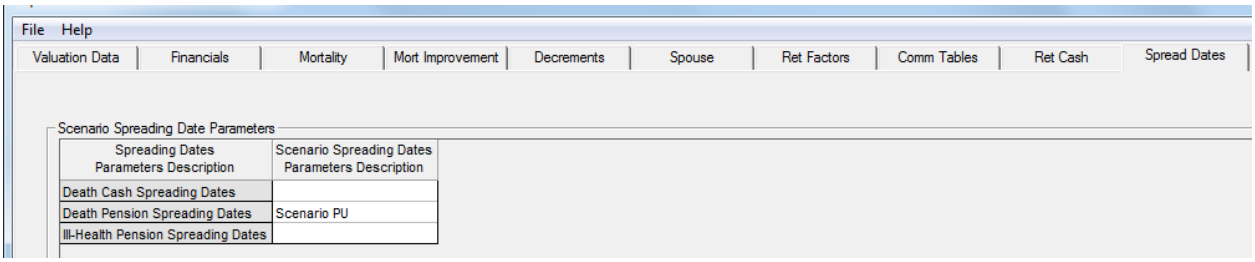


4.11 Spreading Basis

A new global Parameter has been created for the spreading options for Death and Ill Health benefits containing:

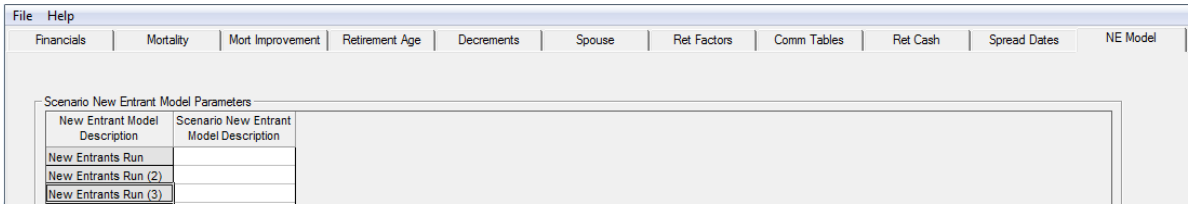
- Spreading Start date
- Spreading End date
- Funding methods - PUC and FAS (Extended Parameters only)

In a scenario, each Spreading Parameter set currently used can be assigned a different Spreading Parameter set.



4.12 New Entrant Model

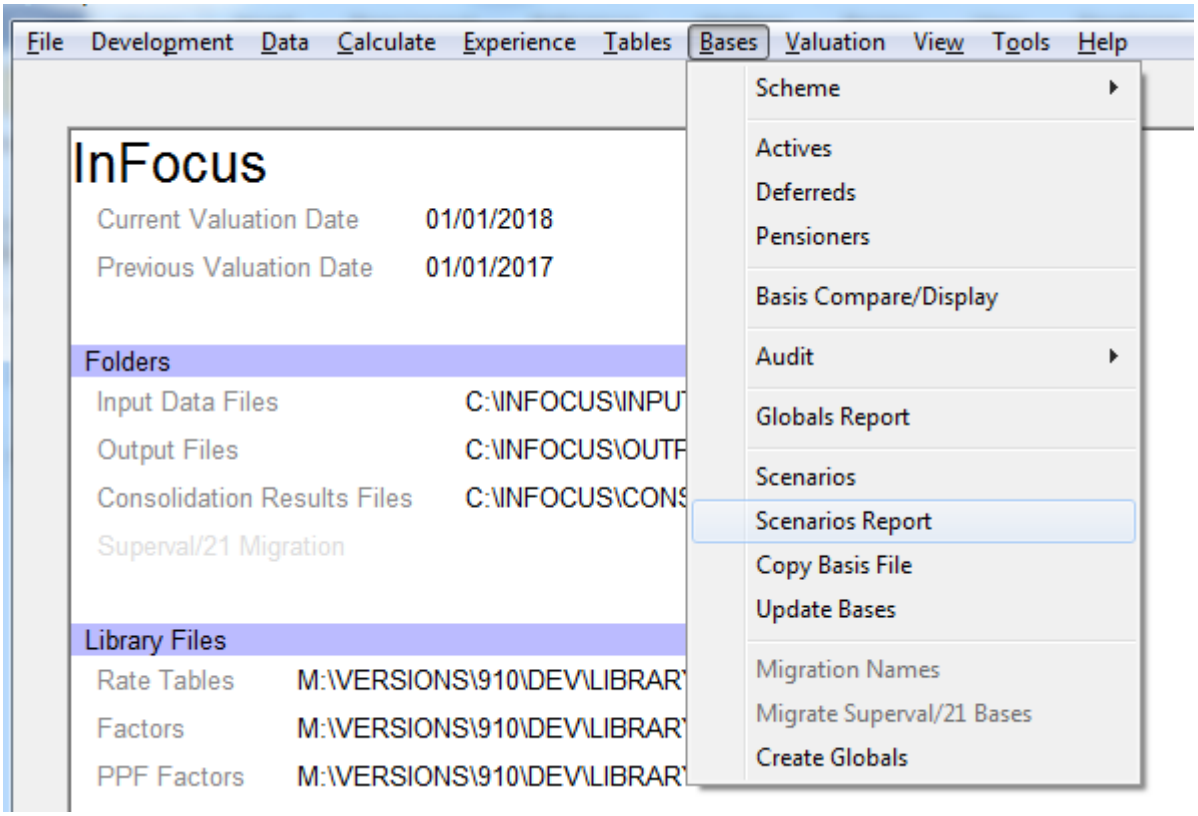
In a scenario, each New Entrant Model Parameter set currently used can be assigned a different New Entrant Model Parameter set.



5. RUNNING SCENARIOS

5.1 Scenarios Report

Before running scenarios, a user can run a Scenario Report via Bases > Scenarios Report.



The scenarios report will be saved in the user's input folder as an .html file.

Scenarios in C:\V910\GLOBAL MIGRATION\GLOBAL MIGRATION 3\ at 26 Jul 2016 10:07 AM

Valuation Data

Parameter set	Actives spouse	Mort & Retage
Valuation Date {31/12/2014}		
Financial Assumptions effective at the Original Valuation Date		
Main Actives Data File		
Main Deferreds Data File		
Main Pensioners Data File		

Mortality Assumptions

Parameter set	Actives spouse	Mort & Retage
2014 Male Base Pre & Post Ret Mortality		2014 Male Base Pre & Post Ret Mortality {adjusted by +10%}
2014 Female Base Pre & Post Ret Mortality		2014 Female Base Pre & Post Ret Mortality {adjusted by +10%}
None		

Mortality Improvement Assumptions

Parameter set	Actives spouse	Mort & Retage
2014 Male Mort Imp for Pre & Post Ret		
2014 Female Mort Imp for Pre & Post Ret		
None		

Retirement Age Assumptions

Parameter set	Actives spouse	Mort & Retage
Male Retirement Age Parameter Set		Specified Normal Retirement Age of 68 and Late Retirement Age of 68
Female Retirement Age Parameter Set		Specified Normal Retirement Age of 68 and Late Retirement Age of 68

Spouse Parameters

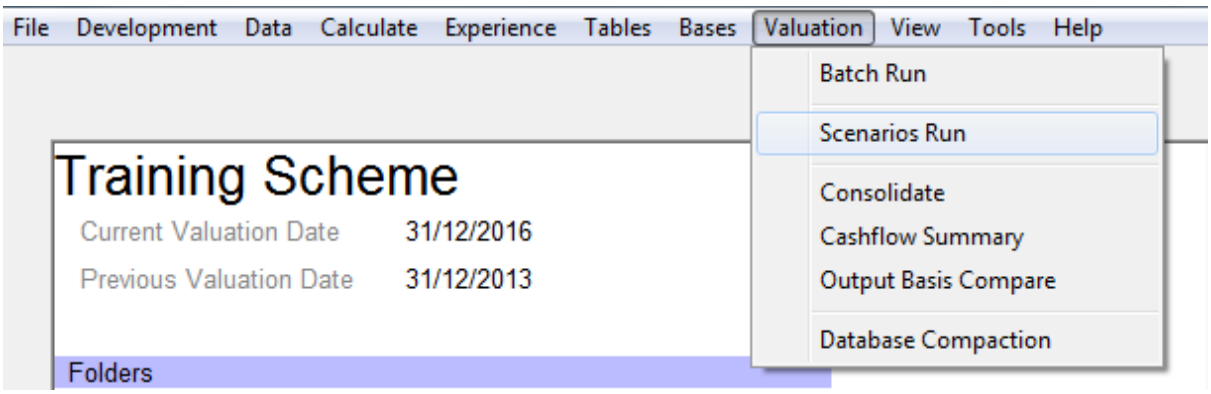
Parameter set	Actives spouse	Mort & Retage
Shared spouse parameters	Actives spouse parameters	
Actives spouse parameters		
Deferreds spouse parameters		

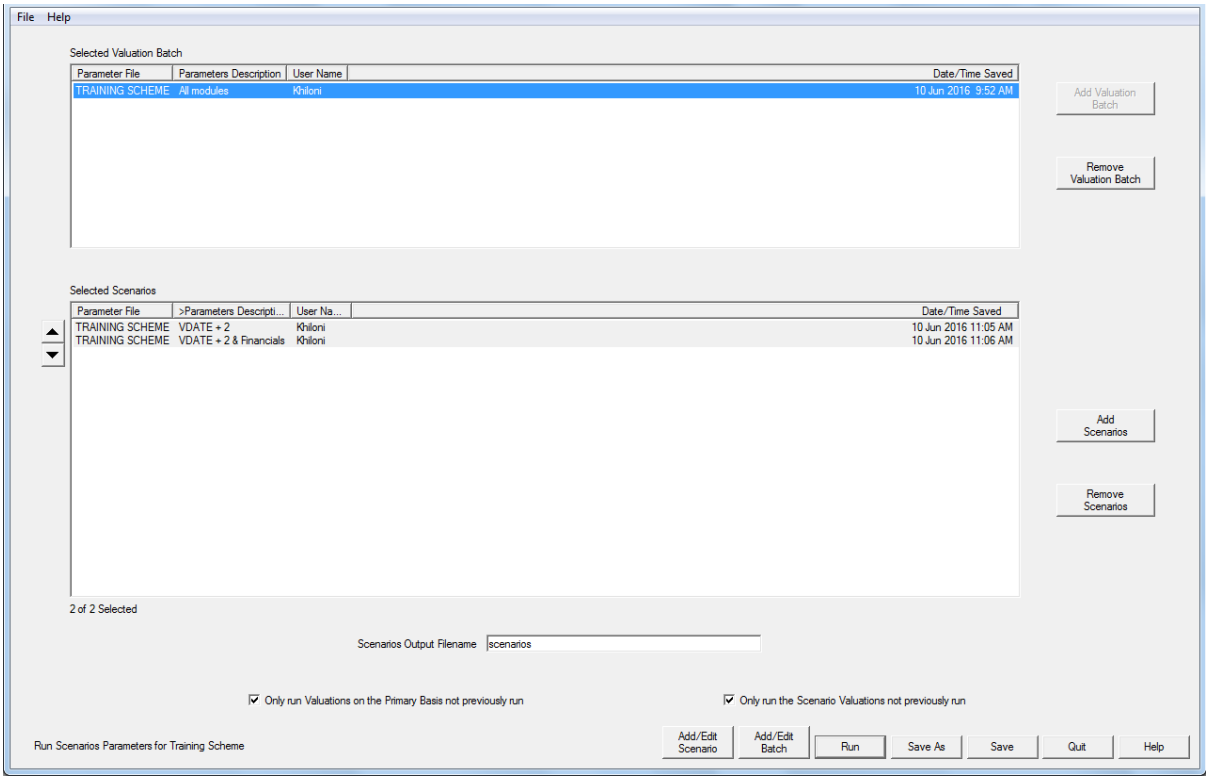
This provides a summary of the parameter settings in each Scenario and a limited validation of those Parameter settings.

Users can view all scenarios together at a glance.

5.2 Run Scenarios

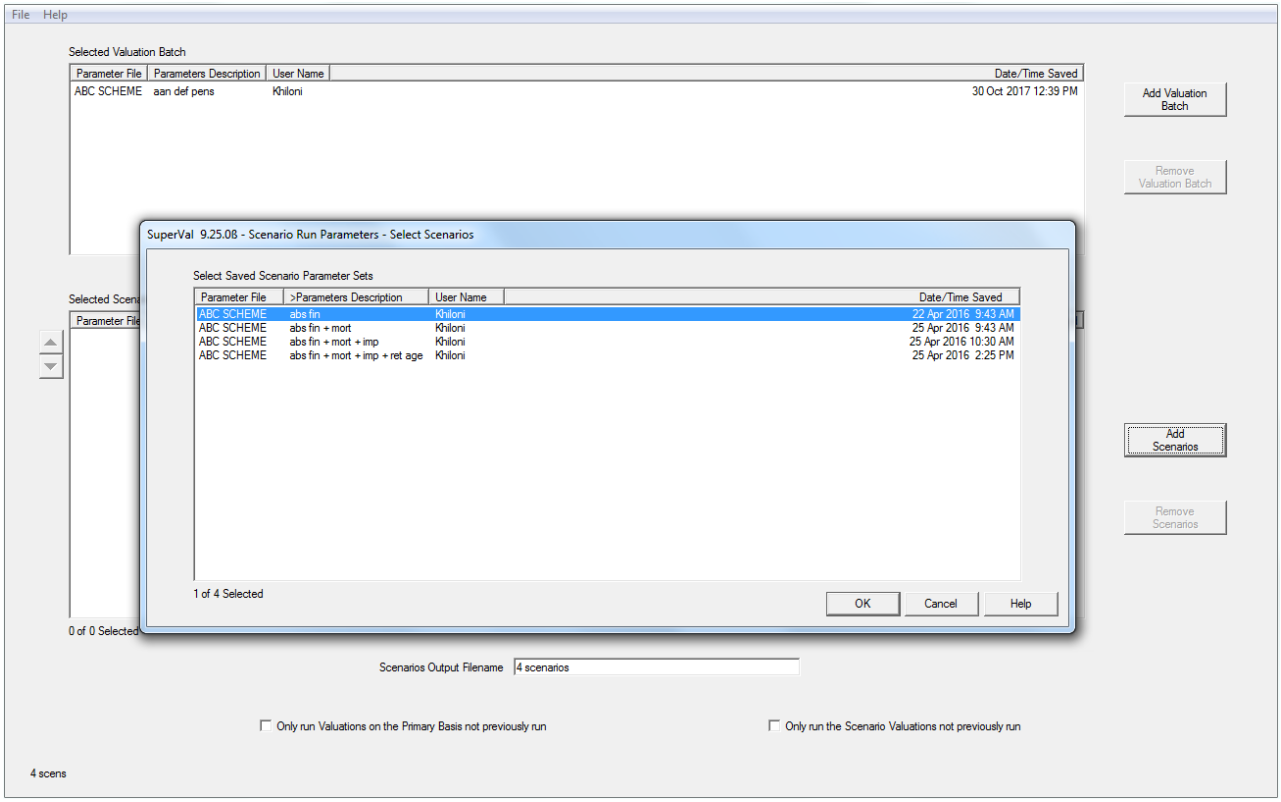
To run a scenario, select Valuation > Scenarios Run as shown below:





Click ‘Add Valuation Batch’ to select the base run ASM will use as the Primary bases.

Click ‘Add Scenarios’ to add the Scenarios that are being valued. The scenarios under the “Selected Scenarios” frame can be reordered using the toggle buttons on the left hand side of the frame.



The Scenarios Output Filename field allows the user to name their own output file.

The ‘Only run Valuation on the Primary Basis not previously run’ checkbox will compare the basis parameters and their timestamps with those stored in valuation database. If all basis parameters are identical, SuperVal will not re-run the primary basis run (as these results already exist in the database).

Similarly with the scenarios, the user may tick the “Only run the Scenario Valuations not previously run” field which will do a similar check on the scenarios as the primary basis above, and it will skip the scenarios that have already been run.

6. OUTPUT

Once the scenarios have been run, SuperVal will produce Excel outputs as well as a database output. A detailed Excel output for every scenario run is created. In addition to this a summary Excel output is produced which will be named according to the name the user specified under “Scenario Output Filename”.

Under the consolidation folder another database is created alongside the valuation database. This will include all the runs in the scenario and the Benefit Types will be mapped to use the consolidation descriptions.

The summary output will contain the following:

6.1 Balance Sheet

The balance sheet will show the primary valuation results followed by the scenario results. The columns which follow show the percentage difference and absolute difference from the primary run and from the previous run.

Valuation Balance Sheet

Scenario Balance Sheet

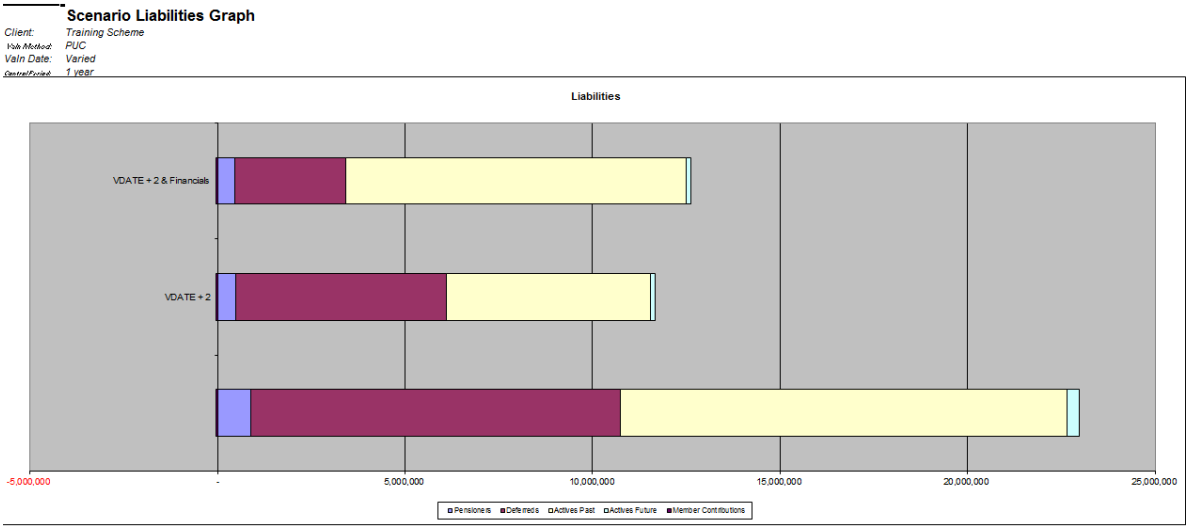
Differences from Primary Run / Differences from Previous Run / Both

Client: Training Scheme
Valn Method: PUC
Valn Date: Varied
Control Period: 1 year

Scenario:	31/12/2016	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018
		VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials
	Total Liabilities	Total Liabilities	Total Liabilities	Difference from Primary £	Difference from Primary £	Difference from Primary %	Difference from Primary %	Difference from Previous £	Difference from Previous £	Difference from Previous %	Difference from Previous %
Accrued Benefit	22,658,707	11,533,343	11,533,343	-11,125,364	-11,125,364	-49.1%	-49.1%	-11,125,364	0	-49.1%	0.0%
Company Normal Cost	268,236	85,702	85,702	-182,533	-182,533	-68.0%	-68.0%	-182,533	0	-68.0%	0.0%
Pensioners											
Pensioners Total	885,442	484,939	484,939	-400,503	-400,503	-45.2%	-45.2%	-400,503	-	-45.2%	0.0%
* **Deferreds**											
Deferreds Total	9,855,899	5,613,516	5,613,516	-4,242,383	-4,242,383	-43.0%	-43.0%	-4,242,383	-	-43.0%	0.0%
Actives											
Retirement											
Cash	1,094,972	905,190	905,190	-189,782	-189,782	-17.3%	-17.3%	-189,782	-	-17.3%	0.0%
Fixed 0%	165,255	83,965	83,965	-81,291	-81,291	-49.2%	-49.2%	-81,291	-	-49.2%	0.0%
CPI (0,3)	339,295	148,497	148,497	-190,798	-190,798	-56.2%	-56.2%	-190,798	-	-56.2%	0.0%
RPI (0,5)	1,800,568	760,044	760,044	-1,040,524	-1,040,524	-57.8%	-57.8%	-1,040,524	-	-57.8%	0.0%
RPI (3,5)	3,299,121	1,106,795	1,106,795	-2,192,326	-2,192,326	-66.5%	-66.5%	-2,192,326	-	-66.5%	0.0%
RPI (0,2.5)	219,421	73,639	73,639	-145,782	-145,782	-66.4%	-66.4%	-145,782	-	-66.4%	0.0%
CPI (0,5)	1,439,603	632,905	632,905	-806,697	-806,697	-56.0%	-56.0%	-806,697	-	-56.0%	0.0%
Retirement Past	*8,358,236*	*3,711,035*	*3,711,035*	*-4,647,201*	*-4,647,201*	*-55.6%*	*-55.6%*	*-4,647,201*	-	*-55.6%*	*0.0%*
Death											
Death Past	*3,559,130*	*1,723,853*	*1,723,853*	*-1,835,277*	*-1,835,277*	*-51.6%*	*-51.6%*	*-1,835,277*	-	*-51.6%*	*0.0%*
Ill-Health Retirement											
Ill-Health Retirement Past	-	-	-	-	-	*0.0%*	*0.0%*	-	-	*0.0%*	*0.0%*
Leaving Service											
Leaving Service Past	-	-	-	-	-	*0.0%*	*0.0%*	-	-	*0.0%*	*0.0%*
Actives Past	11,917,366	5,434,888	5,434,888	-6,482,478	-6,482,478	-54.4%	-54.4%	-6,482,478	-	-54.4%	0.0%
Accrued Benefit	22,658,707	11,533,343	11,533,343	-11,125,364	-11,125,364	-49.1%	-49.1%	-11,125,364	-	-49.1%	0.0%
Actives											
Actives Future	313,090	129,752	129,752	-183,338	-183,338	-58.6%	-58.6%	-183,338	-	-58.6%	0.0%
Member Contributions	*-44,854*	*-44,050*	*-44,050*	*804*	*804*	*-1.8%*	*-1.8%*	*804*	-	*-1.8%*	*0.0%*
Company Normal Cost	268,236	85,702	85,702	-182,533	-182,533	-68.0%	-68.0%	-182,533	-	-68.0%	0.0%
Control Period V1% of Salaries	*8,971*	*8,810*	*8,810*	*-161*	*-161*	*-1.8%*	*-1.8%*	*-161*	-	*-1.8%*	*0.0%*
Company Contribution Rate	29.9%	9.7%	9.7%	-20.2%	-20.2%	-67.5%	-67.5%	-20.2%	0.0%	-67.5%	0.0%
Total Control Period Insured Cost	-	-	-	-	-	0.0%	0.0%	-	-	0.0%	0.0%

* Can be expanded to show further breakdown of liabilities by decrement and pension increases.

The Output shows a graphical representation of the liabilities.



6.2 Cash flows

The output will show the cash flows for the primary basis as well as the scenarios that the user has run along with differences between the scenario run and the primary run (when scenarios are independent of each other) and differences between the scenario run and the previous scenario (where scenarios are not independent of each other i.e. they represent steps in the change from one basis to another).

Projected Cash Flows

○ Differences from Primary Run
○ Differences from Previous Run
○ Both

Scenario Cash Flows

Client: Training Scheme
Valn Method: PUC
Valn Date: Varied

			31/12/2016	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018
Scenario:				VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials
Duration Start Year	Year Start Date Varied	Total Net Cash Flow	Total Net Cash Flow	Total Net Cash Flow	Difference from Primary $	Difference from Primary $	Difference from Primary %	Difference from Primary %	Difference from Previous $	Difference from Previous $	Difference from Previous %	Difference from Previous %
0		- 155,157	- 371,898	- 386,439	- 216,741	- 231,282	139.7%	149.1%	- 216,741	- 14,541	139.7%	3.9%
1		126,352	- 529,111	- 543,557	- 655,462	- 669,908	-518.8%	-530.2%	- 655,462	- 14,446	-518.8%	2.7%
2		115,789	- 184,515	- 201,507	- 300,304	- 317,296	-259.4%	-274.0%	- 300,304	- 16,992	-259.4%	9.2%
3		- 427,596	- 190,349	- 210,561	237,247	217,035	-55.5%	-50.8%	237,247	- 20,212	-55.5%	10.6%
4		- 54,775	- 198,103	- 222,392	- 143,328	- 167,617	261.7%	306.0%	- 143,328	- 24,289	261.7%	12.3%
5		- 61,917	- 207,343	- 237,027	- 145,427	- 175,111	234.9%	282.8%	- 145,427	- 29,684	234.9%	14.3%
6		- 69,377	- 937,316	- 974,006	- 867,939	- 904,629	1251.0%	1303.9%	- 867,939	- 36,690	1251.0%	3.9%
7		- 77,162	- 380,992	- 427,039	- 303,830	- 349,877	393.8%	453.4%	- 303,830	- 46,047	393.8%	12.1%
8		- 854,731	- 800,306	- 857,438	54,425	- 2,707	-6.4%	0.3%	54,425	- 57,133	-6.4%	7.1%
9		- 255,841	- 544,983	- 616,749	- 289,143	- 360,908	113.0%	141.1%	- 289,143	- 71,766	113.0%	13.2%

A graphical representation of the cash flows is shown below.

Cash Flows Graph

Scenario Cash Flows Graph

Client: Training Scheme
Valn Method: PUC
Valn Date: Varied

6.3 Projected Accrued Benefits

The output will show the projected accrued benefits for the primary basis as well as the scenarios that the user has run along with differences between the scenario run and the primary run (when scenarios are independent of each other) and differences between the scenario run and the previous scenario (where scenarios are not independent of each other ie they represent steps in the change from one basis to another).

Projected Accrued Benefits

○ Differences from Primary Run
○ Differences from Previous Run
◉ Both

Projected Accrued Benefits

Client: Training Scheme
Valn Method: PUC
Valn Date: Varied

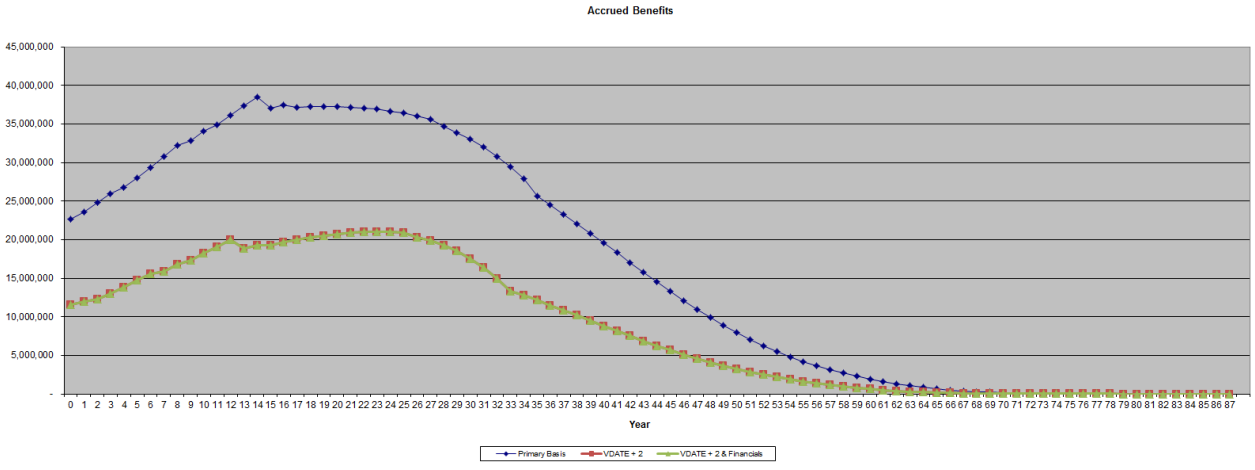
		31/12/2016	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018
Scenario:			VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials
Duration Start Year	Year Start Date Varied	Total Accrued Benefits	Total Accrued Benefits	Total Accrued Benefits	Difference from Primary $	Difference from Primary $	Difference from Primary %	Difference from Primary %	Difference from Previous $	Difference from Previous $	Difference from Previous %	Difference from Previous %
0		22,658,707	11,533,343	11,533,343	- 11,125,364	- 11,125,364	-49.1%	-49.1%	- 11,125,364	-	-49.1%	0.0%
1		23,583,220	11,935,740	11,935,740	- 11,647,479	- 11,647,479	-49.4%	-49.4%	- 11,647,479	-	-49.4%	0.0%
2		24,773,824	12,286,834	12,286,834	- 12,486,989	- 12,486,989	-50.4%	-50.4%	- 12,486,989	-	-50.4%	0.0%
3		25,940,193	13,036,645	13,036,645	- 12,903,548	- 12,903,548	-49.7%	-49.7%	- 12,903,548	-	-49.7%	0.0%
4		26,769,903	13,838,530	13,838,530	- 12,931,373	- 12,931,373	-48.3%	-48.3%	- 12,931,373	-	-48.3%	0.0%
5		28,034,589	14,694,701	14,694,701	- 13,339,887	- 13,339,887	-47.6%	-47.6%	- 13,339,887	-	-47.6%	0.0%
6		29,357,339	15,608,000	15,608,000	- 13,749,340	- 13,749,340	-46.8%	-46.8%	- 13,749,340	-	-46.8%	0.0%
7		30,741,046	15,891,177	15,891,177	- 14,849,869	- 14,849,869	-48.3%	-48.3%	- 14,849,869	-	-48.3%	0.0%
8		32,188,767	16,799,405	16,799,405	- 15,389,362	- 15,389,362	-47.8%	-47.8%	- 15,389,362	-	-47.8%	0.0%
9		32,803,619	17,344,341	17,344,341	- 15,459,278	- 15,459,278	-47.1%	-47.1%	- 15,459,278	-	-47.1%	0.0%

A graphical representation of the projected accrued benefits is shown below.

Accrued Benefits Graph

Projected Accrued Benefits Graph

Client: Training Scheme
Valn Method: PUC
Valn Date: Varied



6.4 Projected Discontinuance Benefits

The output will show the projected discontinuance benefits for the primary basis as well as the scenarios that the user has run along with differences between the scenario run and the primary run (when scenarios are independent of each other) and differences between the scenario run and the previous scenario (where scenarios are not independent of each other ie they represent steps in the change from one basis to another).

Projected Discontinuance Benefits

○ Differences from Primary Run
○ Differences from Previous Run
◉ Both

Projected Discontinuance Benefits

Client: *Training Scheme*
Valn Method: *PUC*
Valn Date: *Varied*

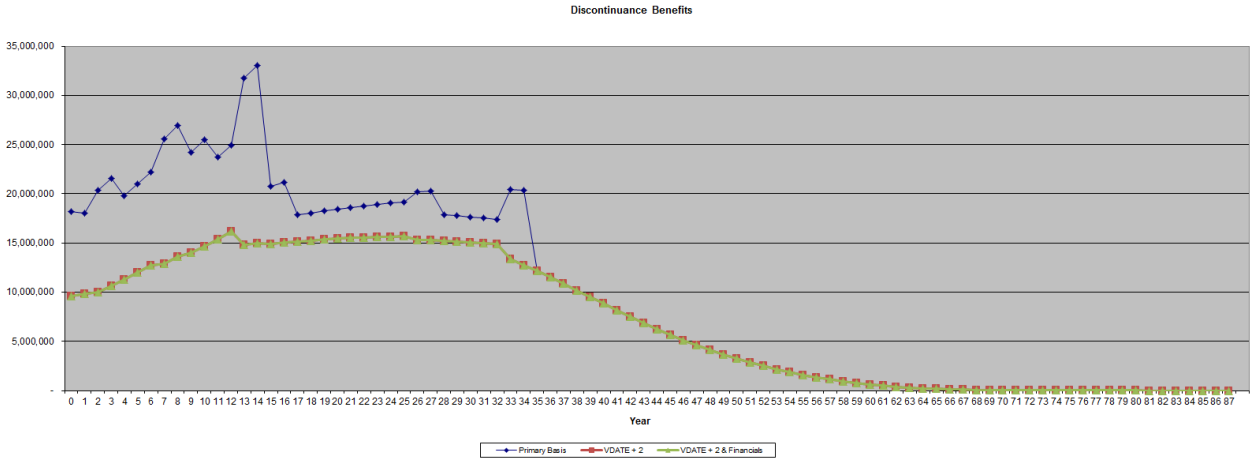
			31/12/2016	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018	31/12/2018
Scenario:				VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials	VDATE + 2	VDATE + 2 & Financials
Duration Start Year	Year Start Date Varied	Total Discontinuance Benefits		Total Discontinuance Benefits	Total Discontinuance Benefits	Difference from Primary $	Difference from Primary $	Difference from Primary %	Difference from Primary %	Difference from Previous $	Difference from Previous $	Difference from Previous %	Difference from Previous %
0		18,218,603		9,553,848	9,553,848	- 8,664,756	- 8,664,756	-47.6%	-47.6%	- 8,664,756	-	-47.6%	0.0%
1		18,027,389		9,829,452	9,829,452	- 8,197,937	- 8,197,937	-45.5%	-45.5%	- 8,197,937	-	-45.5%	0.0%
2		20,316,055		10,032,221	10,032,221	- 10,283,834	- 10,283,834	-50.6%	-50.6%	- 10,283,834	-	-50.6%	0.0%
3		21,514,287		10,646,636	10,646,636	- 10,867,651	- 10,867,651	-50.5%	-50.5%	- 10,867,651	-	-50.5%	0.0%
4		19,823,722		11,297,639	11,297,639	- 8,526,084	- 8,526,084	-43.0%	-43.0%	- 8,526,084	-	-43.0%	0.0%
5		20,977,529		11,985,943	11,985,943	- 8,991,586	- 8,991,586	-42.9%	-42.9%	- 8,991,586	-	-42.9%	0.0%
6		22,207,004		12,731,504	12,731,504	- 9,475,500	- 9,475,500	-42.7%	-42.7%	- 9,475,500	-	-42.7%	0.0%
7		25,551,635		12,849,808	12,849,808	- 12,701,827	- 12,701,827	-49.7%	-49.7%	- 12,701,827	-	-49.7%	0.0%
8		26,957,541		13,595,526	13,595,526	- 13,362,015	- 13,362,015	-49.6%	-49.6%	- 13,362,015	-	-49.6%	0.0%
9		24,180,541		14,030,406	14,030,406	- 10,150,135	- 10,150,135	-42.0%	-42.0%	- 10,150,135	-	-42.0%	0.0%

A graphical representation of the projected accrued benefits is shown below.

Discontinuance Benefits Graph

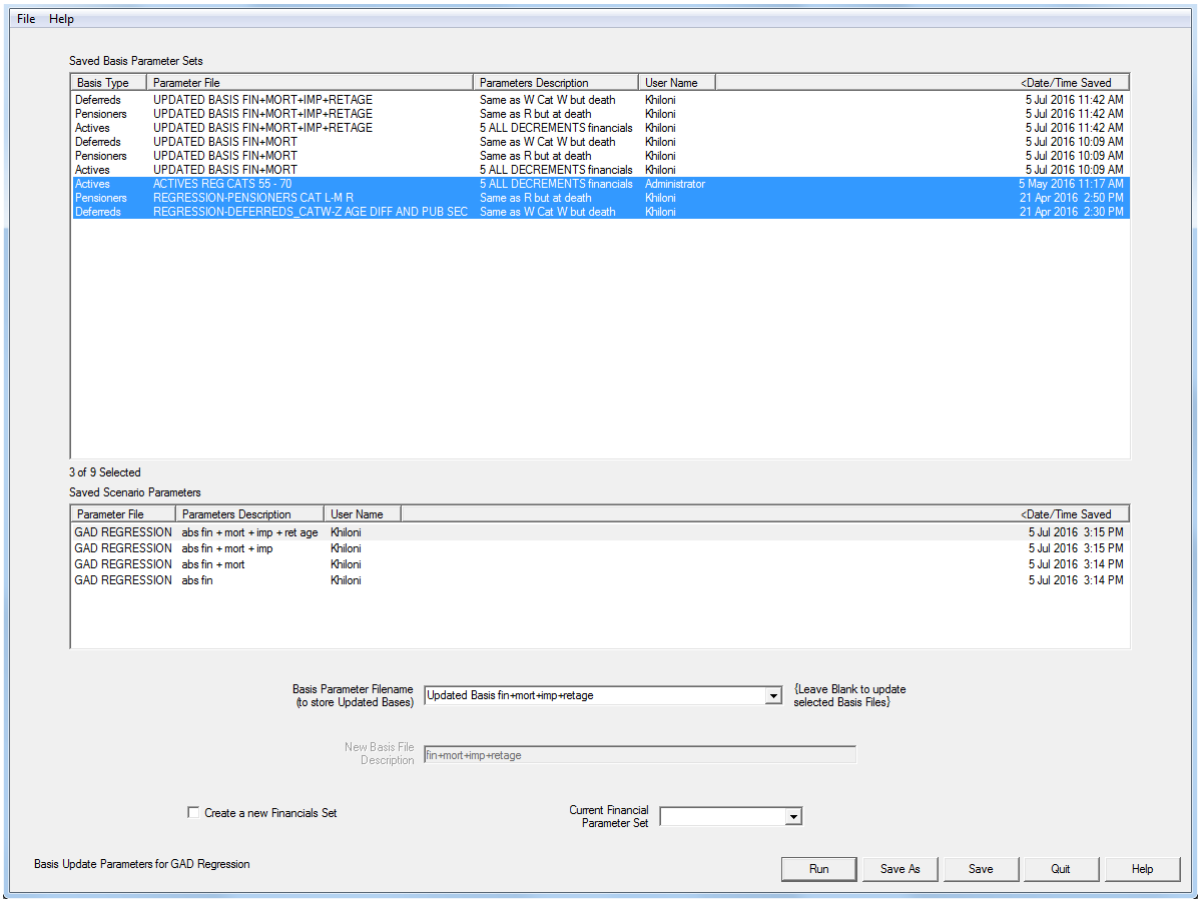
Projected Discontinuance Benefits Graph

Client: *Training Scheme*
Valn Method: *PUC*
Valn Date: *Varied*



7. UPDATE BASES

To use the “Update Bases” functionality: Bases > Update Bases

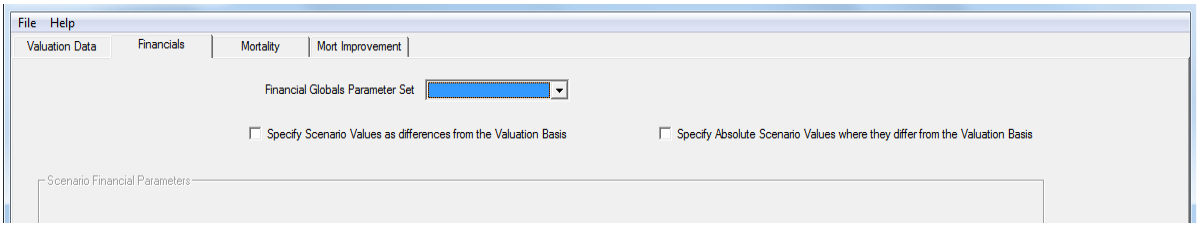


Updated Bases can be stored in either:

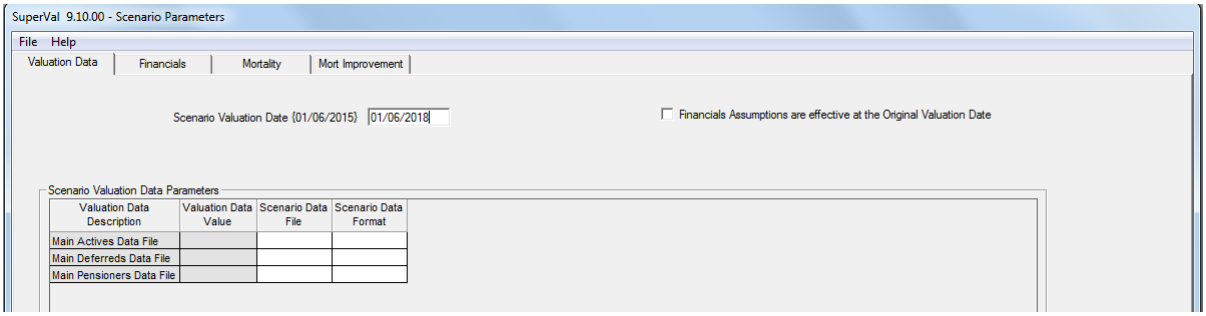
- The existing Basis File(s) (leave the field blank and multiple files can be updated at once) ; or
- In another existing Basis File (single file selected from the list); or
- A new Basis File (specify a new basis filename and basis description in the next field).

No creation of a Financial Set is required if:

- No Absolute or Relative changes are specified; or



- Scenario Valuation Date not after the Valuation Date or the adjust financials for Valuation Date flag is not checked)

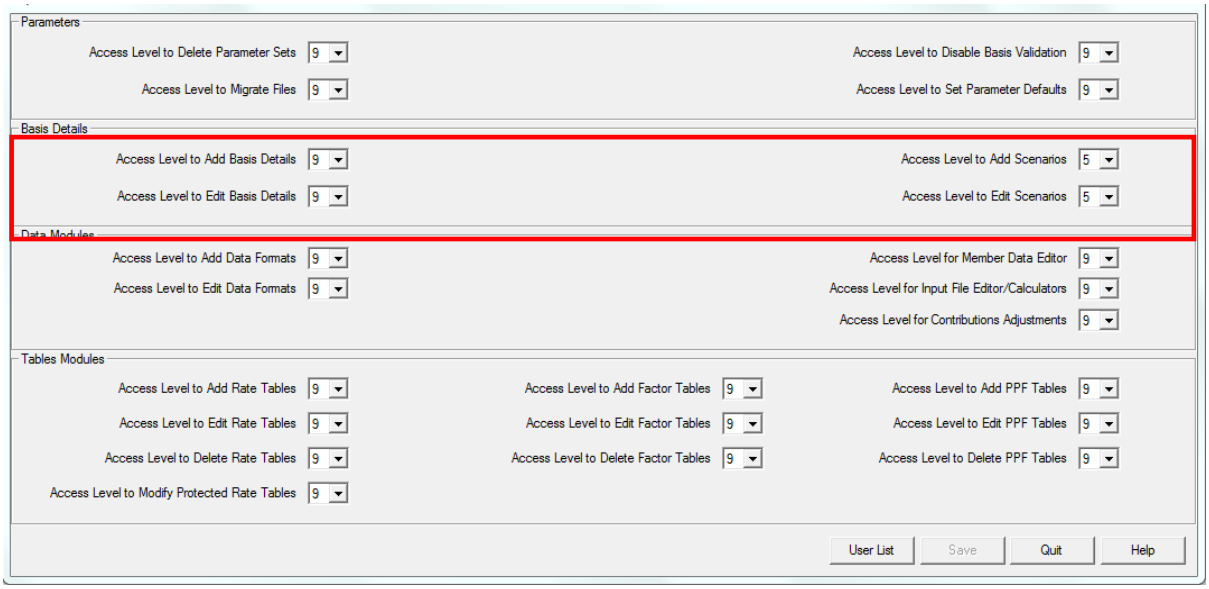


If the Scenario Basis settings require a new set of Financials (either Absolute or Relative changes are made or the Scenario Valuation Date is after the Valuation Date and the adjust Financials for Valuation Date flag is checked), the user is required to either:

- Create a new Set of Financials; or
- Specify an existing set of Financials that has identical values to that created by applying the Scenario settings (note that the specified Financials set must match exactly (in all respects) the Financials set created by the Update Bases process so it is most likely to have been created by a previous Update Bases run).

8. ACCESS LEVELS

Access Levels can be set by Administrators via Tools > Administration > Define Access Levels



Administrators can set users up such that they can only add/edit scenarios and not actually enter the basis to change the original parameters.