

# IFRS 17: Risk Adjustment

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## INTRODUCTION

The new insurance contracts accounting standard, IFRS 17 (or ‘**the Standard**’), was published in May this year and is expected to be an area of significant focus over the next few years leading up to implementation (‘**the implementation period**’).

For firms with calendar year reporting periods, IFRS 17 has an implementation date of 1<sup>st</sup> January 2021, however, affected firms will also need to be able show their accounts under the Standard as at the transition date<sup>1</sup> of 1<sup>st</sup> January 2020 for comparative purposes. Therefore, firms need to look to be able to produce IFRS 17 compliant financial statements from 1<sup>st</sup> January 2020, though some firms may choose to produce additional prior year comparatives. As many of us have learnt from the implementation of Solvency II, this isn’t as far away as it may sound.

It is assumed for the purposes of this paper that the reader has a basic knowledge of IFRS 17 and Solvency II.

There are a number of areas of IFRS 17 where the International Accounting Standards Board (‘**IASB**’) have allowed firms to make a choice on their approach. Milliman has previously written a paper on a number of the areas that require consideration during the implementation period.<sup>2</sup>

This paper focuses specifically on the choice of calculation methodology for the Risk Adjustment (‘**RA**’) that forms part of the Fulfilment Cash Flows (‘**FCF**’) under the General Model (‘**GM**’) in IFRS 17. The sections in this paper will cover:

- a summary of the guidance issued in the Standard in respect of the RA;
- an overview of three possible approaches to calculating the RA;
- a summary of the relative benefits of each approach; and,
- some general considerations.

The General Model (‘**GM**’) uses a Building Blocks Approach (‘**BBA**’)<sup>3</sup> and, the Variable Fee Approach (‘**VFA**’) and the Liability for Incurred Claims under the Premium Allocation Approach (‘**PAA**’), as described in IFRS 17, also make use of a BBA. Therefore an explicit RA is required for each of these calculations.

The PAA is a simplified approach under IFRS 17 for short-term contracts or contracts for which it provides an appropriate approximation. For the Liability for Remaining Coverage under the PAA, there is no explicit requirement to calculate a RA, however, firms must be able to show that the result of applying the PAA would not be significantly different to the result of applying the BBA. To demonstrate that the PAA is not significantly different to the BBA, no significant variability in the cashflow estimates should be expected before the claims are incurred.

<sup>1</sup> Paragraph C2(b) and C4, IFRS 17 Insurance Contracts

<sup>2</sup> [Transition to IFRS 17](#)

<sup>3</sup> The BBA refers to the requirement to calculate the FCF and the Contractual Service Margin (‘**CSM**’) for relevant contracts

<sup>4</sup> Paragraph 37, IFRS 17 Insurance Contracts

The FCF consist of the following three components:

- the best estimate of the future cash flows payable within the contract boundary of the insurance contract (‘**best estimate cashflows**’);
- the discounting effect of applying appropriate discount rates (as derived by the firm) to the best estimate cashflows (‘**discounting**’); and,
- a Risk Adjustment (‘**RA**’) to the discounted best estimate cashflows that is sufficient to compensate the firm for taking on the non-financial risks inherent in the best estimate cashflows.

## SUMMARY OF RISK ADJUSTMENT GUIDANCE

The following extract is taken from the Standard and outlines the requirement for a RA.

*“An entity shall adjust the estimate of the present value of the future cash flows to reflect the compensation that the entity requires for bearing the uncertainty about the amount and timing of the cash flows that arises from non-financial risk.”<sup>4</sup>*

This Risk Adjustment can be compared with the Risk Margin as defined within Solvency II as the two could be considered to be analogous. However, the definitions differ slightly in that the Risk Margin is defined in the context of a transaction value<sup>5</sup> whereas the RA represents an entity’s internal view of the non-financial risk inherent in the liability cash flows. In addition, IFRS 17 differs from Solvency II in that it allows firms free choice over the method to use to calculate the RA whereas under Solvency II the Risk Margin is calculated using a prescribed cost of capital method (the cost of capital method is described further below) with a prescribed cost of capital rate of 6%.

In other words, the RA measures the compensation that the entity requires to be indifferent between:

- a) *“fulfilling a liability that has a range of possible outcomes arising from non-financial risk; and,*
- b) *fulfilling a liability that will generate fixed cash flows with the same expected present value as the insurance contracts.”<sup>6</sup>*

This is effectively saying that the RA should be equal to an additional amount, on top of the discounted value of the future best estimate cashflows, such that the total (i.e. the FCF), is

<sup>5</sup> An amount that a knowledgeable and willing third party would be willing to pay to take on the relevant liabilities in an arm’s length transaction

<sup>6</sup> Paragraph B87, IFRS 17 Insurance Contracts

equal to the level of the certainty equivalent<sup>7</sup> for that entity in respect of non-financial risk. In other words, the amount that the entity, under its own assessment, would be willing to pay for a third party to take on the liability.

Therefore, if the entity is risk averse the RA will be positive. However, if the entity were risk seeking or risk neutral<sup>8</sup> then the RA could, in theory, be negative or zero, respectively however, this is unlikely to be the case in practice.

Modern Portfolio Theory assumes that insurance companies will be risk averse and therefore will require some level of compensation for taking on risk, however, the extent to which companies are risk averse will be determined by a number of factors, principally by market forces.

## DISCLOSURE

Under IFRS 17, entities are required to disclose the method and confidence level used for the calculation of the RA<sup>9</sup> as well as the amount of the RA and a high level analysis of how it has changed over each reporting period. This information may provide market analysts with a metric with which to compare the relative risk aversion of insurance entities. In fact, the IFRS 17 guidance suggests that firms consider whether any particular method provides “*concise and informative disclosure so that users of financial statements can benchmark an entity’s performance.*”<sup>10</sup>

## WHICH RISKS?

The RA is a measure of the uncertainty inherent in the cashflows arising from insurance contracts, other than the uncertainty arising from financial risk. Therefore, the RA should reflect all non-financial risks, however, non-financial risks that do not arise directly from an insurance contract are excluded, and in particular general operational risk is specifically excluded<sup>11</sup>. IFRS 17 does not provide a list of specific risks that are considered to be non-financial and so this is left to individual firms to determine.

In the UK, there is debate with respect to whether longevity risk should be considered hedgeable for the purposes of the Risk Margin under Solvency II. Given the definition of the RA in IFRS 17 refers to non-financial risk it would be reasonable to assume that longevity risk should be considered in the calculation regardless of whether it could be hedged.

It is important for firms to ensure that the allowance for non-financial risk is not double counted by implicitly including an adjustment for non-financial risk when estimating the best estimate cashflows or discounting<sup>12</sup>.

The uncertainty inherent in the best estimate cashflows that arises from financial risk can be either dealt with by adjusting the best estimate cashflows or by adjusting the discount rate.

<sup>7</sup> The certainty equivalent is a guaranteed return that someone would accept rather than taking a chance on a potentially higher, but uncertain, return

<sup>8</sup> For example, because it is seeking to build market share

<sup>9</sup> Paragraph 119, IFRS 17 Insurance Contracts

## REQUIRED CHARACTERISTICS OF CHOSEN METHODOLOGY

The calculation methodology and confidence level used to derive the value of the RA is not prescribed under IFRS 17. Instead, the Standard outlines five key characteristics that any calculation approach should possess:

- a) “Risks with low frequency and high severity will result in higher risk adjustments for non-financial risk than risks with high frequency and low severity;
- b) For similar risks, contracts with a longer duration will result in higher risk adjustments for non-financial risk than contracts with a shorter duration;
- c) Risks with a wider probability distribution will result in higher risk adjustments for non-financial risk than risks with a narrower distribution;
- d) The less that is known about the current estimate and its trend, the higher will be the risk adjustment for non-financial risk; and,
- e) To the extent that emerging experience reduces uncertainty about the amount and timing of cash flows, risk adjustments for non-financial risk will decrease and vice versa.”<sup>13</sup>

In terms of the choice of confidence level firms need to justify their choice as being the price at which they will accept the non-financial risk and therefore there may need to be some consistency with the price charged within premium calculations.

The next section outlines three possible methods for estimating the RA that were considered as possible approaches in papers published by the IASB staff. Market practice and audit opinion is likely to inform a fuller assessment of these methods against these characteristics over time.

## POSSIBLE CALCULATION TECHNIQUES

Firms are not restricted to using any particular calculation technique for the RA although the Standard does refer to the ‘*confidence level*’ technique in a number of areas (also commonly known as a ‘Value at Risk’ measure). However, the Standard does not specify a particular confidence level at which to calculate a value at risk; this is left to each entity to set based on their level of risk aversion.

The following techniques are considered further in the following sections:

- Value at Risk (‘**VaR**’)
- Tail Value at Risk (‘**TVaR**’)
- Cost of Capital (‘**CoC**’)

<sup>10</sup> Paragraph B92, IFRS 17 Insurance Contracts

<sup>11</sup> Paragraph B89, IFRS 17 Insurance Contracts

<sup>12</sup> Paragraph B90, IFRS 17 Insurance Contracts

<sup>13</sup> Paragraph B91, IFRS 17 Insurance Contracts

## VALUE AT RISK

VaR or the “confidence level” technique, is calculated with reference to a particular confidence level. For example, in Solvency II, the Solvency Capital Requirement (‘SCR’) is calculated at a 99.5th percentile VaR on the amount of Own Funds over a 1 year time horizon<sup>14</sup>.

Therefore, choosing a VaR methodology requires an entity to calculate the discounted value of the best estimate future cashflows under a range of different scenarios (each of which consider uncertainty as a result of the non-financial risks) to produce a risk distribution.

Furthermore the entity needs to specify a confidence level that it considers appropriate for the affected business. The RA is then equal to the VaR at that confidence level less the discounted value of the best estimate future cashflows.

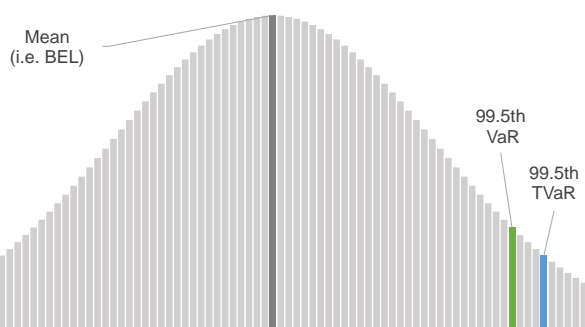
In the absence of a stochastic model the relevant VaR would likely be calculated using a calibration and correlation method whereby the entity would calibrate stress tests at the required confidence level and then combine them using a correlation matrix with appropriate correlation factors. Another possible alternative would be to use a copula based approach and make assumptions about the distribution of the relevant individual risks.

One possible approach to this calculation would be to use the Solvency II standard formula (‘SF’) SCR calibration-and-correlation methodology and set the confidence level at 99.5%. This would mean that entities would not need to recalibrate their existing Solvency II models to a different confidence level for IFRS 17. The existing stresses applied to the non-hedgeable risks would be combined using the correlation matrix for the relevant sub-module.<sup>15</sup>

## TAIL VALUE AT RISK

TVaR (or Conditional Tail Expectation), is also calculated with reference to a particular confidence level, however, the TVaR is the expected value above that confidence level. For example, if a 99.5<sup>th</sup> confidence level is chosen, the TVaR would be equal to the expected value given an extreme tail event (above the 99.5<sup>th</sup> percentile level) has occurred. This contrasts with VaR where the value would be at the 99.5<sup>th</sup> percentile.

The following graph illustrates the 99.5% VaR and TVaR on a normal distribution.



This method may be restrictive for entities that do not use stochastic techniques as a full risk distribution would be required in order to calculate the TVaR. However, in the absence of a stochastic model, firms could calculate this measure using an assumed standard distribution, for example the normal distribution as shown above. Given the sensitivity of this measure to the shape of the distribution in the tail it is likely that firms would need to provide justification for the use of a particular standard distribution, if chosen.

## COST OF CAPITAL

The CoC methodology assesses the cost of holding capital sufficient to cover the relevant risks over the lifetime of the business. It requires judgement to determine the appropriate level of capital in the future and the cost of capital rate.

This methodology is used to determine the Risk Margin under Solvency II. The appropriate level of capital is prescribed as that required to cover “non-hedgeable” risks (which has been widely interpreted as all non-market risks) using the Solvency II approach of applying adverse stress scenarios. The appropriate cost of capital rate is prescribed as 6% per annum and the resulting costs are discounted using the relevant risk-free curve to determine the Risk Margin.

In practice the Risk Margin may be some way away from a firm’s view of the cost of capital required to support its non-hedgeable risks. The 6% cost of capital rate has been subject to challenge during, and since, the finalisation of the Solvency II rules. Also, for those firms using the SF, holding capital equal to 100% of the SF SCR calculated for the relevant risks may be quite different from a firm’s own internal economic capital assessment in respect of those risks.

Under the CoC approach the RA is calculated as the discounted value of (i) the future risk capital considered appropriate to hold in respect of non-financial risks (where the capital is calculated at a confidence level set by the entity) multiplied by (ii) the entity’s internal cost of capital rate.

The following formula describes this calculation:

$$RA = CoC * \sum_t PV(RC_t)$$

<sup>14</sup> This translates to mean that the entity with assets having a value equal to the SCR plus technical provisions is holding assets sufficient to meet its best estimate policyholder obligations following a 1-in-200 year adverse risk event during the next year

<sup>15</sup> For example, the SCR calculated for each of the risks comprising the life underwriting risk module would be combined using the correlation coefficients specified in the Standard Formula for that risk module

Where the summation is over all future years of the projection,  $t$ , and the present value ('PV') is calculated using an appropriate discount rate, and:

$CoC$  = internal cost of capital rate (above the risk-free rate)

$RC_t$  = risk capital for non-financial risk, at time  $t$

Under the CoC methodology, the choice of discount rate used will depend on the asset selection for the risk capital and should only reflect the return that an entity can reasonably expect to earn.

Given that IFRS 17 uses a market consistent approach the return expectations are generally accepted to be a "risk-free" rate which may or may not include a liquidity premium under certain investment strategies.

For example, if an entity chooses to invest the risk capital in equities then it would be expected that the discount rate would be risk-free, however, if the risk capital was to be invested in longer duration fixed interest assets, with an intention to hold the assets to maturity, then the discount rate could be set at risk-free plus a liquidity premium.

This approach to setting the discount rate for the RA is similar to that used by many firms when calculating the Cost of Residual Non-Hedgeable Risks ('CRNHR') under Embedded Value ('EV') methodologies.

## RELATIVE BENEFITS OF EACH APPROACH

In general, since the RA must be allocated to each group of insurance contracts it is possible that different methods could be applied to different groups. For example, a cost of capital technique may be more suitable for a non-linked life insurance product whereas a TVaR approach may be more suitable for a unit-linked product or with-profits product.

### VALUE AT RISK

- For firms in scope of the Solvency II regime, if an entity is comfortable with a 99.5<sup>th</sup> percentile confidence level for their RA, much of the calculation work can be leveraged from existing Solvency II calculations. However, the timing of the submissions may be key here as many firms may not have their Solvency II capital calculations completed by the time the IFRS financial statements are required to be submitted.
- If a firm selects a confidence level other than 99.5% then, in the absence of a full stochastic model, a recalibration of the parameters used in the capital model may be necessary unless assumptions about the underlying distribution are made.

### TAIL VALUE AT RISK

- This approach may be less desirable for firms without a full stochastic model as it is particularly sensitive to the shape of the tail of the underlying distribution which a standard distribution (e.g. normal) may not appropriately capture. This may make the method fairly restrictive for many smaller

insurance entities without stochastic modelling capabilities and even for those with a stochastic model, there is likely to be a limited number of data points available to which the tail of the distribution can be calibrated.

- If a standard distribution is assumed there may be a reasonable amount of work required to justify the choice of distribution for the tail.
- This approach provides an indication of the shape of the distribution in the tail and therefore may provide a better indication of the required risk adjustment.

### COST OF CAPITAL

- This approach requires a number of assumptions including the choice of discount rate, the internal cost of capital rate and the appropriate level of capital required to support the business.
- The calculation is potentially more volatile than a VaR approach as it will be sensitive to changes in the selected discount rate, and to the absolute level of risk free rates (from which the discount rate will be derived). This is a particular concern in respect of the Solvency II Risk Margin in the current low interest rate environment.
- This method may show a significant variation in the value of the risk adjustment due to the different approaches that firms might take such as choosing different non-financial risks, discount rates, cost of capital rates and confidence levels.
- At first glance it may appear to be the most similar of the three methods to the Risk Margin in Solvency II, however, if the Risk Margin were to be used as a starting point, a number of alterations to the calculation may be required that could outweigh any assumed efficiency.

## OTHER FACTORS TO CONSIDER

### RELEASE OF PROFITS

Each of the three methods is likely to produce a different result and therefore firms will want to consider the consequential impact of the different approaches on the release of IFRS profits over time. Assuming that the insurance contracts are profitable, a smaller RA will lead to a larger Contractual Service Margin ('CSM'). This may be seen to be preferable by some firms as it can provide a buffer for absorbing any adverse experience that may arise on the business, rather than recognising losses immediately. The treatment in IFRS 17 of the release of the RA and CSM over time will impact the recognition of profits. In particular, the CSM will release over time in line with the coverage of the insurance contracts whereas the RA will release in line with the risk exposure which may not follow the same pattern.

The amount of the RA allocated to each group of insurance contracts may have an impact on whether each group is classified as profitable or onerous under IFRS 17. Firms are required to immediately recognise losses on onerous contracts

in the profit and loss account<sup>16</sup> and so this could be a factor when making the decision on the choice of RA methodology. Further, since firms are likely to calculate the RA at a higher level, to allow for the effect of diversification in their assessment of non-financial risk, the methodology firms choose to apply when allocating to individual groups of insurance contracts may also impact on this classification.

## DISCLOSURE

Whichever methodology an entity chooses to adopt, the entity must disclose it and the equivalent confidence level that the resulting RA implies, under a VaR measure. For firms with a full stochastic model, this is likely to be a relatively straightforward exercise but for firms without this capability, an assumption will need to be made with respect to the shape of the risk distribution of the insurance liabilities in order to determine the equivalent VaR level.

The Solvency II standard formula SCR is calibrated on the assumption that the underlying risks are normally distributed and that the SCR value represents the 99.5<sup>th</sup> percentile level over 1 year of the resulting multivariate normal distribution (through the use of correlation factors)<sup>17</sup>. As a result, a simple approach to deriving the confidence level that is equivalent to the calculated RA is to solve for the standard deviation of the distribution, given the BEL (i.e. the mean) and SCR level (for the relevant risk modules), and then find the confidence level on that normal distribution that is equivalent to the calculated RA. This would provide the confidence level over a 1 year time horizon.

By way of an example, consider a group of insurance contracts with a Solvency II BEL of 100, an SCR of 25 and an IFRS 17 RA of 10. The mean of the normal distribution is therefore 100 and the 99.5<sup>th</sup> percentile of the normal distribution is 125.

Under a standard normal distribution, the 99.5<sup>th</sup> percentile is approximately 2.6 standard deviations away from the mean and therefore the standard deviation of the distribution can be calculated as approximately 10 (i.e. (99.5<sup>th</sup> percentile – mean)/2.6). Therefore, the implied percentile of the RA is the standard normal distribution of 1 (i.e. RA/standard deviation) which is approximately equal to 85% or the 85<sup>th</sup> percentile over 1 year.

## CONSISTENCY WITH PRICING

The Standard is not particularly clear about whether the assumptions made by firms in their RA calculations should be consistent with the method by which they use to price risk in their premium calculations.

Paragraph 37 of the Standard requires that the present value of future cashflows are adjusted for

*“...the compensation that the entity requires for the bearing of uncertainty...”*

However, Paragraph B87 states that

*“...as a result, the risk adjustment for non-financial risk conveys information to users of financial statements about the amount*

*charged by the entity for the uncertainty arising from non-financial risk about the amount and timing of cash flows.”*

This could suggest that there should be a direct link between the terms on which firms issue contracts and the RA and therefore firms may wish to confirm with their auditors whether they will be expected to be able to demonstrate a link between their pricing methodology and the methodology used to derive the RA.

## HOW MILLIMAN CAN HELP

Milliman has a depth of experience and expertise in IFRS 17 having closely followed its development over the past 20 years.

We are therefore well placed to offer the following services:

- Training on IFRS 17 concepts;
- IFRS 17 gap analysis through the use of our readiness assessment tool;
- Assistance with transition including impact analysis;
- Review of calculations and methodology; and,
- Assistance with modelling;
- Implementation of an IFRS 17 systems solution through our award-winning Integrate platform which can be implemented with cashflow output from any actuarial system. For more information see: [IFRS 17: The Integrate Solution](#).

If you have any questions or comments on this paper or any other aspect of IFRS 17, please contact any of the consultants below or your usual Milliman consultant.

<sup>16</sup> Paragraph 47, IFRS 17 Insurance Contracts

<sup>17</sup> [The underlying assumptions in the standard formula for the Solvency Capital Requirement calculation](#)



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