

# 2021 LCR Instructions

Instructions for Submission of 2021 Lloyd's Capital Return and Supporting  
Documentation  
July 2020

## Disclaimer

No responsibility or liability is accepted by the Society of Lloyd's, the Council, or any Committee of Board constituted by the Society of Lloyd's or the Council or any of their respective members, officers, or advisors for any loss occasioned to any person acting or refraining from action as a result of any statement, fact, figure or expression of belief contained in this document or communication.

Lloyd's is aware that this guidance may be helpful to non-Lloyd's firms. Lloyd's accepts no obligation to these third parties for their use and further, no responsibility or liability for any decision or loss arising from this guidance.

The views expressed in the paper are Lloyd's own. Lloyd's provides the material contained in this document for general information purposes only. Lloyd's shall not be liable for any loss which may arise from reliance upon the information provided.

## Contents

<b>Disclaimer</b>	<b>2</b>
<b>1 Purpose</b>	<b>3</b>
<b>2 Submission Requirements and Deadlines</b>	<b>3</b>
2.1 Overview	3
2.2 Focus Areas	4
2.3 Foreign Exchange	4
2.4 Analysis of Change	4
2.5 Resubmissions	5
<b>3 Lloyd's Review Process</b>	<b>5</b>
3.1 Syndicate Capital	5
3.2 Co-ordination with other teams	6
3.3 Communication of loadings	7
<b>4 Lloyd's Model Tests</b>	<b>7</b>
4.1 Syndicate Capital Model Tests	7
4.2 Syndicate Reserving Model Tests	11
4.3 Exposure Management Model Tests	13
<b>5 Focus Areas</b>	<b>13</b>
5.1 COVID-19 Impact	13
5.2 Other Focus Areas for the 2021 YoA	16

# 1 Purpose

This document provides instructions for the submission of the 2021 Lloyd's Capital Return (LCR) and any supporting documents required. It also provides information in respect of the structure and timing of Lloyd's review and any specific focus areas for Lloyd's in 2020.

These instructions should be considered in conjunction with the [Lloyd's Capital Guidance](#) and the Lloyd's Minimum Standard on Modelling, Design and Implementation ([MS 13](#)), which sets out the minimum requirements relating to internal modelling. This guidance should be considered in conjunction with Lloyd's [Validation](#) and [Model Change](#) guidance.

## 2 Submission Requirements and Deadlines

### 2.1 Overview

The LCR captures quantitative information that, alongside the qualitative validation and documentation, allows managing agents to demonstrate that they have systems enabling them to identify, measure, manage and report risk and calculate SCRs.

A full submission is required for all syndicates with a business plan or any open year of account at the time of submission, including those in run-off or underwriting RITC business only. The exception are syndicates where capital is set on the Lloyd's Syndicate Benchmark Model (SBM) (see Section 4.6 of the [Lloyd's Capital Guidance](#)). Syndicates planning to close all years of account at the balance sheet date and cease existence do not need to submit an LCR, as long as the receiving syndicate includes any ceded business in its LCR submission (see Section 4.7 of the [Lloyd's Capital Guidance](#)).

The phased approach for business plan and capital submissions, introduced last year, will continue for 2021. Each syndicate has been given a specified return submission date based on capital structure and Lloyd's risk-based approach. Syndicates will follow one of four submission phases, which has been confirmed by the Oversight Managers. Non-aligned syndicates will submit their plan and capital information in one phase this year. Further details can be found in [Market Bulletin Y5292](#).

The table below provides the requirements for each element of capital reporting. Deadlines are 1pm on the day each item is due. Please note that re-submissions of documents might be required if syndicates do not adhere to the naming conventions. The reason is that Lloyd's relies on automatic downloads from SecureStore for documents for data protection reasons - exceptions in the naming conventions will require manual intervention, which Lloyd's is seeking to minimise. Uploads to SecureStore should go into the Syndicate Capital Setting folder. The "free text" part of the name can be used to differentiate different types or versions of files.

Item	Description	Submission	Deadline	Naming Convention
<b>LCR</b>	Quantitative capital return	All forms complete on MDC	Phased submission deadline	N/A
<b>Methodology document</b>	Qualitative document supporting the LCR submission	Attachment in MDC	Phased submission deadline	Methodology2021_0000_free text (0000 representing the syndicate number)
<b>Analysis of change</b>	Document supporting the LCR submission	Attachment in MDC	Phased submission deadline	AoC2021_0000_free text (0000 representing the syndicate number)
<b>Focus Areas</b>	Spreadsheet return on <a href="#">Lloyds.com</a>	Attachment in MDC	Phased submission deadline	FocusAreas2021_0000_free text (0000 representing the syndicate number)
<b>Model Change Template</b>	Spreadsheet return on <a href="#">Lloyds.com</a>	Upload to SecureStore	Monday after LCR deadline	MCT2021_0000_free text (0000 representing the syndicate number)

Item	Description	Submission	Deadline	Naming Convention
<b>Validation</b>	Documentation providing model validation	Upload to SecureStore	One week after LCR deadline	ValidationReport2021_0000_free text (0000 representing the syndicate number)
<b>Validation signposting template</b>	Spreadsheet return on <a href="https://www.loyds.com">Lloyds.com</a>	Upload to SecureStore	One week after LCR deadline	ValidationSPost2021_0000_free text (0000 representing the syndicate number)
<b>Sum of squares test template</b>	Spreadsheet return on <a href="https://www.loyds.com">Lloyds.com</a>	Attachment in MDC	Phased submission deadline	SumSquares2021_0000_free text (0000 representing the syndicate number)

In certain circumstances, syndicates should fill in the Negative Market Risk Template (available on [Lloyds.com](https://www.loyds.com)), and submit this with their LCR submission as an attachment in MDC. Further details can be found in Section 4.1.6.

Information on the documents/returns above can be found in Sections 4.2 and 4.8 of the [Lloyd's Capital Guidance](#). The September/October return should be submitted on the basis of the expected business outcome at 1<sup>st</sup> January 2021. More information about the basis of reporting of the LCR return can also be found in Section 3.2 of the [Lloyd's Capital Guidance](#).

The final SCR submitted to Lloyd's must be approved by the Board or an appropriately authorised committee depending on the syndicate's governance arrangements, and in line with the Governance Minimum Standard [MS4](#). Board members should ensure they are aware of all issues raised during the review process and recognise that following Lloyd's review of the SCR, loadings might be applied.

## 2.2 Focus Areas

Lloyd's will continue to use the Focus Areas return to provide advance notice to managing agents of specific areas of review focus. In 2020, the return will not contain syndicate specific information, but will instead be a data collection. It has been published in conjunction with this guidance.

The 2020 return will focus primarily on the experience and model response to COVID-19. Lloyd's minimum expectations on the recent experience on COVID-19 are outlined in Section 5.1.

## 2.3 Foreign Exchange

The LCR must be reported in converted sterling using the published prior 30 June rates for a year-end Coming-into-Line submission or the 31 December rates for a mid-year Coming-into-Line submission. For the 2021 YOA year-end coming into line, the rates are set out in [Market Bulletin Y5298](#).

The managing agent may prepare its underlying model in any currency and present figures in the methodology document in US dollars where that is the dominant currency of exposure. All figures in the submission must be reported in converted sterling. The syndicate should make clear what currency and units are used in its reporting at any point.

## 2.4 Analysis of Change

The analysis of change (LCR Form 600 in MDC) has been expanded this year to include measures that Lloyd's analyses as part of the review. Syndicates should ensure that their documentation explains the movement in these figures. Lloyd's expects syndicates to provide commentary on how the model represents the risk profile, with reference to recent experience and any emerging features of the risk profile. Movements will not be accepted by virtue of being the consequence of input updates and must be analysed in full to ensure they are clearly understood for both one-year and ultimate capital. Further detail can be found in Section 14 of the [Lloyd's Capital Guidance](#).

## 2.5 Resubmissions

If an SBF resubmission is required during the review process, the managing agent must assess the capital impact of this change. A resubmission of the LCR return may be required depending on impact as set out in Section 4.3 of the [Lloyd's Capital Guidance](#).

Please note that Lloyd's may have to restrict the number of capital resubmissions if there are multiple SBF resubmissions, e.g. in case of a natural catastrophe leading to revised rate change projections and plans. Restraints on resources might mean that syndicates will have to delay their resubmissions until March 2021.

## 3 Lloyd's Review Process

After the LCR submissions, the data submitted will be processed and Lloyd's review will commence.

### 3.1 Syndicate Capital

As a first step, the syndicate capital team will triage syndicates into review categories. Syndicates will either enter the "fast track" route with a light review or will be subject to a more detailed review. All review levels will consider:

- Minimum tests mentioned below,
- Responses to the thematic review areas,
- Responses to the Focus Areas return, and
- Responses to previous loadings and feedback

Light reviews focus mainly on high-level movements in risk type and risk vs exposure metrics. Requests for further information from the syndicate will in general be limited.

The more detailed reviews focus on understanding the full scale of movements in capital as well as risk-to-exposure metrics across all risk types and classes and usually involve requests for further information.

Syndicates qualify for a light review if they meet ALL of the following criteria (see [Fast Track Pilot for 2020 Capital Review Process](#) for details, including definitions of metrics):

- a. uSCR is below £200m (as per LCR form 309, Table 2, Cell I9); and
- b. No significant concerns have been identified in respect of the internal model; and
- c. The model has been subject to limited change, i.e. no major model change application accompanies the SCR submission; and
- d. Key SCR-to-exposure metrics have not changed materially since the previous SCR review (September submission or any re-submission if applicable); and
- e. Historical key SCR-to-exposure metrics ("model drift") over the previous 4 years and material losses for the previous 2 years have been within pre-defined tolerances.

Please note that Lloyd's expects all syndicates to review their metrics in points d and e and include any reasons for failing these metrics in their documentation. For example, if a syndicate is flagging for model drift, but has been growing over the past years in terms of income and reserves, then the syndicate should give an explanation in its documentation.

For syndicates which are part of the fast-track pilot, they will qualify for a light review if they meet all of the criteria above – however the size of uSCR will not be taken into account and the changes in SCR-to-exposure metrics will be measured from the major model change submission.

After the triaging process, Lloyd's will carry out initial completeness checks in order to highlight to the managing agent early on if the submission does not sufficiently meet the requirements in terms of documentation in other ways. The initial completeness check will be complete within 10 working days of the LCR submission. It will cover:

- Any missing documents from the submission against the list above.
- Data validations highlighting inconsistencies between returns, which includes reviewing the consistency of risk margin and RICB between LCR submission and QSR, as well as checking the consistency/reconciliation of premium, claims and profit between LCR and SBF.

- Any failures in the minimum tests described below. This serves as an opportunity for syndicates to provide any further relevant information regarding the areas covered by minimum tests. If the information is not considered sufficient as part of the review process, then syndicates will be loaded without further communication about proposed loadings.
- Request of the negative market risk template from syndicates if applicable and not already provided with the submission. As per the above, this serves as an opportunity for syndicates to provide any further information regarding potential loadings for these areas.
- Syndicates will also be informed if their submission will be fast tracked or otherwise.

## 3.2 Co-ordination with other teams

The capital review process involves a number of different teams in Lloyd's. The overall review is conducted by the Syndicate Capital team with other teams such as Treasury, Exposure Management and Outwards Reinsurance having input. However, loadings regarding the prospective loss ratios, the technical provisions roll forward process and mean best estimate reserve loadings are proposed by the Syndicate Reserving team. Loadings regarding the Catastrophe Risk Appetite, model completeness and other catastrophe risk related loadings are proposed by the Exposure Management team. Questions regarding these loadings should be directed to your Syndicate Reserving / Exposure Management point of contact respectively. Oversight Managers can provide any additional information on the process.

The Exposure Management process involves reviewing the LCR/ECA along with the Syndicate Business Forecast and catastrophe (LCM) forecast returns. The LCM forecast returns include simulations for the following year's catastrophe losses, a sensitivity test to calculate the impact on SCR of an increase in catastrophe risk and a bridging analysis of the catastrophe losses provided to Exposure Management and those recorded in the LCR Form 313. Further details on these returns will be released in July and can be found on SecureStore [here](#).

### 3.2.1 Syndicate Reserving

The Syndicate Reserving team review the following, with further detail provided in Section 4.2:

- Earned margin
- Profit from unearned premium
- Model loss ratio assumptions
- Model opening reserves (balance sheet projection)
- Best estimate reserves

Lloyd's provides summary files showing the Model Loss Ratio Test being undertaken by Lloyd's. These are based on the 2020 plan and LCR submission but include the actual information from the TPD as at year-end 2019, as such any loadings shown are indicative. Between June and August, Lloyd's is inviting managing agents to participate in 2-week review windows to provide any supporting evidence for a reduction in the indicative loading.

Lloyd's has provided an updated template to complete for the Model Opening Reserves Test to be submitted to Lloyd's. Lloyd's asks managing agents with specific feedback or loadings in the previous CPG season to fill out the template and submit to Lloyd's for review.

During CPG reviews, Lloyd's will update the model loss ratio test with the submitted 2021 LCR and SBF to show the indicative loading with current data and provide this to managing agents. Again, managing agents will have the opportunity to provide evidence for any reduction in loading; Lloyd's expects minimal requirement for additional loading given the pre-CPG season review windows.

In order to make tests as transparent as possible, Lloyd's provides details of how the tests work including a simplified summary file demonstrating calculations using dummy data for the Model Loss Ratio Test, and a file showing the loading calculation for the Model Opening Reserves Test.

The best estimate reserve reviews are specific to the deficiency that has been highlighted and that needs resolution. Lloyd's will engage with the reserving team at the syndicate for queries / meetings and provide timely feedback and raise any additional queries. Where there appears to be deficiency in the process, or reserves underpinning the model opening reserves, a loading may be proposed.

### 3.3 Communication of loadings

All loading proposals applied by Syndicate Capital / Syndicate Reserving follow the process outlined below.

The reviewer might ask clarifying questions throughout the review – though due to the short turnaround times, Lloyd's will attempt to keep questions to a minimum. Results of the review will be presented to and discussed at the Capital Technical Review Group (CTRG) and at the Reserving Technical Review Group (RTRG). Any proposed loadings will be sent to the Capital/Reserving team at the syndicate – and Oversight Managers will also communicate potential loadings to the executive of the syndicate. When communicating loads to syndicates, Lloyd's will advise:

- The amount of the loading to the ultimate and one-year SCRs
- The area of the model to which the loadings are applied
- A description of the loading and how it has been derived; and
- What is needed from syndicates in order to address the potential loadings.

Loadings are of an indicative nature and are designed to address the uncertainty surrounding the capital numbers if certain questions cannot be resolved satisfactorily. The communication includes the proposed measures to address the loadings and there are areas where Lloyd's expects that syndicates could address the uncertainty in the timescales provided.

Responses by syndicates will be reviewed and a recommendation regarding the syndicate's capital will then be presented to the Capital Planning Group (CPG). CPG's decision will be communicated by Oversight Managers verbally and followed up with a letter shortly after the CPG meeting. CPG decisions can be appealed; syndicates should contact their Oversight Managers regarding procedures.

More detailed feedback will be sent to capital contacts by the Syndicate Capital team and the reserving contacts by the Syndicate Reserving team. This will include detailed information about loadings, how these can be addressed, and timeframes. Feedback will be sent out by the 20<sup>th</sup> of November at the latest. The feedback sent will also include any changes to the status of the minimum standard ratings.

Please note that this process largely follows the review process established last year – however the initial completeness check has been expanded in order to highlight any failures in minimum tests / thematic areas early to syndicates and give them as much time as possible to address potential loadings in these areas. Syndicates will not receive a further opportunity to address any loadings in these areas after that.

## 4 Lloyd's Model Tests

Lloyd's will run a number of tests which flag areas to question with the syndicate. If any of the tests are failed, Lloyd's will query these areas and would require robust justification to support the model output. Loadings will be applied if the justification is deemed insufficient. Please note that passing the minimum test does not necessarily mean that Lloyd's has no further questions on the area in question, as these only constitute a baseline. Some tests are relatively simple automated tests that will be run as a matter of course – other tests like the Model Loss Ratio tests have been agreed on with the market in advance of the submissions.

### 4.1 Syndicate Capital Model Tests

#### 4.1.1 Insurance Risk – Modelled Class Volatility

Net loss ratios should be greater than 100% for the standalone premium risk for each modelled class of business at the 99.5<sup>th</sup> percentile, i.e. each class should make a loss at a 1 in 200 return period.

This test checks that the 99.5<sup>th</sup> Net Claim percentile for Premium Risk including Catastrophes is greater than the Net Premium, for each modelled class. These correspond to LCR form 502 Q1 Col I and LCR form 502 Q1 Col A. The ratio is also automatically calculated in LCR form 503 Q1 99.5<sup>th</sup> ULR including Catastrophes, and it must be greater than 100%.

#### 4.1.2 Diversification – within Premium Risk

Contributions from premium risk by modelled class of business to the 99.5<sup>th</sup> percentile of premium risk should be greater than the mean for the class. This test is designed to ensure that a minimum level of correlation is applied between all classes for premium risk.

This test checks that the 99.5<sup>th</sup> Post Diversified claims for Premium Risk including Catastrophes is greater than the Mean Net claims for each modelled class. These correspond to LCR form 502 Q1 Col I(i) and LCR form 502 Q1 Col B. The ratio is also automatically calculated in LCR form 503 Q2 Post diversified claims, and it must be greater than 100%.

Managing agents should note that while the minimum test is applied to Premium risk including Catastrophes (LCR forms 502 and 503), the same minimum criteria apply for the Premium risk excluding Catastrophes (LCR forms 500 and 501).

Of course, this test does not directly check the level of correlations applied. Lloyd's might use other information (e.g. the output correlations between classes supplied in the IMO returns) to check correlation levels. Syndicates should be prepared to provide the minimum modelled level of correlation between classes and years (output and input) to Lloyd's on request.

#### 4.1.3 Diversification – within Reserve Risk

Contributions from reserve risk by modelled class of business to the 99.5<sup>th</sup> percentile of reserve risk should be greater than the mean for the class. This test is designed to ensure that a minimum level of correlation is applied between all classes for reserve risk.

This test checks that the 99.5<sup>th</sup> Post Diversified claims for Reserve Risk is greater than the Mean Net claims for each modelled class. These correspond to LCR form 510 Q1 Col F(i) and LCR form 502 Q1 Col A. The ratio is also automatically calculated in LCR form 511 Q2 Post diversified claims, and it must be greater than 100%.

Of course, this test does not directly check the level of correlations applied. Lloyd's might use other information (e.g. the output correlations between classes supplied in the IMO returns) to check correlation levels. Syndicates should be prepared to provide the minimum modelled level of correlation between classes and years (output and input) to Lloyd's on request.

#### 4.1.4 Impact of Reinsurance

The level of reinsurance credit risk modelled should be considered in the context of the materiality of reinsurance to the SCR. The relatively binary nature of reinsurance default means that this risk can appear low (especially on a one-year basis) and/or well diversified. It is expected that any limitations associated with modelling this risk (e.g. including exhaustion) are clearly understood and quantified and stress/scenario tests are used to validate the level of risk.

The test checks that the movement in the benefit from reinsurance reported in LCR form 530 Q2 Row 3 is consistent with the movement in contribution to capital from credit risk (LCR form 309, Table2, G5).

#### 4.1.5 RI Credit Risk – Loss Given Default

Lloyd's expects managing agents to apply a loss given default probability of at least 50%. This is in line with the standard formula. However, when assigning the loss given default ratios, Lloyd's expects syndicates to also consider:

- Positive and negative risk features of the syndicate's reinsurers (e.g. financial strength rating, current aged debts or regulatory action)
- Positive and negative risk features of the syndicate's reinsurance contracts (e.g. contract clarity, current disagreements or disputes)
- The probability that loss given default ratios would increase under stressed scenarios, including with the scale of the unpaid recovery.

It should be noted that the loss given default probability should be applied to the unpaid recovery at the point of default. Collateral can be taken into account, but only if the collateral has not already been used as a positive risk offset when considering default/impairment probabilities. Syndicates must be able to justify the assumptions in this area, in particular when the 50% loss given default probability is lowered for some simulations, noting the lack of data in this area.



The minimum test applied by Lloyd's checks that the ratio of the 99.5<sup>th</sup> RI Credit Risk loss on RI Recovery (LCR form 530 Q1 F1) over the 99.5<sup>th</sup> RI Recovery (Gross) from defaulting counterparties (LCR form 530 Q1 F3) is greater than 50%. The ratio is also automatically calculated in LCR form 531 Q1 99.5<sup>th</sup> RI credit risk loss vs. RI recovery (Gross) - defaulting counterparties.

#### 4.1.6 Negative Market Risk Contribution to Capital

In general, additional risk should add additional capital to the SCR. However, in the case of market risk, the contribution to capital might be negative (i.e. market risk reduces capital) under limited circumstances. This requires investment returns to outweigh the risk from liquidity, FX and credit risk. Lloyd's does not expect a negative contribution from market risk on an ultimate basis. On a one-year basis, the impact of the unwind of discount credit is accepted as part of the reason for a negative contribution from one-year market risk.

If a syndicate has a negative contribution from market risk to the SCR on an ultimate basis, or on a one-year basis where the contribution is larger (on an absolute basis) than the benefit from discounting, syndicates are asked to fill in the Negative Market Risk Template (available on [Lloyds.com](http://Lloyds.com)) and submit this with their LCR submission as an attachment in MDC. The template contains questions to ensure that the syndicate is modelling market risk appropriately and in line with the guidance. If this template is not filled in, or is not answered satisfactorily, then a loading at least equal to the negative contribution of market risk for ultimate SCR will be applied. For the one-year SCR, market risk will be loaded as a minimum to the level of the negative contribution from all but interest rate risk on liabilities (if this data is provided by the syndicate, if the table is filled in as expected, and if the minimum requirements are met), as the benefit from discounting is allowable on the one-year SCR.

If the questions in the additional template are answered satisfactorily, then the loading will be adjusted to reflect the acceptable items, or no loading will be applied.

The Negative Market Risk Template collects the following:

- A more detailed split of interest rate risk into assets and liabilities in order to split out the impact of discounting to the contribution of market risk to capital;
- Mean investment return as a proportion of available assets: Investment returns have been identified as the main driver of the negative contribution – hence justification will be required of the mean investment return, ensuring that this is appropriate by asset class and for the time horizon modelled;
- Mean FX risk: Lloyd's will not allow any material FX profits at the mean (i.e. larger than £1m);
- Justification of the approach taken to modelling the insurance vs market risk dependency: Profitable scenarios from market risk in the tail will depend on the strength of the dependency modelled. The minimum requirement here is for the internal model to include an inflation risk driver to capture the relationship between insurance risk and market risk for financial classes in particular. If insurance losses are linked to the simulated inflation series from an ESG, then an inflation risk driver is considered to be modelled. In this case, the managing agent should assess whether the strength of this relationship sufficiently captures the actual strength of the relationship, especially in the tail, and if not, consider including an additional risk driver. If no inflation risk driver is currently modelled, then the managing agent should assess the materiality of this relationship and either implement an inflation risk driver in the internal model, or submit sufficient justification and evidence to Lloyd's to explain why an inflation risk driver has not been modelled. If syndicates only have an inflation driver in the model and no explicit dependency between market and insurance risk, they are required to show that the backtesting of premium and market risk in conjunction as carried out in the Focus Areas return as described below does not indicate additional correlation between insurance and market risk losses. Syndicates should include any evidence of their dependency being sufficient in Q7 on the COVID-19 queries tab of the Focus Areas Return.
- Affirmation of the consistency of discount rates for technical provisions: Inconsistency between discount rates used in the model could lead to a "risk-free lunch" which will be disallowed;
- Affirmation that the investment return and market risk on FAL/FIS are outside the scope of syndicate level SCR as excess assets in the model could lower the contribution of market risk.
- Affirmation that liquidity risk is modelled in line with the guidance or evidence that this is immaterial.

Negative market risk contribution to capital on an ultimate basis (and larger than the profit from discounting on the one-year basis) was very rare in submissions last year and given recent events, Lloyd's expects that this

reduces further. Given the impact that recent events have had on financial markets, Lloyd's also requires syndicates to satisfy the requirements set out in the Focus Areas return regarding updating the economic view to take into account the most recent data and answer Q7 of the COVID-19 queries about the dependency between insurance and market risk satisfactorily.

#### 4.1.7 Foreign Exchange Risk Mean Profit

Lloyd's will only allow a maximum profit of £1m on Mean FX risk regardless of the contribution from Market risk. This rule will apply to all syndicates, including those with positive Market risk contributions to Ultimate and One-Year SCR.

This test will simply check that the FX Risk mean (LCR form 314 Table 2 D5) is greater than -£1m. If the syndicate capital level is such that £1m is material to the result, syndicates should take appropriate action to minimise this profit.

#### 4.1.8 Contributions to Capital

Contributions to capital from all risk types should be positive (with the possible exception of market risk under certain circumstances as discussed above).

This test simply checks that post-diversified capital contributions from all risk types (LCR form 309 Table 2 Col E & I) are positive.

#### 4.1.9 Diversification: The Sum of Squares Test (SST)

It is well understood that the level of dependencies included in syndicates' internal models is a material driver of capital, both on an ultimate and one-year basis.

There are many methods of introducing dependencies between classes of business and risk categories, e.g. copulas, common drivers, tail drivers. Lloyd's does not prescribe the use of any particular dependency structure and considers the individual dependency structure used in an internal model in the SCR review. However, Lloyd's does require consideration to be made of the potential for dependency effects to be greater within the tail of distributions than in the body. The impact of any tail drivers on capital should be considered as part of representing their appropriateness, rather than relying solely on their presence in the modelling.

The unique and complex nature of many dependency structures means that it is often difficult to consistently assess from a bottom-up analysis whether any particular approach is appropriate. As a result, Lloyd's also examines the output of internal models to ensure that sufficient dependency has been introduced.

A working group of Lloyd's and market representatives concluded in 2019 that the Sum of Squares Test is a useful high-level indicator, but further information can be considered if it indicates an issue with diversification.

There are 5 areas where the SST is applied by Lloyd's:

- i) Overall ultimate SCR: The ultimate SCR stress (LCR form 310 G2 less LCR form 310 A2) must be greater than the square root of the sum of squares of Insurance risk stress (LCR form 520 Q5 Y1 less LCR form 520 Q5 V1), Credit risk stress (LCR form 520 Q5 Y4 less LCR form 520 Q5 V4), Market risk stress (LCR form 520 Q5 Y5 less LCR form 520 Q5 V5) and Operational risk stress (LCR form 520 Q5 Y6 less LCR form 520 Q5 V6)
- ii) Insurance Risk including Catastrophes: The modelled Insurance risk adjusted 99.5th percentile must be greater than the SST Insurance risk adjusted 99.5th percentile (both in LCR form 521 Q5).
- iii) Insurance Risk excluding Catastrophes: The modelled Insurance risk excluding catastrophes adjusted 99.5th percentile must be greater than the SST Insurance risk excluding catastrophes adjusted 99.5th percentile (both in LCR Form 521 Q7).
- iv) Premium Risk excluding Catastrophes: The modelled Total Net claims 99.5th percentile (LCR form 500 Q1 Col I Total) must be greater than the SST Total Net claims 99.5th percentile (LCR from 501 Q3 99.5th Net Claim percentile Total Claims SST).
- v) Reserve Risk: The modelled Total Net claims 99.5th percentile (LCR form 510 Q1 Col F Total) must be greater than the SST Total Net claims 99.5th percentile (LCR from 511 Q2 99.5th Net Claim percentile Total Claims SST).

The [Sum of Squares Test Template](#) focuses on the first three of these tests (on a one-year basis and an ultimate basis). It requests high-level model output to determine a pass/fail at a total level, and requests additional information that is required to assess the appropriateness of the dependency structure if the test was failed.

The additional evidence consists of:

- The use of randomised simulations for premium, reserving and insurance risk in order to assess model output against “true” independence (“scrambled sims”)
- Spearman’s rank correlation of model output
- Using an alternative measure, the APC (Average Percentile Contribution), on both randomised and modelled sims to assess contributions to the tail

Average Percentile Contribution examines Premium/Reserve risk contributions in the 99.5th percentile tail of insurance risk and expresses these as a percentile of the standalone Premium/Reserve risk distribution. Randomised simulations are required to provide a baseline to measure dependency.

The additional evidence will be collected on a one-year basis and an ultimate basis. For the aggregation of Premium Risk and Reserve Risk to Insurance Risk, it will also be collected net and gross of reinsurance, including and excluding catastrophes.

The above will allow Lloyd’s to assess dependency within internal models using different metrics against truly independent distributions. However, Lloyd’s considers this level of dependency to be an absolute minimum rather than a test of adequacy.

## 4.2 Syndicate Reserving Model Tests

### 4.2.1 Earned Margin

If the earned margin being claimed in the QSR submission is greater than that calculated by the Signing Actuary as part of the year-end SAO, the Reserve Risk within the LCR submission may be understated. If this cannot be adequately explained, the QSR should be re-submitted (where possible), otherwise an equivalent loading to capital will be applied to correct for any shortfall. Further guidance on this is available as part of the QSR submission and review process.

### 4.2.2 Profit from Unearned Premium

If the associated profit from unearned premium (as derived from the loss ratio on unearned premium) being claimed within the QSR submission is greater than that calculated by the Signing Actuary as part of the year-end SAO, the Premium Risk within the LCR submission may be understated. If this cannot be adequately explained, the QSR should be re-submitted (where possible), otherwise an equivalent loading will be applied to correct for any shortfall. Further guidance on this is available as part of the QSR submission and review process.

### 4.2.3 Model Loss Ratios

In line with previous SCR guidance, assumptions used for the model should be on a Solvency II best estimate basis. The basis of loss ratio assumptions for the LCR is required to be a best estimate, based on realistic and appropriate assumptions. As highlighted in the PRA’s Supervisory Statement ([SS5/14](#)), this is not expected to incorporate improvements in performance unless the measures taken have been shown to be effective. Lloyd’s considers that only syndicates with a consistent track record of performing to plan can justify the use of SBF assumptions for capital setting purposes, as Lloyd’s has observed adverse performance compared to plan in the market’s actual experience. This adverse performance against plan is most evident in recent years and is still apparent when large, isolated events that are difficult to plan for are excluded. Where there is a difference in view at a class of business level between the SBF and for capital setting, Lloyd’s would expect the managing agent to support the view taken.

Individual syndicates are required to assess the appropriateness of the internal model assumptions, including the realism and appropriateness of prospective year loss ratios. Lloyd’s Syndicate Reserving team issues syndicate specific data to the market comparing the syndicate’s planned vs actual loss ratios over a recent 6-year period (defined for 2021 SCR to be 2013 to 2018 YOA). Event-driven classes and any years of account whose deviance to plan is greater than a set threshold, based on the average deviance to plan for that class over the 6-year period, are excluded from the calculation. Applying these exclusions helps to limit the impact of catastrophes and

other outliers that are difficult to plan for. Based on the historical difference between loss ratios and after applying these exclusions, an “adjusted ULR” will be calculated for each Lloyd’s Generic Class. The proposed mix of Lloyd’s Generic Classes within the 2021 SBF is then used to aggregate these adjusted ULRs to obtain a whole account adjusted ULR. As part of the calculation, the difference between the plan and modelled ULR in the LCR submission is considered to act as a self-load and is used to offset any difference between the whole account adjusted ULR and the 2021 SBF whole account ULR. If the whole account is found to be adverse against plan and outside of the tolerances set for this test after allowing for the self-load, a secondary loading calculation will be triggered to determine the actual loading, which is outlined below.

The actual loading is calculated slightly differently and repeats the adjusted ULR calculation, but in this instance using only the historically adverse classes. Any historically favourable classes will use their SBF plan loss ratio when aggregating up to a whole account level. This revised adjusted ULR to SBF difference will allow similarly for the self-load between plan and modelled ULR. The potential loading is made up of two parts:

- 1) The mean claims element, which is calculated as the residual difference multiplied by the prospective year’s net premium from the 2021 SBF.
- 2) The stress loading, which is calculated as 4 times the CoV of the additional mean claims amount. The whole account CoV figure is taken from the corresponding LCR submission.

The stress loading factor of 4 reflects the fact that the claims distribution is positively skewed. It has been calibrated considering market level data and through the testing of alternative assumptions (e.g. using assumed distributions and compared to diversified premium risk). The mean claims amount and the implied stress loading are calculated on both a gross basis (netted down for reinsurance) and directly on a net basis with the larger of two loadings selected for the final loading.

#### 4.2.4 Model Opening Reserves

As part of the 2021 SCR, Lloyd’s is looking to streamline the process and will be asking a subsection of the market to fill in the roll-forward template for their syndicate for the last 3 roll-forward exercises. Lloyd’s will determine the syndicates to be included within the sample set using selection criteria that reflects the risk a syndicate poses to Lloyd’s.

Lloyd’s expects that managing agents will have robust processes in place for performing the roll-forward of their latest audited technical provisions data when obtaining the T0 balance sheet. In particular, managing agents are expected to consider the Actual vs Expected balance sheet positions and to correct their methodology where systematic under-/over-statement is identified, particularly where this is found to be material. If methodology changes are being made to the roll-forward process, the managing agent is expected to clearly highlight the changes made within their modelling documentation submitted to Lloyd’s. The managing agent is also expected to back-test (reforecast) any changes in methodology against the last 3 years of historical QSR returns to evidence the process improvements being made. The “impact” column within the roll-forward template gives managing agents the opportunity to explain any gaps in historical Actual vs Expected that they believe should be credited as part of the test. These will be reviewed on a case-by-case basis by the Syndicate Reserving team.

Any remaining under-statement that falls outside of the thresholds set for this test will be loaded to avoid understating the LCR. The percentage load is calculated using the average residual for the last 3 roll-forward exercises.

Syndicates are expected to provide the validation conducted on the opening balance sheet at an overall level as well as on the following component parts: reserves, future premiums and expenses. The objective in this case is to provide a summary of the analysis undertaken/testing performed to ensure appropriateness of opening balance sheet e.g. back testing - actual versus expected opening balance sheet of historical years overall balance sheet (or by component part). The validator should consider whether the approach used to roll forward the balance sheet to the year end is reasonable and where a change in approach has been taken consider the appropriateness of that change.

#### 4.2.5 Best Estimate Reserve Reviews

The best estimate reserving process of syndicates is reviewed by the Lloyd’s Syndicate Reserving team throughout the year based on various metrics/KPIs used by Lloyd’s to monitor the market. The broad structure of these reviews will follow MRC’s “Reserving Framework” to ascertain the view of the perceived risk level for each Syndicate.

Any potential loads will be driven by data but place some reliance on the expertise and judgement within MRC. Where judged to be necessary, loadings will be recommended by the Lloyd's Chief Actuary and Head of Reserving to the Lloyd's Capital Planning Group (CPG).

## 4.3 Exposure Management Model Tests

There are five principle types of Exposure Management-related capital loadings:

- Catastrophe Risk Appetite (CRA)
- Model Completeness
- Catastrophe Risk Operational Framework (CROF)
- Internal Model sensitivity
- Franchise Guidelines

### 4.3.1 Catastrophe Risk Appetite (CRA)

The CRA is defined as the ratio of the LCM5 1:200 Aggregate Exceedance Probability (AEP) Final Net Loss (FNL) to ECA plus profit. Syndicates' planned 2021 CRA ratios must not deteriorate from those agreed in the latest 2020 SBF. Furthermore, any increase in the LCM5 1:200 AEP FNL will need to be at a ratio agreed by Lloyd's. Lloyd's Exposure Management will recommend a loading where these criteria are not met.

### 4.3.2 Model Completeness

For 2020, Lloyd's Exposure Management issued an updated Model Completeness questionnaire, focussing on how syndicates include and validate several potential sources of loss within their modelling. This return will be evaluated alongside syndicates' 2021 SCRs, and any material deficiencies may result in a capital loading. Please note that syndicates are required to ensure that the addition of previously unmodelled risks is additive to capital, in line with the general principle that additional risk adds to capital.

### 4.3.3 Catastrophe Risk Operational Framework (CROF)

CROF is a framework used by Lloyd's Exposure Management to assess the catastrophe risk a syndicate writes in the context of their capability in managing that risk. If a syndicate wishes to increase its catastrophe risk to a level that is not supported by their current capability, the plan may be rejected, or a capital loading imposed.

### 4.3.4 Internal Model sensitivity

Syndicates submit a Sensitivity Test to Lloyd's Exposure Management that assesses the impact of parameter error on the SCR. Any unusually high result will be reviewed in depth and the syndicate may attract a capital loading in extreme or unexplained cases.

### 4.3.5 Franchise Guidelines

Within SBF Form 452, syndicates provide projections for future Realistic Disaster Scenarios (RDSs) and AEP 1-in-30s. These are compared against ECA plus profit, and the result must fall within Franchise Guidelines (these are outlined in the guidance found [here](#)). A request to exceed Franchise Guidelines, i.e. a request for dispensation, may result in a capital loading if that request is not agreed by CPG.

## 5 Focus Areas

### 5.1 COVID-19 Impact

The COVID-19 pandemic has caused major losses, as well as uncertainty about future outcomes. Lloyd's requires syndicates to ensure that their models reflect this experience and uncertainty appropriately – as for any other event.

The Focus Areas return sets out certain topics that Lloyd's is focussing on in the review of capital with regard to COVID-19. As Lloyd's has prioritised the list of questions to areas considered material to the market, the list is

not exhaustive. Other areas that we expect syndicates to consider in their modelling and validation are set out below.

As a starting point, syndicates should backtest the COVID-19 experience against the model, to establish which areas of modelling to focus on, regarding any model or parameterisation changes, as well as validation, and prioritise accordingly.

The Focus Areas return prescribes several market-wide backtests with the intention of achieving consistency across the market – however, capital modelling teams and validators should not necessarily restrict their work to the backtests requested. Other scenarios/bases might be considered more appropriate for the specific risk profile and setup of the business. It is the responsibility of the syndicate to ensure that the experience is reflected appropriately – hence it is important to carefully assess which type/basis of backtest is the most suitable test to establish this.

As well as the direct loss experience, and the uncertainty of further COVID-19 related losses occurring in 2021, syndicates must ensure that their capital reflects the uncertainty of secondary impacts. For example, further adverse claims experience may be caused by the pandemic, and lockdown-related losses are more likely next year compared to previous years. Capital adjustments must be made for the stressed state of the syndicate and the industry – whether those adjustments take place within or outside of the model. Syndicates might also find that the uncertainty of 2021 premium volumes is greater than previous uncertainty, or that the likelihood of a recession has increased in comparison to other years, potentially resulting in higher expected loss ratios for certain classes and greater uncertainty regarding these. Moreover, syndicates might be at risk of higher than usual severity for catastrophe losses or at higher operational loss potential than usual due to potential future lockdowns. This list of potential risks is not exhaustive, and each syndicate is required to consider the factors in the external environment impacting its own specific risk profile, as well as the likelihood of these impacts occurring.

Some changes required will be due to the model not capturing the risk profile appropriately – but other changes might be temporary adjustments as the event is not over at the point of submission. Syndicates should be very clear on which changes are expected to be reversed in the longer term. Lloyd's is collecting the impact of temporary adjustments. For any temporary adjustments or short term changes the syndicate should make clear which circumstances need to be in place for the change to be reversed; for example, if the volatility of certain classes has been adjusted as lower volumes are expected, syndicates should be clear about the volume at which the adjustment would be reversed.

Lloyd's acknowledges that the situation is still developing and that the ultimate outcome of COVID-19 claims is very uncertain at this point. As such, it might be difficult to implement model changes at this point which take the impact of COVID-19 into account. We do not require syndicates to immediately implement any model changes if difficult in the timeframes, however we do require syndicates to identify areas where change needs to be made to appropriately reflect the experience, quantify the impact of the changes and include management adjustments where necessary. It is crucial that syndicates validate and document how they have reacted to the experience and clearly signpost this to Lloyd's. Implicit allowance for the uncertainty will not be accepted as it cannot be assessed/validated.

The following sets out the minimum requirements with regards to the questions in the Focus Areas return. In all areas, syndicates are expected to take an approach that is proportionate in the context of their risk profile, and be able to justify this approach. If the justification is not clear and robust, then a loading will be applied to allow for the area of uncertainty.

If syndicates have not experienced material COVID-19 losses, then Lloyd's still expects syndicates to assess the impact of the economic outlook, secondary impacts (e.g. the increased uncertainty of premium volumes), as well as assessing the possible maximum loss for COVID-19. These areas are described in detail below.

### **5.1.1 Class Volatility - Underwriting Risk**

Lloyd's requires syndicates to adjust the parameterisation or exposure in classes where COVID-19 losses have had an inappropriately high return period and show that the return period of the losses has reduced sufficiently. Lloyd's will not prescribe a return period at which an adjustment is required – the Focus Areas return requests commentary on any class where the reported return period of COVID-19 ultimate best estimate losses is higher than a 1 in 20 event. The Focus Areas return requests backtesting information for the adjusted model, and Lloyd's expects syndicates to be able to demonstrate that the new return periods are deemed appropriate.

Lloyd's will not deem it acceptable for syndicates to completely exclude the COVID-19 experience from their parameterisation exercise by, for example, reasoning that pandemics will be excluded from any future coverage. For the avoidance of doubt: if syndicates had more adverse experience in a class than an appropriate return period then we do expect at least some update in the syndicate's view of risk for this.

### **5.1.2 Volatility of COVID-19 reserves**

Lloyd's requires syndicates to reflect the uncertainty around COVID-19 reserves appropriately. Syndicates should compare (by class) the volatility applied for the COVID-19 related reserves with the volatility applied for other reserves held for the accident year 2020, and the volatility applied to the reserves held for the accident year 2019 in last year's model and ensure that the relative volatilities are deemed appropriate. Syndicates should document their process and be able to demonstrate how they have taken the uncertainty related to COVID-19 reserves into account.

### **5.1.3 Model Opening Reserves**

Lloyd's expects syndicates to adjust their Technical Provisions roll-forward process to reflect the additional uncertainty around year-end projections. Lloyd's expects the roll-forward to reflect expected claims and premium volumes in Q3/Q4 as well as any other impact on the Solvency II balance sheet. Furthermore, Lloyd's expects syndicates to assess the impact of a potential slow-down of claims reporting/claims handling processes. If syndicates cannot demonstrate that their process has been adjusted sufficiently, then a loading may be applied.

### **5.1.4 Dependencies between classes of business**

Lloyd's requires syndicate models to appropriately reflect the class dependencies, in particular any dependencies implied by COVID-19 losses. Any changes required to the current dependencies could be implemented via updating the parameterisation of the current dependency structure. If this is judged inappropriate (e.g. updates to Gaussian correlations might not be appropriate given the nature of the event), then Lloyd's expects syndicates to make allowance for the greater tail dependencies in a different way – preferably through updates within the model but in the worst case by applying a high-level adjustment. The Focus Areas return collects backtesting for three class combinations which have experienced material losses in the market and where we have observed low correlations in the past. Lloyd's expects validators to conduct further backtests in order to validate the level of class dependencies. For example, if property classes and the contingency class have been the most affected classes, then the COVID-19 experience of these two classes should be compared against the combined distribution of these classes to ensure that the return periods are considered appropriate for the event.

### **5.1.5 Economic outlook**

Lloyd's requires syndicates to reflect the recent economic conditions in their capital models, in particular the significant drop in yield curves between Q4 2019 and Q1 2020 as well as recognising elevated credit spreads among certain credit sectors and the increase in equity volatility. If the syndicate's model uses an Economic Scenario Generator, this means that Lloyd's requires syndicates to update models with a Q1 2020 or Q2 2020 version of the ESG (unless the impact can be shown to be immaterial). If an ESG is not used in the model, then the syndicate needs to demonstrate that the current economic conditions have been adequately reflected and that their modelling of market risk is appropriate from a forward-looking perspective. Any overrides to ESGs should be fully documented, justified and validated. Validators should in particular clearly demonstrate why they are comfortable with any changes in volatilities observed and correlations between economic variables. Validation should not only focus on standalone market risk, but the validator should comment on the market risk contribution to capital as well. Managing agents should bear in mind the Minimum Standards regarding external models ([MS12 SCU 2.1-2.3](#)) and Section 10 of the [Lloyd's Capital Guidance](#). Please signpost your documentation/validation in the Focus Areas return.

### **5.1.6 Dependency between market and insurance risk**

The COVID-19 experience highlights potential links between financial market and insurance risks. As a minimum, Lloyd's expects syndicates to consider the potential for deteriorating asset positions and insurance losses to be linked. Some man-made catastrophes like pandemics could lead to disruptions of the markets and recession and a recession could lead to higher claims experience some classes, e.g. FinPro. Lloyd's is requesting syndicates to backtest their premium and market risk experience in conjunction. Given the uncertainty of economic conditions

in the near future, Lloyd's requires syndicates to link market and insurance risk. As a minimum, models are required to have an inflation driver - unless the syndicate can show that the impact of such a driver is immaterial even given latest economic conditions. If syndicates only have an inflation driver in the model and no explicit dependency between market and insurance risk, they are required to show that the backtesting of premium and market risk in conjunction does not indicate additional correlation between insurance and market risk losses.

Backtesting in the Focus Areas return is limited to the one-year losses which might not include the potential recessionary impacts. Further backtesting should be carried out if appropriate and evidence should be provided on the resulting return periods being appropriate – in particular, if syndicates write business that is likely to be impacted by the economic conditions.

### 5.1.7 Possible Maximum Loss

Lloyd's requires syndicates to carry out stress and scenario testing regarding the key uncertainties of the current circumstances, tailored to their own risk profile. The template collects best estimate values and a possible maximum loss value. The syndicate should define appropriate circumstances for this scenario which may include uncertainty in legal outcomes, changes to political positions, the possibility of further lockdowns, and mutations of the virus. The return period of such a scenario should be tested against the relevant risk categories of the model.

### 5.1.8 Secondary impacts

Lloyd's requires syndicates to appropriately reflect secondary impacts of the COVID-19 pandemic in their models if deemed material. A list of secondary impacts to consider is included below – please note that this list is not exhaustive:

- Recessionary Impacts: Given the likelihood of a global recession, Lloyd's requires syndicates to consider the impact of a recession on their model in terms of exposure going forward, volatility and dependency assumptions of economic variables, as well as the potential of higher default probabilities.
- Uncertainty of premium volumes: As part of the business planning process, syndicates have been asked to consider stress testing plans given the uncertainties presented by COVID-19. The capital implications of these stress tests should be understood, and justification of their appropriateness documented, especially where a fall in volumes would result in an increase to capital.
- Impact of potential higher severities regarding natural catastrophe events when coinciding with the pandemic and lockdown in the 2021 hurricane season.
- Impact on credit risk and heightened default risk/payment delays.
- Impact on operational risk due to issues like staff impairment, increased claims volumes, heightened risks of control failures, increased risks through remote working (like fraud/cyber events/mental health implications) and reliance on outsourcing.
- Impact on liquidity risk – heightened liquidity strains might impact cost of capital.

After the assessment of any potential secondary impact syndicates need to make a call where they should implement changes/adjustments. They are required to have a sufficient capital requirement to cover the uncertainty of these secondary impacts.

Syndicates should provide detail and if possible, the impact of the changes made. The documentation should make clear which impacts have been considered and what actions were taken to reflect them in the model. It should also be drawn out where syndicates consider the adjustments due to secondary impacts to be temporary, and where they are permanent adjustments.

## 5.2 Other Focus Areas for the 2021 YoA

Apart from the implications of COVID-19, other areas of focus in Lloyd's review will include prospective model loss ratios, model opening reserves and model completeness. Lloyd's expects validators to focus on these areas in their assessments of the models. These areas are covered in Section 4.

Furthermore, casualty classes are focus areas for Lloyd's. Syndicates should take changing claims environments into account when parameterising premium risk, reserve risk and the dependencies between classes and years of account. The changing claims environment can lead to higher claims inflation and in particular "social inflation" for these classes, making claims severity harder to predict and leading to additional uncertainty regarding volatility. Additionally, increased levels of class action also increase the uncertainty of claims frequency and the



greater risk of clustering might invalidate a Poisson frequency assumption for these classes. These issues are currently most prevalent in the US, but syndicates should consider the possibility that they are not solely restricted to US business. Syndicates should undertake stress and scenario testing in this area.

The Focus Areas return requests a sensitivity test from syndicates assessing the modelled impact of volatile claims inflation in excess of price inflation. Syndicates are required to ensure that models make an appropriate, explicit, allowance for claims inflation, and that this is adequately validated.

Moreover, syndicates should also consider how other external events and market initiatives might impact their business. This includes, but is not limited to:

- Political events such as Brexit and the US Presidential Election
- The inclusion of “innovation” class premium
- The Part VII transfer of business is not expected to impact the insurance risk profile of the business transferred; syndicates should consider whether there are any other risk impacts.