LLOYD'S

MARKET BULLETIN

From	Chairman, ICA Steering Group (extn 5129)
Date	18 May 2006
Reference	Y3814
Subject	**2007 ICA Guidance and Instructions for Run-Off Syndicates**
Subject areas	Timetable for submission of 2007 ICAs for Run-Off Syndicates Modified version of the 2007 ICA Guidance issued in March 2006 to make it applicable for run-off syndicates
Attachments	2007 ICA Guidance and Instructions for Syndicates in Run-Off
Action points	**Completion of 2007 ICA submission by run-off syndicates** **Agents wishing to submit run-off ICAs at the same time as active ICAs by 22 June deadline to advise Open Years Management by 31 May 2006.**
Deadlines	**31 May 2006 - agents wishing to submit run-off ICAs at the same time as active ICAs by 22 June deadline to advise Open Years Management.** **31 August 2006 - certain large run-off syndicates to submit their run-off ICAs (Lloyd's will discuss this with the relevant agents)** **30 September 2006 - all other run-off syndicates to submit their ICAs**

The enclosed document is a slightly modified version of the guidance and instructions issued to the active market on 17 March 2006 as Market Bulletin Y3770, in order to make it applicable to run-off syndicates. It applies to all syndicates in run-off except those with sufficient active member participations to require them to comply with Market Bulletin Y3770 (2007 Year of Account Member Capital Setting). Agents managing such syndicates will be informed directly of the need to comply with that bulletin.

2007 Process and timetable

The timing of submission has changed slightly in response to changed timings for the active syndicates and to offer agents as much flexibility as possible.

- agents with active syndicates under management have the option to submit their run-off ICAs at the same time as their active ones and Lloyd's will review them simultaneously. This should assist some agents using the same model for active and run-off syndicates. Any agent wishing to submit run-off ICAs at the same time as their active ones by 22 June deadline must advise Open Years Management of this decision by 31 May 2006.

- certain large run-off syndicates will be asked to submit their ICAs at the end of August 2006 to enable them to be reviewed and agreed as soon as Lloyd's has the capacity to do so. Lloyd's will discuss this with the relevant agents shortly

- all other run-off syndicates should submit their ICAs at 30 September, as last year.

Lloyd's review process for the 2007 ICAs will remain as for 2006. Each agent has been allocated a review team leader who will co-ordinate a cross departmental review team. The findings of each review team will then be presented to the ICA Steering Group for consideration. All agents should now have received specific feedback on the 2006 process from their ICA review team leader as a prelude to the 2007 review.

Lloyd's Review

Lloyd's general approach to reviewing ICAs is to consider the reasonableness of both the calculation methodologies and the results derived by application of those methodologies. Lloyd's keeps an open mind on the majority of calculation approaches used by agents, placing the onus on them to satisfy us that their particular approach is appropriate to their individual circumstances. Lloyd's recognises that not all syndicate ICAs will need to be prepared with the same degree of modelling complexity and the level of sophistication of the calculations should be commensurate with the materiality and nature of the underlying risks. Our aim is to be proportionate in our review which will take into account the structure and business profile of the individual syndicate. This is particularly the case with run-off syndicates, where the remaining liabilities may be small and it may be impossible to justify the cost of a sophisticated methodology.

Basis for 2007 ICAs

The required basis for the preparation of the 2007 ICA is as follows:

- the ICA must provide for all losses, modelled to ultimate, arising after 1st January 2007 on the syndicate's 2006 & prior years of account at a 97.5% confidence level, or higher where agreed with Lloyd's. This includes primarily the risk that claims reserves as at 31st December 2006 prove to be inadequate

- this basis represents the equivalent of minimum regulatory capital and does not represent the economic capital which is the level of capital required to support and maintain Lloyd's ratings

- agents must prepare a separate ICA for each syndicate covering all years of account of the syndicate combined

- the assumptions used in the ICA must be consistent with those used in the latest Run-Off Closure Plan (ROCP) available at the date of preparation of the ICA submission

- the ICA must be prepared on the assumption that all profits have been distributed and all losses have been collected or are fully receivable

Further detailed explanation on the required basis is contained in the attached guidance document.

Submission of ICA

The Core Market Returns system will not be available for the submission of pro-formas and ICAs until the September deadline. However, as an interim measure run-off syndicates which are submitting by 22 June deadline (i.e. those with active members and those choosing to do so by prior notice) are requested to use the core market returns system and attach the run-off ICA (in PDF format) and a run-off ICA pro-forma (which will be in .xls format) to the live syndicate ICA pro-forma. Once agents who wish to submit run-off ICAs by 22 June deadline have advised Open Years Management of this, they will be sent an electronic version of the spreadsheet and instructions of how to submit the ICAs.

Special arrangements will be made for those large run-off syndicates that will be submitting their 2007 Run-off ICAs at the end of August and agents will be advised of these by the end of July. For all other run off syndicates intending to submit their 2007 ICAs for 30 September deadline, the core market returns system will be used and further details will be advised of the requirements at a later date. Lloyd's will also require two printed copies of the submission and the pro-forma to be sent to Open Years Management.

Contacts

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LLOYD'S

ICA

2007 GUIDANCE AND INSTRUCTIONS FOR SYNDICATES IN RUN-OFF

CONTENTS

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INTRODUCTION

Background

The 2007 ICA review process will be the third year in which managing agents have been asked to submit to Lloyd's an Individual Capital Assessment (ICA) following both the 2005 'soft test' ICA and the 2006 ICA submissions.

The FSA's requirements for Individual Capital Adequacy Standards (ICAS) for insurers are set out in the Integrated Prudential Sourcebook (PRU). These requirements, with some additional guidance in the Lloyd's Sourcebook (LLD), apply directly to managing agents in relation to the syndicates they manage.

The FSA has placed clear responsibilities upon Lloyd's within the ICAS regime. Lloyd's must be able to justify the reliance which it places on a syndicate ICA by being able to demonstrate that it has carried out appropriate checks. Where Lloyd's considers a syndicate ICA to be less than adequate for determining member level capital it has a responsibility to increase the ICA to a level which is adequate.

THE FSA HAS PLACED CLEAR RESPONSIBILITIES UPON LLOYD'S WITHIN THE ICAS REGIME

Lloyd's continues to work closely with the FSA in order to ensure that the FSA can rely on Lloyd's work wherever possible and thus avoid duplication of effort. Although in practice, agents are most likely to deal with Lloyd's over the detail of the ICA, it is important to emphasise that agents are at all times accountable to the FSA for their compliance with these rules and must be able to account to the FSA for the adequacy of their ICA process. Under its rules, the FSA may apply individual capital guidance (ICG) assessments to syndicates' ICAs in line with its own risk-based approach. To date, however, no syndicate meeting Lloyd's requirements has received any increase in its ICA from the FSA. As a comparison, most insurance companies that have had their ICAs formally reviewed by the FSA to date have received ICG at a level higher than their ICA.

Lloyd's general approach to reviewing ICAs is to consider the reasonableness of both the calculation methodologies and the results derived by application of those methodologies. Lloyd's keeps an open mind on the majority of calculation approaches used by agents, placing the onus on them to satisfy us that their particular approach is appropriate to their individual circumstances. Lloyd's recognises that not all syndicate ICAs will need to be prepared with the same degree of modelling complexity and the level of sophistication of the calculations should be commensurate with the materiality and nature of the underlying risks.

Our assessment is essentially high level and does not constitute a line by line audit of the calculations. This underscores the importance Lloyd's places on an agent's senior management taking responsibility for their syndicate ICAs.

SENIOR MANAGEMENT MUST TAKE RESPONSIBILITY FOR THEIR SYNDICATE ICA

Scope of Guidance

Following the 2006 ICA review process, last year's guidance and instructions have been updated in this document. The PRU and the

FSA's Insurance Sector Briefing: ICAS one year on, issued in November 2005 can be used as additional sources of information.

Following feedback from agents, the revised guidance explains the approaches which agents should be taking in assessing their capital requirements at the extreme level required for an ICA. The guidance is split into four main sections as follows:

AGENTS MUST ASSESS CAPITAL AT THE EXTREME LEVEL REQUIRED FOR AN ICA

- this introduction which sets out the required basis and scope for 2007 syndicate ICAs and Lloyd's overall approach to its review work.
- an overview section which sets out in brief the main issues and minimum standards required. This should be read by all involved in the ICA process, including the Board members and senior management who are responsible for signing off the ICA
- a detailed technical section split by risk group containing guidance for those responsible for preparing the ICA
- appendices containing formats for the ICA and the additional pro-forma information required. The proposed layout of the ICA has been reformatted and we hope this will assist agents in providing ICA submissions of a consistent quality. Although this structure is not mandatory, an ICA submission in this layout will facilitate our internal ICA review and comparison across ICAs. Completion of the full pro-forma is a requirement for all syndicates (details are in Appendices 1 and 2).

This guidance relates solely to the preparation of the ICA being the minimum regulatory capital required and does not cover additional requirements for the Economic Capital Assessment (ECA).

This guidance relates to all syndicates in run-off, other than those with material active member participations and is substantially the same as the guidance issued on 17 March 2006. Differences relating to run-off syndicates are highlighted throughout by use of italicisation.

Basis for ICA

The required basis for the preparation of the 2007 ICA is as follows:

- *the ICA must provide for all losses, modelled to ultimate, arising after 1st January 2007 on the syndicate's 2006 & prior years of account at an appropriate confidence level, which will normally be 97.5%. This is the same as for 2006 submissions. Where the life of the run-off at 97.5% confidence is less than five years, then a different confidence level may be more appropriate and the matter should be discussed with Open Years Management.*
- this basis represents the equivalent of minimum regulatory capital and does not represent the economic capital which is the level of capital required to support and maintain Lloyd's ratings.

THE ICA SHOULD PROVIDE FOR ALL LOSSES TO ULTIMATE AT A 97.5% CONFIDENCE LEVEL

- agents must prepare a separate ICA for each syndicate covering all years of account of the syndicate combined. *If the capital supporting different years is significantly different it may be helpful to provide a breakdown of the ICA across the open underwriting years.*
- *the assumptions used in the ICA must be consistent with those used in the most recent Run-Off Closure Plan (ROCP).*

- the ICA must be prepared on the assumption that all profits have been distributed and all losses collected or fully receivable

Lloyd's central assets and risks (e.g. New Central Fund and subordinated debt) and any Funds at Lloyd's (FAL) are outside the scope of a syndicate's ICA and must not be included.

The ICA must be prepared on an ultimate basis and may make appropriate allowance for future investment income. It does not need to recognise reserving strains that would arise in the future under annual accounting.

CONSIDER ALL THE FSA RISK GROUPS IN ACCORDANCE WITH MINIMUM STANDARDS

Agents must consider all the FSA risk groups in accordance with the minimum required standards set out in this document. All minimum standards must be addressed within the ICA and where an agent considers they do not apply or do not necessitate any capital allocation, this must be clearly stated and explained.

The ICA must set out clearly the allocation of capital across risk groups and the rationale and method used to derive the figures for each. All components, including non insurance risks, must be calculated and the allocation clearly explained.

Where an ICA was produced for 2006, agents must provide an analysis of change from the 2006 ICA and this should include any significant changes in the allocation between risk groups.

Lloyd's charges

When considering Lloyd's central charges in calculating future expenses, agents should plan that run-off levies will remain at existing rates for 2007 and beyond. Agents should assume that the syndicate loan will be repaid on the expected date and annual interest payments will be paid.

No stress testing of these assumptions is required

Consistency with ROCP

ESSENTIAL THAT ASSUMPTIONS USED IN THE ICA ARE CONSISTENT WITH THOSE IN THE ROCP

It is essential that the assumptions used in the ICA are consistent with those used in the ROCP. The pro-forma requires agents to state the ROCP submission on which the ICA is based. This will almost certainly be the approved ROCP submitted in November 2005. If the 2007 ROCP is based on materially different assumptions, then these should be explained and taken into account in the ICA wherever possible. Failing this, the agent should subsequently estimate the impact on the ICA and notify Open Years Management of any material changes this would require.

2006 ICA Results

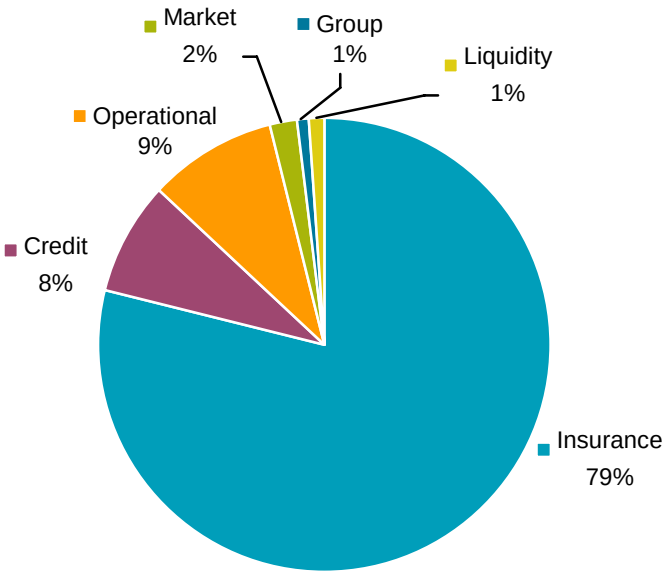
The chart below shows the average split by risk group across the 2006 ICAs for all inactive run-off syndicates. Whilst Lloyd's do not expect all ICAs to be composed in like proportions, it is a useful benchmark for Lloyd's and we would expect agents to explain where there is a large deviation from the average breakdown.

PRO-FORMA REQUEST FOR 2007 HAS BEEN CLARIFIED AND EXTENDED

Agents should be aware of the shortcomings of this average data owing to the inconsistent nature of information available from the 2006 ICAs. In particular this affected the available data on allocations by risk group, pre and post diversification. In order to address this for 2007 and make the

data more relevant, the pro-forma information being requested for 2007 has been clarified and extended. This should lead to better benchmarking information being available across all syndicates, assist Lloyd's in comparing ICAs, and enable better feedback to agents.

Breakdown of 2006 ICAs across all inactive run-off syndicates



Approach and Methodology

AGENTS MUST EXPLAIN THE BASIC ASSUMPTIONS AND KEY DRIVERS FOR THE ICA

Agents must ensure that there is a clear audit trail from the impact of any financial calculations to the relevant risk capital allocation in the ICA, whatever modelling approach is adopted. Agents must also include an explanation of the basic assumptions and key drivers for the ICA in their submission.

Where considerations of particular risk issues have been made, an agent must state specifically the issues considered, how it considered them and the reasons behind the conclusions and findings.

Link to risk framework

AGENTS SHOULD CLEARLY DEMONSTRATE THE LINK BETWEEN THEIR RISK FRAMEWORK AND THE ICA

Three key objectives of the ICAS regime are to ensure that senior management focus on risk management, that there is a link between risk and capital-setting and that this is demonstrated through clear documentation of all prudential risks, processes and controls.

In making an assessment of capital adequacy, agents should first identify the significant risks facing their business and subsequently quantify how much capital is required. Central to this process should be the agent's risk management framework. In calculating a syndicate's ICA, agents must clearly demonstrate the link between their risk framework and the ICA calculation.

Stress & scenario vs modelled ICAs

There are two broad approaches available to agents when calculating a syndicate ICA, namely:

- stress and scenario tests
- economic capital models (also known as stochastic models or Dynamic Financial Analysis (DFA))

Although these are significantly different in application, they are not in principle different as a stochastic model is based on stress and scenarios weighted by probabilities. In a DFA model, stress tests are generated automatically and often cannot be "seen". Both methods are acceptable for the 2007 ICAs but it is intended that for the 2008 year of account all active syndicates will be expected to use some degree of stochastic modelling supplemented by stress tests. *Run-off syndicates will have a greater degree of flexibility to decide whether a stochastic model is appropriate and cost-effective.*

STRESS TESTS ARE NEEDED EVEN WHERE A MODEL HAS BEEN USED

It takes time to develop a stochastic model that is sufficiently robust. It is also important that management understands and "buys in" to the model. Even where a stochastic model has been used, stress tests are needed to validate the model output for reasonableness and help with calibrating assumptions. Lloyd's expects agents to demonstrate within the ICA that checks or reasonableness tests have been performed on the outputs in addition to the detailed review of the model inputs. *Agents must ensure that the stress and scenario tests which they undertake are relevant to their business and sufficiently extreme to represent the required confidence level of at least 1:40.*

Example stress tests for "reasonableness checks" are set out in the detailed sections on each risk group where applicable. This list is not exhaustive and is not a substitute for stress tests relevant to each individual business. The schedule is not prescriptive, however where Lloyd's is unable to get comfortable with the stress tests used by an agent, these are example stress tests that Lloyd's may require the agent to perform to support the conclusions in the ICA.

Parameter uncertainty

Uncertainty in the parameters used to assess the capital required has many potential sources, but the most common is lack of credible relevant data on which to base the main assumptions.

ALL ICAs SHOULD BE SUBJECT TO SENSITIVITY ANALYSIS

Agents should ensure that sufficient data over and above a syndicate's own data is considered where appropriate. To compensate for known modelling shortcomings including parameter uncertainty, agents should adopt prudent assumptions in one or more areas of their submission. Agents should make it clear within their submission which areas of weakness the prudent assumptions are intended to offset as well as explicitly highlighting which assumptions are deemed to be prudent. Additional stress tests should also be performed on uncertain assumptions.

Sensitivity analysis

As a minimum standard and part of the validation and sign off process, all ICAs must be subject to some level of sensitivity analysis.

IDENTIFY WHICH PARAMETERS ARE MOST CRITICAL TO THE ICA

Given the uncertainty surrounding parameters, agents should not view the final set of assumptions as somehow 'correct'. Management should understand the uncertainty in setting parameters and agents will be expected to have undertaken extensive sensitivity testing and for sensitivity analyses to have been communicated to the Board and senior management. The ICA submission should identify which of the parameters are the most critical to the ICA value, and give indicative movements in the ICA value for the most sensitive parameters.

Contract certainty

The FSA's recent Insurance Sector Briefing asked for confirmation that ICAs take account of the operational and other risks arising from contracts which do not meet the market definition of contract certainty. Lloyd's expects agents to address within their ICA the exposures arising from lack of contract certainty when considering operational risk and insurance risk.

Board understanding and challenge

A significant issue for both Lloyd's and the FSA in reviewing ICAs is the integration of capital and risk management, particularly the level of involvement of senior management and the Board in deriving and challenging the capital assessment.

SENIOR MANAGEMENT AND BOARD MUST BE INVOLVED IN DERIVING AND CHALLENGING ICA

Consequently, Lloyd's requires agents, as a minimum standard, to describe how they have engaged their senior management and the Board in the process, and in particular, the steps they have taken to educate the Board so that they are able to provide informed challenge as part of the sign-off process.

For the 2007 year of account, agents will have some discretion over the date of submission of ICA returns in certain cases. Most will be required by 30 September, with a small number of larger cases, requiring more work by Lloyd's, being submitted by 31 August. Agents managing an active syndicate and making submissions for one or more inactive run-off syndicates will be able to choose whether to make the run-off submissions at the same time as the active ones or to follow the inactive run-off timetable and submit at 30 September. Any agent wishing to submit inactive run-off returns in June must tell Lloyd's of this decision by 31 May.

Lloyd's Review

Our aim is to be proportionate in our review which will take into account the structure and business profile of the individual syndicate. To this extent, Lloyd's requires as a minimum standard that agents highlight and rank their most significant risks and explain how these have been addressed within the ICA.

Reporting Requirements

The following documents will be required for each ICA submission:

- ICA document with full mapping and audit trail (see appendix 1)
- pro-forma information summary (see appendix 2)

A syndicate ICA is required for all inactive run-off syndicates. Where the last open year of a syndicate is expected to close into another as at 31st December 2006 (the 'as at' date of the ICA calculation) then agents may

choose not to produce an ICA for the closing syndicate year provided that:

- the ICA of the receiving syndicate includes the risk exposure of the closing syndicate
- the agent intends that the closure/merger will take effect by the year-end. If there is material doubt as to the closure taking effect then the agent should produce a separate ICA

Separate ICAs are not required for quota-share syndicates or parallel syndicates but agents must include any exposure within the main syndicate ICA. Agents should seek clarification from *Open Years Management* if they are unsure as to whether a syndicate counts as a quota share or parallel syndicate for ICA purposes.

Ongoing reporting requirements

A MATERIAL CHANGE TO KEY ASSUMPTIONS WILL REQUIRE AN AMENDED ICA

Where a syndicate's ROCP changes after submission of the ICA or there is a material change to any of the key assumptions driving the capital requirement, the ICA may need to be resubmitted.

In line with the principles of the FSA's ICAS regime, Lloyd's considers it an agent's responsibility to keep all key risks and drivers under regular review and assess their impact on the syndicate's capital requirement. Where the risk profile of the syndicate has changed materially, the agent must provide an amended ICA to Lloyd's. *If an agent is in doubt as to whether a resubmission is necessary, or the extent of the additional information needed, the matter should be discussed with Open* Years *Management.*

The amended ICA must provide details of the change(s) impacting capital needs and set out clearly an analysis of change from the previous ICA, but need not necessarily be a full resubmission. Any amended ICA is subject to the same Board approvals as the original submission.

OVERVIEW BY RISK GROUP

AGENTS MUST ADDRESS ALL MINIMUM REQUIRED STANDARDS

This section of the guidance gives an overview by risk group and advises agents of the minimum required standards to be considered when calculating the capital requirements for each risk group. Agents must consider and address each of these and further explanations as applicable are contained in the detailed sections of the guidance for each risk group. Where an agent considers that any of these areas is not applicable to their business, the justification for this must be clearly set out within the ICA

An additional section on diversification has also been included this year.

Some risk groups will, by default, cross over with and pick up risks from other groups, e.g. credit risk and insurance risk, operational risk and insurance risk. Agents should provide details and cross reference these where applicable.

Insurance Risk

Definition

Insurance risk is defined as the risk of loss arising from the inherent uncertainties about the occurrence, amount and timing of insurance liabilities and premiums.

Scope

Insurance risk includes the risk of loss arising from prospective underwriting, *which should not normally impact run-off syndicates beyond existing delegated underwriting authorities,* and the development of prior years. It should also cover the risk associated with potential for increased operating expenses. Whilst there are numerous dependencies between these risks and other risk groups, such as credit risk and operational risk, the assessment of insurance risk can be considered under the headings of underwriting, reserving and reinsurance. *For most run-off syndicates, reserving risk, including the associated reinsurance, will be the major risk*.

These three components are mutually dependent, and this must be recognised. Agents should also recognise the link between operational risk and insurance risk and this is explained in more detail within the operational risk section.

UNDERWRITING RISK, RESERVING RISK & REINSURANCE RISK ARE MUTUALLY DEPENDENT

The assessment of reinsurance as part of insurance risk should relate to mismatch, dispute, exhaustion etc and not the associated credit risk which should be identified separately as part of the assessment of credit risk within the ICA.

Underwriting

Within insurance risk, underwriting risk relates to losses arising from business earned from 1st January 2007 onwards for all 2007 and prior years of account business. The risk of loss is to ultimate but it is usually negligible for run-off syndicates, except for unexpired delegated underwriting authorities. Agents often include this risk, where any remains, within reserving risk, but it is preferable to separate the two.

This definition will assist Lloyd's in its benchmarking and review work to provide a consistent allocation by syndicates between "underwriting risk" and "reserving risk".

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

- unexpired risks on 2006 and prior years of account (YOA)
- operating expenses
- large individual risk losses
- catastrophe losses
    - *Lloyd's Realistic Disaster scenarios and how they relate to the required confidence level for the ICA. For run-offs, this may not be relevant*.
    - commentary on the 2005 US windstorms or other large losses incurred and their impact on business plan and capital assumptions
- potential for attritional loss experience
- potential for new or unexpected types of claim
- application of reinsurance programme
- lack of syndicate data/alternative sources
- dependency with reserving risk, reinsurance and operational risk
- binders and delegated underwriting authorities
- operational risk and controls (e.g. exposure monitoring)
- timeliness of management information (e.g. reporting of binder income and losses incurred)

Reserving

THE ICA MUST CONSIDER THE ULTIMATE POSITION

Reserving risk is the risk that claims reserves set as at 31 December 2006 for business earned up to that date prove to be inadequate. The ICA must consider the ultimate position.

Reserving risk includes reserving inadequacy and over-reserving if it causes a loss.

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

- modelling (e.g. bootstrapping)
- latent claims
- regulatory changes
- periodic payments (e.g. structured settlement plans)
- discounting
- large individual risk loss development
- catastrophe loss development
- general reserve deterioration
- application of reinsurance
- benchmarks
- data must be consistent with reserves actually held

- reserve margins credit and effect of prudent policy going forward
- allowance for trends such as inflation
- dependence between underwriting years
- dependence with underwriting risk, reinsurance and operational risk
- operational risk error (e.g. systematic under reserving, miscoding)
- timeliness of management information
- *reserving implications of entering run off*

Reinsurance

REINSURER FAILURE SHOULD BE INCLUDED IN CREDIT RISK

Agents must consider the risks associated with the use of, and potential reliance on, reinsurance linked with underwriting and reserving risk within insurance risk. This must cover the areas set out below but should not include the risk of reinsurer failure which falls into credit risk.

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

- non-matching reinsurance
- over-reliance on reinsurance
- exhaustion
- post loss impact on cost and availability
- treatment of reinstatements
- concentration of reinsurers
- dispute
- structured and/or multi year reinsurance policies
- Industry Loss Warranties (ILW)/Original Loss Warranties (OLW) basis risk
- stop loss
- dependency between gross insurance risk and reinsurance performance
- dependency with underwriting and reserving risk
- *reinsurance implications of entering run off*

Credit Risk

Definition

Credit risk refers to the risk of loss if another party fails to perform its obligations or fails to perform them in a timely fashion. For syndicates, key counterparties include reinsurers, brokers, insureds, reinsureds, coverholders and investment counterparties.

REINSURANCE EXHAUSTION AND DISPUTE RISK SHOULD BE INCLUDED IN INSURANCE RISK

Scope

Any financial transaction with a counterparty may expose a syndicate to credit risk. Agents should take into consideration all potential areas of credit risk, in particular reinsurers, brokers and coverholders. When considering reinsurance credit risk, agents should not include exhaustion

and dispute; these should fall into insurance risk. Agents should however consider the dependency between dispute risk and credit risk.

When assessing the appropriate level of capital for credit risk, agents should exclude credit risk in respect of central assets, including Additional Securities Ltd, Joint Asset Trust Fund and other regulatory deposits as these are covered in the overall Lloyd's ICA.

Reinsurance Credit Risk

Reinsurance credit risk is usually the largest component of credit risk and deals with the potential bad debt on reinsurance assets. Agents should consider reinsurance credit risk as a part of overall credit risk but Lloyd's recognises that where they are running sophisticated models it may fall into insurance risk. If so, agents must show a breakdown of the insurance risk into 'true' insurance risk and reinsurance credit risk included. As a minimum standard sensitivity test for this, agents must calculate the insurance risk assuming no credit risk compared to the actual assumptions and justify the difference.

REINSURANCE CREDIT RISK MUST BE MODELLED TO ULTIMATE

Reinsurance credit risk within the ICA relates only to potential bad debts beyond those already provided for in the accounts at 31st December 2006. Reinsurance credit risk must be modelled to ultimate.

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

- gross and net losses must be considered
- proposed, current and prior reinsurance programmes should be explicitly addressed in detail
- link increased probability of reinsurance failure to extreme losses
- consider concentration risk and financial strength of reinsurance programme
- reinsurance failure rates should allow for the risk of downgrade
- duration of recoveries
- own experience is unlikely to be severe enough without adjustment
- reinsurance placed with other Lloyd's syndicates must be treated on same basis as external reinsurance
- treatment of any intra group reinsurance

Other Credit Risk

FUNDS AT LLOYDS ARE OUTSIDE THE SCOPE OF ICA

Agents are reminded that FAL is outside the scope of ICAs and does not need to be addressed in assessing credit risk.

Minimum Required Standards

Other areas which agents must consider in assessing credit risk within the ICA are listed below:

- brokers
- coverholders
- policyholders

- third party claims administrators
- banks and investment counterparties.

Operational Risk

Definition

Operational risk refers to the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events.

THE ICA SHOULD INCLUDE ALL RISKS OF OPERATIONAL FAILURE

Scope

The following two approaches are considered appropriate by Lloyd's when looking at operational risk:

- operational risk is considered as a completely distinct risk category that includes all operational failures due to people, processes, systems or external events that can cause losses; or
- given that people, processes and systems are important elements of each risk category, operational risk is modelled as part of each risk category, with the operational risk category only consisting of the balance of operational risk not dealt with elsewhere.

Where agents use the second approach and model operational risk as part of each risk category, Lloyd's would ask that best efforts are made to split out an overall operational risk figure for use in the pro-forma which will assist Lloyd's benchmarking process.

Lloyd's recognizes that the assessment of operational risk both on a qualitative and quantitative basis is a challenging area for agents.

THE RISK FRAMEWORK UNDERPINS THE MANAGEMENT AND MEASUREMENT OF OPERATIONAL RISK

The implementation of a risk framework underpins both the management and measurement of operational risk. Once a basic risk framework is in place, the focus should then be on updating and maintaining the risk framework and working to ensure that it is embedded in the business. Senior management must demonstrate how their risk management framework can identify key operational risks and its link to business decision making. In measuring operational risk for ICA purposes, it is important to distinguish between risks in the risk register that are used to assist management in the day to day running of the business and those risks which, when extreme event scenarios are applied to them, result in a capital requirement.

The lack of historical operational risk data can cause some difficulty, particularly where agents are modelling operational risks. A robust approach in the absence of additional data is to perform detailed stress and scenario testing to support any available operational risk data.

Agents should be taking active steps to understand better the nature of their own risks and uncertainties over time which will result in senior management being better equipped to run their business in the context of the risks that it faces.

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

AN ARBITRARY LOADING WILL NOT BE CONSIDERED AN APPROPRIATE METHODOLOGY

- undertaking an operational risk assessment that is integrated with a robust risk management framework and risk register of the syndicate
- clearly demonstrating the categorisation and quantification of operational risk, whether included as part of other risks or as a stand alone risk (or any combination of these), and the analysis for the capital charge (if 'included' within other risk categories)
    - an arbitrary loading will not be considered an appropriate methodology when calculating operational risk, no matter how prudent the level of capital allocated.
- making clear the approach adopted to reliance on systems and controls and the extent of such reliance
    - agents may consider that investigation of operational weaknesses and corrective action is a better response than holding capital or that a certain degree of operational risk is within its pre-defined risk appetite. However, until the agent corrects any identified deficiencies, it should have in place capital as an interim response to the risk.
- agents should consider the following specific areas where appropriate to the syndicate's business
    - contract certainty and its effect on the chosen scenarios
    - delegated underwriting

Market Risk

Definition

Market risk refers to the risk that arises from fluctuations in values of or income from assets, in interest rates or in exchange rates.

MOVEMENTS IN ONE ASSET CLASS ARE LIKELY TO HAVE IMPLICATIONS FOR OTHERS

Scope

Market risk includes exposures arising from variations in exchange rates, interest rates and investment returns. Market risks tend to be inter-dependent, such that movements in one asset class are likely to have implications for other asset classes. For example, fluctuations in interest rates will usually have an impact on equities, bonds and exchange rates.

Market risk should be considered in conjunction with insurance risk, credit risk and liquidity risk. Credit risk in investments should be considered separately but Lloyd's recognises that it may fall into the modelling of market risk. If so, agents must show a breakdown of the market risk into 'true' market risk and market risk with credit risk included.

We are aware that this may make it difficult for a specific allocation pre diversification to market risk, but it will assist Lloyd's benchmarking and review process if agents make this as clear as possible.

LLOYDS EXPECTS AN ALLOCATION OF CAPITAL TO MARKET RISK

Lloyd's considers that assets cannot be held on a basis perfectly matched to the underlying liabilities of a syndicate in both term and currency since the timing and extent of liabilities are uncertain. Consequently, Lloyd's would expect an allocation of capital to market risk in all ICAs. In particular, under extreme conditions, claims inflation is likely to exceed income from investments.

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

- exposures arising from variations in exchange rates, interest rates and investment returns
- the volatility of asset prices and the correlation of investment types
- the correlation between investment and insurance risk following extreme loss events
- where the expected investment return is higher than the risk free rate
- discounting of reserves
- any deviations from the current asset mix within agreed investment policy

Group Risk

Definition

Group risk refers to the potential impact of risk events, of any nature, arising in or from membership of a corporate group.

Scope

Agents that are part of a group should consider risks arising as a result of the group structure and operations.

EVENTS OCCURRING ELSEWHERE IN THE GROUP CAN HAVE A SIGNIFICANT IMPACT ON A SYNDICATE

Past experience has shown that events occurring elsewhere in the group can have a significant impact on a syndicate. Although many agents consider that there are capital advantages to being part of a wider group structure, reputational risks affecting the parent company can indirectly affect the syndicate.

Whilst Lloyd's recognises that group risk is not likely to result in as significant an allocation of capital as other risk categories, it is important that agents clearly explain their assessment of group risk capital requirements within their submission.

Agents should exclude consideration of any group risk arising from trading under Lloyd's umbrella.

Agents managing run-off syndicates often consider under this heading the risk of the group's strategic decisions impacting their ability to continue as currently in the run-off business.

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

- capital
- group reinsurance arrangements
- shared platform
- management resources
- *strategic decisions impacting run-off business*

Liquidity Risk

Definition

Liquidity risk refers to the risk that sufficient financial resources are not maintained to meet liabilities as they fall due.

Scope

Agents should consider the ability to manage unplanned changes in both funding sources and market conditions as well as a syndicate's access to other sources of funding and any regulatory capital tied up (e.g. SLTF, CRTF).

LIQUIDITY RISK SHOULD BE CONSIDERED IN CONJUNCTION WITH INSURANCE & MARKET RISK

Liquidity risk should also be considered in conjunction with both insurance risk and market risk, particularly in relation to the impact that various stress and scenario tests may have on a syndicate's cash position and its ability to pay claims.

Where a run-off syndicate has a member or members supported by the New Central Fund, it should be assumed that any cash calls will be met by the NCF. Nevertheless, agents should calculate liquidity risk as normal, but simply not apply capital to the proportion expected to be met by the NCF. Such risks must still be included in the ICA submission, along with the associated cashflows, and the capital requirement assessed but the capital needed will be combined with that of other NCF-supported syndicates and held centrally.

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

- lack of funds due to failure to forecast cashflow requirements
- poor credit control, including management of disputes
- meeting regulatory funding requirements
- delays in collecting reinsurance recoveries
- changes in regulatory requirements overseas
- events or a period of sustained losses giving rise to large claims outflow or trust fund requirements
- the short notice given for premium and claim payments where large levels of following market business or delegated underwriting are written
- cost of borrowing (if any) in a stressed environment to meet liquidity strains
- the impact of distribution of profits
- cash calls and availability of funds at Lloyd's (FAL)
- *NCF support for insolvent members*

Diversification

Definition

Diversification reduces the risk as the capital required for two or more risks taken together is generally less than the sum of the capital

DIVERSIFICATION IS A FUNDAMENTAL PRINCIPLE OF INSURANCE

requirements of the individual risks. This applies at many levels – between policies in a portfolio, between different types of portfolio, across time, between risk types, and so on. It is a fundamental principle of insurance.

Dependency affects this reduction; the more interdependent the risks, the less the reduction in risk from diversification. Dependency refers to an increased probability of an event given that another event is known to have occurred. It is not necessary for there to be a direct causal link. For example, reinsurance failure and high gross claims may be dependent because both can in some cases be caused by the same weather events; and a higher frequency of losses may present evidence that severity will also be higher, with no causal chain.

Correlation is one specific measure of dependency, but it does not capture the whole picture and in a sophisticated model "tail dependency" should be considered. In a model without explicit tail dependency, correlations should be set to reflect the dependency in the tail.

CORRELATION IS ONE SPECIFIC MEASURE OF DEPENDENCY

The dependency can increase in the more severe scenarios. For example, when there are large losses, higher reinsurance failure or dispute are more likely than in "normal times". Adverse claims experience can arise in several parts of the portfolio at once, together with inadequate pricing of risks going forward.

In stress test only ICAs, a correlation approach can be used to bring together different stress tests into a total provided certain other assumptions can be justified. Other methods such as chains of potential cause and effect or "ripple effects" should also be considered, again allowing for the possibility that losses which might have little dependency in normal times can become much more dependent in adverse scenarios, and that dependency can arise even when there is no direct causal link.

As well as considering the inputs to the assessment of dependency, agents should consider the outputs, i.e. what is the effect of the chosen assumptions on the result.

Scope

Includes all allowances for diversification. Agents will be asked to show results at certain specified levels of aggregation to allow Lloyd's to see the effect of diversification between these levels.

Minimum Required Standards

Agents must consider and address, as a minimum, each of the areas listed below:

- the level and method of aggregation chosen must be appropriate to the basis of the ICA and the syndicate's tail risk
- agents must ensure that the post diversification number is reasonable
- agents will be required to show results at different levels
- an agent's own data is unlikely to be sufficient for full calibration
- stress tests are vital to substantiate assumptions

DETAILED GUIDANCE SECTION

BASIS FOR ICA

As set out in the introduction of this document, the basis for the preparation of the 2007 ICA is as follows:

The ICA for a run-off syndicate should provide for all losses, modelled to ultimate, arising after 1st January 2007 on the syndicate's 2006 & prior years of account at a 97.5% confidence level, unless the run-off is likely to be completed in less than five years, in which case a higher confidence level should be agreed with Open Years Management. **This includes all losses arising on business earned from 1st January 2007, *where relevant*, and the risk that claims reserves as at 31st December 2006 for business earned up to that date prove to be inadequate.**

IF A RUN OFF WILL EXPIRE IN LESS THAN 5 YEARS THE CONFIDENCE LEVEL MUST BE AGREED WITH LLOYD'S

The ICA should be prepared under the assumption that the syndicate's business will run-off to natural expiry. Agents should not assume that the syndicate will close by reinsurance-to-close and should not include within the ICA any element of risk premium they anticipate being payable as a cost of reinsurance-to-close. However, reinsurance-to-close costs, where reasonably foreseeable, may be used as a stress test for the ICA.

The ICA should be prepared on an ultimate basis and may make appropriate allowance for future investment income. It does not need to recognise reserving strains that would arise in the future under annual accounting. Agents should ensure that the ICA is assessed at a sufficiently extreme level and assumptions and parameters used should be clearly explained and rationalised.

This basis represents the equivalent of minimum regulatory capital
It does not represent the economic capital which is the level of capital required to support and maintain Lloyd's ratings. Additional explanation on the uplift required to reach economic capital will be issued separately.

Agents must prepare a separate ICA for each syndicate covering all years of account of the syndicate combined.
Details should be provided of any syndicates expected to close at 31 December 2006 which are included in the ICA assessment.

THE ICA SHOULD BE BASED ON THE RUN-OFF CLOSURE PLAN

The assumptions used in the ICA must be consistent with those used in the Run-Off Closure Plan (ROCP)
It is essential that the assumptions used in the ICA are consistent with those used in the ROCP. The pro-forma requires agents to identify the ROCP submission on which the ICA is based. Agents are also encouraged to consider changes to material assumptions likely to be made in the 2007 ROCP when preparing the ICA submission, in order to avoid the need for resubmission following submission of the ROCP.

The ICA must be prepared on the assumption that all profits have been distributed and all losses have been collected or are fully receivable
Lloyd's will expect all agents to prepare their ICA on the basis that all profits have been distributed unless there is an agreed policy in place not to do so. If this is the case it should be clearly stated in the ICA.

AGENTS MUST EXPLAIN THE KEY PRINCIPLES UPON WHICH THE ICA IS BASED

In their ICA submission, agents must also explain the following:

- the approach to deriving the ICA and how it links together the business plan (ROCP), key risks inherent in the business, related risk management processes and practices and the capital required by the risks
- why the methodology chosen is appropriate to the syndicate's business, taking account of its risk profile, risk appetite, track record with respect to risk experience and exposure and the key principles upon which the ICA is based
- the approach adopted towards the quantification of risk and the rationale for this approach
- the stress and scenario tests used and why they are appropriate for the business
- the sensitivity of key assumptions
- the overall ICA figure split by major risk category, before and after diversification

Assumptions used in ICA

Agents should justify in their submission the rationale for choice of assumptions where appropriate and should clearly state where they believe these assumptions, if any, are particularly prudent. *A key object of the ICA exercise for run-off syndicates is to calculate a reasonable ICA value at the required confidence level for incorporation into the Lloyd's ICA. It is therefore important that Lloyd's is able to understand the level of prudence adopted by agents so that the combined ICA also reaches the appropriate level of confidence.*

Time Horizon

The need for a consistent basis of calculation is particularly important for ICAs that are based on stochastic models, and in particular regarding the degree and manner to which models look beyond the immediate future year.

The FSA has made it clear that focusing on capital adequacy over the next 12 months is too narrow a timeline unless companies and Lloyd's syndicates also show that they have considered how they will remain adequately capitalised over a longer time horizon.

ENSURE THAT ALL LIABILITIES COULD BE PAID AS THEY FALL DUE AT A 97.5% OR GREATER CONFIDENCE LEVEL

Agents must calculate the capital required to ensure that all liabilities attaching to the 2006 and prior years of account could be paid as they fall due at a 97.5% or other appropriate confidence level. The confidence level will never be below 97.5%. Agents should use a prudent best estimate basis but should then apply stress tests to their assumptions.

Future liabilities should include claims payments, future expenses and future reinsurance costs, on an ultimate basis.

All remaining underwriting and reserving risk must be modelled to ultimate for all risks attaching to the 2006 and prior years of account, i.e. including volatility over the period to natural expiry .

Allowance may be made for asset returns over the payment period, and these should be assessed allowing for asset and timing risks (to the

extent that these are not included in the non-insurance headings of the ICA). All assumptions must be clearly stated.

APPROACH AND METHODOLOGY

Irrespective of the modelling approach taken by agents, they must ensure that there is a clear audit trail from the impact of any financial calculations to the relevant risk capital allocation in the ICA. The ICA must:

- outline clearly the approach adopted in respect of operational risk
- ensure that the material risks under each risk group are identified clearly along with an explanation as to how they contribute to the ICA value
- document the way in which any risks have been incorporated in the modelled element of ICA calculations (e.g. by using particular assumptions or changing certain parameters)
- list significant risks where no capital has been included because the controls over the inherent risks are such that the level of residual risks is considered low enough to warrant their exclusion from capital calculations. The extent of this control reliance should be outlined and the effectiveness of these controls clearly demonstrated.

IDENTIFY MATERIAL RISKS AND EXPLAIN HOW THEY CONTRIBUTE TO THE ICA VALUE

Modelled Approach

The following comments relate to stochastic models.

Loss modelling

The level of detail adopted in the loss modelling should be appropriate to the characteristics of the underlying business. All major classes of business should be explicitly modelled. Territories or currencies should also be modelled separately if the size of the group warrants this. Within each class, it is common for models to split loss modelling between attritional losses, large claims and catastrophe claims, although for smaller syndicates or where the risk in the class is incidental, then consolidation of these groups may be appropriate. For example, attritional losses may follow an aggregate claims distribution, whilst large claims and catastrophe losses could be split between a frequency and claim amount distribution.

The chosen statistical distribution should have an appropriate heavy ‘tail’. A normal (Gaussian) distribution may not be appropriate for aggregate losses or claim amounts. Similarly, a Poisson distribution for frequencies may be considered to be too thin-tailed. Agents should provide justification and rationale within the ICA for the distributions chosen and why they are deemed to be appropriate.

ICAs SHOULD INCLUDE EXPOSURE TO CATASTROPHE EVENTS NOT INCLUDED IN THE MODEL

Direct use of external catastrophe models, with an array of scenarios, is good practice. However, the ICA should allow for the possibility of model error and for events not included within the catastrophe model library. Actual loss experience in 2005 highlighted that catastrophe models alone are not always sufficient.

External catastrophe models tend to focus on certain types or elements of natural catastrophes only. Syndicate ICAs should not understate the potential exposure from other natural catastrophe events, liability or man-made catastrophes.

The implied distribution should be consistent with the syndicate’s realistic disaster scenarios (RDS) , where these remain relevant and any related material within the ROCP.

ICA SHOULD INCLUDE AN ANALYSIS OF THE OUTPUT OF THE MODEL AGAINST ACTUAL EXPERIENCE FOR 2005

Agents should include details on the model used for 2006 and in particular, any updates and/or revisions to the model post the 2005 US windstorms. Lloyd's will also look for an analysis of the output of the model against actual experience for 2005 and the use of models by agents in their business. *Few run-off syndicates are expected to be impacted by this requirement.*

Parameter Setting

To enable Lloyd's to review an ICA sufficiently, the submission should contain information as to how parameters have been chosen together with the logic of the model that brings the assumptions together. The choice of parameters should be carefully considered by agents and analysis should be sufficiently tested.

There will be sensitivity of results to various parameters and agents should highlight within their ICA the key parameters driving the result.

Whilst agents should seek to use a syndicate's own data to parameterise the model, in most cases this data is unlikely to have sufficient statistical credibility in terms of both size and history. Reference to market data will often be required, adjusted to reflect syndicate specific characteristics. As noted below, when assessing volatilities (standard deviations) at a market level, adjustments should be made to reflect that the observed market volatility for a class of business, representing the pooled experience of many syndicates, will tend to be lower than the volatility of a stand-alone syndicate.

Whether the parameters have been based on a syndicate's own historical data or market data, the ICA submission should contain details of the analysis undertaken and where and how judgement has been used. The ICA should also contain an explanation as to the relative balance between the syndicate's own data, market data and judgement.

AGENTS SHOULD CONSIDER THE VALIDITY OF PAST DATA AND ASSUMPTIONS

Models are based on past experience and it is likely that over time this experience will become out of date due to all manner of trends. When such trends start to emerge, agents should consider their impact on the results. It is not acceptable to wait until the effects of the trend are well understood before commenting on the possible implications. Agents should consider the validity of past data and assumptions within the model and ensure that these remain appropriate for calibration, particularly with regard to actual experience (e.g. following the 2005 US windstorms). Agents should also consider scientific evidence on climate change with regards to parameter setting. The ICA should explain where this has been considered and has resulted in a change of parameters being used.

Credibility of syndicate data

Agents should consider carefully the extent to which they may be overstating the credibility of their own experience, and where the model parameters are driven largely by the syndicate's own experience, a margin in the parameters will often be appropriate. Alternatively, the parameters should reflect a wider market experience.

Credibility applies not only to history, but also to the size of the dataset. Small syndicates, in particular, may not have the scale to have a credible dataset, and should not place over reliance upon their own data.

It is worth noting two technical points that are frequently mistaken when setting parameters:

- a smaller portfolio will have a larger standard deviation, as a percentage, than will a larger portfolio. As a result, the standard deviation (SD) of a syndicate should be set higher than the observed SD of the whole market. This is the principle of pooling or the law of large numbers. It affects not just the SD itself but also the estimate of the mean (average), which is more uncertain for a small portfolio
- if observations are not independent then the usual formula for the SD needs to be amended. If (and this is likely to be a key hypothesis supporting the use of syndicate specific data) the observations are positively correlated with each other, the estimate of the SD will be **too low** unless the formula is adjusted.

  As a rule of thumb, a 10% correlation results in a 5% underestimate of the standard deviation and a 50% correlation results in a 30% underestimate.

Parameter Uncertainty

ICAs SHOULD INCLUDE ALLOWANCE FOR PARAMETER UNCERTAINTY

A statistical model, at best, is a fair representation of the underlying reality. At worst it is a biased and incorrect view of the risk. Invariably, there is insufficient data to be totally confident of the parameters or model, and some degree of parameter and model error is unavoidable. To compound matters, parameters themselves may not be fixed and might follow their own distribution. Sophisticated ICAs will therefore include some allowance for parameter uncertainty.

This is clearly an area that is difficult to quantify. However, Lloyd's considers it is important that syndicates recognise the issue and that the uncertainty is adequately communicated to senior management and addressed within the ICA

As part of embedding of the ICA process Lloyd's considers it appropriate for agents to review regularly the key parameters to ensure their continued applicability. Examples of the types of parameter uncertainty that should be explicitly considered include:

- **Parameter error** – i.e. the error of selecting the incorrect parameter due to insufficient relevant historical information
- **Model simulation error** – i.e. the potential for producing erroneous results because they have used a limited set of random numbers
- **Reserving error** – the extent to which any potential historic under-reserving has resulted in over-optimism on the new business projections

AGENTS MUST TEST THE KEY ASSUMPTIONS FOR REASONABLENESS

Lloyds considers it important for agents to test the key assumptions for reasonableness. This would enable a broad high-level reasonableness assessment of the parameters, and indicate potential areas of significant under/over estimation. The submission should also give commentary on the potential parameterisation error and model error, stating what adjustments have been made to cover such errors.

Lloyd's considers that there are risks in using a "smoothed" dataset as it is likely to contain "survivor bias" and may lack the extremes that should drive the ICA assumptions.

The ICA should also demonstrate that sufficient sensitivity tests of the model have been carried out and that these sensitivities are understood by Board and senior management. Lloyd's may also request the overall loss distribution of the model as part of its ICA assessment.

STOCHASTIC MODELS SHOULD HAVE ALL PARAMETERS CLEARLY IDENTIFIED AND JUSTIFIED

Features of a 'good' stochastic model

A good stochastic model should:

- have all parameters clearly identified and justified
- be structured and documented so that it can be understood by senior management and Board members who do not have actuarial expertise
- be rigorous and self-consistent
- be consistent with realistic adverse scenarios
- reflect actual circumstances of the syndicate
- be sufficiently detailed to deal adequately with the key risk areas, but not excessively complex
- be capable of being run with changed parameters for sensitivity tests
- where simulations are used, include at least 10,000 (so at least 50 simulations exceed capital level). Agents should ensure that the number used produces a stable result and ideally more than 10,000 should be used
- have a robust software platform

Stress and Scenario Test Approach

Where agents rely on individual stresses and scenarios to derive an ICA, or to substantiate the output of a model, these should be based on the risks identified and documented in their risk register. The more complete, accurate and embedded the risk register, the more Lloyd's will be able to take comfort from the scenarios selected.

Lloyd's recognises that a stress and scenario test approach will often be more suitable for a run-off syndicate than a sophisticated stochastic model, especially as the run-off becomes mature and reserves may be dominated by a small number of material issues. Under these circumstances, a statistical approach may not produce good results, especially at extreme probabilities.

Agents should ensure that the stress and scenario tests used are at a suitably extreme level for determining a 1:40 or greater capital assessment and those used should be at a consistent level to allow aggregation.

STRESS AND SCENARIO TESTS USED MUST BE AT A SUITABLY EXTREME LEVEL

Stress and scenario tests should be based upon a detailed analysis of potential outcomes within a scenario. One of the weaknesses in adopting a solely stress and scenario testing approach is in the aggregation of risks to arrive at an overall capital figure.

Two common approaches to reflect aggregation of risk are:

- specification of a correlation matrix between each scenario
- 'ripple effects'

Under the first approach, a range of stress tests is considered and quantified in isolation. A correlation matrix is then specified between risk categories/stress tests (judgementally: high/medium/low correlation) and then aggregated to derive an overall capital figure.

Under the second approach a range of scenarios is chosen, and for each one the associated 'ripple effects' resulting from that scenario are also

quantified (e.g. a large loss event leading to reinsurer failure). An extension of this approach is a ‘cause and effect’ table, where for each defined scenario, the knock-on effect of losses from other pre-defined events is also derived. However, because dependency does not require cause and effect, a cause and effect approach is unlikely to be sufficient without adjustment.

Aggregation of scenarios will depend on the complexity of the stress tests. In some cases, using the maximum value of the scenarios may be appropriate, or alternatively aggregation may be achieved through a correlation matrix approach. This issue is covered in more detail in the section on diversification.

A ROBUST STRESS AND SCENARIO TEST APPROACH SHOULD COVER ALL RISK ASPECTS

Features of a robust stress & scenario approach

A robust stress and scenario test approach should:

- ensure that stress tests cover all risk aspects
- ensure that stress tests used are severe enough at the 1:40 level or above otherwise combination of less severe impacts must be aggregated.(e.g. two 1:6 events occur in the same year)
- allow for dependencies (e.g. gross loss and reinsurance failure)

INSURANCE RISK

This section sets out the technical issues to be considered within insurance risk. It has been split into three sections to cover underwriting risk, reserving risk and reinsurance issues linked with insurance risk.

Underwriting

It is likely that the majority of run off syndicates will not have any material underwriting risk to be considered but where appropriate, the following issues should be considered.

Unexpired risks on 2006 and prior years of account (YOA)

AGENTS SHOULD INCLUDE A BREAKDOWN OF REMAINING EXPOSURE

Agents are requested to provide an analysis of remaining exposure for the syndicate as a whole and by open year, unless the remaining exposure is immaterial.

Operating expenses

Syndicate ICAs should address potential exposure to financial loss from higher than expected costs and expenses not directly related to claims.

Large individual risk losses

Agents should ensure when assessing large claims that the parameters used are sufficiently severe and reflect both their own experience and benchmark data. Historical experience can be used where relevant, with allowance for terms and conditions as well as inflation.

Catastrophe losses

Syndicate ICAs should use scenarios that identify the peak exposures within their portfolios (which may or may not be identified by the existing realistic disaster scenarios) and which represent sufficiently extreme events to be relevant to the requirements at the 97.5% or higher percentile (which may not correlate well to the level of some of the existing RDSs)

Lloyd's recognises that the prescribed RDS scenarios may no longer be useful in the context of a run-off, especially a mature run-off with mainly liability exposure remaining. Specifically designed scenarios and stress tests may be the only approach available to agents, in which case this should be explained in the ICA submission.

Lloyd's Realistic Disaster Scenarios confidence level

Notwithstanding the above, Lloyd's RDSs are a well established means of measuring aggregate exposures within syndicates and across the market as a whole. However, there are some aspects of their basis and design that may need to be adapted by agents when developing suitable stress and scenario tests to support their ICA assessment.

Some of Lloyd's RDSs are considered to be more extreme than the confidence levels required for ICAs level of likelihood, but others are not. Agents must adapt or combine their RDS's for use in the ICA to achieve a sufficiently extreme level of confidence and be able to demonstrate the rationale for the level chosen.

The prescribed RDSs are chosen to reflect the risk at market level and may not be at the required confidence level for individual syndicates. In particular, it is expected that more targeted and/or more extreme

scenarios will be used by agents where their exposure is markedly different from the insurance industry's or where the recommended RDSs are not sufficiently extreme for a particular segment of its underwriting portfolio.

One limitation is that the RDSs measure exposure levels using only one, or two, possible outcomes. The dangers of this are that a syndicate may have a very different distribution of exposures to those of the insurance industry and the RDSs will 'miss' those exposures, giving the impression that less risk is being accepted. A full test of exposures in a particular region is best supported by a probabilistic assessment against a full range of possible events. It is for this reason that exceedance probability curves are more appropriate where a syndicate's exposure profile does not follow the insurance industry's.

Although a probabilistic approach can be applied to natural catastrophe risks, it is not practical to model against a full range of possible events for those risks where belief and opinion underlie the assessment of likelihood. Instead, careful consideration should be given to ensuring that the selected events are focused on the actual exposure profile of the syndicate. A number of the 'de-minimis' RDSs and the two 'alternative' RDSs, in particular require agents to identify and test their syndicates' peak exposures.

Commentary on the 2005 US windstorms or other large losses incurred and their impact on business plan and capital assumptions

AGENTS MUST EXPLAIN ANY MATERIAL CHANGES TO THE ICA AS A RESULT OF ANY 2005 LOSS EXPERIENCE

Following the US windstorms in 2005, as a minimum standard Lloyds require agents to provide details of the impact of the losses with regards to the 2006 ICA. This should include a commentary on how the actual loss has developed against expected, and the main changes to the ICA as a result. *Few run-off syndicates are expected to be impacted by this requirement.*

Potential for attritional loss experience

Syndicate ICAs should address separately the risk of experiencing adverse loss ratios as a result of:

- higher than expected claims frequency and/or severity
- *emergence of new types of claim which fall within policy wordings of unexpired risks*

When projecting attritional claims, agents must consider the extent to which inflation, rate changes, definition of large claims and other external factors can impact the historic development data. Where an ICA has implicitly assumed that the volatility of future inflation will be in line with that in the historic data, this should be supported by clear examples on how appropriate this assumption is.

Potential for new or unexpected types of claim

New types of claim are by their nature unexpected but the ICA should reflect the risk that they could emerge. Agents should also consider the potential for unexpected claims to arise, e.g. as a result of poorly worded policies.

Application of the reinsurance programme

The ICA should contain details of the gross and net basis, with both gross and net extreme losses explicitly considered. The ICA should provide

details of the variability of net losses having regard to the application of the reinsurance programme (see separate reinsurance section within insurance risk).

Agents should consider the difference between the gross and net figures at this extreme level to ensure that the reinsurance programme is adequate.

Lack of syndicate data/alternative sources

Whilst agents should seek to use a syndicate's own data to parameterise the model, in most cases this data is unlikely to have sufficient statistical credibility in terms of both size and history. Reference to market data will often be required, adjusted to reflect syndicate specific characteristics

Dependency with reserving risk, reinsurance and operational risk

ICA MUST EXPLICITLY CONSIDER DEPENDENCIES AND EXPLAIN HOW THESE HAVE BEEN ADDRESSED

Agents must explicitly consider the dependencies between underwriting, reserving, reinsurance and operational risk and explain how these have been addressed in the ICA. Examples of dependencies:

- large loss triggers reinsurance failure affecting other losses
- large loss triggers higher reinsurance prices reducing net profit margin elsewhere
- reserve inadequacy leads to pricing inadequacy
- buying inappropriate reinsurance because of operational errors

Binders and delegated underwriting authorities

THE ICA SHOULD EXPLICITLY ADDRESS RISKS ASSOCIATED WITH DELEGATED UNDERWRITING AUTHORITIES

Where part of a syndicates book of business is underwritten through binders or other types of delegated underwriting authorities, agents should explicitly address the risks associated with this in the ICA, e.g.:

- *cessation of a poorly performing binder can exacerbate the situation and may pose a "moral hazard" where risks continue to be written and claims adjusted in the knowledge that binder will not be renewed. This can be a severe problem early in a run-off, when all binders are effectively not renewable*.

Agents should also consider the effects of multi–year deals and reinsurance matching on delegated underwriting authorities.

Operational risk and controls (e.g. exposure monitoring)

Agents should address the operational controls around residual underwriting. In particular, inadequate exposure monitoring can lead to the syndicate failing to take adequate steps to manage exposure and buying inadequate or inappropriate reinsurance.

Timeliness of management information (e.g. reporting of binder income and losses incurred)

Agents should consider the reporting and procedures in place for monitoring loss development, binder income etc and any potential time delays in being aware of significant risks arising.

Reserving

Agents should carefully consider the risk of deterioration of prior year reserves within the ICA. When assessing reserving risk agents should consider the exposure to potential reserve deterioration and consider all aspects of the reserve portfolio individually.

Modelling (e.g. bootstrapping)

A PURE ACTUARIAL MODEL SUCH AS BOOTSTRAP IS NOT SUFFICIENT ON ITS OWN

Reserving risk parameters are often measured using actuarial analyses such as "bootstrapping", although it is not essential to take this approach. Even where there is an actuarial analysis, stress tests on reserves should be performed. A pure actuarial model such as bootstrap is not sufficient on its own and agents should consider the following if using a model:

- add in shock losses
- benchmark, allowing for size of portfolio
- consider gross volatility as well as net (as a benchmark)
- measure and either justify or adjust implied volatility at year end overall level

In a number of 2006 ICA submissions, data was adjusted to remove anomalies or ceased classes of business. This approach has two important shortcomings:

- data for any continuing business will contain "survivor bias"
- if data is smoothed, the situation is likely to be exacerbated since "smoothed" data lacks the extremes that should drive the ICA assumptions.

A "SMOOTHED" DATASET IS UNLIKELY TO BE APPROPRIATE TO ASSESS RISK OF RESERVE DETERIORATION

Lloyd's considers that a "smoothed" dataset is unlikely to be appropriate since any dataset with adjustments will not capture the volatility required for extreme reserve deteriorations.

It is acceptable to measure reserve volatility using actuarial analysis of the syndicate's own data. However, this data is unlikely to contain examples of reserve deterioration as extreme as required for the ICA so agents need to adjust and consider other sources. One approach is to add in "as if" losses and explain clearly the basis and rationale for these and choose parameters, not just measure and use blindly. Another is to boost output parameters.

Agents should also check that the implied deterioration is large compared to actual failures elsewhere (e.g.: in failed companies).

Latent claims

Latent claims are by their nature unexpected and do not show up in actuarial projections, but the ICA should reflect the risk that they will emerge. Two approaches are:

THE ICA SHOULD REFLECT THE RISK THAT LATENT CLAIMS WILL EMERGE

- adjust the data in the actuarial projections, or the projections themselves 'as if' latent claims of assumed materiality had emerged
- load the assumptions directly – increase the correlations between years and the volatilities, or increase the stress tests and the dependency between them

Agents should apply at least one, preferably both methods and should examine the impact on the assumptions and results, making their assumptions clear.

Regulatory changes

Agents should ensure that the ICA allows for the risk of changes to regulation or legislation affecting their reserves. In the UK, the introduction of the "Ogden tables" is an example of such a change. The approach may be similar to that for latent claims.

Periodic payments (e.g. structured settlement plans)

Agents should consider this where relevant as an increase in requirements to provide a structured settlement plan could increase the ultimate cost.

Discounting

Liabilities may be reduced to reflect the investment income that will be earned on the assets held against reserves. The discount should ideally be calculated by means of a stochastic investment return applied to random claims settlements following on average the assumed pattern. In this case market risk is included with insurance risk (partly).

In practice, it is acceptable to assume either or both of investment income and settlement pattern are deterministic, although margins should be taken in the assumptions and a separate risk component will be needed.

AGENTS SHOULD USE THE RISK-FREE RATE FOR DISCOUNTING RESERVES

The interest rate should be based on the forecast risk-free yield, less an expense margin, or on the actual forecast investment income for the syndicate if lower. Where a higher rate of return has been assumed in assessing market risk, agents should still use the risk-free rate for discounting reserves.

Agents should ensure that their approach takes account of the uncertainty of both investment income and the timing of claims payments, and that adequate market risk is allowed for. The ICA should take into account any increase in market risk that arises because of the discounting approach and should make clear the relationship between market risk and discounting.

Large individual risk loss development

The ICA should take account of the reserve risk arising from large losses. This should include where appropriate :

- historical large losses - these may deteriorate suddenly as disputes are started or resolved. This uncertainty at a gross level can be even greater at the net level
- late advices - large claims can be notified late or the large size of a claim may only suddenly and belatedly become apparent
- "reserved at limits" - claims may be described as reserved to limits when on a probable basis there is no further cover, but theoretically cover could still exist. The ICA should include the risk that deteriorations beyond what is probable can take place
- *impact of run-off status - this can generate or bring forward speculative claims*

ICA SHOULD INCLUDE ADEQUATE RESERVE RISK ARISING FROM CATASTROPHES THAT HAVE ALREADY OCCURRED

Catastrophe loss development

As with large individual losses, the ICA should include adequate reserve risk arising from catastrophes that have already occurred, such as WTC and the 2005 US hurricanes. Lloyd's will consider carefully the reserve risk for syndicates with unpaid catastrophe losses.

General reserve deterioration

The ICA should allow for unexpected adverse movements including new trends or the continuation of existing adverse trends. If the number of claims turns out to be higher than expected, the ICA should allow for any consequences such as sideways reinsurance exhaustion or lack of claims staff/external advisors (e.g. demand surge following 2005 US hurricanes).

Application of reinsurance

The ICA should allow for the risk of exhaustion and dispute, and should allow for the possibility that the relationship between the syndicate and its reinsurer will deteriorate especially if gross claims are high. *This risk is a particular feature of run-off and agents should address it in their ICA submissions.*

Benchmarks

Own reserve run-off experience does matter but agents should consider other benchmarks as well. Benchmarks should include market-level reserve volatilities and agents can use data from market (or from failed firms if available).

Data must be consistent with reserves actually held

As a minimum standard, data used in the ICA must be consistent with reserves actually held although it will not necessarily be the same. Where ICA assumptions differ from actual reserves, these must be fully reconciled and Lloyd's must approve this treatment in advance, with the agent responsible for demonstrating to Lloyd's satisfaction that their business model can accommodate the two bases.

Lloyd's expects that its agreement to permit separate bases will be by exception in a very limited number of cases.

Reserve margins credit and effect of prudent policy going forward

ADDED BURDEN OF PROOF ON THE AGENT TO DEMONSTRATE THAT RESERVE MARGINS EXIST

Where best estimate reserves are used as the basis for the ICA, these may – or may not – be the same as the booked reserves. Where a syndicate is assuming a best estimate significantly below the booked reserves Lloyd's will require evidence that the implied surplus is appropriate. The ICA can allow for true best estimate being below actual reserves but Lloyd's will examine assumptions with great attention and agents should ensure:

- there is clear identification of any margins against those risks that are included in the measurement of capital and, of the capital required where those margins are insufficient
- margins are in line with the firm's documented description of how it accounts for assets and liabilities, including the methods and assumptions for valuation
- there is objective evidence and a track record to support margins being maintained. There is an added burden of proof on the agent to demonstrate that such margins exist

Agents should also consider the impact of continuing a prudent reserving policy if adverse loss experience eats up the margin (e.g. the need to rebuild margins to maintain reputation)

Allowance for trends such as inflation

Agents should consider these trends, not only at best estimate level, but also where there is a deterioration of the trends.

Dependence between underwriting years

THE ICA SHOULD ALLOW FOR DEPENDENCE BETWEEN UNDERWRITING YEARS

Agents can consider all years together or look at individual years separately. In either case, the ICA should allow for dependence between years and a total figure for all years is required.

Dependence with underwriting risk, reinsurance and operational risk

As a minimum standard, agents must show how dependence with underwriting risk and reinsurance has been allowed for. Typically, Lloyd's would expect greater correlation with underwriting risk on longer tail claims, where claims development is slower.

Operational risk error (e.g. systematic under reserving, miscoding)

Agents should include operational risk error e.g. systematic under assessment of reserves, miscoding, late notification of claims

Timeliness of management information

Agents should consider the reporting and procedures in place for monitoring reserve deterioration and any potential time delays in being aware of significant developments arising.

Implications of entering run off

In the case of a new run-off, agents should consider the potential impact on reserves of entering run-off, e.g. inability to obtain timely data, loss of claims lead etc.

Reinsurance

ICAs SHOULD CONSIDER THE RISKS ASSOCIATED WITH THE USE OF REINSURANCE

Syndicate ICAs should consider the risks associated with the use of, and potential reliance on, reinsurance in respect of both underwriting and reserving risk. This should cover the areas set out below but should not include the risk of failure which falls into credit risk.

Lloyd's recognises however that where agents are running sophisticated models it may fall into insurance risk. If so, as a requirement, agents must show a breakdown of the insurance risk into 'true' insurance risk and reinsurance credit risk included. As a sensitivity test for this, agents should calculate as a minimum the insurance risk assuming no credit risk as well as with the actual assumptions and justify the difference.

We are aware that this may make it difficult for a specific allocation pre diversification to reinsurance credit risk, but it will assist Lloyd's benchmarking and review process if agents make this as clear as possible.

Details of material current and prospective reinsurance protecting the syndicate should be provided in the ICA, or by cross reference to the

DETAILS OF MATERIAL CURRENT AND PROSPECTIVE REINSURANCE SHOULD BE PROVIDED

ROCP or other submission to Lloyd's. The ICA should also state assumptions with respect to cost and availability of reinsurance.

Non-matching reinsurance

Agents should consider the risks arising as a result of:

- long term, non-cancellable inwards policies written by the syndicate where there is a material reliance on reinsurance of shorter duration, and where there is no certainty over renewal pricing of such reinsurance (particularly in a post loss scenario), or where known renewal terms and conditions would impose an additional cost
- reinsurance covering Losses Occurring During (LOD), rather than Risk Attaching During (RAD), the period of cover and where there is no certainty over renewal pricing of such reinsurance (particularly in a post loss scenario), or where known renewal terms and conditions would impose an additional cost
- gaps in coverage as a result of a change in the basis of cover, e.g. moving from LOD to RAD cover
- the use of fixed currency rates of exchange for programme deductibles / limits
- a lack of an appropriate or the expected level of risk transfer under financial engineering products, including finite reinsurance. The ICA should explain the extent to which financial engineering has been used, for what purpose, and the impact on both assets and liabilities
- failure to complete the placement of reinsurance prior to the occurrence of a material loss
- the operation of reinsurance exclusions, or a poorly worded reinsurance contract, whereby the syndicate would retain an unexpectedly larger proportion of a significant loss
- potential for different legal jurisdiction to apply on inwards business compared to outwards reinsurance

Over reliance on reinsurance

The ICA should reflect the potential adverse impact on underwriting (e.g. prudential gross pricing and risk selection) of the availability of reinsurance or of the advanced costs incurred in purchasing reinsurance, in particular, when the underwriting of a given class is materially dependant on reinsurance.

ICAs SHOULD INCLUDE RISK ARISING FROM EXHAUSTION OF REINSURANCE COVER

Exhaustion

Syndicate ICAs should consider exhaustion of reinsurance cover and risks arising as a result of:

- the occurrence of multiple losses at a level requiring material reinsurance support, i.e. the purchase of insufficient horizontal coverage
- the erosion of cover as a result of losses from other classes where reinsurance protects more than one class of business
- the risk associated with projecting the appropriate amount of reinsurance cover to purchase, e.g. in long tail lines of business, requiring a longer term assessment of the potential for the erosion of cover over time

Post loss impact on cost and availability

Syndicate ICAs should consider the post loss impact on reinsurance and risks arising as a result of:

- the effect of contractual conditions, e.g. additional premiums, 'payback' and coverage restrictions
- potential unavailability or uneconomic pricing of reinsurance
- material changes to reinsurance programme structure, e.g. increased programme deductibles, restricted vertical or horizontal cover, changes to terms and conditions, or to the basis of coverage
- *the impact of being in run-off on availability and pricing of cover*

Treatment of reinstatements

The potential for reinstatements following a loss should be included in the ICA. As the SBF requires agents to include allowance for potential reinstatement premiums, use of the same assumptions in the ICA will also include allowance for reinstatements.

Agents should also consider within the ICA the risk of reinstatement premiums not being received when due and the impact this may have.

Concentration of reinsurers

Agents should address any concentration of particular reinsurers within their portfolio. This will affect other risks, particularly credit risk and dispute risk.

Dispute

AGENTS SHOULD EXPLAIN STEPS TAKEN TO MITIGATE REINSURANCE DISPUTE RISK

A reinsurer's unwillingness to pay may lead to a dispute over losses presented under a reinsurance contract. Agents should articulate what steps are taken to mitigate reinsurance dispute risk. The impact of delays in payment and pressures on management time should be considered. The tail of the account should also be considered as the class of business may lead naturally to more disputes, ex gratia settlements and turnover of reinsurers year on year.

Lloyd's considers that reinsurance disputes are inherently more likely to occur when a syndicate is in run-off. Agents should consider the impact this may have on their ICA and address it within their submission. In general, Lloyd's expects to see more prudent assumptions on the capital required for this risk in run-off syndicates than in active syndicates.

Structured and/or multi year reinsurance policies

Agents should consider the economic value of structured and/or multiple year reinsurance contracts particularly any with an aggregate limit for the policy period that is less than the sum of the annual limits. Any calculation of credit for a multi-year reinsurance should apply the contract's lifetime expected premium against the annual limit available.

Lloyd's will review credit taken for any recoveries under stop loss policies on an individual basis.

Industry loss warranties (ILW)/Original loss warranties (OLW) basis risk

The ICA should specifically address any material basis risk, for example in respect of Industry Loss Warranty (ILW) or Original Loss Warranty (OLW) forms of cover in which a recovery is triggered in the event of a specified amount of industry loss. This may expose the syndicate to material losses which would normally be reinsured if the total industry loss does not reach the specified amount.

Dependency between gross insurance risk and reinsurance performance

Agents should consider this on the basis that dispute and credit risk increase with gross losses.

REINSURANCE PERFORMANCE MAY BE IMPAIRED AND FUTURE PURCHASE COSTS HIGHER

Dependency with underwriting and reserving risk

As a minimum standard agents must show how dependence with residual underwriting risk and reserving risk have been allowed for. In particular reinsurance performance may be impaired by significant gross losses triggering large recoveries and future reinsurance purchase may be more expensive than would be the case for an active syndicate.

Reinsurance implications of entering run off

Agents should consider the potential impact on reinsurance of entering run off, e.g. availability of future reinsurance, cost of renewal, increase risk of dispute with reinsurer etc

Example Stress Tests

The suggested stress tests below may be used when assessing insurance risk. This list is not exhaustive and is not a substitute for stress tests relevant to each individual business.

The schedule is not prescriptive, however where Lloyd's is unable to get comfortable with the stress tests used by an agent, these are example stress tests that Lloyd's may require the agent to perform to support the conclusions in the ICA.

- **two largest RDSs combined**
- **more than 100% increase in run off reinsurance costs**
- **systemic poor risk selection because structure has not grown with business may still be relevant to new run-offs**
- **multiple loss of disputes with lead reinsurer leading to 40% shortfall in reinsurance recoveries**
- **40% deterioration on reserves**
- **largest two year-on-year reserve deteriorations in syndicate's history**

Agents should be aware that Lloyd's will require explicit sensitivity testing on ULRs and reserve deterioration as part of the pro-forma. Full details of these are given in the notes to that document (appendix 2).

CREDIT RISK

This section sets out and explains the technical issues regarding the assessment of credit risk.

Reinsurance Credit Risk

Gross and net losses should be considered

When a model is used, gross losses as well as net should always be considered and mapped through the relevant reinsurance programmes. Where syndicate reinsurance programmes are complex, Lloyd's recognises that this calculation will be difficult to perform explicitly. In such cases, the agent should make allowance for the operational risk inherent in the complexity of the programme. Where reinsurance programmes change materially year on year, this should also be considered, particularly how they may apply to legacy business with run off exposures.

Proposed, current and prior reinsurance programmes should be explicitly addressed in detail

In a good practice approach, the main components of a syndicate's proposed, current and prior years of account reinsurance programme should be identified and modelled explicitly

Link increased probability of reinsurance failure to extreme losses

INCREASED RISK OF REINSURANCE FAILURE IN EXTREME LOSS SCENARIOS

The ICA should also take into consideration the increased risk of reinsurance failure in extreme loss scenarios. Lloyd's considers that correlations increase in many of the extreme loss scenarios. In modelling terms, this would involve correlating reinsurance failure rates with large loss scenarios.

Consider concentration risk and financial strength of reinsurance programme

In determining the capital requirement for reinsurance credit, the ICA should reflect the concentration risk and financial strength of the reinsurer. Where a syndicate has a significant concentration to individual reinsurers (including intra group) the ICA should consider this.

Reinsurance failure rates should allow for the risk of downgrade

Agents should allow for downgrading of reinsurers when assessing credit risk and not refer only to standard default rates or current ratings. A weakness in using standard default rates is that a market average rate is not always applicable to an individual syndicate's reinsurers or to the scenarios for which reinsurance is being relied upon. Reinsurance assets are very likely to be much larger in the stress scenario than in non-stress conditions.

In addition, the factors are derived from historical corporate bond default rates, which do not have any direct relationship to future reinsurer default rates.

Therefore these tables should be used as a benchmark only. Lloyd's considers it good practice for syndicates to consider reinsurance default

with specific reference to the actual reinsurers not just reinsurers banded by S&P ratings, whether stressed to a one or multiple “notch” downgrade.

THERE IS A HIGHER PROBABILITY OF DEFAULT ON A MORE DISTANT RECOVERY

Duration of recoveries

Agents should explicitly consider the duration of liabilities when considering reinsurance credit risk as there is a higher probability of default on a more distant recovery.

Own experience is unlikely to be severe enough without adjustment

In addition to their own data, agents should use credit ratings and reinsurer specific risks; e.g. small and specialist will be riskier than large and diversified even if rated the same. Agents should also test data against their own worst experiences.

Reinsurance placed with other Lloyd’s syndicates must be treated on same basis as external reinsurance

Lloyd’s does not wish to indirectly influence the placement of reinsurance as a result of the ICA process. Therefore, agents should treat policies placed at Lloyd’s on a similar basis to another reinsurer with a comparable financial strength.

Treatment of any intra group reinsurance

Agents that belong to wider insurance groups should not treat reinsurance placed with the parent group more favourably than reinsurance placed with an unrelated insurer with similar financial strength.

Other credit risk

Issues to be considered when assessing non reinsurance credit risk areas are covered below:

Brokers

AGENTS SHOULD CONSIDER THE FAILURE OF THEIR LARGEST BROKER

Agents should consider the failure of their largest broker - this may be considered remote but the ICA must be assessed in the context of a 1:40 or more remote event. Additional areas to be considered under brokers would include premiums receivable from broker, claims paid to broker but not yet to insured and commissions not recovered when policies are cancelled and premiums returned or never received.

Coverholders

Agents should consider the following issues:

- where premiums not received but policies bound
- claims paid but not passed on
- commission paid but policies cancelled and premiums returnable.

Policyholders

Agents should consider the risk that premiums are not received. The systems and controls in place on premium collection also need to be considered.

Third Party claims administrators

Agents should consider the risk of claims paid to a third party administrator but not passed on to policyholders. Where third party claims administrators hold claims floats, agents should consider the possible effects of misappropriation of funds or failure of the third party administrator.

Banks and Investment counterparties

Agents should consider the risk where significant balances are held with banks and/or investment counterparties.

Example Stress Tests

The suggested stress tests below may be used when assessing credit risk. This list is not exhaustive and is not a substitute for stress tests relevant to each individual business.

The schedule is not prescriptive, however where Lloyd's is unable to get comfortable with the stress tests used by an agent, these are example stress tests that Lloyd's may require the agent to perform to support the conclusions in the ICA.

- **failure of the largest broker**
- **failure of the syndicate's largest reinsurer**
- **one (or multiple) notch downgrade of all reinsurers based on a reinsurance asset as the largest proportion of gross reserves that it has been for agent since 2000; or twice current if higher**
- **default by syndicate's most significant investment counterparty**

OPERATIONAL RISK

This section sets out and explains the technical issues regarding the assessment of operational risk.

When assessing operational risk, agents should ensure that all potential sources of operational risk are considered. The table below has been designed to assist agents to identify operational risks in their business by providing a (non exhaustive) breakdown of potential causes and data sources for each of the four types of operational risk, i.e.:

- people
- processes
- systems
- external events

Cause	Potential Causes	Potential Data Sources
People	○ Manual input error ○ Error in use of model / system ○ Lack of management supervision ○ Inadequate staff training ○ Inadequate staffing levels ○ Process / procedure not followed ○ Lack of escalation to management ○ Internal theft or fraud ○ Recruitment screening failure ○ Miscommunication - internal ○ Miscommunication - external ○ Other unauthorised activity ○ Other unintentional error	○ Staff turnover / sickness rates, number of contract staff ○ Dependency on key staff / underwriters ○ Loss experience on insurance contracts ○ Extremes of over / underperformance / known conflicts of interest ○ Typical notice periods and contract terms ○ Strength of succession planning ○ Level of complaints
Processes	○ Inadequate segregation of duties ○ Inaccurate / incomplete management information ○ Lack of adequate processing control ○ Inadequate functionality - supporting software ○ Inadequate / inappropriate polices ○ Inaccurate / Incomplete standing data ○ Failure in corporate governance ○ Other process failure ○ Other control failure	○ Rapid expansion of business lines / high moral hazard business areas ○ Number and extent of binders written ○ Nature and extent of manually intensive processes ○ Exception reporting (e.g. business outside plan) and key indicators ○ Management monitoring reports (e.g. policy or claims backlogs) ○ Level of complaints / reinsurance disputes / adverse press comment ○ Outstanding external and internal audit / compliance / regulatory report points / frequency of regulatory intervention

Cause	Potential Causes	Potential Data Sources
Systems	○ Hardware failure ○ Software failure ○ Network / telecommunications failure ○ Third party provider failure - IT ○ Inadequate virus protection ○ Inadequate system security / information risk management ○ Insufficient processing capacity ○ Insufficient / untested business continuity processes ○ Inadequate change / release management ○ Other system error	○ Number and complexity of MIS reports and papers ○ Outstanding internal / external audit points on MIS ○ Number and complexity of IT systems / planned IT upgrades ○ Records of system outage / security breaches / virus attacks ○ DRP implementation costs / replacement costs of IT hardware / realistic business interruption costs
External events	○ Natural disaster ○ Man made disaster ○ Third party provider failure - other ○ External theft or fraud ○ External breach of system security ○ Power outage ○ Other external event	○ Number and complexity of 3rd party users ○ Terms and conditions of service level agreements

AGENTS SHOULD CONSIDER OPERATIONAL RISK LINKED WITH OTHER RISK CATEGORIES

Irrespective of the approach adopted to modelling operational risk, all material risks should be considered in the ICA. Agents should clearly articulate where within the ICA submission the material risks to the business have been considered.

Agents should consider operational risk linked with other risk categories as well as risks such as business continuity, loss of premises and loss of staff. Lloyd's appreciates the boundaries between operational risk and the other risk categories are imprecise, as operational risk can arise from a range of operational controls spanning all risk categories. The sections below show some examples of key operational controls under each of the other five risk categories. Consideration should be given to the risk that (as an extreme event) these controls are not fully effective.

Insurance risk

- periodic actuarial input, for example ULRs, to assess the appropriateness of possible results
- regular exceptions reporting identifying all items that exceed pre-determined limits. Escalation procedure in place for significant exceptions
- procedures setting out the approach to claims management including service standards, complaints handling and the use of third party experts
- procedures for the regular review of dormant or non moving claims.
- documented ROCP which clearly sets out the reinsurance purchase requirements by class, type, security

- regular formal process for independent expert and management review which is appropriately timetabled around key purchase dates for reinsurance purchase, security concentration and utilisation
- Board approved and monitored requirements for maximum net losses to major events
- formal reporting of reinsurance utilisation, showing separately, amounts of paid incurred and expected usage of reinsurance protection. Split by layer, class of business, year of account. Presented to the Board or properly designated committee on a regular basis
- formal modelling capability to assist in determining what levels and price reinsurance should be bought at to maximise return whilst restraining risk within manageable levels. Timely analysis of different options and sensitivity to class and syndicate aggregate exposures

Credit risk

- an established credit risk committee, with clear terms of reference, which reviews and updates the credit ratings of reinsurers, brokers and coverholders on a regular basis
- formal procedures identifying the individuals responsible for purchasing reinsurance on behalf of the syndicate. Written authorisation procedures covering issues such as type of cover, (i.e. facultative, pro rata, excess etc) limits of authority (on concentration of exposure per reinsurer), minimum rating requirements per class of business. Formal procedures for referral of exceptional items
- formal policy and procedures for the evaluation, usage and monitoring of new and existing reinsurance security. Where a committee and/ or its members have authority to approve reinsurance purchase, it should be chaired by a senior individual who is independent of the underwriting decision making and each approval given by at least two senior individuals, such as directors, not involved in the transaction
- formal policy and procedures for the evaluation, usage and monitoring of new and existing brokers
- review of concentrations within individual custodians, group companies, or geographic locations
- investment policy with clear limits and guidelines appropriate to the business
- regular aged debt reporting
- internal audit reviews of controls over third party credit risk
- a plan for managing cashflows / liquidity following a major catastrophe

Market risk

- investment policy with clear limits and guidelines appropriate to the business
- annual review of benchmarks and revision in light of changes to business strategy
- formal investment management / custodian mandates and agreements, including details of reporting to be provided and performance benchmarks

- regular reporting on investment portfolio, including value of the portfolio by investment asset class, sales and purchases made in the period and cash movements
- monitoring of the portfolio against the limits established in the investment mandate
- regular reconciliations of investment holdings
- regular monitoring of the credit worthiness of counterparties and issues
- periodic reviews of controls operated by counterparties

Liquidity risk

- credit control policy and procedures to target outstanding premiums and reinsurance recoveries for collection
- stress testing modelling to review liquid assets against unexpected events
- regular formal cashflow forecasting, showing the cash position by month and currency and reflecting the likely effect of a RDS / catastrophe events
- monitoring actual levels of liquid assets against a benchmark
- the maintenance of sufficient (liquid) assets to meet expected / reasonable changes in regulators' financial requirements, or contingency plans to raise sufficient funds
- formal agreements in place for borrowing facilities / funding arrangements
- credit control policies and procedures to target outstanding premiums and reinsurance recoveries for collection
- personnel with sufficient skills and knowledge of the cash call process

Group risk

- formal group reinsurance agreements
- documented terms of reference where group functions are shared
- formal agreements in place for intra group borrowing facilities / funding arrangements.

DEMONSTRATE THAT THE RISK MANAGEMENT FRAMEWORK IS EMBEDDED WITHIN THE ORGANISATION

Undertaking an operational risk assessment that is integrated with a robust risk management framework and risk register of the syndicate

Senior management should be able to demonstrate that the risk management framework is embedded within the organisation and provides a representative feed into the ICA submission. Key features of a robust and dynamic risk management framework are as follows:

- regular self-assessment of potential exposure to operational risk, considering all significant operational risks stemming from the syndicate's objectives, processes, systems and activities, as well as the nature of its customers, products and the external business environment
- assignment of 'owners' for each of the significant operational risks identified. Risk owners must have some control over their risks and have the influence to be able to effectively manage them
- regular review of operational risks in the risk register, showing challenge by appropriate personnel to those risks identified

- regular review and update of the impact and probability scores for each of the operational risks in the risk register
- regular assessment of controls or control failures that require remedy, not restricted to controls currently operating within the business, rather those controls that may be needed to further mitigate risks to the required risk appetite levels
- development and implementation of action plans for unacceptable levels of risk and/or the remediation of control weaknesses
- monitoring Key Risk Indicators (KRIs) to assist in identifying potential operational risk hotspots that could result in operational risk losses. KRIs are intended to:
    - identify the syndicate's key operational risk exposures
    - enable the agent to monitor and manage proactively the underlying causes of the syndicate's key operational risk exposures
    - use thresholds aligned to the agent's appetite for operational risk and enable risk based decision making
    - be commensurate with the nature of the operational risk exposure
    - complement other sources of operational risk self-assessment and loss data.

Clearly demonstrating the categorisation and quantification of operational risk, whether included as part of other risks or as a stand alone risk (or any combination of these), and the analysis for the capital charge (if 'included' within other risk categories)

An arbitrary loading will not be considered an appropriate methodology when assessing operational risk, no matter how prudent the level of capital allocated. Due to the level of judgement involved, this is a challenging area within the ICA submission and can be tackled in one of two ways:

Modelling approach

The following approaches are commonly used when modelling operational risk:

- Monte Carlo simulations of elements of operational risk modelled within underwriting, reserving and investment risk
- cumulative probability distribution modelling by means of stochastically modelling the operational risks in the risk register to build up a cumulative frequency distribution and required capital at 99.5% confidence
- normal distribution modelling, e.g. mean £1m, standard deviation £1.25m, and drawing conclusions based on this
- as part of an overall economic capital model.

EACH SCENARIO MUST BE A SUFFICIENTLY EXTREME EVENT LINKED TO RISKS WITHIN THE RISK REGISTER

Where a modelling approach is undertaken this must be supported by appropriate stress and scenario tests to validate modelled output. In addition the model should be sense checked by altering one or more of the parameters and observing the effect of this on the modelled results.

Stress and Scenario test approach

Where a stress and scenario approach is taken, agents should consider the following:

- management should apply judgement in selecting stress and scenario tests that are pertinent to the business, with each scenario being a sufficiently extreme event linked to risks within the risk register
- a clear distinction should be made between risks in the risk register that are used to assist management in the day to day running of the business and those extreme event scenarios used to quantify the capital requirement. Lloyd's appreciates that not all material day-to-day risks have material capital requirements and that capital is not an appropriate mitigant for each and every risk. A range of scenarios should be considered which on a combined basis ensure that all key operational risks have been considered somewhere within the capital assessment for the agent. The way in which the chosen scenarios capture the risks within the risk register should be discussed amongst appropriate personnel who understand the nature of the risks that they have responsibility for
- scenarios should be broad enough to encompass any ripple effects such as effect on reputation
- *the selected scenarios should be combined to derive an overall capital charge for operational risk. A common aggregation method is to use a correlation matrix. This method has the advantage of being simple and transparent, however judgement is required in the selection of correlations. This approach also requires all stresses to be assessed at one common confidence level (normally 1 in 40 for run-off syndicates) which is difficult in practice. An alternative approach, which does not require each individual stress to be at that extreme level, is to consider a range of extreme scenarios and then apply an impact to each. Once assessed for impact, the likely frequency can be derived. Combinations of scenarios can then be considered and the combination with the worst combined impact and probability of at least 2.5% is selected as the capital requirement.*

PAST EXPERIENCE IS NOT ALWAYS AN ACCURATE INDICATOR OF FUTURE LOSSES

Whether using a modelling or a stress and scenario based approach, agents should bear in mind that past experience is not always an accurate indicator of future losses. Therefore, management may wish to consider a number of data sources in order to take into account the full spectrum of loss potential.

External loss databases:

- external loss data can provide an indication of the size, frequency and sources of losses experienced by others and is therefore a useful reference when assessing potential risk exposures. The principal value of such data would be to prompt discussion of the most extreme potential future scenarios that historic data may be unable to show. From a day to day management perspective these scenarios may not be relevant, however when considering extreme events these may warrant inclusion for ICA purposes
- loss databases can also provide additional data which may potentially assist with the modelling of operational risk capital requirements. However, careful judgement is needed on the relevance of such data, in view of different industry or industrial sector data sources, differences in operational scale, control systems, cultures and the likely completeness of the data

Internal loss databases:

- this involves systematic tracking of actual, potential and 'near miss' operational risk losses
- losses could be as a result of a new risk giving rise to a loss or due to the failure or lack of a control in relation to a previously identified risk
- Lloyd's would encourage agents to track their internal loss data in order that management are able to measure risk exposure more accurately, identify trends and lessons to be learned over time and therefore use this loss data as an input for capital calculation

Making clear the approach adopted to reliance on systems and controls and the extent of such reliance

AGENTS SHOULD CONSIDER THAT CONTROLS MAY NOT OPERATE AS INTENDED IN A STRESSED SCENARIO

Management should assess any potential change to the syndicate's business and operational controls following an extreme event, for example taking into account that controls may not operate as intended in a stressed scenario. A capital allocation in respect of a failure of controls under a stressed scenario does not necessarily indicate a poor control environment, rather this is merely appreciating the magnitude of the extreme scenario.

An agent may consider that investigating operational weaknesses and corrective action is a more appropriate response than holding capital or that a certain degree of operational risk is within its pre-defined risk appetite. However, until the agent corrects any identified deficiencies, it should consider capital as an interim response to the risk.

Agents should also consider the following specific areas where appropriate to the syndicate's business:

Contract certainty

ASSESS RISKS ARISING FROM CONTRACTS WHICH DO NOT MEET THE MARKET DEFINITION OF CONTRACT CERTAINTY

Agents should take into account within their ICA submissions the operational risk exposures arising from contracts which do not meet the market definition of contract certainty. Both future scenarios and historical losses should be reviewed and discussed specifically in the context of wordings related aspects and contract certainty risks.

Agents should be able to clearly demonstrate the extent of their contract certainty plans, deliverables and other related controls thereby justifying the impact and frequency of this risk within the risk register.

The categorisation of this risk between insurance risk and operational risk within the ICA submission should be clearly distinguished to ensure that there is no double counting.

Delegated Underwriting

Agents should consider all aspects of the risks associated with delegated underwriting including:

- data quality issues (e.g. pricing, claims notification and settlement)
- the impact of controls on the residual scoring of the risk
- due diligence processes
- selection criteria

Stress and scenario tests

AGENTS MUST USE SCENARIOS WHICH ARE SPECIFIC TO THEIR BUSINESS

This section sets out a number of example stress and scenario tests for operational risk. This is designed to assist agents in developing scenarios at a sufficiently extreme and detailed level. These examples are illustrative and agents should ensure that they use scenarios which are specific to their business.

The schedule is not prescriptive, however where Lloyd's is unable to get comfortable with the stress tests used by an agent, these are example stress tests that Lloyd's may require the agent to perform to support the conclusions in the ICA.

Preparatory work should involve linking extreme scenarios to the risk register. A practical way to then further develop scenarios is to organise workshops involving senior managers and experts from relevant departments to comment on the scenarios chosen. Stress and scenario testing should also be used to validate stochastic modelling, where applicable.

Scenario 1 - Bomb in the City of London

Bomb explosion in the City of London, causing major damage to both the agent's office and the Lloyd's building. Access to the Lloyd's building denied for a prolonged period, affecting operations. Loss of life of senior executive(s) and other key personnel(s). BCP / DRP invoked. The syndicate is not running at full capability.

Scenario 2 – Contract certainty

Due to a wording dispute a major claim is conceded. A number of policies underwritten using the same wording thereby exposing the syndicate to further unexpected claims. Staff levels at agent not sufficient to process the level of claims being received resulting in an over-worked workforce. Senior claims manager leaves to go to a competitor and a replacement cannot be found for 12 months.

Scenario 3– Transfer of run-off

The run-off may have to be transferred to another agent and/or service provider for some reason,. The reason may be a strategic decision by the agent or its parent or a decision that it may be in the best interest of members if the run-off is conducted by a specialist. The agent should consider the cost of the providing resources to conduct the run-off, transfer of staff, systems and data and the costs involved in familiarisation. This might also include the risks associated with the new agent or service provider being unfamiliar with the business of the syndicate.

MARKET RISK

This section sets out the technical issues regarding the assessment of market risk.

Lloyd's considers that assets cannot be held on a basis perfectly matched to the underlying liabilities of a syndicate in both term and currency since the timing and extent of liabilities are uncertain. Consequently, Lloyd's would expect an allocation of capital to market risk in all ICAs. In particular, under extreme conditions, claims inflation is likely to exceed income from underlying investments. *There may be some exceptions for run-off syndicates whose members are largely or wholly reliant on the New Central Fund. In such cases, investments may be minor and managed by Lloyd's Treasury. In such cases, investment is likely to be in very low risk securities and the risk effectively run by the NCF. Lloyd's Treasury will issue guidance to client agents before the ICA submission is due.*

IT IS LIKELY THAT THERE WILL BE AN IMPACT ON ASSET VALUES IN AN EXTREME LOSS EVENT

The correlations between market risk and insurance risk should be considered in the ICA as in an extreme loss it is likely that there will be an impact on asset values. The correlation between market risk and liquidity risk should also be considered particularly where assets may be realised at unusually high costs or where the timing is such that unusually low valuations are realised.

Exposures arising from variations in exchange rates, interest rates and investment returns

Agents should ensure that sufficiently extreme movements in returns and exchange rates are used to assess market risk at a confidence level of 97.5% or above. Agents should consider the position on the yield curve as well as the impact of both upwards and downwards movements in interest rates.

The volatility of asset prices and the correlation of investment types

Historical volatility should be considered when making assumptions about future volatility and, therefore, the riskiness of a syndicate's investment portfolio. The correlation of the various investment types within the portfolio should be assessed in order to reflect realistic conditions.

Where agents invest in corporate debt, they should also consider the impact of changes in credit spread.

The correlation between investment and insurance risk following extreme loss events

Agents should assess the impact that a particular insurance disaster will have on investment portfolio returns if it has a detrimental effect on the financial markets.

Where the expected investment return is higher than the risk free rate

ICA SHOULD CONSIDER THE RISK OF ASSETS NOT EARNING THE ASSUMED RATE

Where the expected investment return used is higher than the risk free rate, Lloyds would expect this to result in an increased market risk as riskier investments are needed to produce the higher return. This risk should be addressed and agents should also consider the risk of assets not earning the assumed rate leaving a capital shortfall.

Discounting of reserves

Where reserves have been discounted at the risk free rate (in line with Lloyds guidance on reserving risk), agents should consider the timing and duration of payments and potential for rate changes over this period. Agents should also address the potential that assets do not earn the assumed discounting rate leaving a capital shortfall.

Any deviations from the current asset mix within agreed investment policy

The sensitivity of the ICA to changes in the underlying asset mix should be considered. This should include not only the current asset mix but also deviations from this so far as is possible within the syndicate's investment policy

Example Stress Tests

The suggested stress tests below may be used when assessing market risk. This list is not exhaustive and is not a substitute for stress tests relevant to each individual business.

The schedule is not prescriptive, however where Lloyd's is unable to get comfortable with the stress tests used by an agent, these are example stress tests that Lloyd's may require the agent to perform to support the conclusions in the ICA.

- **50% fall in equity prices**
- **interest rate rise of 300 basis points on bonds**
- **US dollar exchange rates or major settlement currency move adversely by 40% with extreme losses reported**

GROUP RISK

This section sets out the areas which should be considered by agents who are part of a group when assessing their group risk capital requirement.

Capital

EVENTS OCCURRING ELSEWHERE WITHIN THE GROUP MAY HAVE AN IMPACT ON CAPITAL

Agents should consider events occurring elsewhere within the group that may have an impact on the capital requirement including:

- a change in group strategy
- parent company exerting undue influence on the strategy of the syndicate
- regulatory action against another group member
- financial pressure upon syndicate / agent from elsewhere in the group, which adversely impacts the syndicate
- the likelihood and financial consequences of both insolvency and credit downgrading of the parent company

Group reinsurance arrangements

THE ICA SHOULD CONSIDER THE RISK ASSOCIATED WITH GROUP REINSURANCE ARRANGEMENTS

Where a syndicate is a party to a group reinsurance arrangement, whether through a shared programme with another group entity or intra group reinsurance, agents should consider the risk associated with the arrangements.

In particular, senior management should be able to demonstrate that the arrangements in place will be sufficient in an extreme event. The risk of failure to realise reinsurance recoveries from group reinsurances may also be considered within the credit or insurance risk sections.

Where relevant, the impact of TRIA should also be considered.

Shared platform

Where an agent shares services with other group entities, they should consider the risks associated with these arrangements including:

- the availability of support services provided by the group company (e.g. Investment management, IT, actuarial etc.)
- shared management structures / staffing with resources being diverted away from the syndicate in an extreme event

Management resources

Where an agent shares management resources with other group entities, the potential “stretch” of these resources should be considered. In particular agents should consider the increased impact of extreme loss events on shared management resources.

Strategic decisions impacting run-off business

Agents should consider the potential effect of strategic decisions taken in the group and their impact on the run off business going forward.

Example Stress Tests

The suggested stress tests below may be used when assessing group risk. This list is not exhaustive and is not a substitute for stress tests relevant to each individual business.

The schedule is not prescriptive, however where Lloyd's is unable to get comfortable with the stress tests used by an agent, these are example stress tests that Lloyd's may require the agent to perform to support the conclusions in the ICA.

Capital

- **losses in another group entity resulting in financial pressure on the agent**
- **additional costs are incurred by the syndicate in legal fees and damage limitation, marketing and PR related costs**

Reinsurance

- **failure to realise reinsurance recoveries from group reinsurance agreements due to exhaustion of the joint reinsurance programme resulting from large claims made by the other group companies**

Shared platform

- **shared resources being diverted away from the syndicate due to parent company pressure**

LIQUIDITY RISK

This section sets out the technical issues regarding the assessment of liquidity risk.

Agents should take into consideration all potential areas of liquidity risk, including:

AGENTS SHOULD DEMONSTRATE A CLEAR UNDERSTANDING OF THE TIMING OF KEY CASHFLOWS UNDER STRESS

- the agent's ability to manage unplanned changes in funding sources as well as changes in market conditions that may affect its ability to liquidate assets promptly with minimal loss
- *the minimum level of free funds (i.e. funds not tied up in overseas regulatory deposits) that is required during the life of the run-off, taking account of the time horizon used*
- *agent's access to money markets and other sources of funding, such as lines of credit, and how these may be affected by adverse results or other circumstances*
- *agents should show clearly the cashflows before and after the impact of cash calls on the New Central Fund. Cash calls on the NCF should not be assumed generate any risk or capital allocation in the ICA*

In assessing any capital requirement for liquidity risk, agents should consider this in conjunction with both insurance risk and market risk particularly in relation to the impact that various stress and scenario tests may have on the cash positions of a syndicate and its ability to pay claims.

If an agent makes no allowance for liquidity risk within a syndicate's ICA, it should state clearly the reasons for arriving at this conclusion within the ICA submission and demonstrate a clear understanding of the timing of key cashflows under stress.

THE ICA SHOULD BE PREPARED ON THE BASIS THAT ALL PROFITS HAVE BEEN DISTRIBUTED

The impact of distribution of profits

As required, the ICA must be prepared on the basis that all profits have been distributed. Where an agent considers that this poses a liquidity strain, this should be allowed for within liquidity risk.

Cash calls and availability of Funds at Lloyd's (FAL)

Agents may assume that all FAL is available to meet cash calls subject to the normal cash call timetable. Where a syndicate is fully aligned and FAL is provided in cash and investments, agents may take into account that cash calls may be met outside of the quarterly timetable and potentially within a shorter time period than the normal 35 day notice period.

Subject to this timetable, it is acceptable for agents to recognise capital injections equal to the ICA (before liquidity risk) to meet liabilities as they fall due in calculating liquidity risk.

AGENTS MUST CONSIDER THE IMPACT OF MATERIAL CASH CALLS ON CAPITAL

Example Stress Tests

The suggested stress tests below may be used when assessing liquidity risk. This list is not exhaustive and is not a substitute for stress tests relevant to each individual business.

The schedule is not prescriptive, however where Lloyd's is unable to get comfortable with the stress tests used by an agent, these are example

stress tests that Lloyd's may require the agent to perform to support the conclusions in the ICA.

- **an increase in attritional claims, with 25% of the projected total claims for the year occurring in one month**
- **100% SLTF funding with large loss**
- **a minimum six month delay in receipt of reinsurance recoveries following a large gross loss**
- **the full funding of US trust fund liabilities at a gross level following a large gross loss, assuming no deferral of CRTF funding**

DIVERSIFICATION

This section sets out the technical issues regarding the treatment of diversification and dependencies. It has been split into three sections to explain the differing treatment of diversification and dependency between modelled ICAs and stress & scenario ICAs and also how to bring risk types together.

Modelled ICAs

IMPLIED CORRELATION IS AN AREA WHICH WILL BE EXAMINED CLOSELY BY LLOYD'S

A number of ICA submissions to date have relied on correlation 'drivers' (e.g. catastrophe models, inflation and the underwriting cycle) as the mechanism for associating losses, as opposed to an explicit correlation assumption across classes. Such an approach is useful but may have a tendency to understate correlation. Agents should examine the output of such models carefully with regard to the implied correlation as this is an area that Lloyd's will examine closely within an ICA.

In models for insurance risk, agents need to allow for dependency arising from:

- pricing cycles (leading to lines of business with unrelated claims nevertheless being dependent)
- inflation
- trends over time
- pricing inadequacy arising from reserving errors *(potentially relevant to recently ceased syndicates)*
- any reinsurance linked with insurance risk

STOCHASTIC MODELS SHOULD ALLOW FOR A REALISTIC DEPENDENCY BETWEEN EVENTS

Particularly for extreme events, stochastic models should be constructed to allow for a realistic dependency between events. One example of this is how large losses are correlated. Agents should consider whether the model has captured adequately the risk that large losses are correlated as few modelling platforms permit explicit assumptions in this regard. Where there is no explicit assumption, agents should satisfy themselves that the model is sufficiently realistic. At the same time, models should be capable of being understood by non-specialists. It may be sufficient for agents to model dependency in a relatively straightforward manner and to test the results using stress tests of combinations of large losses.

Where a modelled approach is taken, the dependency implied should be examined separately and if necessary, dependence increased either by increasing the correlations or by adding tail dependency. Benchmark correlations and dependency may be obtained from market level data though allowance needs to be made for the greater pooling seen in larger portfolios. A possible further source of benchmark information would be the relationship of the prices of "clash" covers to the prices that the model implies for the same loss combinations.

Stress and Scenario based ICAs

Stress and scenario tests should be based upon a detailed analysis of potential outcomes within a scenario. One of the weaknesses in adopting a solely stress and scenario testing approach is in the aggregation of risks to arrive at an overall capital figure.

Syndicates have generally adopted two approaches to reflect aggregation of risk, namely:

- specification of a correlation matrix between each scenario
- 'ripple effects'

Under the first approach, a range of stress tests is considered and quantified in isolation. A correlation matrix is then specified between risk categories/stress tests (judgementally: high/medium/low correlation) and aggregated to derive an overall capital figure. Under this method, all stress tests for each individual risk must be determined at the same confidence level (97.5% or higher as appropriate).

Under the second approach a range of scenarios is chosen, and for each one the 'ripple effects' associated with that scenario are also quantified (e.g. a large loss event leading to reinsurer failure). A special case of this approach is a 'cause and effect' table, where for each defined scenario, the knock-on effect of losses from other pre-defined events is also derived. However, because dependency does not require cause and effect, a cause and effect approach is unlikely to be sufficient without adjustment.

Some agents have applied a simple "weighted sum of squares" calculation which treats the scenarios as independent and is therefore inadequate unless further adjustments are used.

AGENTS MUST EXPLAIN THE KEY PRINCIPLES UPON WHICH THE ICA IS BASED

All of these methods also implicitly assume that the shape of the tail is the same for each scenario and for the total; this is only strictly true for elliptical distributions. Agents should therefore satisfy themselves that the assumption is reasonable overall.

Bringing risk types together

The overall ICA is the capital required for the aggregate of all the risk types. Because of diversification this may be less than the total of the separate calculations

Agents may use any sound method to aggregate following the same guidance as for stress & scenario ICAs above, In particular, it is acceptable to use a correlation approach, with an appropriate heavy-tailed distribution, such as that derived in the insurance stochastic model if there is one. Assumptions need to be set allowing for the lack of tail dependence in correlation.

Alternatively a "ripple effects" approach may be used, and this is likely to be considered where there is no insurance stochastic model

In either case, or in the method chosen if different, the dependency assumptions should be stated explicitly and clearly justified.

The level and method of aggregation chosen should be appropriate to the basis of the ICA and syndicate's tail risk

Although diversification and dependency are very important, the approach should be proportional. If the tail risk can be shown to be small or to be dominated by one or two key risks, a sophisticated approach may not be needed. Conversely in a complex model it will be necessary to examine closely the diversification effects, including those implicit in the approach.

Agents should ensure that the post diversification number is reasonable

Diversification is important but over-detailed measurement or assessment of correlations is not a substitute for a realistic view.

Agents will be required to show results at different levels

OVER-DETAILED ASSESSMENT OF CORRELATIONS IS NOT A SUBSTITUTE FOR A REALISTIC VIEW

The pro-forma will require outputs at intermediate levels of aggregation:

- *underwriting risk, if any, all business together*
- reserve risk, all reserves together
- total insurance risk (sum of above with explicit diversification credit)
- total for each of the other risk types
- total ICA with explicit diversification credit between risk types

An agent's own data is unlikely to be sufficient for full calibration

A dependency table such as a correlation matrix can contain a large number of assumptions, some of which may be implicit. A syndicate's own data is unlikely to suffice for full calibration. In particular, feeding results of actuarial models such as bootstrap directly into the insurance DFA is not generally sufficient and agents should additionally consider market data (adjusted) and management views.

Stress tests are vital to substantiate assumptions

STRESS & SCENARIO TESTING IS REQUIRED AS A "SENSE CHECK"

Even when models have been used for some risk types, stress & scenario testing is required as a "sense check" on the numbers.

Sensitivity checks

Reasonable sensitivity checks which Lloyds would expect agents to consider would include :

- sum of some scenarios from model versus diversified result
- sum of risk types versus total
- consider underwriting plus reserving versus total (with and without reinsurance)
- total for underwriting risk assuming no correlation between main lines of business
- total for reserving risk assuming no correlation between the main reserving classes of business

Agents should note that the last two tests should produce answers which are lower than the ICA. If they are regarded as not sufficiently far below the ICA number, this would suggest that the model does not contain sufficient dependency.

Appendix 1

EXAMPLE ICA SUBMISSION FORMAT

We have re-structured the proposed ICA submission format which we hope will result in us receiving ICA submissions of a more consistent quality. Although this structure is not mandatory, an ICA submission in this layout will facilitate better our internal ICA review and comparison across ICAs.

Where agents do not use this format, the information requested here is still required to be provided as a minimum. Agents should provide any additional information which they believe is relevant and will assist Lloyd's in the review of the ICA.

The outline of the structure is shown below and further detail of what is required shown overleaf:

Contents

EXAMPLE ICA SUBMISSION FORMAT

1 Introduction & background

To include:

- objectives
- scope and limitations
- ICA key contact details
- *date of ROCP on which ICA is based*

2. Executive Summary

Syndicate Information:

- a summary of the financial position of the syndicate and the risk to which it is subject
- current strategy and recent history of the syndicate
- *brief description of the main capital support and commentary on any significant movements in capital or members*
- details of current and prospective reinsurance (
- details of any syndicates due to close at 31.12.06 which are included in the ICA assessment

Overview of approach:

- ICA methodology – describe approach adopted and why appropriate to the syndicate's business
- approach to deriving the ICA and how the ICA links with the ROCP and risk framework of the syndicate
- confirmation of time horizon used
- provide details of external consultants or actuaries used in modelling of ICA

Overview of ICA result:

- main findings of the ICA analysis including result set out as per prescribed pro-forma
- an "analysis" of change from 2006 ICA submission
- a comparison of ICA number with ECR and explanation of any material differences
- commentary on and ranking of the most material risks to the syndicate, explaining why the level of risk is acceptable or, if it is not, what mitigating actions are planned
- identification of the key drivers of the ICA number together with an audit trail and mapping of where they can be found in the submission

ICA Review and sign off

- Board / sub-committee sign off
- confirmation that the ICA is based on data and assumptions consistent

with ROCP

- details of any areas where the ICA guidance and minimum required standards have not been complied with together with rationale

3. Risk Management Summary

Risk governance and responsibilities:

- details of governance over risk and capital management
- risk policy covering all risk categories

Risk management overview:

- overview of risk management framework
- approach to risk identification and assessment
- a clear articulation of the syndicates risk appetite by risk category
- mapping of risk register to FSA risk groups (copy risk register also to be included)
- details of risk limits and tolerances and monitoring approach used

4. ICA Methodology and Calculation

Methodology

- FSA risk categories – how these have been addressed, including detailed risk quantification, modelling approach, testing and rationale (also covering each area in 'minimum required standards'), for:

  - insurance risk
  - credit risk
  - operational risk
  - market risk
  - group risk
  - liquidity risk

- an identification of the major risks faced in each of the above categories including any other risks identified (this may take the form of your standard risk register)
- confirmation that ICA takes account of the risks arising from contracts which do not meet the market definition of contract certainty
- explain reliance on controls and any significant risks for which reduced capital has been allocated due to such reliance on controls (evidence to support the effectiveness of these controls should also be provided)

Assumptions

- key assumptions within your capital modelling work covering both assets and liabilities, including rationale for the derivation of such key assumptions
- details of and rationale for choice of parameters used in determining ICA value and explanation of the relative balance between the syndicate's own data, market data and judgement
- details of how parameter uncertainty has been addressed including any prudent assumptions adopted and areas of weakness these are intended to offset
- details of the management actions assumed in deriving the ICA and an

impact assessment of any such management actions

In addition, detail any changes of capital or membership which materially alter the risk profile of the syndicate across different years of account

Diversification

- details of any allowance made for diversification, including any assumed correlations between risks and how such correlations have been assessed, including in stressed conditions
- provide, for information and benchmarking, ICA figures with all correlations assumed to be 100% (i.e., no diversification) and with all correlations set to 0 (i.e. assuming all risks are independent).
- include correlation matrix to show dependencies used in ICA

Data Sources

- details of the data sources used
- assessment of completeness and integrity of data used

5. Stress & Scenario Tests

Stress and scenario tests applied

- details of stress tests and scenario analyses the syndicate carried out and the confidence levels and key assumptions behind those analyses
- details of the quantitative results of all stress tests used
- details of combined stress tests used, how these were derived and the resulting capital requirements
- explain how stress test numbers have been applied as part of overall ICA calculation

6. ICA Validation

Sensitivity Analysis:

This section is in addition to the stress and scenario tests used. It should detail:

- the sensitivity tests undertaken to key assumptions and factors that have a significant impact on the ICA including a sensitivity analysis of stress test used
- establish which are the key parameters in determining the level of the ICA (e.g. the most material correlation assumptions) and provide sensitivity analysis around these
- where modelled approach is used, provide sensitivity analysis to justify number of simulations used

Validation of the ICA:

- the testing and control processes applied to the ICA models and calculations
- the senior management or Board review and sign off procedures. It is helpful if a copy can be attached of any relevant report to senior management or the Board.
- details of the reliance placed on any external suppliers e.g. for generating economic scenarios should also be detailed here. In addition, a copy of

any report obtained from an external reviewer should also be included.

Appendix 2

2007 ICA SUBMISSION PRO-FORMA SUMMARY

Syndicate Number:

Based on ROCP submitted **Date** **Version**

Headline Figures **£m**

Syndicate ICA as at 31.12.06

ICA Risk Category Breakdown						
	Pre diversification		Post diversification (2)		2006 ICA Post diversification	
	£m	%	£m	%	£m	%
Insurance Risk – TOTAL (Note 1)						
Split: Underwriting risk (Notes 1&3)						
Reserving risk (Note 1)						
Credit Risk – TOTAL						
Split: Reinsurance credit risk						
Other credit risk						
Market Risk						
Liquidity Risk						
Operational Risk						
Group Risk						
TOTAL (Note 4)						
Diversification credit between risk categories						
DIVERSIFIED TOTAL (Note 4)						

Key Assumptions used in ICA (Note 5)	**Gross £m**	**Net £m**
Best estimate whole account underwriting ULR:		
1:40 confidence level whole account underwriting ULR:		
1:40 confidence level reserve (31/12/06) deterioration (%)		

Average discount rate used *(%) (1 decimal place)*	
Average claims tail used for discounting *(no of years)*	

Rate per £1

Assumed USD Exchange Rate as at 31.12.06

ECR Breakdown as at 31/12/2006 (estimated) £m

Net premium charge	
Technical provision charge	
Asset charge	
TOTAL	

Benchmark Sensitivity Tests (Note 8) £m

	Sensitivity Test	**Revised ICA**
1	Whole account net ULR stressed to 140%	
2	Net claims technical provision @ 31.12.06 deteriorates by 40%	
3	Combined stress 1 and 2	

Financial Information (Notes 5, 6, 7)

	Gross £m		**RI share £m**	**Net £m**
Forecast technical provisions at 31.12.06 :				
Claims				
Unearned premiums (net of deferred acquisition costs)				
Other				
TOTAL forecast technical provisions at 31.12.06				

Additional information to assist with benchmarking (Note 9)

Forecast claims technical provisions by pure underwriting year of account at 31.12.06.

Year of Account	**Gross £m**	**Net £m**
2006		
2005		
2004		
2003		
2002		
2001		
2000		
1999		
1998		
1997		
1996		
1995		
1994		

1993		
Total		

Notes:

1) Pre diversification numbers for underwriting and reserving risk and reinsurance and other credit risk should be quoted on a stand-alone basis **after** diversification across classes of business but **before** diversification with each other and other risk categories. Pre diversification insurance risk (total) and credit risk (total) should be quoted **after** diversification between underwriting and reserving risk and reinsurance and other credit risk respectively, but **before** diversification with other risk categories.

2) Post diversification numbers should be quoted **after** diversification with other risk categories

3) Underwriting risk is to include losses arising on business earned from 1st January 2007 to ultimate for 2007 and prior years of account.

4) Total of all risk groups post diversification must agree with total of undiversified risk group numbers less overall diversification credit.

5) Planned premium and key assumptions used in the ICA must be consistent with those in current SBF (unless prior agreement has been reached with Lloyd's regarding key assumptions). Underwriting whole account net ULR should include unearned premium on the 2006 & prior YOAs. The 1:40 confidence level should be applied to the risk on a stand-alone basis, i.e. it should not be the amount for that risk at the 1:40 level of the overall simulation, which may be significantly lower.

6) Technical provisions quoted should be booked amount on a UK GAAP basis.

7) The ICA should be re-stated after changing assumptions in model so that the whole account net ULR at a probability of 0.5% is equal to 140%. This should be achieved by varying volatility assumptions either at the level of key risk component or overall. The net claims technical provision should be assumed to increase by 40% of its mean expected value at 0.5% probability. Again this should be achieved by varying volatility assumptions. The exact way in which the ICA model is adjusted to achieve these outcomes will vary according to the nature of the model being used. The sensitivity tests are requested to see how the model reacts and it is acknowledged that these levels of deterioration will actually correspond to different return periods for different syndicates.

8) Claims technical provisions by pure underwriting year of account are also requested to assist with benchmarking exercise.

10) All monetary amounts should be provided in £millions (to one decimal place). All percentages should be provided in whole numbers (except average discount rate – one decimal place). Exchange Rate should be provided in dollars and cents (i.e. 2 decimal places).