GN45: Determining the With-Profits Insurance Capital Component

Classification
Practice Standard

MEMBERS ARE REMINDED THAT THEY MUST ALWAYS COMPLY WITH THE PROFESSIONAL CONDUCT STANDARDS (PCS) AND THAT GUIDANCE NOTES IMPOSE ADDITIONAL REQUIREMENTS UNDER SPECIFIC CIRCUMSTANCES

Purpose
The FSA Handbook of Rules and Guidance requires insurance companies and friendly societies with with-profits insurance liabilities unless below a threshold, to determine a with-profits insurance capital component in respect of these liabilities. It also sets out detailed rules and guidance to follow in calculating this amount, including in particular requirements (PRU 7.4.37R(5), PRU 7.4.105R(8)) to use methodology/methods and assumptions which have regard to/are in accordance with generally accepted actuarial practice. This note provides additional guidance to insurance companies and friendly societies on how to meet these requirements.

Definitions
Defined terms appear in italics when used in the standard.

Reference	Definition
FOS	The Financial Ombudsman Service provided under Part XVI (The Ombudsman Scheme) of the Act, under which certain disputes may be resolved quickly and with minimum formality by an independent person
Individual Capital Assessment ("ICA")	The assessment required by PRU 1.2.26R of the capital which a firm needs to hold to meet PRU 1.2.22R (adequate financial resources, including capital resources)
Individual Capital Guidance ("ICG")	Guidance given under PRU 2.3.13G on the amount and quality of capital resources which the FSA considers that a firm need to hold to meet PRU 1.2.22R
PVFPNP	Present value of future profits (or losses) on *non-profit insurance business*

The following terms have the meanings given to them in the FSA Handbook of Rules and Guidance

actuarial function
counterparty

claim
derivative
excess admissible assets
firm
future policy-related liabilities
long-term admissible asset
long-term insurance business
long-term insurance capital requirement
long-term insurance liabilities
market risk
mathematical reserves
non-profit insurance business
Principles and Practices of Financial Management ("PPFM")
quasi-derivative
realistic basis life firm
realistic current liabilities
realistic excess capital
realistic value of assets
realistic value of liabilities
regulatory current liabilities
regulatory value of assets
reinsurance
reinsurer
related undertaking
resilience capital requirement
risk capital margin
UK
with-profits actuary
with-profits benefits reserve
with-profits fund
with-profits insurance business
with-profits insurance capital component

In addition, the following abbreviations are used for sections of the FSA Handbook of Rules and Guidance:

IPRU(INS)	Interim Prudential sourcebook for Insurers
PRU	Integrated Prudential sourcebook

Legislation or Authority
The Financial Services and Markets Act 2000 ("the Act")
The FSA Handbook of Rules and Guidance ("the FSA Handbook")

Application
Life insurance *firms* required by PRU 7.4 to determine a *with-profits insurance capital component*

Author
Life Board

Status
Approved under Due Process

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1 General

1.1 This Guidance Note is drafted in terms which are not addressed to actuaries specifically. All actuaries performing work covered by this Guidance Note are required to apply it according to its classification. However, where a *firm* requires an actuary to produce work conflicting with this Guidance Note, the actuary must ensure that the work states, to the extent that it is material, that the actuary has done so under instructions and that the work does not conform to this Guidance Note.

1.2 This Guidance Note provides additional guidance for the determination of the *with-profits insurance capital component* in accordance with the rules and guidance included in PRU 7.4. The guidance is supplementary to PRU and to any individual guidance given by the FSA. The quotations from and references to the PRU rules and guidance should not be used as a substitute for reference to the full PRU text.

1.3 All reasonable steps must be taken to ensure that the data used to calculate all elements of the *with-profits insurance capital component* are accurate. If the effect of inaccurate data on the liabilities is uncertain, then an addition to the *risk capital margin* must be made for the risk that the actual value of the liabilities will be greater, or the value of assets less, than that derived from the available data. However, if the impact of the data inaccuracy is likely to increase liabilities, then an addition to the realistic liabilities must be made. If the potential inaccuracy is material, the directors' certificate required under IPRU(INS) 9.34 or the statement under IPRU(FSOC) 3.1 (7) must make reference to this.

1.4 The information kept in connection with PRU 7.4.17R-20G must be sufficient to enable a third party to assess independently the material factors involved in the calculation of the *with-profits insurance capital component* and in particular items used in deriving the *with-profits benefit reserve*.

1.5 Any attribution which is required to be made between sub-funds or between with-profits and non-profit policies in the same fund must be made using a method which is consistent with the *firm*'s *PPFM*. Notwithstanding this, the *resilience capital requirement* should be allocated in accordance with PRU 7.4.27G and the *long-term insurance capital requirement* should reflect the results of a free-standing

calculation, which may be adjusted in a similar manner to that described in PRU 7.4.27G.

1.6 The calculation of several of the factors required to determine the *with-profits insurance capital component* may include some allowance for management actions. Any such allowance for management actions must be consistent with the *firm*'s *PPFM*. Any changes assumed to be made in the *firm*'s practices, including reductions in surrender values, reductions in percentages of asset share targeted and increases in policy charges, must be consistent with the principles set out in the *firm*'s *PPFM*. It must not be assumed that it will be possible to make changes to those principles. The time that it is assumed it will take to implement any changes in practices must allow for the *firm*'s with-profits governance process to take place, including consultation with the *with-profits actuary*, and also for any changes to systems or other administration procedures that would be needed. Allowance must be made for the cost of any such changes.

1.7 Throughout this Guidance Note the term "market-consistent" should normally be interpreted in line with guidance given in GN47 on the With-profits Insurance Capital Component (WPICC).

1.8 *Mathematical reserves* and the *resilience capital requirement* must be calculated in accordance with GN44.

1.9 *Realistic excess capital* for each *with-profits fund* is determined by subtracting the sum of the *realistic value of the liabilities* (see section 3 below) and the *risk capital margin* (see section 4 below) from the *realistic value of the assets* (see section 2 below).

2 *Realistic value of assets* (PRU 7.4.33R)

2.1 The components of the *realistic value of assets* of a *with-profits fund* are:

- the *regulatory value of assets* less the value of any implicit items less the regulatory value of shares held in any related undertakings which carry on long-term insurance business (see PRU 7.4.33R(1)(a)),
- the fund's *excess admissible assets* (see 2.2 below),
- the present value of profits (or losses) on any non-profit insurance contracts written in the fund (see 2.3 below),
- the value of any *derivative* or *quasi-derivatives* that would otherwise not be given a value (see 2.5 below),
- a proxy for the realistic value of any shares held in related undertakings which carry on long-term insurance business (see 2.6 below), and
- the amount of any prepayments made from the fund.

2.2 *Excess admissible assets* (PRU 7.4.36R)

2.2.1 For the calculation of the *regulatory value of assets* the amount that can be brought into account is restricted by the *market risk* and *counterparty* exposure limits set out in PRU 3.2.22R to 3.2.39R. These exposure limits do not apply for the calculation of the *realistic value of assets*, and the

excess admissible assets is the resulting increase in value. However the rules in PRU 1.3 on the method of asset valuation, and PRU 2.2.86R (which refers to PRU 2 Ann 1R) on which assets can have a value attributed to them, continue to apply to these assets for the purpose of determining their value. In particular if an asset is such that it cannot have an admissible value it will not contribute any value to *excess admissible assets*. A special rule is made only for *derivative*s that are not admissible *derivative*s – see 2.5 below.

2.3 *PVFPNP* from non-profit policies written in a *with-profits fund* (PRU7.4.37R-7.4.39G)

2.3.1 Method

2.3.1.1 PRU 7.4.24R requires that an amount of assets equal in value to the sum of the *mathematical reserves* calculated in accordance with PRU 7.3, together with an appropriate allocation of the *firm's long-term insurance capital requirement* and *resilience capital requirement* (to the extent each of them is covered by the *long-term admissible assets)* must be allocated to the *non-profit insurance business*. PRU 7.4.26R requires that such assets be of an appropriate nature and term. PRU 7.4.37R(8) requires that the *PVFPNP* be calculated consistently with the assets so allocated.

2.3.1.2 The *PVFPNP* is the amount by which, on the assumptions used, the value of the proceeds from the assets allocated, plus the value of future receipts (such as premiums) is expected to exceed the value of the future *claims*, expense and other outgo on the business. If there is a shortfall rather than an excess, as may occur when the assets allocated for this purpose differ from those used in calculating the *mathematical reserves*, then the *PVFPNP* is a negative amount.

2.3.1.3 To ensure consistency with the *realistic value of liabilities*, account must be taken of the approach to allocating future non-profit surpluses in the *firm*'s *PPFM*. This may, for example, state that there is some form of augmentation to asset share from non-profit surplus. Any effect on the value of *future policy-related liabilities* and the cost of guarantees must be allowed for. Where a *firm* is unable to model dynamically the *non-profit insurance business* alongside the *with-profits insurance business*, a suitable adjustment must be taken. The combined treatment of the *with-profits insurance business* and *non-profit insurance business* must ensure that the *realistic excess capital* is consistent with the *firm*'s *PPFM*.

2.3.1.4 For the avoidance of doubt, the requirement under PRU 7.3.24R that policies must not be treated as an asset does not apply to the calculation of the *PVFPNP* made for the *realistic value of assets*.

2.3.1.5 The *PVFPNP* may make allowance for the release of the *long-term insurance capital requirement* and the *resilience capital requirement* attributable to *non-profit insurance business* in the *with-profits fund* and to the extent that these are covered by admissible assets of the *with-profits*

fund. However, if capital held outside the *with-profits fund* is deemed to cover some or all of the *resilience capital requirement* or *long-term insurance capital requirement* attributable to the *non-profit insurance business* in the *with-profits fund*, then no value must be placed on the release of this part of that capital requirement.

2.3.2 **Assumptions**

2.3.2.1 PRU 7.4.37R(1) and (2) require that the assumptions used to determine the *PVFPNP* are based on current estimates of future experience that contain reasonable, but not excessively prudent, allowance for risk and uncertainty. The assumptions must therefore be more prudent than pure best estimates but there is no requirement to include any additional margin for adverse deviations over and above that required for risk and uncertainty.

2.3.2.2 It is not necessary that each individual assumption contains an explicit margin for prudence provided that the margins in the basis overall are adequate. Hence aggregate adjustments, such as an adjustment to the discount rate, are permissible.

2.3.2.3 Where such aggregate approaches are used the *firm* should normally estimate the impact of using explicit margins for each material class of business to satisfy itself that adopting the aggregate approach does not lead to a material overstatement or understatement of the *PVFPNP*. For this purpose explicit margins for risk and uncertainty must be made for both policy-related items (such as mortality, morbidity, persistency and expense levels) and to asset-related items (such as defaults by corporate bond issuers, property tenants and *reinsurers*).

2.3.2.4 PRU 7.4.37R(3) requires that the *PVFPNP* allow for a market-consistent value of any options and guarantees within the contracts valued. This requirement is not limited to financial options and guarantees. For example, allowance must be made for a market-consistent value of any premium rate guarantees, or options to extend or increase cover under risk insurance products. The difference in currently available *reinsurance* rates for contracts with and without these features may be a suitable guide for the valuation of such benefits.

2.3.2.5 PRU 7.4.37R(4) requires that the assumptions used are derived from current market yields. The requirement to have regard to IFRS4 precludes taking credit for any investment risk margin. Rates of discount used should be consistent with the assumed rate of growth in the assets. In particular, if any allowance is made in the assumptions for an equity risk premium then the impact of this must be removed through the use of an appropriate discount rate.

2.3.2.6 The tax and expenses assumptions must be consistent with the expected future position of the *with-profits fund* as a whole. In particular they must

be consistent with any prospective calculations carried out to value the *with-profits benefits reserve.*

2.3.3 **Liquidity Premiums**

2.3.3.1 It is fairly common for insurance companies writing annuities to invest a high proportion of the premium received in corporate bonds, and to take account of the liquidity premium component of the spread of those bonds in pricing and profit testing those annuities, and in shareholder reporting.

2.3.3.2 The rationale for taking account of the liquidity premium rests on the argument that part of the additional credit spread is compensation for risks in asset liquidity or spread volatility that the *firm* does not face. PRU7.4.39G gives guidance on the circumstances and extent to which recognition of such a liquidity premium may be included for those annuities.

2.3.3.3 Care must be taken in taking credit for any liquidity premium within an asset yield in any situation where normal random fluctuations in *claim*s payments could require the assets to be sold unexpectedly. Where credit is taken for a liquidity premium, the size of that premium must not exceed that which is justifiable based on the actual assets held.

2.3.3.4 The *firm* should normally test how this analysis would be affected by changes in the assumptions on credit default rates, mortality assumptions, and mortality rate trends.

2.3.3.5 PRU 7.4.37R(1) and (4) require that the methodology and assumptions be based on best estimates of future experience and derived from current market yields. Therefore:

- the period over which the liquidity premium is capitalised must take account of the outstanding duration of the bond portfolio to which it relates, and must be reduced to take account of any expected future bond disposals required to meet annuity payments, and
- the liquidity premium must be based on current market bond spreads and best estimates of future default rates.

2.3.3.6 Appropriate allowance may be made for liquidity premiums on reinvestment if the intention is to maintain the same asset mix in the future.

2.3.3.7 PRU 7.4.37R(2) requires that the methodology and assumptions involve reasonable (but not excessively prudent) adjustments to reflect risk and uncertainty. Therefore where a *firm* includes the value of the liquidity premium in the *PVFPNP* it must be able to demonstrate that:

- a liquidity premium has historically existed for the type and credit quality of the bonds held, taking account of historic rates of default, and
- the method for selecting the liquidity premium rate is prudent and leaves a prudent margin for those credit and liquidity risks that the *firm* is still exposed to, particularly expected default costs (including the

possibility that the bond might be downgraded to a credit rating that will require it to be sold – see 2.3.3.8 below) and the uncertainty or potential volatility in default costs.

2.3.3.8 For the avoidance of doubt, the rationale for including the value of a liquidity premium in the *PVFPNP* relies on the illiquid nature of the liability and does not require the *firm* to hold all corporate bonds to maturity. It is likely that the credit rating of some holdings will over time deteriorate below normal guidelines or limits, and will be sold. In this circumstance, credit can be taken for a liquidity premium adjusted as in 2.3.3.7 above. This type of event relates to default risk, and the *firm* receives compensation for this in that part of the spread which is excluded from the determination of the liquidity premium.

2.4 Stress testing the *PVFPNP* for calculating the risk capital margin

2.4.1 If the *PVFPNP* is one of the range of assets selected to cover the *realistic value of liabilities* of the *with-profits fund* in calculating the r*isk capital margin* under PRU 7.4.43R, the methods referred to in sections 2.3 to 2.5 must be used to determine the revised *PVFPNP*. It is not necessary to reallocate assets to the *non-profit insurance business* although the value of the assets allocated in accordance with paragraph 2.3.1 must be recalculated to reflect the scenario being considered.

2.4.2 The *mathematical reserves* used in the calculation of the *PVFPNP* must be recalculated to reflect the scenario being considered. In addition any excess or deficiency of the value of the assets over the value of the *mathematical reserves* must be included in the calculation of the revised *PVFPNP*.

2.4.3 If an allowance was made in the *PVFPNP* for the release of the *long-term insurance capital requirement* and *resilience capital requirement* then a variety of methods are acceptable when calculating the revised *PVFPNP*. However, the incidence of these releases must not be faster than the release allowed for in paragraph 2.3.1.5 above.

2.5 Value of *derivatives* or *quasi-derivatives* in the *with-profits fund*

2.5.1 PRU 7.4.34R allows the market value, if positive, for a *derivative* or *quasi-derivative* in a *with-profits fund* to be included in the *realistic value of assets* whether the asset is admissible or not. Admissible *derivatives* will be given a value within the *regulatory value of assets*; an adjustment will be required if but only if that value has been restricted on account of the size of the holding within the calculation of the *excess admissible assets*. Inadmissible *derivatives* should be given full market value, if positive, calculated in accordance with PRU 1.3. Wherever possible mark to market (valuation at readily available close out prices, using the more prudent of bid/offer price) must be used. Where marking to market is not possible marking to model must be used. If the market value of a *derivative* is

negative it should be valued within realistic liabilities as an element of *realistic current liabilities*.

2.6 Value of any shares in related undertakings

2.6.1 The realistic value of any shares in related undertakings carrying out *long-term insurance business* that are held in the *with-profits fund* must be valued in accordance with PRU 7.4.33R, applying the relevant parts of this guidance note.

3 *Realistic value of liabilities*

3.1 General

3.1.1 In calculating the *realistic value of liabilities* for a *with-profits fund*, PRU 7.4.105R requires the use of methods and assumptions that have regard to generally accepted actuarial practice, that are consistent with the method of valuing the assets and with the *firm*'s *PPFM*, and are consistent from year to year without arbitrary changes (i.e. changes without adequate reasons). Where advice is given by the holder of the *actuarial function* on the assumptions to use, this must be documented with reasons by him or her as part of the relevant advice or report under SUP 4.3.13R(3) or (5).

3.1.2 Any references to the use of a market-consistent basis of valuation in the paragraphs below are to be interpreted as being to the same market-consistent basis, although it may be applied in different ways in different paragraphs (e.g. in some paragraphs by Monte Carlo methods or in other paragraphs by closed form solutions). GN47 sets out further guidance on the use of stochastic models for determining the *realistic value of liabilities*.

3.1.3 A *firm*'s *PPFM* may make reference to asset shares being determined based on certain example or benchmark policies for determining scales of final bonus. In such cases, the *with-profits benefit reserve* should normally be calculated in a manner consistent with how benefit payments are determined in practice. If for practical reasons it is not possible to calculate the *with-profits benefit reserve* in this way, a suitable adjustment must be made elsewhere so that the realistic value of liabilities overall is consistent with that practice.

3.1.4 Under PRU 7.4.185R a *firm* may reflect management actions and must reflect a realistic assessment of policyholders' actions in the calculation of the *realistic value of liabilities*. The considerations set out in paragraphs 4.5 and 4.6 below in relation to the *risk capital margin* should also be applied in the calculation of the *realistic value of liabilities*.

3.1.5 The future investment returns used in the projection of asset shares in the calculation of the *future policy-related liabilities* and the *risk capital margin* must be consistent with the assets projected to be attributed to the

asset shares from time to time. The initial attribution of assets does not have to be the same as that used for the calculation of *mathematical reserves* under PRU 7.3. The asset attributions may be projected to vary over time in accordance with any prospective management actions.

3.1.6 Where all or part of a policy is *reinsured*, it is generally accepted actuarial practice to calculate the various components of liability after adjustment for amounts payable to and receivable from *reinsurers*. PRU 7.4.78R, and thence in PRU 7.4.94R and the subsequent guidance, requires a credit test on *reinsurance* contracts, and this must be applied directly to any credit taken in the calculation of liabilities as well as to any asset item.

3.2 *With-profits benefits reserve* (PRU 7.4.116R-135G)

3.2.1 Retrospective method

3.2.1.1 The retrospective method will often be used for policy classes where an asset share method is used as a guide when determining bonuses.

3.2.1.2 In the situation where a *firm* calculates the *with-profits benefits reserve* using an aggregate approach in accordance with PRU 7.4.109R(2), the rules require such a calculation to be "likely to provide the same or a higher result" as if the calculation had been done on an individual basis. It is therefore necessary to document why the aggregate approach adopted is reasonably expected to lead to the same or a higher asset share but it is not actually necessary to carry out calculations to demonstrate this in practice.

3.2.1.3 When calculating the current *with-profits benefits reserve*, the items brought into account must be consistent with the *firm*'s current practices as set out in its *PPFM*. This includes the method of allocation of past miscellaneous profits and losses. When projecting forward asset shares or other components of the *with-profits benefits reserve*, allowance may be made for changes resulting from future management actions provided that they would be in accordance with the principles in the *firm*'s *PPFM* (see paragraph 1.6 above) in the circumstances of the particular projection.

3.2.1.4 If the asset shares that are used in the *with-profits benefits reserve* and as a guide in the determination of scales of bonus are calculated for groups different from those used when actually setting rates of bonus (e.g. quinquennial rather than annual groupings) or differ in another way, it is necessary to ensure that there is no material understatement of the *with-profits benefits reserve*. If there is a material likelihood of understatement, an appropriate adjustment must be made, such as increasing some or all of the asset shares used in its calculation.

3.2.1.5 Normally, the items brought into account in respect of a particular past year should not change from one year's calculation to the next, for compliance with PRU 7.4.105R(2). However, if the *firm*'s *PPFM* allows changes to be made to historic assumptions for specified reasons, then

changes may be made if the reasons apply in a particular projection or projections.

3.2.2 **Prospective method**

3.2.2.1 The prospective method will often be used for policy classes where bonus rates are not, or not directly, determined by asset share methods (as is often the case with whole life policies, particularly if the bonus rates are those, or derived from those, determined for endowment policies) or where the asset shares are determined for specimen policies only and are not calculated in aggregate.

3.2.2.2 The future bonuses valued must be consistent with the future return on investments assumed, which should be consistent with the discount rate. Assumed future expense inflation must also be consistent with the future growth and discount rates. Where guarantees are present, the growth and discount rates used could materially affect the magnitude of a prospectively calculated *with-profits benefits reserve*. If a risk free rate is used then more (though not necessarily all) of the guarantee cost is likely to be present within the *with-profits benefits reserve* than if best estimate growth and discount rates had been used. The prospective method used to calculate the *with-profits benefits reserve* must be consistent with the approach taken to value guarantees and options (see section 5 below) so that the overall *realistic value of liabilities* is market-consistent.

3.2.2.3 Where a *firm* uses specimen policies when it determines bonus rates by applying asset share methods, then the future bonuses valued in the prospective method must be consistent with those that the asset share model would produce if the assumed investment growth and inflation rates in paragraph 3.2.2.2 above were to be realised in future. Similar considerations apply to discretionary surrender and termination values if these are determined using asset share methods applied to specimen policies.

3.2.2.4 Where bonus rates for a class of policy are based on bonus rates calculated for another class of policy, and asset share methods are used for that second class, then the future bonus rates assumed must be consistent with those that the asset share model for the second class of policy would produce if the assumed investment growth and inflation rates in accordance with paragraph 3.2.2.2 above were to be realised in future.

3.2.2.5 PRU 7.4.106G states that there is no requirement to include margins for adverse deviations in calculating the *realistic value of liabilities*. This will also be the case for any assumptions used in a prospective calculation of a *with-profits benefits reserve*.

3.3 ***Future policy-related liabilities*** **(PRU 7.4.136G– 145G)**

3.3.1 There is generally an interrelationship between the different elements making up these liabilities. For example, a *firm* may intend to pay less

than 100% of asset share on maturity (unless a guarantee applies) for policies which carry minimum guaranteed maturity values. In this case it could either calculate the value of the reduction relative to 100% of asset share and the guarantee cost relative to the reduced percentage of asset share, or it could calculate the value of the reduction net of the effect of the guarantee with the guarantee cost calculated relative to 100% of asset share. Unless PRU 7.4 or this Guidance Note specifies otherwise, discretion exists as to how the total liability is divided but the choice made must be clearly disclosed in the report required by IPRU(INS) 9.31(b).

3.3.2 **Past miscellaneous surplus (or deficit) planned to be attributed to the *with-profits benefits reserve***

3.3.2.1 Any items included under this heading must be consistent with the *firm*'s *PPFM* and current or intended future practice for determining bonus rates. It should be noted that items included under this heading are such that they could be removed in adverse circumstances. Any past miscellaneous surplus which is intended to be a more permanent addition to policyholder benefits should, in accordance with PRU 7.4.140G, be included in the *with-profits benefit reserve.*

3.3.3 **Planned enhancements to the *with-profits benefits reserve***

3.3.3.1 If a *firm*'s *PPFM* indicates an intention to distribute any inherited estate in a *with-profits fund*, for example by paying benefits in excess of asset share, then the excess amounts which the *firm* estimates it will need to pay to policyholders to achieve the intended distribution should normally be recognised as a liability under this heading.

3.3.3.2 For a closed *with-profits fund* it would normally be expected that the whole of any inherited estate would be distributed over time. In such a situation, planned enhancements to the *with-profits benefit reserve* are recognised in respect of the general intention to distribute the estate, and this would result in the Form 19 working capital being by definition zero.

3.3.3.3 For an open *with-profits fund*, there is no need to recognise any such inherited estate as a planned enhancement except to the extent that there is a plan to distribute it.

3.3.3.4 If any aspect of a *firm*'s discretionary practices are expected to lead to overall payments being in excess of the *with-profits benefits reserve* (e.g. if non-contractual aspects of the surrender or transfer bases, or non-contractual application of guaranteed annuity rates, for a particular class of policy) might be expected to result in payments greater than asset share in certain circumstances and the *firm* does not expect to revise the basis as circumstances change) and such excess amounts are not recognised elsewhere within the *realistic value of liabilities* then provision must be made under this heading. The cost of such enhancements must be calculated on a market-consistent basis.

3.3.3.5 Where there is a *PVFPNP* included within the realistic assets of the fund, consideration should be given as to whether the same amount needs to be included with the planned enhancements to the *with-profits benefit reserve*. For example, if the *PPFM* states that non-profit surplus emerging will automatically be passed on each year to with-profits policyholders, then inclusion of the additional liability is necessary. In other circumstances, whether an additional liability is required will depend upon whether there is other evidence which suggests that policyholders have an expectation or entitlement that such allocations will be made each year or at some particular point in the future.

3.3.4 Planned deductions for the costs of guarantees, options and smoothing from the *with-profits benefits reserve*

3.3.4.1 If a *firm* charges for the cost of guarantees, options or smoothing in the calculation of asset share for the purposes of determining final bonuses, then when calculating the credit for those charges under PRU 7.4.144R the projected future levels of such charges must be consistent with the *firm*'s *PPFM* (see paragraph 1.6 above). The valuation must be on a market-consistent basis. If the charges are fixed in monetary terms in some way (e.g. they are a fixed percentage of future regular premiums), then it may be sufficient to discount the expected future charges at the appropriate risk-free yield as described in PRU 7.4.180G(3).

3.3.4.2 If the future charges are to be reassessed periodically in the light of the then future cost of guarantees, options or smoothing, possibly net of residual accrued past charges and costs, then the valuation of them must allow for future changes to the charges if appropriate and material.

3.3.5 Planned deductions for other costs deemed chargeable to the *with-profits benefits reserve*

3.3.5.1 All items included under this heading which depend in any way on either the future value of investments, or on any management or policyholders' actions which are assumed to depend on the future value of investments, must be valued on a market-consistent basis.

3.3.6 Future costs of contractual guarantees (other than financial options)

3.3.6.1 Section 4 below contains standards for the calculation of these costs.

3.3.6.2 PRU 7.4.151G should not be taken to prevent the use of the simulated investment returns in the multiple scenarios of a market-consistent Monte Carlo model nor the use of a judiciously selected range of adverse scenarios if a deterministic approach is used.

3.3.7 **Future costs of non-contractual commitments**

3.3.7.1 All items which depend in any way on the future value of investments, or on management or policyholders' actions which are assumed to depend on the future value of investments, must be valued on a market-consistent basis.

3.3.8 **Future cost of financial options**

3.3.8.1 Section 4 below contains standards for the calculation of these costs.

3.3.9 **Future cost of smoothing**

3.3.9.1 The future cost of smoothing must be consistent with the approach to smoothing set out in the *firm*'s *PPFM*. Section 4 below contains standards for the calculation of these costs (or benefits).

3.3.9.2 The instruction in PRU 7.4.159R to determine the cost of smoothing "after enhancements" should also be understood to require that smoothing is after any planned deductions of the type envisaged in PRU 7.4.147G(1).

3.3.9.3 The calculation of the cost (or benefit) from smoothing must reflect the practical intentions and capabilities of the *firm* when changing bonus rates, including the minimum interval between changes and any publicly-disclosed or privately intended limits on the difference in payouts on similar policies at each change.

3.3.9.4 If Monte Carlo models are used and the model produces investment returns only over intervals as long as or longer than the minimum interval between changes to rates of final bonus, then it must be considered whether materially different smoothing costs might result from modelling investment returns over shorter periods. If this is considered possible then additional investigations must be carried out.

3.3.9.5 When payouts are in excess of unsmoothed asset share, policyholders may exercise encashment options in greater numbers (or deferral options in lesser numbers). In determining whether it is necessary to assume a higher level of encashments (or lower level of deferrals), any actual experience of policyholders' behaviour in differing circumstances and the likely future level of awareness amongst policyholders as to the existence or otherwise of a beneficial smoothing position must be taken into account.

3.3.10 **Financing costs**

3.3.10.1 If a *with-profits fund* has received a loan (or other form of finance) the repayment of which is contingent in some way on the fund's ability to cover its liabilities (however defined for that purpose), then, in each relevant stochastic scenario or deterministic model, only so much of the

form of finance as would actually be repayable in those circumstances must be treated as repayable capital.

3.3.10.2 To the extent that interest and fees on loans or other forms of finance are attributable to asset shares, then no liability must be recognised under this heading. However, account must be taken of past such costs in calculating *with-profits benefits reserves* and of future such costs when projecting *with-profits benefits reserves* into the future.

3.3.10.3 To the extent that future management actions include the possible use of loans or other forms of financing or the repayment of existing facilities, the resulting changed costs must be recognised in the relevant stochastic scenarios or deterministic model.

3.3.10.4 Under PRU 7.4.162R the impact of financing costs must be calculated on a market-consistent basis.

3.3.11 Other *long-term insurance liabilities*

3.3.11.1 In relation to tax, the accounting tax provisions may not fully be on a realistic basis. For example, there may be no discounting in respect of accrued tax on capital gains, and there may be no allowance made for carried forward expenses and deferred acquisition expenses. In such cases, consideration can be given to reducing the provisions for future tax. However, overall the provision for tax in the realistic valuation of liabilities must comply with PRU 7.4.105R.

3.3.11.2 When making provision for the costs of compensation to policyholders who have successfully claimed that they have been mis-sold their policies by the *firm* or its agents, it is necessary to take into account the projected amount of the payouts in each future year. The projections must allow where relevant for amounts payable, and successful *claim*s that may be made, when the policies themselves become *claims*.

3.3.11.3 When assessing the propensity to claim in a future year, past experience of the number of complaints arising after periodic communications to policyholders (e.g. mortgage endowment re-projections) and in the interval between such communications must be allowed for. Allowance must also be made for the expected effect, on both the amount and number of *claims*, of differences in the degree of potential disadvantage which future communications are projected to show.

3.3.11.4 Allowance must be made for the cost of handling complaints, whether valid or not, including the cost of references to the *FOS*.

3.3.11.5 If the *firm* does not intend to pay compensation in cases where neither the courts nor the *FOS* would make awards because of time limitation, this may be reflected in the liabilities.

3.3.11.6 It is not necessary, under this heading or elsewhere in the *realistic value of liabilities*, to make provision for future mis-selling compensation or other regulatory costs in respect of classes of business for which no systemic infringements have yet been identified. However it may be appropriate to include an allowance for some lower level of regular ongoing compensation costs based upon the *firm*'s own experience.

3.4 *Realistic current liabilities*

3.4.1 The provision for adverse variations (in connection with obligations under certain assets) required to be held as part of the *regulatory current liabilities* of a *with-profits fund* by PRU 7.4.30R(3) must not duplicate any provision made for them in the calculation of the *risk capital margin*. The provision should be taken as nil provided that adequate provision is included in the *risk capital margin.*

4 The value of guarantees, options and smoothing (PRU 7.4.169R – 184R)

4.1 General

4.1.1 Stochastic methods (which include both Monte Carlo simulation models and closed-form solutions) should normally be used to calculate the market-consistent value of financial options. GN47 describes recommended standards for the use of stochastic models in this context.

4.1.2 Where there is uncertainty regarding non-financial factors which affect the value of guarantees and options (e.g. option take up rates, trends in longevity, lapse rates), stochastic variation in these factors may be incorporated into one overall model. Deterministic alternatives may also be used but care should be taken to ensure that an appropriate allowance is made for the possible adverse covariance between the factors.

4.1.3 PRU 7.4.180G(3) states "Risk-free yields should be determined after allowing for credit and all other risks arising". For this purpose, the starting assumption should be that gilts represent the risk-free yield. However, analysis may be made of the recent gaps between swap yields and gilt yields. These may indicate, for example, that liquid gilts typically yield a little less than is accounted for by credit risk (as, for example, implied by the spread between LIBOR and LIBMID and that between LIBMID and repo rates). The 'gaps' may be in recognition of additional returns being earnable by the holders of liquid gilts due to their repo abilities or may be due to other reasons. If this is the case, the risk-free rate may be assumed to be the yield on liquid gilts, increased by the observed 'gap'. It is acceptable, nonetheless, to calibrate to gilt yields in which case, no such analysis is required.

4.1.4 If a model is calibrated allowing for the gap, it will project forward the accumulated value of the gilt portfolio at a rate in excess of that capable of being earned from the gilts themselves. This could conceivably lead to an

under-valuation of the long-term guarantees under one or more classes of business backed by an asset portfolio invested significantly in gilts, particularly if stock-lending is not practical. If this is the case, consideration should be given to using for such classes of business a model calibrated to the gilt curve.

4.2 Use of a deterministic approach

4.2.1 It is usually necessary to use stochastic models to value options. However, it may be appropriate to use an approximate deterministic approach if it can be demonstrated that no practicable alternative exists, or that the value of the option is not material.

4.2.2 A deterministic approach may be used to value guarantees if it utilises market pricing information in a way which can be demonstrated in principle to give an equivalent result to a stochastic approach. Such a demonstration should not make any implicit assumptions about the independence of any of the variables used.

4.3 Allowance for taxation in the valuation of guarantees and options

4.3.1 Appropriate allowance must be made for tax when calculating the costs of guarantees and options. The provisions established must be adequate to cover both the cost of providing the guarantee or option and the future tax that would be payable on the assets backing those provisions. Where a stochastic approach is adopted the calculation of the tax must recognise the future tax that would be payable in each scenario.

4.4 Guaranteed Annuity Rates (GARs)

4.4.1 A portfolio of GARs has some similarities in form from an economic perspective with a portfolio of swaptions with a range of exercise dates, tenors and strike rates and with quantum equal to the value of the cash fund of the underlying policy on vesting. In most circumstances, the quantum depends upon persistency, take-up rate of pension at vesting, the then market values of the assets constituting the asset shares of the policies and the expected future progress of mortality rates.

4.4.2 It is therefore appropriate to calibrate stochastic models to interest rate swaptions. Account should be taken of the different profiles of the cash flows from a portfolio of annuities and a portfolio of swaps.

4.4.3 The model used should be calibrated to reproduce swaption prices as closely as possible across as much as possible of the range of swaptions which reflect the liability portfolio. In particular, the greatest accuracy should be achieved at the exercise dates, tenors and strike rates which represent the majority of the liabilities by value, subject to the availability of reliable derivative prices. If reliable prices are not available for a material part of the liabilities (e.g. because the strike rates required are significantly different from those currently available), then adequacy of the

model should be tested relative to the available prices and theoretical justification documented of the adequacy for the prices actually required.

4.4.4 It is normally necessary to model both the maturity benefit and the GAR simultaneously using appropriate correlations, although it may be possible to model each separately and combine the results using appropriate analytical techniques.

5 *Risk capital margin* (PRU 7.4.43R–103G)

5.1 General

5.1.1 The *risk capital margin* for a *with-profits fund* is the value of the additional assets required so that, if the most adverse combination of certain specified changes occurred, the changed values of the assets representing the *realistic value of liabilities* and of such additional assets would equal the changed *realistic value of liabilities.*

5.1.2 The sum of the *realistic value of the liabilit*ies and the *risk capital margin* is not intended to be a complete test of adequacy of a *firm*'s assets in accordance with generally accepted actuarial practice. Rather, the *risk capital margin* is intended to facilitate a broad, public comparison of capital requirements between *firms*. It will also provide information which, together with a *firm*'s own *individual capital assessment*, the FSA can use when issuing *individual capital guidance.*

5.1.3 For the purposes of calculating the *risk capital margin*, the PRU rules allow some freedom, subject to the limits and order of selection given in PRU 7.4.45R, in the selection of the assets representing the *realistic value of liabilities* of the fund although they should normally consist of :

- the assets considered to back the *with-profits benefits reserve* including, where a *firm* uses asset share methods as a guide when determining bonuses, the assets backing the asset shares of policies or groups of policies for the purposes of attributing future investment returns to those asset shares,
- the assets considered most reasonable to back the *future policy-related liabilities*, including any additional assets held for meeting the associated future tax liabilities or for the purpose of hedging guarantees included in that liability, and
- cash or other appropriate investments backing the *realistic current liabilities*.

5.1.4 PRU 7.4.45R (2)(c) and (5) allow credit to be taken for up to 50% of the *PVFPNP* written outside of the *with-profits fund*. If this is one of the range of assets chosen to cover the *risk capital margin* then the guidance given in section 2.3 above on the calculation of the *PVFPNP* written in the *with-profits fund* must also be followed. However, PRU 7.4.49G specifically excludes the requirement to apply stress tests to this type of asset. For this calculation of *PVFPNP* PRU 7.4.38G has the effect of

excluding the release of the *long-term insurance capital requirement* and any *resilience capital requirement*.

5.2 The *market risk* scenario

5.2.1 PRU 7.4.68R specifies the reduction in *UK* equity prices to be assumed but, subject to the guidance in PRU 7.4.64G, PRU 7.4.73R(1) leaves *firms* to determine the reduction to be applied in respect of any equities listed in an overseas territory. Where an equity is listed both in the *UK* and in an overseas territory it should normally be treated as a *UK* equity unless the *firm* considers that the listing in the *UK* is not material.

5.2.1.1 Where an overseas territory is not material in the context of the fund as a whole, an approximate approach may be used providing that this is expected to be at least as prudent as the approach for *UK* equities.

5.2.1.2 Where the territory is more material it may still be appropriate to use approximate methods based upon the relative volatilities of the markets provided that the method adopted can be shown to be at least as strong as the approach for *UK* equities.

5.2.2 PRU 7.4.69R and PRU 7.4.74R refer to assumptions to be made about future returns from equities or real estate when calculating the changed *realistic value of liabilities*. The requirement must be taken to be that the expected annual percentage return from equities or real estate does not increase as a result of the reduction in value. Where, for tax purposes, it is necessary to divide the return into dividends or rental income and capital growth, the assumption must be that future dividends or rental income represent the same proportion of the expected return as before the reduction in value.

5.2.3 For regular monitoring of solvency, it is acceptable to assume that whichever of a rise or fall in each of fixed-interest yields, equity market values and property market values was the more onerous in the most recent half-yearly return to the FSA continues to be the more onerous, unless it is considered likely that the relationship has changed.

5.3 The credit risk scenario

5.3.1 As set out in PRU 7.4.87R, it is not necessary for the purposes of calculating the *risk capital margin* to assume a reduction in value in bonds issued by a credit risk scenario exempt organisation.

5.3.2 PRU 7.4.98R and PRU 7.4.99G describe the approach for applying the credit risk scenario to *derivatives* such as interest rate swaps and swaptions. Where *derivatives* are fully collateralised, and the collateralisation arrangements are fully enforceable, then this can be taken into account in determining the default risk. In some but not all circumstances the impact may be limited to the effect of the *counterparty* being unable to meet the next margin payment call under the collateral

arrangements following the credit risk event. It is also appropriate to take account of any initial margining arrangements in assessing this impact. The requirement to consider each factor influencing the change in value must be interpreted as also including the credit risk to the value of the collateral itself.

5.4 The persistency risk scenario

5.4.1 In the application of the persistency risk adjustment, PRU 7.4.101R makes an exclusion for 'maturities' and 'retirements'. These terms are not defined, and the interpretation of this rule is a matter of law. It is generally accepted actuarial practice to treat early maturities and early retirements as equivalent to surrenders. Therefore, the exclusion must not apply to an option to terminate early, however described, that has been treated as a surrender in the calculation of the *realistic value of liabilities* unless it is excluded by condition (1) or (2) in PRU 7.4.101R.

5.4.2 Where voluntary termination generates profits, the reduction in profits arising from lower termination rates will either reduce the future growth of asset shares, possibly increasing the cost of guarantees, or reduce the *realistic excess capital* directly, depending on whether or not the termination profit is allocated to asset shares.

5.5 Allowing for management actions in the calculation of *risk capital margins*

5.5.1 Certain management actions may have been allowed for in calculating the *realistic value of liabilities.* When calculating the changed *realistic value of liabilities*, PRU7.4.52R allows for account to be taken of other management actions that may be taken after the various risk scenarios have come about.

5.5.2 PRU 7.4.53R requires that a realistic amount of time is allowed for these actions to take effect. Where the actions relate to the sale or purchase of assets, this time period must be judged in relation to the magnitude of the assumed transaction compared with the capacity of the market to absorb or provide the assets concerned. In making this judgement, a realistic view should normally be taken of the likely reaction of other market participants to the occurrence of the risk scenario. However, a prudent reduction in the value credited to a strategy of selling or purchasing assets should normally be applied where there is significant uncertainty as to how other participants might react.

5.5.3 Except where the magnitude is insignificant in relation to the market's capacity, the price at which the transactions are assumed to take place must be adjusted to allow for the impact of the transaction and of other similar transactions likely to be made by other market participants in the risk scenario.

5.6 Allowing for policyholders' actions in the calculation of *risk capital margins*

5.6.1 In assessing the likely change in the exercise rate of policy options in the *market risk* scenarios, any relevant recent experience should be taken into account. However, it must be borne in mind that behaviour when an option is out of or barely in the money is an unreliable indication of likely policyholder behaviour when an option is significantly in the money and judgement will need to be applied in deriving suitable adjustments. As maturity guarantees become more attractive, reductions in early terminations should also be considered. It should not normally be assumed, without appropriate justification, that no change in behaviour would occur if a risk scenario came about.

5.6.2 The adjustment to termination rates required in the *persistency risk* scenario must be applied on top of any changes arising from consideration of policyholder behaviour in *market risk* scenarios.

5.6.3 The *realistic value of liabilities* must include an allowance for increasing future awareness of policy options. As well as the factors referred to in PRU 7.3.65G, a realistic allowance must be made for increased awareness where the *firm* has increased or intends to increase disclosure to customers, such as issuing personal notifications shortly prior to the date on which a valuable option may be exercised. The impact of increased awareness must also be borne in mind when assessing likely changes in policyholder behaviour in the *market risk* scenario.

5.6.4 Because the *realistic value of liabilities* will allow for increases over time in the take-up rates of guaranteed annuity options as a result of increasing value due to improving longevity, there is no need for a further allowance for this in the calculation of the *risk capital margin.* However, a change in the take-up rates should normally be assumed in response to the fixed interest yield change in the risk scenario: this change in take-up rates would be an increase in take-up if the yield fall is more onerous (as is likely if there are substantial unhedged guaranteed annuity liabilities) or a reduction if the yield rise is the more onerous.

5.6.5 If the *realistic value of liabilities* assumes less than 100% take-up of guaranteed annuity options, this must be reconsidered in the risk scenario to allow for the risk that customers may elect not to take up their full tax free cash allowance, especially as they may have other policies with one or more providers from which they may differentially choose their tax free cash. Such considerations should normally include an analysis of the level at which the tax free cash foregone becomes less valuable than the additional guaranteed annuity net of tax, at basic and higher rates of tax.

5.6.6 It is possible that in the *market risk* scenario, policyholders might react to the reduced solvency of a *firm* by increasing voluntary terminations. However, this must not be used as an offsetting assumption in the persistency risk scenario.

5.6.7 The calculation of the *risk capital margin* should normally include a reassessment of the appropriate level of mis-selling reserves to allow for the risk that the level of complaints or the amount of compensation per complaint may alter in the scenario.

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