



**ISLE OF MAN
FINANCIAL SERVICES AUTHORITY**

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**INSTRUCTIONS FOR COMPLETING
THE 1 in 50 / 1 in 100 / 1 in 200
HELPER SHEETS AND TEMPLATE**

IN RESPECT OF THE QIS4 TECHNICAL
SPECIFICATION FOR NON-LIFE INSURERS

1. Introduction

- 1.1.1. These are the instructions for using the Microsoft Excel helper workbooks and templates that relate to the technical specification for the fourth Quantitative Impact Study (QIS4) for 1 in 50 / 1 in 100 / 1 in 200 non-life insurers. The helper workbooks are provided to aid the insurer in their calculation of capital charges for certain risks in the templates. In all cases, the results produced by the helper workbooks should still be checked and understood by the insurer.
- 1.1.2. The FSA has advised each insurer participating in QIS4 which confidence level calculation(s) they need to complete.

2. Formatting

2.1. Key

- 2.1.1. The cells and tabs in the helper workbooks and results template follow the same colour coding key:

Input Cell
Formula Cell
Input into/from another workbook

- 2.1.2. The sections in this document follow the same principle; yellow sections require inputs and blue sections are for information only.
- 2.1.3. Paragraphs highlighted in green correspond to the input into the results template from the helper workbooks. Copy the data across carefully.

2.2. Index Tabs

- 2.2.1. In each template there is an index tab which provides a brief summary of the workbook.
- 2.2.2. No input is required for this tab.
- 2.2.3. Column F shows which tabs have been completed and which tabs are incomplete. In the submission templates there should be no 'Incompletes' showing in any of the Index tabs.

3. Workbooks to be completed

- 3.1.1. The following workbooks should be completed and returned to the IOM FSA as part of the QIS4 non-life submission:
 - If required to complete only 1 in 200 results for QIS4: one copy of the QIS4_NL_50_100_200 Template completed with the 1 in 200 results;

- Otherwise three copies of the QIS4_NL_50_100_200 Template; completed with the 1 in 50, 1 in 100 and 1 in 200 results respectively;
- Interest Rate Helper Workbook (*)
- Counterparty Default Risk Helper Workbook _200 (and _50 and _100 where appropriate) (*)
- Concentration Risk Helper Workbook 50_100_200 (*)
- Credit Spread Risk helper Workbook_50_100_200 (*)

* - if used.

4. Interest Rate Helper workbook

'Interest_Rate_Risk_Template_NL_2016.xlsm'

Aids the insurer in its calculation of the interest rate risk capital requirement and may be used to calculate the impact of the interest rate shocks using normal cash flow discounting techniques. The workbook estimates the impact on Best Estimate Provisions (BEP) and asset values under all eight of the directional interest rate risk shock scenarios, i.e. interest rates upwards and downwards under a 1 in 10 year, 1 in 50 year, 1 in 100 year and a 1 in 200 year confidence level. For the purpose of this document only the last three confidence levels are relevant.

4.1. Capital

- 4.1.1. Summarises results from all the individual lines of business affected by each of the interest rate risk upwards and downwards scenarios for a 1 in 10 year, 1 in 50 year, 1 in 100 year and a 1 in 200 year shock.
- 4.1.2. No input is required for this tab.
- 4.1.3. All other tabs need to be completed before using the output from this tab.
- 4.1.4. Copy the base values of assets and technical provisions in cells F77 and H77 into the corresponding cells D7 and F7 of the 'Market Risk Inputs' tab of the QIS4_NL_50_100_200 template.
- 4.1.5. Copy the stressed values of assets and technical provisions in cells F79: H89 into the corresponding stress in cells D9:F22 of the 'Market Risk Inputs' tab of the QIS4_NL_50_100_200 template.

4.2. Initial Input

- 4.2.1. Input the reporting currency used by the participating insurer in cell D5.
- 4.2.2. The grid reflects the lines of business and assets that will be affected by interest rate shocks. Rows 11 to 65 represent the lines of business, row 67 represents the assets and the columns B to BR represent the relevant currencies for the liabilities and assets.

- 4.2.3. Select 'Y' in the cells in the grid that are applicable. For example, if you have a liability exposure in line of business 2 in currencies GBP, EUR and USD only, then cells D13, F13 and AB13 should be set to "Y" and the remaining cells in row 13 should remain as "N".
- 4.2.4. If you have selected "Y" for a currency, select "Y" in the asset row 67.
- 4.2.5. Run the macro by clicking on the yellow box at the bottom of the page (rows 70 to 72). Rerun the macro whenever a change has been made thereafter.
- 4.2.6. The macro will create the necessary "Input – LoB X" and "LoB X" sheets for each line of business you are exposed to.
- 4.2.7. Use the results of the checks in column BX as a check that the required data has been entered.

4.3. Input – LoB X

- 4.3.1. The macro above will create up to 28 'Input - LoB_X' tabs, one for each line of business selected in the 'Initial Input' tab. Each tab will need completing separately for that line of business.
- 4.3.2. Populate all applicable cells for currency Z in line of business X.
- 4.3.3. For 'Technical provisions' in row 10 enter the sum of the undiscounted liability cash flows (excluding the risk margin) for each applicable currency.
Note: the value entered should be in the currency to which the column relates.
 For example, if the participant is exposed to line of business 2 in currencies GBP, EUR and USD only, cells D10, H10 and AB10 of "Input – LoB 2" should be populated with separate undiscounted liability totals in £ amounts, € amounts and \$ amounts respectively.
- 4.3.4. For 'Term structure' in rows 14 to 63 enter the run off of the undiscounted cash flows over time by allocate a proportion (%) of the cash flow applicable to each year.
 For example, if the participants total undiscounted liability cash flow in GBP is expected to occur equally throughout the first 5 years, then the input required would be 20% in each of the cells D14, D15, D16, D17 and D18.
- 4.3.5. Use the results of the check in row 4 as a check that the required data has been entered.

4.4. LoB X

- 4.4.1. Uses the input from the "Input – LoB X" tab to produce a term structure of cash flows along with discounted present values and capital requirements for each applicable currency.
- 4.4.2. No input is required in this tab.
- 4.4.3. Use the results of the check in cell E4 as a check that tab has all the data it needs.

4.5. Input – Assets

- 4.5.1. This tab collates the asset data required to calculate the capital charge for a particular line of business.
- 4.5.2. Populate all applicable cells for currency Z.
- 4.5.3. For 'Assets' in row 10 enter the sum of the undiscounted asset cash flows for each applicable currency. **Note: the value entered should be in the currency to which the column relates.**
For example, if the participant's assets are denominated in currencies GBP, EUR and USD only, cells D10, H10 and AB10 of "Input – Assets" should be populated with separate undiscounted asset totals in £ amounts, € amounts and \$ amounts respectively.
- 4.5.4. For 'Term structure' in rows 14 to 63 enter the run off of the undiscounted cash flows over time by allocate a proportion (%) of the cash flow applicable to each year.
For example, if the participants total undiscounted asset cash flow in GBP is expected to occur equally throughout the first 5 years, then the input required would be 20% in each of the cells D14, D15, D16, D17 and D18.
- 4.5.5. Use the results of the check in row 4 as a check that the required data has been entered.

4.6. Assets

- 4.6.1. Uses the input from the "Input – Assets" tab to produce a term structure of asset cash flows along with discounted present values and capital requirements for each applicable currency.
- 4.6.2. No input is required in this tab.
- 4.6.3. Use the results of the check in cell E4 as a check that tab has all the data it needs.

4.7. Factors

- 4.7.1. Calculation of the discount factors to be applied under the nine different scenarios for every currency. These are based on the yield curves provided by the European Insurance and Occupational Pensions Authority (EIOPA) as at 31st December 2016.
- 4.7.2. No input is required in this tab.

4.8. Stress

- 4.8.1. Lists the stress values defined in paragraph 2.6.5.8 of TS17-08(200) for the interest rate risk upwards and downwards shocks for the 1 in 10 year, 1 in 50 year, 1 in 100 year and 1 in 200 year scenarios.
- 4.8.2. No input is required in this tab.

5. Counterparty default risk helper workbook 1 in 50/1 in 100/1 in 200 year

QIS4_NL_Counterparty_Default_Risk_Helper_50_100_200.xlsm

Aids the insurer in their calculation of the counterparty default risk capital requirement by listing all exposures to counterparty default risk under the different types of the risk and then calculating the capital requirement, i.e. bonds and securitisations shall be listed and the capital requirement under 1 in 50 year, 1 in 100 year and 1 in 200 year scenarios will be produced.

5.1. Input Counterparties

- 5.1.1. Lists the type 1 counterparties you are exposed to, confirms the degree of confidence applicable and confirms whether or not the simplified risk mitigation approach is used. Please note participant will need to replicate the workbook if submitting results for more than one confidence level, saving one version for each confidence level.
- 5.1.2. In cell E5 select the confidence level (i.e. the confidence level being calculated), which will be one of “1in50”, “1in100” or “1in200”.
- 5.1.3. In cell E7 select “Yes” if you are using the simplified risk mitigation approach described in TS 2.7.8. You will need to seek approval from the FSA before using the simplified approach.
- 5.1.4. Insert the names of the type 1 counterparties in cells C15:C54.
- 5.1.5. Select “Yes” in in column E for each row in which you have entered a counterparty.
- 5.1.6. Run the macro by clicking on the button in cell K14.
- 5.1.7. For each counterparty entered the macro will generate a “Type 1 Single CP_x” tab and a “RM-Single CP_x” tab.
- 5.1.8. The macro can generate up to a maximum of 40 pairs of these worksheets depending on the number of counterparties input in the cell range C15:E54. Contact the FSA if you require more counterparty inputs.

5.2. Type 1 Exposures

- 5.2.1. Calculates the loss-given-default for all Type 1 exposures under the counterparty default risk shock scenario.

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- 5.2.2. For each counterparty enter its Credit Quality Step. See the “Mapping” tab or TS Appendix 2 for mapping of credit ratings from Standard & Poor’s, Fitch, Moody’s and AM Best rating agencies to the credit quality steps.
 - 5.2.3. Use the results of the check in column L as a check that the required data has been entered.

5.3. Type 1 Single CP_x

- 5.3.1. Calculates the loss-given-default for all Type 1 exposures under the counterparty default risk shock scenario, for that specific counterparty.
- 5.3.2. For ‘Contract reference’ enter the name of specific counterparty contract, or group of contracts of similar characteristics that counterparty. For QIS4 include Group Loans as a counterparty.
- 5.3.3. For ‘exposure type’ enter the category that the counterparty exposure will fall into from the dropdown list. For Group Loans select ‘Other’ not ‘Loans’.
- 5.3.4. For ‘Recoverable’ enter the best estimate of recoverables from the Type 1 exposure, plus any other debtors arising out of the exposure, defined in TS 2.7.4.3.
- 5.3.5. For ‘RM & >60% tied up?’ enter “Y” if the exposure is to a reinsurance/securitisation contract and if the counterparty has tied up an amount for collateralisation commitments (both on and off balance sheet) greater than 60% of the assets on its balance sheet, otherwise select “N”. See paragraph TS 2.7.4.4.
- 5.3.6. For ‘Market Value’ enter the market value of the contract or group of contracts.
- 5.3.7. For ‘Collateral Market Value’ enter the risk adjusted value of collateral in relation to the exposure, otherwise set to zero. See paragraph TS 2.7.4.3.
- 5.3.8. For ‘Collateral accounted for?’ select “Y” when, in the case of insolvency of the counterparty, the determination of the participant’s insolvency estate in excess of the collateral takes into account that the participant receives collateral, and “N” otherwise. See paragraphs TS 2.7.4.3 to 2.7.4.5.
- 5.3.9. For ‘Loan’, if the exposure is to a mortgage loan, enter the value of the mortgage loan, and set equal to zero otherwise. See paragraph TS 2.7.4.6. Group loans should be allocated to other not loan.
- 5.3.10. For ‘Mortgage’, if the exposure is to a mortgage loan, enter the risk-adjusted value of the mortgage in relation to that particular exposure, and set equal to zero otherwise. See paragraphs TS 2.7.4.6 to TS 2.7.4.10.
- 5.3.11. For ‘LGD (column W)’ input the loss given default for exposures from contracts other than reinsurance, securitisation, derivatives and mortgage loans, as set out in TS 2.7.5. This should include Group loans.

5.3.12. Use the results of the check in column AF as a check that the required data has been entered.

5.4. RM - Single CP_x

5.4.1. Calculates the counterparty's risk mitigation impact for each confidence level as described in TS 2.7.4.3.

5.4.2. The tab will need to be populated unless the FSA has agreed the use of the 'Simplified RM' tab.

5.4.3. For ' $NL_{cat}^{hyp} - NL_{cat}^{without}$ ' input the reinsurance counterparty's share of the catastrophe losses for each line of business in E22:E37. The sum of these shares for all counterparties should be consistent with the corresponding risk mitigation impacts in column S of the respective "Catastrophe Risk" and "Health_Catastrophe Risk" worksheets in 8 below. Note that these amounts will be different for each confidence level, and will need to be changed for each saved version of the workbook (at 1in50, 1in100 and 1in200 year confidence levels).

5.4.4. For ' $p^{hyp} - p^{without}$ ' input the value of reinsurance premium paid to counterparty exposure for each line of business in G22:G37.

5.4.5. Recoverables – input the value of recoverables from counterparty exposure for each line of business in I22:I37.

5.4.6. Use the results of the check in column R as a check that the required data has been entered.

5.5. RM - CP Totals

5.5.1. Calculates the total risk mitigation impact from all the "RM – Single CP_x" worksheets.

5.5.2. No input is required on this tab.

5.5.3. Use the results of the check in cell L53 as a check that the required data has been entered in previous tabs.

5.6. Simplified RM

5.6.1. Calculates the total risk mitigation impact based on the simplified approach described in TS 2.7.8. As mentioned previously the participant will require FSA's approval to use the simplified approach.

5.6.2. The risk mitigation for each counterparty will automatically feed into the corresponding "Type 1 Single CP_x" worksheet assuming FSA has approved the use of the simplified approach.

5.6.3. Input the hypothetical capital requirement at the selected confidence level for the underwriting risk of insurer assuming there are no reinsurance arrangements or securitisations (risk mitigating contracts) in place in cell K9.

- 5.6.4. Input the capital requirements at the selected confidence level for the underwriting risk of each counterparty allowing for risk mitigation in cell K11.
- 5.6.5. Input the recoverables from each counterparty in column E.
- 5.6.6. Use the results of the check in column N as a check that the required data has been entered.

5.7. Capital Requirement

- 5.7.1. Calculates the overall capital requirement at the selected confidence level for counterparty default risk.
- 5.7.2. Note: since the capital requirement for Type 2 exposures is based on the loss given default due over a certain amount of time (more than or less than 3 months), the total Type 2 exposures for these durations must be input.
- 5.7.3. For Type 2: 'LGD_{receivables > 3 months}' enter the total loss given default on all receivables from intermediaries, which have been due for more than 3 months, see TS 2.7.6.1.
- 5.7.4. For Type 2: 'LGD_{receivables ≤ 3 months}' enter the total loss given default on all receivables from intermediaries which have been due for less than or equal to 3 months, see paragraph TS 2.7.6.1.
- 5.7.5. For 1 in 200 results, copy the results in the *SCR_{default, 1}* and *SCR_{default, 2}* cells (E36 and E37) to cells K19 and K20 of the Counterparty Default risk tab in the QIS4_NL_50_100_200 template.
- 5.7.6. For 1 in 100 results, copy the results in the *SCR_{default, 1}* and *SCR_{default, 2}* cells (E36 and E37) to cells M19 and M20 of the Counterparty Default risk tab in the QIS4_NL_50_100_200 template.
- 5.7.7. For 1 in 50 results, copy the results in the *SCR_{default, 1}* and *SCR_{default, 2}* cells (E36 and E37) to cells O19 and O20 of the Counterparty Default risk tab in the QIS4_NL_50_100_200 template.

5.8. Mapping

- 5.8.1. Contains data for the Credit Quality Step Mapping i.e. the conversion from CQS to credit ratings allocated by agencies Standard & Poor's, Fitch, Moody's and AM Best.
- 5.8.2. No input is required on this tab.

5.9. Data

- 5.9.1. Provides a brief description of the types of contacts that will be categorised as Type 1 or Type 2 counterparty default exposures to the participating (re)insurer.
- 5.9.2. No input is required on this tab.

6. Concentration risk helper workbook - 1 in 50/1 in 100/1 in 200 year

QIS4_concentration_risk_template_n1_50_100_200.xlsx

Aids the insurer, if necessary, in their calculation of the capital requirement arising from concentration risk at 1 in 50, 1 in 100 and 1 in 200 confidence levels. Concentration risk will arise when the participant's exposure to an asset exceeds the maximum threshold specified by the FSA, a capital charge will be applied to the exposure exceeding the maximum threshold.

6.1. Concentration_Risk_1in200

- 6.1.1. Calculates the capital requirement at a 1 in 200 year confidence level arising from exposure to default when the value of your assets exceeds the exposure threshold specified by the FSA, also known as the excess exposure.
- 6.1.2. For 'Total Assets' (cell G5) input the total value of assets that will be considered for concentration risk as described in TS 2.6.10.
- 6.1.3. For 'Name of the counterparty / group' enter the counterparty that gives insurer exposure to concentration market risk as per TS 2.6.10.
- 6.1.4. For 'Type of exposure' select the type of exposure to concentration market risk as described in TS 2.6.10.
- 6.1.5. For 'CQS' select the credit quality step applicable to type of exposure. Note the CQS will be "unrated" for unrated credit & financial institutions and unrated (re)insurers meeting requirements of TS 2.6.10.9.
- 6.1.6. For 'SCR Coverage' enter the Solvency Capital Requirement (SCR) coverage ratio. This only applies to unrated credit & financial institutions and unrated (re)insurers meeting requirements of TS 2.6.10.9.
- 6.1.7. For 'Value of Exposure' enter the total market value of exposure to single name or group counterparty.
- 6.1.8. [Copy cell G7 to cell D64 of the 'Market Risk Inputs' tab of the QIS4_NL_50_100_200 template.](#)
- 6.1.9. Use the results of the checks in column AB as a check that the required data has been entered.

6.2. Concentration_Risk_1in100

- 6.2.1. Calculates the capital requirement at a 1 in 100 confidence level arising from exposure to default when the value of your assets exceeds the exposure threshold specified by the FSA, also known as the excess exposure.
- 6.2.2. No input is required for this tab as will use the same information in 6.1.2 to 6.1.7 above.

- 6.2.3. Copy cell G7 to cell D68 of the 'Market Risk Inputs' tab of the QIS4_NL_50_100_200 template.
- 6.2.4. Use the results of the check in column AB as a check that the required data has been entered.

6.3. Concentration_Risk_1in50

- 6.3.1. Calculates the capital requirement arising from exposure to default when the value of your assets exceeds the exposure threshold specified by the FSA, also known as the excess exposure.
- 6.3.2. No input is required for this tab as will use the same information in 6.1.2 to 6.1.7 above.
- 6.3.3. Copy cell G7 to cell D72 of the 'Market Risk Inputs' tab of the QIS4_NL_50_100_200 template.
- 6.3.4. Use the results of the checks in column AB as a check that the required data has been entered.

7. Credit Spread risk helper workbook - 1 in 50/1 in 100/1 in 200

QIS4_NL_spread_risk_helper_50_100_200.xlsx

Aids the insurer in their calculation of the capital requirement arising from the credit spread risk arising from bonds, securitisation and derivatives. Credit spread risk will arise when the credit spreads of the participant's asset widen resulting in a fall in the value of the assets and basic own funds (BOF). The standard formula for the SCR applies a capital charge to the assets dependent on the credit rating and the confidence level applied.

7.1. Capital

- 7.1.1. Summarises credit spread capital requirement arising from bonds, securitisations and credit derivatives. The results will be on 1 in 50 year, 1 in 100 year and 1 in 200 year confidence levels.
- 7.1.2. No input is required for this tab.
- 7.1.3. All other tabs need to be completed before using the output from this tab.
- 7.1.4. For 1 in 200 results, copy cell D18 to D14 of the "Credit Spread Risk" tab in the QIS4_NL_50_100_200 template.
- 7.1.5. For 1 in 100 results, copy cell D30 to D18 of the "Credit Spread Risk" tab in the QIS4_NL_50_100_200 template.
- 7.1.6. For 1 in 200 results, copy cell D42 to D22 of the "Credit Spread Risk" tab in the QIS4_NL_50_100_200 template.

7.2. Bonds_200

- 7.2.1. Calculates the capital requirement at a 1 in 200 year confidence level arising from bonds' exposure to risks of widening of credit spreads.
- 7.2.2. For 'Asset Reference' input the unique identifier of each asset that will be considered for credit spread risk as described in TS 2.6.10.
- 7.2.3. For 'Market Value' input the market values for each asset in 7.2.2 considered for credit spread risk as described in TS 2.6.10.
- 7.2.4. For 'CQS' select the credit quality step applicable each exposure. See "Data" sheet for mapping between credit quality steps and ratings.
- 7.2.5. For 'Modified Duration' input modified duration in years for each asset considered for credit spread risk.
- 7.2.6. For 'Exposure to a (re)insurer?' Select "Y" if the exposure is to an insurer or reinsurer and "N" otherwise.
- 7.2.7. For 'Exposure is to a covered bond?' Select "Y" if the exposure is to a covered bond and "N" otherwise
- 7.2.8. For 'Exposure is to gilts listed in 2.6.9.25.?' Select "Y" if the exposure is to gilts (as defined in 2.6.9.25.) and "N" otherwise.
- 7.2.9. Use the results of the checks in column AP as a check that the required data has been entered.

7.3. Bonds_100

- 7.3.1. Calculates the capital requirement at a 1 in 100 year confidence level arising from bonds' exposure to risks of widening of credit spreads.
- 7.3.2. No input is required for this tab as will use the same information in 7.2.2 to 7.2.8 above.
- 7.3.3. Use the results of the checks in column AP as a check that the required data has been entered.

7.4. Bonds_50

- 7.4.1. Calculates the capital requirement at a 1 in 50 year confidence level arising from bonds' exposure to risks of widening of credit spreads.
- 7.4.2. No input is required for this tab as will use the same information in 7.2.2 to 7.2.8 above.
- 7.4.3. Use the results of the checks in column AP as a check that the required data has been entered.

7.5. Securitisations_200

- 7.5.1. Calculates the capital requirement at a 1 in 200 year confidence level arising from the securitisations' exposure to credit spread risk.

- 7.5.2. For 'Asset Reference' input the unique identifier of each asset that will be considered for credit spread risk as described in TS 2.6.10.
- 7.5.3. For 'Market Value' input the market values for each asset in 7.5.2 considered for credit spread risk as described in TS 2.6.10.
- 7.5.4. For 'CQS' select the credit quality step applicable to each exposure. See "Data" sheet for mapping between credit quality steps and ratings.
- 7.5.5. For 'Modified Duration' input modified duration in years for each asset considered for credit spread risk.
- 7.5.6. For 'Type of Exposure' Select between "Type 1", "Type 2" and "Re-sec." (Re-securitisations). Please note, if not populated, the exposure will be assumed to be a Type 2 exposure.
- 7.5.7. Use the results of the checks in column V as a check that the required data has been entered.

7.6. Securitisations_100

- 7.6.1. Calculates the capital requirement at a 1 in 100 year confidence level arising from the securitisations' exposure to credit spread risk.
- 7.6.2. No input is required for this tab as will use the same information in 7.5.2 to 7.5.6 above.
- 7.6.3. Use the results of the checks in column V as a check that the required data has been entered.

7.7. Securitisations_50

- 7.7.1. Calculates the capital requirement at a 1 in 50 year confidence level arising from the securitisations' exposure to credit spread risk.
- 7.7.2. No input is required for this tab as will use the same information in 7.5.2 to 7.5.6 above.
- 7.7.3. Use the results of the checks in column V as a check that the required data has been entered.

7.8. Credit Derivatives

- 7.8.1. Calculates the capital requirement at 1 in 50 year, 1 in 100 year and 1 in 200 year confidence levels arising from the credit derivatives' exposure to credit spread risk.
- 7.8.2. Input the base value of assets and liabilities in cells D7 and F7, respectively.
- 7.8.3. For credit spread shock scenarios at a 1 in 200 year confidence level, input the stressed assets and liabilities in cells D15:F16.
- 7.8.4. For credit spread shock scenarios at a 1 in 100 year confidence level, input the stressed assets and liabilities in cells D26:F27.

- 7.8.5. For credit spread shock scenarios at a 1 in 50 year confidence level, input the stressed assets and liabilities in cells D37:F38.
- 7.8.6. Use the results of the checks in column M as a check that the required data has been entered.

8. QIS4_NL 1 in 50/1 in 100/1 in 200 year results template

'QIS4_NL_50_100_200.xlsm'

Aggregates the solvency capital requirements from all market and non-market risk modules and submodules for each line of business so as to calculate the total solvency capital coverage at the confidence level(s) required for the participating insurer.

If you are only required to submit on a 1 in 200 year basis, you can ignore any fields which require information on the 1in50 and 1in100 levels.

8.1. Participant Information

- 8.1.1. Complete the QIS4 information, Insurer information, Contact information and Comments sections as follows:
- Date of submission – Date when the QIS template is submitted to the FSA.
 - Financial year end used – input 2016/17 financial year-end.
 - Reporting currency – select from drop down box.
 - Exchange rate – input exchange rate if reporting currency is not UK Pound, otherwise input “1”.
 - Reporting unit used – select from drop down box.
 - Licensee Name – input name of participating (re)insurer.
 - Licensee Short name – input short name of participating (re)insurer.
 - **Confidence level – input the confidence level of the insurer as per 1.1.2 above.** Please note participant will have to replicate the workbook if submitting at more than one confidence level.
 - Is business in run-off? – select from drop down box.
 - Contact Name – input name of employee completing the template.
 - Email Address – input email address of contact person.
 - Phone Number – input telephone number of contact person.
 - Comments – input any comments you may have on the template

8.2. EBS - Assets

- 8.2.1. Calculates the value of the assets in the economic balance sheet (EBS) used to determine the solvency capital coverage.
- 8.2.2. Input the value of assets on an accounting basis and on a regulatory (EBS) basis.

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- 8.2.3. For 'Fixed Assets' input asset values for fixed assets such as property and machinery. Goodwill is not an admissible asset under the regulatory basis and should be excluded.
 - 8.2.4. For 'Investments' input the value of the assets split using the results of your look-through exercise, between equities, bonds, investment funds and derivative contracts used for hedging purposes.
 - 8.2.5. For 'Mortgages and Loans' enter the value of any collateralised and uncollateralised loans.
 - 8.2.6. For 'Reinsurance recoverables' enter the value of any recoverables from the reinsurer(s). This should include the reinsurer's(s') share of the premium and claims reserves.
 - 8.2.7. For 'Other assets' enter any other assets that are not covered in the above asset classes.
 - 8.2.8. Use the results of the check in column K as a check that the required data has been entered.

8.3. EBS – Direct TPs

- 8.3.1. Calculates the value of the technical provisions in the economic balance sheet (EBS) used to determine the solvency capital coverage.
- 8.3.2. Only enter the technical provisions relating to directly written non-life underwriting and health business – lines of business (LOB's) 1 to 12 as described in TS 1.3.2.
- 8.3.3. Input the values on an accounting basis and on a regulatory (EBS) basis. If the insurer is using accounting provisions instead of the EBS (best estimate plus risk margin) technical provisions as per the technical specification (permitted provided the accounting provisions are not lower than the provisions on an EBS basis as described in TS 1.3.1.4) then the two columns will be identical.
- 8.3.4. If using the EBS basis to report regulatory provisions this will need to be updated for each confidence level to reflect the fact there will be a different risk margin for each confidence level as described in paragraph 1.3 of TS Appendix 1.
- 8.3.5. For 'Premium reserves' input reserves gross of reinsurance reserves for LOB's 1 to 12.
- 8.3.6. For 'Claims reserves' input reserves gross of reinsurance reserves for LOB's 1 to 12.
- 8.3.7. For 'Risk margin' input risk margin for LOB's 1 to 12 on a regulatory basis.
- 8.3.8. For 'Reinsurance recoverables (on regulatory basis)' input best estimate of amounts recoverable from reinsurance contracts and SPVS in respect of claims outstanding for each LOB, provided that these meet the requirements of TS2.12.

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- 8.3.9. Use the results of the check in column M as a check that the required data has been entered.

8.4. EBS – Reins TPs

- 8.4.1. Calculates the value of the technical provisions for reinsurance accepted in the economic balance sheet (EBS) used to determine the solvency capital coverage.
- 8.4.2. LOB's 13 to 24 represent proportional reinsurance accepted for all non-life underwriting and health business as described in TS 1.3.2.
- 8.4.3. LOB's 25 to 28 represent non-proportional reinsurance accepted as described in TS 1.3.2.
- 8.4.4. Input the values on an accounting basis and on a regulatory (EBS) basis. If the insurer is using accounting provisions instead of the EBS (best estimate plus risk margin) technical provisions as per the technical specification (permitted provided the accounting provisions are not lower than the provisions on an EBS basis as described in TS 1.3.1.4) then the two columns will be identical.
- 8.4.5. If using the EBS basis to report regulatory provisions then a separate template will need to be saved for each confidence level to reflect the fact there will be a different risk margin for each confidence level as described in paragraph 1.3 of TS Appendix 1.
- 8.4.6. For 'Premium reserves' input reserves gross of reinsurance reserves for LOB's 13 to 28.
- 8.4.7. For 'Claims reserves' input reserves gross of reinsurance reserves for LOB's 13 to 28.
- 8.4.8. For 'Risk margin' input risk margin for LOB's 13 to 28 on a regulatory basis.
- 8.4.9. For 'Reinsurance recoverables (on regulatory basis)' input best estimate of amounts recoverable from reinsurance contracts and SPVS in respect of claims outstanding for each LOB, provided that these meet the requirements of TS2.12.
- 8.4.10. Use the results of the check in column M as a check that the required data has been entered.

8.5. EBS – Other Liab

- 8.5.1. Calculates the value of other liabilities in the economic balance sheet (EBS) not included in the "EBS - Direct TPs" and "EBS - Reins TPs" worksheets.
- 8.5.2. Input the value on an accounting basis and on a regulatory (EBS) basis.
- 8.5.3. Input all the liabilities that fall into any of the categories listed.
- 8.5.4. Use the results of the check in column I as a check that the required data has been entered.

8.6. EBS Capital

- 8.6.1. Calculates the value of the capital resources in the economic balance sheet.
- 8.6.2. Check that the total capital resources in cell D35 reconciles to the net assets calculated in the “EBS –Other Liab” worksheet (see the check in cell D40).
- 8.6.3. Input capital resources on an accounting basis only as the capital resources on a regulatory basis will feed through from the “Own Funds” worksheet.
- 8.6.4. Use the results of the check in column I as a check that the required data has been entered.

8.7. Own Funds

- 8.7.1. This primary aim of this worksheet is to calculate the following:
 - Basic Own Funds
 - Adjustments to Basic Own Funds (BOF), and
 - Total eligible own funds to meet the SCR
- 8.7.2. The participant can also provide the value of ancillary own funds, where applicable, but this is purely for information.
- 8.7.3. Input the following:
 - Ordinary Share Capital (net of own shares)
 - Initial Fund (less item of the same type held)
 - Share Premium Account
 - Retained earnings including profits from the year net of foreseeable dividends
 - Other reserves from accounting balance sheet
 - Reconciliation reserve
 - Surplus funds
 - Expected profit in future premiums (EPIFP)
 - Preference shares
 - Subordinated liabilities
 - Subordinated mutual member accounts
 - Other items not specified elsewhere
- 8.7.4. Where adjustments are required to BOF for deductions and/or change of tier, enter the relevant values in the appropriate cells.
- 8.7.5. Input the following ancillary own funds:
 - Unpaid share capital or initial fund that has not been paid up
 - Letters of credit and guarantees held in trust
 - Other items currently eligible to meet requirements under current solvency regime.
- 8.7.6. Use the results of the check in column M as a check that the required data has been entered.

8.8. Market Risk Inputs

- 8.8.1. Calculates the interest rate risk SCR, currency risk SCR and concentration risk SCR.
- 8.8.2. For 'Interest Rate Risk' input the following from the 'Capital' sheet of the interest rate helper workbook (see section 4 above):
- Base assets and liabilities: copy cells F77 and H77 from the helper workbook into cells D7 and F7 of this template.
 - For the 1 in 200 Interest rate up shock scenarios: copy cells F79:H81 from the helper workbook to cells D11:F12 in this template.
 - For the 1 in 100 Interest rate up shock scenarios: copy cells F83:H85 from the helper workbook to cells D16:F17 in this template.
 - For the 1 in 50 Interest rate up shock scenarios: copy cells F87:H89 from the helper workbook to cells D21:F22 in this template.
- 8.8.3. For 'currency risk SCR' you can choose to use the stress scenario specified in TS 2.6.8 or the simplified approach.
- 8.8.4. If using the stress scenario input the value of unstressed assets and liabilities exposed to currency risk split by currency group in cells D37:F51. Alternatively, if using the simplified approach input the value of the total unstressed assets and liabilities exposed to currency risk (i.e. in a currency other than the reporting currency) into cells D55 and F55.
- 8.8.5. For 'concentration risk SCR' input the concentration risk SCR from the relevant sheet of the Concentration Risk Helper tab (see Section 6 above) as described below:
- For a 1 in 200 year confidence level, copy cell G7 from the 'Concentration_Risk_1in200' sheet of the helper workbook into cell D64 of this template.
 - For a 1 in 100 year confidence level, copy cell G7 from the 'Concentration_Risk_1in100' sheet of the helper workbook into helper tab into cell D68 of this template.
 - For a 1 in 50 year confidence level, copy cell G7 from the 'Concentration_Risk_1in50' sheet of the helper workbook into cell D72 of this template.
- 8.8.6. Use the results of the checks in column R as a check that the required data has been entered.

8.9. Credit Spread Risk

- 8.9.1. Calculates the capital requirement arising from the exposure to credit spread risks arising from bonds and loans except for gilts and uncollateralised loans made to group/related parties.

- 8.9.2. The participant can either use the full calculation specified in TS 2.6.9.1-2.6.9.43 or the simplified calculation specified in TS 2.6.9.44-2.6.9.45. For the former the participant will use the credit spread helper tab to calculate the SCR (see section 6 above).
- 8.9.3. If you choose the full calculation method:
- For a 1 in 200 year confidence level SCR, enter cell D18 from the 'Capital' sheet in the helper workbook into call E14 of this template.
 - For a 1 in 100 year confidence level SCR, enter cell D30 from the 'Capital' sheet in the helper workbook into call E18 of this template.
 - For a 1 in 50 year confidence level SCR, enter cell D42 from the 'Capital' sheet in the helper workbook into cell E22 of this template.
- 8.9.4. If you choose the simplified calculation method:
- For 'Bonds and loans with credit ratings' input the proportion of the total assets that fall into each CQS in column E and the duration of those assets in column I.
 - For 'Bonds and loans without credit ratings' input the proportion of the total assets that are unrated or don't have a CQS in column E and the duration of those assets in column I.
- 8.9.5. Use the results of the check in column M as a check that the required data has been entered.

8.10. Counterparty Default Risk

- 8.10.1. Calculates the total capital requirement arising from the exposure to counterparty default risks. See TS 2.7 for more details.
- 8.10.2. Input the following from the relevant Counterparty Default risk helper workbook for that confidence level (50/100/200) (see section 5 above):
- 1 in 200: For 'SCR_{default, 1}' and 'SCR_{default, 2}' copy cells E36 and E37 from the helper workbook into cells K19:K20 of this template.
 - 1 in 100: For 'SCR_{default, 1}' and 'SCR_{default, 2}' copy cells E36 and E37 from the helper workbook into cells M19:M20 of this template.
 - 1 in 50: For 'SCR_{default, 1}' and 'SCR_{default, 2}' copy cells E36 and E37 from the helper workbook into cells O19:O20 of this template.
- 8.10.3. Use the results of the checks in column T as a check that the required data has been entered.

8.11. Premium and Reserve Risk

- 8.11.1. Calculates the premium and reserve volume measures that arise from all non-life underwriting lines of business.
- 8.11.2. Input the following in cell range G7:X18:

- 'P_s' – input the premiums to be earned by the (re)insurer for each LOB, s, during the following 12 months. Premiums should be net, with deduction of premiums for reinsurance & SPVs.
- 'P_(last,s)' – input the premiums earned by the (re)insurer for each LOB, s, during the last 12 months. Premiums should be net, with deduction of premiums for reinsurance & SPVs. However, if following TS 2.8.4.7 enter 0 instead.
- 'FP_(existing,s)' input the expected present value of premiums to be earned by the (re)insurer for each LOB, s, after the following 12 months for existing contracts. Premiums should be net, with deduction of premiums for reinsurance & SPVs.
- 'FP_(future,s)' enter the expected present value of net premiums to be earned for each LOB, s, for contracts where the initial recognition date falls in the following 12 months, but excluding premiums to be earned during the 12 months after the initial recognition date.
- 'Number of aggregate caps' enter the number of aggregate caps affecting the LOB's. This will create that number of input rows below row 22 of the worksheet for the corresponding LOB. The minimum that can be input is "0" and the maximum that can be input is "60". Contact the FSA if you need more caps.

8.11.3. For lines of business which have aggregate caps applying to current, future or historic tranches of business, each block of liabilities which is subject to an aggregate cap should be entered in the appropriate row below row 22, including the relevant volume measures and caps.

8.11.4. As well as the relevant premium volume measures, the following inputs will be required for each tranche subject to an aggregate cap:

- 'Max exposure from V_(prem)' input the maximum exposure (the aggregate cap) to claims from the premiums in column Q of the worksheet for the contract(s) to which this cap applies (will only apply to tranches for which there are non-zero premium measures).
- 'Claim reserve' enter the reserve (the relevant part of the total reserve in the in Q7:Q18 for that line of business) for the contract(s) to which this aggregate cap applies.
- 'Max exposure from in-force' enter the maximum amount of claims that could result from the contract(s) subject to this aggregate cap. This should be net of any claims which have already been paid.

8.11.5. Where necessary, aggregate caps should be split across lines of business on a best endeavours basis.

8.11.6. Use the results of the check in AA7:AA18 as a check that the required data has been entered.

8.12. Div

- 8.12.1. Updates the impact of geographical diversification on the premium and reserve volume measures by LOB.
- 8.12.2. The following are the only LOB's that will benefit from geographical diversification:
- Motor Vehicle Liability & Proportional Reinsurance
 - Other Motor & Proportional Reinsurance.
 - Marine, Aviation & Transport (MAT) & Proportional Reinsurance
 - Fire & Other Damage to Property & Proportional Reinsurance.
 - General Liability & Proportional Reinsurance.
 - Legal Expenses & Proportional Reinsurance
 - Assistance & Proportional Reinsurance.
 - Miscellaneous Financial Loss & Proportional Reinsurance.
- 8.12.3. If the business is written in different geographical regions then the volume measures in the "Premium and Reserve Risk" worksheet should be allocated to the relevant regions 1 to 19. See TS Appendix 6 for a full description of these regions.
- 8.12.4. $V_{(prem,j,s)}$ input the premium volume measure for LOB written in region (j).
- 8.12.5. $V_{(res,j,s)}$ input the reserve volume measure for LOB written in region (j).
- 8.12.6. Ensure that $V_{(prem,s)}$ and $V_{(res,s)}$ for each LOB reconciles with corresponding values in the "Premium and Reserve Risk" worksheet.
- 8.12.7. Use the results of the check in column AU as a check that the required data has been entered.

8.13. Lapse Risk

- 8.13.1. Calculates the solvency capital requirement that will result from a lapse stress having an adverse impact on balance own funds (BOF) as per TS 2.8.5.
- 8.13.2. Only enter profitable LOBs/contracts (with an expected loss ratio, on the assumptions used in setting the premium reserves, of less than 100%) where a lapse shock will result in the expected profits not arising. Note that where the accounting provisions are currently being used and these are set equal to 100% of the unearned premium the lapse shock is not required as the expected loss ratio will not be less than 100%.
- 8.13.3. For 'Profitable Grouping' enter the grouping at the most granular level necessary to ensure that profitable contracts are not offset by unprofitable ones.
- 8.13.4. For 'Line of Business', select the appropriate LOB from the drop down box.

- 8.13.5. For '2017 Pipeline Premiums' input the premiums which are in respect of exposures not yet on the balance sheet at the valuation date but which the company is contractually obliged to accept in future.
- 8.13.6. For 'Ultimate Loss Ratio' input an estimate of the loss ratio for the grouping in question (on the basis of the assumptions used in the premium reserves element of the technical provisions).
- 8.13.7. For 'Claims Expense Ratio' input any allowance for expenses if not already included in the ultimate loss ratio.
- 8.13.8. Use the results of the check in column T as a check that the required data has been entered.

8.14. Catastrophe Risk (200)

- 8.14.1. Calculates the solvency capital requirement that will result from catastrophic shock scenarios having an adverse impact on balance own funds (BOF) at the 1 in 200 confidence level. The inputs required vary according to the line of business.
- 8.14.2. For $P_{(i)}$, P_{property} , $P_{(\text{liability}, i)}$, $P_{(\text{other}, i)}$, and $P_{(\text{recession})}$ enter the estimate of premiums to be earned for each contract covering the relevant risk during the next 12 months. The premium entered should be gross, without deduction of premiums for risk mitigation arrangements.
- 8.14.3. For $SI_{(i)}$ enter the sum insured for each contract in relation to contracts that cover subsidence risk of residential buildings. The sum insured should be gross, without deduction of amounts recoverable from risk mitigation arrangements.
- 8.14.4. For N_a enter the number of vehicles insured in LoB 1 and 13 with a deemed policy limit above £17.6m and for N_b enter the number of vehicles insured in LoB 1 and 13 with a deemed policy limit equal to or below £17.6m.
- 8.14.5. For $\text{maxSI}_{\text{tanker}}$ enter the highest total sum insured for any oil or gas tanker insured by the insurer, for marine hull, marine liability and oil pollution insurance combined, as specified in TS 2.8.6.30. The sum insured should be gross, without deduction of amounts recoverable from risk mitigation arrangements.
- 8.14.6. For $\text{maxSI}_{\text{platform}}$ enter the highest total sum insured for any oil or gas offshore platform insured by the insurer, for the risks specified in TS 2.8.6.32. The sum insured should be gross, without deduction of amounts recoverable from risk mitigation arrangements.
- 8.14.7. For $\text{maxSI}_{\text{aviation}}$ enter the highest total sum insured for any aircraft insured by the insurer maximum total exposure for aviation hull and aviation liability risks. The sum insured should be gross, without deduction of amounts recoverable from risk mitigation arrangements.

- 8.14.8. For $\max SI_{\text{fire}}$ enter the highest total sum insured for fire risk concentration insured by the insurer in relation to each building, partially or fully located within a radius of 200 meters, from damage due to fire or explosion. The sum insured should be gross, without deduction of amounts recoverable from risk mitigation arrangements.
- 8.14.9. For $\max L_{(\text{default},1)}$ and $\max L_{(\text{default},2)}$ enter the largest and second largest exposures relating to credit and suretyship risks, as specified in TS2.8.6.43. The loss-given-default should be gross, and include amounts recoverable from risk mitigation arrangements.
- 8.14.10. For Agg Impact enter the adjustment necessary to reduce the loss shown in the $NLNatCat_{\text{pre-agg}}$ column to reflect the existence of any aggregate cap. The amount entered should be zero or negative. The amount entered here should result in the $NLNatCat_{\text{post-agg}}$ column showing the loss reflecting the existence of the cap.
- 8.14.11. For RM Impact enter the value of the risk mitigating impact (i.e. the amount recoverable from reinsurance arrangements or SPVs). This amount entered should be zero or positive. The amounts entered in this Column S should be consistent with the total of each reinsurance counterparty's share of the catastrophe losses for each line of business in E22:E37 ($NL_{\text{cat}}^{\text{hyp}} - NL_{\text{cat}}^{\text{without}}$) of the "RM – Single CP_x" tabs of the counterparty default risk helper workbook at the 1 in 200 level.

8.15. Catastrophe Risk (100)

- 8.15.1. Calculates the solvency capital requirement that will result from a catastrophic event having an adverse impact on balance own funds (BOF) at the 1 in 100 confidence level.
- 8.15.2. The majority of inputs are automatically brought through from the Catastrophe risk (200) tab.
- 8.15.3. For Agg Impact enter the adjustment necessary to reduce the loss shown in the $NLNatCat_{\text{pre-agg}}$ column to reflect the existence of any aggregate cap. The amount entered should be zero or negative. The amount entered here should result in the $NLNatCat_{\text{post-agg}}$ column showing the loss reflecting the existence of the cap.
- 8.15.4. For RM Impact enter the value of the risk mitigating impact (i.e. the amount recoverable from reinsurance arrangements or SPVs). This amount entered should be zero or positive. The amounts entered in this Column S should be consistent with the total of each reinsurance counterparty's share of the catastrophe losses for each line of business in E22:E37 ($NL_{\text{cat}}^{\text{hyp}} - NL_{\text{cat}}^{\text{without}}$) of the "RM – Single CP_x" tabs of the counterparty default risk helper workbook at the 1 in 100 level.
- 8.15.5. Use the results of the check in column X as a check that the required data has been entered.

8.16. Catastrophe Risk (50)

- 8.16.1. Calculates the solvency capital requirement that will result from a catastrophic event having an adverse impact on balance own funds (BOF) at the 1 in 50 confidence level.
- 8.16.2. The majority of inputs are automatically brought through from the Catastrophe risk (200) tab.
- 8.16.3. For Agg Impact enter the adjustment necessary to reduce the loss shown in the $NLNatCat_{pre-agg}$ column to reflect the existence of any aggregate cap. The amount entered should be zero or negative. The amount entered here should result in the $NLNatCat_{post-agg}$ column showing the loss reflecting the existence of the cap.
- 8.16.4. For RM Impact enter the value of the risk mitigating impact (i.e. the amount recoverable from reinsurance arrangements or SPVs). This amount entered should be zero or positive. The amounts entered in this Column S should be consistent with the total of each reinsurance counterparty's share of the catastrophe losses for each line of business in E22:E37 ($NL_{cat}^{hyp} - NL_{cat}^{without}$) of the "RM – Single CP_x" tabs of the counterparty default risk helper workbook at the 1 in 50 level.
- 8.16.5. Use the results of the check in column X as a check that the required data has been entered.

8.17. Health_Prem & Reserve Risk

- 8.17.1. Calculates the premium and reserve volume measures that will arise from all the non SLT health underwriting lines of business.
- 8.17.2. Input the following in the table in the cell range B5:Y11:
- P_s 'enter the premiums to be earned by the (re)insurer for each LOB, s, during the following 12 months. Premiums should be net, with deduction of premiums for reinsurance & SPVs.
 - $P_{(last,s)}$ ' enter the premiums earned by the (re)insurer for each LOB, s, during the last 12 months. Premiums should be net, with deduction of premiums for reinsurance & SPVs. However, if following TS 2.8.4.8 input 0 instead.
 - $FP_{(existing,s)}$ ' enter the expected present value of premiums to be earned by the (re)insurer for each LOB, s, after the following 12 months for existing contracts. Premiums should be net, with deduction of premiums for reinsurance & SPVs.
 - $FP_{(future,s)}$ ' enter the expected present value of net premiums to be earned for each LOB, s, for contracts where the initial recognition date falls in the following 12 months (excluding premiums to be earned during the 12 months after the initial recognition date).

- ‘Number of aggregate caps’ enter the number of aggregate caps affecting the LOB’s. This will create that number of input rows below row 16 of the worksheet for the corresponding LOB. The minimum that can be input is “0” and the maximum that can be input is “60”. Contact the FSA if you need more caps.
- 8.17.3. For lines of business which have aggregate caps applying to current, future or historic tranches of business, each block of liabilities which is subject to an aggregate cap should be entered in the appropriate row below row 16, including the relevant volume measures and caps.
- 8.17.4. As well as the relevant premium volume measures, the following inputs will be required for each tranche subject to an aggregate cap:
- ‘Max exposure from $V_{(prem)}$ ’ input the maximum exposure (the aggregate cap) to claims from the premiums in column O of the worksheet for the contract(s) to which this cap applies (will only apply to tranches for which there are non-zero premium measures).
 - ‘Claim reserve’ enter the reserve (the relevant part of the total reserve in the in Q7:Q10 for that line of business) for the contract(s) to which this aggregate cap applies.
 - ‘Max exposure from in-force’ enter the maximum amount of claims that could result from the contract(s) subject to this aggregate cap. This should be net of any claims which have already been paid.
- 8.17.5. Where necessary, aggregate caps should be split across lines of business on a best endeavours basis.
- 8.17.6. Use the results of the check in AA7:AA10 as a check that the required data has been entered.

8.18. Health_DIV

- 8.18.1. Updates the impact of geographical diversification on the premium and reserve volume measures by LOB.
- 8.18.2. The following are the only LOB’s that will benefit from geographical diversification:
- Medical expense & Proportional Reinsurance
 - Income Protection & Proportional Reinsurance.
 - Workers' compensation & Proportional Reinsurance
- 8.18.3. If the business is written in different geographical regions then the volume measures in the “Premium and Reserve Risk” worksheet will need to be allocated into the relevant regions 1 to 19. See TS Appendix 6 for a full description of these regions.

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- 8.18.4. For ' $V_{(prem,j,s)}$ ' input the premium volume measure for LOB (s) written in region (j).
 - 8.18.5. For ' $V_{(res,j,s)}$ ' input the reserve volume measure for LOB (s) written in region (j).
 - 8.18.6. Ensure that $V_{(prem,s)}$ and $V_{(res,s)}$ for each LOB reconciles with the corresponding values in the "Health_Prem & Reserve Risk" worksheet.
 - 8.18.7. Use the results of the check in column AU as a check that the required data has been entered.

8.19. Health_Lapse Risk

- 8.19.1. Calculates the solvency capital requirement that will result from a lapse stress having an adverse impact on balance own funds (BOF) as described in TS 2.9.4.21 to 2.9.4.23.
- 8.19.2. Only enter profitable LOBs/contracts (with an expected loss ratio, on the assumptions used in setting the premium reserves, of less than 100%) where a lapse shock will result in the expected profits not arising. Note that where the accounting provisions are currently being used and these are set equal to 100% of the unearned premium the lapse shock is not required as the expected loss ratio will not be less than 100%.
- 8.19.3. For 'Profitable Grouping' the grouping should be at the most granular level necessary to ensure that profitable contracts are not offset by unprofitable ones.
- 8.19.4. For 'Line of Business' select appropriate LOB from the drop down box.
- 8.19.5. For '2017 Pipeline Premiums' input the premiums which are in respect of exposures not yet on the balance sheet at the valuation date but which the company is contractually obliged to accept in future.
- 8.19.6. For 'Ultimate Loss Ratio' input an estimate of the loss ratio for the grouping in question (on the basis of the assumptions used in the premium reserves element of the technical provisions).
- 8.19.7. For 'Claims Expense Ratio' input any allowance for expenses if not already included in the ultimate loss ratio.
- 8.19.8. Use the results of the check in column T as a check that the required data has been entered.

8.20. Health_Catastrophe Risk (200)

- 8.20.1. Calculates the solvency capital requirement that will result from catastrophic shock scenarios having an adverse impact on balance own funds (BOF) at the 1 in 200 confidence level. The inputs required vary according to the type of catastrophic shock scenario. See TS 2.9.5 for full details.
- 8.20.2. For pandemic risk the following inputs are required:

- In cell F10 enter the total value of benefits payable by the insurer for all insured persons covered by income protection insurance other than workers' compensation insurance. The benefits are those payable in the event of a permanent work disability caused by infectious diseases. See TS2.9.5.24 for details.
- In cell L10 enter the adjustment necessary to reduce the loss shown in the GrossLp cell J10 to reflect the existence of any aggregate cap. The amount entered should be zero or negative. The amount entered here should result in the 'Lp after aggregate cap' cell N10 showing the loss reflecting the existence of the cap.
- In cell P10 enter the value of the risk mitigating impact (i.e. the amount recoverable from reinsurance arrangements or SPVs). This amount entered should be zero or positive, and result in the value in the NetLp cell R10 being the insurer's loss in this scenario net of reinsurance recoverables. The amounts entered in this cell P10 should be consistent with the total of each reinsurance counterparty's share of the catastrophe losses for each relevant line of business in E22:E37 ('NLcathyp - NLcatwithout') of the "RM – Single CP_x" tabs of the counterparty default risk helper workbook at the 1 in 200 level.

8.20.3. For health mass accident risk (health insurance excluding workers' compensation) the following inputs are required, separately for each country in which the insurer has exposure to this risk. Where a country is not already listed in column C, the name of the country should be added in that column, from cell C49 downwards.

- In column F enter the total value of benefits payable by the insurer for all insured persons in each country, in case of death caused by accident. See TS2.9.5.9-14 for details.
- In column H enter the total value of benefits payable by the insurer for all insured persons in each country, in case of permanent disability caused by accident. See TS2.9.5.9-14 for details.
- In column J enter the total value of benefits payable by the insurer for all insured persons in each country, in case of disability lasting 10 years caused by accident. See TS2.9.5.9-14 for details.
- In column L enter the total value of benefits payable by the insurer for all insured persons in each country, in case of disability lasting 12 months caused by accident. See TS2.9.5.9-14 for details.
- In column N enter the total value of benefits payable by the insurer for all insured persons in each country, in case of medical treatment caused by accident. See TS2.9.5.9-14 for details.
- Column R (GrossL_c) shows the loss in the mass accident scenario in each country before the effect of aggregate caps and risk mitigation. In column T

enter the adjustments necessary for each country to reduce the loss shown in the GrossL_c column R to reflect the existence of any aggregate cap. The amount entered should be zero or negative. The amount entered here should result in the 'L_c after aggregate cap' column V showing the loss reflecting the existence of the cap.

- In column X enter the value of the risk mitigating impact (i.e. the amount recoverable from reinsurance arrangements or SPVs). This amount entered should be zero or positive, and result in the value in the NetL_c column Z being the insurer's loss in this scenario net of reinsurance recoverables. The amounts entered in this column X should be consistent with the total of each reinsurance counterparty's share of the catastrophe losses for each relevant line of business in E22:E37 ('NL_{cathyp} - NL_{catwithout}') of the "RM – Single CP_x" tabs of the counterparty default risk helper workbook at the 1 in 200 level.

8.20.4. For accident concentration risk (workers' compensation and group income protection insurance) the following inputs are required, separately for each country in which the insurer has exposure to this risk. Where a country is not already listed in column C, the name of the country should be added in that column, from cell C49 downwards.

- In column AC enter the number of lives insured in the largest known concentration of lives working in a single building plus those lives known to be covered and working in a radius of 300m, in each country. See TS2.9.5.17-19 for details.
- In column AE enter the total value of benefits payable by the insurer for all insured persons in the group entered in column AC, in case of death caused by accident. See TS2.9.5.17-20 for details.
- In column AG enter the total value of benefits payable by the insurer for all insured persons in the group entered in column AC, in case of permanent disability caused by accident. See TS2.9.5.17-20 for details.
- In column AI enter the total value of benefits payable by the insurer for all insured persons in the group entered in column AC, in case of disability lasting 10 years caused by accident. See TS2.9.5.17-20 for details.
- In column AK enter the total value of benefits payable by the insurer for all insured persons in the group entered in column AC, in case of disability lasting 12 months caused by accident. See TS2.9.5.17-20 for details.
- In column AM enter the total value of benefits payable by the insurer for all insured persons in the group entered in column AC, in case of medical treatment caused by accident. See TS2.9.5.17-20 for details.
- Column AO (GrossL_c) shows the loss in the accident concentration scenario in each country before the effect of aggregate caps and risk mitigation. In column AQ enter the adjustments necessary for each country to reduce the

loss shown in the GrossL_c column AO to reflect the existence of any aggregate cap. The amount entered should be zero or negative. The amount entered here should result in the 'L_c after aggregate cap' column AS showing the loss reflecting the existence of the cap.

- In column AU enter the value of the risk mitigating impact (i.e. the amount recoverable from reinsurance arrangements or SPVs). This amount entered should be zero or positive, and result in the value in the NetL_c column AW being the insurer's loss in this scenario net of reinsurance recoverables. The amounts entered in this column AW should be consistent with the total of each reinsurance counterparty's share of the catastrophe losses for each relevant line of business in E22:E37 ('NL_{cathyp} - NL_{catwithout}') of the "RM – Single CP_x" tabs of the counterparty default risk helper workbook at the 1 in 200 level.

8.21. Health_Catastrophe Risk (100)

- 8.21.1. Calculates the solvency capital requirement that will result from catastrophic shock scenarios having an adverse impact on balance own funds (BOF) at the 1 in 100 confidence level.
- 8.21.2. The majority of inputs are automatically brought through from the Health_Catastrophe risk (200) tab.
- 8.21.3. The yellow input cells to reflect the impact of aggregate caps and risk mitigation for each catastrophe shock scenario should be completed as per the instructions for Health_Catastrophe Risk (200).

8.22. Health_Catastrophe Risk (50)

- 8.22.1. Calculates the solvency capital requirement that will result from catastrophic shock scenarios having an adverse impact on balance own funds (BOF) at the 1 in 50 confidence level.
- 8.22.2. The majority of inputs are automatically brought through from the Health_Catastrophe risk (200) tab.
- 8.22.3. The yellow input cells to reflect the impact of aggregate caps and risk mitigation for each catastrophe shock scenario should be completed as per the instructions for Health_Catastrophe Risk (200).
- 8.22.4.

8.23. Market Risk

- 8.23.1. Calculates the market risk SCR arising from: interest rate risk, equity risk, property risk, foreign exchange risk, credit spread risk and concentration risk at the confidence level selected in D25 of the "Participant Information" worksheet.
- 8.23.2. For "Currency simplification to be used?" (cell E50) select "Y" if using currency simplification, otherwise select "N".

8.23.3. For “Credit Spread simplification to be used?” (cell E82) select “Y” if using credit spread simplification, otherwise select “N”.

8.23.4. Use the results of the check in column S as a check that the required data has been entered.

8.24. Non-Life Underwriting Risk

8.24.1. Calculates the non-life underwriting risk SCR arising from premium & reserve risk, lapse risk and catastrophe risk at the confidence level selected in D25 of the “Participant Information” worksheet.

8.24.2. For ‘SCR_{non-life_stop_loss}’ input any aggregation limit to the non-life underwriting risk if there is an overriding stop loss programme in place.

8.24.3. Use the results of the check in column R as a check that the required data has been entered.

8.25. Non-SLT Health Risk

8.25.1. Calculates the non-SLT health underwriting risk SCR arising from health premium & reserve risk, health lapse risk and health catastrophe risk at the confidence level selected in D25 of the “Participant Information” worksheet.

8.25.2. For ‘SCR_{health_stop_loss}’ input any aggregation limit to the health underwriting risk if there is an overriding stop loss program in place.

8.25.3. Use the results of the check in column S as a check that the required data has been entered.

8.26. Operational Risk

8.26.1. Calculates the operational risk SCR.

8.26.2. For Earn_{non-life} enter the earned premium during the previous 12 months for non-life and health insurance obligations. The premium entered should be gross, without deduction of premiums for risk mitigation arrangements.

8.26.3. For pEarn_{non-life} enter the earned premium during the 12 months prior to the previous 12 months for non-life and health insurance obligations. The premium entered should be gross, without deduction of premiums for risk mitigation arrangements.

8.26.4. Use the results of the check in column Y as a check that the required data has been entered.

8.27. SCR Summary

8.27.1. Calculates the total SCR arising from market risk, default risk, health risk and non-life risk.

8.27.2. The regulatory capital resources will then be used to determine the level of the solvency coverage (SCR) ratio.

8.27.3. The only input is any regulatory adjustments that have been imposed (to be completed by the FSA).

8.27.4. The main outputs from the worksheet are:

- **Solvency Capital Requirement (SCR)**
- **Regulatory capital resources to meet SCR**
- **SCR Ratio**

8.27.5. Use the results of the check in column G as a check that the required data has been entered.

8.28. Data

8.28.1. Includes, currency code mapping, correlation matrices, credit quality steps mapping table, various calibrations for market and non-market risk capital charges and mapping tables for non-life and non SLT health LOBs.

8.28.2. No input is required in this tab.

8.29. SCR Structure

8.29.1. Shows the structure chart of the solvency capital requirement modules (e.g. "Market"), sub-modules (e.g. "Interest rate") and adjustments to the SCR (e.g. "Op")

8.29.2. No input is required in this tab.