LLOYD'S

SOLVENCY II

DETAILED GUIDANCE NOTES

MARCH 2010

SECTION 7 - TECHNICAL PROVISIONS

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Overview

This section outlines the Solvency II requirements for technical provisions. Under Solvency II, major changes are proposed to the evaluation of technical provisions and the impact on reserving processes will be marked.

Whilst some of the approaches and techniques applied under Solvency II will be similar to those followed currently, there are other areas where significant changes will be required. In addition to changes in approaches required for calculation, agents are likely to require significant changes to documentation around the valuation process.

The first main test for technical provisions during the dry process in 2010 will be completion of QIS5. This will be mandatory for all syndicates and the exercise is expected to run from August – October 2010. Managing agents will be expected to complete QIS5 on as close to a full Solvency II basis as possible, i.e. aiming at the same standard as a formal regulatory return (e.g. the current FSA return). Following QIS5, syndicates will have to calculate technical provisions for each year-end and mid-year during the dry run process.

This guidance is intended to assist managing agents in moving to a Solvency II basis when valuing technical provisions.

Guidance

Managing agents should note that this guidance represents Lloyd's best view of current requirements but is subject to ongoing discussion and change as both CEIOPS proposals and FSA requirements become finalised and Lloyd's own development on Solvency II progresses. Lloyd's will continue to monitor and review progress in these areas and seek to update the guidance as appropriate.

The commentary on proposed level 2 measures attached highlights the relevant sections for the dry run and does not reproduce the full level 2 text. Any additional guidance provided in this document is intended to supplement the level 2 measures, not repeat them, and agents must therefore ensure that they are familiar with all of the requirements and do not rely solely on the additional guidance provided here.

Whilst this document refers to general Solvency II requirements, this guidance is specific to Lloyd's and managing agents in many areas. Due to the unique structure of Lloyd's and the application of the Solvency II directive at society level, some of this guidance will not be relevant to non Lloyd's firms.

Contents

This section includes the following

- Level 1 directive text and commentary on application of proposed level 2 requirements to Lloyd's managing agents
- Guidance on technical provisions
- Potential impact on Lloyd's of move to Solvency II technical provisions

LEVEL 1 AND LEVEL 2 MEASURES

The Level 2 measures set out here are based on CEIOPS papers Doc-21/09 (formerly CP 26), Doc-22/09 (formerly CP 27), Doc-25/09 (formerly CP 30), Doc-27/09 (formerly CP 32), Doc-33/09 (formerly CP 39), Doc-36/09 (formerly CP 42), Doc-37/09 (formerly CP 43), Doc-38/09 (formerly CP 44) and Doc-72/10 (formerly CP 76).

Under Solvency II the fair valuation of assets and liabilities is based on the amount for which assets or liabilities could be exchanged between knowledgeable parties in an arm's length transaction.

Solvency II will change the way that technical provisions are calculated, and the approach is described in the Directive as "the best estimate shall correspond to the probability-weighted average of future cash-flows, taking account of the time value of money".

Valuation process

Directive Article 84 - Appropriateness of the level of technical provisions

Upon request from the supervisory authorities, insurance and reinsurance undertakings shall demonstrate the appropriateness of the level of their technical provisions, as well as the applicability and relevance of the methods applied, and the adequacy of the underlying statistical data used.

Application of proposed level 2 requirements to Lloyd's managing agents

Article 84/CEIOPS Doc 33/09: 3.37, 3.360

General provisions
The managing agent must be able to demonstrate, for each managed syndicate: the robustness of the valuation process; the appropriateness of the level of technical provisions held; the applicability and relevance of the methods applied; and the adequacy of the underlying data used.

Documentation
All documents produced and used during the process of valuation of the best estimate of technical provisions that enable assessment of the appropriateness of the level of best estimate, as well as the applicability and relevance of the methods used, should be stored and made immediately available to the supervisor on request.

Directive Article 76 - General provisions [relating to technical provisions]

1. *Member States shall ensure that insurance and reinsurance undertakings establish technical provisions with respect to all of their insurance and reinsurance obligations towards policyholders and beneficiaries of insurance and reinsurance contracts.*
2. *The value of technical provisions shall correspond to the current amount insurance and reinsurance undertakings would have to pay if they were to transfer their insurance and reinsurance obligations immediately to another insurance or reinsurance undertaking.*
3. *The calculation of technical provisions shall make use of and be consistent with information provided by the financial markets and generally available data on underwriting risks (market consistency).*
4. *Technical provisions shall be calculated in a prudent, reliable and objective manner.*
5. *Following the principles set out in paragraphs 2, 3 and 4 and taking into account the principles set out in Article 75(1), the calculation of technical provisions shall be carried out in accordance with Articles 77 to 82 and 86.*

Application of proposed level 2 requirements to Lloyd's managing agents

Article 76/CEIOPS Doc 33/09: 3.32-3.36

General provisions
Valuation of technical provisions requires the collection of qualitative and quantitative information on the underlying liabilities and the application of expert judgment to that information.

Valuation of technical provisions should, therefore, not be entirely model-driven, but should take account of other factors, including expert judgment.

The valuation process includes the following elements:

- collection and analysis of data;
- determination of assumptions;
- modelling, parameterisation and quantification;
- expert review of estimations;
- controls; and
- documentation.

The valuation process must be overseen by an actuary with specific experience and expertise in non-life reserving, or by a non-actuary with an equivalent skill set.

All steps in the valuation process should be documented. The results should be shared with relevant business experts and their views should be captured and included in the feedback loop, where appropriate. The whole process of valuation should also be reviewed and verified by a person who has adequate knowledge and skills and is independent of the process of valuation.

Article 76/CEIOPS Doc 72/10: 3.88-3.120

Role of proportionality in the valuation of technical provisions

The principle of proportionality is intended to support the consistent application of the principles-based solvency requirements to all syndicates.

A managing agent is responsible for applying appropriate methods to calculate the technical provisions of each of its managed syndicates, selecting from the continuum of methods available, taking into account the nature, scale and complexity of the risks.

The risks to be considered, in this context, include all those which, materially affect the amount or timing of cash-flows required to settle the contracts in the portfolio to be valued.

A managing agent should be able to explain what methods are used and why the specific methods are selected.

Process of assessment of proportionality

Step 1: Assessment of nature, scale and complexity

A managing agent should assess the nature, scale and complexity of the risks underlying the insurance obligations.

Assessment of nature and complexity

The nature and complexity of a risk are closely related, and for the purposes of an assessment of proportionality could best be characterised together. Indeed, complexity could be seen as an integral part of the nature of a risk, which is a broader concept.

In mathematical terms, the nature of the risks underlying the insurance contracts could be described by the probability distribution of the future cash flows arising from the contracts. This encompasses the following characteristics:

- the degree of homogeneity of the risks;
- the variety of different sub-risks or risk components of which the risk is comprised;
- the way in which these sub-risks are interrelated with one another;
- the level of certainty, i.e. the extent to which the future cash flows can be predicted;
- the nature of the occurrence or crystallisation of the risk in terms of frequency and severity;
- the type of the development of claims payments over time;
- the extent of potential policyholder loss, especially in the tail of the claims distribution.

The first three bullet points in the previous paragraph are related to the complexity of risks generated by the contracts, and are difficult to separate in practice.

When assessing the nature and complexity of the insured risks, additional information in relation to the circumstances of the particular portfolio should be taken into account. This could include:

- the type of business from which the risks originate (e.g. direct business or reinsurance business);
- the degree of correlation between different risk types, especially in the tail of the risk distribution; and
- any risk mitigation instruments applied, and their impact on the underlying risk profile.

A managing agent should also seek to identify factors which would indicate the presence of more complex and/or less predictable risks. This would be the case, for example, where:

- the cash-flows are highly path dependent;
- there are significant non-linear inter-dependencies between several drivers of uncertainty;
- the cash-flows are materially affected by potential future management actions;
- risks have a significant asymmetric impact on the value of the cash-flows, in particular if contracts include material embedded options and guarantees or if there are complex reinsurance contracts in place;
- the value of options and guarantees is affected by policyholder behaviour assumed in the model;
- the syndicate uses a complex risk mitigation instrument, for example a complex non-proportional reinsurance structure;
- a variety of covers of different nature is bundled in the contracts; or
- the terms of the contracts are complex (e.g. in terms of franchises, participations, or the in- and exclusion criteria of the cover).

The degree of complexity or uncertainty of the risks is associated with the level of calculation sophistication and/or level of expertise necessary to carry out the valuation. In general, the more complex the risk, the more difficult it will be to model and predict the future cash flows required to settle the obligations arising from the insured portfolio.

Therefore, to appropriately analyse and quantify more complex and/or less predictable risks, more sophisticated and elaborate tools will generally be required, as well as sufficient actuarial expertise.

Assessment of scale

Assigning a scale introduces a distinction between "small" and "large" risks. A managing agent may use a measurement of scale to identify (sub-) risks where the use of simplified valuation methods would likely to be considered proportionate to the underlying risks, provided this is also commensurate with the nature and complexity of the risks.

A measurement of scale may also be used to introduce a distinction between material and non-material risks. Introducing materiality in this context would provide a threshold or cut-off point below which it would be regarded as justifiable to use simplifications for certain risks.

To measure the scale of risks, further than introducing an absolute quantification of the risks, the undertaking will also need to establish a benchmark or reference volume which leads to a relative rather than an absolute assessment. In this way, risks may be considered "small" or "large" relative to the established benchmark. Such a benchmark may be defined, for example, in terms of a volume measure, such as premiums or technical provisions that serves as an approximation for risk exposure.

To determine an appropriate benchmark for a relative measurement of scale, it is important to specify at which level the assessment is carried out; a risk which is small with regard to the business as a whole may still have a significant impact within a smaller segment, e.g. a certain line of business.

At least the following four different levels may usefully be distinguished in the context of a calculation of technical provisions:

- individual homogeneous risk groups;
- individual line of business;
- the business of the syndicate as a whole; and
- the group to which the syndicate belongs.

Following this principles-based framework, a managing agent would be expected to use an interpretation of scale which is best suited to the specific circumstances of each managed syndicate and to the risk profile of their portfolio.

Whatever interpretation of scale for risks or obligations is followed, this should lead to an objective and reliable assessment.

Step 2: Assessment of the model error

A managing agent should assess whether a specific valuation method can be regarded as proportionate to the nature, scale and complexity of the risks identified in Step 1.

Where simplified approaches are used, this could introduce additional model error. The higher the model error, the less reliance can be placed on the suitability of the estimate derived from that model to represent a market-consistent valuation.

A managing agent shall assess the error that results from the use of a given valuation method, having regard to the nature, scale and complexity of the underlying risks. The method should be considered proportionate if the model error is non-material.

For this purpose a managing agent should define a concept on materiality which specifies the criteria on the basis of which a decision on the materiality of a potential misstatement of technical provisions is made. The materiality concept should be reflected in the syndicates ORSA.

When determining how to address materiality, a managing agent should have regard to the purpose of the work and its intended users. For a valuation of technical provisions and, more generally, for a qualitative or quantitative assessment of risk for solvency purposes, this should include both Lloyd's and the FSA.

An assessment of the model error may be carried out, by:

- Sensitivity analysis in the framework of the applied model: this means to vary the parameters and/or the data thereby observing the range where a best estimate might be located.
- Comparison with the results of other methods: applying different methods gives insight in potential model errors. These methods would not necessarily need to be more complex.
- Descriptive statistics: in some cases the applied model allows the derivation of descriptive statistics on the estimation error contained in the estimation. Such information may assist in quantitatively describing the sources of uncertainty.
- Back-testing: comparing the results of the estimation against experience may help identify systemic deviations which are due to deficiencies in the modelling.

A managing agent is not required to quantify the degree of model error in precise quantitative terms, or to recalculate the value of its technical provisions using a more accurate method in order to demonstrate that the difference between the result of the chosen method and the result of a more accurate method is immaterial. Instead, it is sufficient for a managing agent to demonstrate that there is reasonable assurance that the model error implied by the application of the chosen method (and hence the difference between the two amounts) is immaterial.

Where several valuation methods are appropriate, a managing agent should normally apply the one which is most appropriate. Where a valuation technique is expected to lead to a significant degree of model error then, where practicable, an alternative, more appropriate method should be applied instead.

In some circumstances, it may be unavoidable to apply a valuation method that has material model error. In such cases, a managing agent should document that this is the case and consider the implications with regard to the reliability of the valuation and its overall solvency position. In particular, it should assess whether the increased level of estimation uncertainty is adequately addressed in the determination of the SCR and the setting of the risk margin in the technical provision.

Step 3: Back testing

The actuarial function should track the appropriateness of best estimates over time. Where such back testing identifies systematic deviation between experience and best estimate expectations, the first two steps set out above should be re-performed to check whether the chosen valuation method is still appropriate. If it is deemed not to be, a managing agent should switch to a more appropriate method.

Such a check should also be performed where the syndicate's risk profile has significantly changed over time.

The scope and the frequency of back testing should be proportionate to the materiality of assumptions and the size of the deviation.

Valuation methodology

Directive Article 80 - Segmentation

Insurance and reinsurance undertakings shall segment their insurance and reinsurance obligations into homogenous risk groups, and as a minimum by lines of business, when calculating their technical provisions.

Application of proposed level 2 requirements to Lloyd's managing agents

Article 80/CEIOPS Doc 22/09: 3.35-3.52

Segmentation basis
General principles of segmentation

As a minimum, a managing agent must segment each managed syndicate's obligations into the prescribed lines of business when calculating their technical provisions. Further segmentation into homogeneous risk groups should be applied, as appropriate.

Apportionments from internal classes used to manage business to solvency II line of business are therefore expected.

Lloyd's view is that the fundamental split that should drive the calculation of best estimates within technical provisions is a split into homogeneous risk groups. This will ensure results of any such assessments will be as reliable and credible as is possible. A homogeneous risk group is a set of obligations which are managed together and which have similar characteristics. The classification will be specific to each syndicate.

The principle of substance over form should be followed in segmenting contracts between lines of business. In other words, the segmentation should reflect the nature of the risks underlying the contract (substance), rather than the legal form of the contract (form). This means an approach of calculation at a homogeneous risk group and then appropriate allocation, with justification, would be acceptable.

Segmentation of non-life insurance obligations

Prescribed lines of business for non-life obligations are:

Accident

Obligations caused by accident or misadventure, but excluding obligations considered as workers' compensation insurance.

Sickness

Obligations caused by illness, but excluding obligations considered as workers' compensation insurance.

Workers' compensation

Obligations covered with workers' compensation insurance, which insures accident at work, industrial injury and occupational diseases.

Motor vehicle liability

Obligations which cover all liabilities arising out of the use of motor vehicles operating on the land, including carrier's liability.

Motor, other classes

Obligations which cover all damage to or loss of land motor vehicles, land vehicles other than motor vehicles, and railway rolling stock.

Marine, aviation and transport;

Obligations which cover all damage or loss to river, canal, lake and sea vessels, aircraft, and damage to or loss of goods in transit or baggage, irrespective of the form of transport. Also obligations which cover all liabilities arising out of the use of aircraft, ships, vessels or boats on the sea, lakes, rivers or canals, including carrier's liability, irrespective of the form of transport.

Fire and other damage

Obligations which cover all damage to or loss of property other than motor, marine, aviation and transport due to fire, explosion, natural forces including storm, hail or frost, nuclear energy, land subsidence and any event such as theft.

General Liability - Third party liability

Obligations which cover all liabilities, other than those included in motor vehicle liability and marine aviation and transport.

Credit and suretyship

Obligations which cover insolvency, export credit, instalment credit, mortgages, agricultural credit and direct and indirect suretyship.

Legal expenses

Obligations which cover legal expenses and cost of litigation.

Assistance

Obligations which cover assistance for persons who get into difficulties while travelling, while away from home or while away from their habitual residence.

Miscellaneous other non-life insurance

Obligations which cover employment risk, insufficiency of income, bad weather, loss of benefits, continuing general expenses, unforeseen trading expenses, loss of market value, loss of rent or revenue, indirect trading losses other than those mentioned before, other financial loss (not trading), as well as any other risk of non-life insurance business not covered by the lines of business mentioned before.

Accepted proportional non-life reinsurance should be segmented, as a minimum, into the same set of prescribed lines of business.

Accepted non-proportional reinsurance shall be segmented, as a minimum, into:

Property business;

Casualty business; and

Marine aviation and transport business.

Segmentation of life insurance obligations

Life insurance and reinsurance business is segmented into 16 lines of business. The first segmentation is into the following classes:

- contracts with profit participation clauses;
- contracts where policyholder bears the investment risk;
- other contracts without profit participations clauses; and
- accepted reinsurance.

Each of these is further be segmented into:

- contracts where the main risk driver is death;
- contracts where the main risk driver is survival;
- contracts where the main risk driver is disability/ morbidity risk; and
- savings contracts (contracts that resemble financial products providing no or negligible insurance protection).

Life insurance obligations shall be allocated to the line of business that best reflects the technical nature of the underlying risks.

Segmentation of health insurance obligations

Health insurance obligations shall be segmented into:

Health insurance obligations pursued on a similar technical basis to that of life insurance (SLT Heal**h**)

Health insurance obligations pursued on a similar technical basis to that of non-life insurance (Non-SLT Health)

SLT health obligations should be further segmented, as a minimum, according to the segmentation for life insurance obligations described above.

Non-SLT health obligations should be further segmented, as a minimum, according to the segmentation for non-life insurance obligations described above.

Unbundling insurance obligations

Contracts covering risks from non-life and life lines of business should be unbundled into their life and non-life parts.

Contracts covering risks across different lines should be unbundled into the appropriate lines of business. This can be based, for example, on the risk code allocation on the slip.

A contract covering life obligations should always be unbundled according to the top level segments defined above.

It should be further unbundled to the second level of segmentation in circumstances where it:

- covers a combination of risks relating to different lines of business; and
- could be constructed as stand-alone contracts covering each of the different risks.

Subject to the principle of proportionality, unbundling may not be required in cases where there is one major risk driver. In this case, the contract may be allocated according to the major risk driver.

The principle of substance over form should also apply to allocating each of the unbundled components of a given contract to different lines of business.

Directive Article 77 (extract) - Calculation of technical provisions

1. *The value of technical provisions shall be equal to the sum of a best estimate and a risk margin as set out in paragraphs 2 and 3.*
2. *The best estimate shall correspond to the probability-weighted average of future cash flows, taking account of the time value of money (expected present value of future cash flows), using the relevant risk-free interest rate term structure.*

   The calculation of the best estimate shall be based upon up-to-date and credible information and realistic assumptions and be performed using adequate, applicable and relevant actuarial and statistical methods.

   The cash flow projection used in the calculation of the best estimate shall take account of all the cash in- and out-flows required to settle the insurance and reinsurance obligations over the lifetime thereof.

   The best estimate shall be calculated gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles. These amounts shall be calculated separately, in accordance with Article 81.

Application of proposed level 2 requirements to Lloyd's managing agents

Article 77/CEIOPS Doc 21/09: 3.28-3.38

Calculation of technical provisions

Methodologies for the calculation of best estimate

The best estimate shall correspond to the probability-weighted average of future cash flows taking account of the time value of money, using the relevant risk-free interest rate term structure. This in effect acknowledges that the best estimate calculation shall allow for the uncertainty in the future cash-flows used for the calculation of the best estimate.

In this context, allowance for uncertainty refers to the consideration of the variability of the cash-flows necessary to ensure that the best estimate represents the mean of those cash-flows. Allowance for uncertainty does not suggest that additional margins should be included within the best estimate

Causes of uncertainty in cash-flows that shall be taken into consideration in best estimate estimation and the application of the valuation technique, where relevant, may include:

- Fluctuations in the timing, frequency and severity of claim events.
- Fluctuations in the period needed to settle claims.

- Fluctuations in the amount of expenses.
- Changes in the value of an index/market value used to determine claim amounts.
- Changes in both entity and portfolio specific factors such as legal, social, or economic factors, where relevant.
- Uncertainty in policyholder behaviour (this may be relevant to non-life policies as well as life policies).
- The exercise of discretionary future management actions.
- Path dependency, where the cash-flows depend not only on circumstances such as economic conditions on the cash-flow date, but also on those circumstances at previous dates.
- Interdependency between two or more causes of uncertainty.

The responsibility for the choice of adequate techniques for the calculation of the best estimate liability rests with the managing agent. However, Lloyd's may require, stating the reasons, the reassessment of the technical provisions, which may involve the use of an alternative technique, if this reassessment or the use of a different technique is believed to better reflect the objective of the valuation. This is consistent with current practise where Lloyd's Valuation of Liabilities Rules can, but rarely do, impose specific requirements.

The valuation of the best estimate shall meet the following requirements:

A managing agent must be able to demonstrate the appropriateness of the valuation, including the robustness of the techniques and assumptions used, having regard to the nature, scale and complexity of risks. In order to meet this requirement, a managing agent must be able to provide sound rationale for the choice of one technique over other relevant techniques. This also applies to simplified techniques and approximations.

A managing agent must assess the degree of judgment required in each method and to what extent it is able to carry out such judgment in an objective and verifiable manner.

A managing agent must be able to demonstrate that the valuation technique and the underlying assumptions are realistic and reflect the uncertain nature of the cash-flows.

The valuation technique must be chosen on the basis of the nature of the liability being valued and from identification of risks which materially affect the underlying cash-flows. For example, it may be appropriate to use different techniques for attritional losses and major / catastrophe losses.

The assumptions underlying the valuation technique must be validated and reviewed by the managing agent.

The valuation technique and its results must be capable of being audited.

If data is grouped, a managing agent must be able to demonstrate that the grouping process appropriately creates homogeneous risk groups that allow for the risk characteristics of the individual policies. This applies to either claims data or policy data. The data needs to be grouped first using the Solvency II lines of business (refer to Article 80) before being further split into homogeneous risk groups.

Having regard to the previous bullet points, (i.e. having ensured that the valuation technique is appropriate and robust given the nature, scale and complexity of the risk), a managing agent must ensure that their capabilities (e.g. actuarial expertise, IT systems) are commensurate with the actuarial and statistical techniques used.

Valuation techniques considered to be appropriate actuarial and statistical methodologies to calculate the best estimate include simulation, deterministic and analytical techniques, or a combination thereof.

When considering the valuation technique, a managing agent must consider the following factors, subject to proportionality:

- Whether or not the cash-flows are materially path-dependent.
- Whether there are material non-linear inter-dependencies between several drivers of uncertainty.
- Whether the liability cash-flows are materially affected by potential future management actions.
- The presence of risks having a material asymmetric impact on the value of the cash-flows. In particular, this would include contracts with embedded options and guarantees or if there are complex reinsurance contracts in place.
- Whether the value of options and guarantees is materially affected by the policyholder behaviour assumed in the model.
- The availability of relevant data.

For certain life insurance liabilities, in particular the future discretionary benefits relating to participating contracts, especially those depending on assets performance, or other contracts with embedded options and guarantees, simulation may lead to a more appropriate and robust valuation of the best estimate liability. In such circumstances, simulation techniques would normally be required.

For the estimation of non-life best estimate liabilities, deterministic and analytical techniques can be more appropriate than simulation techniques. Some reasons are:

Deterministic methods are usually the starting point for any estimation of best estimate. The application of simulation techniques can add useful insight into ranges around the mean and measures of uncertainty but they will not necessarily produce more accurate estimates of the best estimate because of the significant degree of uncertainty in the calibration of stochastic models. The mean of both the application of the simulation and deterministic method may well be the same under both method, not least because deterministic results are often used to calibrate simulation methods, meaning that the best estimate for Solvency II purposes will be the same for either method.

Both deterministic and simulation models are parameterised by the historic data available. Therefore, regardless of whether a deterministic or simulation model is used, the resulting mean estimates will be based on development seen in the history and will not contain "all possible future outcomes".

Regardless of the technique, judgment is required in making additions or adjustments to the estimates to allow for circumstances not included in the history that need to be incorporated into the best estimates (for example, latent claims, binary events). In all the methods, judgment is a fundamental requirement.

Simplified methods

Directive Article 82 (extract)

Where, in specific circumstances, insurance and reinsurance undertakings have insufficient data of appropriate quality to apply a reliable actuarial method to a set or subset of their insurance and reinsurance obligations, or amounts recoverable from reinsurance contracts and special purpose vehicles, appropriate approximations, including case-by-case approaches, may be used in the calculation of the best estimate.

Article 82/CEIOPS Doc 72/10: 3.247-3.255

General issues

The term "simplified method" refers to a situation where a specific valuation technique has been simplified in line with the proportionality principle, or where a valuation method is considered to be simpler than a certain reference or benchmark method. In practice, every method is likely to include some degree of simplification.

The range of available methods needs to be categorised in "simplified" and "non-simplified".

Thresholds determining the allowance of simplified methods

Where regulatory thresholds are established to determine whether simplified approaches are permitted, these should apply to individual valuation methods and should be based on the degree of model error in the calculation.

In setting regulatory thresholds for such purposes, care should be taken to ensure that:

- Implementation is consistent with the principles-based assessment of proportionality;
- The model error implicit in the calibration of the threshold adequately reflects the actual degree of model error when the method is applied in practice; and
- It does not lead to the incorrect impression that undertakings no longer need to make their own assessment of whether the simplification is appropriate for them, including an assessment of model error.

Separate simplified methods can be developed in respect of:

- Outstanding claims provision.
- Provision for incurred but not reported claims.
- Premiums provision.

Article 77/CEIOPS Doc 33/09: 3.79-3.87

Best estimate technical provisions

The best estimate of technical provisions must reflect the identification and valuation of all potential future cash-flows that would be incurred in meeting liabilities to policyholders from existing (re)insurance contracts.

The best estimate should be calculated gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles. In the case of co-insurance the cash-flows of each co-insurer should be calculated as their proportion of the expected cash-flows without deduction of the amounts recoverable from reinsurance and special purpose vehicles.

Cash-flow projections should reflect realistic future demographic, legal, medical, technological, social or economical developments.

Appropriate assumptions for inflation should be built into the cash flow projection. Care should be taken to identify the type of inflation to which particular cash flows are exposed (i.e. consumer price inflation, salary inflation).

Development factor methods are normally based on implicit assumptions on claim inflation. Agents should consider whether historic inflation assumptions implicit within the data are appropriate for future cashflows.

Time horizon

The time horizon used in the calculation of the best estimate should be the full lifetime of the existing (re)insurance contracts on the date of valuation.

The determination of the lifetime of the (re)insurance portfolio should be based on up-to-date and credible information and realistic assumptions about when the existing contracts will be discharged, cancelled or expired. Cancellation assumptions are often implicit in premium projections under current practice. This can be materiall in some classes, for example, motor business.

Any cancellation assumptions should be capable of being validated including the use of expert judgement and reference to past data.

Gross cash in-flows

Cash in-flows to be included in the best estimate valuation should include:

- future premiums (including future reinstatement premiums); and
- receivables for salvage and subrogation.

Under current market practice, salvage and subrogation receivables are normally netted off claims payments. However, this is not an issue as cash in-flows and out-flows do not need to be calculated separately.

Investment returns should not be included.

Gross cash out-flows

Cash out-flows to be included in the best estimate valuation should include:

- benefits (including claims payments);
- expenses; and
- other gross cash-flow items.

The cash out-flows related to benefits should include:

- claims payments;
- maturity benefits;
- death benefits;
- disability benefits;
- surrender benefits; and
- annuity payments.

Article 77/CEIOPS Doc 33/09: 3.105-3.117

Life insurance obligations

As a starting point, the cash-flow projection should be based on a policy-by-policy approach, but reasonable actuarial methods and approximations may be used. In particular the projection of future cash-flows based on suitable model points can be permitted if the following conditions are met:

The grouping of policies and their representation by model points is acceptable provided that it can be demonstrated by the undertaking that the grouping does not misrepresent the underlying risk and does not significantly misstate the costs.

The grouping of policies should not distort the valuation of technical provisions by, for example, forming groups containing life policies with guarantees that are "in the money" and life policies with guarantees that are "out of the money".

Sufficient validation should be performed by the undertaking to be reasonably sure that the grouping of life policies has not resulted in the loss of any significant attributes of the portfolio being valued. Special attention should be given to the amount of guaranteed benefits and any possible restrictions (legislative or otherwise) for an undertaking to treat different groups of policyholders fairly (e.g. no or restricted subvention between homogeneous groups).

The projection on a policy-by-policy basis would be an undue burden on the undertaking compared to the projection based on suitable model points.

In certain specific circumstances, the best estimate element of technical provisions may be negative (e.g. for some individual contracts). This is acceptable and undertakings should not set to zero the value of the best estimate with respect to those individual contracts.

No implicit or explicit surrender value floor should be assumed for the amount of the market consistent value of liabilities for a contract. This means that if the sum of a best estimate and a risk margin of a contract is lower than the surrender value of that contract there is no need to increase the value of insurance liabilities to the surrender value of the contract.

Non-life insurance obligations

The best estimate should be calculated separately in respect of premium provisions and claims provisions.

The best estimate of premium provisions is the expected present value of the following cash in-flows and cash out-flows:

- cash-flows from future premiums relating to any period of exposure, in-force or otherwise (including adjustment premiums from expired policies, cash-flows due from premium debtors, reinstatement premiums or premiums expected from in-force policies);
- cash-flows arising from future claims events;
- cash-flows arising from allocated and unallocated claims administration expenses in respect of claims events occurring after the valuation date;
- cash-flows arising from ongoing administration of in-force policies; and
- cash-flows arising from subrogation and salvage.

Cash in-flows and out-flows in respect of premium provisions need not be calculated separately.

Premium provisions should take account of expected profits during remaining periods on risk and of the time value of money over the period until settlement of relevant cash out-flows. In such circumstances the best estimate may be negative. This is acceptable and undertakings are not required to set to zero the value of the best estimate. The normal current practice is to reserve to ultimate on an underwriting year basis and to split the ultimate between earned and unearned.

A managing agent now needs to further consider any differences in the average duration of those earned and unearned provisions. The process of deriving, validating and applying different cash-flow patterns to earned and unearned provisions is likely to be a significant change from current practice.

Additionally, the valuation of premium provisions should take account of future policyholder behaviour, such as likelihood of lapse or cancellation during the remaining period.

The best estimate of provisions for claims outstanding is the expected present value all future claim payments (and claims administration expenses) arising from claims events that have occurred before or at the valuation date. These may include inflows arising from subrogation and salvage.

Substance over form

The choice between life and non-life actuarial methodologies should be based on the nature of the obligation being valued and from the identification of the risks which materially affect the underlying cash-flows (principle of substance over form).

Health obligations

Health insurance obligations are defined as all types of insurance compensating or reimbursing losses caused by illness, accident or disability. A managing agent should be aware that this is currently grouped with non-life but will need to be categorised separately under Solvency II.

Health insurance obligations:

- pursued on a similar technical basis to that of life insurance (SLT Health) should be valued in accordance with sub-section "Life insurance obligations"; and
- not pursued on a similar technical basis to that of life insurance (Non-SLT Health) should be valued in accordance with sub-section "Non-life insurance obligations".

A managing agent needs to categorise standard health insurance classes written at Lloyd's. There will be significant changes to the existing reserving basis for any health classes falling into this category. This applies equally to obligations that have been or will be settled as annuities. Significant changes to the discount rates used (which will now have to be risk-free) to value these liabilities will have major effects on the provisions required under Solvency II.

Currency of the insurance obligations

The best estimate should be calculated separately for obligations of different currency. This should be on a settlement currency basis, reflecting the best estimate of how the cash flows will be settled. A managing agent should consider whether exchange rates used to convert to settlement currencies (the level at which Technical Provisions are calculated) are consistent with financial market data on future rates, as per requirements for validation and selection of assumptions.

The requirement for best estimates to be calculated by currency shall have proportionality applied. Lloyd's current view is that calculating best estimates by homogeneous risk groups is a key principle. This means that syndicates must have the ability to provide best estimates split by significant currency, this split may be based on allocation.

The definition of significant currency will vary by syndicate but in most cases this will include USD, GBP, CAD, EUR, JPY, CHF, AUD and HKD. "Other" currencies can be then grouped into a single group or combined with an existing significant currency e.g. GBP.

Article 77/CEIOPS Doc 25/09: 3.32-3.38

Treatment of future premiums

The best estimate should only include future cash-flows associated with existing contracts. This includes future premium inflows, associated claims payments and associated expenses, even where these policies may not have incepted e.g. 1/1 renewals at the 31 December valuation date. This would also include a portion of contracts written under binding authorities.

Where reinsurance will be purchased to mitigate the risk from existing contracts but has not yet been purchased, it must be included. This is on the grounds of future management actions (refer CEIOPS DOC 27/09).

A contract should be initially recognised as an existing contract when the syndicate becomes a party to the contract. Tacit renewals (e.g. household policies) which have already taken place at the renewal date should lead to recognition of the renewed contract. A contract incepting in the future but signed now is to be included as a future premium, along with associated claims and expenses. This is a significant change from current practice and could potentially lead to significant changes in the data required and bases applied. For example, a 1/1 renewal written before 1st January will need to be included in the 31 December valuation. This will also affect policies written under binding authorities (note that the binding authorities themselves may also have been signed but not yet incepted).

A contract is derecognised as an existing contract only when the obligation specified in the contract is discharged, cancelled or expires. This will require a legal interpretation of contract wording / cancellation terms, e.g. if there is a specified notice period.

In calculating the best estimate, the boundaries of an existing contract should be defined as set out below.

Where the syndicate has a unilateral right to cancel the contract, a unilateral right to reject the premium, or an unlimited ability to re-underwrite the risk at some point in the future, any cash in-flows or out-flows beyond that point do not belong to the existing contract.

Where the syndicate's right to cancel, reject or amend a premium or benefits relates only to part of a contract, the principles in (a) should be applied in respect of that part.

Future premiums and any resulting cash-outflows which relate to an option or guarantee that provides renewal rights to the policyholder belong to the existing contract only if their inclusion increases the best estimate.

Future premiums and any resulting cash-outflows which relate to an option or guarantee that allows the policyholder to extend the insurance coverage in scope or time belong to the existing contract only if their inclusion increases the best estimate.

Future premiums, and resulting benefits, expenses, etc, should be included if their payment by the policyholder is legally enforceable.

The assessment of contract boundaries should be made at contract level. Where this approach is not workable, a higher level of granularity may be applied, so long as this does not produce materially different results than a per contract assessment.

Where the cash-flows relating to a policyholder option belong to the existing contract and are included in the best estimate, the option exercise rates for the valuation shall be realistic and based on current experiences and anticipated future experiences. The assumptions on the option exercise rates shall take account, either explicitly or implicitly, of the impact that future changes in financial or non-financial conditions may have on the exercise of those options.

The exclusion of certain profitable future premiums from the existing contract does not imply that the risk connected to these potential premiums is not taken into account. The SCR should allow for the risk that, if circumstances change, the future premiums relating to an option may become unprofitable and the syndicate may incur a loss.

Reinsurance recoverables

Directive Article 81- Recoverables from reinsurance contracts and special purpose vehicles

The calculation by insurance and reinsurance undertakings of amounts recoverable from reinsurance contracts and special purpose vehicles shall comply with Articles 76 to 80.

When calculating amounts recoverable from reinsurance contracts and special purpose vehicles, insurance and reinsurance undertakings shall take account of the time difference between recoveries and direct payments.

The result from that calculation shall be adjusted to take account of expected losses due to default of the counterparty. That adjustment shall be based on an assessment of the probability of default of the counterparty and the average loss resulting therefrom (loss-given-default).

Application of proposed level 2 requirements to Lloyd's managing agents

Article 81/CEIOPS Doc 33/09: 2.210-3.223

Recoverables from reinsurance contracts and special purpose vehicles
Reinsurance recoverables (including recoverables from any special purpose vehicles) should be shown on the asset side of the balance sheet.

Lloyd's view is that the principle of correspondence should underlie the calculation of reinsurance recoveries in the best estimate. There are two specific areas this current proposal would apply to:

Future reinsurance cover to be bought that will cover existing inwards contracts (e.g. LOD cover incepting 1st April)

Correspondence would include these contracts, as a future management action (assuming sufficient justification) and the expected proportion of the premium that applies to the existing inwards contracts would be included. On a

best estimate basis the reinsurers would aim to make a profit and so premium would be expected to exceed recoveries. This means by doing this you would increase syndicates' TPs.

Existing reinsurance contracts that will provide recoveries from inwards contracts that are NOT "existing" at the valuation date (e.g. RAD cover already purchased for the forthcoming year).

Correspondence would only include expected recoveries on existing inwards contracts. Similarly to 1, any future premium should be apportioned to only include the expected cost relating to current existing inwards contracts.

This approach will ensure the calculation remains realistic.

Recoverables for special purpose vehicles and from finite reinsurance should be calculated separately from the balance of reinsurance recoverables.

Recoverables in respect of non-life business must be calculated separately for premium provisions and claim provisions. These provisions should correspond to their gross equivalents. In that regard, note that debtors and creditors relating to settled claims should not be included in recoverables (see paragraph 3.222). Reinstatement premiums are to be included in the premium provision.

The same principles should be applied to the calculation of recoverables as were applied to the calculation of gross best estimate technical provisions. Moving to a "mean of all possible outcomes approach" will imply that assuming zero recoveries from non-working non-proportional contracts may no longer be appropriate for calculating best estimates.

Where the timing of direct claim payments and corresponding reinsurance recoveries is markedly different, this should be reflected in the projection of cash-flows. Conversely, where the timings are similar, they may be assumed to correspond.

Where recoverables from special purpose vehicles depend on external factors (e.g. a parametric trigger) rather than directly indemnifying for losses, basis risk needs to be taken into consideration. Recoverables for past and future gross claims should only be taken into account to the extent that they can be verified in a deliberate, reliable and objective manner. This applies to all recoveries and is not a change from current best practice.

Recoverables, including those from assumed future reinsurance contracts, should be adjusted to reflect the best estimate cost of counterparty default, whether this arises from insolvency, dispute or any other reason.

Recoverables can be calculated using either method set out below. In each case, account must be taken of the time value of money and expected losses in respect of counterparty risk need to be calculated separately.

Default method: as a probability-weighted average of future cash-flows in respect of recoverables.

Simplified method: as the difference between the probability-weighted average of gross and net best estimate cash-flows, provided this method is expected to produce a similar result to the default method.

The calculation of the probability-weighted average of future cash-flows should take into account all cash in-flows and cash out-flows including.

Cash in-flows

Recoverables in respect of gross claim payments and related allocated claims expenses.

Revenues from reinsurance over-riding commission and from reinsurance profit commission.

Cash out-flows

Future premiums payable for or in respect of reinsurance contracts.

If relevant, shares in profit due to reinsurance contracts.

Reinsurance administration expenses should be allowed for in the gross best estimate.

Only payments related to underwriting risk should be accounted for in recoverables. All payments that do not relate to underwriting risk (e.g. those that relate to market risk) should be accounted for elsewhere. Multiple trigger contracts that are a combination of market and insurance risk should be accounted for in the technical provisions.

Deposits made in respect of reinsurance cash in-flows or cash out-flows, it should be shown separately on the balance sheet. The recoverable should be adjusted accordingly to avoid double counting.

Debtors and creditors that relate to settled claims should not be included in recoverables, but shown as separate items on the balance sheet including the corresponding counterparty risk. This is not a change form current practise.

The net best estimate corresponds to the probability-weighted average of all future gross cash-flows, less future cash-flows related to recoverables, adjusted for expected losses due to counterparty defaults. All components must take account of the time value of money, using the relevant risk-free discount rate.

Calculation of the adjustment for counterparty default

Article 81/CEIOPS Doc 38/09: 3.18-3.27

Reinsurance recoverables need to be adjusted for expected losses due to counterparty default. This adjustment must be based on a market-consistent assessment of the probability of default of each counterparty, and the average loss resulting from such a default. For example in a stress scenario the probability of default or the loss given default may be greater than the long term averages

The adjustment for counterparty default should approximate the expected present value of the losses in the event of default, weighted by the probability of default. The loss in the event of default should be derived as the change in the value of future cash-flows caused by the default of the counterparty.

The determination of the adjustment for counterparty default should take account of default events during the whole run-off period of the recoverables.

The assessment of the probability of default and the loss in the event of default should be based upon current, reliable and credible information. This requirement still applies when the information is sourced from a third party. Normal data quality and validation standards apply to the use of external data such as credit ratings.

Where possible, estimates of the probability of default should reflect the point-in-time impact of the insurance cycle. If it is not possible to calculate such estimates in a reliable, objective and prudent manner, through-the-cycle estimates of the probability of default might be used with appropriate justification. Techniques in current use, such as transition matrices, are appropriate.

The assessment of the probability of default should take into account the fact that the probability increases with the time horizon of the assessment.

If no reliable estimate of the recovery rate of a counterparty is available, the rate used should be no higher than 50%.

The determination of the adjustment for counterparty default should allow for the effect of risk-mitigating instruments, e.g. collateral or letters of credit. In these cases, credit risk or any other risk connected with the instrument should be allowed for, where it is material.

The adjustment for counterparty default should generally be calculated separately at least for each line of business and each counterparty. Further, for non-life insurance it should be calculated separately for premium provisions and claims provisions. This is likely to require the allocation of RI premiums and claims to class of business.

However, where the probability of default and the recovery rate of several counterparties are considered to coincide, and if calculations at the level of individual counterparty are an undue burden, then the adjustment for these counterparties may be calculated together.

Simplifications regarding reinsurance recoverables, including adjustment for counterparty default

The determination of reinsurance recoverables follows the same principles as the determination of gross technical provisions, with an additional adjustment to take account of the expected losses due to counterparty defaults.

As a simplification, reinsurance recoverables may be calculated in an indirect manner as the difference between the technical provisions gross of reinsurance and the technical provisions net of reinsurance, given that the latter have been adjusted for the expected losses due to counterparty default.

For the valuation of technical provisions gross and net of reinsurance, the same risk margin, based on a net calculation in accordance with the implementing measures on the risk margin, should be used. This means that the calculation of reinsurance recoverables can be further simplified as follows:

$RR = BE_{gross} - BE_{net}$, where

BE_{gross} = the best estimate gross of reinsurance; and

BE_{net} = the best estimate net of reinsurance

Accordingly, the reinsurance recoverables should not include a risk margin component.

To calculate provisions net of reinsurance, managing agents may apply gross-to-net techniques, provided that:

the criteria set out in this advice are met; and

further refinements have been made, where necessary to ensure that the gross-to-net technique applied is proportionate to the underlying risks.

A managing agent should assess the appropriateness of an application of gross-to-net techniques by conducting a proportionality assessment as outlined under Article 76.

Within a given homogeneous risk group or line of business, gross-to-net techniques should be applied separately to each component of the best estimate gross of reinsurance, leading to the same best estimate components net of reinsurance as gross of reinsurance.

The reinsurance recoverables per homogeneous risk group (or line of business) are then calculated as the sum of the differences between the best estimate technical provisions gross and net of reinsurance for the premium provisions and the claim provisions, respectively.

When applying gross-to-net techniques, the resultant best estimate net technical provisions should be assessed to ensure they make appropriate allowance for expected counterparty defaults.

The calculation of the best estimate net of reinsurance and of the reinsurance recoverables should be carried out at a level that is sufficiently granular with respect to the impact of reinsurance programmes and the impact of changes in those reinsurance programmes over time.

Where gross-to-net techniques are applied, the following conditions should be met:

- With respect to premium provisions, the applied gross-to-net techniques should, as a minimum, distinguish between lines of business.
- With respect to claims provisions, the applied gross-to-net techniques should, as a minimum, distinguish between lines of business and, for a given line of business, between the years not finally developed.

Directive Article 78 (extract) – Other elements to take into account in the calculation of technical provisions

In addition to Article 77, when calculating technical provisions, insurance and reinsurance undertakings shall take account of the following:

1. *all expenses that will be incurred in servicing insurance and reinsurance obligations;*
2. *inflation, including expenses and claim inflation;*

Article 78/CEIOPS Doc 33/09: 3.88-3.104

Expenses

The best estimate should reflect all cash-flows arising form expenses that will be incurred servicing existing policies during their lifetime. This should include:

- administrative expenses;
- investment management expenses;
- claims management/handling expenses; and
- acquisition expenses including commissions.

Expenses include both allocated and unallocated expenses. Allocated expenses are directly assignable to individual claims. Unallocated (or overhead) expenses comprise all other expenses which the insurer incurs in settling its obligations.

Unallocated expenses shall be allocated according to professional judgment and realistic assumptions.

Such allocation should be done on an economic basis following realistic and objective principles. The principles and their application should be documented, as should the explanation for any changes.

The predefined split of unallocated claim expenses should only be changed if the new split will better reflect the current situation.

For non-life business, expenses need to be further allocated between premium provisions and claims provisions.

For premium provisions, the following expenses should be included:

- administrative expenses including commissions connected with ongoing administration of the in-force policies; and
- claims management expenses and claims administration expenses connected with future claims events stemming from in-force policies.

For claims provisions, the following expenses should be included:

- claims management expenses and claims administration expenses connected with unsettled claims that have occurred before the valuation date.
- Expenses related to future premiums on existing policies must be taken into account.

Expense provisions should reflect a managing agent's own data and any relevant market data. Assumptions should be made for inflation, taking account of the type of costs involved. Inflation assumptions should be consistent with economic assumptions.

Expenses that would be incurred in running-off existing business must be taken into account, including a share of relevant overhead expenses. This share must be assessed on the basis that the syndicate continues writing new business.

Syndicates may anticipate expected costs reductions relating to the first five years after licensing. Assumptions underpinning any such cost reductions should be realistic, objective and verifiable.

Other gross cash-flow items
A managing agent should also consider other cash-flow items, including:

Taxation payments which are charged to policyholders
The assessment of the expected cash-flows should allow for any taxation payments which are charged to policyholders, or which would be required to be made to settle the insurance obligations. All other tax items should be taken into account under other balance sheet items.

Recognition of any tax-related cash-flows in the best estimate should be consistent with the amount and timing of taxable profits and losses that are expected to be incurred in the future.

In cases where changes to taxation requirements have been agreed, but not yet implemented, the pending adjustments should be reflected.

Different cash-flow features
When valuing potential future cash-flows, the following features of existing (re)insurance contracts must be taken into account:

- options and guarantees;
- policyholders' behaviour;
- management actions; and
- distribution of extra benefits.

Risk-free interest rate term structure

Directive Article 77 (extract) - Calculation of technical provisions

2. *The best estimate shall correspond to the probability-weighted average of future cash flows, taking account of the time value of money (expected present value of future cash flows), using the relevant risk-free interest rate term structure.*

The calculation of the best estimate shall be based upon up-to-date and credible information and realistic assumptions and be performed using adequate, applicable and relevant actuarial and statistical methods.

Directive Article 76 (extract) – General provisions

3. *The calculation of technical provisions shall make use of and be consistent with information provided by the financial markets and generally available data on underwriting risks (market consistency).*

Application of proposed level 2 requirements to Lloyd's managing agents

Article 76/CEIOPS Doc 34/09: 3.54-3.74

Risk-free interest rate term structure

For each currency, a risk-free interest rate term structure should be defined following a uniform methodology. This interest rate term structure should be used to measure the time value of cash-flows payable in the currency.

For each valuation date, the risk-free interest rate term structure should be determined on the basis of market data at that date.

For a given currency and valuation date, each syndicate should use the same risk-free interest rate term structure.

The risk-free interest rate term structure should consist of rates for all durations on the yield curve.

CEIOPS will provide both the risk-free interest term structures for all major currencies, as well as the uniform methodology used for their derivation. This information will normally be provided quarterly for all EEA countries and, potentially, more frequently when markets are volatile. Where, for a given currency and valuation date, no risk-free interest rate term structure is provided, Lloyd's should determine the appropriate term structure following the methodology provided.

The risk-free interest rate term structure should ideally meet the following 'risk-free rate criteria'.

- No credit risk: the rates should be free from credit risk.
- Realism: it should be possible to earn the rates in practice.
- Reliability: the determination of the rates should be reliable and robust.
- High liquidity: the rates should be based on financial instruments from deep, liquid and transparent markets.
- No technical bias: the rates should have no technical bias.

Government bonds rates of AAA-rated governments should be considered as the benchmark for credit risk-free rates.

For each currency, CEIOPS will follow a three stage approach to determine the risk-free interest rate term structure:

First stage

If government bonds are available that meet the risk-free rate criteria, then they should be used to determine the risk-free rates.

Second stage

If government bonds are available, but they do not meet the risk-free rate criteria, then they should be adjusted for their deficiencies relating to these criteria. The adjusted rates should approximate government bond rates which meet the risk-free criteria and should be used to determine the risk-free rates.

Third stage

If government bond rates are not available, or if government bond rates cannot be adjusted to meet the risk-free rate criteria, other financial instruments can be used to derive the risk-free interest rates. These instruments should be as similar to government bond rates as possible. Their rates should be adjusted for credit risk and any other deviations from the criteria with the objective to approximate government bond rates which meet the risk-free rate criteria.

Where government bonds do meet the risk-free criteria (or can be adjusted to meet them) for some maturities but not for all maturities, they should be used to derive the risk-free rate for those maturities only. Different financial instruments may then be used to derive the risk-free rates for other maturities.

A process will be established at Level 3 to ensure that the risk-free rate term structures meet, as well as possible, the benchmark of risk-free government rates.

The AAA-rated government yield curve published daily by the ECB should be used as the risk-free interest rate term structure for the euro.

CEIOPS will develop a set of principles for the choice of an appropriate extrapolation method and will, based on these principles, choose for each currency the method deemed to be most appropriate

Guarantees and options

Directive Article 79 - Valuation of financial guarantees and contractual options included in insurance and reinsurance contracts

When calculating technical provisions, insurance and reinsurance undertakings shall take account of the value of financial guarantees and any contractual options included in insurance and reinsurance policies.

Any assumptions made by insurance and reinsurance undertakings with respect to the likelihood that policyholders will exercise contractual options, including lapses and surrenders, shall be realistic and based on current and credible information. The assumptions shall take account, either explicitly or implicitly, of the impact that future changes in financial and non-financial conditions may have on the exercise of those options.

Application of proposed level 2 requirements to Lloyd's managing agents

Article 79/CEIOPS Doc 33/09: 3.138-3.146, 3.159-3.165

Contractual options and financial guarantees
A managing agent is required to identify all contractual options and financial guarantees embedded in their contracts.

For each contractual option, a managing agent must identify the risk drivers that could materially affect the frequency of option take-up. These risk drivers should form the basis of a sufficiently large range of scenarios, including adverse ones, to assess the take-up rate under a range of circumstances.

For each contractual option and financial guarantee, a managing agent must identify the risk drivers that could materially affect the cost of the option or guarantee. These risk drivers should form the basis of a sufficiently large range of scenarios, including adverse ones, to assess the cost under a range of circumstances.

The best estimate of the value of any contractual options or financial guarantees must reflect the uncertainties identified in take-up rates and costs in respect of different risk drivers, both individually and in combination.

The best estimate of the value of any contractual options and financial guarantees should reflect both their intrinsic value and their time value.

Where policies with contractual options or financial guarantees are grouped for valuation, the segmentation used should not inappropriately distort the underlying risks.

Regarding contractual options, the assumptions on policyholder behaviour should be appropriately founded in statistical and empirical evidence, to the extent that it is deemed representative of the future expected behaviour. However, when assessing the experience of policyholders' behaviour, appropriate attention based on expert judgment should be given to the fact that, when an option is out of or barely in the money, the behaviour of policyholders should not be considered to be a reliable indication of likely policyholders' behaviour when the options are heavily in-the-money.

Appropriate consideration should also be given to an increasing future awareness of policy options, as well as to policyholders' possible reactions to a changed financial position of the syndicate. In general, policyholders' behaviour should not be assumed to be independent of financial markets, a firm's treatment of customers or publicly available information, unless proper evidence to support the assumption can be observed.

Where relevant, non-financial guarantees should be valued like financial guarantees.

Policyholders' behaviour
A managing agent must identify where future policyholders' behaviour can affect the value of contractual options or guarantees.

Where the cash-flows of a contract change if an option is exercised, the valuation should allow for the probability that policyholders exercise the option.

The valuation of contractual options and guarantees should be based on appropriate statistical analysis and expert judgment.

When credible and relevant discontinuance experience is available, a managing agent should make use of it.

In assessing the relevance of past policyholders' behaviour to future policyholders' behaviour, appropriate consideration should be given to how that past behaviour reflected the in/out of the money status of the option at the time, versus the possible in/out of the money status of the option in the future.

In assessing the relevance of past policyholders' behaviour to future policyholders' behaviour, appropriate consideration should be given to the impact of increased future awareness amongst policyholders of their policy options.

The impact of financial markets, the firm's treatment of its customers, and publicly available information on policyholders' future behaviour should all be appropriately reflected.

Risk margin

Directive Article 77.3

(1) *The risk margin shall be such as to ensure that the value of the technical provisions is equivalent to the amount that insurance and reinsurance undertakings would be expected to require in order to take over and meet the insurance and reinsurance obligations.*

Application of proposed level 2 requirements to Lloyd's managing agents

Article 77/CEIOPS Doc 36/09: 3.136-3.144

The reference undertaking

The reference undertaking assumed to take over the (re)insurance obligations, for the purpose of calculating the risk margin, shall fulfil the following assumptions:

(1) It is a different undertaking from the original undertaking.

(2) It is an empty undertaking before the transfer takes place.

(3) After the transfer, it has eligible own funds exactly equal to the amount of SCR needed to support the transferred obligations.

(4) After the transfer, the reference undertaking has assets to cover the best estimate net of reinsurance, the risk margin and the SCR. It should only be subject to market risk that is unavoidable, in practice. For non-life insurance obligations and short-term life insurance obligations, the market risk SCR can usually be reduced to zero and hence is all "avoidable".

(5) The SCR of the reference undertaking consists of:

a. underwriting risk with respect to the existing business;

b. counterparty default risk with respect to the ceded reinsurance and SPVs;

c. operational risk; and

d. unavoidable market risk. Note that the existing business referred to in 5a) above must include all "existing" business as set out in the best estimate section (including any policies not yet incepted by the valuation date). Where used, the internal model needs to be able to pull out this subset from the total SCR. This is a further difference from current ICA models which would ordinarily consider the policies signed but not yet incepted as part of the following year's business plan and not part of the existing liabilities.

(6) The loss absorbing capacity of technical provisions in the reference undertaking corresponds to those of the original undertaking.

(7) There is no loss absorbing capacity of deferred taxes for the reference undertaking.

(8) The obligations of each line of business are transferred to the empty reference undertaking in isolation. Hence, there are no diversification benefits between lines of business.

a. For the purpose of the calculation of the risk margin, the calculation of the SCR of the reference undertaking (using a standard formula or an internal model) should be done at least at Solvency II minimum line of business level, based on the segmentation laid down by the implementing measures.

b. If the SCR of the original undertaking is calculated by using an internal model, the segmentation may differ from the one laid down by the implementing measures. However, the risk margin shall always be valued at least at the lines of business laid down by those implementing measures.

c. It is likely that managing agents will need to aggregate risk groups used within the internal model to the Solvency II minimum lines of business before applying risk margin calculations. Diversification may be used in this aggregation process, but not in the aggregation of risk margins between the Solvency II minimum lines of business, as per 3.136(8) and 3.144.

(9) The internal models of the original undertaking (partial or full) can be used to measure the SCR of the reference undertaking to the extent that these models cover at least the risks referred to in (5).

(10) The Cost-of-Capital margin is defined net of reinsurance only. Some forms of whole account reinsurance will therefore have to be allocated in a pragmatic and justifiable way to the lines of business for calculation of risk margins (as with the calculation of the best estimate).

Calculation of the risk margin

In general, the overall risk margin according to the Cost-of-Capital methodology (CoCM) should be calculated as follows:

$$CoCM = \Sigma_{lob}\{CoC * \Sigma_{t\geq}SCR_{RU,lob}(t)/(1+r_{t+1})^{t+1}\} = \Sigma_{lob}CoCM_{lobr}$$

Where:

$SCR_{RU,lob}(t)$ = the SCR for a given line of business (lob) for year t, as calculated for the reference undertaking;

r_t = the risk-free rate for maturity t; and

CoC = the Cost-of-Capital rate

If the SCR of the original undertaking is calculated using the standard formula

All SCRs (for $t \geq 0$) for a given line of business should be calculated as follows:

$$SCR_{RU,lob}(t) = BSCR_{RU,lob}(t) + SCR_{RU,lob,op}(t) - Adj_{RU,lob}(t)$$

Where:

$BSCR_{RU,lob}(t)$ = the Basic SCR for the given line of business (lob) and year t, as calculated for the reference undertaking;

$SCR_{RU,lob,op}(t)$ = the partial SCR regarding operational risk for the given line of business (lob) at year t, as calculated for the reference undertaking; and

$Adj_{RU,lob}(t)$ = the adjustment for the loss absorbing capacity of technical provisions for the given line of business (lob) at year t, as calculated for the reference undertaking.

The assumptions made regarding loss absorbing capacity of technical provisions to be taken into account in the SCR calculations per line of business, should be consistent with the assumptions made for the overall portfolio of the original undertaking.

The Basic SCRs for a given line of business ($BSCR_{RU,lob}(t)$ for all $t \geq 0$) should be calculated by using the relevant SCR -modules and sub-modules per line of business (i.e. by restricting the input to be used in the relevant modules to the line of business in question).

Moreover, the calculation of the Basic SCRs should be based on the correlation assumptions laid down in the Level 1 text, although only the unavoidable market risk and the default risk with respect to ceded reinsurance are taken into consideration. These correlation assumptions may be different from those used within the internal model (but only apply if using the standard formula for the cost of capital).

With respect to non-life business, the risk margin should not be split between premium provisions and claim provisions.

The overall risk margin

Furthermore, the overall risk margin shall be the sum of risk margins as calculated for each line of business according to the prescribed segmentation.

Article 77/CEIOPS Doc 72/10: 3.366-3.372

Simplifications regarding risk margin

Before applying a simplified method to calculate the risk margin, a managing agent must ensure that the method is proportionate to the underlying risks and compatible with the Solvency II valuation principles. Simplified methods for the risk margin are expected to be widely used in practice.

In general, the risk margin calculations and, accordingly, the projections of future SCRs should be as accurate as possible. If a managing agent is able to carry out a full projection of all future SCRs, for any or all lines of business, then it is expected to do so.

Decisions as to whether to use a simplified valuation technique for the risk margin and, if so, what technique to use, should be made for each line of business independently. In making this assessment, managing agents should consider which simplified methods would be most appropriate for each given line of business, and should ensure that the chosen method is proportionate to the nature, scale and complexity of the risks in the line of business in question.

When a managing agent has decided to use a simplified method for a given line of business, it should consider whether the method could be used for the projections of the overall SCR for that line of business or if the relevant (sub-) risks (e.g. underwriting, operational, counterparty default) should be projected separately. In this context, a managing agent should also consider whether it should carry out the simplified projections of future SCRs individually for each future year or if it is possible to calculate all SCRs for that line of business in one step.

The following hierarchy should be used as a decision basis regarding the methods to be used for projecting SCRs for each line of business:

(1) Make a full calculation of all future SCRs without using simplifications.

(2) Approximate the individual risks or sub-risks within some or all modules and sub-modules to be used for the calculation of the SCRs.

(3) Approximate the whole SCR for each future year, e.g. by using a proportional approach.

(4) Estimate all future SCRS "at once" e.g. by using a duration approach.

(5) Approximate the risk margin by calculating it as a percentage of the best estimate.

Article 77/CEIOPS Doc 72/10: 3.459-3.461

Simplifications regarding risk margin - quarterly calculation of the MCR

In the application of the proportionality principle, the particular challenges of quarterly calculations of technical provisions should be taken into account.

In making quarterly recalculations of the MCR, the risk margin for an individual line of business may be simplified as follows:

$CoCM_{lob}(t) = CoCM_{lob}(0) \times BE_{Net,lob}(t) / BE_{Net,lob}(0)$, $0<t<1$,

Where:

$CoCM_{lob}(0)$ = the risk margin, as calculated at time t=0 for the reference undertaking's portfolio of (re)insurance obligations in an individual line of business;

$BE_{Net,lob}(0)$ = the best estimate technical provisions net of reinsurance, as assessed at time t=0, for the reference undertaking's portfolio of (re)insurance obligations in an individual line of business; and

$BE_{Net,lob}(t)$ = the best estimate technical provisions net of reinsurance, as assessed at time t for the reference undertaking's portfolio of (re)insurance obligations in an individual line of business.

This formula should not be applied in cases where the best estimates are expected to decrease, in relative terms to the business, e.g. in cases where significant new business may generate even negative best estimates or best estimates close to zero.

Directive Article 77.4

4. *Insurance and reinsurance undertakings shall value the best estimate and the risk margin separately.*

   However, where future cash flows associated with insurance and reinsurance obligations can be replicated reliably using financial instruments for which a reliable market value is observable, the value of technical provisions associated with those future cash flows shall be determined on the basis of the market value of those financial instruments. In this case, separate calculations of the best estimate and the risk margin shall not be required.

Application of proposed level 2 requirements to Lloyd's managing agents

Article 77.4/CEIOPS Doc 35/09: 4.18

Technical provisions for any and all business written at Lloyd's should be calculated as the sum of an explicit best estimate and an explicit risk margin.

Cost of capital rate

Directive Article 77.5

5. *Where insurance and reinsurance undertakings value the best estimate and the risk margin separately, the risk margin shall be calculated by determining the cost of providing an amount of eligible own funds equal to the Solvency Capital Requirement necessary to support the insurance and reinsurance obligations over the lifetime thereof.*

   The rate used in the determination of the cost of providing that amount of eligible own funds (Cost of Capital rate) shall be the same for all insurance and reinsurance undertakings and shall be reviewed periodically.

   The Cost of Capital rate used shall be equal to the additional rate, above the relevant risk-free interest rate, that an insurance or reinsurance undertaking would incur holding an amount of eligible own funds, as set out in Section 3 [Own Funds], equal to the Solvency Capital Requirement necessary to support the insurance or reinsurance obligation over the lifetime of those obligations.

Application of proposed level 2 requirements to Lloyd's managing agents

Article 77/CEIOPS Doc 36/09: 3.137-3.140

The cost of capital rate
The Cost-of-Capital rate will be calculated periodically by CEIOPS according to a standard methodology. The same rate will be used for all insurance and reinsurance undertakings. The current estimate of that rate is a minimum of 6%.

Data

Directive Article 82

Member States shall ensure that insurance and reinsurance undertakings have internal processes and procedures in place to ensure the appropriateness, completeness and accuracy of the data used in the calculation of their internal provisions.

Where, in specific circumstances, insurance and reinsurance undertakings have insufficient data of appropriate quality to apply a reliable actuarial method to a set or subset of their insurance and reinsurance obligations, or amounts recoverable from reinsurance contracts and special purpose vehicles, appropriate approximations, including case-by-case approaches, may be used in the calculation of the best estimate.

Application of proposed level 2 requirements to Lloyd's managing agents

Article 82/CEIOPS Doc 37/09: 3.56-3.90

Definition of the term 'data'

'Data' in this context refers to all the non-qualitative information needed to carry out a valuation of technical provisions. Assumptions are not regarded as data, but data is normally key to the development of assumptions. Data includes all numerical, census or classification information but not qualitative information.

General requirements on data quality in the context of valuing technical provisions

A managing agent should make all efforts to ensure that the data available for the valuation of technical provisions is as appropriate, complete and accurate for that purpose as possible.

A managing agent should assess and monitor the quality of the data used in the valuation of syndicates' technical provisions (including data used to set a particular assumption). Assessment of the quality of data should be carried out on the basis of three criteria: appropriateness, completeness and accuracy. Such assessment and monitoring is likely to be a significant step up from current normal practice and many new policies and procedures are likely to be required.

Internal processes and procedures must be adequate to ensure the appropriateness, completeness and accuracy of the data used in the valuation of technical provisions. These processes and procedures need to cover a managing agent's systems for data quality management and the collection, storage and processing of the data. Systems for data management and data collection, storage and processing will usually need to be formalised and may need to become more rigorous.

The degree of appropriateness, completeness and accuracy of the data should be consistent with the principle of proportionality. However, the application of this principle should not lead to a lowering in the general standards of the procedures for the collection of data and the efforts to ensure its appropriateness, completeness and, especially, accuracy.

Appropriateness, completeness and accuracy of data

Assessment of data quality with regard to appropriateness and completeness should be done at portfolio level, consistent with the level of segmentation applied in the calculation of technical provisions. However, where relevant, it should be done at a more granular level, including, if necessary, analysis relating to individual items. Assessment of data quality with regard to accuracy should be done at the level of individual items.

Appropriateness

Data is considered appropriate if:

- it is suitable for the intended purpose; and
- it is relevant to the portfolio of risks being analysed.

Hence, to be appropriate for valuation purposes, data needs to be representative of the portfolio of liabilities being valued and suitable to be used to estimate the cash-flows from the liabilities (consistent with a prospective view on the behaviour of the relevant risks). For elements of the calculation of technical provisions, fully appropriate data may not exist. This is where expert judgement is required to determine the most appropriate data available (allowing for realistic costs considerations), to factor in the limitations arising from any data shortfall in the calculation and results. It is also important that such expert judgement and limitations are adequately communicated.

Completeness

Data is considered complete if:

- it allows for the recognition of all the main homogeneous risk groups within the liability portfolio;
- it has sufficient granularity to allow for the identification of trends and to the full understanding of the behaviour of the underlying risks (to a level sufficient for valuation purposes); and
- if sufficient historical information is available for the application of adequate valuation methodologies.

Accuracy

Data is considered accurate if:

- it is free from material mistakes, errors and omissions;
- the recording of information is adequate, performed in a timely manner and is kept consistent across time;

Keeping the recording of data consistent across time will be a significant challenge. For example, adjustments made can be very different across time, IT systems may change (or have changed historically), the data of newly acquired entities may be brought into the main system. It is also important to note situations where data recording is not kept consistent, but there is no impact on accuracy. Expert judgement is again key in this area:

- a high level of confidence is placed on the data; and

- the managing agent is able to demonstrate that it recognises the data set as credible by using it throughout its operations and decision-making processes.

The assessment of data accuracy should include appropriate cross-checks and tests as to its consistency with other relevant data and with the same data at different points in time.

The combination of accuracy, completeness and appropriateness of the data should be sufficient to support the application of adequate provisioning methodologies.

Data deficiencies

Where a syndicate's internal data is an inadequate basis for calculating technical provisions, the managing agent should assess why this is the case and what it can do to increase the quality and quantity of the data. This is likely to require a more formal process than current practise.

Such assessment should cover:

- whether the lack of data is related to deficiencies in the internal processes;
- whether the lack of data is related to deficiencies in the data transmission process with third parties (including related entities);
- whether the quality of the available data could be enhanced; and
- whether any external data supplied by third parties or market data could be used.

Where the data deficiency is related to deficiencies in internal processes and procedures, a plan should be prepared and implemented to remedy this situation.

Where the data deficiency relates to the quality of the data, the managing agent should consider if adjustments could be made to the data to improve its quality. Any such adjustments and the assumptions underlying them should be carefully justified and documented, and the integrity of the raw data should be protected.

Where there is an unavoidable lack of internal data affecting appropriateness or completeness, further judgmental adjustments or assumptions may need to be applied to allow the valuation to be performed (using appropriate approximations). The use of expert judgment and the assumptions applied for this purpose, shall meet the requirements set out in CEIOPS-DOC-33/09 advice on actuarial and statistical methodologies to calculate the best estimate.

In no case should the use of approximations be seen as an alternative to implementing appropriate systems and processes for collecting material relevant information and building historical databases.

Systems of data quality management

Data quality management should be an ongoing process, comprising the following phases:

- definition of the data;
- assessment of the quality of the data;
- resolution of the problems identified; and
- monitoring data quality.

The process of data quality management is likely to be more rigorous than current practices. There will be large challenges in implementing the process, though ongoing management may be significantly less difficult.

Definition of the data comprises the identification of the needs in terms of data, a detailed description of the items that should be collected and the eventual relations between the different items. Managing agents should consider the difference between items that should be collected and items that are actually collected.

The assessment of the quality of the data involves the verification of its appropriateness, completeness and accuracy for the purpose of calculating technical provisions. As well as objective measures and indicators, expert judgment is required to carry out this assessment.

The assessment of data quality should have due regard to the quality and performance of the channels used to collect, store, transmit and process data, in particular when data is provided by third parties or through electronic sources.

If material problems with data quality are identified, the managing agent should try and solve them. The agent should then work towards the improvement of data collection, storage and other relevant processes so as to ensure the quality of future data. The data problems should be documented, including a description of possible solutions and assignment of responsibilities for actioning the selected solution.

Data quality should be monitored periodically, focussing in particular on the relevant IT systems and the processes used to collect, store, transmit and process data. The process of monitoring data quality can, to some extent, be based on objective measures; however, expert judgment is a key requirement.

Collection, storing and processing of data

Data should be identified, collected, stored and maintained on a comprehensive basis and the underlying processes and procedures should be transparent.

Data should be collected at a sufficiently granular level to support the application of adequate provisioning methodologies and to generate results of sufficient detail and robustness. Since provisioning sometimes needs to be done at contract or event level, this means that, normally, data will need to be available at contract or event level.

Relevant historical data should be retained and remain available.

Any adjustments to the original data, in particular the correction of any data errors and omissions, must be documented, as must the reasons for the adjustments. The original database should be maintained.

Data quality assessments should be made periodically and, where appropriate, adjustments or corrections should be applied either qualitatively or quantitatively, depending on circumstances. Full data quality assessments should be performed at least annually, with monitoring performed quarterly to determine whether updates of full assessments are required.

Issues of data quality in the context of a provisioning analysis and review

Considerations of data quality for the purpose of setting technical provisions, and any adjustments subsequently deemed appropriate, must necessarily be carried out at a level of granularity that reflects the specific methodology, assumptions or parameters under review.

However, the requirement to set up internal processes and procedures adequate to deliver quality data does not relate to such a granular level. This should be considered from the perspective of calculating technical provisions, without necessarily relating it to the application of particular methodologies.

In the context of the provisioning analysis, it may be necessary to complement the internal data available with external data supplied by third parties or with market data. When assessing the general requirements on data quality, any such external and market information should be part of the analysis.

In the particular case of external and market information, the verification of the three criteria implies:

Appropriateness and completeness:

the assessment of these criteria is normally performed at the portfolio level. Where relevant, however, the assessment shall also be performed at a more granular level, including, if necessary, analysis relating to individual items. Managing agents are expected to verify that the inclusion of individual items of external and market information contribute towards the enhancement of the appropriateness and completeness criteria, having regard to the intended purpose of the analysis.

Accuracy:

as individual items of external and market information have not been collected and compiled by the managing agent itself, the assessment of their accuracy is likely to be challenging. The verification of this criterion will have to consider the reliability of the sources of information and the consistency and stability of its process of collecting and publishing information across time.

Moreover, measurement of the quality and credibility of internal data should have regard to available industry or market data which is deemed comparable. Any material deviations should be identified and interpreted, for instance by referring to the specificities of the own portfolio being valued.

Assumptions

Directive Article 76 - General provisions (relating to technical provisions - extract)

2. *The value of technical provisions shall correspond to the current amount insurance and reinsurance undertakings would have to pay if they were to transfer their insurance and reinsurance obligations immediately to another insurance or reinsurance undertaking.*

3. *The calculation of technical provisions shall make use of and be consistent with information provided by the financial markets and generally available data on underwriting risks (market consistency).*

Application of proposed level 2 requirements to Lloyd's managing agents

Article 76/CEIOPS Doc 33/09: 3.265-3.279

Assumptions
General

Assumptions used in the calculation of technical provisions shall be set consistently with:

- information provided by financial markets; and
- internal and external data on (re)insurance risks.

Consideration needs to extend to both explicit and implicit assumptions required through all stages of the best estimate calculation, i.e. assumptions related to data, analysis, modelling and validation.

Certain general principles apply in assessing the appropriateness of an assumption.

- Assumptions should be realistic.
- Assumptions should be derived consistently from year to year. Changes to assumptions from one period to another should be traced, explained and documented, and their impact should be quantified, traced, explained and documented.
- Expert judgment should be taken into account when setting assumptions.

Assumptions must be documented, with such documentation covering the suitability of data sources, the derivation of the assumptions and any limitations in the results.

The level of documentation should reflect the materiality of the assumption.

The data on which the assumption is based should be credible for the purpose and meet the statistical quality standards with regard to appropriateness, completeness and accuracy.

Where external data is used to support an assumption, the external data source should satisfy the criteria set out below:

- The documentation of any assumptions or methodologies underlying any external data used should be available so that the data can be validated. In particular, it should be possible to assess the relevance of the data given the characteristics of the underlying insurance portfolio. When external data is relied upon in preference to internal data, the managing agent should be able to demonstrate that the external data better reflects the underwriting risk profile.
- When relevant, external data should be produced sufficiently frequently, to allow analysis of trends, variations over time and variations between observations. Depending on the results of this analysis, adjustments to the data may be required.
- Appropriate methods should be used to validate external data, with standards equivalent to those applying to the validation of internal data.

Assumptions consistent with information provided by financial markets

Market-consistent asset models used to produce assumptions must:

- reproduce prices that can be verified in the market;
- be arbitrage free.

Calibration of market-consistent asset models must take into account the following:

- the nature and term of liabilities, particularly those with significant guarantee and option costs;
- the current risk-free term structure; and
- an appropriate volatility measure.

The calibration process should use market prices from financial markets that are deep, liquid and transparent. If that is not possible, other market prices may be used. In this case, any distortions should be identified and corrected for in a deliberate, reliable and objective manner.

A financial market is deep, liquid and transparent if it meets the requirements set out in CEIOPS-DOC-35/09.

Where calibration cannot be carried out against a deep, liquid and transparent market, a managing agent must be able to demonstrate that the calibration is appropriate and in line with the criteria set out in the Level 1 text.

The calibration may be based on adequate actuarial and statistical analysis of economic variables.

Assumptions consistent with generally available data on insurance and reinsurance technical risks

Generally available data refers to a combination of:

- internal data; and
- external data sources such as industry or market data.

Internal data is sourced from internal data sources and may be undertaking-specific data or portfolio-specific data. Undertaking-specific data is specific to the insurer (e.g. class of business), whereas portfolio-specific data depends on the characteristic of the liabilities being measured (e.g. limit).

Assumptions should be set to best reflect the characteristics of the underlying insurance portfolio, taking into account all available relevant internal or external data.

The extent to which external data is taken into account should be based on:

- the amount and quality of internal data; and
- the availability, quality and relevance of external data.

Assumptions should be based solely on external data only if there is no relevant internal data which could be used. Similarly, assumptions should be based solely on internal data only if there is no relevant source of external data. Expert judgement should be applied in deciding whether to use internal data, external data, or a blend of both.

The appropriateness of any given assumption should be determined according to the principles set out below.

Assumptions should be derived consistently:

- across homogeneous risk groups and lines of business; and
- with a managing agent's knowledge of the business and practices for managing the business.

Assumptions should be based on credible information which is relevant to cash-flows.

A managing agent should consider whether assumptions adequately reflect the uncertainty underlying the cash-flows.

Assumptions should make appropriate allowance for possible trends or future changes in both undertaking and portfolio specific factors, as well as legal, social, economic or environmental factors.

Assumptions should be easy to comprehend by third parties, well-documented and the reasons for them should be given sufficiently, considering the internal/external data or qualitative information used as a basis.

Expert judgement

Article 76/CEIOPS Doc 33/09: 3.286-3.290

Scope of expert judgement

Expert judgement may apply in respect of data used in the calculation of the best estimates, the assumptions underlying the calculations, and the method applied to derive the best estimate.

General conditions about the application of expert judgement

Expert judgement must be compatible with this advice and other CEIOPS advice regarding technical provisions. The use of expert judgement should not be considered to replace appropriate collection, processing and analysis of data according to CEIOPS advice on data quality standards.

Expert judgement can only be applied in isolation when there is no reliable alternative.

When expert judgement is applied in isolation or has a significant impact on the best estimate, a managing agent must test reasonable alternative assumptions to ensure the selected assumption appropriately reflects uncertainty in the outcome.

Expert judgement must be applied by person(s) with the relevant knowledge and understanding of the subject, and with adequate experience.

Documentation on the use of expert judgement

Expert judgement should be justified, explained and validated.

According to the proportionality principle, the process leading to the use of expert judgment should be documented in such a manner that the document makes possible the accountability and verification of the expert judgment. The documentation should reflect:

- the inputs on which expert judgement is based;
- the objectives and decision criteria used;
- any material limitations and the steps taken, if any, to mitigate the effect of such limitations; and
- the validation and back-testing envisaged or carried out for the expert judgement.

Test of the expert judgement

Expert judgement should be back-tested with additional experience gained.

Any emergent information should, where possible, be benchmarked by comparing it with other expert opinions, either internally (provided the expert is independent of the original expert) or externally (taking due account of any potential conflicts of interest).

Significant elements of expert judgement should be subject to a sensitivity analysis.

Users of results of expert judgement should receive clear and comprehensive information on the existence of that expert judgement, and any relevant information on its content, degree of reliance and limitations (including appropriate sensitivity analysis).

Article 77/CEIOPS Doc 33/09: 3.166

Future management actions

Future management actions may be reflected in the projected cash-flows in accordance with CEIOPS-DOC-27/09 advice on assumptions about future management actions.

Article 77/CEIOPS Doc 27/09: 3.23-3.38

Assumptions about future management actions

General rules

The methods and techniques for the estimation of future cash-flows, and hence the assessment of the provisions for insurance liabilities, may take account of potential future management actions.

Buying future reinsurance is a future management action and can be included in an assessment of technical provisions. Existing inwards business is normally written on the assumption that future reinsurance will be purchased to cover its run-off. Therefore, in calculating the net best estimate, the costs of future reinsurance should be included if it is a reasonable assumption about future management actions. Supporting evidence will be required for such assumptions. An agent should make allowance for the proportion of the reinsurance to be purchased in the future that would provide cover for the risks that are "existing" as at the valuation date. This is discussed further in the reinsurance section.

A managing agent has primary responsibility for verifying whether their future management actions are objective, realistic and verifiable. If these criteria cannot be demonstrated, the management action should not be taken into

account. The assessment of the managing agent in respect of its future management actions shall be subject to review by Lloyd's.

The assumptions used to project the cash-flows should reflect the actions that management would reasonably expect to carry out in the circumstances of each scenario over the duration of the projection. This implies that future reinsurance should be anticipated in calculating gross and (by extension) net best estimates.

Allowance should be made for the time taken to implement actions and a managing agent must consider their obligations to policyholders.

Objectivity

Objectivity means that for the purpose of the calculation of the best estimate a managing agent must define what future management actions will be taken and when each would be taken. This will need to cover all scenarios which are relevant for the valuation of the best estimate.

Future reinsurance will necessarily reflect events in the period before the reinsurance is purchased. If there are no material events, then future reinsurance costs may be cheaper than at the valuation date. If material events occur, then future reinsurance costs could be a lot more expensive or even unavailable. The assumptions used at the valuation date must include allowance for all scenarios. Sufficient evidence for those assumptions will be required.

For this purpose, a managing agent must maintain a comprehensive plan which outlines the future management actions which may be used and the extent/circumstances to which they can expect to be used. The plan must include:

Documentation with a clear description of the situations that trigger the future management actions and their rationale.

Documentation of the processes by which the future management actions will be carried out.

Documentation of the ongoing work required to ensure that the managing agent is in a position to carry out the management action in question.

Description of the order of exercise of the future management actions, as the order of application has an influence on the outcome.

Identification of the persons whose responsibility it is to ensure that the future management actions are carried out.

Clarification of how the planned action has been reflected in the calculation of the best estimate.

Sign-off from the board or delegated sub-committee on each of the above points.

Description of the back-testing controls.

Description of the reporting procedures to apply, which should include at least an annual report to a managing agent’s.

For managing agent, the liability will depend on the future management actions taken by the cedant insurer as well. In this case, the reinsurer's technical provisions could be larger than the insurer's for the same block of business. Moreover, a managing agent may consider the future management actions of the cedant insurer as "policyholder's behaviour", provided the assumptions in this respect meet the requirements generally set out for the rest of assumptions used in the calculation of the technical provisions.

Realism

Realism should be interpreted as meaning that a managing agent considers it both possible and also realistic that it will carry out such actions in the circumstances being considered.

Realism should also be interpreted as meaning that assumed future management actions should be consistent with a managing agent's current principles and practices in running its business, unless there is sufficient current evidence that the managing agent will change its practice and has taken the necessary steps to implement this change.

It should not be assumed that a managing agent would take future management actions if this is contrary to their obligations to policyholders. A managing agent should consider its policy wordings, marketing literature, or other statements when considering its obligations to policyholders. This assessment should also take account of any relevant legal or regulatory constraints around the management action.

For a given scenario, the assumed future management actions should reflect the trade-off between the degree of competitiveness aimed at by the syndicate and the volume of business written. This trade-off should be consistent with corporate planning.

Future management actions in different scenarios shall be internally consistent when calculating the best estimate. Furthermore, extreme scenarios shall consider the effect of future management actions consistently with the recalculation for the SCR. In particular, the future management actions shall also consider that, in some scenarios, such actions may be not applied due to practical considerations.

The managing agent should also estimate the time taken to implement changes, any costs associated with these actions, and any likely changes to policyholder behaviour following these future management actions. The cash-flows included in the technical provisions should reflect this accordingly.

Verifiability

Verifiability should be interpreted as meaning that there should be sufficient evidence to demonstrate that the future management actions are objective and realistic.

In particular, the assumptions should be verifiable from:

The comprehensive plan and documentation discussed under objectivity.

If available, from public indications that it would expect to take (or not take) the action in the type of circumstance being considered.

Through the comparison of assumed future management actions and management actions actually taken by a managing agent in previous years; a managing agent should document and be able to explain any relevant deviations.

Through the comparison of future management actions taken into account in the current and in the past valuations; a managing agent should document and be able to explain any significant change in the accounted future management actions.

Through the quantification of the effect of future management actions either individually or in aggregate.

The level of justification required for a given management action will depend on the impact of that management action. For example, stronger justification is required for future management actions considered in extreme scenarios or where the management action significantly changes the value of the best estimate. The effect of management actions assumed within the determination of the technical provisions has to be publicly disclosed.

Validation

Directive Article 83

Insurance and reinsurance undertakings shall have processes and procedures in place to ensure that best estimates, and the assumptions underlying the calculation of best estimates, are regularly compared against experience.

Where the comparison identifies systemic deviation between experience and the best estimate, the undertaking concerned shall make appropriate adjustments to the actuarial methods being used and/or the assumptions being made.

Application of proposed level 2 requirements to Lloyd's managing agents

Article 83/CEIOPS Doc 33/09: 3.343-3.355

Assessment of the appropriateness of the valuation

Validation techniques are tools and processes applied to ensure that valuation methods, assumptions and results are appropriate. They can be qualitative as well as quantitative.

A managing agent must use validation techniques throughout the calculation of the best estimate in order to:

- Validate the amounts of the technical provisions.
- Ensure the applicability and relevance of the methods and assumptions applied.

- Ensure that the actuarial methods and statistical methodologies are appropriate to the nature, scale and complexity of the risks supported by insurance and reinsurance undertakings.
- Compare the best estimate and the assumptions underlying the calculations regularly against experience.

Validation methods assist in the calculation of the best estimate by:

- Encouraging understanding of how the cash-flows may emerge in the future and tracing any flaws in the valuation process.
- Justifying the applicability and relevance of methods used in the estimation of the best estimate.
- Validating the appropriateness, completeness and accuracy of the assumptions and modelling used in the calculation of the best estimate.

A managing agent must consider the validation methods which are most appropriate to ensure the above requirements are met.

Backtesting techniques must be applied to ensure that the best estimate and the assumptions underlying its calculation are regularly tested against emerging experience.

Significant deviations between actual and predicted values identified through backtesting must be analysed to identify their underlying causes.

The cause may be a consequence of random variation, a systemic effect, assumption error, parameter error or a combination of factors. Depending on the cause identified in each instance, the backtesting may imply that an adjustment to the calculation method is needed.

Validation must be carried out at least once a year and, in any case, where there are indications of substantial changes.

Additional validation of best estimate calculations in response to significant changes in the external environment, assumptions or to goodness of fit test results.

Validation should be carried out at a sufficiently fine granularity. For life assurance, this is at least at the level of product types; for non-life insurance it is at least at the level of homogeneous risk groups.

Validation should be carried out separately for the gross best estimate and for reinsurance recoverables, and also for premium provisions and claim provisions for non-life insurance.

All material assumptions should be validated. To the extent that it is statistically feasible, each such assumption should be validated separately.

The validation process shall include appropriate documentation and should be overseen by an expert who fulfils requirements specified for providing expert judgment.

Increase of technical provisions

Article 85 - Increase of technical provisions

To the extent that the calculation of technical provisions of insurance and reinsurance undertakings does not comply with Articles 76 to 83, the supervisory authorities may require insurance and reinsurance undertakings to increase the amount of technical provisions so that they correspond to the level determined pursuant to those Articles.

TECHNICAL PROVISIONS

This is a high level summary of detailed technical provisions guidance – Technical Provisions under Solvency II - and agents should ensure they refer to the full information contained in that document.

Solvency II

Solvency II seeks to create a harmonised, risk-based approach to supervision, solvency and capital requirements for insurers within the EU. The detailed content of the Solvency II regime, which is due to be implemented from October 2012, is still being developed. Lloyd's dry run process begins in June 2010 and technical provision evaluation is part of the process. This guidance for managing agents is based on Lloyd's current (as at March 2010) interpretation and has been reviewed by the LMA Solvency II working group.

Technical provisions are the largest item on an insurance undertaking's balance sheet, meaning an undertaking's financial strength is sensitive to movements in their value. Under Solvency II, major changes are proposed to the evaluation of technical provisions and the impact on reserving processes will be marked.

This guidance is intended to assist managing agents in moving to a Solvency II basis when valuing technical provisions. The guidance offers practical solutions in places but these should not yet be taken as Lloyd's requirements or rules. The document is solely intended to offer guidance to managing agents in this important area.

Solvency valuations are required alongside the current valuation basis under UK GAAP for accounting purposes.

Because best practice and legislation continue to develop, the guidance should be seen as indicative of requirements only. It should not be seen as final advice and managing agents are advised to aim for flexible approaches that can adapt as the underlying requirements are finalised. The guidance includes extracts of the relevant level 1 and proposed level 2 texts in places for reference.

Lloyd's will inform the market of any significant changes as they occur, especially following the release of the QIS5 specification. This will be through the normal Solvency II communication channels.

Solvency II technical provisions will have significant differences from current provisions, both in terms of structure and calculations required.

Technical provisions

Whilst some of the approaches and techniques applied under Solvency II will be similar to those followed currently, there are other areas where there will be major changes. Some of the more important and challenging requirements are listed below. All of these are discussed in more detail in the main document.

- Movement to a cashflow basis for valuation of both gross business and reinsurance
- Removal of any implicit or explicit margins within technical provisions to give a "true best estimate", defined as the mean of the full range of possible future outcomes
- Introduction of the valuation of very low probability extreme events including latent claims, referred to as "binary events"
- Removal of the requirements to hold an unearned premium reserve and to allow for other non-monetary items. These are replaced by "premium provisions", valued on a best estimate basis. This also includes a requirement to take account of all future premium cash inflows
- Movement to recognising contracts on a "legal obligation basis". This will mean the inclusion of business currently not valued as part of technical provisions - for example 1st January renewals entered into prior to the balance sheet date
- The basis for recognising existing contracts will also impact reinsurance contracts and their expected cashflows
- Introduction of discounting, leading to increased volatility in reserves
- Introduction of the principle of a market consistent basis and calculation of a Risk Margin (or Market Value Margin)
- Valuation of liabilities segmented by Solvency II lines of business
- Introduction of governance requirements for an explicit "actuarial function" with defined responsibilities

- Introduction of explicit data requirements
- Significant increases to documentation and validation requirements
- Introduction of explicit links to other areas of Solvency II such as internal models
- Introduction of the principle of proportionality that underlies the calculations

Lloyd's dry run process and QIS5

The first main test for technical provisions during the dry run process in 2010 will be the completion of QIS5. This will be mandatory for all syndicates and the exercise is expected to run from August – October 2010. Following QIS5, syndicates will have to calculate Solvency II technical provisions for each year-end and mid-year during the dry run process.

Though QIS4 was completed on a "best efforts" basis, such an approach will not be acceptable for QIS5. Syndicates are expected to complete QIS5 on as close to a full Solvency II basis as possible, i.e. aiming at the same standard as a formal regulatory return (e.g. the current FSA return). This document is designed to assist syndicates in completing QIS5 on a suitable basis.

The main elements of the guidance are summarised below and covered in more detail in the main guidance document.

Minimum segmentation

Solvency II requires technical provisions to be segmented by defined lines of business. There are also requirements to value the best estimate in all (significant) currencies.

Lloyd's view is that the fundamental underlying principle to ensure suitable and accurate assessment of best estimate technical provisions is to value the liabilities by homogeneous risk group, at least for calculation of undiscounted best estimates. Results on this basis may then require further allocation to significant currencies or aggregation to lines of business to finalise the calculation.

The Solvency II lines of business represent the minimum level of granularity at which to perform the calculation.

Best estimate cashflows

The technical provisions must be calculated gross using a cashflow basis with a separate explicit calculation for reinsurance, also using a cashflow basis. Further to the minimum segmentation noted above, the best estimate must also be split between claims and premium provisions for non-life business.

The cashflows will include future cash in-flows. Provisions are therefore net of future premium receipts which can make them negative. The inclusion of premium provisions and move to a cashflow basis is a major change to the Solvency I basis.

The best estimates must not include margins for optimism or conservatism. Reserves held in excess of the best estimate must be excluded from the technical provision calculation for solvency. Note that, under current proposals, any future profits recognised through the calculation of a best estimate premium provision (rather than the current unearned premium reserve approach) will be eligible as tier 3 capital only.

Cashflows must be discounted for the time value of money. The yield curves for major currencies to apply by currency will be supplied by supervisors and will be fixed for each valuation date.

Recognition of contracts

Another major change to the current basis is the system for recognising existing contracts. Under the legal obligation basis of Solvency II, all existing contracts must be valued, whether the contracts have incepted or not.

Distinct areas to be considered can be split into:

Business incepted at valuation date

- Gross claims cashflows within claims provisions (earned incepted business)
- Gross claims cashflows within premiums provisions (unearned incepted business)

- Gross future premium receivable (incepted business)

Business not incepted at valuation date

- Gross future premium and claims cashflows for policies not yet incepted by the valuation date, but already forming part of contractual obligations ("unincepted" business). These will form part of the premium provision.

For a 31 December valuation this will generally **include the 1st January renewals for the coming year.**

Reinsurance

The technical provisions are calculated gross, with reinsurance calculated separately under the same principles. Reinsurance recoveries will continue to allow for expected non-payment whether caused by default or dispute.

The Solvency II principles will introduce a number of new challenges, including:

- Considering different cashflows for gross claims and reinsurance recoveries including the timing of defaults or disputes
- Valuation of high layer non-proportional covers allowing for "all possible future outcomes". This may require significant changes to some current techniques
- Recognition of existing contracts

Lloyd's view is that the **principle of correspondence** should underlie the calculation of reinsurance recoveries in the best estimate when considering which contracts to include. Two specific areas this would apply to under current proposals are:

1. Future reinsurance cover not yet bought that will cover existing inwards contracts (e.g. LOD cover incepting in the following year). Correspondence would include these contracts, as a future management action (assuming sufficient justification), and the expected proportion of the premium that applies to the existing inwards contracts would be included. By adopting this approach syndicates' technical provisions would typically increase.

2. Existing reinsurance contracts that will provide recoveries from inwards contracts that are NOT "existing" at the valuation date (e.g. RAD cover already purchased for the forthcoming year or existing LOD covers). Correspondence would only include expected recoveries on existing inwards contracts. Similarly to 1, any future premium should be apportioned to include only the expected cost relating to current existing inwards contracts. This is irrespective of the accounting treatment adopted by the managing agent to allocate reinsurance costs equitably across years of account.

Having an approach that relies on correspondence between the gross and net estimates is important in ensuring the calculation remains consistent.

Expenses

Managing agents should take into account all expenses that would be incurred in running-off the existing business, including a share of the relevant overhead expenses e.g. professional fees. This share should be assessed on the basis that the syndicate continues writing new business. Expense provisions under Solvency II would include items such as investment manager's costs that would not be covered under the current basis.

It is expected that expense provisions will be higher under Solvency II.

Binary Events

Under current approaches technical provisions only make allowance for items that are implicitly included within the data or are "reasonably foreseeable". Under Solvency II the best estimate must have reference to "all possible outcomes". This will include latent claims or very extreme high severity, low probability claims.

These items (both latent claims and extreme events) have been labelled binary events and adjustment will need to be made to ensure that they are included in technical provisions. This will lead to an increase in technical provisions.

Uncertainty

Gross and reinsurance cashflows should adequately recognise the uncertainty inherent within them, though not through the use of implicit or explicit prudence. This includes:

- Considering timing of cashflows
- Links between loss size, timings and reinsurance defaults
- Binary events

The recognition of uncertainty does not imply stochastic methods are necessary. It is envisaged that initially most current techniques will be adequate to fulfil the majority of Solvency II technical provision requirements (with adjustments to output). There may be requirements where existing methods will not be adequate in all circumstances and adjustments to existing methods or stochastic approaches may then need to be applied.

Wind-up basis

The calculations of technical provisions will be conducted on a going concern basis. However, a parallel exercise on a wind-up basis will need to be conducted. This needs to be done to assess available capital. If the value of technical provisions on a wind-up basis exceeds those on a going concern basis then the difference will not be eligible as tier 1 capital and rather will be classed as tier 3.

The wind-up basis will affect some elements of the calculation significantly, though it is currently envisaged that for non-life business the technical provisions assessed on a wind-up basis would normally be lower than on a going concern basis. This is an area where standardisation of approaches will see further development.

Risk margin (or Market Value Margin (MVM))

A risk margin increases the overall value of the technical provisions from the discounted best estimate to an amount equivalent to a theoretical level needed to transfer the obligations to another insurance undertaking.

Where the best estimate and risk margins are calculated separately, which is the case for the vast majority of non-life business, risk margins should be calculated using a cost of capital approach.

The cost of capital approach requires the risk margin to be calculated by determining the cost of providing an amount of eligible own funds equal to the Solvency Capital Requirement (SCR) necessary to support the current obligations over their lifetime. The introduction of a risk margin is a new concept compared to current practice.

It is envisaged that risk margins will be calculated, to some extent, using suitable simplifications.

Current proposals require the risk margin to be calculated at a line of business level, though this requirement is still being considered.

Process and methodology

Valuation of technical provisions requires the collection of qualitative and quantitative information on the underlying liabilities and the application of expert judgment to that information. Valuation of technical provisions should, therefore, not be entirely model-driven.

The valuation process includes the following elements:

- Collection and analysis of data
- Determination of assumptions
- Modelling, parameterisation and quantification
- Expert review of estimation
- Controls
- Documentation

Assumptions

Assumptions used within the calculation of Solvency II technical provisions must be consistent both with financial market information and “generally available” insurance risk data. They must be documented, justified and validated in line with the validation and back-testing requirements.

Validation and back-testing

Validation techniques are defined as the tools and processes used throughout the process to ensure that the valuation methods, assumptions and results of the technical provision calculation are appropriate and relevant.

Actual versus expected analyses will form a significant part of the validation process.

The whole valuation process itself should also be reviewed and verified by someone who has adequate knowledge and skills and is independent of the process of valuation.

Data implications

The data underlying the calculation needs to be accurate, complete and appropriate.

The appropriateness and completeness of the data is the responsibility of the actuarial function while the accuracy is the responsibility of the internal audit function.

Data requirements will need careful consideration and may require changes to current methods or data sources. Also the data that needs to be collected, for example to include valuation of unincepted business, will certainly need to be expanded when compared to current reserving exercises.

Documentation

As with all other processes under Solvency II, all steps in the technical provisions valuation process will need to be thoroughly documented. The results should be shared with relevant business experts and their views should be captured and included in the feedback loop, where appropriate.

The test standard that may be applied is whether another, suitably skilled, individual could reproduce the results based on the documentation and data alone.

Actuarial function

Solvency II explicitly requires firms to have an actuarial function with defined responsibilities.

The valuation of technical provisions must be overseen by an actuarial function, though this does not need to be an individual. The actuarial function does not necessarily need to be an actuary, but must possess and be able to demonstrate sufficient relevant qualifications, experience and knowledge of actuarial approaches, including;

- An understanding of the stochastic nature of insurance and the risks inherent in assets and liabilities, including the risk of a mismatch between assets and liabilities
- An understanding of the use of statistical models
- Experience of and expertise in the setting of provisions for non-life insurance business (and life business at Lloyd’s where relevant)

So far there has been no detailed guidance on the actuarial function although this is covered within Lloyd’s main dry run guidance.

General principles

There are a number of general principles which underlie Solvency II and several of these will apply in the calculation of technical provisions. The key principles for calculation of technical provisions are listed below and then discussed further as part of the detailed guidance:

- The selection and use of adequate and appropriate valuation techniques
- The use of expert judgement, which must be justified
- Allowing for future management actions, the effect of which are likely to be disclosed
- Proportionality, for which any simplifications must justified in some detail

POTENTIAL IMPACT AT LLOYD'S

Lloyd's technical provisions

The impact on technical provisions can be significant. QIS4 saw a reduction of £5.1bn in technical provisions at an aggregate Lloyd's Market level when moving to a "Solvency II basis". However, QIS4 was valued as at 31 December 2007, on a best efforts basis and elements of the underlying requirements have changed since QIS4.

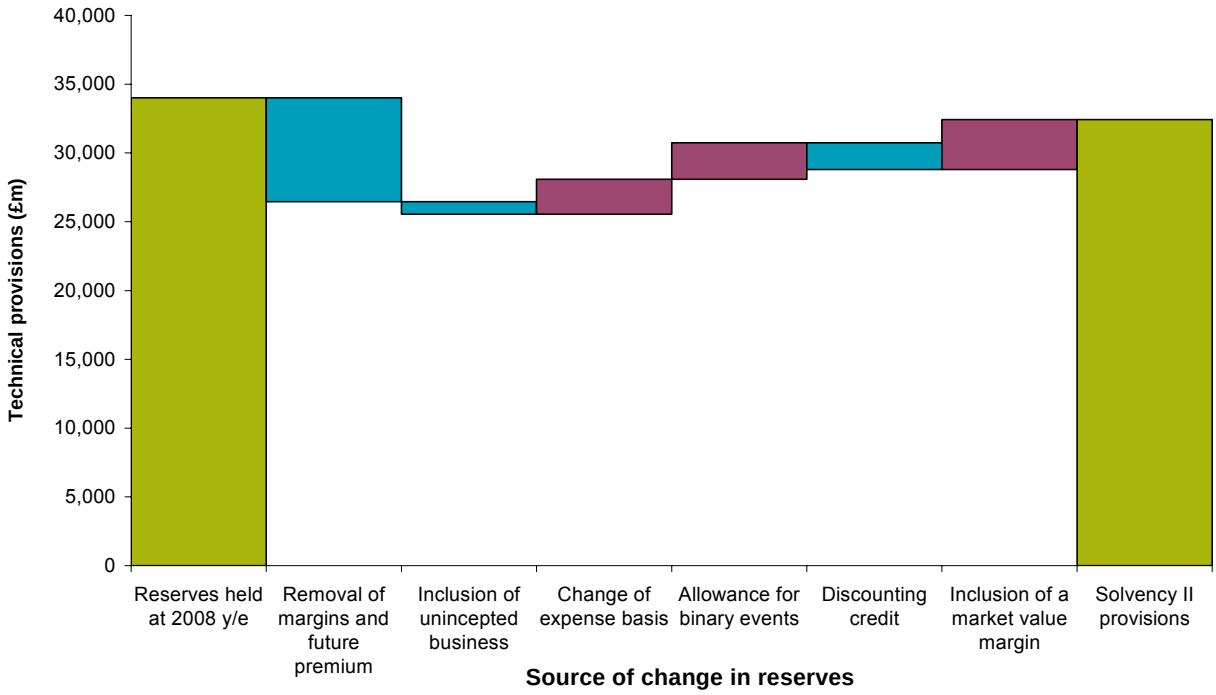
Since year-end 2007 there has been a reduction in fixed interest yields which will impact discounting significantly. Lloyd's has estimated the aggregate Solvency II technical provision requirements as at 31 December 2008. Lloyd's has also estimated the impact of changing from yield curves as at 31 December 2007 to 31 December 2008. All currently held reserves have been reallocated into the appropriate Solvency II lines of business. The results are as follows:

Lloyd's net technical provisions as at 31 December 2008, by Solvency II class of business Estimated Solvency II basis

Solvency II class of business	**Solvency II basis** £m	Currently held £m	% Change
Third-party liability	11,563	11,729	(1%)
Marine, aviation and transport (MAT)	6,426	7,221	(11%)
Fire and other damage to property	6,002	6,109	(2%)
Non proportional reinsurance – Property	4,406	3,976	11%
Motor, other classes	1,203	1,288	(7%)
Non proportional reinsurance – MAT	1,093	1,096	(0%)
Health (other)	748	996	(25%)
Credit and suretyship	646	803	(19%)
Non proportional reinsurance - Casualty	516	408	27%
Motor, third party liability	402	446	(10%)
Assistance	36	8	347%
Legal expenses	31	36	(14%)
Miscellaneous non-life insurance	-	(110)	(100%)
Total	**33,071**	**34,006**	**(3%)**

Source: Lloyd's Market Reserving and Capital Department, January 2010. Large relative differences on Assistance and Miscellaneous non-life insurance are caused by data mapping rather than valuation differences on these small classes.

Change from reserves held at 2008 year-end to Solvency II basis reserves



Impact on technical provisions in the balance sheet

The impact on a Solvency II balance sheet is also marked with a number of items appearing or disappearing from technical provisions. For example, unearned premium items do not exist under Solvency II.

For illustration purposes only, Lloyd's has estimated an aggregate Solvency II balance sheet for technical provisions as at 31 December 2008. This is based on a number of broad assumptions and simplifications and is therefore only designed to illustrate the potential for change in the balance sheet under Solvency II. Note that the premium provision is negative, due to the requirement to allow for future premium cash in-flows and future profits. The composition of the balance sheet is also key to internal models under Solvency II given they are designed to project the balance sheet in 1 year's time following a 1:200 year event.

Market Solvency II balance sheet as at 31/12/2008

Solvency II balance sheet	Expected cashflows £m
Gross reserves	
Gross outstanding claims provisions	38,810
Gross premium provisions	(919)
Total gross reserves	**37,891**
Recoverables from reinsurance contracts and special purpose vehicles	
In respect of outstanding claims provisions	(10,059)
In respect of premium provisions	1,607

Total recoverables	**(8,452)**
Risk margin	**3,632**
2008 year-end Solvency II net technical provisions	**33,071**

Source: Lloyd's Market Reserving and Capital Department, January 2010