# Suggested guidelines for operational risk allowance

**V1.2 December 2009**

## 1 Background

1.1 Section 6.11 of PGN104 states that "The Statutory Actuary must ensure that an appropriate level of capital is held to cover operational risk" but does not provide detailed guidance. These guidelines are intended to assist in this regard by providing suggestions on how to make allowance for operational risk in the CAR.

1.2 Many regulatory regimes are aware of and make reference to the need for an allowance for operational risk, but few have developed any specific formulae or guidelines. General themes are as follows:

1.2.1 A number are awaiting the finalisation of Solvency II and the new IFRS standards before making specific recommendations

1.2.2 There is a strong emphasis on qualitative reasoning for the allowances – low operational allowances must be supported by descriptions of strong Enterprise Risk Management (ERM) practices, high levels of risk transfer and mitigation, an independently tested system of controls etc.

1.3 A range of approaches is available when determining the operational risk allowance in the CAR. A possible starting point for the Statutory Actuary would be to calculate the Solvency II operational risk allowance. Where the Solvency II numbers are not considered appropriate, the Statutory Actuary should consider a range of factors before setting the operational risk allowance. While no specific factors have been specified for Solvency II, the recommended criteria for banks using the standard operational risk capital formula under Basel II are:

1.3.1 The company should have a formal risk management framework. This framework should be documented and approved at board level.

1.3.2 The responsibility for the management of operational risk should be clearly identified within the business units and management structure.

1.3.3 Regular reporting of operational risk processes and effectiveness should be scheduled at board, audit or risk committee meetings (as appropriate).

1.3.4 The operational risk controls and effectiveness should be independently assessed and reported on. Furthermore, business continuity plans must be in place and these plans should be tested.

1.3.5 Operational risk losses and near misses should be recorded in a central database. This should include external loss events.

1.3.6 The company should conduct forward-looking scenario assessments of potential operational risks based on its strategic plans.

1.4 It should be noted that the operational risks allowed for in the CAR do not need to cover:

1.4.1 Risks that are immaterial

1.4.2 Risks that are fully covered elsewhere in the CAR. Note, however, that while historic experience may include some operational losses, CAR should cover extreme (or tail) experience that may not have occurred in the past.

# 2 Solvency II

2.1 At the time of writing (December 2009) Solvency II's operational risk allowance has not been finalised. The proposals are currently being passed through a series of Quantitative Impact Studies and Consultation Papers leading to Level II Advice, of which the most recent are QIS4 and the Level II Advice to the European Commission with regard to the design and calibration of the capital requirement for operational risk (CEIOPS-DOC-45/09). This advice still needs to be considered and approved by the European Commission before it is included in the final Solvency II framework and so it should still be considered as draft. The Statutory Actuary should therefore be mindful of the potential for changes to the Solvency II calculations, and should consider the following:

2.1.1 The Solvency II impact studies are intended to ensure solvency at a 99.5% confidence level over one year.

2.1.2 Solvency II uses a market consistent approach for calculating the liabilities, based on best estimate assumptions plus a market-value-margin. It is not clear how this relates to the South African Statutory Valuation Methodology.

2.1.3 The impact studies contain "risk based" capital measures, similar to OCAR before operational risk (as opposed to TCAR). Inclusion within CAR of an operational risk allowance would thus generally take place in the IOCAR calculation.

2.1.4 While the current Solvency II proposals imply a 100% correlation between operational risk and other risks, European insurers have opposed this and proposed the recognition of diversification effects (see comments to QIS4 below).

## 2.2 QIS4

2.2.1 The fourth Quantitative Impact Study (QIS 4) released as part of the Solvency II project contained an allowance for operational risk as set out below.

2.2.2 Description

Operational risk is the risk of loss arising from inadequate or failed internal processes, people, systems or from external events. Operational risk also includes legal risks. Reputation risks and risks arising from strategic decisions do not count as operational risks. The operational risk module is designed to address operational risks to the extent that these have not been explicitly covered in other risk modules.

2.2.3 Inputs

| **Parameter** | **Description** |
|---|---|
| TP(life) | Total life insurance liabilities (gross of reinsurance) |
| TP(life_ul) | Total life insurance liabilities for unit-linked business (gross of reinsurance) |
| TP(h) | Total health insurance liabilities (gross of reinsurance) |
| EARN(life) | Total earned life premium (gross of reinsurance) |
| EARN(life_ul) | Total earned life premium for unit-linked business (gross of reinsurance) |
| EARN(h) | Total earned health insurance premium (gross of reinsurance) |
| EXP(ul) | Amount of annual expenses (gross of reinsurance) incurred in respect of unit-linked business |
| BSCR | Basic Standard Capital Requirement (similar to OCAR) |

2.2.4 Calculation

$$OpRisk = \min\left\{\begin{array}{l} 0.30 * BSCR; \\ \max\left\{\begin{array}{l} 0.03*[EARN(life) - EARN(life\_ul)] + 0.02 * EARN(h); \\ 0.003*[TP(life) - TP(life\_ul)] + 0.002 * TP(h) \end{array}\right\} \end{array}\right\} + 0.25 * EXP(ul)$$

2.2.5 In response to QIS4, European insurers provided the following comments on the operational risk capital calculation:

"The standard formula tested in QIS4 was similar to the QIS3 approach. Views diverged between respondents whether the operational risk charge in the standard formula is adequately designed. In general, non-life insurers and the smaller undertakings had a more positive opinion of the operational risk capital charge in QIS4 in comparison to life and larger undertakings and groups.

Many respondents noted that there are further improvements needed in the standard formula. Issues mentioned by those respondents are the correlation of 100% with other risks, a **lack of risk sensitivity**, the formula not reflecting the wide spectrum of operational risks that can materialise within an undertaking and the cap of 30% not being adequate, i.e. being too high. Some respondents noted that the objectives of the operational risk charge can only be properly tackled through internal models and Pillar 2 measures, as operational risk has a wide range of qualitative measures which cannot be taken into account reliably in the standard formula.

The responses to the qualitative questions indicated that there is a wide range of operational risk management systems in place, with some participants indicating that they have sophisticated techniques to quantify capital requirements for operational risk, while others have yet to start collecting and categorising operational risk losses."

## 2.3 Solvency II Level II Implementation Advice - CEIOPS-DOC-45/09

2.3.1 Description

On 10 November 2009 the developers of Solvency II issued their Level II advice with regard to the design and calibration of the capital requirement for operational risk (CEIOPS-DOC-45/09). This contained a revised formula for operational risk and additional information on the classification of policies. This advice is to be submitted to the European Commission for final approval and inclusion in the Solvency II framework.

The operational risk capital standard formula contained in the Level II advice is generally more onerous that that contained in QIS4. Specific changes included:

- An increase of between 150% and 200% in the factors applied to annual premium and gross policyholder liabilities to calculate operational risk.
- Health business is split between business pursued on a similar basis to life business, and business which isn't, each of which are treated differently in the operational risk formulae.
- Additional operational risk for companies which are growing quickly.

2.3.2 Inputs

All of these should be available for the current and previous year.

| Parameter | Description |
|---|---|
| TP(life) | Total life insurance liabilities (gross of reinsurance), with a floor equal to zero. This would include unit linked business. |
| TP(SLTh) | Total SLT health insurance liabilities (gross of reinsurance), with a floor equal to zero (see 2.3.3 below for a definition of SLT health business) |
| TP(life_ul) | Total life insurance liabilities for unit-linked business (gross of reinsurance), with a floor equal to zero. |
| TP(non-SLTh) | Total non-SLT health insurance liabilities (gross of reinsurance), with a floor equal to zero |
| TP(nl) | Total non-life insurance liabilities (gross of reinsurance), with a floor equal to zero |
| EARN(life) | Total earned life premium (gross of reinsurance), including unit linked business |
| EARN(SLTh) | Total earned SLT health premium (gross of reinsurance) |
| EARN(life_ul) | Total earned life premium for unit-linked business (gross of reinsurance) |
| EARN(non-SLTh) | Total earned non-SLT health insurance premium (gross of reinsurance) |
| EARN(life) | Total earned non-life premium (gross of reinsurance |
| EXP(ul) | Amount of annual expenses (gross of reinsurance) incurred in respect of unit-linked business. Administrative expenses should be used (excluding acquisition expenses); the calculation should be based on the latest past years expenses and not on future projected expenses. |
| BSCR | Basic Standard Capital Requirement (similar to OCAR) |

2.3.3 Classification of business

The Level II Advice on the Standard Formula Health underwriting risk (CEIOPS-DOC-43/09) proposes the following definition for health insurance business:

“Health insurance obligations are all types of insurance compensating or reimbursing losses (e.g. loss of income) caused by illness, accident or disability (income insurance), or medical expenses due to illness, accident or disability, whether preventive or curative (medical insurance).”

Health insurance obligations pursued on a similar technical basis to that of life insurance are classified as SLT (or Similar to Life Techniques) Health, with all other health business classified as non-SLT Health.

CEIOPS-DOC-43/09 also states that to clarify the boundary between health and life insurance obligations, it can be noted that life insurance obligations always relate to the length of human life. Life obligations may be related to guarantees offering life and/or death coverage of the insured in the form of a single or

multiple (regular in case of an annuity or not) payments to a beneficiary. They include (non exhaustive list):

- Assurance on survival to a stipulated age only
- Assurance on death only
- Assurance on survival to stipulated age or earlier death
- Life assurance with return of premiums
- Marriage assurance or birth assurance
- Annuities

CEIOPS-DOC-43/09 defines and classifies several potentially problematic products as follows:

| **Description** | **Class** |
|---|---|
| Critical illness (aka dread disease) | Health |
| Accelerated critical illness | Life |
| Permanent health insurance (not subject to cancellation) | Health (SLT) |
| Private medical insurance (as sold in the UK) | Health (non-SLT) |
| Funeral or assistance business | Life |
| Long term care insurance | Health |
| Workers' compensation insurance | Health |
| Annuities relating to non-life products | Life |
| Annuities relating to workers compensation | Health (SLT) |
| Unemployment insurance | Non-life |
| Supplementary insurance underwritten in addition to life insurance, in particular<br>• Personal injury including incapacity from employment<br>• Accidental death<br>• Disability insurance resulting from accident or sickness | Health |

Where possible, contracts should be unbundled into their components.

2.3.4 Calculation

$$OpRisk = \min\{0.30 * BSCR; Op_{non-ul}\} + 0.25 * EXP(ul)$$

Where

$$Op_{non-ul} = \max\{Op_{premiums}; Op_{provisions}\}$$

And where:

$$Op_{premiums} = 0.055 * \{EARN(life) + EARN(SLTh) - EARN(life\_ul)\}$$
$$+ 0.038 * \{EARN(non-SLTh) + EARN(nl)\}$$
$$+ Max(0; 0.055 * \{\Delta EARN(life) - \Delta EARN(life\_ul)\})$$
$$+ + Max(0; 0.038 * \Delta EARN(nl))$$

Where Δ = change in earned premium from year t-1 to t, where the increase in premium is greater than 10%.

And where:

$$Op_{provisions} = 0.006 * \{TP(life) + TP(SLTh) - TP(life\_ul)\}$$
$$+ 0.036 * \{TP(non-SLTh) + TP(nl)\}$$
$$+ Max(0; 0.006 * \{\Delta TP(life) - \Delta TP(life\_ul)\})$$
$$+ Max(0; 0.036 * \Delta TP(nl))$$

Where Δ = change in technical provisions from year t-1 to t, where the increase in technical provisions is greater than 10%.

# 3 Regulatory Regimes around the World

## 3.1 Individual Capital Adequacy Standards (UK)

3.1.1 UK insurers are required to submit an Individual Capital Assessment that includes an allowance for operational risk. The FSA's Prudential Sourcebook for Insurers sets out the overall requirements for ICA's. In addition the UK actuarial profession provides ICA guidance in GN46, and established a working party on life insurance operational risk quantification. Lloyd's has also recently issued "ICA 2008 Minimum Standards and Guidance" that includes guidance on operational risk allowances. Internet references to these documents, as well as extracts of the relevant sections, are included below.

3.1.2 Prudential Sourcebook for Insurers (UK)
(http://www.fsa.gov.uk/pubs/policy/ps04_16.pdf)

**"Factors to consider when assessing operational risk**
2.3.29 G Operational risk refers to the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.
**PRU 2.3 Individual capital assessment**
2.3.30 G A firm may wish to refer to SYSC 3A and PRU 6.1 when carrying out its operational risk assessment.
2.3.31 G Examples of some issues that a firm might want to consider include:
(1) the likelihood of fraudulent activity occurring that may impact upon the financial or operational aspects of the firm;
(2) the obligation a firm may have to fund a pension scheme for its employees;
(3) the technological risks that the firm may be exposed to regarding its operations. For example, risks relating to both the hardware systems and the software utilized to run those systems;
(4) the reputational risks to which the firm is exposed. For example, the impact on the firm if the firm's brand is damaged resulting in a loss of policyholders from the underwriting portfolio;
(5) the marketing and distribution risks that the firm may be exposed to. For example, the dependency on intermediary business or a firm's own sales force;
(6) the impact of legal risks. For example a non-insurance related legal action being pursued against the firm;
(7) the management of employees – for instance staff strikes, where dissatisfied staff may withdraw goodwill and may indulge in fraud or acts giving rise to reputational loss;
(8) the resourcing of key functions such as the risk management function by staff in appropriate numbers and with an appropriate mix of skills such as underwriting, claims handling, accounting, actuarial and legal expertise;
2.3.32 G A firm may consider that investigation of operational weaknesses and corrective action is a better response than holding capital and may consider that a certain degree of operational risk is within its pre-defined risk tolerance. However, until the firm corrects any identified deficiencies a firm should consider capital as a (interim) response to the risk."

3.1.3 GN46: Individual Capital Assessment (v1.1 May 2006) (http://www.actuaries.org.uk/__data/assets/pdf_file/0016/33424/GN46V1-1.pdf)

> "3.3 This GN does not contain any specific standards relevant to the identification of and assessment of capital required to meet operational or group risks, which need to be considered. Nevertheless, if credible historic data on any relevant operational or group risks is available, either within the firm or from relevant industry or non-industry sources, the data should be regarded as an important input to the assessment of the potential exposure to risks of the type to which the data applies. More subjective methods will need to be used in the absence of credible data. Account should be taken of any obligation which may exist in some adverse scenarios to provide financial support to associated companies."

3.1.4 Lloyd's ICA 2008 Minimum Standards and Guidance (http://www.lloyds.com/NR/rdonlyres/61C2A597-BDCA-4EDD-8029-AFAF1B3CA21E/0/ICA_2008ICAMinimumStandardsandGuidance.pdf)

3.1.5 Quantifying Operational Risk In Life Insurance Companies (Institute Working Party) May 2006 (http://www.actuaries.org.uk/__data/assets/pdf_file/0004/27427/op_risk_capital.pdf)

### 3.2 Swiss Solvency Test

In the Swiss Solvency Test operational risk is explicitly excluded from the quantitative capital assessment. The regulator took the view that any formula would be unreliable and has instead focused on how insurers manage operational risk as part of their qualitative review.

### 3.3 Basel II

Banks' operational risk capital calculation under Basel II is described in the following document (along with other risks):

http://www.bis.org/publ/bcbs128b.pdf