



Appendix 3

Approaches to determining risk margins

(Excerpt from discussion paper *Preliminary Views on Insurance Contracts*, Appendix F)

F9. Listed below are various approaches that might be used in estimating risk margins. In the Board's preliminary view [as expressed in the DP], none is demonstrably better than all others in all circumstances, or demonstrably worse than all others in all circumstances. This list is not intended to be exhaustive. It may be possible to combine some elements from more than one of these techniques if the resulting combination satisfies the criteria suggested above.

(a) Confidence levels:

(i) explicit confidence levels (eg 75 per cent probability of sufficiency).

(ii) explicit minimum confidence level, but insurers may use a higher confidence level. [An approach of this type is in use in Australia.]

(b) Conditional tail expectation (CTE), sometimes known as tail value at risk (Tail VaR). CTE is the expected value of the tail of a probability distribution. For example, CTE 90 is the expected value of all outcomes beyond the 90th percentile.

(c) An explicit margin within a specified range. Accounting or actuarial guidance specifies the ends of the range (perhaps, as a percentage of the central estimate) and indicates criteria for deciding whether the margin should be set nearer one end of the range. [An approach of this type is in use in Canada.]

(d) Cost of capital. The estimated cost of holding the capital that is needed to give policyholders comfort that valid claims will be paid, and to comply with regulatory capital requirements, if any. [The CRO Forum¹ suggests that an approach of this type might be suitable for both general purpose financial reporting and for reporting to

¹ The CRO Forum is a forum for the Chief Risk Officers of major European insurers.

supervisors. The suggested approach uses a ‘replicating portfolio’ of traded financial instruments to price the expected cash flows (and thereby also the risk margins

- (e) associated with market variables), and a cost of capital approach to determine the risk margin associated with non-market variables.]
- (f) Methods based on the capital-asset pricing model or related asset-pricing models.
- (g) Adjustments to cash flows to place more weight on cash flows in some outcomes (eg ‘deflator’, ‘no arbitrage’ and ‘market consistent’ approaches) or to place more weight on larger cash outflows or smaller cash inflows (eg ‘transformation’ or ‘distortion’ approaches).
- (h) Multiples of one or more specified parameters of the estimated probability distribution (eg multiples of the standard deviation, variance, semi-variance, or higher ‘moments’ of the distribution).
- (i) A risk-adjusted discount rate. This approach is relatively simple and may be easy to benchmark against what other entities are doing. It may provide a reasonable indication of the pattern of release from risk if risk is directly proportional to the amount of the liability and the remaining time to maturity. However, insurance liabilities do not always have these characteristics. For example, lapse risk may affect cash inflows more than it affects cash outflows. Moreover, risk margins generally reduce the value of future cash inflows but increase the value of future cash outflows. A single risk-adjusted discount rate is unlikely to capture these differences in risk.

F10. The following approaches do not meet the criteria proposed above.

- (a) Implicit (and unspecified) confidence level.
- (b) Implicit (but unspecified) risk margin through use of conservative assumptions that aim to give reasonable assurance at an implicit confidence level that ultimate cash payments will not exceed the recognised liability. Terms sometimes used in this context are ‘sufficiency’ (eg a high probability that amounts paid will not exceed the reported liability), ‘provision for risk of adverse deviation’ and prudence.