

SOLVENCY II – GENERAL INSURANCE

1 Solvency II

1.1 Background to development of Solvency II

During the development of Solvency II key objectives were maintained: to increase the level of harmonisation of solvency regulation across Europe, to introduce capital requirements that are more sensitive to the levels of risk being undertaken, and to provide appropriate incentives for good risk management.

1.2 Introduction to Solvency II

Solvency II has reformed the solvency requirements for life and non-life insurance undertakings, thus improving policyholder security. Solvency II has superseded the previous Insurance Directives and the Reinsurance Directive.

Significant delays arose in the implementation of Solvency II. UK domiciled insurance and reinsurance companies are now governed by Solvency II which came into effect on 1 January 2016, implemented by the PRA. Note that some elements of the Directive are subject to transitional measures, i.e., a gradual introduction.

Solvency II is a risk-based approach to prudential requirements which brings harmonisation at EEA level.

The Solvency II Directive applies to all insurance and reinsurance companies with gross premium income exceeding €5 million or gross technical provisions in excess of €25 million; member states have the option to impose lower limits.

EIOPA (the European Insurance and Occupational Pensions Authority, one of the EU's three financial supervisory bodies and which was previously known as CEIOPS) had provided technical advice and support to the European Commission for the development of the delegated acts (which provide more detailed implementing guidance than the overarching Directive) and was responsible for producing some of the technical standards and additional guidance.

1.2.1 Comments on this document

All information included in this Unit is current as at the time of writing (April 2016), but it should be borne in mind that the Solvency II regulations continue to evolve.

The Solvency II Directive applies to all EU insurance and reinsurance companies with gross premium income exceeding €5 million or gross technical provisions in excess of €25 million. It became operative from 1 January 2016.

Transitional arrangements are available for some aspects (e.g. technical provisions, risk-free interest rates, continued use of ICA), for a defined period (up to 16 years). The

intention is to avoid unnecessary disruption of markets and availability of insurance products. However, UK firms have had to make formal applications to the PRA to be permitted to use the transitional arrangements.

This section focuses on the Solvency II requirements for non-life insurance and reinsurance undertakings. There are separate (but broadly equivalent) requirements for life and health insurance business.

1.3 Pillars 1, 2 and 3

The Solvency II framework consists of three “pillars”.

- 1) Pillar 1 comprises quantitative requirements including risk-based capital requirements that firms will be required to meet with assets and liabilities valued on a market consistent basis. In Pillar 1 the new solvency system contains two capital requirements defining the upper and lower end of a ladder of supervisory intervention. The Solvency Capital Requirement (SCR) is the level above which there is no supervisory intervention for financial reasons. The Minimum Capital Requirement (MCR) is the level below which the supervisor’s strongest actions are taken (e.g. removal of the insurer’s authorisation). The SCR may be calculated using a standard formula or, subject to prior supervisory approval, an insurer’s internal model, or combination of the two. The MCR is calculated using a linear formula and must fall between 25% and 45% of the SCR. Capital add-ons may be imposed by the supervisor in exceptional circumstances where it concludes that the risk profile of the insurer deviates significantly from the assumptions underlying the SCR or the system of governance deviates significantly from the standards required. Supervisor-imposed add-ons increase the SCR.
- 2) Pillar 2 comprises qualitative requirements focusing on governance, risk management and required functions and includes the supervisory review process. Insurers are required to carry out an Own Risk and Solvency Assessment (ORSA) and this is required to be reviewed by the supervisor. Pillar 2 includes “prudent persons” investment principles. Supervisors can also impose capital additions for governance failings.
- 3) Pillar 3 comprises reporting and disclosure requirements including a public Solvency and Financial Condition Report (SFCR) and a private Regulatory Supervisory Report (RSR). The aim of public disclosures is to harness market discipline by requiring firms to publish certain details of their risks, capital and risk management.

This combination of minimum capital standards, qualitative risk management requirements, a well-defined and rigorous review process of companies’ solvency by supervisors and prescribed disclosures to supervisors, policyholders and investors has been designed to deliver a more modern and secure prudential regulatory system.

The three Pillars are considered in more detail below.

Solvency II requirements apply at both individual insurer and group level, and provision is made for supervisory co-operation among jurisdictions through supervisory colleges.

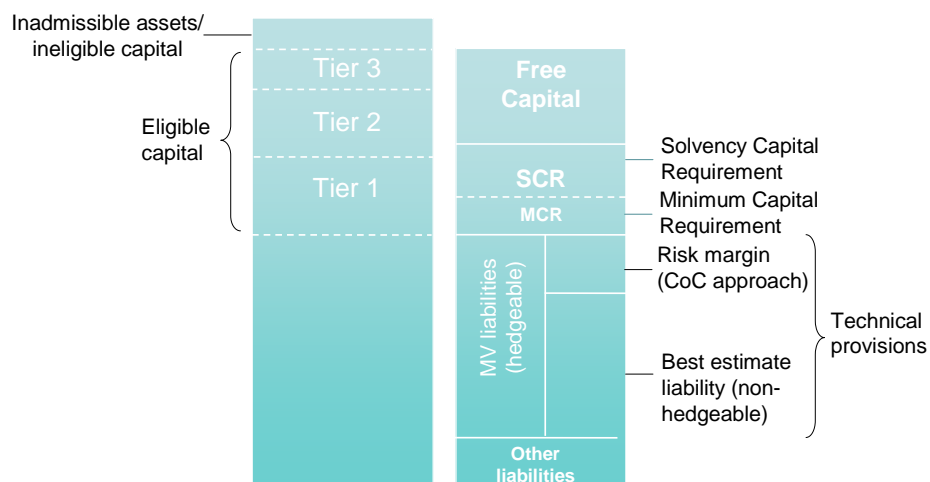
1.4 Regulatory framework

The Solvency II Framework Directive (2009/138/EC) was published in the European Journal on 17 December 2009 and was amended by the Omnibus II Directive on 11 March 2014.

Detailed requirements not included in the Framework Directive are set out in the Delegated Acts and implementing technical standards, and these are further supported by level 3 guidance from EIOPA and enforcement by the European Commission.

1.5 The Solvency II balance sheet

The Solvency II balance sheet is summarised in the following diagram:



1.5.1 Valuation of assets

Assets are to be valued at the amount for which they could be exchanged between knowledgeable willing parties in an arm's length transaction.

The use of quoted market prices is the default valuation approach.

Where quoted market prices are not available, mark to model valuation approaches should be used.

Recoveries expected from reinsurance are shown as an asset on the balance sheet, rather than as a reduction in gross liabilities. Such recoveries must be adjusted to allow for the best estimate of expected losses due to the default of the reinsurer.

1.5.2 Eligible capital

The phrase “own funds” refers to assets in excess of technical provisions and subordinated liabilities. These are split into basic and ancillary own funds, which are then tiered based on specific criteria.

Basic own funds is broadly capital that already exists within the insurer. Ancillary own funds is capital that may be called upon in certain adverse circumstances, but which does not currently exist within the insurer (e.g. unpaid share capital).

The capital is tiered based on its loss absorbency and permanency. Tier 1 capital is the most loss absorbent and permanent form of capital (e.g. paid up ordinary share capital); Tier 3 the least (e.g. subordinated debt).

The following table summarises the principal criteria to be used in the tiering of the basic own funds, and illustrates the different characteristics of Tier 1, Tier 2 and Tier 3 capital:

Criteria	Tier 1	Tier 2	Tier 3
Subordination	Must rank after the claims of all policyholders, beneficiaries and non-subordinated creditors.	Must rank after the claims of all policyholders, beneficiaries and non-subordinated creditors.	Must rank after the claims of all policyholders, beneficiaries and non-subordinated creditors.
Loss absorbency	Immediately available to absorb losses. Absorbs losses at least on SCR breaches. Should not cause or accelerate insolvency.	Not necessarily immediately available to absorb losses. Should not cause or accelerate insolvency.	Should not cause or accelerate insolvency.
Sufficient duration	Undated or of the same duration as the undertaking. Contractually locked in or replaced at least equivalently on breach of SCR.	Undated or minimum 10 years maturity at issue. Contractually locked in or replaced at least equivalently on breach of SCR.	Undated or minimum 5 years maturity at issue. Contractually locked in or replaced at least equivalently on breach of SCR.
Free from incentives to redeem	Only redeemable at the option of the insurer or reinsurance undertaking.	Only redeemable at the option of the insurer or reinsurance undertaking; limited incentives to redeem are permissible after 10 years from date of issuance.	Only redeemable at the option of the insurer or reinsurance undertaking; limited incentives to redeem are permissible
No mandatory fixed charges	Suspension of redemption provided and coupons/dividends can be cancelled in case of breach of SCR.	Suspension of redemption provided and coupons/dividends can be cancelled in case of breach of SCR.	Suspension of redemption provided in case of breach of SCR. Deferral of coupons/dividends on breach of MCR.
No encumbrances	Unconnected with other transactions and no restrictions, charges or guarantees.	Unconnected with other transactions and no restrictions, charges or guarantees.	Unconnected with other transactions and no restrictions, charges or guarantees.

Restrictions are placed on the quality of capital that can be used to cover the MCR and SCR. It is proposed that the MCR and SCR must be covered by eligible capital as follows:

- 80% of the MCR must be covered by tier 1 capital
- The SCR must be covered by the combination of tier 1, tier 2 and tier 3 capital

- 50% of the SCR must be covered by tier 1 capital
- No more than 15% of the SCR may be covered by tier 3 capital.

1.5.3 Technical provisions

Technical provisions should represent the amount that the insurance company would have to pay in order to transfer its obligations immediately to another insurance company.

Technical provisions comprise premium provisions and claims provisions and are equal to the sum of a **best estimate** and a **risk margin**.

1.5.4 Best estimate

The **best estimate** is the probability-weighted average of future cash-flows, discounted to allow for the time value of money.

All assumptions used should be best estimate assumptions, with no prudential margins. Insurance companies must take into account all relevant available data, both internal and external, when arriving at assumptions that best reflect the characteristics of the underlying insurance portfolio.

For each currency and maturity, the basic risk-free interest rates used to discount future cash-flows are derived from interest rate swap rates, adjusted for credit risk.

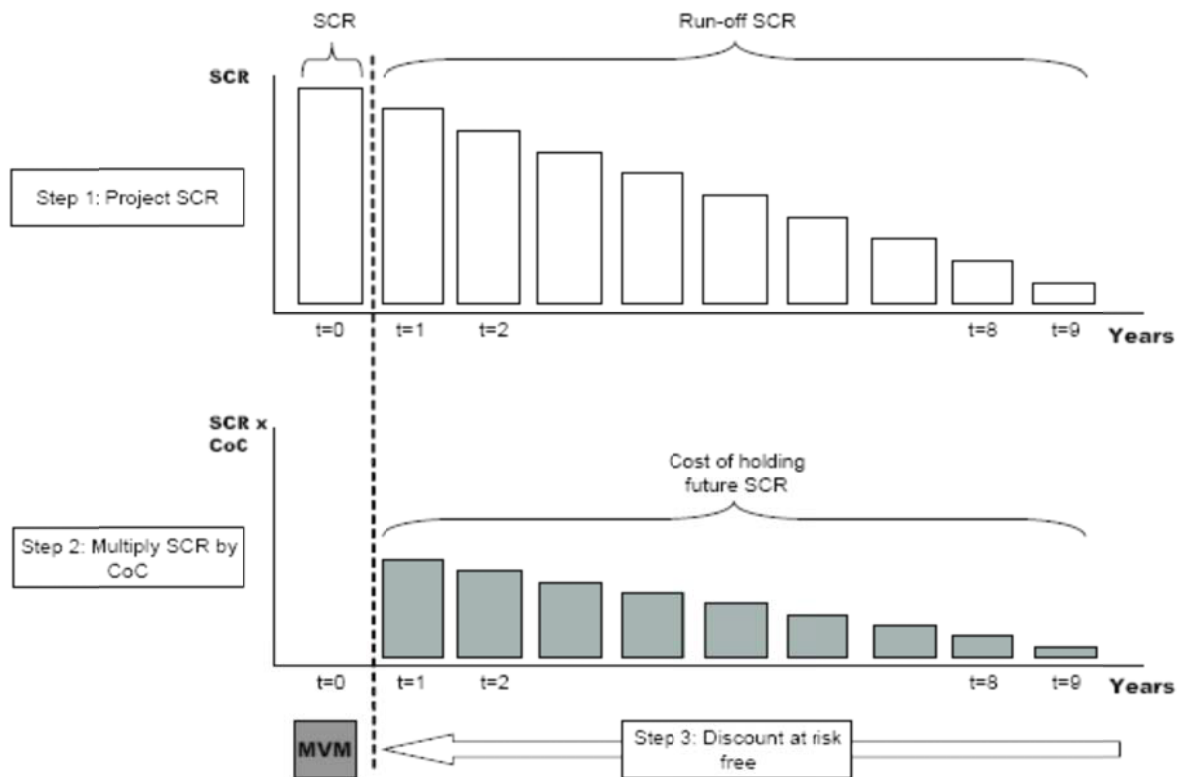
1.5.5 Risk margin

The **risk margin** is intended 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. It is calculated by estimating the cost of capital equal to the SCR necessary to support the insurance and reinsurance obligations over their lifetime in respect of those risks which cannot be hedged – these include underwriting risk, reinsurance credit risk, operational risk and “unavoidable market risk”.

The risk margin is calculated by the following steps:

- Estimating the future development of SCRs into the future
- Multiplying the future development of SCRs by a cost of capital, currently specified to be 6% per annum
- Discounting the resulting costs of capital, using relevant risk-free interest rate term structures provided by EIOPA.

The method of calculation of the risk margin is illustrated in the following diagram:



The calculation of the risk margin using this methodology is potentially extremely complicated, possibly involving a complex series of nested stochastic loops. For this reason, a hierarchy of simplifications has been made available for companies to use where appropriate.

Although the risk margin must be disclosed separately for each line of business, it is proposed that it can be reduced to take into account diversification between lines of business up to legal entity level. The allocation of diversification benefit can be approximated by apportioning the total diversified risk margin across lines of business in proportion to the SCR calculated on a standalone basis for each line, or by other approximate methods if appropriate given the materiality of the results.

1.5.6 Premium provisions and other aspects

Best estimate **premium provisions** are equal to a best estimate of future cashflows in respect of unexpired exposures rather than the unearned proportion of written premiums.

Under Solvency II:

- No credit is taken for deferred acquisition costs
- No allowance is made for claims equalisation provisions.

1.5.7 Contract boundaries

When determining technical provisions, it is necessary to make an assumption regarding the boundary of an insurance contract. Under Solvency II, the boundary for existing insurance contracts is set at the point at which the company:

- Can unilaterally terminate the contract, refuse to accept a premium, or
- Amend the benefits or premiums in such a way that the premiums fully reflect the risks.

This contract boundary sets the point at which premiums can be recognised on existing contracts. Within the boundary period, both contractual recurring premiums and premiums arising from policyholder options to renew or extend their policies should be taken into account on a best estimate basis.

For example, if a non-life insurance undertaking is one year into a three contract at the balance sheet date, allowance needs to be made for expected premiums and claims, on a best estimate basis, during the remaining two years of the contract. This could potentially have the effect of increasing or reducing technical provisions, depending on whether or not the contract is expected to be profitable.

1.5.8 Legal obligations basis for unaccepted contracts

The calculation of technical provisions also needs to include allowance for legally-obliged unaccepted contracts. These are contracts which have not yet accepted, but the corresponding liabilities cannot be waived or reduced by the company as of the valuation date.

The legal obligations basis may be material where business is written, for example, by means of:

- Delegated underwriting authorities such as binders
- Brokers, for example in cases where there are backlogs of aggregated pipeline premiums
- Year-end renewals, for example reinsurers entering into 1 January renewals prior to a 31 December valuation date
- Tacit renewal agreements where the business is automatically renewed unless the policyholder decides to move the cover to another provider.

1.5.9 Capital requirements under Solvency II

As explained above, in Pillar 1 the solvency system contains two capital requirements defining the upper and lower end of a ladder of supervisory intervention. The Solvency Capital Requirement (SCR) is the level above which there is no supervisory intervention for financial reasons. The Minimum Capital Requirement (MCR) is the level below which the supervisor's strongest actions are taken (e.g. removal of the insurer's authorisation).

1.5.10 Minimum Solvency Requirement (MCR)

The MCR is calculated for each individual line of business by taking the greater of:

- A factor applied to technical provisions (not including the risk margin) for each line of business, net of reinsurance, subject to a minimum of zero
- A factor applied to written premiums in each line of business over the last 12 month period, net of reinsurance, subject to a minimum of zero

The intention is that the MCR is calibrated to the Value-at-Risk of the basic own funds of an insurance or reinsurance undertaking subject to a confidence level of approximately 85% over a one-year time horizon.

The MCR factors, based on the Delegated Acts, are set out in the following table for each line of business.

Line of business	MCR factor – premium risk (%)	MCR factor – reserve risk (%)
Motor vehicle liability	9.4	8.5
Other motor	7.5	7.5
Marine, aviation and transport	14.0	10.3
Fire and other damage	7.5	9.4
General liability	13.1	10.3
Credit and suretyship	11.3	17.7
Legal expenses	6.6	11.3
Assistance	8.5	18.6
Miscellaneous financial loss	12.2	18.6
NPL property	15.9	18.6
NPL casualty	15.9	18.6
NPL marine, aviation and casualty	15.9	18.6

Notes: The above factors apply to direct, facultative reinsurance and proportional reinsurance business, with the exception of the non-proportional reinsurance (NPL) lines of business.

The resulting MCRs are summed across lines of business to obtain the overall MCR.

The MCR must lie between 25% and 45% of the SCR.

1.5.11 Solvency Capital Requirement (SCR)

The Solvency Capital Requirement is calculated by combining a number of separate risk charges, allowing for diversification credits by means of correlation matrices or other methodologies.

The SCR is calibrated to the Value-at-Risk of the basic own funds of an insurance or reinsurance undertaking subject to a confidence level of approximately 99.5% over a one-year time horizon.

The SCR for each individual risk is then determined as the difference between the net asset value (for practical purposes this can be taken as assets less best estimate liabilities) in the unstressed balance sheet and the net asset value in the stressed balance sheet. These individual risk capital amounts are then combined across the risks within the module, using a specified correlation matrix and matrix multiplication.

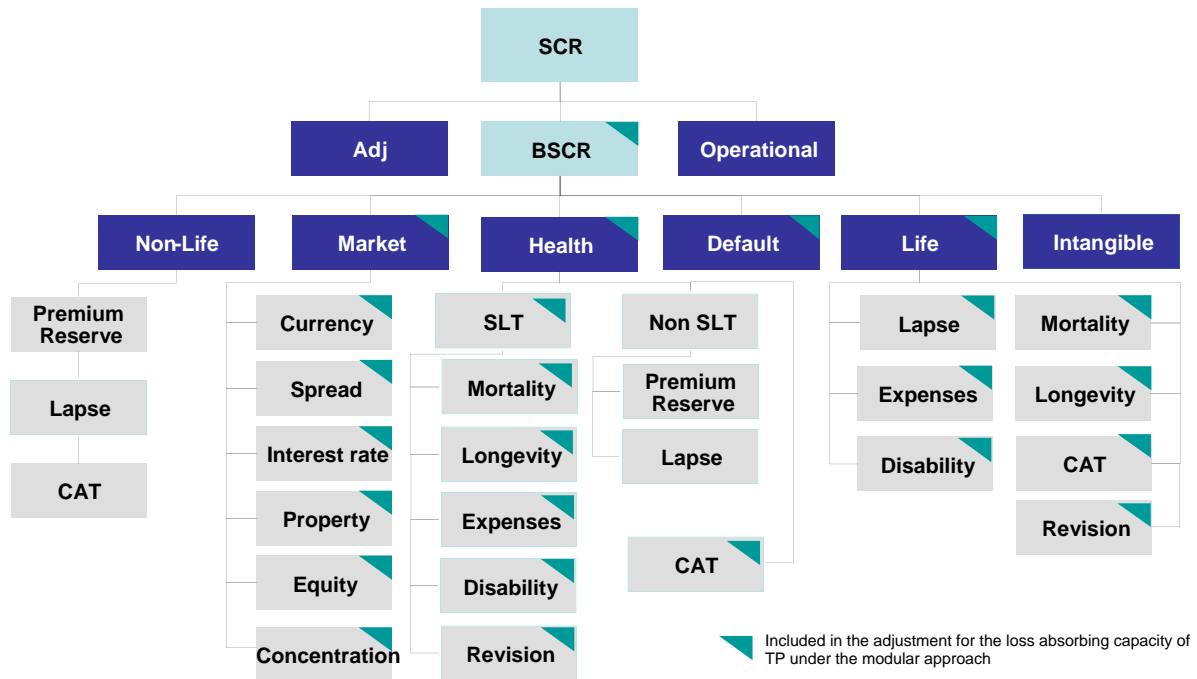
Solvency II provides a range of methods to calculate the SCR which allows undertakings to choose a method that is proportionate to the nature, scale and complexity of the risks of the undertaking.

The SCR may be calculated using:

- A standard formula with simplifications
- A standard formula
- A standard formula with undertaking-specific parameters. If the standard formula is used, non-life underwriting risk factors may, subject to prior supervisory approval, be replaced with undertaking-specific parameters (“USPs”) which are calculated using an undertaking’s own claims experience
- The combination of the standard formula for some risk factors and a partial internal model for the remaining risk factors
- A full internal model. The use of an insurer’s (full or partial) internal model is subject to prior supervisory approval.

1.5.11.1 Structure of standard formula risk charges

The structure of the SCR risk charges in the standard formula is summarised in the following diagram.



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1.5.11.2 SCR – standard formula

The SCR, based on the standard formula, comprises the following risk charges:

- Operational risk
- An adjustment, which may include, for example, the loss absorbing capacity of deferred taxes. This could comprise a reduction in any base balance sheet deferred tax liability, as this would no longer be fully payable in a stressed scenario.
- Market risk (comprising interest rate risk, equity risk, property risk, spread risk, currency risk and concentration risk)
- Non-life underwriting risk (comprising premium and reserve risk, catastrophe risk and lapse risk)
- Life underwriting risk (comprising mortality risk, longevity risk, disability/morbidity risk, expenses risk, revision risk, catastrophe risk and lapse risk)
- Health risk (comprising SLT health risk, non-SLT health risk and catastrophe risk)*

- Counterparty default risk
- Intangible asset risk.

The various risk charges are combined together using the following formulae and correlation coefficients:

$$\text{SCR} = \text{BSCR} + \text{Adj} + \text{SCR}_{\text{op}}$$

[* Note: SLT stands for “similar to life techniques”]

The basic SCR (BSCR) is calculated using the following formula:

$$\text{BSCR} = \sqrt{\sum_{i,j} \text{Corr}_{i,j} \times \text{SCR}_i \times \text{SCR}_j} + \text{SCR}_{\text{Intangible}}$$

where the correlation coefficients $\text{Corr}_{i,j}$ are taken from the following coefficient matrix:

	Market	Default	Life	Health	Non Life
Market	1				
Default	0.25	1			
Life	0.25	0.25	1		
Health	0.25	0.25	0.25	1	
Non Life	0.25	0.5	0	0	1

1.5.11.3 Key values of factors in the SCR standard formula

The following key values of factors in the SCR standard formula are based on the Delegated Acts. Some aspects of the calculation of the SCR using the standard formula are complex, and so the following description is simplified significantly in some respects.

Operational risk

The operational risk charge is equal to the greater of 3% of gross earned premiums during the previous 12 months and 3% of gross technical provisions, with the result being subjected to a maximum of 30% of the basic SCR. It is assumed that there is no diversification credit between operational risk and other components of risk.

Non-life underwriting risk

The standard deviations used to calculate the premium and reserve risk factors in the standard formula are set out in the following table. The standard formula calculates 99.5% VaR factors from these standard deviations by multiplying the standard deviations by three.

Line of business	Standard deviation – premium risk (%)	Standard deviation – reserve risk (%)
Motor vehicle liability	10.0	9.0
Other motor	8.0	8.0
Marine, aviation and transport	15.0	11.0
Fire and other damage	8.0	10.0
General liability	14.0	11.0
Credit and suretyship	12.0	19.0
Legal expenses	7.0	12.0
Assistance	9.0	20.0
Miscellaneous	13.0	20.0
NPL property	17.0	20.0
NPL casualty	17.0	20.0
NPL marine, aviation and casualty	17.0	20.0

Notes: The above factors apply to direct and proportional reinsurance business, with the exception of the lines of business labelled NPL which relate to non-proportional reinsurance business.

The 99.5% VaR factors in respect of premium risk are applied to the maximum of:

- The estimate of net earned premium for each line of business during the forthcoming year
- Net earned premiums for each line of business during the previous year.

The premium risk factors have been derived from claims development data which is gross of reinsurance. For this reason, undertakings are permitted to multiply the premium risk factors for each line of business by the following factors, which are intended to represent the excess-of-loss reinsurance which is in place for each line of business

- 80% for motor vehicle liability, fire and other damage, and general liability business
- 100% for all other lines of business.

The 99.5% VaR factors in respect of reserve risk are applied to the best estimate for claims outstanding for each line of business, after deducting the amount recoverable from reinsurance and special purpose vehicles.

There is scope, using a specified formula, for the premium risk and reserve risk factors to be reduced by up to 25% to allow for geographical diversification.

Allowance is also made for:

- A correlation coefficient of 0.5 between premium risk and reserve risk factors
- Diversification by line of business.

Non-life catastrophe risk

The non-life catastrophe risk charge is determined using a complex series of formulae, and comprises:

- A natural catastrophe risk sub-module, sub-divided between windstorm, earthquake, flood, hail and subsidence risk
- A sub-module for catastrophe risk of non-proportional property reinsurance
- A man-made catastrophe risk sub-module, sub-divided between motor vehicle liability, fire, marine, aviation, liability and credit & suretyship
- A sub-module for other non-life catastrophe risk.

Market risk

The equity risk charge is equal to 39% of the market value of equities for Type 1 equities (equities listed in regulated markets in countries which are members of the EEA or the OECD or shares of alternative investment funds authorised as European Long-term Investment Fund) and 49% for Type 2 equities. A symmetrical adjustment (which will vary from time to time within defined parameters) has been introduced to avoid pro-cyclical effects – in other words, in general terms the equity stress will be smaller following a decline in equity markets and will be higher following a period of strong performance of equity markets. For example, in the EIOPA Technical Specification for the Preparatory Phase dated 30 April 2014, this resulted in an adjustment of +7.5%, increasing the Global equity and Other Equity stresses from 39% and 49% to 46.5% and 56.5% respectively.

The equity risk charge reduces to 22% of the market value for equity investments in related undertakings where these investments are of a strategic nature.

The interest rate risk charge is determined by stressing the yield curve by specified percentages, varying by the term to maturity. This will affect both the value of certain classes of assets (for example fixed coupon bonds) and the value of liabilities (which are discounted to allow for the time value of money).

The property risk charge is equal to 25% of the market value of properties.

The currency risk charge is calculated by assuming a 25% change in currency exchange rates in respect of net currency exposures.

The spread risk charge is determined through the use of a formula. For corporate bonds, the loss on the assets is given by a function of the duration of the assets and the credit rating of the underlying bonds, with lower requirements for public sector and mortgage-covered bonds.

The concentration risk charge applies to holdings in excess of a specified threshold, and is based on exposure, rating and total assets held.

Counterparty default risk

The calculation of the counterparty default risk charge differentiates between:

- Type 1 exposures which consist of a small number of counterparties which are usually rated (for example reinsurers or derivative counterparties). The risk charges for type 1 exposures are based on a loss distribution derived from loss given defaults and default probabilities
- Type 2 exposures where there is likely to be a diversified mix of counterparties which are not rated. The risk charges for type 2 exposures are based on an immediate shock, assuming losses of 90% of receivables which have been due for more than three months and 15% on other receivables.

1.6 Internal model approval

If the SCR is calculated using a (full or partial) internal model, the company must obtain prior supervisory approval.

The use of an internal model might be appropriate if the risk profile of the business differs materially from that underlying the standard formula, and/or if the company already uses such a model for risk management or other decision-making purposes (e.g. pricing, investment strategy). The supervisor can require an insurance company to develop an internal model if it considers that the standard formula is not appropriate to the risk profile of the company.

Under some circumstances, the use of an internal model can potentially lead to less onerous overall capital requirements than if the standard formula was used.

However, the internal model must still generate an SCR based on the stated requirements, including coverage of the risk types as noted above and providing at least the equivalent protection to a 99.5% confidence level over a one year time horizon.

To obtain supervisory approval, the internal model must pass the following tests, which are discussed in more detail below:

- Use test
- Statistical quality standards

- Calibration standards
- Profit and loss attribution
- Validation standards
- Documentation standards

1.6.1 Use test

Insurance and reinsurance undertakings need to demonstrate that their internal model is widely used throughout all relevant areas of the business and that it plays a significant role in the internal governance, risk management and decision-making processes, as well as the economic and solvency capital assessments and capital allocation processes.

1.6.2 Statistical quality standards

The internal model needs to comply with a variety of specified criteria, including the following:

- The methods used to calculate the probability distribution forecast are based on adequate, applicable and relevant actuarial and statistical techniques
- The methods used to calculate the probability distribution forecast are based upon current and credible information and realistic assumptions
- Data used for the internal model is accurate, complete and appropriate
- Insurance and reinsurance undertakings may take account in their internal model of dependencies within and across risk categories, provided that the system used for measuring these diversification effects is adequate.

1.6.3 Calibration standards

Insurance and reinsurance undertakings need to demonstrate that the output from the internal model calculates the SCR in a manner which provides policyholders with a level of protection equivalent to a Value-at-Risk of the basic own funds subject to a confidence level of 99.5% over a one year time horizon

1.6.4 Profit and loss attribution

Insurance and reinsurance undertakings are required to review, at least annually, the causes and sources of profits and losses for each major business unit. This includes a requirement to demonstrate how the categorisation of risk chosen in the internal model will be used to explain the causes and source of actual profits and losses.

1.6.5 Validation standards

Insurance and reinsurance undertakings are required to have a regular cycle of model validation which includes monitoring the performance of the internal model, reviewing the ongoing appropriateness of its specification, and testing its results against experience.

1.6.6 Documentation standards

Insurance and reinsurance undertakings are required to document the design and operational details of their internal model to demonstrate compliance with the above requirements.

1.6.7 Practical considerations

The “use test” is seen as one of the most challenging aspects of gaining internal model approval. As well as embedding the model throughout the company and developing an effective risk culture, companies will need to be able to evidence that this is the case.

The quality of data and assumptions can also be an issue. A key challenge is that historic data available to calibrate extreme events is limited. In practice, it is likely that some industry consensus will emerge over some of the “core” stresses, e.g. 99.5th percentile equity fall based on a benchmark index. It will be important for companies to adapt such standards to allow for their own specific features, e.g. the extent to which their actual equity holdings are more or less volatile than those underlying that benchmark. Similarly, setting correlation factors that apply under extreme conditions is challenging.

An internal model can be structured in any way that the company chooses, provided the above tests are met. It does not necessarily have to follow the structure of the standard formula, and can for example be based on stochastic simulations rather than stress tests plus correlation matrices. Calibration of such stochastic models will also require care and expertise.

A tight deadline has been imposed of just six months from the supervisory authority receiving an application for internal model approval to communication of the decision. This is likely to prove challenging for the resources of regulatory bodies. Many regulators (e.g. the PRA) have therefore chosen to set up a more informal approach (called “pre-application”), encouraging companies to engage with them early on in their model development and refinement processes.

Insurers will need to keep under regular review whether future major model changes are needed for those who have their internal models approved by the PRA (will apply to syndicates also). This will be similar to the main internal model approval process.

However minor model changes may be different. If changes are made and they are below a threshold (say impact SCR less than 10%) then the model does not need to go for a major model change and hence go through an approval process

1.7 Data quality

The Delegated Acts contain data quality requirements in the context of the calculation of technical provisions.

Data quality is deemed crucial because:

- The more complete and correct the data is, the more consistent and accurate final estimates will be.
- The application of a wider range of methodologies for calculating the best estimate is made possible, improving the chances of application of adequate and robust methods for each case.
- Validation of methods is more reliable and leads to more credible conclusions, once a reasonable level of quality of data is achieved.
- Effective comparisons over time and in relation to market data are possible, which leads, for instance, to a better knowledge of the businesses in which the undertaking operates and its performance.

It is also noted that the issue of data quality is relevant to other areas of the solvency assessment, such as the SCR using either the standard formula or internal models. A consistent approach to data quality issues needs to be taken across Pillar 1, without disregarding the different objectives.

1.8 Corporate governance

Pillar 2 sets out requirements for the roles and responsibilities of key functions within the business, with the Board having overall responsibility for ongoing compliance with Solvency II.

The organisational structure must have clear segregation of responsibilities, the minimum levels of which are defined within the Pillar 2 framework.

Companies need to have in place an effective system of governance which provides for sound and prudent management of the business. They should have written policies in respect of each of the following functions and ensure that these policies are implemented:

- Risk management
- Internal control
- Internal audit
- Actuarial

Companies also need to have written policies on outsourcing where such a process is applied.

1.8.1 Risk management function

Article 44 of the Framework Solvency II Directive (Directive 2009/138/EC) states that insurance and reinsurance undertakings shall have in place an effective risk-management system comprising strategies, processes and reporting procedures necessary to identify,

measure, monitor, manage and report, on a continuous basis the risks to which they are or could be exposed and their interdependencies.

The risk-management system needs to cover at least the following areas:

- Underwriting and reserving
- Asset liability management
- Investments
- Liquidity and concentration risk
- Operational risk
- Reinsurance and other risk mitigation techniques.

1.8.2 Internal control

The scope of the internal control system includes:

- Administrative and accounting procedures
- An internal control framework
- Appropriate reporting arrangements at all levels of the undertaking
- A compliance function.

1.8.3 Internal audit

The internal audit function is responsible for evaluating the adequacy and effectiveness of the internal control system and other elements of the system of governance.

The internal audit function must be objective and independent from the operational functions.

1.8.4 Actuarial function

Article 48 of the Framework Solvency II Directive (Directive 2009/138/EC) states that insurance and reinsurance undertakings shall provide for an effective actuarial function to:

- Coordinate the calculation of technical provisions.
- Ensure the appropriateness of the methodologies and underlying models used as well as the assumptions made in the calculation of technical provisions.
- Assess the sufficiency and quality of the data used in the calculation of technical provisions.
- Compare best estimates against experience.
- Inform the administrative, management or supervisory body of the reliability and adequacy of the calculation of technical provisions.
- Oversee the calculation of technical provisions in the cases set out in Article 82.

- Express an opinion on the overall underwriting policy.
- Express an opinion on the adequacy of reinsurance arrangements.
- Contribute to the effective implementation of the risk-management system referred to in Article 44, in particular with respect to the risk modelling underlying the calculation of the capital requirements set out in Chapter VI, Sections 4 and 5, and to the Own Risk and Solvency Assessment (ORSA) assessment referred to in Article 45.

It is also stated that “the actuarial function shall be carried out by persons who have knowledge of actuarial and financial mathematics, commensurate with the nature, scale and complexity of the risks inherent in the business of the insurance or reinsurance undertaking, and who are able to demonstrate their relevant experience with applicable professional and other standards”.

The PRA have indicated that, while they consider that actuaries are well-placed to fulfil the requirements of the actuarial function, they will not insist on the actuarial function being undertaken by an actuary.

1.8.5 Own Risk and Solvency Assessment (ORSA)

In addition to calculating the MCR and SCR under Pillar 1, each insurance company will be required to carry out an Own Risk and Solvency Assessment (ORSA). The ORSA is defined by EIOPA as: “The entirety of the processes and procedures employed to identify, assess, monitor, manage and report the short and long term risks an insurance undertaking faces or may face and to determine the own funds necessary to ensure that the undertaking’s overall solvency needs are met at all times.”

It requires each insurance company to identify *all* the risks to which it is subject and the related risk management processes and controls. This will include some of the more qualitative risks that have not necessarily been assessed under Pillar 1, such as reputational risk.

The company must also quantify its ability to continue to meet the MCR and SCR over the business planning horizon (usually three to five years), allowing for new business. This does not have to be at a prescribed confidence level, but at a level that the company feels is appropriate, for example relating to its own stated risk appetite and/or to achieving a target credit rating.

Insurance companies will have to produce evidence to the supervisor showing that the ORSA is used by senior management and that the impact on the ORSA is considered in strategic decisions.

The ORSA should include at least the following components:

- The assessment of overall solvency needs (considering specific risk profile, approved risk tolerance limits and business strategy).

- Compliance, on a continuous basis, with capital requirements and requirements regarding technical provisions.
- Consideration of the extent to which risk profile deviates from assumptions underlying SCR calculated using the standard formula or partial/full internal model.

Companies should have an ORSA policy in place.

The ORSA should be an integral part of business strategy and considered in ongoing strategic decisions.

The ORSA should be performed regularly (at least annually) and without delay following any significant change in risk profile

There is a requirement to inform the supervisor of the results of each ORSA.

The ORSA process and outcome should be documented and independently assessed.

Companies should be able to explain and justify the following aspects of the ORSA:

- Methodology and assumptions
- Results and sensitivity of results to assumptions
- Appropriateness of methodology used
- Sources of data and systems and controls around the data
- Approach for dealing with parameter uncertainty and fluctuations

The documentation of the ORSA should at a minimum include:

- Description of areas included
- Description of process of conducting the ORSA and the responsibilities of key personnel involved
- Stress tests used and their results
- The amount of overall solvency needs and financial condition of the undertaking, including sign off by the administrative or management body
- Strategies for raising additional own funds where necessary
- A description of the independent assessment and results of the last assessment
- The frequency and contents of internal reporting.

1.9 Reporting under Solvency II

The disclosure requirements are intended to increase transparency and so are more extensive than the current Solvency I reporting regime. The aim of public disclosures is to harness market discipline by requiring firms to publish certain details of their risks, capital and risk management.

The results of the solvency calculation and details of the ORSA and risk management processes will need to be disclosed in a Regular Supervisory Report (RSR) which can be quarterly or annual.

Except for certain items which can be demonstrated to be of a confidential nature, these will also be disclosed in a public Solvency and Financial Condition Report (SFCR), produced annually.

Each of these documents should include at least sufficient information to assess:

- The system of governance applied by the undertakings
- The business they are pursuing
- The valuation principles applied for solvency purposes
- The risks faced
- The risk management systems
- Capital structure, needs and management

It is currently anticipated that the SFCR and RSR will contain at least the following principal sections:

- Summary
- Business and Performance
- System of governance
- Risk profile
- Valuation for solvency purposes
- Capital management
- Additional voluntary information

EIOPA has also published detailed quantitative reporting templates (QRTs) for reporting on an annual and quarterly basis of quantitative financial information under Solvency II.

1.10 Application of Solvency II to insurance groups

The intention is that Solvency II will enable insurance groups to be supervised more efficiently through a “group supervisor” in the home country, co-operating with other relevant national supervisors. This ensures that group-wide risks are not overlooked and should enable groups to operate more effectively, whilst continuing to provide policyholder protection.

Each insurance group must cover its overall group SCR (which will allow for diversification benefits across the group, and is subject to a minimum of the sum of the MCRs of each subsidiary) and each insurance subsidiary needs to cover its own SCR.

Group supervision would normally be carried out at the top level company within the European Economic Area (EEA). Additional rules apply to subsidiaries and parents located in a “third country”, i.e. non-EEA. These broadly impose Solvency II requirements or, in the case of a non-EEA parent, the establishment of an EU holding company.

If the third country regulatory regime is considered to be broadly compliant with Solvency II, then it is said to have third country equivalence and the group can be regulated as if located in the EEA, replacing Solvency II rules with those of the third country regulatory regime where appropriate.

Transitional arrangements are available to those non-EEA countries interested in pursuing the third country equivalence route – Switzerland, Australia, Bermuda, Brazil, Canada, Mexico and the USA have already been accepted on this basis.

1.11 Impact on business culture and strategy

It is important to obtain buy-in to Solvency II across the business, from Board level down. This is the case for all insurance companies and not just those opting to use an internal model – although as noted above, being able to demonstrate full integration of Solvency II into the business is a key part of the internal model approval process.

Solvency II is not just a reporting framework, but a risk management framework with implications for capital allocation, risk mitigation activities and performance management.

The Solvency II regime may also have an impact on the optimal product mix for the company, and on product design.

It is also likely to impact the optimal asset mix for the company, since some asset classes may become relatively more or less attractive as a result of their lower or higher capital requirements.

The availability, or otherwise, of risk diversification benefits may also affect corporate structures and generate merger and acquisition activity.

Management information is also likely to change to align the Solvency II metrics with the business and strategic decision-making process.

External disclosures will change, and in general are likely to increase, so the impact on the market also needs to be considered.

1.12 Solvency II and approved roles

The following is the position as regards the Chief Actuary role and his/her approval as at 30 April 2016:

- All UK insurers must appoint a Chief Actuary, responsible for the actuarial function role under Solvency II.
- This position can be filled by an internal employee or by a consultant.
- The IFoA has decreed that any member undertaking this task, must first obtain a practising certificate (with appropriate qualification criteria).
- The PRA will follow the strict EIOPA guidelines such that person taking responsibility needs relevant experience and competence but does not necessarily need to be a fellow of a recognised actuarial association.

2 Lloyd's — capital and solvency

2.1 Introduction

We have seen that managing agents carry out the technical insurance operations acting as agents on behalf of members. For each year (separately) members undertake to accept risks and take the profits or losses arising. A one-year group of members is called a syndicate.

Lloyd's maintains central assets for solvency, mutual capital that can at the discretion of the Council of Lloyd's, be used to pay members' losses if the members are unable to (if their FAL is exhausted). Central Assets for Solvency are mainly composed of the New Central Fund and also include other central assets and subordinated debt.

Since members are taking risks, they need to hold capital. In this section, we explain how this capital is held and how Lloyd's centrally assesses how much capital each member must have.

2.2 Funds at Lloyd's

Each member must provide an amount of capital specified by Lloyd's. The capital is held by Lloyd's in trust, and Lloyd's has absolute authority to use it to pay claims or other liabilities arising from the member's activities at Lloyd's. The capital fund of a member is called Funds at Lloyd's (FAL).

FAL may be lodged in two main ways: either through physical assets or through a Letter of Credit (LoC). The assets must meet Lloyd's admissibility criteria, which since 2007 have been equivalent to the asset admissibility criteria applied by the PRA to UK insurance companies.

LoCs are guarantees by banks to provide funds when called upon to do so by Lloyd's. Where FAL is provided by means of a LoC, Lloyd's centrally has the unconstrained power to call upon the guarantee (drawdown the LoC) whenever it wishes to, although in practice it would only do so to meet liabilities or to maintain capital. LoCs for FAL must meet certain criteria:

- Appropriate level of rating of the bank.
- Be available throughout a specified period, usually three years, known as "evergreen".

If an LoC is not replaced annually, Lloyd's would expect the member to lodge other assets in FAL. If this did not happen, Lloyd's would be able to call upon the LoC to obtain cash to use as FAL.

Members are often able to obtain LoCs at low cost by collateralising them with other assets. By using LoCs to provide FAL, members can exploit the "double use of assets", whereby they may be able to obtain normal investment returns on assets while using them as collateral to obtain a good rate on an LoC and earn a second return at Lloyd's. In principle, the banks should charge a rate for the LoC that allows for any investment risk to which the collateral assets are subject. However, the arrangement provides members with great flexibility, and Lloyd's centrally is fully protected by the terms of the LoC.

FAL are only needed for open years of account, and are held at member, not year of account, level. That is, a member holds a single "pot" of FAL to cover the risks of all of his/her open years.

2.3 Solvency

Members are subject to two kinds of solvency tests. They must at all times meet the PRA solvency test, and they must be “in line” from Lloyd’s perspective (satisfy a Lloyd’s solvency test). These two tests are separate with the higher test prevailing.

2.4 PRA solvency

The PRA solvency requirements will be those of Solvency II from 1 January 2016.

2.5 In line

Lloyd’s has chosen to employ a derivative of the Solvency II SCR for member capital calculations. This is the “ultimate SCR” (uSCR), which is a Solvency II SCR in which insurance risk is taken to ultimate and not just one year as in the Solvency II SCR. Syndicates must calculate both the normal SCR and the uSCR each year.

A member is in line if his or her FAL is at least equal to Lloyd’s capital requirement. The requirement is discussed in Section 2.12 below, but is based on an individual capital assessment (ultimate SCR) with an uplift to the “economic capital” level. The uplift is currently a multiplicative 35%. Ordinarily there is a minimum capital requirement of 40% of the member’s capacity. In this context, “capacity” is the maximum premium, gross of reinsurance, but net of commission, that the member is permitted to underwrite in the current years. Generally the capital required to be in line is much more than that required to meet the PRA’s solvency test (also described in Section 2.12.4)

2.6 Solvency deficits

If the liabilities, including claims reserves and incurred but not reported (IBNR) claims, in an open syndicate exceed the Premium Trust Funds (PTFs) of the syndicate, members suffer “solvency deficits”. There may well be no immediate need for extra cash and hence no cash call, but the solvency deficits are counted against the members’ FAL. This may mean that a member ceases to be in line or, if the losses are large enough, ceases to meet the PRA’s solvency test. Such a member would be required to deposit further assets into the member’s FAL.

In the event that a member’s FAL is insufficient to meet the PRA test, central assets may be used to demonstrate that member’s solvency.

2.7 Coming into line

A member whose FAL less solvency deficits are less than the Lloyd’s FAL requirement is no longer in line. Lloyd’s has the power to require members to lodge further assets and come back into line at any time, but has agreed to carry out this process twice a year in normal conditions.

Each November, members who wish to underwrite in the following year must come into line (CIL) in the main exercise, and each June all active members (members who are

underwriting in the current year) must lodge assets if they have ceased to be in line. The solvency position of members in the main CIL in November is that assessed as at the preceding June, and in the June review it is at the preceding year end. However if it is known that liabilities have increased since the last solvency calculation, Lloyd's would expect members to show that they had sufficient assets available to come into line as soon as the liabilities were recognised.

In between CIL dates, Lloyd's expects members to maintain FAL at least at the uSCR level (see Section 2.12.2).

Lloyd's ultimate sanction of members who are not in line is to limit, or totally stop, their underwriting. Thus, when members cease underwriting of their own accord, Lloyd's cannot compel them to lodge further FAL.

2.8 Overall solvency

To calculate Lloyd's overall solvency, the PRA's solvency test is applied to the aggregate of all members' exposures. The assets available to meet the test are FAL and central assets.

Lloyd's must be able to demonstrate that central assets are sufficient to cover the total of all members' solvency deficits.

2.9 Continuous solvency

Lloyd's is required to be solvent at all times, not just at year ends. The solvency position is formally reassessed half-yearly, but a reassessment of the solvency position could be applied at any time upon request by the PRA. This may be required following a major loss scenario.

2.10 Statement of Actuarial Opinion (SAO) and Audit requirements

At the year end, each open syndicate year of account (YOA) requires an SAO and an audit opinion. The SAO is required to separately cover each open year. Thus, at the end of 2015, a "normal" syndicate would require an SAO covering three years: the 2015 open year, the 2014 open year and the 2013 open year which contains 1993–2012 by means of past RITC.

There is a formal PRA requirement, contained in the PRA handbook, for each syndicate open year to have an SAO. SAOs are produced under Lloyd's valuation of liabilities rules, which are in turn covered by actuarial guidance in the form of the TASs and the APSs. The SAO reports will also be covered by the same guidance. The actuarial profession has also issued advisory notes covering ULAE, bad debt and large loss wordings.

Actuaries signing SAOs must hold a practising certificate issued by the actuarial profession.

A final PRA requirement is that a designated actuary, the Lloyd's actuary, must provide an annual certificate to the PRA certifying that every non-life syndicate has obtained an SAO in line with formal requirements and comment on uncertainty at an aggregate Lloyd's level specifically in terms of materiality. If there is no SAO for any open year, the Lloyd's actuary must provide an equivalent opinion.

SAOs include results on both a gross and net of reinsurance basis. The net opinions must also allow for unallocated loss adjustment expenses (ULAE) and bad (or doubtful) debt on expected reinsurance recoveries. The opinion the actuary is giving is a "one way" test and certifies that the technical provisions being opined on are at least as large as the actuary's best estimate. In this context, best estimate is defined as the mean (as opposed to median) expected outcome. Opinions can also contain additional comments on uncertainty, where the signing actuary will comment on large events or circumstances that increase the uncertainty of estimates.

Each SAO must be supported by a formal actuarial report addressed to the managing agents with a copy submitted to Lloyd's.

Syndicates writing life business require an actuary's certificate rather than an SAO. These are outside the scope of this Core Reading.

Syndicates writing business in the USA will be additionally required to hold assets in specific USA trust funds. The liabilities for each of the credit for reinsurance trust fund (CRTF) and surplus lines trust fund (SLTF) are also subject to actuarial opinion as required by the USA regulators. Preparation of the USA trust fund opinions is covered by actuarial guidance contained in APS G2.

Syndicates also require an audit opinion on the financial statements of the syndicate. The auditor providing these opinions will place heavy reliance on the SAO.

The opinions form part of the annual reporting process syndicates undertake. The reporting contains accounting, financial and other information items which are aggregated into Lloyd's statements and returns.

2.11 Capital setting – introduction

In the section on solvency, we have seen that:

- members, not syndicates, have to be solvent under the PRA rules and have to be in line if they wish to continue underwriting
- if members fail the PRA solvency test, then Lloyd's centrally must demonstrate that it can cover their shortfalls
- member capital is made up of FAL, supplemented or offset by surplus or deficiencies in the syndicates to which they subscribe
- central capital is made up of the New Central Fund (NCF) plus other central assets (called altogether central assets for solvency)

In this section, we explain how the requirement for member FAL is assessed, and briefly also how Lloyd's assesses its overall capital needs.

2.12 Member FAL

2.12.1 History: Risk-based capital (RBC)

From 1996 until 2006, member FAL was based on the Lloyd's RBC system. This was an actuarial model, parameterised and maintained centrally, that derived capital requirements for members based upon their membership of syndicates in the past, current and proposed years off account, together with information on what volumes and classes of business the syndicates had written and proposed to write.

Thus for the 2005 year of account, RBC was calculated in November 2004 and covered actual volumes for 1993–2003, estimated volumes for 2004 and proposed (plan) volumes for 2005. An inherent feature of RBC was that it treated all syndicates as being alike. £1 of premium written in a particular class of business in a particular year was presumed to generate the same exposure whichever syndicate had written it. This “market average” approach made RBC relatively simple and robust. But many felt that, as well as class of business and year of account, the underwriting syndicate also influenced the riskiness of member's portfolio.

RBC allowed for diversification between classes of business, between managing agents and over time. It had (syndicate specific, not market average) components reflecting property catastrophe risks which were called realistic disaster scenarios (RDS). In an actuarial capital assessment, two main ingredients are a probability distribution of outcomes and a risk measure that determines a capital amount given that probability distribution. In RBC, the probability distributions at member level were assumed to be drawn from the gamma distribution, with property catastrophe distributions (RDS) added. The risk measure was expected loss cost (ELC). The expected loss in excess of FAL was set at a particular figure and RBC calculated FAL per unit of exposure such that ELC was the same for each member, per unit of exposure. Total FAL was obtained by multiplying FAL per unit of exposure by the exposure.

For example, we may assess a particular member as having £10 million of exposure, based upon past current and proposed volumes and on market average loss ratios and payment patterns. We assess the volatility of the member's exposure allowing for line of business volatilities and correlations, all at market average, and derive an appropriate gamma distribution. The mean of the gamma would be 100% because we assume that reserves are held at best estimate. We would adjust the gamma for RDS if the member had catastrophe exposures. Based on the adjusted gamma distribution for that member, FAL of, say, 0.12 per unit of exposure would give the ELC for that year. That is, the expected value of losses if 12p of capital were held would be equal to the fixed ELC. The member's required FAL would then be £1.2 million.

2.12.2 History: ICAs

To set the Solvency II context, Lloyd's was, since 2006, subject to the ICAS regime (originally under the FSA and now under the PRA) and each syndicate was required to

produce an ICA. The ICA risk measure was 99.5% value at risk; that is, the ICA capital, at syndicate level, was that required so that the probability of losses beyond that level was 0.5%. Syndicates were required to carry out ICAs by the PRA's rules, but it was Lloyd's decision to use the ICA as a tool to set member capital. In principle, provided syndicates carried out an ICA and provided members held at least ICA levels, or else Lloyd's held capital to cover shortfalls, the society met the requirements, although it was unlikely that the PRA would accept an approach not closely based on the ICAS (or now Solvency II) system..

In view of this, Lloyd's decided to take syndicate ICAs as the starting point in calculating member FAL requirements. The first step was to review each ICA to ensure that it met Lloyd's standards (see below).

Once an ICA had been approved, the next step was to apply the "economic capital uplift" and derive the "ECA" (ECA means "economic capital level ICA"). The idea of economic capital was that the ICA standard of security was the minimum acceptable to the regulator, but Lloyd's security was well above the minimum. The level of ECA relative to ICA was set so that (a) overall member capital remained about the same during the transition from RBC to ICAs and (b) member capital requirements at Lloyd's remained lower than it was judged a standalone company with the same rating would be, but sufficient so that together with central capital the overall Lloyd's rating could be maintained.

The mechanism for setting syndicate ECA based on syndicate ICA was a simple one: ECA was 135% of ICA. The uplift was therefore 35% of the ICA. It was therefore somewhat risk-based because a riskier syndicate, with a higher ICA, got a higher uplift. But it was transparent and not mathematically complex.

Both the method of uplifting (multiplicative) and the level (135%) were subject to annual review and signoff by the franchise board.

On 1 January 2016, the ICA regime was superseded by the Solvency II regime. The member capital system changed to the Solvency II equivalent, in which the uSCR replaced the ICA as the base for member capital setting.

2.12.3 Member capital requirement

The ICA system and the economic capital uplift produced risk-based capital levels that met Lloyd's requirements, but it was still necessary to convert syndicate ECAs into actual member FAL requirement and to demonstrate that FAL together with central assets produce the right level of overall security. Lloyd's carried out this process centrally. As noted in 2.12.2 above, the system now applying under Solvency II uses the uSCR to replace the ICA in the member calculation.

2.12.4 Minimum FAL

Once each member's capital requirement has been calculated, a minimum is applied. The minimum is set at 40% of the member's overall premium income limit (OPIL), also called member capacity. Premium is defined as gross of reinsurance, net of brokerage, and OPIL is calculated by summing the respective syndicate capacity times members share.

Syndicate capacity is approved as part of the business plan approval process, and is the maximum premium that the syndicate is permitted to underwrite in the year.

The 40% minimum is reduced to 25% for some personal-lines business, where it would pose uncompetitive capital burdens and produce higher capital than was required on a risk based assessment. A member obtains the waiver only if at least 85% of risks fall into the personal-lines category.

2.12.5 uSCR review

Before syndicate uSCRs can be used, they must have been received and approved by Lloyd's. The PRA retains the final ownership of the uSCR process and carry out some reviews of their own, but for most syndicates, the Lloyd's review is accepted by the PRA. This mandate needs to be renewed each year.

Lloyd's review starts with the issuing each year of Lloyd's uSCR guidance, which sets out the requirements and minimum standards Lloyd's expects. The guidance also offers detailed advice on how to carry out various aspects of the uSCR.

Managing agents produce draft uSCRs in July each year and final versions in September or October. Lloyd's review teams go through each uSCR in detail and provide feedback. Where the uSCR number appears too low, Lloyd's will ask the managing agent to review it, and ultimately will load the uSCR if necessary.

The reviews are carried out by teams drawn from finance, actuarial, FPD (franchise and performance directorate), risk management and other departments. The review team's feedback and, if necessary, loading is approved by a steering committee. If the managing agent is dissatisfied, it may appeal to a director and then to an external committee, the market supervision and review committee (MSARC).

In parallel with the uSCR review, syndicates' plans for the proposed year are reviewed. By the end of October, each syndicate needs to have reached the stage that both its plans and its uSCR, based on the same plan, have been approved by Lloyd's. Members indicate the syndicates to which they wish to subscribe, and may buy and sell these rights to subscribe in auctions held in November. Coming into line takes place in November. Each member's FAL requirement is calculated and assets must be lodged with Lloyd's by this date. For a syndicate to be allowed to underwrite from 1 January of the following year, all of its members must be in line.

2.12.6 Central capital

Once all members are in line, Lloyd's can assess its overall capital position. The security, and hence solvency and rating, depend on both FAL and central assets. FAL are set bottom-up as uSCR times 135% less a credit for member diversification. However, even with the 35% uplift, the probability of some member failing is higher than the required 0.5%: P (a member fails) = $1 - P$ (no member fails), and members are diverse so P (no member fails) $< P$ (a particular member does not fail).

In practice, calculating the probability that some member exhausts the FAL and “fails”, hence calculating how much central capital is needed, is very complex. A detailed simulation model is used to simulate member experience. Correlation between members is included in the model. From the simulation output, an overall distribution of losses beyond FAL is derived and from this a Lloyd’s Society SCR is calculated as central assets such that the probability of their being inadequate is 0.5%. The Lloyd’s SCR is calculated on the normal one-year SCR basis, and is calculated in two ways: the Market Wide SCR (MWSCR) represents all of the capital consumed at 1 in 200, from whatever source, and the Central SCR (CSCR) the central capital needed at 1 in 200. [Thus the MWSCR includes the CSCR, although the nature of VaR calculations is such that the 1 in 200 event for the whole market is different from the 1 in 200 for central assets.] The MWSCR can be compared directly with the SCRs of other insurers.

An “economic capital” central capital (only) assessment is made for the ORSA. This is a materially higher level of capital than the CSCR, and the details are beyond the scope of this reading.

2.12.7 Assets

The new central fund (NCF) is composed of cash and investments plus the proceeds of two subordinated debts.

2.13 Overview of Lloyd’s prudential requirements

The Society of Lloyd’s:

To maintain appropriate controls over the funds that it holds and manages centrally including managing risk within appropriate limits.

To assess the capital needs for each member, taking into account the capital needs of syndicates assessed by managing agents.

Managing agents:

To maintain appropriate controls over syndicates including managing risks such as credit risk and market risk within limits that are substantially the same as those defined for companies.

To assess the capital needed to support each syndicate that they manage, to help to ensure that financial resources are adequate at all times.

Lloyd’s of London – Solvency II

<http://www.lloyds.com/The-Market/Operating-at-Lloyds/Solvency-II>

2.13.1 Lloyd's and the PRA

This section sets out the Prudential Regulation Authority's (PRA's) expectations in relation to the application of certain parts of Solvency II to Lloyd's, and expands upon the Lloyd's Part of the PRA Rulebook.

In particular, this statement sets out the PRA's expectations regarding the following topics:

- solvency capital requirement (SCR) and
- capital add-ons

This statement expands on the PRA's general approach as set out in its insurance approach document.⁽¹⁾ By clearly and consistently explaining its expectations of Lloyd's in relation to the particular areas addressed, the PRA seeks to advance its statutory objectives of ensuring the safety and soundness of the firms it regulates, and contributing to securing an appropriate degree of protection for policyholders. The PRA has considered matters to which it is required to have regard, and it considers that this statement is compatible with the Regulatory Principles and relevant provisions of the Legislative and Regulatory Reform Act 2006. This statement is not expected to have any direct or indirect discriminatory impact under existing UK law.

This statement has been subject to public consultation⁽²⁾ and reflects the feedback that was received by the PRA.

⁽¹⁾ *The Prudential Regulation Authority's approach to insurance supervision*, June 2014; <http://www.bankofengland.co.uk/publications/Documents/praproach/insuranceappr1406.pdf>.

⁽²⁾ *PRA Consultation Paper CP16/14*, "Transposition of Solvency II: Part 3", August 2014; <http://www.bankofengland.co.uk/pradocuments/publications/cp/2014/cp1614.pdf>.

2.13.2 Solvency capital requirement

The requirement to hold eligible own funds covering the central requirement is intended to ensure that risks to the Society, including risks to central assets (and in particular, the risk that own funds attributable to a member may not be sufficient to enable the member to meet obligations arising from the member's insurance business at Lloyd's) are suitably covered by the Society.

Solvency Capital Requirement — General Provisions 6.6 recognises in its application to Lloyd's that own funds attributable to a member are not available to absorb the losses of other members, or any losses of the Society. Consequently, in respect of own funds attributable to a member, where there is no diminution in those own funds consequent upon the application of scenarios taken into account in the internal model, those own funds attributable to that member must not be taken into account for the purposes of satisfying Solvency Capital Requirement — General Provisions 6.2. Similarly, in

respect of own funds attributable to a member, any surplus of own funds in excess of the diminution to those own funds consequent upon the application of the scenarios taken account of in the internal model, must not be taken into account for the purposes of satisfying Solvency Capital Requirement — General Provisions 6.2.

The notional syndicate SCR is intended to facilitate the Society's compliance with Solvency Capital Requirement — General Provisions 8.2. While the PRA expects the calculation of the notional SCR to meet the relevant standards required under Solvency II, managing agents do not need to seek separate approval from the PRA for any internal model that is used to calculate the notional SCR of a syndicate. The notional SCR will also assist the Society in determining the notional SCR of each member of the syndicate pursuant to Solvency Capital Requirement — General Provisions 8.4. However, the notional member SCR will, to the extent applicable, also take account of diversification effects in respect of members participating on more than one syndicate which have not been reflected in the notional syndicate SCR.

In deriving the SCR, the Society should have regard to the notional SCR for each syndicate, that is calculated by managing agents either by reference to the standard formula or an internal model. However, the Society should make its own assessment of the risk profile and governance arrangements in respect of each syndicate, in conjunction with the methodology applied by each managing agent to calculate the notional SCR. It may need to increase a notional syndicate SCR, and hence the overall SCR for Lloyd's, if it concludes that there are additional risks to which the Society is exposed in relation to the business written by a syndicate, that would not otherwise be covered, when performing the calculations envisaged by Solvency Capital Requirement — General Provisions 7.

The approach set out in Solvency Capital Requirement — Internal Models 17.2 is, when combined with the internal model requirements set out in Solvency Capital Requirement — Internal Models 10 to 16 and Solvency Capital Requirement — General Provisions 8.2, intended to produce, for each risk taken into account in the internal model, the negative impact on basic own funds at Lloyd's. In this way, the effect of the application of the risks taken into account in the internal model may be determined in respect of Lloyd's as a whole.

2.13.3 Capital add-on

Solvency Capital Requirement — General Provisions 7.3 requires the Society to calculate a central requirement for Lloyd's. As the central requirement forms part of the Lloyd's SCR, the provisions of Article 37 of the Solvency II Directive will apply in respect of any risk profile deviation on the part of the Society from the assumptions underlying the calculation of the central requirement. The PRA will use its powers under section 55M of the Financial Services and Markets Act 2000 (FSMA) in order to apply any capital add-on to the Society. The Solvency II Regulations also apply in relation to the imposition of a capital add-on.

3 Further reading

Readers may find the following links to be useful sources of further information:

Solvency II Directive

<http://register.consilium.europa.eu/pdf/en/09/st03/st03643-re01.en09.pdf>

Actuarial Association of Europe – Solvency II

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