

Other financial risks under IFRS 17

1. Introduction

The IFRS 17 standard addresses the setting of discount rate assumptions (paragraph 36), and much effort has been expended to date by professional bodies and industry in interpreting and assessing the various available options. Relatively little information is provided, however, with regard to other financial assumptions. The aim of this note is to consider the issues relating to the setting of these other assumptions.

In section (2), we consider the requirement for firms to identify assumptions that relate to 'financial risk'.

In section (3), we analyse the market-consistency criteria of IFRS 17 against other reporting regimes, and find a number of similarities, particularly when compared to Solvency II. We outline the benefits of assumption alignment, where possible and appropriate, noting the particular features of individual regimes. The analysis excludes discount rates, for which the Solvency II approach and underlying parameters are heavily prescribed, and which forms the content of a number of other papers produced by the Working Party.

In sections (4), (5) & (6), we describe a range of 'financial' assumption types, and the particular considerations and challenges around their calibration and usage, referencing material from this and other Working Parties where relevant.

2. “Financial Risks” under IFRS 17

Financial risk is defined in Appendix A of the standard as:

The risk of a possible future change in one or more of a specified interest rate, financial instrument price, commodity price, currency exchange rate, index of prices or rates, credit rating or credit index or other variable, provided in the case of a non-financial variable that the variable is not specific to a party to the contract

Under the General Model Paragraph 41 of the Standard requires changes in financial risk to be reflected in Insurance Finance Income & Expenses. For changes in non-financial risks, recalibration of the Contractual Service Margin (CSM) is required.

Paragraph 36 implies that financial risks are to be allowed for either within the discount rate itself or within the cash flows being discounted. The choice will depend on the particular financial risk, and is considered further below.

An interesting paper on possible interpretations of “financial risk” has been produced by the IFRS 17 CSM Working Party and can be found [here](#).

All relevant regulatory text referred to in this paper can be found in Appendix 1.

Note on interaction with IFRS 9

While this note covers assumption-setting under IFRS 17, we note that the valuation of assets under IFRS 9 can have a material impact on the discount curve, and hence valuation of liabilities under IFRS 17, e.g. where the IFRS 9 asset forms part of the reference portfolio assumed in the top-down approach. While this relates to all IFRS 9 assets, it is particularly relevant for Equity Release Mortgages (ERM), an asset class receiving growing interest from life insurers in recent years, but which relies on insurers’ own valuations (and for which insurers now have the option to measure under IFRS 9). As a result, a number of references to assumptions underlying ERM valuations are made in the remainder of this note.

3. Market-consistency

We now consider the extent to which comparative accounting and solvency regimes require market-consistency, i.e. consistency with observable market data, in the setting of financial assumptions, and therefore the extent to which common assumptions might be employed across different reporting bases. Again, discount rates are excluded from the scope of this paper, and below we address only the “other” financial risks. A brief discussion on comparative discount rate requirements can however be found in Appendix 2.

3.1 Comparison of reporting frameworks

The table below discusses the key observations when comparing market-consistency requirements under the IFRS 17, Solvency II (SII) and Insurance Capital Standards (ICS) reporting frameworks:

	IFRS 17	SOLVENCY II	INSURANCE CAPITAL STANDARDS
DEFINITION OF MARKET CONSISTENCY	Setting of market variables to achieve consistency with observable market data (P. B44-48.)	Setting of market variables to achieve consistency with observable market data (SII Delegated regulation, Article 22 (3))	Aiming to achieve values consistent with observable market prices (level 1. P31).
LIABILITY VALUATION	Replicating portfolio or probability weighted cash flows (P. B46-48)	Replicating portfolio or probability weighted cash flows (SII Directive, Article 77)	Replicating portfolio or probability weighted cash flows (level 1. P31 & 33).
FREQUENCY OF ASSUMPTION REVIEW	Treatment depends on the measurement model employed and whether calculating the valuation BEL or CSM BEL ¹ . Assumptions used to calculate the IFRS 17 valuation BEL should be current and up-to-date (P. 33(c)), however financial assumptions updates should not be included in the CSM recalibration under the General Measurement Model (GMM) or the Premium Allocation Approach (PAA) (P. B97)	Regular review and update of assumptions (SII Directive, Article 77 (2))	Assumptions are supposed to be “ <i>up-to-date... credible... and realistic</i> ” and the calculated liability result should not include any margins (level 1 P.42).
INFLATION	Assumptions should reflect current estimates of possible future rates (P.33) Rates should not contradict and should be consistent with other market observable variables (P. B51). Could be treated as financial assumptions (locked-in) or non-financial (up-to-date) – see separate paper referenced in section 4 below	Cash flows should include developments in inflation (SII Delegated Regulation, Article 29) and as referenced above, should maintain consistency with observable market data	Cash flows should include allowance for “ <i>economic developments, and [be] based on appropriate inflation assumptions, recognising the different types of inflation to which the entity can be exposed</i> ” (Level 2 P.18)

¹ “CSM BEL” referred to here is the variant of BEL used for measuring the impact of changes in non-financial risk on the CSM.

A final observation, relating to reinsurance, is that the financial assumptions used for the Reinsurance CSM BEL will be locked-in on recognition. If the recognition date for the reinsurance contract differs from the recognition date of the gross underlying business, it is possible that the financial assumptions may differ. This issue relates only to the reinsurance CSM calculation - in general, the assumptions underlying the reinsurance valuation BEL are expected to be consistent with the underlying gross business (para 63), which is broadly consistent with other regimes (e.g. ICS level 1 P.35). Specific considerations around reinsurance counterparty risk are outlined in section 6 below.

3.2 Further considerations

Solvency II

Notwithstanding specific considerations around discount rates, IFRS17 requires a market-consistent approach to the setting of “market variables”, as detailed in paragraphs B44-48. This is similar in concept to the requirements of Solvency II (Delegated regulation, Article 22, Paragraph 3), hence, in some cases it is conceivable that Solvency II calibration approaches will be adopted.

Some further observations when comparing Solvency II to IFRS 17 text on market-consistency yields the following:

- Alignment in the aim of achieving market-consistency means that many assumptions in the probability weighted cash flows (e.g. claims inflation) can be treated similarly, however entities will need to consider:
 - i. How locking-in of assumptions for CSM recalibration may require a different approach for setting financial assumptions due to operational consequences of locking-in to complex (e.g. stochastic) assumption sets²
 - ii. Potential differences in granularity of assumption-setting. This applies to assumptions derived at a Portfolio level (e.g. expenses), where differences between IFRS 17 Portfolios and Solvency II ‘portfolios’ may exist.
 - iii. Potential differences in cash flow definitions resulting in different assumptions, e.g. ‘attributable expenses’ under IFRS 17 may have different growth expectations compared to ‘full expenses’ under Solvency II.
 - iv. Solvency II requires modelling of dynamic policyholder behaviour (DPB), where appropriate, with a link to underlying financial assumptions (Directive article 79). Firms will need to consider whether DPB rules will hold under IFRS 17 if the underlying financial assumptions are locked-in for IFRS 17, and how such

² For a more detailed discussion on this see the paper “IFRS 17 Market Consistent Valuation of Financial Guarantees for Life and Health Insurance Contracts” from the Canadian Institute of Actuaries, <https://www.cia-ica.ca/docs/default-source/2020/220061e.pdf>

behaviours can be reflected in the CSM (or whether they should). We should also consider whether any chosen approach may mis-state or hide certain risks.

- Solvency II Article 33 requires that best estimate shall be calculated separately for cash flows in different currencies. This is not a requirement under IFRS 17 unless entities choose to separate currencies under Levels of Aggregation. Even then, currencies may not be split where single policies have cash flows of multiple currencies. Under these circumstances firms will need to consider how to treat different currency risks under the same policy

Insurance Capital Standards

It is worth noting that under both IFRS 17 and ICS, due to difficulties in finding a truly representative portfolio, the use of *probability-weighted, present values of the future cash flows* will be a more common approach adopted by most insurers. This will bring more alignment with modelling approaches used under Solvency II.

3.3 Common considerations

Notwithstanding the differences outlined above, we emphasize the high-level similarities that exist between IFRS 17, Solvency II and ICS, when considering the setting of assumptions relating to (non-discount rate) financial risks. Insurance liabilities are calculated based on probability-adjusted cash flows, and assumptions relating to financial risks are based, where appropriate, on market data. It is anticipated that assumptions relating to financial risk under IFRS 17 will, in many cases, be based on the approach taken within existing market-consistent reporting regimes. Each separate basis will, however, have its own specific considerations.

In general, consistency between valuation bases – particularly between IFRS and Solvency II for European firms - may be desirable for several reasons. These include, inter alia:

- External communication. Having consistent reporting bases, where appropriate, aids understanding of financial dynamics and ‘de-clutters’ external messaging to regulators and investment markets. For example, this would reduce the complexity of any externally disclosed reconciliations between bases. Any divergence between bases, where not required for compliance purposes, may appear arbitrary. Firms will want to be in a position to clearly articulate the rationale for any material differences in basis, e.g. where departures from a true best-estimate or market-consistent view exist, and the financial impacts thereof.
- New business pricing. For example, suppose a firm prices its new business in order to generate a target level of profitability on a Solvency II (or some variant thereof) basis. Unnecessary divergences between pricing and (IFRS) reporting bases may distort reported new business profitability. This may complicate external communication (as above), or feed back into the pricing process, creating unwanted complexity. To the extent that divergences exist, pricing may need to evolve to incorporate new business impacts on multiple bases – this can either be through some form of multi-metric price optimisation, or through the use of a primary pricing metric with other metrics acting as

secondary 'hard' or 'soft' pricing constraints. To some extent, this may already be the case under current IFRS.

- Asset liability management. Firms already grapple with the challenge of trying to simultaneously manage volatility of multiple reporting metrics. For example, where liabilities under different bases have different exposures to market movements, it is not possible to construct an asset portfolio that perfectly hedges all bases. Unnecessary divergences in assumption sets again creates additional complexity and may lead to additional volatility in some metrics.

We now consider some of the key (non-discount rate) assumptions in respect of financial risk.

4. Inflation

Life insurers are exposed to a variety of inflation types, especially where pension scheme risks are underwritten. A number of possible data sources and calibration approaches may exist, depending on the size of the inflation-linked securities and derivative markets in the relevant currency. Further, IFRS 17 introduces some interesting considerations around the lock-in of certain inflation assumptions for the purpose of the CSM recalibration.

These and other inflation-related topics form the subject of the separate paper “Treatment of index-linked liabilities under IFRS 17”, which can be found [here](#).

5 Volatility

5.1 Types

Volatility assumptions are required in a number of areas in constructing the IFRS 17 balance sheet. Example include the following:

- With-profits business typically contains a mix of explicit and implicit investment guarantees, e.g. that bonus rates (regular bonus, as well as terminal bonus at maturity points) cannot fall below zero. Stochastic methods are used to value these guarantees, and these require volatility assumptions in respect of the asset classes underlying policy Asset Shares. These typically consist of, inter alia, equity, property, corporate and government bonds. For firms within scope of Solvency II, or any other market-consistent reporting regime, these considerations will be familiar.

It is anticipated that most with-profits business will fall under the Variable Fee Approach, hence changes in volatility assumptions would recalibrate the CSM. Further discussion on locking in of stochastic assumptions (under the General Measurement Model) can be found in the separate paper “Locked-in stochastic discount rates under IFRS 17”, which can be found [here](#).

In general, volatility assumptions are required where investment guarantees exist; outside of with-profits, this may include Universal Life style contracts or in-scope savings contracts with investment guarantees. We refer only to with-profits business in the remainder of this section.

- An area currently receiving a high level of regulatory scrutiny in the UK is the valuation of Equity Release Mortgages (ERMs) under Solvency II. These loans typically contain a no-negative equity guarantee on death, sale of the property or transfer of the owner to long-term care. This guarantee is effectively a put option provided by the firm to the customer, with the residential property being the ‘underlying’, and the projected loan balance at the redemption date being the ‘strike’. The assumed volatility of individual residential property prices (or technically, the futures prices thereof) is therefore material to the valuation of the ERM asset. Since 2019, the PRA has been prescribing the value of this parameter to be used in its ‘Effective Value Test’, a test which firms need to undertake on a regular basis to ensure that the matching adjustment benefit of ERMs on their Solvency II balance sheets is not excessive.

We note here that in the latest version of the standard, insurance firms have the option of measuring ERMs under either IFRS 17 or IFRS 9. It is anticipated that most insurance firms will measure ERMs under IFRS 9 as, typically, insurers view ERMs as liability-backing spread generating assets. Where ERMs, valued under IFRS 9, form part of the discount rate reference portfolio under the top-down approach, the valuation of the ERM asset – hence the volatility assumption – will impact the IFRS 17 discount curve. This is true both where

firms look through their Solvency II ERM securitisations under IFRS 17, and where they do not – in the latter case, the volatility assumption would affect the perceived riskiness (e.g. via an internal credit rating) of the senior tranche used to back liabilities, hence the deduction for credit risk in the discount curve.

The following volatility assumptions might therefore be required under IFRS 17:

- Interest rate volatility – As above, this assumption will be required for with-profits business, given the material Bond holdings backing policy Asset Shares. Further, interest rate volatility assumptions are required in the valuation of any residual Guaranteed Annuity Options on insurers' books.
- Inflation volatility – As above, an inflation volatility assumption is required where firms apply stochastic techniques to derive Limited Price Indexation (LPI) curves. It may also be required where with-profits Asset Shares include inflation-linked assets.
- Equity volatility – as above, this assumption will be required for with-profits business, given the material Equity constituent of Asset Shares.
- Property volatility – as above, this will be relevant for with-profits, and also for ERM valuation. The former is likely to be based on commercial property and be set at aggregate level for the asset class, whereas the latter will be based on individual residential property and allow for idiosyncratic risks.

5.2 Calibration data

Volatility assumptions should be based, where possible, on market data, allowing for the duration and moneyness of the relevant liabilities. Options and guarantees in life insurance are, however, in many cases very long-dated, far beyond the typical term (say five to seven years) of available market data on implied volatilities. Reliance is often therefore placed on implied volatilities from over-the-counter derivative quotations (which do not always reflect a deep and liquid market price) combined with significant expert judgement. For example, long-dated equity volatility can be imputed from quotations from investment banks for long-dated equity put options, noting that

- The volatility parameter value is model-specific hence may need conversion from a pure Black Scholes implied volatility, and
- The implied volatility may be based on a vanilla option and its application to a more complex derivative type (i.e. with profits guarantee) is a stated limitation

In some cases, the lack of calibration data at the appropriate duration leads firms to mark to model, for example by:

- Developing an extrapolation model for volatilities beyond the last liquid duration, or
- Calibrating to shorter term volatilities and 'allowing the model' to determine longer term volatilities via the inner workings of the Economic Scenario Generator, or
- Studying historic (realised) volatilities for the relevant durations, and combining these with a model for converting historic to implied volatilities

This might be seen for example in the case of property volatility, where there are likely to be even fewer (if any) available calibration points than in the case of equities.

As noted above, in the case of residential property volatility for use in ERM valuations, the PRA currently prescribes the parameter value for use in the 'Effective Value Test' under Solvency II. It is not necessarily the case however that firms will use this same parameter value within their underlying Solvency II, or indeed IFRS 9, ERM asset valuation. Where ERMs are held at Fair Value under IFRS 9, however, consistency with Solvency II asset valuations may be considered desirable.

Interest rate volatility can be imputed from swaption pricing at the relevant duration and moneyness. There are likely to be fewer issues here around long-dated liquidity, relative to equity and property derivatives.

Inflation volatility could in theory be imputed from the pricing of any existing LPI swaps. Again, there are issues around liquidity in the LPI swap market, as well as the range of durations for which data is available. Again, firms may consider marking to model here, based on an analysis of historic volatility and a 'conversion to implied' model. Separate volatility assumptions may be required for RPI and CPI measures of inflation, depending on the nature of the firm's exposure.

5.3 Valuing embedded options and guarantees where underlying is illiquid

Volatility assumptions are typically required for the valuation of embedded options and guarantees. Standard risk-neutral valuation³ approaches are adopted in most cases, including Black-Scholes (or one of its variants) and risk-neutral Monte-Carlo simulation. Where the underlying is illiquid, various adjustments, or changes in approach, may be needed. Further discussion on this topic, including the possibility of adjusting the volatility parameter, can be found in "Calibration of Stochastic Models under IFRS 17", which can be found [here](#).

³ 'Risk-neutral valuation' is a method for deriving a market-consistent value of an asset or liability where no reliable market price exists. The method involves the use of 'risk-neutral probabilities' (as opposed to 'real-world probabilities') of future outcomes, combined with discounting at the risk-free rate. An introduction to risk-neutral valuation can be found in Tham, 2001, "Risk-neutral valuation: a gentle introduction".

6 Other Financial Risks

While discount rates, inflation and volatility are generally considered to be key financial risk sets to which life insurers are exposed, a number of others exist. We briefly consider some of these below. This list is not exhaustive.

6.1 Cash flow mismatches

Under Solvency II, firms are required to ensure adequate matching of asset and liability cash flows within Matching Adjustment portfolios, in order to obtain Matching Adjustment benefit. In the UK, this is achieved via a series of PRA-prescribed tests, which between them cover the extent of matching of nominal cash flow, inflation and currency characteristics of the liabilities. No strict matching requirements exist under IFRS 17, however firms may wish to consider whether or not to allow for any mismatch risk (noting Para B83(a)), and if so, how. Cash flow mismatch risk arises where:

- Asset cash flows are longer-dated than liability cash flows, implying future disinvestment (or reporing where applicable) of assets at an unknown future price (or rate), or
- Asset cash flows are shorter-dated than liability cash flows, implying future reinvestment of assets at an unknown future yield

6.2 Property growth

Life insurers are exposed to property price growth risk, within their with-profits portfolios, their ERM portfolios, and any other direct property investments they may hold. In some cases, liabilities contain embedded guarantees, the ultimate cost of which depends on the underlying property values at some future date. Examples include with-profits guarantees and ERM no-negative equity guarantees, as discussed in section 5, and noting that most insurers are expected to value their ERM assets under IFRS 9. In terms of the point-in-time valuation of these liabilities, however, we note that under standard risk-neutral valuation approaches the expected future growth rate of the underlying is not relevant. Alternative approaches do allow for a 'risk premium' over and above the risk-free rate, which is related to the expected growth rate in the asset, but is then effectively removed in the valuation via the use of state price deflators. In the case of no-negative equity guarantees, some key assumptions of a standard risk-neutral valuation approach (e.g. deep and liquid market in the underlying) do not hold, and we observe that a number of firms are currently allowing for 'real-world growth' assumptions within their valuations. The Effective Value Test described in section 5 includes a PRA prescribed minimum 'deferment rate' parameter (reflecting the cost of deferred, rather than immediate, possession), which again restricts the benefit that firms can take for ERM assets on their Solvency II balance sheets. As with property volatility, firms may wish to consider the implications of adopting the Solvency II assumption within their IFRS 9 ERM valuations.

6.3 Transfer values / cash commutations

Deferred annuity contracts in the UK contain options to transfer to another provider prior to retirement date, and to commute up to a specified percentage of the retirement proceeds into tax-free cash. Both of these benefits rely on a valuation of the pension benefits at future points in time. In turn, this future valuation basis is embedded with the current valuation. In particular,

assumptions are required for 'future assumptions' about interest rates and inflation. These assumptions are unlikely to simply be 'rolled-forward' versions of the IFRS 17 interest rate and inflation assumptions, as they will depend on the firm's transfer pricing basis. Firms will therefore need to consider setting separate assumptions. Also to be considered is the extent to which these items constitute 'financial risk' and therefore require lock-in for the purposes of the CSM calculation.

6.4 Reinsurance counterparty default

For most physical assets, default risk is allowed for within the discount rate assumption - where the top-down approach to setting discount rates is applied, the credit risk adjustment is explicit. IFRS 17 is not prescriptive, however, on the calculation approach for reinsurance non-performance. Firms will need to consider whether this constitutes financial risk, and if so, how to allow for it. IFRS 17 requires separate units of account to be established for reinsurance and for 'gross business', hence it is conceivable that non-performance is allowed for directly via the reinsurance fulfilment cash flows.

6.5 Eligibility for Variable Fee Approach

Eligibility for the Variable Fee Approach depends on the existence of direct participation features within contracts. Paragraph B101 defines this feature with respect to three conditions. Condition (c) requires an assessment of the proportion of benefits that are expected to derive from investment returns on the underlying assets. As such, firms are required to derive 'expected return' assumptions on certain assets, and will need to formulate an appropriate method for doing so. Note that this assumption is required only for contract classification purposes, and is not used in the actual valuation of the liabilities.

Appendix

Excerpts from IFRS 17

- 36 An entity shall adjust the estimates of future cash flows to reflect the time value of money and the financial risks related to those cash flows, to the extent that the financial risks are not included in the estimates of cash flows. The discount rates applied to the estimates of the future cash flows described in paragraph 33 shall:
- (a) reflect the time value of money, the characteristics of the cash flows and the liquidity characteristics of the insurance contracts;
 - (b) be consistent with observable current market prices (if any) for financial instruments with cash flows whose characteristics are consistent with those of the insurance contracts, in terms of, for example, timing, currency and liquidity; and
 - (c) exclude the effect of factors that influence such observable market prices but do not affect the future cash flows of the insurance contracts.
- 41 An entity shall recognise income and expenses for the following changes in the carrying amount of the liability for remaining coverage:
- (a) insurance revenue—for the reduction in the liability for remaining coverage because of services provided in the period, measured applying paragraphs B120–B124;
 - (b) insurance service expenses—for losses on groups of onerous contracts, and reversals of such losses (see paragraphs 47–52); and
 - (c) insurance finance income or expenses—for the effect of the time value of money and the effect of financial risk as specified in paragraph 87.
- 63 In applying the measurement requirements of paragraphs 32–36 to reinsurance contracts held, to the extent that the underlying contracts are also measured applying those paragraphs, the entity shall use consistent assumptions to measure the estimates of the present value of the future cash flows for the group of reinsurance contracts held and the estimates of the present value of the future cash flows for the group(s) of underlying insurance contracts. In addition, the entity shall include in the estimates of the present value of the future cash flows for the group of reinsurance contracts held the effect of any risk of non-performance by the issuer of the reinsurance contract, including the effects of collateral and losses from disputes.
- 87 Insurance finance income or expenses comprises the change in the carrying amount of the group of insurance contracts arising from:
- (a) the effect of the time value of money and changes in the time value of money; and
 - (b) the effect of financial risk and changes in financial risk; but

(c) excluding any such changes for groups of insurance contracts with direct participation features that would adjust the contractual service margin but do not do so when applying paragraphs 45(b)(ii), 45(b)(iii), 45(c)(ii) or 45(c)(iii). These are included in insurance service expenses.

- B44 Estimates of market variables shall be consistent with observable market prices at the measurement date. An entity shall maximise the use of observable inputs and shall not substitute its own estimates for observable market data except as described in paragraph 79 of IFRS 13 Fair Value Measurement. Consistent with IFRS 13, if variables need to be derived (for example, because no observable market variables exist) they shall be as consistent as possible with observable market variables.
- B45 Market prices blend a range of views about possible future outcomes and also reflect the risk preferences of market participants. Consequently, they are not a single-point forecast of the future outcome. If the actual outcome differs from the previous market price, this does not mean that the market price was 'wrong'.
- B46 An important application of market variables is the notion of a replicating asset or a replicating portfolio of assets. A replicating asset is one whose cash flows exactly match, in all scenarios, the contractual cash flows of a group of insurance contracts in amount, timing and uncertainty. In some cases, a replicating asset may exist for some of the cash flows that arise from a group of insurance contracts. The fair value of that asset reflects both the expected present value of the cash flows from the asset and the risk associated with those cash flows. If a replicating portfolio of assets exists for some of the cash flows that arise from a group of insurance contracts, the entity can use the fair value of those assets to measure the relevant fulfilment cash flows instead of explicitly estimating the cash flows and discount rate.
- B47 IFRS 17 does not require an entity to use a replicating portfolio technique. However, if a replicating asset or portfolio does exist for some of the cash flows that arise from insurance contracts and an entity chooses to use a different technique, the entity shall satisfy itself that a replicating portfolio technique would be unlikely to lead to a materially different measurement of those cash flows.
- B48 Techniques other than a replicating portfolio technique, such as stochastic modelling techniques, may be more robust or easier to implement if there are significant interdependencies between cash flows that vary based on returns on assets and other cash flows. Judgement is required to determine the technique that best meets the objective of consistency with observable market variables in specific circumstances. In particular, the technique used must result in the measurement of any options and guarantees included in the insurance contracts being consistent with observable market prices (if any) for such options and guarantees.
- B101 Insurance contracts with direct participation features are insurance contracts that are substantially investment-related service contracts under which an entity promises an investment return based on underlying items. Hence, they are defined as insurance contracts for which: (a) the contractual terms specify that the policyholder participates in a

share of a clearly identified pool of underlying items (see paragraphs B105–B106); (b) the entity expects to pay to the policyholder an amount equal to a substantial share of the fair value returns on the underlying items (see paragraph B107); and (c) the entity expects a substantial proportion of any change in the amounts to be paid to the policyholder to vary with the change in fair value of the underlying items (see paragraph B107).

- B128 Paragraph 87 requires an entity to include in insurance finance income or expenses the effect of changes in assumptions that relate to financial risk. For the purposes of IFRS 17: (a) assumptions about inflation based on an index of prices or rates or on prices of assets with inflation-linked returns are assumptions that relate to financial risk; and (b) assumptions about inflation based on an entity's expectation of specific price changes are not assumptions that relate to financial risk.

Excerpts from Solvency II

Solvency II Directive, Article 76:

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

Solvency II Directive, Article 77:

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

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

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

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

Solvency II Delegated regulation, Article 22:

1. Assumptions shall only be considered to be realistic for the purposes of Article 77(2) of Directive 2009/138/EC where they meet all of the following conditions:
 - (a) insurance and reinsurance undertakings are able to explain and justify each of the assumptions used, taking into account the significance of the assumption, the uncertainty involved in the assumption as well as relevant alternative assumptions;

- (b) the circumstances under which the assumptions would be considered false can be clearly identified;
 - (c) unless otherwise provided in this Chapter, the assumptions are based on the characteristics of the portfolio of insurance and reinsurance obligations, where possible regardless of the insurance or reinsurance undertaking holding the portfolio;
 - (d) insurance and reinsurance undertakings use the assumptions consistently over time and within homogeneous risk groups and lines of business, without arbitrary changes;
 - (e) the assumptions adequately reflect any uncertainty underlying the cash flows
3. Insurance and reinsurance undertakings shall set assumptions on future financial market parameters or scenarios that are appropriate and consistent with Article 75 of Directive 2009/138/EC. Where insurance and reinsurance undertakings use a model to produce projections of future financial market parameters, it shall comply with all of the following requirements:
- (a) it generates asset prices that are consistent with asset prices observed in financial markets;
 - (b) it assumes no arbitrage opportunity;
 - (c) the calibration of the parameters and scenarios is consistent with the relevant risk-free interest rate term structure used to calculate the best estimate as referred to in Article 77(2) of Directive 2009/138/EC.

Solvency II Delegated regulation, Article 29:

The calculation of the best estimate shall take into account expected future developments that will have a material impact on the cash in- and out-flows required to settle the insurance and reinsurance obligations over the lifetime thereof. For that purpose future developments shall include demographic, legal, medical, technological, social, environmental and economic developments including inflation...

Excerpts from ICS

Level 1 Document

- 31. Unless they are replicable by a portfolio of assets (reference Section 5.4), MAV insurance liabilities are the sum of a current estimate and a margin over current estimate (MOCE). The details underpinning the calculation of the current estimate and the MOCE are developed in the following sub-sections as well as in the Level 2 document.
- 33. The current estimate corresponds to the probability-weighted average of the present values of the future cash-flows associated with insurance liabilities, discounted using the yield curve relevant for the currency and bucket of each liability...

42. The calculation of the current estimate is based on up-to-date and credible information and realistic assumptions. The determination of the current estimate is objective, comprehensive, and uses observable input data.

Level 2 Document

- 18 Cash flow projections reflect expected future demographic, legal, medical, technological, social or economic developments, and are based on appropriate inflation assumptions, recognising the different types of inflation to which the entity can be exposed. Premium adjustment clauses are also considered, where relevant.

Appendix 2 – Further discount rate considerations

Solvency II vs IFRS 17

- IFRS 17 is not prescriptive on the approach for determining discount rates and allows the use of top-down or bottom-up approaches. IFRS17 is clear that discount rates should reflect the characteristics of the insurance contracts (including the liquidity characteristics) (Paragraph 36), however considerable discretion is given to firms relating to the derivation of specific parameters and adjustments;
- Solvency II requires use of risk-free-rate for discounting for most lines of business, with the allowance of a volatility adjustment when certain criteria are met and use of matching adjustment for specific types of business. Both adjustments in Solvency II are very prescriptive on how they are to be calculated, including prescribed parameter values, and on criteria that need to be met for business to be included;
- Methodology applied for the matching adjustment calculation may lend itself as a good starting point for calculating IFRS 17 discount rates, however this depends on the nature of the business and whether companies wish to apply a top-down vs bottom-up approach. In addition, IFRS 17 sets portfolios at different levels to Solvency II, hence companies will need to assess whether the same methodology for a Solvency II portfolio is appropriate across different IFRS 17 portfolios and whether methodology needs adjusting to capture new risks not considered under matching adjustment (e.g. different liquidity risks).

ICS vs IFRS 17

Unlike IFRS 17, ICS has a very prescriptive approach to the calculation of the yield curve, including how various financial risks are to be incorporated:

- Inflation and real interest in long term forward rate, with defined approaches to determining each
- Adjustments for buckets to represent illiquidity premium while excluding credit and certain “other risks”
- Limitations on spread adjustment movements to reduce volatility, does not capture nature of volatility and would not be representative of a particularly volatile market

The application of adjustments to the different discount curves could prove to be a useful starting point for applying a bottom-up approach for many firms under IFRS 17, particularly as, unlike Solvency II, this is applied at a portfolio level.