Welcome to Milliman’s IFRS 17 Webinar

- The webinar will begin in a few minutes.

26th November 2020
Virtual Meeting Best Practices

- Mute: As an attendee, you will be on mute automatically for the duration of the briefing.
- Video: Only presenters will be on video. Video is turned off for attendees.
- Q&A: Use the chat function within the meeting for questions.

Agenda

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IFRS 17 Recent Developments

Andrew Kay

26 NOVEMBER 2020
Recent Developments

IASB
- Amended Standard – June 2020
- Addressed industry feedback

EFRAG
- Draft Endorsement Advice (‘DEA’)
- Open for comment until 29 Jan. 2021

Industry
- Implementation!
EFRAG Draft Endorsement Advice

1. Does IFRS 17 meet the IAS Regulation technical endorsement criteria?
   - Yes…except for “the requirement to apply annual cohorts to intergenerationally-mutualised and cashflow matched contracts”
   - All other requirements of IFRS 17, on balance…characteristics of relevance, reliability, comparability and understandability
   - …raise no issues regarding prudent accounting, and …are not contrary to the true and fair view principle; and

2. Is IFRS 17 conducive to the European public good?
   - IFRS 17 would improve financial reporting and would reach an acceptable cost-benefit trade-off
   - No major adverse effect on the European economy or financial stability
   - …Yes
Intergenerationally-mutualised and cashflow matched contracts – 7-9

- The annual cohorts requirement will result in information that is neither relevant nor reliable

- Artificial allocation of cash flows…not reflective of contractual terms and economic reality

- Not conducive to the European public good because it:
  1. adds complexity and cost and does not bring benefits in terms of the resulting information,
  2. may lead to unintended incentives to change the way insurers cover insurance risks and
  3. may produce pro-cyclical reporting effects.
Timeline

Effective date
Deferred until 1/1/2023. Allows additional time for implementation. Early adoption possible.

IFRS 9
Can defer until 1/1/2023. Allows consistency of asset and liability treatment and reduce mismatches.

Next steps
Assess the impact of the amendments on your IFRS 17 implementation!

Transition date
Start of the comparative period

Effective date
IFRS 17 is effective from 1/1/2023

Preparation Period
2020

2021

2022

2023 on
Reporting

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Hot topics

Data and Systems

- Technical Methodology
  - Discount rates
  - Risk adjustment
  - Contract classification
  - Stochastic modelling

- Financial Impact Analysis
  - P&L and Balance sheet impact
  - Explaining the results
  - Strategy

- Model Build and Validation
  - Model accuracy?
  - Analysis of movement

- Transition
  - Full Retrospective – impracticability?
  - Fair Value
  - Modified Retrospective

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IFRS 17 Discount Rates
Focus of today’s session

- Introduction to the building blocks of the IFRS 17 discount curve
  - Bottom-up versus top-down approach
  - Risk-free rate and the extrapolation
  - Illiquidity premium

- More details around the options to calculate the illiquidity premium
  - Calculation of the illiquidity premium
  - Use of a theoretical reference portfolio versus own portfolio
  - How to reflect liability liquidity characteristics?

- Potential issues on ALM
Top-down versus Bottom-up approach

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Question 1
What approach are you taking?
Bridging from the bottom-up approach in Solvency II

Construction of the yield curve

1. Risk-Free Rates
2. Last Liquid Point
3. Credit Risk Adjustment
4. Volatility Adjustment
5. Extrapolation: UFR, convergence period: 40 years

Adapt Solvency II methods to IFRS 17

2. Changes of the LLP
3. Remove the floor of 10 bps
4. Review of calculation assumptions and economic data
5. Long term vision of the rates

Question 2
Are you using an UFR in your IFRS curve?
Relevant items to determine the risk-free rates

- Available market data
- Assessment of last liquid point
- Assessment of the Ultimate Forward Rate
- Interpolation and extrapolation techniques

Ultimate Forward Rate

Term

T1  Last Liquid Point  T2  T3

Instrument data available from deep, liquid and transparent markets
Instrument data available
No market data

Solvency II - EIOPA yield curve: June 2020

Discount Rate

0.00%  0.50%  1.00%  1.50%  2.00%  2.50%  3.00%

0  5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90  95

Duration, Years

GBP

EUR

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Example on how to calculate the liquidity premium?

The computation of the illiquidity premium relies on the following steps:

1. Determination of a reference portfolio
2. Computation of the spread portfolio
3. Computation of the credit risk

Formulas:

\[
\text{Illiquidity premium} = \text{Spread} - \text{Credit risk}
\]
How to select a reference portfolio?

- In general, there are two main approaches to select an asset reference portfolio:
  - Use of the own portfolio of the insurer’s assets which back the liabilities on the balance sheet
    *(similar to the matching adjustment approach under Solvency II)*
  - Use of a theoretical reference portfolio, selected to provide a close match to the liabilities but unrelated to the actual assets held.
    *(similar to the volatility adjustment approach under Solvency II)*

**Question 3**
What assets are you using in your calculations?
Use of own or a theoretical portfolio

High-level pro-con analysis

**Own Portfolio**
- Data available
- Less volatility
- Asset-Liability matching
- Reinvestment risk
- Less objective
- Operationally onerous
- Special Assets

**Theoretical Reference Portfolio**
- More control
- Operationally easier
- Liability matching
- Larger volatility
- Potential negative investment spreads

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How to reflect liability liquidity characteristics?

- Liquidity of liabilities is driven by contract characteristics, in particular around the termination or exit value (including tax constraints)

- When using the ‘own portfolio’
  - One should test and demonstrate that the own portfolio is reflecting the right level of illiquidity
  - Applying additional haircuts might result in a double haircut on the liquidity premium
  - Milliman has developed a liquidity management framework in response to this growing need

- When using a theoretical reference portfolio
  - At what granularity is the liquidity premium calculated?
  - When there is no explicit link between the liability characteristics, an application ratio is required
  - This can be a single or multiple ratios, depending on the diversity of the liabilities
Potential ALM issues

- Importance of stable IFRS 17 income and equity
- (In)consistency with other frameworks
- Management incentives

Question 4
Worries around complexity due to different frameworks
IFRS 17 Risk Adjustment

Deriving the Confidence Level

Cormac Gleeson

26 NOVEMBER 2020
IFRS 17 Risk Adjustment

Definition

- Reflects the compensation that the entity requires for bearing the uncertainty associated with the amount and timing of the cash flows that arises from non-financial risk

- Does not reflect risks that do not arise from the insurance contracts, such as operational risk

Familiarity

- Similar to Solvency II Risk Margin however:
  - It is defined from the perspective of the entity’s own view of risk, whereas the Risk Margin is based on the market’s view of risk.
  - The calculation methodology is not prescribed.

Disclosure

- The Standard requires that: “An entity shall disclose the confidence level used to determine the risk adjustment for non-financial risk.”

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IFRS 17 Risk Adjustment Characteristics

- IFRS 17 does not specify the estimation technique(s) used to determine the risk adjustment for non-financial risk
- However, The IFRS 17 Standard (Paragraph B91) outlines five key characteristics that any RA calculation approach should possess:

  - 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.
  - For similar risks, contracts with a longer duration will result in higher risk adjustments for non-financial risk than contracts with a shorter duration.
  - Risks with a wider probability distribution will result in higher risk adjustments for non-financial risk than risks with a narrower distribution.
  - The less that is known about the current estimate and its trend, the higher will be the risk adjustments for non-financial risk.
  - 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.
Update to Milliman 2018 IFRS 17 preparedness survey

- Which methodology are you using to calculate the Risk Adjustment for IFRS 17?
  a) Cost of Capital
  b) Value-at-Risk
  c) Conditional Tail Expectancy
  d) Other
Milliman 2018 IFRS 17 preparedness survey

- Based on 115 companies mostly in Asia and Europe

37% had already defined the methodology to calculate the Risk Adjustment

86% of the respondents do not have a solution to determine the confidence level of the Risk Adjustment

More than half rely on approaches which do not involve a confidence level as an input

41% expect the confidence level to be between 70%-80%, whereas 33% expect a range 90%-99%
Overview of the Risk Adjustment calculation techniques

Techniques: Cost of Capital

- Unless simulating a full distribution of profits, a company will require a dedicated approach to determine the confidence level associated with a given Risk Adjustment amount
  - eg. The Cost of Capital technique

- Risk Adjustment = Present value of future capital amounts multiplied by cost of capital rate

- Similar to Solvency II Risk Margin but there are key differences
  - Capital amounts and risks are **not defined** based on regulatory capital adequacy requirements
  - Cost of capital rate is **not specified**
  - Discount rates are **not specified**
Overview of the Risk Adjustment calculation techniques

Other Techniques

- Other techniques which produce a distribution of cashflows and so the confidence level of the Risk Adjustment can be calculated directly
  - eg. VaR, Conditional Tail Expectancy

- There are still several additional considerations, for example
  - Time horizon (one-year, multi-year, or lifetime)
  - Risk calibration
  - Difference in IFRS 17 Best Estimate cashflows to modelled cashflows
  - Additional model developments and governance

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Deriving the Confidence Level
Closed-form solution approach

Overview

- Full solution detailed in research paper
- The closed-form solution approach process is detailed below:

1. Modelling of Risks
2. Moment Calculation and Aggregation
3. Percentile Inversion
Closed-form solution approach

Modelling of Risks

- To illustrate our approach, we focus on mortality and longevity risks and describe a possible approach for modelling four main sources of risk:

  - **Mortality Level Risk**
    Uncertainty in the initial mortality estimate

  - **Mortality Catastrophic Risk**
    External event, that creates a one-off temporary increase in the mortality assumption

  - **Mortality Volatility Risk**
    Sampling risk arising from the random outcomes of claims during each projection year

  - **Mortality Trend Risk**
    The potential adverse development of the risk trend over time

- The risk taxonomy and modelling may differ in different entities’ views and contexts.
Closed-form solution approach

Moment Calculation and Aggregation

- Based on the specific risk modeling framework, the aim is to derive closed-form formulas for the calculation of the liability cash-flows variation $X$:
  - The moments estimated are
    - Order 1: expectancy $\mathbb{E}[X]$
    - Order 2: variance $Var(X) = \mathbb{E}[(X - \mathbb{E}[X])^2]$  
    - Order 3: skewness $Skew(X) = \frac{\mathbb{E}[(X-\mathbb{E}[X])^3]}{Var(X)^{3/2}}$ allows one to measure the asymmetry of the risk distribution
  - The derivation of the moments is split into two steps:

  1. Consider each risk separately
     Compute the moments of the total liability cash flows distribution subject to each risk
  2. Aggregation of those risks
     Derive the moments of the aggregate distribution in a closed-form manner, allowing for risk dependencies
Closed-form solution approach

Percentile Inversion

- The Value-At-Risk at confidence level \( \alpha \) can be approximated using the Cornish-Fisher formula as:

\[
VaR_\alpha(X) \approx \mathbb{E}[X] + \sqrt{Var(X)} \left( z_\alpha + \frac{1}{6} \left( z_\alpha^2 - 1 \right) Skew(X) \right)
\]

- where
  - \( z_\alpha \) is the \( \alpha \)-percentile of a standardized normal variable.
  - \( Skew(X) = \frac{\mathbb{E}(X - \mathbb{E}[X])^3}{Var(X)^{3/2}} \) is the skewness

- This expansion has been introduced by Fisher & Cornish (1960); an improved derivation is presented in Lee, Y. S., & Lee, M. C. (1992).
Life Company Case Study

Overview

- The derivation of the percentile level is illustrated for three types of products:
  - Annuities in payment
  - Term Assurance (regular and single premium)
  - Savings
- For each product, the derivation of the Risk Adjustment using the closed-form methodology is compared to a full simulation approach.
- This allows an assessment of the accuracy of the closed-form approach and to identify its range of validity in terms of both percentile level and type of risk.
- For the purpose of illustration, we consider a multi-year approach with a 5-year risk horizon.
Life Company Case Study

Annuity product

- The closed-form approach provides the confidence level with good accuracy.
Life Company Case Study

- What time horizon are you using to calculate the Risk Adjustment for IFRS 17?
  a) One-year time horizon
  b) Multi-year time horizon
  c) Long-term time horizon (eg. 15-years, 20-years)
  d) Ultimate time horizon
Life Company Case Study

Sensitivity to the risk horizon

- A sensitivity analysis is performed with respect to the risk horizon.
- A good fit is observed compared to the simulated results, with some differences for the higher percentiles.
Conclusions

Calculating the Risk Adjustment confidence level remains a challenge when a full distribution of cashflows is not available.

Pragmatic and scientific methodologies can be utilised in order to derive the confidence level of the Risk Adjustment.

Intrinsic link between the confidence level and the time horizon chosen for the Risk Adjustment.

As part of this research, we have developed a solution in Milliman Mind.
For more information:

https://ie.milliman.com/en-gb/insurance/ifrs-17

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