Chapter 10

Instructions regarding reporting templates

IM.01 — Internal model outputs (life)

General comments

This section relates to annual submission of information for individual entities.

This template is for the use of life insurer internal model firms only. Firms should complete the template for United Kingdom and other territories and currencies as agreed with their supervisor.

CELL	ITEM	INSTRUCTIONS
Z0010	Territory	Territory in which the business is written.
Z0020	Currency	Currency in which the business is written.

Column		
C0010	Base	Only applicable to longevity risk – base is the expectation of life with no allowance for improvements in mortality after the valuation date.
C0020	Best estimate	Assumption used in the calculation of best estimate liabilities. For Longevity this is the expectation of life including best estimate mortality improvement assumptions.
C0030, C0040, C0050, C0060, C0070, C0080, C0090, C0100, C0110, C0120, C0130, C0140, C0150, C0160 and C0170	Percentile data	Percentile stress tests for 0.1%, 0.5%, 1.0%, 2.5%, 5.0%, 10.0%, 25.0%, 50.0%, 75.0%, 90.0%, 95.0%, 97.5%, 99.0%, 99.5%, and 99.9%. For all risks the stresses should be shown in ascending order. Where the biting stress is a fall in values, the 0.5% value corresponds to 99.5% Value at Risk (VaR). Firms using a stochastic model should show all points in the distribution where readily available. Firms using a correlation matrix should show the stress test for 99.5% VaR, which should be shown as either 0.5% or 99.5% according to whether the biting stress is a decrease or increase.
C0180	Biting Scenario Stresses	- Please provide the risk component information for your combined (biting) scenario that produces the 99.5th highest capital requirement (post any

		smoothing/averaging where appropriate). - Please enter the information using the definition of the percentile value. For example, for risk free rates, please provide the change in spot yields for each term requested for the yield curve in the scenario which generated your 99.5th capital requirement. - If you use a methodology where you calculate a combined 99.5th percentile capital requirement by combining together a set of univariate stresses using a correlation matrix, please enter your killer scenario information into this column. - If you use a combination of stochastic multivariate approach and correlation matrix approach to calculate your overall 99.5th percentile capital requirement, please provide the risk component information for your combined (biting) scenario that produces the 99.5th highest capital requirement across the stochastic risks.

Row	Base, best estimate and selected percentiles of stress tests for this risk
R0010	Well diversified equity portfolio total annual return.
R0020	Change in equity volatility 1 year ATM put option At the money (R0020, R0030 and R0060) is defined as: Strike = 1 * Spot * exp[(r(t) – q)t] for a t-year option where r(t) is continuously compounded t-year interest rate and q is continuously compounded dividend (q>0 for a price index such as FTSE, q=0 for a total return index). (ie a forward strike of 1).
R0030	Change in equity volatility 10 year ATM put option.
R0040	Property commercial portfolio total annual return.
R0050	Property residential portfolio total annual return.
R0060	Change in property volatility 10 year ATM option.
R0070	Change in risk free zero coupon bond spot yield Term 2. The change in risk free zero coupon bond yields is the change in the annualised continuously compounded rate from best estimate of the risk free spot yield for a zero coupon bond of term T years as specified, eg best estimate swap-based risk free rate = 4.00%, 90th percentile risk free rate = 5.00%, change from best estimate = +1.00%.
R0080	Change in risk free zero coupon bond spot yield Term 5.

Row	Base, best estimate and selected percentiles of stress tests for this risk
R0090	Change in risk free zero coupon bond spot yield Term 10.
R0100	Change in risk free zero coupon bond spot yield Term 15.
R0110	Change in risk free zero coupon bond spot yield Term 25.
R0115	Change in risk free zero coupon bond spot yield Term 40.
R0120	Change in risk free rate component of IAS19 discount rate.
R0130	Change in implied interest rate volatility on 5 X 15 ATM swaption. This is a swaption with an expiry of 5 years based on a swap with a maturity of 15 years.
R0140	Change in market implied inflation spot rate Term 2. The change ~~from~~ in market implied inflation spot rate is the change in best estimate of the implied inflation spot yield for a zero coupon bond of term T years as specified, eg best estimate implied inflation rate = 2.00%, 90th percentile implied inflation rate = 3.00%, change from best estimate = +1.00%.
R0150	Change in market implied inflation spot rate Term 5.
R0160	Change in market implied inflation spot rate Term 10.
R0170	Change in market implied inflation spot rate Term 15.
R0180	Change in market implied inflation spot rate Term 25.
R0191	Change in AAA rated ZCB spot yield spread (over RF) Term 2 - financials. The change in spot yield spreads is the change from best estimate of the spread (expressed as an annualised rate) for an [AAA etc]-rated zero coupon bond of term T years and sector [financials / non-financials] as specified, eg best estimate spread = 3.00%, 90th percentile spread = 5.00%, change from best estimate = +2.00%. The values in rows R0191 to R0387 listed below should take into account the combined impact of spread widening, migrations and default. Where necessary they should include an adjustment so as to be post-diversification with the risk drivers represented by the other rows of the same sector [financials or non-financials, as applicable]. In other words, at any given percentile, applying the stresses in rows R0191 to R0387 simultaneously to the firm's own portfolio of assets in the specified currency should give the same impact as if the asset-side credit risk losses had been calculated using the firm's internal model (allowing for diversification between the risk factors, but with no diversification between

Row	Base, best estimate and selected percentiles of stress tests for this risk
	the financials and non-financials risk drivers). Firms that do not have a financials / non-financials sector split of their calibration should enter the same calibration details for the rows labelled 'financials' as they do for the rows labelled 'non-financials'.
R0192	Change in AAA rated ZCB spot yield spread (over RF) Term 2 – non-financials.
R0201	Change in AAA rated ZCB spot yield spread (over RF) Term 5 - financials.
R0202	Change in AAA rated ZCB spot yield spread (over RF) Term 5 – non-financials.
R0211	Change in AAA rated ZCB spot yield spread (over RF) Term 10 - financials.
R0212	Change in AAA rated ZCB spot yield spread (over RF) Term 10 – non-financials.
R0221	Change in AAA rated ZCB spot yield spread (over RF) Term 15 - financials.
R0222	Change in AAA rated ZCB spot yield spread (over RF) Term 15 – non-financials.
R0226	Change in AAA rated ZCB spot yield spread (over RF) Term 25 – financials.
R0227	Change in AAA rated ZCB spot yield spread (over RF) Term 25 – non-financials.
R0231	Change in AA rated ZCB spot yield spread (over RF) Term 2 - financials.
R0232	Change in AA rated ZCB spot yield spread (over RF) Term 2 – non-financials.
R0241	Change in AA rated ZCB spot yield spread (over RF) Term 5 - financials.
R0242	Change in AA rated ZCB spot yield spread (over RF) Term 5 – non-financials.
R0251	Change in AA rated ZCB spot yield spread (over RF) Term 10 - financials.
R0252	Change in AA rated ZCB spot yield spread (over RF) Term 10 – non-financials.
R0261	Change in AA rated ZCB spot yield spread (over RF) Term 15 - financials.
R0262	Change in AA rated ZCB spot yield spread (over RF) Term 15 – non-

Row	Base, best estimate and selected percentiles of stress tests for this risk
	financials.
R0266	Change in AA rated ZCB spot yield spread (over RF) Term 25 – financials.
R0267	Change in AA rated ZCB spot yield spread (over RF) Term 25 – non-financials.
R0271	Change in A rated ZCB spot yield spread (over RF) Term 2 - financials.
R0272	Change in A rated ZCB spot yield spread (over RF) Term 2 – non-financials.
R0281	Change in A rated ZCB spot yield spread (over RF) Term 5 - financials.
R0282	Change in A rated ZCB spot yield spread (over RF) Term 5 – non-financials.
R0291	Change in A rated ZCB spot yield spread (over RF) Term 10 - financials.
R0292	Change in A rated ZCB spot yield spread (over RF) Term 10 – non-financials.
R0301	Change in A rated ZCB spot yield spread (over RF) Term 15 - financials.
R0302	Change in A rated ZCB spot yield spread (over RF) Term 15 – non-financials.
R0306	Change in A rated ZCB spot yield spread (over RF) Term 25 – financials.
R0307	Change in A rated ZCB spot yield spread (over RF) Term 25 – non-financials.
R0311	Change in BBB rated ZCB spot yield spread (over RF) Term 2 - financials.
R0312	Change in BBB rated ZCB spot yield spread (over RF) Term 2 – non-financials.
R0321	Change in BBB rated ZCB spot yield spread (over RF) Term 5 - financials.
R0322	Change in BBB rated ZCB spot yield spread (over RF) Term 5 – non-financials.
R0331	Change in BBB rated ZCB spot yield spread (over RF) Term 10 - financials.
R0332	Change in BBB rated ZCB spot yield spread (over RF) Term 10 – non-financials.
R0341	Change in BBB rated ZCB spot yield spread (over RF) Term 15 -

Row	Base, best estimate and selected percentiles of stress tests for this risk
	financials.
R0342	Change in BBB rated ZCB spot yield spread (over RF) Term 15 – non-financials.
R0346	Change in BBB rated ZCB spot yield spread (over RF) Term 25 – financials.
R0347	Change in BBB rated ZCB spot yield spread (over RF) Term 25 – non-financials.
R0351	Change in B rated ZCB spot yield spread (over RF) Term 2 - financials.
R0352	Change in B rated ZCB spot yield spread (over RF) Term 2 – non-financials.
R0361	Change in B rated ZCB spot yield spread (over RF) Term 5 - financials.
R0362	Change in B rated ZCB spot yield spread (over RF) Term 5 – non-financials.
R0371	Change in B rated ZCB spot yield spread (over RF) Term 10 - financials.
R0372	Change in B rated ZCB spot yield spread (over RF) Term 10 – non-financials.
R0381	Change in B rated ZCB spot yield spread (over RF) Term 15 - financials.
R0382	Change in B rated ZCB spot yield spread (over RF) Term 15 – non-financials.
R0386	Change in B rated ZCB spot yield spread (over RF) Term 25 - financials.
R0387	Change in B rated ZCB spot yield spread (over RF) Term 25 – non-financials.
R0390	Change in credit spread component of IAS19 discount rate.
R0400	Change in spread of swaps over gilts spot yield Term 2 The change in spread of swaps over gilts is the change from best estimate of the spread ~~for~~ between swaps and gilts for term T years. Where the swap rate is higher/lower than the gilt rate, the difference should be set as positive/negative. This should be the difference between the two zero coupon yield curves implied by swap rates and gilt prices (as opposed to difference between swap rates and redemption yields for coupon bearing gilts), eg best estimate spread = 1.00%, 90th percentile spread = 1.40%, change

Row	Base, best estimate and selected percentiles of stress tests for this risk
	from best estimate = +0.40%.
R0410	Change in spread of swaps over gilts spot yield Term 5.
R0420	Change in spread of swaps over gilts spot yield Term 10.
R0430	Change in spread of swaps over gilts spot yield Term 15.
R0440	Change in spread of swaps over gilts spot yield Term 25.
R0450	Change in exchange rate, EUR ~~to~~ per GBP. The relative change from best estimate of the exchange rate between two currencies, eg best estimate exchange rate = €1.14 per £1, 90th percentile risk free rate = €1.54 per £1, change from best estimate = +35%.
R0460	Change in exchange rate, USD per GBP.
R0470	Expectation of life at male age 50 (overall).
R0480	Expectation of life at male age 65 (overall).
R0490	Expectation of life at male age 80 (overall).
R0500	Expectation of life at female age 50 (overall).
R0510	Expectation of life at female age 65 (overall).
R0520	Expectation of life at female age 80 (overall).
R0530	Expectation of life at male age 50 (under mis-estimation risk).
R0540	Expectation of life at male age 65 (under mis-estimation risk).
R0550	Expectation of life at male age 80 (under mis-estimation risk).
R0560	Expectation of life at female age 50 (under mis-estimation risk).
R0570	Expectation of life at female age 65 (under mis-estimation risk).
R0580	Expectation of life at female age 80 (under mis-estimation risk).
R0590	Expectation of life at male age 50 (under trend risk).
R0600	Expectation of life at male age 65 (under trend risk).
R0610	Expectation of life at male age 80 (under trend risk).

Row	Base, best estimate and selected percentiles of stress tests for this risk
R0620	Expectation of life at female age 50 (under trend risk).
R0630	Expectation of life at female age 65 (under trend risk).
R0640	Expectation of life at female age 80 (under trend risk).
R0650	Mortality catastrophe for age 25 (Overall). Firms should fill in the overall catastrophe section regardless of whether they model epidemics and other catastrophes separately. Rates should be expressed as an amount per mille.
R0660	Mortality catastrophe for age 40 (Overall).
R0670	Mortality catastrophe for age 55 (Overall).
R0680	Mortality catastrophe for age 75 (Overall).
R0690	Mortality catastrophe for age 25 (flu/similar epidemic). Firms should only complete the epidemic section if they model epidemics separately. Rates should be expressed as an amount per mille.
R0700	Mortality catastrophe for age 40 (flu/similar epidemic).
R0710	Mortality catastrophe for age 55 (flu/similar epidemic).
R0720	Mortality catastrophe for age 75 (flu/similar epidemic).
R0780	Change in mortality rate at male age 40.
R0810	Change in mortality rate at female age 40.
R0840	Change in inception rate at male age 40.
R0870	Change in inception rate at female age 40.
R0900	Change in recovery rate at male age 40 (claiming for 12 months).
R0930	Change in recovery rate at female age 40 (claiming for 12 months).
R0970	Change in lapse rates for protection products.
R0980	Change in lapse rates for unit-linked investment bonds.
R0990	Change in lapse rates for unit-linked individual pensions.
R0991	Change in lapse rates for with-profits individual pensions.
R0992	Change in lapse rates for income drawdown.

Row	Base, best estimate and selected percentiles of stress tests for this risk
R1000	Change in lapse rates for unit-linked group pensions.
R1030	Mass lapse rate for protection products. For all mass lapse stresses the amount shown is the percentage of business loss above best estimate.
R1040	Mass lapse rate for unit-linked investment bonds.
R1050	Mass lapse rate for unit-linked individual pensions.
R1051	Mass lapse rate for with-profits individual pensions.
R1052	Mass lapse rate for income drawdown.
R1060	Mass lapse rate for unit-linked group pensions.
R1070	Change in guaranteed annuity rate take-up (absolute amount, eg +5% for 80%-75%).
R1080	Change in proportion married.
R1090	Change in base acquisition expense assumption.
R1100	Change in base investment expense assumption.
R1110	Change in base servicing expense assumption.
R1120	Change in expense inflation (absolute amount, eg +1.0% for 2.5%-1.5%).