

# SETTING UP MORTALITY RATES IN SUPERVAL

## SCOPE:

### Actives, Deferreds and Pensioners

## CONTEXT:

This document shows how to define mortality rates in SuperVal.

**Note that this document is based on Version 9.25 of SuperVal. Any screenshots which may be included from previous versions of SuperVal are not materially different from those in V9.25.**

## TABLE OF CONTENTS:

SCOPE:.....	1
CONTEXT: .....	1
INPUTS .....	3
BASIC ADJUSTMENTS TO MORTALITY TABLES .....	3
Applying a % Rating Factor (or Scaling) .....	3
Fixed .....	4
Member-specific .....	4
Applying an Age Rating .....	5
Male / Female Rating .....	5
ALLOWING FOR MORTALITY IMPROVEMENTS .....	6
Basic Mortality Adjustments .....	6
Adjusting the base mortality table using a 2D table by means of a Reduction Factor Formula .....	7
Improvement Method .....	7
Mortality Table Base Year .....	9
Specifying the Year of Birth or Term from Base Year .....	10
Alpha and Beta (M&F).....	10
Period (M&F).....	10
Examples/Comments .....	10
Adjusting the base mortality table by specifying a 2D table .....	11
Creating your own .CSV file: .....	11
Example Set-up .....	12
Adjusting the Age Rating of Improvement Factors.....	13
Example.....	13

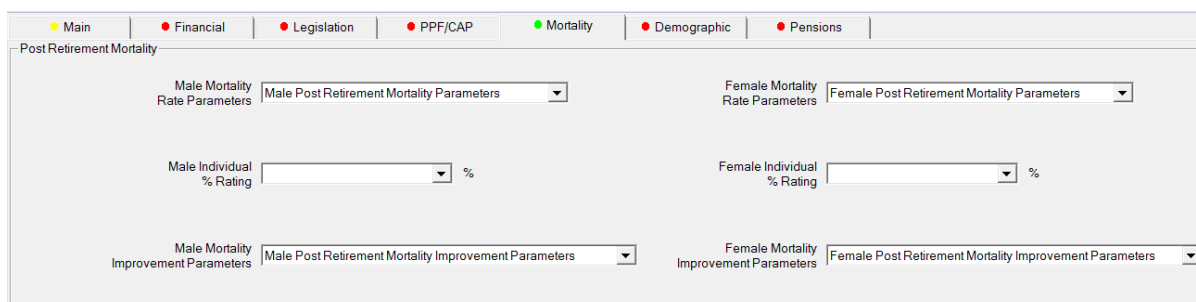
## **SETTING UP MORTALITY RATES IN SUPERVAL**

APPENDIX.....	15
Sample set-ups for formula-derived 2D tables.....	15
a) Calendar Year (based on '92' series base tables & CMI R17 $\alpha$ s & $\beta$ s ONLY).....	15
Specified year of birth ('92' series base tables & CMI R17 $\alpha$ s & $\beta$ s ONLY) .....	17
b) Accurate (member specific) birth year ('92' series base tables & CMI R17 $\alpha$ s & $\beta$ s ONLY)..	18

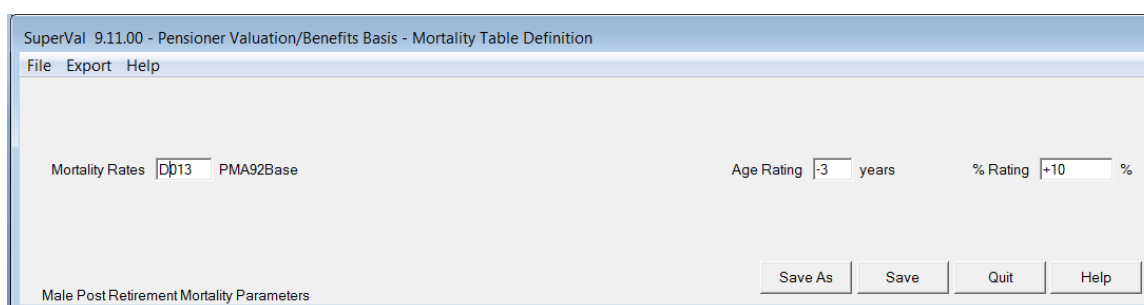
# SETTING UP MORTALITY RATES IN SUPERVAL

## INPUTS

Below is a screenshot of the fields you need to fill in when defining what mortality tables and improvement factors to use in SuperVal. The screenshot is taken from the Mortality Tab from the Pensioners module. Set-up for the Actives & Deferreds modules is similar, except for the fact that you will also need to define pre-retirement mortality (and if applicable ill-health retirement mortality). The fields can be found on the Mortality tabs in all modules.



If users click on the “Add/Edit Mortality Table” button at the bottom of the page, then the Mortality Rate Parameters can be added, defined and named as a set for a specific basis file:



## BASIC ADJUSTMENTS TO MORTALITY TABLES

There are several ways in which a (base) mortality table (circled in screenshot above) can be adjusted in SuperVal.

### ***Applying a % Rating Factor (or Scaling)***

This is simply done by adjusting the value of  $q_x$  for each age  $x$  by a constant.

$$\text{e.g. } q'_x = 1.1 \times q_x,$$

where  $q_x$  is the base mortality rate, 1.1 is the scaling factor and  $q'_x$  is the adjusted mortality rate.

In SuperVal % Rating factors can be defined in the cells indicated, and can either be fixed or member-specific.

# SETTING UP MORTALITY RATES IN SUPERVAL

## Fixed

In the Males/Females % Rating cells simply enter any additional %. SuperVal will apply 1 plus the entry in the field. In other words to multiply the rates by 1.1 enter 10 for 10% loading or to multiply rates by 0.9 enter minus 10.

### “Male Post Retirement Mortality Parameters”

The screenshot shows the 'Mortality Table Definition' window for 'Male Post Retirement Mortality Parameters'. The 'Mortality Rates' dropdown is set to 'D013' and the 'PMA92Base' dropdown is selected. The 'Age Rating' is set to '+0 years' and the '% Rating' is set to '+10 %'. The window includes a menu bar with 'File', 'Export', and 'Help', and buttons for 'Save As', 'Save', 'Quit', and 'Help'.

### “Female Post Retirement Mortality Parameters”

The screenshot shows the 'Mortality Table Definition' window for 'Female Post Retirement Mortality Parameters'. The 'Mortality Rates' dropdown is set to 'D014' and the 'PFA92 Base Amounts' dropdown is selected. The 'Age Rating' is set to '+0 years' and the '% Rating' is set to '-10 %'. The window includes a menu bar with 'File', 'Export', and 'Help', and buttons for 'Save As', 'Save', 'Quit', and 'Help'.

The above mortality set-up is as follows:

**Males: 110% PMA92 Base**  
**Females: 90% PFA92 Base**

Note: In the Mortality tab, the user would need to ensure they select the named parameter sets “Male Post Retirement Mortality Parameters” and “Female Post Retirement Mortality Parameters.”

## Member-specific

If a percentage loading is required on a member-by-member basis, then a data item can be selected and input on the Mortality tab in the Male/Female Individual % Rating cells. The data item (included in the CSV file) has to be in the form of a number, so if loading of 110% is required then use 10 or if a loading of 90% then use -10.

The screenshot shows the 'Mortality' tab in the 'Post Retirement Mortality' window. The 'Male Mortality Rate Parameters' dropdown is set to 'Male Post Retirement Mortality Parameters'. The 'Female Mortality Rate Parameters' dropdown is set to 'Female Post Retirement Mortality Parameters'. The 'Male Individual % Rating' dropdown is set to 'QMORT' and the 'Female Individual % Rating' dropdown is set to '%'. The window includes a menu bar with 'Main', 'Financial', 'Legislation', 'PPF/CAP', 'Mortality', 'Demographic', and 'Pensions', and buttons for 'Save As', 'Save', 'Quit', and 'Help'.

## SETTING UP MORTALITY RATES IN SUPERVAL

### ***Applying an Age Rating***

This is simply done by adjusting the value of  $q_x$  for each age  $x$  as follows:

$$q'_x = q_{x+a}$$

where  $q_x$  is the base mortality rate,  $a$  is the age rating and  $q'_x$  is the adjusted mortality rate.

In SuperVal age ratings can be defined in the cells indicated, and must be fixed for each sex (i.e. you cannot presently define member-specific age ratings in SuperVal).

### **Male / Female Rating**

The 'Age Rating' cells make allowance for mortality "lighter" or "heavier" than that specified in the table. The adjustment specified here is made to the (base) mortality table specified.

NB: Non-integer ratings or ratings higher than +9 or -9 years are not allowed.

“Male Post Retirement Mortality Parameters”

The screenshot shows the 'Mortality Rates' dropdown set to 'D013' and 'PMA92Base'. The 'Age Rating' is set to '+1' years, and the '% Rating' is set to '+0' %.

“Female Post Retirement Mortality Parameters”

The screenshot shows the 'Mortality Rates' dropdown set to 'D014' and 'PFA92 Base Amounts'. The 'Age Rating' is set to '-1' years, and the '% Rating' is set to '0' %.

The above mortality set-up is as follows:

**Males:** PMA92 Base +1 yr

**Females:** PFA92 Base -1 yr

Note: In the Mortality tab, the user would need to ensure they select the named parameter sets “Male Post Retirement Mortality Parameters” and “Female Post Retirement Mortality Parameters.”

# SETTING UP MORTALITY RATES IN SUPERVAL

## ALLOWING FOR MORTALITY IMPROVEMENTS

SuperVal gives you five different options for the type of mortality improvement you can define:  
None – this can be selected even when there is no mortality improvement set up on the Mortality tab

The screenshot shows the 'Post Retirement Mortality' tab in the SuperVal software. It contains several dropdown menus for defining mortality parameters. The 'Male Mortality Improvement Parameters' dropdown is highlighted with a red rectangular box and is currently set to 'None'. Other visible options include 'Male Post Retirement Mortality Parameters', 'Female Post Retirement Mortality Parameters', 'Male Individual % Rating' (set to 'qMORT'), and 'Female Mortality Improvement Parameters' (set to 'Female Post Retirement Mortality Improvement Parameters').

The other options can be seen when defining Mortality improvement tables:

The screenshot shows the 'Mortality Improvement Definition' dialog box. The 'Mortality Improvement Definition' dropdown is open, displaying five options: '2D Table', '2D Table', 'Calendar Year (i.e. Use term from Base Year)', 'Specified Year of Birth', and 'Accurate (Member Specific)'. The 'Two-Dimensional Improvement Table (CSV File)' is set to '02CMI\_2011\_M[1.5%].csv'. The 'Base Year of Mortality Improvement Table' is set to '2000'. The dialog box also includes 'File', 'Export', and 'Help' menus at the top and 'Save As', 'Save', 'Quit', and 'Help' buttons at the bottom.

These 5 options can be grouped into three separate categories, as explained below.

### ***Basic Mortality Adjustments***

This is where there is one  $q_x$  for each age – the value of  $q_x$  does NOT vary with DOB (or based on a specified Calendar Year).

In this case, you'd just select option "N – None" and define the mortality table(s) in the 'Male Table' and 'Female Table' cells.

This type of mortality adjustment has already been covered in the previous section. You can allow for improvements via age rating and scaling, as described earlier.

## **SETTING UP MORTALITY RATES IN SUPERVAL**

### ***Adjusting the base mortality table using a 2D table by means of a Reduction Factor Formula***

This is done by adjusting the value of  $q_x$  for each age  $x$  as follows:

$$q'_x = q_x \times RF(x,t)$$

where  $q_x$  is the base mortality rate,  $RF(x,t)$  is the reduction factor to apply to a member aged  $x$  at time  $t$ , and  $q'_x$  is the adjusted mortality rate.

One approach suggested by the Continuous Mortality Investigation (CMI) is to use a formula for the reduction factor, set out as follows:

$$RF(x,t) = \alpha(x) + (1 - \alpha(x)) \cdot (1 - \beta(x))^{t/PERIOD}$$

Note 1:  $RF(x,t)$  has a maximum value of 1 (since it reflects an improvement in mortality and hence a reduction in the value of  $q_x$ ).

Note 2:  $t$  in the formula above is the number of years after the base year (e.g. 1980 or 1992).

When setting up these tables, you can specify the values of Alpha, Beta within SuperVal using a 'HX' type table.

The CMI has published two sets of values for Alphas & Betas, which relate to adjusting the '80' series and '92' series base mortality tables. The values can be found in CMI Reports 10 and 17, respectively.

Depending on the improvement method used, you may also need to enter further parameters:

### **Improvement Method**

SuperVal allows three different improvement methods to be applied that incorporate the Alpha and Beta tables.

These are as follows:

- Calendar Year

# SETTING UP MORTALITY RATES IN SUPERVAL

SuperVal 9.11.00 - Pensioner Valuation/Benefits Basis - Mortality Improvement Definition

File Export Help

Definition

Mortality Improvement Definition: **Calendar Year (i.e. Use term from Base Year)**

☐ Apply Mortality Rate Age Rating to Mortality Improvement Table

CMI Mortality Improvement Formula

Base Year of Mortality Table:

Term from Base Year (Member):  years

Year of Birth (Member):  CCYY

Alpha Factor - Ultimate Improvement:

Beta Factor - % of Mortality Improvement:

Attained after Period of Years:  20 years

Term from Base Year (Death pre Retirement - Actives/Deferreds):  0 years

Term from Base Year (Contingent Spouse - Actives/Deferreds/Pensioner):  0 years

Year of Birth (Death pre Retirement - Actives/Deferreds):  2020 CCYY

Year of Birth (Contingent Spouse - Actives/Deferreds/Pensioner):  2020 CCYY

Male Post Retirement Mortality Improvement Parameters

Save As Save Quit Help

- Specified Year of Birth (applied to all members)

SuperVal 9.11.00 - Pensioner Valuation/Benefits Basis - Mortality Improvement Definition

File Export Help

Definition

Mortality Improvement Definition: **Specified Year of Birth**

☐ Apply Mortality Rate Age Rating to Mortality Improvement Table

CMI Mortality Improvement Formula

Base Year of Mortality Table:

Term from Base Year (Member):  years

Year of Birth (Member):  CCYY

Alpha Factor - Ultimate Improvement:

Beta Factor - % of Mortality Improvement:

Attained after Period of Years:  20 years

Term from Base Year (Death pre Retirement - Actives/Deferreds):  0 years

Term from Base Year (Contingent Spouse - Actives/Deferreds/Pensioner):  0 years

Year of Birth (Death pre Retirement - Actives/Deferreds):  2020 CCYY

Year of Birth (Contingent Spouse - Actives/Deferreds/Pensioner):  2020 CCYY

Male Post Retirement Mortality Improvement Parameters

Save As Save Quit Help

- Accurate – Member Specific Year of Birth

SuperVal 9.11.00 - Pensioner Valuation/Benefits Basis - Mortality Improvement Definition

File Export Help

Definition

Mortality Improvement Definition: **Accurate (Member Specific)**

☐ Apply Mortality Rate Age Rating to Mortality Improvement Table

CMI Mortality Improvement Formula

Base Year of Mortality Table:

Term from Base Year (Member):  years

Year of Birth (Member):  CCYY

Alpha Factor - Ultimate Improvement:

Beta Factor - % of Mortality Improvement:

Attained after Period of Years:  20 years

Term from Base Year (Death pre Retirement - Actives/Deferreds):  0 years

Term from Base Year (Contingent Spouse - Actives/Deferreds/Pensioner):  0 years

Year of Birth (Death pre Retirement - Actives/Deferreds):  2020 CCYY

Year of Birth (Contingent Spouse - Actives/Deferreds/Pensioner):  2020 CCYY

Male Post Retirement Mortality Improvement Parameters

Save As Save Quit Help



## **SETTING UP MORTALITY RATES IN SUPERVAL**

### **Mortality Table Base Year**

This parameter is only required for the Specified Year of Birth method and (Accurate) Member Specific methods. So this would be 1980 or 1992, say.

## **SETTING UP MORTALITY RATES IN SUPERVAL**

### **Specifying the Year of Birth or Term from Base Year**

For the Enhanced Pensioners set-up, there are four different fields:

- Member (Males & Females)
- Contingent (Males & Females)

The value will depend on the mortality assumed for members and spouses (based on sex)

For the Calendar Year Method, the value to input should be the difference between the Projection Year and the Base Year of the mortality table. So, if you were using PMA92 CY=2020, then the input would be 28 (=2020 – 1992).

For the Specified Year of Birth Method, the value to input is simply the fixed Birth Year that you are using for your mortality projections (e.g. 1945 for PMA92 BY=1945).

For the Actives and Enhanced Deferreds modules there are additional fields, depending on the type of decrement (e.g. death before retirement, withdrawal, retirement etc.).

### **Alpha and Beta (M&F)**

The user simply needs to select the relevant rate table for Alpha & Beta values.

### **Period (M&F)**

The period is 20 years (see CMI Reports)

### **Examples/Comments**

See appendix for examples of set-up for Calendar Year, Specified Year of Birth and Member-specific Year of Birth.

Note 1: For member-specific Year of Birth, SuperVal uses age nearest at the valuation date to work out the relevant  $RF(x,t)$  factor to use. This may mean that the YOB is one year out in some cases.

Note 2: If a user is setting up mortality based on the  $RF(x,t)$  formula method using the '92' series improvement formulae to adjust '00' mortality base tables, the above methodology will NOT calculate mortality rates accurately. In this instance, you would need to input the  $RF(x,t)$  values as a 2D table, as described in the following section. The reason for this is that the formula for  $RF(x,t)$  shown above is based on improving mortality rates from 1992 onwards, while if you are using the '00' series base tables, you will only want to apply improvements after 2000. You CANNOT simply adjust the inputs above using 2000 instead of 1992.

Note 3: The above methodology can NOT allow for cohort effects or underpins. Again, 2D tables are required in this instance.

## SETTING UP MORTALITY RATES IN SUPERVAL

### ***Adjusting the base mortality table by specifying a 2D table***

Where the reduction factors do not follow the formula specified in the previous section, a 2-Dimensional Table can be specified in SuperVal (e.g. tables which include allowance for the cohort effect or an underpin to the rate of mortality improvement).

The screenshot shows the 'Mortality Improvement Definition' dialog box in SuperVal 9.11.00. The 'Definition' section has a dropdown menu set to '2D Table'. Below it is an unchecked checkbox labeled 'Apply Mortality Rate Age Rating to Mortality Improvement Table'. The 'Two-Dimensional Table' section contains a dropdown menu for 'Two-Dimensional Improvement Table (CSV File)' set to 'MortImpNew.csv'. There is also a text box for 'Two-Dimensional Improvement Table (Rate Table)' which is empty. At the bottom, the 'Base Year of Mortality Improvement Table' is set to '2000'. The dialog box has a menu bar with 'File', 'Export', and 'Help'. At the bottom right are buttons for 'Save As', 'Save', 'Quit', and 'Help'. The title bar reads 'SuperVal 9.11.00 - Pensioner Valuation/Benefits Basis - Mortality Improvement Definition'.

To use this method a .CSV file is required for reduction factors that vary by age and year. This file is stored in the System folder of where the program files are kept (typically a network drive). A sample file is provided with Version 8.30 called "MortImpNew.csv".

### **Creating your own .CSV file:**

- This can be created in Excel but make sure you are pointing inside the data before saving as a .CSV file type
- Ages are Rows, Years are Columns
- Cell A1 must start at Age 0
- If the first column of improvements is the year 2000, then the "Base Year of Mortality Improvement Table" should be set to 2000. If the first column is 2007, then the "Base Year of Mortality Improvement Table" should be 2007, etc.
- There must be 120 rows **and** 120 columns

## SETTING UP MORTALITY RATES IN SUPERVAL

### Example Set-up

The following set-up is for:

**Males: PNMA00 BY=19xx LC min 1% (i.e. member-specific birth year, Long Cohort min imp 1% p.a.)**

**Females: PNFA00 BY=19xx LC min 1%**

Start off by adding the Mortality Rate Parameters with the base table, then add the Mortality Rate Improvements and add these to the basis file.

SuperVal 9.11.00 - Pensioner Valuation/Benefits Basis - Mortality Table Definition

File Export Help

Mortality Rates **D021** PNMA00

Male Mortality table selected

Age Rating +0 years % Rating +0 %

Post Ret Male Base

Name of Mortality set that needs to be selected in the Set Up

Save As Save Quit Help

Likewise with the Female Mortality, and then save and move on to set up definitions for the Mortality improvement tables:

SuperVal 9.11.00 - Pensioner Valuation/Benefits Basis - Mortality Improvement Definition

File Export Help

Definition

Mortality Improvement Definition **2D Table**

Select 2D table from list

☐ Apply Mortality Rate Age Rating to Mortality Improvement Table

Two-Dimensional Table

Two-Dimensional Improvement Table (CSV File) **LCoh00Min1pt0.csv**

Select the appropriate Mortality improvement csv from list stored in the library folder

Two-Dimensional Improvement Table (Rate Table)

Base Year of Mortality Improvement Table **2000**

Ensure that the Base Year is set up as the year in which the first column of the csv of improvements starts

Then the Basis file should choose these two options on the Mortality tab:

## SETTING UP MORTALITY RATES IN SUPERVAL

### Adjusting the Age Rating of Improvement Factors

If an age rating is being applied to the (base) mortality table, then the same age rating can be applied to the Improvement Factors.

This is done by checking the box for the following field within the Mortality Improvement set:

### Example

- A member's age is 60 nearest at valuation date
- Valuation year is 2007
- +2 year age rating is being applied to the base mortality table

If the box is left unchecked, then the age that SuperVal will use at valuation date for improvement factors will be 60.

If the box is checked, then the age that SuperVal will use at valuation date for improvement factors will be 62.

This is shown in the illustration below:

## SETTING UP MORTALITY RATES IN SUPERVAL

### Age Rating of Improvement Factor

Reduction factors are applied to base  $q_x$ , and result in a 2D table of  $q_x$ :

		RF(x,t)			Base $q_x$		Adjusted $q_x$				
		Age\Year	2007	2008	2009	Age	$q_x$	Age\Year	2007	2008	2009
'Apply Age Rating?' = N	60	0.9	0.8	0.7	60	0.50%	60	0.45%	0.40%	0.35%	
	61	0.8	0.7	0.6	61	0.70%	61	0.56%	0.49%	0.42%	
'Apply Age Rating?' = Y	62	0.7	0.6	0.5	62	0.90%	62	0.63%	0.54%	0.45%	
	63	0.6	0.5	0.4	63	1.10%	63	0.66%	0.55%	0.44%	
	64	0.5	0.4	0.3	64	1.50%	64	0.75%	0.60%	0.45%	

Other option

Base  $q_x$  for member aged 60

Note – This illustration also shows that SuperVal does not adjust 't'. If you do want to allow for the age rating to affect 't' (shown above as 'other option'), then you'll need to import your own adjusted RF(x,t) tables.

# SETTING UP MORTALITY RATES IN SUPERVAL

## APPENDIX

### *Sample set-ups for formula-derived 2D tables*

N.B. All set-ups are taken from the Enhanced Deferreds Module

#### a) Calendar Year (based on '92' series base tables & CMI R17 $\alpha$ s & $\beta$ s ONLY)

Males: PMA92 (CY=2007)

Females: PFA92 (CY=2007)

SuperVal 9.11.00 - Mortality Improvement Definition

File Export Help

Definition

Mortality Improvement Definition **Calendar Year (i.e. Use term from Base Year)**

☐ Apply Mortality Rate Age Rating to Mortality Improvement Table

CMI Mortality Improvement Formula

Base Year of Mortality Table

15 = 2007 - 1992 (Base of Mort table)  $\Rightarrow$  Term from Base Year (Member)  years

Year of Birth (Member)  CCYY

Term from Base Year (Death pre Retirement - Actives/Deferreds)  years

Term from Base Year (Contingent Spouse - Actives/Deferreds/Pensioner)  years

Year of Birth (Death pre Retirement - Actives/Deferreds)  CCYY

Year of Birth (Contingent Spouse - Actives/Deferreds/Pensioner)  CCYY

Alpha Factor - Ultimate Improvement  ALPHA FACTOR TABLE

Beta Factor - % of Mortality Improvement  BETA FACTOR TABLE

$\Leftarrow$  Alpha and Beta tables specified for the 92 series

Attained after Period of Years  years

Calendar Year Mort Improvement

Save As Save Quit Help

## SETTING UP MORTALITY RATES IN SUPERVAL

SuperVal 9.11.00 - Mortality Table Definition

File Export Help

Mortality Rates  PMA92Base

Age Rating  years % Rating  %

PA92 Male Base

Save As Save Quit Help

● Main ● Financial ● Legislation ● PPF/CAP ● Mortality

Post Retirement Mortality

Male Mortality  
Rate Parameters

Male Individual  
% Rating  %

Male Mortality  
Improvement Parameters



## SETTING UP MORTALITY RATES IN SUPERVAL

**Specified year of birth ('92' series base tables & CMI R17  $\alpha$ s &  $\beta$ s ONLY)**

**Males:** PMA92 (BY=1945)

**Females:** PFA92 (BY=1945)

SuperVal 9.11.00 - Pensioner Valuation/Benefits Basis - Mortality Improvement Definition

File Export Help

Definition

Mortality Improvement Definition **Specified Year of Birth**

☐ Apply Mortality Rate Age Rating to Mortality Improvement Table

CMI Mortality Improvement Formula

Base Year of Mortality Table **1992**

Term from Base Year (Member) **15** years

Term from Base Year (Death pre Retirement - Actives/Deferreds) **15** years

Term from Base Year (Contingent Spouse - Actives/Deferreds/Pensioner) **15** years

Year of Birth (Member) **1945** CCYY

Year of Birth (Death pre Retirement - Actives/Deferreds) **1945** CCYY

Year of Birth (Contingent Spouse - Actives/Deferreds/Pensioner) **1945** CCYY

Alpha Factor - Ultimate Improvement **HX200** ALPHA FACTOR TABLE

Beta Factor - % of Mortality Improvement **HX210** BETA FACTOR TABLE

Attained after Period of Years **20** years

Specified Year of Birth Mort Improvement

Save As Save Quit Help

Main Financial Legislation PPF/CAP Mortality

Post Retirement Mortality

Male Mortality Rate Parameters **PA92 Male Base**

Male Individual % Rating  %

Male Mortality Improvement Parameters **Specified Year of Birth Mort Improvement**

## SETTING UP MORTALITY RATES IN SUPERVAL

### b) Accurate (member specific) birth year ('92' series base tables & CMI R17 $\alpha$ s & $\beta$ s ONLY)

**Males:** PMA92 (BY=19xx) – i.e. member specific

**Females:** PFA92 (BY=19xx)

SuperVal 9.11.00 - Pensioner Valuation/Benefits Basis - Mortality Improvement Definition

File Export Help

Definition

Mortality Improvement Definition **Accurate (Member Specific)**

☐ Apply Mortality Rate Age Rating to Mortality Improvement Table

CMI Mortality Improvement Formula

Base Year of Mortality Table **1992**

Term from Base Year (Member) **15** years

Year of Birth (Member) **1945** CCYY

Alpha Factor - Ultimate Improvement **HX200** ALPHA FACTOR TABLE

Beta Factor - % of Mortality Improvement **HX210** BETA FACTOR TABLE

Attained after Period of Years **20** years

Term from Base Year (Death pre Retirement - Actives/Deferreds) **15** years

Term from Base Year (Contingent Spouse - Actives/Deferreds/Pensioner) **15** years

Year of Birth (Death pre Retirement - Actives/Deferreds) **1945** CCYY

Year of Birth (Contingent Spouse - Actives/Deferreds/Pensioner) **1945** CCYY

Accurate (Member Specific) Mort Improvement

Save As Save Quit Help

Main Financial Legislation PPF/CAP Mortality

Post Retirement Mortality

Male Mortality Rate Parameters **PA92 Male Base**

Male Individual % Rating  %

Male Mortality Improvement Parameters **Accurate (Member Specific) Mort Improvement**