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Insight into the DC-part of the stress test

EIOPA 2017 IORP Stress Test Launch Event
Frankfurt, 18 May 2017 Henk-Jan van Well (EIOPA)

1. Scope DC Stress Test 2017
2. Changes from DC Stress Test 2015
3. DC Stress Test Tool
 - i. Process
 - ii. Demo

- Calculate impact of adverse market scenario on overall (investment) assets
- Asses second round effects on:
 - Retirement income of three representative plan members
 - The real economy and financial markets as a result of possible changes to short- and long term investment behaviour

- With respect to scenario's:
 - Only one new adverse economic scenario will be given
 - No adverse demographic scenario, i.e. no longevity stress
- With respect to DC tool:
 - Estimated effects of derivative hedging
 - Different asset mixes pre/post stress can be provided

The DC Stress Test part consists of the following 4 documents/files:

1. IORP Stress Test 2017 Specifications
2. EIOPA-17-284-IORP_ST17_DC_Template-(20170518)
(Excel template) **[spreadsheet]**
3. EIOPA-17-287-IORP_ST17_DC_Word_Template-(20170518)
(Word template) **[word template]**
4. DC Stress Test Tool in Excel
 - i. EIOPA DC ST2017 Input Template (20170518).xlsb
[DC tool input spreadsheet]
 - ii. EIOPA DC ST2017 Calculation Tool (20170518).xlsb

Guidance on filling in the questionnaires/reporting templates

In the document “Qualitative/Quantitative Questionnaire - IORP Stress Test 2017 - DC IORPs” references are made according to the following:

- **[word template]**
qualitative question which should be answered in the word template
- **[spreadsheet]**
quantitative question which should be answered in the excel template
- **[DC tool input spreadsheet]**
either qualitative/quantitative input which should be answered in the excel input template for the DC calculation tool

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EIOPA-17-284-IORP_ST17_DC_Template-(20170518).xlsx

[spreadsheet]

2016 - EUR (MILLIONS)			
DC Reporting template Index			
EIOPA - DC Reporting template			
Content	Sheet	GoTo	
This sheet	P_Index	GoTo	
Explanations on the structure and content of this template	P_Readme	GoTo	
Participant information	Participant	GoTo	
Assets in the Baseline and Adverse Scenario	Baseline_ & Adverse_Scenario	GoTo	
Responses to the Qualitative/Quantitative Questionnaire	QQ_Questionnaire	GoTo	
#	#	#	#

2016 - EUR (MILLIONS)			
Baseline and Adverse Scenario			
EIOPA - DC Reporting template			
Input cell	>> goto index		
Calculated cell			
Main results			
1. Market value of overall investment assets	Baseline	Adverse Scenario	% change compared to baseline
	Level	Level	%
Property (including for own use)	0	0	%
Global REITs	-	-	%
EU REITs	-	-	%
non-EU REITs	-	-	%
non-listed commercial property	-	-	%
non-listed residential property	-	-	%
Equities listed	0	0	%
Europe	-	-	%
US	-	-	%
other developed	-	-	%
emerging markets	-	-	%
equities non-listed	0	0	%
participations	-	-	%
private equity	-	-	%
other	-	-	%
Bonds	0	0	%
government bonds	0	0	%
EU	-	-	%
non-EU	-	-	%
corporate bonds	0	0	%
non-financial corporate bonds	-	-	%
financial corporate bonds	0	0	%
covered bonds	-	-	%
non-covered bonds	-	-	%
structured notes	-	-	%
collateralised securities	-	-	%

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Guidance on filling in the questionnaires/reporting templates:

Where to answer the questions stated in the document:

“Qualitative/Quantitative Questionnaire - IORP Stress Test 2017 - DC IORPs”

USE TEMPLATE TO ANSWER QUESTION NR			
Question Nr	Word	Spreadsheet	DC tool input spreadsheet
1	x	x	x
2		x	
3			x
4			x
5			x
6			x
7			x
8			x
9			x
10			x
11			x
12			x
13			x
14			x
15			x
16			x
17	x	x	
18	x	x	
19	x	x	
20		x	
21	x	x	
22	x	x	
23	x	x	
24	x	x	
25		x	
26		x	
27		x	
28		x	
29		x	
30		x	
31	x		

Guidance on filling in the questionnaires/reporting templates

1. In order to process all the submissions in an efficient way NSA's will provide a unique 6-digit identification code to each participant in their jurisdiction.
2. This code has to be used in each document that IORP's submit to their respective NSAs and can be entered under the participant information.
3. This code may consist of numbers and letters and must be 6-digits long.

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The input and report template for the DC calculation tool will be automatically saved including unique filename ID as part of the filename.

EIOPA DC ST2017 Input Template.xlsx file – worksheet “2. Participating IORP”

Participant information	
IORP name	Example IORP
IORP abbreviation	
IORP type	IORPs providing pure-DC plans
Country of authorisation	Austria
Country code	AT
Reporting currency used	EUR
National supervisor	
Local registration number	
Participant ID (= Unique code set by NSA, 6 digits, see comment)	IORP12
Filename-ID for submission to EIOPA (automatically added when file is saved)	AT-IORP12

Contact information	
Name of contact person 1	-
Name of institution	-
Position / title	-
Phone number	-
E-mail address	-
Name of contact person 2	-
Name of institution	-
Position / title	-
Phone number	-
E-mail address	-

1. Select Country from drop down list
2. The Country Code will be generated automatically
3. The respective NSA will provide a unique 6-digit code to each participating IORP
4. The unique filename ID will be generated automatically
5. To save the completed DC Input Template go to worksheet “6. Complete exercise”

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Worksheet "6. Complete exercise"

Complete the exercise

1. Validate your input
Make sure that all the input for whether any validation issues a weights do not add up to 100%, correct the input.

- ✓ **No validation issues for input data found!**
- ✓ **2. Participating IORP**
- ✓ **4.1. Member 35y YTR**
- ✓ **4.2. Member 20y YTR**
- ✓ **4.3. Member 5y YTR**

2. Save this input template using the button below
If all input forms are properly filled out, then make sure you save this file.

3. Run the exercise
The DC calculation spreadsheet tool is distributed as part of the stress test package. Please use the calculation tool to load the saved template under 2 and run the exercise generating the report. This allows you to inspect the outcomes of the DC module exercise before submission.

4. Submit

Filename Input Template?
File name: EIOPA DC ST2017 Input Template AT-IORP12.xlsx
Save as type: Excel files (*.xlsx)
Buttons: Save, Cancel

By pressing the "Save input template"-button the dialog "Filename Input Template?" shows up.

The default file name will contain the unique participation code.

Note1: if either the Country or the Unique Code has not been entered correctly the validation of "2. Participating IORP" will fail.

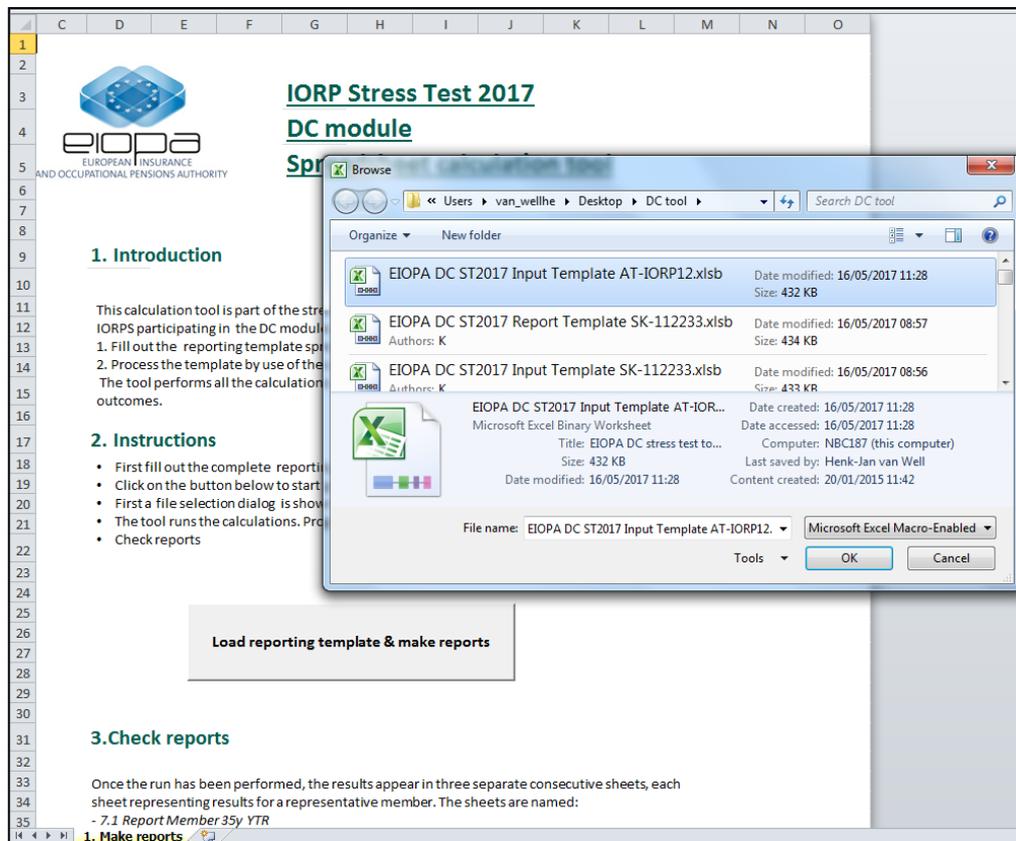
Note2: for own testing purposes or own analysis of alternative inputs IORP's may choose alternative file names.

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The IORP specific DC ST2017 Input Template has to be loaded into the IORP DC ST2017 Calculation Tool:



When pressing the button “Load reporting template & make reports” the dialog to select the input template appears.

By selecting the just created IORP specific input template, i.e.

“EIOPA DC ST2017 Input Template AT-IORP12.xlsb”

and pressing OK the input template is loaded and the calculations are performed automatically.

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The screenshot shows a spreadsheet application window titled "Complete the exercise". The spreadsheet content includes the EIOPA logo and the following text:

1. Validate
Make sure that whether any weights do not correct the input data.

- ✓ **No validation issues for input data found!**
- ✓ **2. Participating IORP**
 - ✓ **4.1. Member 35y YTR**
 - ✓ **4.2. Member 20y YTR**
 - ✓ **4.3. Member 5y YTR**

2. Save this input template using the button below
If all input forms are properly filled out, then make sure you save this file.

3. Run the exercise
The DC calculation spreadsheet tool is distributed as part of the stress test package. Please use the calculation tool to load the saved template under 2 and run the exercise generating the report. This allows you to inspect the outcomes of the DC module exercise before submission.

4. Submit

The "Filename Report Template?" dialog box is open, showing the following details:

- File name: EIOPA DC ST2017 Report Template AT-IORP12.xlsb
- Save as type: Excel files (*.xlsb)
- Authors: Henk-Jan van Well
- Tags: Add a tag
- Buttons: Save, Cancel

The spreadsheet's bottom status bar shows the following tabs: 5. Questionnaire, 6. Complete exercise, 7.1 Report Member 35y YTR, 7.2 Report Member 20y YTR, 7.3 Report Member 5y YTR.

Once the calculations are finished and the report template has been generated the “Filename Report Template?”-dialog appears with the default name for the report template given, i.e.

“EIOPA DC ST2017 Report Template AT-IORP12.xlsb”

By pressing Save the report template is being saved.

Note: for own testing purposes or own analysis of alternative reports IORP’s may choose alternative file names.

Finally each participating IORP has to submit the following files to their respective NSA's

From the qualitative/quantitative questionnaires:

1. EIOPA-17-284-IORP_ST17_DC_Template-(20170518)
(Excel template) [**spreadsheet**]
2. EIOPA-17-287-IORP_ST17_DC_Word_Template-(20170518)
(Word template) [**word template**]

From the DC Calculation Tool:

3. EIOPA DC ST2017 Report Template CC-XXXXXX.xlsb
Note: This is not the Input Template but the Report Template after running the tool.

EIOPA DC ST2017 Input Template.xlsb

Worksheets:

1. Instructions
2. Participating IORP
- 3.1. Product specifications
- 3.2. Asset menu
- 4.1. Member 35yr TR
- 4.2. Member 20yr TR
- 4.3. Member 5yr TR
5. Questionnaire
6. Complete exercise

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Worksheet: 1. Instructions

- General information
- Legenda used
- Workflow

1. Introduction

This reporting template is designed to assist DC IORPS in conducting the DC module of the IORP Stress Test 2017 and is consistent with the specifications in the document "EIOPA Stress Test 2017: Specifications"

This reporting template is part of the spreadsheet tool to conduct the DC module. The IORP is asked to fill out the requested information in this reporting template. After completion the reporting template has to be processed by use of the calculation spreadsheet tool that will perform all the calculations required to conduct the stress test. The calculation tool produces reports with the outcome of the exercise.

The calculation tool is distributed as part of the stress test package, so that the IORP itself can conduct the exercise and judge any results before sending it to the respective NSA.

2. General advise on use of reporting template

This reporting template is designed to facilitate the IORP in conducting the exercise. It is therefore crucial the input data is properly entered in the appropriate input cells. This reporting template is therefore locked to allow user entry only in the designated input fields.

Furthermore, basic data validation rules are implemented to ensure entry of proper values. For example, asset weights should be between 0% and 100%. Entry of values that fail this data validation will yield an error message, asking to correct the input.

Finally, some basic logical validation checks are implemented that will warn the user for incorrect user input. For example asset weights are checked to add up to 100%.

It is important to adhere to the conventions and provide appropriate user entry to ensure a proper execution of the exercise. Therefore do not unlock or try to alter the design of the reporting template.

The style and background colour of a cell indicates its use:

- User input
- Output from formula or fixed value
- Output from macro

3. Workflow for the IORP

To successfully complete the stress test, it is important that the IORP completes all the steps in providing input data.

Steps:

0. Read stress test specification document "IORP Stress Test 2017"
1. Read these instructions

1. Instructions | 2. Participating IORP | 3.1. Product specifications | 3.2. Asset

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Worksheets

2. Participating IORP

Required inputs:

- Country of authorisation
- Participant ID
(Unique 6-digit code set and provided by respective NSA)

Note:

Please fill in as much information as possible.

	C	D	E	F	G	H
2						
3						
4						
5		EUROPEAN INSURANCE AND OCCUPATIONAL PENSIONS AUTHORITY				
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35						

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Worksheet

3.1. Product specifications

Specify applicable product specific administrative & investment cost

Note: each cell has its own info pop-up with additional explanation on the right side of the worksheet.

Specify applicable pay-out option at retirement:

- Lump sum
- Nominal annuity
- Inflation linked annuity
- Programmed draw down

Costs		Explanation
ADMINISTRATIVE COSTS		Costs Administrative costs can be expressed as a percentage of total asset value or as a percentage of final pension wealth.
Fixed annual cost	0.00	- Fixed annual costs: This is a fixed amount deducted from the total asset value.
Annual percentage of total asset value	0.000%	- Annual percentage of total asset value: This is a percentage of the total asset value deducted.
Percentage of contribution	0.000%	- Percentage of contributions: This is a percentage of the total contribution deducted.
Percentage of final pension wealth	0.000%	- Percentage of final pension wealth: This is a percentage of the final pension wealth deducted.
INVESTMENT COSTS		Investment costs Investment costs can be expressed as a percentage of total asset value or as a percentage of final pension wealth.
Annual percentage of total asset value		- Annual percentage of total asset value: This is a percentage of the total asset value deducted.
Percentage of contribution		- Percentage of contributions: This is a percentage of the total contribution deducted.
Percentage of final pension wealth		- Percentage of final pension wealth: This is a percentage of the final pension wealth deducted.
Percentage of gross annual excess return	0.000%	- Percentage of gross annual excess return: This is a percentage of the gross annual excess return deducted.
Return threshold	0.000%	- Return threshold: This is a threshold for the return on investment. Hence the gross annual return is floored at zero to ensure costs are not negative.
Pay-out product		Pay-out product At retirement date, the pension can be paid out as a lump sum or as an annuity.
What pay-out product/solution does the plan target? Choose the option that is most representative for DC plan	Nominal annuity	This model defines the following: 1. Lump sum - Total pension wealth is paid out as a lump sum. 2. Nominal annuity - Total pension wealth is paid out as a nominal annuity. Hence, the member is not protected against inflation (remaining life time). 3. Inflation-linked annuity - Is an annuity where the income stream maintains a constant real value (longevity risk). 4. Programmed drawdown - Is an annuity where the income stream is programmed to decrease over time (drawdown from the fund based on a predetermined schedule).

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Worksheet

3.2. Asset menu

- Choose from 20 different assets classes (drop-down-list) to construct the investment mix for the DC plan (up to a maximum of 20 assets might be chosen)
- Use the Control panel to navigate through the Asset Menu at the bottom of the worksheet.
- Use Add + Save to define a new asset class
- Use Delete to delete the selected asset from the asset menu

Asset menu specification

Control

Asset number: 1 of 5

Buttons: Add, Delete, Save, Move Up, Move Down

Asset specification

Asset class: Equities Developed Markets

Asset name: Equities

Description: [empty]

Investment costs: 0.300%

Asset Menu

No	Asset name	Asset class	Costs	Duration	Inflation Linked
1	Equities	Equities Developed Markets	0.30%		
2	Real Estate	Real Estate EU	0.30%		
3	Sovereign bonds	Government Bond Fund	0.30%	8	FALSE
4	Corporate bonds	Corporate Bond Fund	0.30%	5	FALSE
5	Cash	Cash and Deposits	0.30%	1	FALSE

Explanation

The purpose of this sheet is to that are needed by the three r table box. You cannot edit the that is activated is indicated in specification. These can be ed

Control box

Assets in the Asset Menu table details of the activated asset o

The buttons on the top row all

A new asset class can be add Delete button. Changes can be can be saved by clicking the Sa

Asset classes can be rearrange buttons respectively.

Asset specification box

This box shows the fields of th displayed.

- Type: select a predefined ass
- Asset class: provide a name, j
- Description: can be used to p
- Investment costs: presents t of the Total Portfolio Cost as a

For fixed income (Government

- Duration: provide the durati
- Inflation Linked: indicate wh

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Worksheet

4.3. Member 5yr TR – PART 1

Specify:

- Retirement age
- Product name
- Profile name (optional)
- Current salary
- Current pension wealth, i.e. accumulated value of assets at start of the projection (age 60)
- Pensionable income
= $\text{Min}(\text{Max}(\text{Floor}, \text{Salary}), \text{Cap})$

Member detail

Name	Member 5y YTR		
Years to retirement	5		
Retirement age	65		
Age	Pension age Set pension age according to best estimate. It should be between 50 and 80		
Product name			
Profile name (optional)			
Current salary	35000		
Current pension wealth	15000		
<u>Pensionable income</u>		<u>Inflation index floor/cap</u>	
Floor	<input type="checkbox"/>	10000	--> Price
Cap	<input type="checkbox"/>	100000	--> Price
<u>Potential risk exposures current pension wealth</u>		<u>Net hedging effects adverse scenario</u>	
- equity risk		3903	-->
- interest rate risk		9853	-->
- spread risk		7283	-->
- inflation risk		9853	-->
		Total	0

Validation of user input

Explanation

- Current salary:** Provide ar #N/A
- Current pension wealth:** Pensionable income is th Specify whether a cap an
- Net hedging effects adverse risk (value of equities), in:**
- Age-dependent variable:** Contribution rates are sp and the employer on the.
- Career salary growth** is a value can be overridden by
- Asset weights** are the fra the Adverse Scenario is th scenario.
- Projected real salary** is p saary growth.

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Worksheet: 4.3. Member 5yr TR – PART 2

Specify over projection horizon:

- Career salary growth
- Contribution rate
- Baseline asset mix

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
20							15000												
21																			
22																			
23																			
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50																			
51																			
52																			
53																			

Validation of user input

- ✓ Asset weights add to 100%
- ✓ Floor level does not exceed cap level

Year	Age	Year to retirement	Projected real salary	Contribution rate	Career salary growth	
					value	custom value
2016	60	5	35,000	10%	#N/A	
2017	61	4	#N/A	10%	#N/A	
2018	62	3	#N/A	10%	#N/A	
2019	63	2	#N/A	10%	#N/A	
2020	64	1	#N/A	10%	#N/A	
2021	65	0	#N/A	10%	#N/A	

ASSET MIX BASELINE SCENARIO					
Asset name & number:					
1	2	3	4	5	6
Equities	Real Estate	Sovereign bonds	Corporate bonds	Cash	
26%	8%	35%	13%	17%	
21%	7%	39%	12%	19%	
12%	3%	4%	5%	76%	
7%	2%	2%	3%	86%	
2%	1%	0%	1%	95%	
0%	0%	0%	0%	100%	

Age-dependent variables: Contribution rates, Career weight growth and the Asses

Contribution rates are specified per year to retirement in table below. Contributio and the employer on the members behalf.

Career salary growth is defined as the additional annual growth in salary on top value can be overridden by specifying a custom value.

Asset weights are the fractions of pension wealth allocated to the asset classes. The Adverse Scenario is the same as the asset mix for the Baseline Scenario. The a scenario.

Projected real salary is presented only as a reference. It shows the projected path salary growth.

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Worksheet: 4.3. Member 5yr TR – PART 3 – Net hedging effects adverse scenario

Potential exposure equity risk

=
Current pension wealth
×
Asset Mix Equities at start

$$15,000 \times 26\% = 3,903$$

Now assume there is a equity derivative position in place which covers 20% of downward equity risk and the equity shock in the adverse scenario is -30%.

The net hedging effect for equity risk is:
 $20\% \times 30\% \times 3,909 = 234$

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U		
20		Current pension wealth										15000								
21		Pensionable income																		
22																				
23																				
24																				
25																				
26																				
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48																				

Year		Age	Year to retirement	Projected real salary	Contribution rate	Career salary growth	
						value	custom value
2016		60	5	35,000	10%	#N/A	
2017		61	4	#N/A	10%	#N/A	

ASSET MIX BASELINE SCENARIO					
Asset name & number:					
	1	2	3	4	5
	Equities	Real Estate	Sovereign bonds	Corporate bonds	Cash
	26%	8%	35%	13%	17%
	26%	7%	36%	13%	18%

This amount will be added to the pension wealth at the end of projection year 1. Any hedging effect and calculation/estimate thereof should be explained (Section 5 Questionnaire), i.e. what is the nature of the derivative position and how does its value changes as a result of the relevant shock in the adverse scenario.

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Worksheet: 4.3. Member 5yr TR – PART 4 – Direct second round effects on assets

When scrolling to the right one will find the possibility to enter a different asset mix for the adverse scenario.

ASSET MIX BASELINE SCENARIO						ASSET MIX ADVERSE SCENARIO									
Asset name & number:						Asset name & number:									
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Equities		Sovereign bonds		Corporate bonds		Cash		Equities		Sovereign bonds		Corporate bonds		Cash	
Real Estate								Real Estate							
26%	8%	35%	13%	17%				26%	8%	35%	13%	17%			
21%	7%	39%	12%	19%				21%	7%	39%	12%	19%			
12%	3%	4%	5%	76%				12%	3%	4%	5%	76%			
7%	2%	2%	3%	86%				7%	2%	2%	3%	86%			
2%	1%	0%	1%	95%				2%	1%	0%	1%	95%			
0%	0%	0%	0%	100%				0%	0%	0%	0%	100%			

By definition the asset mix before shock are equal.

Only after shock a different asset mix may be applicable and be defined in here.

Any additional clarification on this should be entered into Section 6 of the Questionnaire.

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Worksheet: 5. – Questionnaire – Section 5 A – Derivative hedging

Lets assume the net equity hedge effect as shown in slide 22 was entered there.

A summary of all net hedge effects over all members is shown in Section 5 sub 12.

Based on the value of the entries the IORP has to enter additional information under sub13 about the derivative positions in place and the calculation/estimate of the net effects shown under sub 12.

Section 5 - Derivative hedging and dynamic asset allocation strategies

A. Derivative hedging instruments in input template for second round effects on retirement income of three representative plan members

- 12 Based on the individual member templates you provided the following net effects of the instantaneous impact of the adverse market scenario on the value of derivative instruments in the representative members' portfolio to hedge against equity, interest rate, credit spread and/or inflation risk.

	35y member	20y member	5y member
equity risk	0	0	234
interest rate risk	0	0	0
spread risk	0	0	0
inflation risk	0	0	0

- 13 You indicated that you took into account the instantaneous effect on the value of derivative instruments to hedge against equity, interest rate, spread and/or inflation risk. Please explain the aim of the derivative hedging strategy (e.g. to protect the value of the assets, certain level of retirement income or replacement rate) and specify the derivative instrument(s) used distinguishing, if applicable, between the three representative plan members. Please indicate also how you calculated the net effects as provided.

Please explain and specify the derivative instruments used to hedge equity risk

Please indicate how you calculated the net effect as provided above

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Worksheet: 5. – Questionnaire – Section 5 B – Dynamic asset allocation strategies

If use is made of different asset allocations in the adverse scenario this should be indicated under sub 14.

Based on the value of the entered checks each IORP has to enter additional information under sub 15 on how the asset mix adjustments are defined plus under sub 16 on the objective of the changes.

B. Dynamic asset allocation strategies in input template for second round effects on retirement income of three representative plan members

14 Did you provide a separate asset allocation over the life-cycle of the representative plan members in the adverse market scenario, i.e. overriding the default asset mix relating to the baseline scenario (mark X if appropriate)

	Check
35y member	
20y member	
5y member	X

15 You responded in question 14 that you provided a separate asset allocation in the adverse market scenario. Please indicate whether the adjustment is based on pre-defined rules (i.e. determined by change in financial market conditions), discretionary or a combination of both (mark X if appropriate)

	Check
Pre-defined rules	
Discretionary	
Combination of above	

16 You responded in question 14 that you provided a separate asset allocation in the adverse market scenario. Please briefly explain the aim and nature of the indicated adjustments distinguishing, if applicable, between the three representative plan members.

Explain aim and nature of adjustment asset allocation

3.2. Asset menu 4.1. Member 35y YTR 4.2. Member 20y YTR 4.3. Member 5y YTR 5. Questionnaire 6. Complete exercise

Insight into the DC-part of the stress test eting

3. DC Stress Test Process & Demo



Worksheet: 6. Complete exercise

After entering all relevant inputs of the DC plan in place as well as all answers to the questionnaire the input template should be saved by pressing the “Save input template”-button (see also slide 13 of this presentation)

Please make sure all validation marks are green!

In the example to the right:

- Either the Country of authorisation and/or the Unique 6-digit code have not been entered correctly on sheet 2. Participating IORP.
- Either the Baseline asset mix or the Adverse asset mix does not sum to 100% for at least one future projection year. Check the respective member worksheet to correct for this.

The screenshot shows a spreadsheet interface with a worksheet titled "Complete the exercise". The worksheet contains the following content:

- 1. Validate your input**
Make sure that all the input forms are properly filled out. Below is automatically indicated whether any validation issues are found. An example of a validation issue is when the asset weights do not add up to 100%. If validation issues are found, go to the corresponding sheet and correct the input.
- Validation errors found in some input data!**
- 2. Participating IORP**
- 4.1. Member 35y YTR** (Green checkmark)
- 4.2. Member 20y YTR** (Green checkmark)
- 4.3. Member 5y YTR** (Red X)
- 2. Save this input template using the button below**
If all input forms are properly filled out, then make sure you save this file.
- Save input template** (button)
- 3. Run the exercise**
The DC calculation spreadsheet tool is distributed as part of the stress test package. Please use the calculation tool to load the saved template under 2 and run the exercise generating the report. This allows you to inspect the outcomes of the DC module exercise before submission.
- 4. Submit**

The spreadsheet interface includes a grid with columns C through M and rows 1 through 37. The worksheet title bar at the bottom shows the following tabs: 3.2. Asset menu, 4.1. Member 35y YTR, 4.2. Member 20y YTR, 4.3. Member 5y YTR, 5. Questionnaire, and 6. Complete exercise.

Insight into the DC-part of the stress test

3. DC Stress Test Process & Demo



Running the Calculation Tool

After finishing and saving the input template it should be loaded into the DC Calculation Tool (see slide 11 of this presentation).

A report template will be generated which is equal to the input template + three additional worksheets with the results for each member.

From these results any second round effects on retirement income could be inferred.

		Baseline scenario	Adverse scenario	Baseline without costs
Final salary				
Gross annual income		97301	93715	
difference from baseline (%)			-4%	
Expected remaining life time at retirement date				
		18.92	18.92	
Pension wealth at retirement: lump sum				
total account value		458727	401116	485576
difference from baseline (%)			-13%	6%
Pension income				
Nominal annuity				
gross annual pension income at retirement date		40026	33804	42369
difference from baseline			-16%	6%
Inflation-linked annuity				
gross annual pension income at retirement date		34084	28965	36079
difference from baseline			-15%	6%
Programmed drawdown				
gross annual pension income at retirement date		35991	30319	38098
difference from baseline			-16%	6%
Replacement rates				
Nominal annuity				
replacement rate		41.1%	36.1%	43.5%
difference from baseline (in % points)			-5.1%	2.4%
Inflation-linked annuity				



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Q&A

<https://eiopa.europa.eu/Pages/Financial-stability-and-crisis-prevention/Occupational-Pensions-Stress-Test-2017>