

SOLVENCY II

2014 STANDARD FORMULA EXERCISE GUIDANCE NOTES

FEBRUARY 2014



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1 INTRODUCTION

1.1 Background

As detailed in the 2014 Solvency II plan, a standard formula return as at 2013 year-end is required to be submitted by agents by **Friday 30 May 2014**. This guidance sets out the requirements for the completion of the calculation template found on the Technical Provisions & Standard Formula (TP&SF) section of the Solvency II area of lloyds.com. Section 2 covers general requirements and basis for submission; Section 3 provides detail on the required inputs for each sheet and Section 4 where additional information and support can be found.

Standard formula exercises have been a useful tool for Lloyd's both in terms of internal testing of the impact of the standard formula on individual syndicates and the market and for lobbying on changes to the calibration. These exercises have also allowed agents to demonstrate the ability to calculate a standard formula SCR (a key Solvency II requirement) and to assess the impact of the standard formula on each syndicate they manage in comparison to internal model results. For more recent standard formula exercises Lloyd's has also provided detailed feedback to each contributor along with comparisons of their results to peers and the market.

Lloyd's has conducted several market wide standard formula exercises during the preparations for Solvency II. Most have been on a "QIS" basis but more recently based on the draft Level 2 pre-consultation text. Due to the non-public nature of the draft Level 2 text, Lloyd's issued a 'data collection template' in 2012 and derived 2011 year-end syndicate standard formula SCR and MCR estimates based on the information provided and relayed the results via feedback packs. To minimise the impact on the market at 2012 year-end, Lloyd's used the 2011 year-end exercise as a base and rolled estimates forward using changes to exposure measures for each risk component, the results of this was fed back to Agents in August 2013.

EIOPA published technical specifications for its Long Term Guarantees Assessment (LTGA) in January 2013 effectively making the standard formula calibration public although no 'calculation template' was produced. Lloyd's has updated the calculation template it used for the 2011 year-end exercise to reflect material changes from the draft Level 2 to the LTGA text and will use this to assess syndicate results at 2013 year-end. Lloyd's has sought feedback and peer review from the LMA in advance of publishing this template. Lloyd's has published this full calculation template (rather than a data template) for this purpose, this should provide agents with:

- A practical and adaptable tool to use
- The ability to derive results on a consistent basis in a timely fashion in future.
- Greater transparency in assessing their data inputs and bucketing/classifications on the results of the calculation.
- The ability to scenario, stress and sensitivity test the standard formula.

The template will produce a standard formula Solvency Capital Requirement (SCR) on two asset bases – see section 2.5 below, Minimum Capital Requirement (MCR) and Early Warning Indicator (EWI) as per the PRA's May 2013 guidance.

Upon receipt of completed syndicate templates Lloyd's will conduct a high level validation of the returns and may question syndicates on the data supplied. This does not mean the submitted information is incorrect and is a necessary part of the Lloyd's process to ensure understanding and integrity of syndicate data and results.

Feedback will be provided on how the syndicate results compare with the wider market on a confidential basis. If requested, meetings may then be held with managing agents to discuss these results. Lloyd's will flag any results that appear to be exceptional with syndicates through the above validation.

Agents should recognise that whilst the template is designed to be an appropriate base for a standard formula exercise it currently does contain some areas of approximation and Lloyd's subjective interpretation of requirements, further details of these approximations and interpretations are set out in section 2.15. Also, the underlying level 2 requirements are not final. It therefore cannot be guaranteed to produce an absolute standard formula SCR although it should be suitable for the forthcoming exercises.

1.2 Data Input Requirements and Changes from Previous Exercises

The required inputs for the calculation template are very similar to the exercise conducted at 2011 year-end, submitted to Lloyd's in July 2012. In several areas the required inputs have been reduced and are now not

required: these were not critical to the calculation and have been removed from the template. Several inputs have been added or changed, in particular:

- Reinsurance mitigation amounts are required for each catastrophe risk peril and may be entered at various levels of the catastrophe risk aggregation; previously Lloyd's estimated syndicate specific mitigation based on information available from other Lloyd's returns.
- The data inputs for Accident Concentration and Pandemic Health Catastrophe risk for non-European exposures have been widened from the top 10 non-European countries to collect all regions 5 to 18. This ensures the data captured for these perils is now more complete.
- The data required to calculate pandemic health catastrophe risk now better reflects the LTGA requirements.
- Net Written Premium inputs by Solvency II class are required on the MCR calculation tab to estimate the MCR and Early Warning Indicator, this was previously estimated from earned premium inputs for premium risk but is now required explicitly. Please note the Solvency II written premium definition in section 3.13.
- The standard formula SCR will be derived on two bases as per 2.5 below. In order to derive the results for the second basis agents are required to supply two amounts from their 31 December 2013 QMC, Solvency II balance sheet.

In certain areas Lloyd's has used the QIS5 helper tabs as a basis to estimate the standard formula SCR in respect of that component. For counterparty default risk and investment concentration risk the calculation has been updated to reflect the current requirements. For life underwriting risk, inputs are as per the QIS5 template but should be calculated in line with the LTGA technical specifications.

1.3 Participation in the 2013 Year-End Standard Formula Exercise

All syndicates submitting an SBF and/or LCR for the 2014 year of account should supply a standard formula return. This includes life, non-life and RITC syndicates. Submissions are required at syndicate level and so special purpose syndicates must also complete a separate return. Feedback provided following the submissions will include comparisons of Standard Formula SCRs, MCRs and EWIs to syndicates' Internal Model SCRs.

1.4 Submission of Results

Completed calculation templates should be submitted electronically by 30 May 2013 to solvency2@lloyds.com. One excel file submission template should be submitted for each syndicate using the standard naming convention "2013YESF_SYND_v#.xlsx", where "SYND" represents the individual syndicate number (4 digits) and "v#" represents the version number of the spreadsheet downloaded from lloyds.com.

Lloyd's is happy to accept compressed completed template (for example in a zipped file) where this is too large to send via email.

Lloyd's wishes to avoid publishing multiple versions of the calculation template and has consulted with the LMA in advance of the template release for peer review to help mitigate this. However, where any user identifies, what they interpret to be, a material error or discrepancy they should contact solvency2@lloyds.com or the contact details at the front of this guidance. Where material issues are identified which have the potential to distort the results Lloyd's will endeavour to update the template as soon as possible. Agents should ensure they are using the most up to date version of the template to avoid any errors in their submissions, please check lloyds.com regularly for any updates. Lloyd's will attempt to notify agents where updates are made, this is likely to be via email or relevant FAQs published on the TP&SF section of the Solvency II website on lloyds.com.

1.5 Contact for queries and support

In the first instance agents should check whether the EIOPA LTGA technical specifications listed in Section 4 (and linked in the calculation template) provide sufficient detail to answer any questions. In addition to this, Lloyd's will set up FAQs for this exercise and will update these with answers of use to other agents; managing agents are encouraged to check these regularly for updates. Any questions not answered by the technical specifications or FAQs may be sent to solvency2@lloyds.com or the contact details at the front of this guidance.

2 REQUIREMENTS FOR THE CALCULATION TEMPLATE

2.1 General Requirements

The excel template provided on Lloyds.com should be **completed as at 31st December 2013**. This is to be taken as year-end 2013 where a syndicate may have earlier cut off dates for reporting purposes.

The template is intentionally set out in a standard format to enable all data and results to be exported for the analysis performed by Lloyd's. The data and results extraction process assumes the template structure is the same as that released on lloyds.com. To avoid changes to the template Lloyd's has protected the workbook as much as is practical. However, where the ability exists, please do not change the structure of the template. The formula within the template is also in line with Lloyd's understanding of the technical specifications and should not be changed, unless, as noted below, agents feel certain simplifications are not appropriate. In this instance the agent should contact Lloyd's in advance of submission where they wish to amend non-yellow cells in the template.

Throughout the template the following colour convention has been used:

- yellow cells relate to input values;
- green cells are calculated amounts including results; and
- grey cells are parameters or blank/not required cells.

Agents are requested that technical provision amounts submitted for the standard formula reconcile to those provided on both the Technical Provisions Data (TPD) return and Quarterly Monitoring Return C (QMC) at 31 December 2013. This will be one of Lloyd's validations.

Note that, as per previous standard formula exercises, much of the premium risk calibration is based on premium amounts. Operational risk, catastrophe risk and the MCR also use premium inputs as volume measures. All premium amounts collected on the return should be **gross of acquisition costs**.

2.2 Basis of Submission and Lloyd's Expectations

For consistency, agents are required to **report all figures in thousands and converted to Sterling**. Where conversion from underlying currencies is required Agents should use the same exchange rates as used in preparation of their TPD/QMC at 2013 year-end. In many cases these rates will be the Lloyd's rates provided in market bulletin Y4757, for reference these rates are also provided in the 'Exchange Rates' sheet in the calculation template. All monetary amounts which feature in the calibration of the calculation have been converted by Lloyd's at these year-end rates (primarily £1=€1.20).

This return will require Director sign-off on behalf of the managing agent's board but is not audited; it should be completed on a best efforts basis. This submission will be a key input in to Lloyd's determining whether agents meet the requirements of being able to calculate a standard formula SCR. Lloyd's encourages managing agents to check the returns for reasonableness prior to submission to ensure accuracy and consistency of the information provided and reasonableness of the outputs. Lloyd's will also be conducting a number of validation tests on the submissions to ensure credibility of the data provided. Please note, this may include reconciliations to other returns provided to Lloyd's such as the Technical Provisions Data (TPD), Quarterly Monitoring Return C (QMC), Syndicate Business Forecast (SBF) and Quarterly Asset Data (QAD).

2.3 Balance Sheet Submissions

The data collection template will not collect a full balance sheet on either UK GAAP or Solvency II bases as QIS5 exercises did. These are now collected on the QMC return at Lloyd's.

2.4 Details of Overseas Trust Fund Deposits

Security level overseas trust fund details at 31 December 2013 have been sent to syndicates in early 2014. If agents wish to re-request these please contact the Treasury Analysis team directly via treasuryanalysis@lloyds.com.

Overseas deposits are to be included within the relevant risk sub-modules. For the purpose of the standard formula return these are not to be considered ring-fenced funds.

2.5 Assets Supporting Syndicates

As noted in section 1.4, a single spreadsheet return is required in respect of each syndicate. However, in order to derive both the syndicate standard formula and the Lloyd's aggregate standard formula results, financial investment amounts are required on two different bases as described below.

- **Basis 1:** All financial investments at their full market value at the valuation date as supplied in the QMC at 2013 year-end. This includes financial investments held to support accrued syndicate surplus/deficits plus any amounts held by fully aligned syndicates as 'Funds in Syndicate' (FIS) rather than posting Funds at Lloyd's (FAL). This unscaled basis is required for Lloyd's to estimate its aggregate standard formula SCR as this includes risks arising on surplus assets. **All inputs for financial investments in the calculation template should be on this 'unscaled' basis.**
- **Basis 2:** Financial investments are scaled such that the member balances (on a Solvency II basis) at the valuation date are nil. All financial investments are reduced proportionally by the same factor irrespective of asset class, currency or duration; this is consistent with the approach adopted and the basis for the internal model SCR calculation. The proportion is derived based on two inputs supplied in the 'Market Risk Total' sheet, these inputs should be sourced from the 31 December 2013 QMC return, cell references from the QMC are given in the template and the inputs should be consistent with the QMC, in particular the signage of the amounts. **Lloyd's will consider the results of this basis to be the syndicate's standard formula SCR and MCR.**

The two asset bases primarily affect the market risk module, however, because the Basic Solvency Capital Requirement (BSCR) feeds in to operational risk and the full standard formula SCR amount feeds in to the Minimum Capital Requirement (MCR) these amounts are also affected and results produced on both bases. Lloyd's recognises that in certain circumstances syndicates may not have any financial investments (e.g. Special Purpose Syndicates); in this instance no scaling will occur between Basis 1 and Basis 2.

As noted above, the syndicate standard formula SCR and MCR is considered to be the result of the Basis 2 calculation. The Lloyd's aggregate standard formula calculation will be based on the following funds supporting syndicates:

- Premium trust funds (PTF) – all syndicates participating in the 2013YE standard formula exercise (as described in 1.3) should provide a submission in respect of their premium trust fund assets and liabilities including overseas trust funds as covered above. The Lloyd's aggregate result will include risk association with surplus assets and own funds and as such be based on the Basis 1 result.
- Funds in Syndicate (FIS) – Where a fully aligned syndicate holds own funds to meet its capital requirements in-house; these should be included in the surplus assets for market risk in Basis 1 of the submission noted above. As such Lloyd's will capture risk associated with these in the syndicate's return.
- Funds at Lloyd's (FAL) – Funds at Lloyd's which are managed by Lloyd's should not be included within the submission or modelled by the managing agent; Lloyd's will conduct this modelling centrally.
- Central Fund (CF) – Lloyd's will model assets in respect of the central fund to be included in the aggregate market level calculations.

2.6 'Change in Basic Own Funds'

In many places, in order to determine the SCR amounts for each risk component the LTGA technical specification states that the SCR will be equivalent to the 'loss in basic own funds' arising from the shock or stress. In this instance Lloyd's has interpreted 'loss' to mean the reduction in basic own funds arising from the shock or stress and not any additional own funds which would need to be raised over and above the existing amounts at the valuation date.

2.7 Proportionality and Simplifications

The calculation template makes a number of assumptions and simplifications in order to reduce the amount of inputs and underlying 'sub-modules' required for the calculation. Where Agents feel the simplifications are not appropriate, in particular where a full calculation is expected to produce materially different results, then a full calculation could be conducted (in line with the LTGA text) by the agent following their own workings. In this instance agents should contact Lloyd's for approval. Where this is accepted, the key results affecting the overall

calculation could be overwritten in the calculation template and the underlying calculations and accompanying explanation provided with the submission by 30 May. Lloyd's will review the attached workings for reasonableness and consistency with the technical specifications.

Lloyd's understands that certain areas of the standard formula will not be material to all syndicates. The template currently requires inputs in respect of each risk module as fully as possible to allow an accurate estimate of the standard formula SCR. If an agent feels that, for a particular risk (sub-) module, the work required to complete an area of the template is disproportionate to the expected contribution to the overall standard formula SCR (this expectation may be based on prior standard formula exercises or the expected results from this template), the following approaches could be taken:

- The agent may use the collection template as it stands, but simplify the inputs. This may include (for example) allocating all amounts to one geographical region, duration bucket or making simplifying assumptions around certain inputs. Please note that this is likely to result in a higher standard formula SCR for the syndicate.

In this instance please provide a comment on the Information tab to explain what has been done and the reasoning for this. If the agent is in doubt as to the appropriateness of a simplification, please contact Lloyd's via solvency2@lloyds.com or the contact details at the front of this guidance to discuss the issue.

- Secondly, the agent may wish to simplify the workings by providing alternative data or estimates on which to model the SCR for that (sub-) module for the syndicate. Please contact Lloyd's via solvency2@lloyds.com with justification of how this element is deemed immaterial, why the above approach could not be applied and a proposal for an alternative modelling approach. Lloyd's may then (following discussion) allow certain simplifications and/or alternatives to be applied.

Please note that if certain risk modules of the standard formula SCR are considered by the agent to be zero (e.g. life underwriting risk for non-life syndicates and vice-versa) these should be left blank. Please do not delete tabs. Lloyd's expects syndicates to at least have market risk, counterparty default risk, operational risk and one segment of underwriting risk.

2.8 Solvency II Classes of Business

Much of the standard formula calculation for underwriting risk and the MCR is done at a Solvency II class of business level. This requires much of the data for these risk elements to be entered by Solvency II class of business. Descriptions of these classes can be found in the 'Lines of Business' tab and in the LTGA technical specification. Lloyd's has also produced a mapping of risk codes, transaction types (as per GQD) and annuity flags (as per TPD) to assist agents with this mapping. This is available on the Technical Provisions and Standard Formula area of the Solvency II section of lloyds.com, a link is provided in Section 4 below.

2.9 Geographical Region Information

Geographical diversification credit is permissible within much of the underwriting risk module. To estimate this, several premium and claims related measures are required to be split by 18 geographical regions. The allocation of countries to each of the regions is listed in the 'Region Information' tab. Managing agents may use any reasonable basis to allocate business to geographic area. This may include data on location of risk or claims. For multi-region policies spanning more than one of the geographic segments, agents should consider materiality (or whether there would be a dominant region for the risk) and allocate in a reasonable way.

Note that for European natural catastrophe risk, the definition of the countries to include within 'France' varies. Further detail can be found in the European natural catastrophe risk sum insured input tab. Additionally for natural catastrophe risk, please use geographical region 5 (Central & Western Asia) for Russia and the Ukraine. There are no factors for these countries under European natural catastrophe risk; as such Lloyd's will include these within the non-European calculation.

2.10 Application of Outwards Reinsurance

All volume measures used to calculate the premium and reserve risk component of underwriting risk for non-life and NSLT health classes are net of reinsurance and no mitigation calculations are required. In limited circumstances the standard deviation factor for premium risk can be reduced by 20% to allow for non-proportional reinsurance. This reduction is permissible under direct and proportional Solvency II classes of

business for Motor Vehicle Liability, Fire & Property and General Liability. As standard Lloyd's has assumed this applies in all cases.

The approach for allowing for recoveries within catastrophe risk elements is less well prescribed. Gross losses are defined for each sub-module and peril with the netting down determined by the 'loss in basic own funds' given the gross shock. Lloyd's would encourage agents to use reasonable assumptions in estimating their reinsurance recoveries, for example by assuming class of business and geographical region giving rise to the loss is where there is most exposure or highest probability of claim, providing that the class of business and region are covered by the individual peril and scenario.

The Lloyd's template permits risk mitigation to be applied at varying levels of the non-life and health catastrophe risk calculation and aggregation (see NL Cat Risk Total and Health Cat Risk Total sheet). This adds to the flexibility of the template in that it allows credit to be taken for programmes covering multiple regions (for natural catastrophe risk) or perils. However, users should be careful to avoid double counting of cover across perils and/or regions and that the net result is consistent with their understanding of the programme operation (as far as possible) in practice. Simple examples have been provided in an Appendix at the end of this document setting out the potential complexities and options for applications of risk mitigation programmes. Please also note that this is an area where uncertainty in the requirements exists; these requirements may change or become more prescriptive over time.

Some principles have been given for reinsurance assumptions below:

- Losses by peril can be assumed stand-alone, independent and mutually exclusive events for all segments. Note, the above however, "independence" does not imply that only one of the peril events occurs, there is some probably attached to multiple events occurring in the formula. While allowance for mitigation can be made at the granular peril/event level users need to be careful not to double-, or over-count the mitigation impact once these losses are aggregated.
- Inputs by country (for EU nat cats) and region (for non-EU nat cats) are used to derive geographical diversification credit only; there is no 'country/region gross loss' here. In all cases, the gross loss/capital requirement post-country/region diversification should be used as the amount to base the reinsurance recoverable on. However where it is necessary to assume a country/region giving rise to the gross loss in order to estimate the mitigation, the gross loss by country/region may be used to inform this.
- Windstorm, flood and hail perils for EU Natural Catastrophe risk include specific scenarios where two losses are assumed based on proportions of the diversified 'specified losses'. The losses within each scenario are consecutive and independent and it is to be assumed that no further risk mitigation is purchased between these two losses.
- Mitigation for health catastrophe risk is input by region for mass accident and concentration perils by assuming the country losses are independent. Pandemic mitigation is however input at a total level after combining charges for medical and income protection losses. Lloyd's believes this is in line with the LTGA requirements.

Annex I of the LTGA Technical Specifications also gives additional principles to consider in the recognition of risk mitigation techniques.

2.11 Treatment of Annuities stemming from Non-Life and Health contracts (including Periodical Payment Orders)

Agents with exposure to annuities stemming from non-life and health contracts should model these entirely within the life underwriting risk module, this will capture the inherent longevity (and other) risks in these contracts. Please see the LTGA Technical Specifications (link provided in section 4 for the approach to model the risks within these contracts.

2.12 Look Through Approach

Agents are requested that where possible the valuation of the standard formula SCR in relation to assets (i.e. predominantly market risk and counter-party default risk) invested in collective investment vehicles or other indirect exposures uses a look-through approach to the underlying investments in these funds. Note that investments in related undertakings are excluded from this. Alternative methods to the look-through approach are set out in the LTGA specifications and may be applied (e.g. assuming the vehicle invests in such a combination of assets (as permissible by its mandate) to maximise the capital requirement or consideration of all

these schemes within the Equity risk sub-module). However agents should note that these alternative approaches may result in higher capital charges for the syndicate.

2.13 Loss Absorbing Capacity of Technical Provisions and Deferred Taxes

The loss absorbing capacity of technical provisions and deferred taxes relate to circumstances where the defined losses and shocks of the standard formula SCR can be compensated for by a simultaneous decrease in the technical provisions for future discretionary benefits or deferred taxes, or a combination of the two. Lloyd's does not believe that these circumstances are applicable to the majority of the contracts written at Lloyd's and as such would not have a material impact on the standard formula SCR.

In all cases in the calculation template the gross and net (of loss absorbing capacity) have been set equal.

2.14 Risks Not Captured by the Calculation Template

The following risks are not captured within the template produced for this exercise.

- **Health 'Similar to Life Techniques' (SLT) Risk:** Previous exercises at Lloyd's has indicated that there is no exposure to this risk as such this is excluded from the calculation template.
- **Counter-Cyclical Premium Risk:** This market risk sub-component is not material to Lloyd's as no counter-cyclical premium is added to the risk-free discount rate for technical provisions. Further, this sub-component is excluded from the LTGA specification. As a result no capital requirement will be calculated for this risk.
- **Intangible Asset Risk:** Lloyd's does not believe there is material exposure to intangible assets at a syndicate or market level and as such no SCR component will be calculated for this in the estimation of the Basic Solvency Capital Requirement (BSCR).
- **Specifics risks relating to Unrated Counterparties that are Credit or Financial Institutions:** Specific requirements for these institutions have been added to concentration risk (within market risk) and counterparty default risk. Lloyd's have not amended existing templates to account for this as these are not felt to be material. The ratings for unrated counterparties that are credit or financial institutions should be based on the solvency ratio as per the existing calculation in these sheets.

2.15 Lloyd's Interpretation of Formula and Data Requirements

In producing the calculation template Lloyd's has made several assumptions and applied its judgement on the interpretation of the requirements. These areas are:

- **Application of risk mitigation to catastrophe risk:** The Lloyd's template allows mitigation to be entered at varying levels of the catastrophe risk calculation and aggregation. This may mitigate the need for Agents to allocate recoveries to underlying perils for example on aggregate or whole account covers. It does however move away from a strict reading of the LTGA text which discusses each peril's charge as a stand-alone assessment of the 'loss in basic own funds'. Lloyd's believes credit can and should be taken for mitigation purchased at higher layers or covering larger segments of the business. See section 2.10 and Appendix A for further information.
- **'Loss in basic own funds':** As noted in section 2.6, our interpretation of the 'loss' in basic own funds is the change in own funds which arises due to the shock or stress and not any additional own funds which would need to be raised over and above the existing amounts at the valuation date.
- **Premium risk volume measure:** A strict interpretation of the LTGA text (SCR 8.61) for the factor FP(future,s), specifically the final use of the phrase 'initial recognition date', would apply solely to multi-year contracts but would exclude a portion of future premium earned after the next 12 months but before the 12 month anniversary of the contract recognition. Lloyd's has instead interpreted the final use of 'initial recognition date' as 'valuation date' such that it includes all premiums to be earned on business recognised in the next 12 months (i.e. during 2014) from 2015 onwards. While the Lloyd's interpretation will increase the total premium risk volume measure (by effectively including all earnings in 2015 and beyond on all policies bound in 2014), it is felt this is more complete. The full premium risk data requirements are set out in 3.6.2.
- **Non-proportional property risk:** A strict reading of the LTGA text would limit geographical diversification to non-European regions even when this module applies worldwide. Lloyd's has assumed this is not correct and derived it based on the global exposure. Further detail is provided in section 3.8.

- **Other non-life catastrophe risk:** A strict reading of the LTGA text would require mitigation to be calculated once losses are aggregated across risk groups whereas Lloyd's are allowing this to be done by risk group individually. The Lloyd's approach is felt to be more appropriate given the disparate risk groups used in this calculation. Please see 3.7.15 for further information.
- **Non-proportional health catastrophe risk:** Lloyd's has added a shock for non-proportional health contracts as the catastrophe risk on these in the LTGA text are otherwise excluded from the standard formula calculation. The shock is in line with other non-proportional non-life risks. Please see section 3.8 for further information.
- **Health catastrophe risk mitigation:** Given the income protection component of pandemic risk Lloyd's is requesting mitigation to be entered once all regions and medical expense and income protection losses are combined. This is different from the Concentration and Mass Accident Risks where mitigation is entered at a country level in line with the requirements. Please see section 3.8 for further information.
- **Counterparty Default Risk:** Lloyd's has extended the simplification for the risk mitigating impact of non-life contracts to cover all contracts rather than specific counterparties. The calculation is conducted at a total level and spread across non-life risk mitigating counterparties in line with the entered best estimate exposures. Please see 3.11 for further detail.

These areas where judgement has been applied should be seen as potentially uncertain in the longer term.

3 SHEET BY SHEET GUIDANCE ON CALCULATION TEMPLATE

This section provides supplementary information on the calculation template. Lloyd's has used EIOPA's Long Term Guarantees Assessment (LTGA) technical specification as the basis for the production of the template. The technical specifications are available on EIOPA's website, a link is provided in Section 4 below. EIOPA's specifications include full details of the intended inputs and basis for calculation. If there are uncertainties on the data required in each section, Lloyd's recommends agents consult these specifications prior to contacting Lloyd's.

3.1 Information Tab

This tab collects and provides high level submission information:

- Summary Details – These include the managing agent and syndicate as well as key personnel which Lloyd's may wish to contact with queries on the submission. These contacts will also receive the feedback results produced by Lloyd's.
- Sign-off and Declaration – This section includes the details of the Director taking responsibility for the return. Through the completion of details here, Lloyd's will assume the given confirmation is being made.
- Scope and Purpose – This provides high level information on the reasons for the exercise and template and sources of additional information.
- Disclaimer – This includes important details regarding Lloyd's liability relating to this template and its intended use.
- Version history – This details the version history of the current template and details of changes from previous versions.
- Key – This provides details of the colour coding of cells used throughout the template.
- Notes and Comments – This is a free-form section which allows agents to input comments and notes on the data provided. Lloyd's requests that agents use this section fully to avoid unnecessary questions from Lloyd's on unusual results and provide commentary on specific methods, assumptions or simplifications used in completing the template.

3.2 Standard Formula Structure

This tab is for information only and gives a pictorial representation of the standard formula SCR structure. The colour coding here is used for the individual calculation sheets.

3.3 Exchange Rates

This sheet is for information only, no inputs are required here. It provides the 31 December 2013 exchange rates for use in this exercise where relevant.

3.4 Overall Results

No inputs are required on this sheet; it brings together the results of the underlying calculations. It shows the high-level risk component amounts of the standard formula SCR as well as the underlying sub-risks. The pre- and post-corridor MCR and EWl are also shown. Results are shown on both bases as described in section 2.5.

3.5 BSCR

No inputs are required on this sheet; it derives the Basic Solvency Capital Requirement (BSCR) from the underlying risk component values in subsequent sheets. Results are shown on both bases as described in section 2.5.

3.6 Non-Life and Health NSLT (Not Similar to Life Techniques) Underwriting Risk Tabs

3.6.1 NL & Health UW Risk Total

No inputs are required on this sheet which aggregates the non-life and Health NSLT Underwriting Risks, bringing together premium & reserve, catastrophe and lapse risks using defined correlation matrices.

3.6.2 Non-Life & NSLT Health P&R

This tab collects technical provisions and volume measures to facilitate the derivation of premium and reserve risk including geographical diversification. Premium risk is the risk arising from fluctuations in timing, frequency and severity of business to be written in the SCR time period and the unexpired risks on existing contracts. Reserve risk is the risk arising from fluctuations in timing and amounts of claim settlements.

- Premium and Reserve Risk Calculation – This aggregates the below inputs to estimate the stand-alone SCR for non-life and Health NSLT premium and reserve risk including the geographical diversification benefit where applicable, the standard deviation parameters are prescribed in the LTGA text, these are fed from the 'Premium and Reserve Risk Params' sheet. Note that premium risk standard deviation parameters for Motor Vehicle Liability, Fire & Property and General Liability classes can be reduced by 20% to allow for the existence of non-proportional reinsurance. Lloyd's has assumed that this adjustment applies to all syndicates as standard.
- Technical Provisions – A high level summary of the syndicate's non-life and health related technical provisions split by Solvency II class of business should be provided (direct and proportional classes have been grouped), note that non-life and health annuities may also be provided on this sheet, this will then automatically push through to the Life Underwriting Risk sheet and the MCR calculation. At a total level these amounts should reconcile to the TPD and Solvency II balance sheets as at year-end 2013.

The table separates claims and premium provisions by insurance losses and premium (gross of acquisition costs and acquisition costs separately), for gross and reinsurance. It also separates ULAE and non-ULAE expenses, reinsurance bad debt and risk margin. Note as per the specifications for the TPD, RI acquisition costs are not included in the net best estimate calculation. Agents should supply the amounts in the reinsurance premium which ensures the best estimate matches the QMC and TPD.

- Premium Volume Measures – The tables within this section collect earned premium data split by Solvency II class of business (direct and proportional classes have been grouped) split by the 18 global geographical regions. The following earned premium amounts are collected:
 - Net (of reinsurance) Earned Premium in the previous 12 months – This is the net of reinsurance, gross of acquisition costs earned premium in the 2013 calendar year.
 - Net (of reinsurance) Earned Premium in the next 12 months – This is the net of reinsurance, gross of acquisition costs premium estimated to be earned in the 2014 calendar year.
 - Gross (of reinsurance) Earned Premium in the next 12 months – This single column is not being collected by region but is needed by Solvency II class to facilitate the calculation of Counterparty Default Risk. This is the gross of reinsurance and acquisition costs earned premium in the 2014 calendar year.
 - Net (of reinsurance) Premium to be earned after the next 12 months in respect of contracts bound at 2013 year-end - This is the net of reinsurance, gross of acquisition costs premium estimated to be earned from the 2015 calendar year onwards on contracts which are bound at 2013 year-end. These amounts should be discounted to 2013 year-end using the risk-free yield curves.
 - Net (of reinsurance) Premium to be earned after the next 12 months in respect of contracts not bound at 2013 year-end but bound at 2014 year-end - This is the net of reinsurance, gross of acquisition costs premium estimated to be earned from the 2015 calendar year onwards on contracts which are not bound at 2013 year-end but are expected to be bound at 2014 year-end. These amounts should be discounted to 2013 year-end using the risk-free yield curves. Please see section 2.15 which details how the Lloyd's interpretation of this section moves away from a strict reading of the LTGA text.

- Reserve Volume Measures - The table within this section collects the reserve related volume measure split by Solvency II class of business (direct and proportional classes have been grouped) split by the 18 global geographical regions. The measure is:
 - Discounted Net (of reinsurance) Claims Provisions within Technical Provision Best Estimate (PCO) – This is the net (of reinsurance) insurance losses (including binary events), expenses and reinsurance bad debt included within the claims provisions (i.e. earned business only) of the best estimate technical provisions. This should exclude any associated future premium and risk margin.

3.6.3 Non-Life & NSLT Health Lapse

Lapse risk relates to the risk that the profit which is assumed to be included within the technical provision future premiums does not materialise due to policy lapses and discontinuance. Agents should provide details of the profit assumed to be included within the net future premium amounts in the net technical provisions at 2013 year-end. This is assumed to be future premiums within technical provisions less future anticipated claims and expenses relating to this business. This should be split by business which has already incepted and that which is contractually obliged but unaccepted at the valuation date. Expected profit should be calculated only on policies for which there is an expected profit within technical provisions (i.e. future premium is greater than future claims plus expenses). Please only include the amounts where a profit exists, business where future claims and expenses exceed future premium should not be included.

Lloyd's anticipates that incepted business will have relatively little (or even negative) profit included within technical provisions as most premium will have already been received (and therefore is not included within technical provisions); as such insurance losses are likely to dominate these provisions. In determining where future profit is included within technical provisions, agents should apply principles of proportionality. Ideally the identification of this profit should be on a policy by policy basis however this may be impractical for many agents so a class by class assessment could be made. The data collection is also split by non-life and health NSLT classes of business.

3.6.4 Premium and Reserve Risk Params

No inputs are required on this sheet. It contains the parameters for premium and reserve risk calculations.

3.7 Non-life Catastrophe Risk Tabs

Non-life catastrophe risk relates to the risk of loss or of adverse change in the value of insurance liabilities, resulting from significant uncertainty of pricing and provisioning assumptions related to extreme or exceptional events. This module of the standard formula has seen the most significant changes since QIS5.

3.7.1 NL Cat Risk Total

This sheet aggregates the non-life catastrophe risk results for all perils and categories. Both gross and net of reinsurance results are derived, the gross being used to estimate the simplified risk mitigating effect of outwards reinsurance for counterparty default risk. As described in section 2.10, users may use the inputs on this sheet to provide mitigation amounts at a higher than the peril level calculation such that credit can be taken at a higher level for contracts which cover multiple perils and losses.

3.7.2 Natural Catastrophe Risk – General Comment

Natural catastrophe risk is derived separately across European and non-European regions as displayed in the 'Regional Information' sheet. Geographical diversification benefit is calculated separately for each across countries for European exposures and the remaining 14 regions for non-European exposures.

3.7.3 Eur NatCats – Sum Insureds

This tab collects the inputs for European natural catastrophe risk by each country and natural catastrophe risk peril.

Exposure captured here relates to regions 1 to 4 of the 18 geographical regions shown on the 'Region Information' tab but only in respect of the countries not greyed out for each peril/class, not all perils are applicable to each country. For example, there is deemed to be no Earthquake risk in the Spain or UK regions so inputs are not required. As noted in 2.9, the definition of the countries to include within 'France' varies. Further detail can be found in the European natural catastrophe risk sum insured input tab. Additionally for natural catastrophe risk,

please use geographical region 5 (Central & Western Asia) for Russia and the Ukraine. There are no factors for these countries under European natural catastrophe risk, as such Lloyd's is included these within the non-European calculation.

The classes of business covered by this sub-module are direct and proportional only, non-proportional business is captured within other sections of the non-life catastrophe risk sub-module. The property classes covered (Fire, MAT and Motor) by each peril (Windstorm, Earthquake, Flood, Hail and Subsidence) are detailed below the input table.

The table collects the total sum insured for each class of business in each country which has exposure to each peril. Note that sum insureds will be double counted across perils but may be different as certain policies may not be applicable to certain perils. The sum insured should be the syndicate's share of the exposure only and can be any reasonable measure of sum insured, for example the amount at the valuation date or an expected average over calendar year 2014.

In deriving a total volume measure for flood and hail perils the motor class is given a greater weighting of 1.5 and 5 times the sum insureds respectively.

3.7.4 Eur NatCats – Mitigation

This sheet derives the Gross and Net Loss for each European natural catastrophe peril. The inputs here relate solely to the mitigation arising from each of the perils and scenarios.

Gross losses are based on the volume measures derived on the previous sheet as well as risk factors prescribed by country/peril and allowance for geographical diversification. To determine the gross losses:

- for windstorm, flood and hail perils, two scenarios are prescribed each with two losses of a defined percentage of the diversified 'specified loss'. The mitigation is to be estimated based on each of each of the scenario's losses. The losses within each scenario are to be assumed consecutive and independent and no further risk mitigation is entered in to between these events. The SCR charge is then taken as the largest scenario after summing the two losses.
- for earthquake and subsidence scenarios, 100% of the diversified 'specified loss' is taken. Mitigation can then be estimated based on this gross loss.

Please see the principles noted in 2.10 for estimating recoveries from gross losses.

3.7.5 Non Eur NatCats – GEPs

This sheet collects the inputs for the non-European natural catastrophe risk. Exposure captured here relates to regions 5 to 18 shown on the 'Region Information' tab. Note that although Russia and the Ukraine are included in the Eastern Europe region (as per the 'Regional Information' sheet) no factors are prescribed for these countries for European Natural Catastrophe Risk; as such please include any exposures in these countries to the Central & Western Asia region (Region 5),

The classes of business covered by this sub-module are direct and proportional only, non-proportional business is captured within other sections of the non-life catastrophe risk sub-module. The property classes covered (Fire, MAT and Motor) by each peril (Windstorm, Earthquake, Flood and Hail) are detailed below the input table. There is no subsidence risk for non-European exposures.

The inputs should be gross earned premium amounts to be earned in the next 12 months (i.e. 2014 calendar year) by region for each class of business which has exposure to that peril. Note that premiums will be double counted across perils but may be different as certain policies may not be applicable to certain perils.

3.7.6 Non Eur NatCats – Mitigation

This sheet uses the estimated 2014 gross earned premium from the previous sheet to estimate a gross and net capital requirement following allowance for geographical diversification benefit. The gross loss is based on a factor which varies by peril. The inputs here relate solely to the mitigation arising from each of the perils. Please see the principles noted in 2.10 for estimating recoveries from gross losses.

3.7.7 Non-Proportional Property

Similar to non-European natural catastrophe perils, this section collects Gross Earned Premium to be earned in the next 12 months (i.e. calendar year 2014) by the 18 worldwide geographical regions.

This section relates purely to the non-proportional coverage of property risks. A further split of the inputs is required by the sub-classes falling under this non-proportional reinsurance class. These classes are Other Motor, Fire and Other Damage, Legal Expenses, Assistance and Miscellaneous Financial Loss. Note that non-proportional policies relating to the Credit & Suretyship direct and proportional class (which are usually counted under non-proportional property) are not included in this module, the catastrophe risk for this sub-class being captured elsewhere.

There should be no double counting of premium across classes or regions within this section. Where premium relates to more than one class or region, these should be apportioned by the managing agent, using any reasonable basis. Where premium relates to multiple classes of business, including classes not covered under non-proportional property, only the portion of the premium relevant to these classes should be included in this section.

Geographical diversification is credited for all underlying non-proportional property classes in estimating the gross capital requirement. Please note: A strict reading of the LTGA text bases the geographical diversification benefit calculation on non-European exposures only but applies the resulting factor to the worldwide exposure. Lloyd's does not believe this is correct and has instead estimated the diversification benefit including European exposures and applied this to the global exposure.

Please see the principles noted in 2.10 for estimating recoveries from the gross loss.

3.7.8 Man Made Catastrophe Risk – General Comment

The calculation of the capital charge for man-made catastrophes is based on global exposure (not split into regions) and the charge is derived under a series of scenarios for each peril. Lloyd's has provided a detailed description of the data requirements for each peril within the calculation template and below.

3.7.9 Man Made – Motor

This scenario covers direct and proportional motor vehicle liability risks only. The data required here is the number of vehicles insured with a 'deemed policy limit' below and above €24m separately. This can be classed as £20m for the purposes of this calculation (i.e. £1 = €1.20). The 'deemed policy limit' should be determined as the overall limit of the motor vehicle liability insurance policy or, where no such limit is specified in the terms and conditions of the policy, the sum of the limits for damage to property and for personal injury should be used. Where the policy limit is specified as a maximum per victim, the deemed policy limit should be based on the assumption of ten victims.

The number of motor vehicles covered by the proportional reinsurance obligations of the insurance or reinsurance undertaking shall be weighted by the relative share of the undertaking's obligations in respect of the sum insured of the motor vehicles

Please see the principles noted in 2.10 for estimating recoveries from the gross loss.

3.7.10 Man Made – Marine

The scenario for marine risk combines the results from a tanker collision and a platform explosion. The inputs are the results of each of each of these scenarios. The classes covered in these scenarios are the marine elements of the direct, proportional and non-proportional MAT classes.

The capital requirement for the tanker collision is based on the maximum sum insured for a single (oil or gas) tanker across hull, liability and pollution exposures.

The capital requirement for the platform explosion is the maximum sum insured for a single (oil or gas) platform. This should cover the sum insured for compensation for property damage, removal of wreckage, loss of production, capping/securing the well and liability losses arising from the explosion.

Please see the principles noted in 2.10 for estimating recoveries from the gross loss.

3.7.11 Man Made – Aviation

The aviation scenario requires the single largest aircraft sum insured across both hull and liability perils. The classes covered in this scenario are the aviation elements of direct, proportional and non-proportional MAT classes.

Please see the principles noted in 2.10 for estimating recoveries from the gross loss.

3.7.12 Man Made – Fire

The fire scenario requires the sum insured for the largest single building concentration covering damage due to fire or explosion, including as a result of terrorist attacks. The measure of concentration of exposure is defined as buildings fully or partially covered within a radius of 200 metres. This concentration may occur over one or multiple insurance or reinsurance contracts. The classes covered within this scenario are direct and proportional fire and property only (i.e. no non-proportional fire and property risks).

Please see the principles noted in 2.10 for estimating recoveries from the gross loss.

3.7.13 Man Made – Liability

The liability scenario separately requires gross earned premium in the previous 12 months (i.e. 2013 calendar year) and the largest limit of indemnity for each risk group under liability risk. These groups are Professional Malpractice, Employers Liability, Directors and Officers, General Liability (Direct and Proportional) and General Liability (Non-Proportional) as defined in the LTGA text and template. These classes would largely fall under direct, proportional and non-proportional liability classes however please note that there are other segments of the general liability Solvency II classes covered elsewhere in the non-life catastrophe risk sub-module (notably 'Other Non-Life Catastrophe Risk').

To estimate the total gross loss for each risk group, the gross earned premium is multiplied by a risk factor. To estimate the reinsurance recoveries and the resulting net loss, the total gross loss is split in to a number of equally sized individual losses based on a function of the largest limit of indemnity. Please use the 'Assumed number of claims' and 'Gross amount of each claim' column to determine the resulting outwards reinsurance recoveries. The losses arising from each risk group can be assumed to be stand-alone and independent.

3.7.14 Man Made - Credit and Surety

The scenario for credit and surety risk combines the results from a Default Risk scenario and a Recession Risk scenario. The inputs are the results of each of these scenarios.

The classes covered by these scenarios relate to direct and proportional credit and surety classes. Catastrophe Risk arising from the non-proportional credit and surety class is covered within the 'Other Non-Life Catastrophe Risk' section.

The capital requirement for the default risk scenario is based on the loss in own funds which would arise from an immediate default of the two largest credit insurance exposures of an insurance or reinsurance undertaking. The calculation of the capital requirement is based on the assumption that the loss-given-default, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles, of each credit insurance exposure is 10% of the sum insured in relation to the exposure. The determination of the two largest credit insurance exposures of the insurance or reinsurance undertaking should be based on a comparison of the net loss-given-default of the credit insurance exposures, being the loss-given default after deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles.

The capital requirement for recession risk is equal to the loss in basic own funds of insurance and reinsurance undertakings that would result from an instantaneous loss of an amount that, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles, is equal to 100% of the premiums earned by the insurance or reinsurance undertaking during the last 12 months in lines of business 9 and 21 (direct and proportional credit and suretyship insurance).

3.7.15 Other Non-Life Catastrophe Risk

Other non-life catastrophe risk is intended to capture other risks not covered by the natural, non-proportional or man-made catastrophe risk sections above. The input required is gross earned premium in the next 12 months (i.e. 2014 calendar year) split by the following classes of business:

- Insurance and reinsurance obligations included in lines of business 6 and 18 (direct and proportional Marine, aviation and transport insurance) other than marine insurance and reinsurance, and aviation insurance and reinsurance.
- Reinsurance obligations included in line of business 27 (Non-proportional marine, aviation and transport reinsurance) other than marine reinsurance and aviation reinsurance.
- Insurance and reinsurance obligations included in lines of business 12 and 24 (direct and proportional Miscellaneous financial loss) other than extended warranty insurance and reinsurance obligations provided that the portfolio of these obligations is highly diversified and these obligation do not cover the

costs of product recalls other than extended warranty insurance and reinsurance obligations provided that the portfolio of these obligations is highly diversified and these obligation do not cover the costs of product recalls.

- Reinsurance obligations included in line of business 26 (Non-proportional casualty reinsurance) other than general liability reinsurance.
- Non-proportional reinsurance obligations relating to insurance obligations included in lines of business 9 (Credit and Suretyship Insurance).

The factors for determining the gross losses are set out in the LTGA text. Note that the Lloyd's template allows the calculation of mitigation to be done at the risk-group level, thereby assuming each of these losses is stand-alone and independent. Please note: A strict reading of the LTGA text would require mitigation to be calculated once losses are aggregated across risk groups. It was felt that the Lloyd's approach was more appropriate given the disparate risk groups used in this calculation. Please see the principles noted in 2.10 for estimating recoveries from the gross loss.

3.7.16 Region Information

No input is required on this tab. This sheet shows the allocation of countries or territories to the 18 regions defined in the LTGA text as well as the short-codes used for European countries. This information is also contained in the annexes of the LTGA text.

3.7.17 Lines of Business

No input is required on this tab. This sheet shows the detailed description of each of the Solvency II classes of business. This information is also contained in the annexes of the LTGA text.

3.7.18 Correlations

No input is required on this tab. This sheet contains correlation matrix parameters for non-life catastrophe risk as prescribed by the LTGA text.

3.8 Health Catastrophe Risk Tabs

Health catastrophe risk covers the risk of loss, or of adverse change in the value of insurance liabilities, resulting from the significant uncertainty of pricing and provisioning assumptions related to outbreaks of major epidemics, as well as the unusual accumulation of risks under such extreme circumstances. The standard formula SCR for health catastrophe is derived from the aggregation of 3 different scenarios as discussed (along with the required data inputs) below. In general these scenarios are based on number of lives and events which may affect those lives under each scenario. Note that detailed data requirements are given within each of the sections of the calculation template.

Note that the LTGA text currently excludes non-proportional health reinsurance obligations from the health catastrophe risk calculation. In order to capture catastrophe risk arising from this class Lloyd's has included an allowance for this and has calculated consistently with the non-life catastrophe risk non-proportional classes of business. That is, 250% of the estimate of gross (of reinsurance) earned premium in next 12 months (i.e. 2014 calendar year) with no allowance for geographical diversification.

3.8.1 Health Cat Risk Total

This sheet aggregates the results from the subsequent health catastrophe risk perils. A gross and net SCR is calculated. The gross is used as an input to the risk mitigating effect simplification used for counterparty default risk. Within this tab, further risk mitigation may be included on the Net SCR from each peril as discussed in 2.10 above.

3.8.2 Non-Proportional

As noted above, this sheet has been added to incorporate risks relating to non-proportional health catastrophe risk. The estimate of gross earned premium in 2014 is taken from the premium risk inputs on the 'Non-Life & NSLT Health P&R' tab. If this is not felt to be appropriate, for example if this amount includes policies which do not cover catastrophic events then the figure in this tab can be overwritten. Please see the principles noted in 2.10 for estimating recoveries from the gross loss.

3.8.3 Mass Accident

This scenario covers health insurance and proportional reinsurance contracts other than workers' compensation insurance and reinsurance classes across 31 European countries (non-European regions are not applicable to this peril). The LTGA text states that health catastrophe risk applies to worldwide exposures, however no r_s factors are provided for non-European exposures. As a result Lloyd's is not including risk arising for non-European exposures for this peril.

The data required ($E(e,s)$) is the total sum insured for each inhabitant of each country for the event type covered, where this is covered by the policy. Note this will give rise to double-counting across events where insureds are covered across multiple perils but there should be no double counting across countries. More detail on how sum insured can be determined is included within the template.

A gross loss is produced for each country using the total sum insured, parameters for the proportion of insureds affected and provided risk factors. Reinsurance recoveries may then be estimated for each country separately assuming each country's event is stand-alone and independent. The net SCR for each country is then estimated from this and aggregated to produce a total SCR estimate for mass accident risk.

3.8.4 Accident Concentration

This scenario covers insurance and proportional reinsurance obligations arising from workers' compensation and group income protection contracts classes. This section includes risks arising from global exposures; this includes the 31 European regions as per mass accident risk. To allow for non-European exposures and give credit for geographical diversification Lloyd's has included non-European regions in which to collect the exposures.

The data required is as follows:

- C_c - The largest accident risk concentration of the insurance and reinsurance undertaking in each country, this should be based on individuals working within the same building within each country c providing they are covered by at least one of the risk events and have workers' compensation or group income protection cover.
- $CE(e,c)$ - The average value of benefits payable by the insurance and reinsurance undertaking for each event type e for the largest accident risk concentration in each country c .

Note this will give rise to double-counting across events where insureds are covered across multiple perils but there should be no double counting across countries.

A gross loss is produced for each country using the average sum insured, number of concentrated lives and provided risk factors. Reinsurance recoveries may then be estimated for each country separately assuming each country's event is stand-alone and independent. The net SCR for each country is then estimated from this and aggregated across European and Non-European exposures to produce a total SCR estimate for concentration risk.

3.8.5 Pandemic

As noted in 1.2 above, the categorisation of events has changed from the 2011 data collection exercise and now better reflects the requirements of the LTGA text.

This scenario covers health insurance and proportional reinsurance contracts other than the workers' compensation insurance and reinsurance classes. This section includes risks arising from global exposures; this includes the 31 European regions as per mass accident risk. To allow for non-European exposures and give credit for geographical diversification Lloyd's has included non-European regions in which to collect the exposures.

The data required is as follows:

- N_c - The number of insured persons of the insurance and reinsurance undertaking which are inhabitants of each country and are covered by insurance contracts covering medical expenses.
- $CH(h,c)$ - The best estimate of the amounts payable by insurance and reinsurance undertakings for an insured person in each country c in relation to medical expense insurance or reinsurance obligations for healthcare utilisation h in the event of a pandemic.
- E - The income protection pandemic exposure of the insurance or reinsurance undertaking calculated as the sum over all insured lives covered by income protection insurance or reinsurance of the benefits

payable in case of a permanent work disability caused by an infectious disease. The value of the benefits should be the sum insured or where the contract provides for recurring benefit payments the best estimate of the benefit payments assuming that the insured person is permanently disabled and will not recover.

The gross loss is based on the above inputs and prescribed factors as set out in the template and the LTGA text. The gross loss is a single result combining all countries and after allowance for medical expense and income protection risks. Note that no geographical diversification benefit is given for pandemic risk. Reinsurance recoveries may then be estimated for this, please see the principles noted in 2.10 for estimating recoveries from the gross loss.

3.9 Life Underwriting Risk Tabs

3.9.1 Life Risk Total

This sheet requires no inputs; it aggregates the inputs from the 'Life Underwriting Risk' tab to produce an overall Life Underwriting Risk SCR based on the correlation matrix within the LTGA text.

3.9.2 Life Underwriting Risk

Both life syndicates and syndicates with exposure to non-life or health annuities are required to complete this return and value underwriting risk in relation to these operations. The tab collects the following details.

- **Technical Provisions & Capital at Risk** – Similar to non-life and health NSLT the top of this tab collects technical provisions summarised by life Solvency II class of business split by gross and reinsurance best estimate and risk margin. This section also collects provisions relating to annuities stemming from non-life contracts valued similarly to life techniques, although if a value has already been provided on the 'Non-Life & NSLT Health P&R' tab, this will automatically be pulled through. The Capital at Risk for all life insurance contracts should also be included in this section. This feeds in to the MCR calculation.
- **Life Insurance Underwriting Risk** – Life insurance underwriting risk includes the risk arising from mortality, longevity, disability/morbidity, lapse, expense, revision and catastrophe risk. Lloyd's has maintained the inputs from QIS5 for the purpose of the calculation of this component. Calculations should however be based on the LTGA text. In most cases the full calculations are the same for QIS5 and the LTGA text with the exception of lapse risk where the mass shock has increased. Simplifications have changed in many cases so if these are to be used Agents should review the LTGA text closely.

3.9.3 SLT Health

Lloyd's calculations do not include a capital charge for SLT Health, as it is assumed to be immaterial. Previous Standard Formula calculations performed by the Lloyd's Market on a QIS5 basis have indicated that this is nil.

3.10 Market Risk Tabs

Market risk relates to uncertainty in the level or volatility of market prices of financial instruments. This is assessed by the impact of movements in the level of financial variables such as stock prices, interest rates, real estate prices and exchange rates.

In previous exercises market risk has been a significant driver of the overall standard formula SCR for Lloyd's, primarily driven by charges for currency risk. Lloyd's continues to lobby for changes to this component.

A notable change from the QIS5 specifications is the capital charge for certain spread risk components, particularly for products based on repackaged loans which now receive a much higher charge than previously.

As described in section 2.5 the financial investments supporting syndicates and feeding in to the market risk module will be calculated on two different bases.

- **Basis 1:** All financial investments at their full market value at the valuation date as supplied in the QMC at 2013 year-end. This includes financial investments held to support accrued syndicate surplus/deficits plus any amounts held by fully aligned syndicates as 'Funds in Syndicate' (FIS) rather than posting Funds at Lloyd's (FAL). This unscaled basis is required for Lloyd's to estimate its aggregate standard formula SCR as this includes risks arising on surplus assets. **All inputs for financial investments in the calculation template should be on this 'unscaled' basis.**

- **Basis 2:** Financial investments are scaled such that the member balances (on a Solvency II basis) at the valuation date are nil. All financial investments are reduced proportionally by the same factor irrespective of asset class, currency or duration; this is consistent with the approach adopted and the basis for the internal model SCR calculation. The proportion is derived based on two inputs supplied in the 'Market Risk Total' sheet, these inputs are sourced from the 31 December 2013 QMC return, cell references from the QMC are given in the template and the inputs should be consistent with the QMC, in particular the signage of the amounts. **Lloyd's will consider the results of this basis to be the syndicate's standard formula SCR and MCR.**

Each of the sub-modules is addressed in turn below.

3.10.1 Market Risk Total

This sheet aggregates the individual market risk sub-module results from the below sheets on both financial investment bases. Note that certain factors in the correlation matrix depend on the shock which determines the interest rate risk SCR charge.

As noted above, this section also collects values to scale financial investments by to derive the results for Basis 2. These inputs are:

- The syndicate financial investments at 31 December 2013 valued on a Solvency II basis as per cell C21 on the QMC form 002.
- The syndicate member balances at 31 December 2013 valued on a solvency II basis as per cell C54 on the QMC form 002.

The derived proportion is then applied throughout the market risk sub-modules to determine the adjusted capital charge.

3.10.2 Interest Rate Risk

Interest rate risk exists for all assets and liabilities for which the net asset value is sensitive to changes in the term structure of interest rates or interest rate volatility. This primarily relates to fixed interest securities for assets and technical provisions for liabilities.

The inputs required on this tab are as follows:

- Assets – the market value of the assets (i.e. discounted) within each currency split by financial investments and all other assets exposed to interest rate risk. This split is required in order to accurately scale the financial investments for Basis 2. The average modified duration of all assets within each currency is also required. The Basis 1 and 2 amounts by currency are then determined from the above inputs.
- Liabilities - the undiscounted cashflows in relation to each currency in each specified maturity. Note that a maturity of '1' refers to all cashflows deemed to occur between time 0 (i.e. the valuation date) and time 1.

Interest rate risk is derived based on prescribed upwards and downwards shocks to the risk-free 2013 year-end yield curves. The risk free yield curves have been derived by Lloyd's and are contained on the 'Risk Free Yield Curves' tab, these are consistent with the curves produced by Lloyd's for the Solvency II basis technical provision calculations as published on lloyds.com in the link provided in section 4.

3.10.3 Equity Risk

Equity risk arises from uncertainty in the level or volatility of market prices for equities. Agents are required to provide details of their held equity investments split as follows:

- Type 1 exposures (listed in regulated markets which are members of the OECD or EEA); and
- Type 2 exposures (not listed in EEA or OECD countries, unlisted equities, private equities, hedge funds, commodities and other alternative investments. They should also comprise all other assets not included within property risk, spread risk and interest rate risk).

These exposures are further split as follows:

- Investments of a strategic nature – please see section 'SCR 14' in the LTGA text for the criteria for classification of strategic equity investments. These relate to participations in third parties which are

deemed to be material (from the perspective of the third party) and further, there are clear intentions to maintain this investment for the foreseeable future.

- All other equity investments which are not strategic.

Agents are required to enter the market value of the above investments at 31 December 2013 in each of the four cells on this tab.

The equity risk charge is determined from factors for each of the four equity classifications. Lloyd's has also incorporated the 'symmetric adjustment' to the factor for non-strategic investments. This was excluded from the LTGA exercise but was included in the original level 2 specification and has been added for the Lloyd's calculation. Lloyd's has estimated this in line with the draft Level 2 text and based on the FTSE Global All Cap Index. The adjustment for this exercise is 6.51%.

The equity risk charge is based on the market values and the above factors. A value for basis 2 is also derived based on the proportion produced in the 'Market Risk Total' sheet.

3.10.4 Property Risk

This tab uses the value of all property investments within the syndicate to estimate the risk arising from the sensitivity of the market value of these assets. In line with the LTGA text, property investments can be classified as the following:

- land, buildings and immovable-property rights; and
- property investment for the own use of the insurance undertaking.

Otherwise, the following investments should be treated as equity risk and considered accordingly in the equity risk sub-module:

- an investment in a company engaged in real estate management, or
- direct or indirect participations in real estate companies that generate periodic income or which are otherwise intended for investment purposes;
- an investment in a company engaged in real estate project development or similar activities, or
- an investment in a company which took out loans from institutions outside the scope of the insurance group in order to leverage its investments in properties.

The shock applied to these assets is a 25% fall in their value to estimate the property risk charge. A value for basis 2 is also derived based on the proportion produced in the 'Market Risk Total' sheet.

3.10.5 Spread Risk

Spread risk covers the sensitivity in the values of assets, liabilities and financial instruments to changes in the level or volatility of credit spreads over the risk-free interest rate term structure. This will apply particularly to corporate bonds, subordinated debt, hybrid debt asset-backed securities and credit derivatives. No spread risk applies to EEA government bonds issued in their domestic currency or instruments issued by the below entities. Amounts relating to these assets should not be included in the spread risk sheet.

- The European Central Bank; or
- Central government or central banks which are member states of the EEA issued in their domestic currency; or
- Multilateral development banks; or
- The European Community; or
- The International Monetary Fund; or
- The Bank for International Settlements.

To derive the spread risk charge different shocks are applied with reference to different rating categories for bonds structured products and credit derivatives. Each of these is addressed in turn below:

- Bonds and Loans (other than Mortgage Loans) – These relate to all bonds and loans (other than mortgage loans) split by covered (mortgage and public sector) bonds, bonds issued by governments outside of the EEA in their domestic currency and all other bonds and loans (including all government bonds not issued in their domestic currency).

Agents are requested to provide the market value of the bonds split by duration bucket and credit rating band. The average modified duration of the bonds covered in each of the duration buckets is also

requested. The SCR charge is determined as the product of the market value and a risk factor set out in the LTGA text which varies by duration and credit rating.

For bonds or loans issued by unrated insurance or reinsurance undertakings there is a table within the template which shows how the credit quality of each undertaking should be derived based on the solvency ratio.

- **Tradable Securities or Other Financial Instruments, Based on Repackaged Loans** – These relate to investments in instruments based on resecuritisation and all other tradable securities or financial instruments.

For each of the above two categories agents are requested to provide both the market value and average duration in buckets of credit rating band and modified duration. Note that the duration increments are different from those for the bonds and loans category above. As the maximum duration for each credit step is often lower than the duration buckets, durations are only required for a select number of credit rating/duration bucket combinations. If no durations are supplied the maximum for that credit rating/duration bucket will be taken.

- **Credit Derivatives** – The calculation for spread risk arising from credit derivatives should be as per the LTGA technical specifications which can be found in a link at the end of this guidance. This is based on a scenario approach applied to credit default swaps (CDS), total return swaps (TRS), and credit linked notes (CLN) based on the loss in basic own funds arising from a change to the credit spreads of the above instruments. The shocks, as are set out in the LTGA text, are an increase varying by credit quality step and decrease of 75%.

An SCR charge is then derived for spread risk as the sum of the SCRs for each sub-component. A value for basis 2 is also derived based on the proportion produced in the 'Market Risk Total' sheet.

3.10.6 Concentration Risk

This risk sub-module relates to the concentration risk arising from assets considered in the equity, spread risk and property risk sub-modules, and excludes assets covered by the counterparty default risk module in order to avoid any overlap between both elements of the standard calculation of the SCR. The risk arising from concentration risk only includes the accumulation of exposures in financial investments in the same counterparty. It does not include any other types of concentration.

This is considered a relatively immaterial risk to individual Lloyd's syndicates.

Inputs for this sub-module are:

- Total amount of financial investment assets included in the concentration risk sub-module. Lloyd's has taken this as the sum of the total exposure to each counterparty in the table below. If this is not correct, for example if some immaterial exposures have not been included in the table then this value can be overwritten.
- Counterparty name or grouping.
- Type of exposure to counterparty split by standard, unrated (according to Solvency II definitions), mortgage and public sector covered bonds, property and non-EEA government and central bank bonds.
- Credit rating or solvency ratio (for unrated exposures – option 2 above). This input is not required for property exposures.
- Total exposure in GBP 000s.

Please follow the LTGA text instructions for grouping of counterparties for this calculation.

The calculation determines a maximum threshold of total exposure based on the type of exposure and rating/solvency ratio. Any exposure in excess of this threshold is then subject to a charge 'g,' according to a factor which also varies by the type of exposure and rating/solvency ratio. This is then aggregated with credit given for diversification across different types of exposure. A value for basis 2 is also derived based on the proportion produced in the 'Market Risk Total' sheet.

3.10.7 Currency Risk

Currency risk arises from changes in net asset values from uncertainties in the level or volatility of currency exchange rates. Inputs here are the total asset and liability exposure by currency. Assets are split by financial investments and non-financial investments as financial investments are scaled by the factor supplied on the

'Market Risk Total' sheet in order to produce an SCR charge on Basis 2. For each relevant foreign currency, the position should include any investment in foreign instruments where the currency risk is not hedged.

The charge for currency risk for each currency is the loss in basic own funds which arise following either a 25% rise or fall in the exchange rate against GBP (i.e. effectively 25% of the net asset value for all currencies except GBP). The currency risk charge is then the total across all non-GBP currencies. A value for basis 2 is also derived based on the proportion produced in the 'Market Risk Total' sheet.

3.10.8 Risk Free Yield Curves

This sheet requires no inputs. It contains the risk-free yield curves derived by Lloyd's at 2013 year-end as well as the prescribed shocked curves for the interest rate risk calculation.

3.11 Counterparty Default Risk Tabs

3.11.1 Counterparty Default

This module estimates the risk of losses arising from unexpected default or deterioration in credit standing of counterparties and debtors of the undertakings within the SCR period. This includes risks arising from:

- Type 1 exposures such as risk-mitigating contracts (including reinsurance and cash at bank); and
- Type 2 exposures such as future receivables from intermediaries, policyholder debtors and mortgage loans.

Cash at bank and mortgage loans are not considered financial investments on the QMC and as such no scaling of results is required in this module to adjust for basis 2. The values entered should be the full unscaled amounts.

Lloyd's has used the QIS5 helper tab as a basis for the structure of this sheet and has modified the formula where this changed since QIS5, the structure has also been modified slightly. Column by column guidance on the inputs required are found at the top of this sheet. Please adhere to the drop down selections on this sheet otherwise the charge may not be correctly calculated.

For Type 1 exposures a simplification for non-life reinsurance risk mitigation has been calculated in the 'CPD Risk Mitigating Effect' sheet. The risk mitigating effect is designed to include the additional counterparty default risk which arises under the stressed underwriting risk as the reinsurance recoverables increase. The simplification uses inputs and parameters for the non-life and health underwriting risk modules (including catastrophe risk) to estimate the effect of risk mitigation on the shocks applied for non-life underwriting risk (including catastrophe risk). This simplification is an extension of the simplification described in SCR 6.43 of the LTGA technical specifications. Please note, The LTGA text simplification is applied at a counterparty level (i.e. the risk mitigation is derived by counterparty) whereas the simplification in the Lloyd's template is based on all non-life and health NSLT business. As a circumstance, the derived risk mitigation amount should only be used where the simplification is being applied across all non-life and health NSLT reinsurance contracts. The risk mitigating effect is apportioned across all non-life reinsurance contracts in line with the existing recoverables. If the simplification is only being used for a sub-set of non-life reinsurance contracts then the risk mitigating amount derived from the calculation should be overwritten with the counterparty specific amount derived by the agent in line with SCR 6.43. The use of the above simplification is included as default (in cell C23) but can be removed and calculated for each counterparty if required.

Counterparty exposure to Lloyd's syndicates should be classed as 'A' rated entities (the Lloyd's rating) for the purpose of this calculation.

The loss given default for each counterparty within Type 1 exposures is based on a loss rate (defined by the nature of the contract type with the counterparty) and the total recoverables plus risk mitigation less a proportion of any collateral currently being held.

The Type 1 amounts are then aggregated by consideration of probability of default and the variance of each credit rating/solvency ratio loss distributions.

To estimate the charge for type 2 exposures enter amounts separately for those which over-due by more than 3 months and all other exposures. The charge for these is 15% of all amounts over-due by less than 3 months and 90% for those over-due by more than 3 months.

3.11.2 CPD Risk Parameters

This sheet requires no inputs. It is used in the aggregation of results for Type 1 counterparty default risk exposures.

3.11.3 CPD Risk Mitigating Effect

This sheet requires no inputs. As noted above it derives the total amount of risk mitigation based on the simplification set out in the LTGA text (and extended by Lloyd's) for non-life reinsurance (including health) class exposures.

3.12 Operational Risk

This tab is used to estimate operational risk arising from inadequate or failed internal processes, systems, personnel, procedures or external events. This tab collects high level Gross Earned Premium data for 2012 (12 months prior to previous 12 months) and 2013 (previous 12 months) calendar years split by life obligations, non-life obligations, unit-linked obligations. Unit linked expenses in respect of life insurance contracts where investment risk is borne by policyholders are also collected.

The calculation uses inputs from the underwriting risk sheets in respect of gross best estimate technical provisions. The operational risk charge is then derived based on a series of factors applied to these volumes.

Note that as the operational risk charge is subject to a maximum of 30% of the Basic Solvency Capital Requirement (BSCR), the charge is derived on the two bases described in section 2.5.

3.13 Minimum Capital Requirement

The minimum capital requirement is derived separately for life (including non-life and health annuities) and non-life exposures. The pre-corridor MCR also feeds the Early Warning Indicator amount as proposed by the PRA in May 2013. This is also calculated in this sheet.

The non-life MCR is based on factors applied to net written premium amounts in the previous 12 months (i.e. 2013 calendar year) and the net best estimate technical provisions both split by Solvency II class of business. The charge for premium and technical provision elements are then summed to create a total charge. While the net best estimate amounts are fed directly from the non-life and health underwriting risk sheets, net written premium is not collected elsewhere on the sheet.

For previous exercises the written premium was estimated from earned premium amounts supplied elsewhere in the sheet, this is now being collected explicitly. Note that premium written should be based on the Solvency II definition of written which is not necessarily the same as the UK GAAP definition. The draft Level 2 text defines written premium as follows:

“written premiums’ means, in relation to a specified time period, the premiums due to an insurance or reinsurance undertaking during that time period regardless of the fact that such premiums may relate in whole or in part to insurance or reinsurance cover provided in a different time period.”

The life MCR is based on factors applied to the net best estimate technical provisions split by Life classes of business as well as a factor applied to the capital at risk for all life exposures. Note Lloyd's has also included exposures where these have been split out in the technical provision valuation to non-life annuities. These amounts are all fed from the life underwriting risk modules where completed but may be overwritten if necessary.

- The ‘linear’ pre-corridor MCR is the sum of the MCR elements for non-life and life exposures. This is the value on which the Early Warning Indicator is based, the factors being 175% and 300% of the linear MCR for non-life and life segments respectively.
- The MCR ‘combined’ applies a floor and cap of 25% and 45% of the SCR respectively to the MCR. As this uses the SCR result which is being derived on two different bases in the sheet, two sets of result will be produced.
- The final MCR then takes the minimum of the ‘combined’ MCR above and €3.2m – the Absolute Minimum Capital Requirement (AMCR).

4 SOURCES OF INFORMATION AND ADVICE

As mentioned above many of the data entry requirements for the Solvency II standard formula are similar to those required under QIS5, this makes the specifications and templates relevant in these cases. Lloyd's has attempted to identify this within the data collection template. In some cases this is through referencing the QIS5 requirements within the descriptions (e.g. Life Underwriting Risk) and in other cases Lloyd's has reproduced the helper tabs to calculate the capital requirements for these risk modules, with changes where required (e.g. Counterparty Default Risk).

Lloyd's would encourage agents to refer to these sources initially to check if any queries they may have already been identified and answered. A separate set of FAQs will also be produced for this exercise which Lloyd's would also encourage agents to check regularly. If agents still have questions after referring to these sources then please email these to solvency2@lloyds.com or the contact details at the front of this guidance.

4.1 EIOPA

<https://eiopa.europa.eu/en/consultations/qis/insurance/long-term-guarantees-assessment/index.html>

The LTGA technical specification and supporting annexes and errata is available on the EIOPA website.

4.2 PRA

<http://www.bankofengland.co.uk/pr/Pages/solvency2/default.aspx>

The PRA has established Solvency II pages on its website to ensure all firms are kept up to date and informed. The 'News' pages contain useful information, notably on data collection exercises and EWIs as announced in May 2013.

4.3 Lloyd's

<http://www.lloyds.com/The-Market/Operating-at-Lloyds/Solvency-II/Information-for-managing-agents/Guidance-and-workshops/Technical-Provisions-and-Standard-Formula>

For previous standard formula exercises (QIS5 and subsequent bases) Lloyd's has issued guidance notes and published FAQs throughout the process, these can be found on the Technical Provisions and Standard Formula section of the Solvency II area of lloyds.com.

APPENDIX A

Simple Examples of Application and Complexity of Risk Mitigation Techniques to Catastrophe Risk

The below examples are purposefully simplistic and designed to represent how risk mitigation may be applied in practice and the potential complexity of this application.

EXAMPLE A

Consider a single outwards risk excess contract of £100m XS £100m covering worldwide exposure to windstorms, no other reinsurance exists; the contract does not include reinstatements. The standard formula has derived the following results for the gross losses:

1. European Natural Catastrophe Windstorm 'Specified Loss' of £200m such that:

Scenario	A	A	B	B
Loss	1	2	1	2
Loss Factor	100%	20%	80%	40%
Gross Loss	£200m	£40m	£160m	£80m
Mitigation	£100m	£0	£60m	£0m
Net Loss	£100m	£40m	£100m	£80m

Scenario B is the selected 'Net' loss for the European Natural Catastrophe risk component (as it has a higher net loss). Total Net Loss of £180m, £60m of cover utilised.

2. Non-European Natural Catastrophe Windstorm Gross Loss of £200m. Applying the outwards programme to this amount would result in a net loss of £100m.

Possible approaches in allowing for the programme:

3. Aggregating the gross losses of £240m and £200m in the above across European and non-European exposures respectively results in a £312m gross charge. Applying the programme at this level would provide a net result of £212m.
4. Aggregating the stand-alone net results of £160m and £100m respectively for European and non-European exposures would result in a net SCR charge of £206m. Although this approach is in line with the requirements, it effectively overstates the recoveries by £6m as the outwards policy is exhausted.

An alternative approach could be to assume the losses occur in a specific order and determine the recoveries from these based on the remaining cover:

5. Were the gross European loss of £240m to occur first, this would trigger £60m of recoveries (scenario B remains applicable) such that the net loss is £180m. There is £40m of cover remaining for the non-European loss giving a net charge of £160m. These amounts would then aggregate to a £241m net charge.
6. Were the £200m non-European loss to occur first, the full £100m of cover could be taken against this giving a net loss of £100m. The full £240m gross European loss would also then be the net loss. Combining these two net losses gives a charge of £260m.

The above example highlights the possible complexity and various options which exist in the application of the programme. A strict interpretation of the requirements would give rise to a net SCR charge of £206m (as per 4, above), while this approach is acceptable, being in line with the latest requirements, Lloyd's is encouraging agents to carefully consider the application of their programme and the derived net results in determining appropriate SCR charges.

EXAMPLE B

Consider an aggregate stop loss cover which provides protection for claims experience (post application of other reinsurance) between £100m and £200m.

At a non-life catastrophe sub-module level the net losses (after applying any mitigation which applies to these losses prior to this programme and adjusting where applicable as per Example A) are:

- Natural Catastrophe: £80m
- Non-Proportional Property: £100m
- Man-Made Catastrophe: £100m
- Other Non-Life Catastrophe: £40m

The above gives a pre-diversified result of £320m and a diversified loss of £210m.

A strict interpretation of the requirements would not permit the utilisation of this cover in mitigating the losses arising from the four sub-modules and the charge would be £210m. However, as the firm could recover the full £100m from the above programme on the aggregated losses it could potentially be appropriate to allow for these such that the final net SCR charge is £110m.

The above examples demonstrate that even in these simplistic scenarios there are several options to allow for mitigation. Again, Lloyd's is comfortable with Agents applying their programmes strictly in line with the requirements (i.e. at a peril/sub-module level) but where steps are taken to derive a more representative overall result by applying programmes further up the aggregation steps, agents should be careful to avoid over- or double-counting of their programmes.

