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Should insurers leverage Solvency 2 discount rate techniques when valuing insurance liabilities under IFRS17?

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Introduction and structure of this paper

Preamble

This document is based on first market orientations reflecting discussions and benchmarks with insurance and reinsurance companies across the world. It is not a reflection of either a Deloitte opinion or guidance on setting discount rates under IFRS17.

Discount rates are usually seen as a technically challenging topic for insurers, especially given the impact they could have when valuing the time value of money and guarantees of long-term life insurance contracts. With the upcoming application of IFRS17 to insurance contracts, the measurement of insurance liabilities will be a key factor in determining the level of technical provisions and may influence the pattern of recognition of insurers' IFRS17 profits.

In Europe, while Solvency 2 sets very clear guidelines regarding discounting, long debates and discussions have nonetheless taken place around the effect of long-term guaranteed measures (for example in the European Commission's review of the Directives, as presented in the last consultation paper issued by EIOPA[1]). For IFRS17, the Standard[2] describes general principles rather than rules for discounting, leaving various possibilities for insurers to consider.

In this paper, we start by introducing the principle-based IFRS17 requirements regarding discounting. We then address the differences between these requirements and techniques described under Solvency 2.

We also assess the possibility of using Solvency 2 prescribed techniques for IFRS17 when defining the discount rate, especially when considering the bottom-up approach and the volatility adjustment as a measurement for liquidity premium for liabilities.
Finally we describe alternative approaches to estimate the liquidity premium when applying the bottom-up approach for IFRS17, based on the characteristics of the relevant insurance contracts.

1 2020 Review of Solvency 2 – Oct 2019 ***LINK***
2 IFRS17 Insurance Contracts – May 2017 and Amendments to IFRS17 – June 2019

1. Discounting under IFRS17

IFRS17 will replace IFRS4 for insurance contracts starting from January 1st 2023[3].

Paragraph 36 of the Standard states that an entity shall use a discount rate to estimate the present value of its future cash flows. The discount rate used should:

(1) reflect the characteristics of the cash flows and the liquidity characteristics of the insurance contracts,
(2) be consistent with observable market prices, and
(3) exclude the effect of factors that influence such observable market prices but do not affect the future cash flows of the insurance contracts.

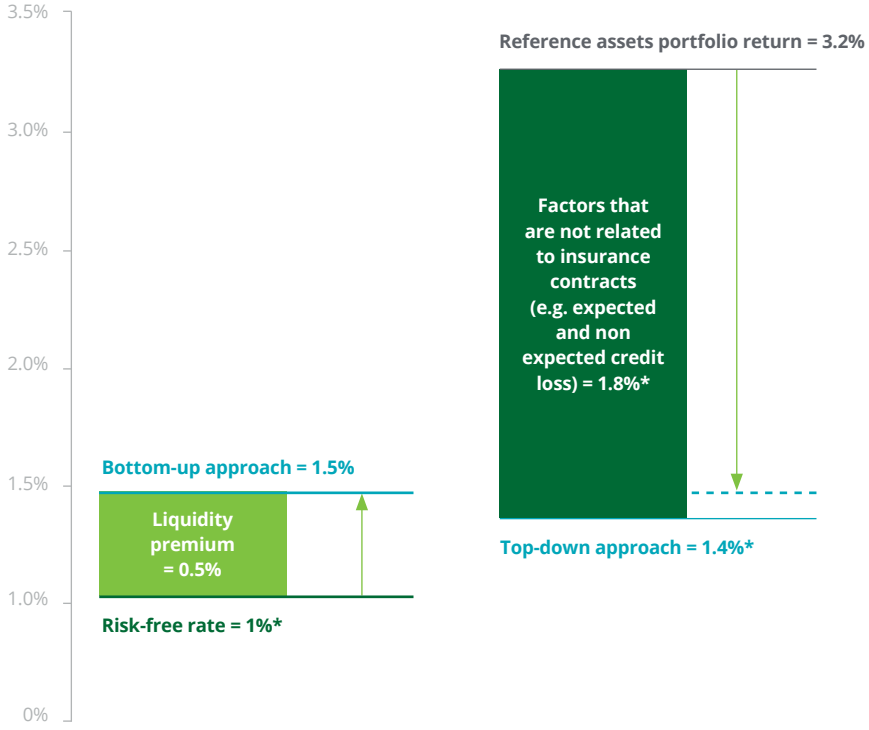
Paragraph B82 further states that the yield curve must reflect certain characteristics such as observable market prices wherever possible. Additionally, paragraph B83 states that an entity should adjust the yields observed in the market to match the characteristics of liability cash flows. In particular, for cash flows that do not vary based on the returns of the assets of reference, those adjustments must:

- Include differences between the amount, the timing and uncertainty of cash flows of the assets in the portfolio, and the uncertainty of the cash flows of the insurance contracts, and
- Exclude market risk premiums for credit risk, which are only relevant to the assets included in the reference portfolio.

More broadly from paragraphs B72 to B85, the Standard provides some guidelines to define a methodology for discounting. Two potential approaches are proposed:

- A bottom-up approach, where cash flows are discounted using a yield curve that exposes the holder to "no or negligible credit risk" (paragraph B79), adjusted to reflect "the liquidity characteristics of the group of insurance contracts" to which the curve is applied;
- A top-down approach, where the discount rate is defined by adjusting the yield curve that reflects the current market rates of return, implicit in a fair value measurement of a reference portfolio of assets (paragraph B81), adjusted to eliminate any factor that is not relevant to the insurance contracts.

Illustrative example of top-down and bottom-up approaches



Percentages as examples

3 As published on June 25th 2020

According to the Standard, both approaches could be used for all types of insurance contracts (i.e. life, health, protection and P&C), either with cash flows that vary based on the returns of underlying items or not. The discount rate could be determined by adjusting the liquid risk-free yield curve to reflect the differences between the liquidity characteristics of the financial instruments and the insurance contracts (paragraph B80), or the entity may adjust the return of a reference portfolio (real or theoretical) by removing factors that are not relevant to insurance contracts. In the latter case, the Standard does not require any further adjustment of the top-down yield curve in respect of the liquidity characteristics of the insurance contracts; the liquidity characteristics of the reference portfolio can be retained unadjusted (paragraph B81).

It can be seen that IFRS17 provides clear principles but no detailed technical approach to be applied when defining the yield curve. Companies are then expected to define their own approach, as long as it complies with the principles of IFRS17. In doing so, the key guiding principles are:

- Consider the characteristics of the cash flows for both approaches and the liquidity characteristics of the insurance contracts when bottom-up approach is applied (B78)
- Maximize the usage of observable market data (B82 a and b)
- Use estimation techniques when data is not available or not robust enough (B82c).

While many market instruments can be used to derive risk-free discount rates (mostly interest swap rates and government bonds), robust, deep and liquid market data is rarely available especially for very long maturities. Additionally, the assessment of liquidity characteristics of insurance contracts is not a simple exercise as there is no liquid market where insurance liabilities are traded. Therefore, discounting under IFRS17 is expected to be supported by expert judgment and estimation techniques that will most probably differ from one insurer to another and from one country to another. This does not allow for easy comparison between two disclosures even if companies are asked to provide details in their communication.
In Europe, companies will most likely rely on Solvency 2 techniques for IFRS17 needs (see market trend box), but will need to adjust the characteristics of their own business in order to comply with IFRS17.

Market Trend

Based on a Deloitte survey among 15 global insurers[4], it appears that at the end of 2019 the market had just begun to discuss discount rate methodologies in detail, and that many grey areas were seen to remain in the interpretation of the Standard's requirements and usage under IFRS17.
However 8 of the 9 European insurers surveyed were keen to use known methodologies from Solvency 2 or QIS 5 techniques to define the basics behind discounting under IFRS17. Nevertheless, there is some doubt still as to the adjustments they will need to make on these known methodologies in order to adapt to IFRS17 expectations.

Among the drivers that will help companies to decide between methods, the most listed were:
- the level of future profit;
- the volatility to which their P&L is exposed;
- the simplicity of the disclosed communication;
- the impact in terms of process change.

As a consequence, in Europe many insurance companies are interested in leveraging discount rates methods defined under Solvency 2. Many of the IFRS17 requirements are met by using Solvency 2 methods, the methods are already known by investors and supervisors, and the impact on processes could be reduced if insurers optimize the usage of current tools and methodology from Solvency 2.

4 Benchmark performed by Deloitte in September 2019 among 15 international (re) insurers, of which 9 are based in Europe, 3 in Americas and 3 in Asia, of which 10 are composite (re) insurers and 5 are pure insurers (either life or P&C)

2. Differences between Solvency 2 and IFRS17 discounting approaches

Under IFRS17, insurers are required to define a methodology that is appropriate to their own business, whereas under Solvency 2, EIOPA publishes the risk-free yield curve to be used by currency, as well as the adjustments to be performed on the risk-free rates.

The table below presents the main differences between the two standards:

Item	Solvency II (for Euro economy) [5]	IFRS17
General approach	Risk-free curve provided by EIOPA to which a volatility adjustment or a matching adjustment is added.	Discount rates determined either by adjusting a portfolio's total return (top-down) or by adding a liquidity premium to a risk free rate (bottom-up).
Granularity per liability characteristic	The volatility adjustment is set per currency and is the same for all insurance and reinsurance obligations, unless a country-specific adjustment is applied.	IFRS17 does not set any requirement in terms of granularity; however, as the liquidity premium reflects the characteristics of the insurance contracts, it is expected to have different discount rate curves depending on the currency and liquidity characteristics of underlying portfolios.
Frequency	EIOPA publishes the risk-free discount rate as well as the volatility adjustment and all data needed on a monthly basis.	Insurers need to estimate the discount rate under IFRS17 for at least each closing period.
When applying the bottom-up approach		
Risk-free discount rate	The risk-free yield curve is based on 6-month Euribor swap rates[6] – corrected using an adjustment defined by EIOPA.	The initial risk-free yield curve can be determined based on several financial instruments: swap rates, EONIA rates, government bond rates,... corrected to reflect no or negligible credit risk exposure for the holder. However, observability, liquidity and robustness of the data used have to be justified.
Last Liquid Point	The Last Liquid Point for the Euro zone is fixed by EIOPA to 20 years[7].	Not specifically defined, but should make reference to the liquidity of financial instruments observed on the market.
Ultimate Forward Rate	EIOPA defines a methodology for calculating the UFR based on historical observed rates as well as expected future inflation. In addition, variations in the UFR from one year to another are capped and floored.	The methodology for setting an Ultimate Forward Rate is not defined. The insurance company is expected to maximize the use of observable data.

Extrapolation technique	EIOPA sets Smith-Wilson extrapolation method to address the unavailability of data from the last liquid point to the UFR.	The Standard leaves it to expert judgement to set the extrapolation technique to estimate rates which cannot be determined from available market data.
Adjustment to the risk-free yield curve	For the volatility adjustment calculation, EIOPA defines a reference bonds portfolio that reflects the average investments of European insurers. An adjustment is then applied to eliminate any credit risk related to the reference portfolio. EIOPA then sets an adjustment of 65% on the risk-corrected spread. In some restrictive conditions, EIOPA allows for the use of a matching adjustment (MA) technique. The use of matching adjustment requires approval from local insurance supervisors. When applying the Matching Adjustment technique, insurer use their own investment portfolio.	The Standard expects the discount rate curve to reflect the liquidity characteristics of the insurance contracts.
When applying the top-down approach		
Reference portfolio	Solvency 2 does not have a top-down approach to derive the overall yield curve. There are some similarities to a top-down approach in the derivation of the Volatility Adjustment or the Matching Adjustment - see above.	IFRS17 does not set any requirements regarding the portfolio, either real or theoretical, to be used in the top-down approach.
Real estate and mortgage		There are no requirements regarding the types of assets to be included in the reference portfolio when estimating the discount rate; real estate and mortgage assets might be permissible.
Risk premium consideration		There is no explicit restriction on the usage of a risk premium for liabilities with cash-flows that vary based on the returns of the reference assets.
Adjusting liquidity premium calculated based on assets to reflect liability characteristics		When applying the top-down approach, an entity shall adjust the market consistent yield curve to eliminate irrelevant factors to the insurance contracts, but is not required to adjust the yield curve for differences in liquidity characteristics of the insurance contracts and the reference portfolio.

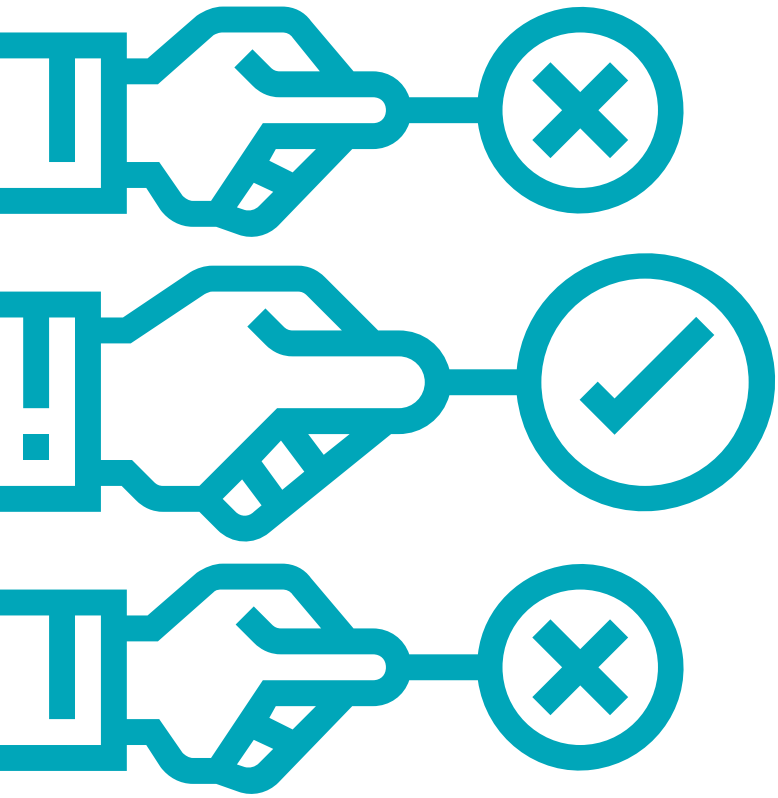
5 Technical documentation of the methodology to derive EIOPA's risk-free interest rate term structures ***LINK***
6 The working group on euro risk-free rate from European Central Bank recommended the use of euro short-term rate (€STR) as a risk free rate alternative to replace the benchmarks used for variety of financial instruments and contracts in the Euro area ***LINK***
7 The 20 years LLP as well as the VA methodology are challenged in EIOPA's Consultation Paper on the Opinion on the 2020 review of Solvency II

Many conceptual similarities exist between the principal based IFRS17 and the techniques prescribed by Solvency 2. Nevertheless, EIOPA's technique are not completely[8] aligned with IFRS17 and some adjustments will need to be performed.

How is long-term discounting considered within the ICS Standards[9]

For the final year of field testing of its Insurance Capital Standard (ICS), the IAIS has shared its approach on assessing long-term discount rates.
The conclusions are that:

- while the ICS follows a broadly similar approach to Solvency II, the resulting Euro and Sterling discount curves could nonetheless differ, potentially introducing significant valuation differences between both regimes;
- the need to move away from reliance on LIBOR and EURIBOR in the future could introduce new differences in methodology for risk-free rates; and
- 2019 field testing may provide an illustration of how a "single adjustment mechanism", replacing the VA and MA, could work in Solvency II, as recently envisaged by the European Commission.



8 See next section
9 ICS 2019 Field Testing: shedding light on Solvency II long term discounting – July 2019 – Deloitte ***LINK***

3. Alignment between EIOPA's techniques and IFRS17 requirements

In one of its issued papers[10], EIOPA declared that the overarching principles of the volatility and matching adjustments techniques appear to be in line with the IFRS17 guidance on calculating discount rates. However, EIOPA acknowledges that a "slight" difference in requirements also exists between the two Standards and that methods defined for Solvency 2 need to be adapted to align with IFRS17 requirements.

The VA technique set by EIOPA appears to match the description of a bottom-up approach[11] defined by the IFRS17 Standard, as first a risk-free rate curve is defined, then an adjustment, that reflects the misalignment between assets and liabilities in terms of liquidity and uncertainty, is added.

How does the Solvency 2 risk free rate comply with IFRS17?

The risk-free rate as set by EIOPA is based on 6-month swap rates that are observable on the market, until the last liquid point (LLP) set to 20 years for Euro currency. Starting from 20 years maturity, the rate is extrapolated until the Ultimate Forward Rate (UFR), using the Smith Wilson extrapolation method. The rates obtained are adjusted using a Credit Rate Adjustment (CRA) applied as a parallel downward shift to the risk-free curve observed for all maturities until the LLP.

For IFRS17 purposes, the 6-month swap rates as well as the relevant Overnight Index Swap (OIS) rate that is used for the CRA estimation are considered to be "observable market data". In addition, EIOPA uses interpolation techniques for non-relevant market data for some maturities based on expert judgment that can be reused in the context of IFRS17. However, under IFRS17, some assumptions and techniques used by EIOPA are challengeable. For example, the choice of a LLP set to 20 years when market data are available up to 30 years[12] could be questioned under IFRS17. The same observation concerns the methodology and inputs used by EIOPA that lead to a material and volatile UFR (UFR was at 4.2% in 2017 for Euro currency, decreased to 4.05% in 2018, then to 3.9% for 2019 calculations for the Eurozone).

The UFR in EIOPA's methodology is determined by summing the expected long-term nominal expected inflation and expected real interest rates.
The variation of a UFR from one year to another cannot exceed 15bps.
For the last 3 years, UFR has been decreased by 15bps per year, which corresponds to the maximum authorized by the technique as defined by EIOPA.

10 EIOPA's analysis of IFRS17 Insurance Contracts ***LINK***
11 Some experts consider the VA/MA approaches as a mixed (top-down and bottom-up) approach as the liquidity premium added to the risk-free rate is deduced from a reference asset portfolio
12 The level of bid/ask on 20 years European CMS is equivalent to the 30 years European CMS over the last 5 years (source Bloomberg)

How does the volatility adjustment comply with IFRS17?

Similarly to the situation with the risk-free rate, the use of the EIOPA approach to set the volatility adjustment for IFRS17 purposes is subject to discussion. Whilst it seems clear that IFRS17 allows a VA in concept, it is less clear if the EIOPA VA could be used without adjustment. In particular, the VA based on EIOPA's methodology is assessed using a generic assets portfolio that represents the average investment of European insurers: would this be permitted under IFRS17?

In the Deloitte paper "Volatility adjustment under the loop"[13], the authors explain that deriving the monetary impact of the volatility adjustment directly from the asset and liability portfolios owned by the insurer itself allows for better capturing the characteristics of insurance contracts, in terms of duration, credit exposure, and liquidity. In this context, the usage of other techniques like a dynamic volatility adjustment (DVA) allows the size of the VA to change with the characteristics of the insurers' own portfolios over time, and therefore to be accordingly impacted by the changes in duration. This alternative could be considered as more aligned with the IFRS17 principles outlined above.

Furthermore, the use of a Solvency 2-style country-wide[14] volatility adjustment for IFRS17 discounting is challengeable. Country-wide[15] asset portfolios might not be seen as fulfilling the criteria of the bottom-up IFRS17 approach considering they do not reflect the liquidity of the insurer's liabilities, and under the top-down approach the country-average portfolio of assets underlying the Solvency 2 VA might not be seen as an appropriate reference portfolio.

Another question can be raised regarding the usage of a risk premium on non-fixed income assets when determining the adjustment related to insurance contracts with cash flows that are asset-dependent. This option has been excluded from EIOPA's methodology where only fixed income assets are used when assessing the VA or the MA. Non-fixed income assets (equities and properties for the most part) are held by insurers in order to capture a risk premium in a real-world environment; the risk premium considered is shared with the policyholders for contracts that are asset-dependent which may leave open the possibility under IFRS17 to add an additional element of risk premium to the liquidity premium.

Finally, while EIOPA uses a 65% fixed factor to adjust the asset liquidity premium calculated based on the reference portfolio to derive the VA, IFRS17 clearly requires that the liquidity premium captures the liquidity characteristics of the insurance contracts held by the insurance company, meaning that more consideration of the appropriate factor to move to the liability-based assessment is needed.

Hence, when defining the adjustment to be applied to the risk-free yield curve under IFRS17, insurance companies will need to assess the liquidity characteristics of their insurance contracts portfolio by portfolio, and potentially at a more granular level defined by groupings of policies with similar liquidity profiles.

The Solvency 2 volatility adjustment is aimed at dampening the "own funds' artificial volatility" that is caused by the stressed fixed-income financial markets. It is calculated on a generic European bonds portfolio (government and corporate), ensuring convergence in the calculation of Solvency 2 pillar 1 quantitative requirements

13 Volatility adjustment under the loop – February 2018 – Deloitte ***LINK***
14 The country "VA specific" is being reviewed by EIOPA for its 2020 review of Solvency II ***LINK***
15 In November 2018, the country-specific VA in Italy increased the VA to 54bps vs. 22bps without specific VA. Such difference (32bps) can have a material impact on IFRS17 measures

4. Assessment of the liquidity characteristics of insurance contracts

Usually, when applied to tradeable assets, the liquidity premium refers to the financial excess demanded by investors when the asset held cannot be easily converted into cash for its fair market value. However, there is no transparent and liquid market for trading insurance liabilities, and this definition is difficult to apply. The MCEV (Market Consistent Embedded Value) principles use another definition of what liquidity could mean in relation to insurance liabilities[16] : "A liability is liquid if the liability cash flows are not reasonably predictable".

The liquidity of insurance liabilities is here considered from a policyholder standpoint rather than from the "tradability" perspective of the company, and focuses on the predictability of cash flows: if a liability is highly illiquid, the corresponding cash flows are more predictable and the insurance company is more disposed to hold the backing assets to maturity in order to target a higher investment return. On the other hand, if a liability is liquid, the cash flows are less predictable and the insurance company would not be disposed to hold to maturity the assets backing this liability.

In this context, different factors for determining to which extent an insurance liability is liquid or not have to be assessed. In its Solvency 2 consultation paper, EIOPA proposes 2 sets of high-level guidelines in order to measure the liquidity of a given set of liabilities:

1. Liquidity buffer based on the terms and conditions of the insurance contract ;
2. Liquidity buffer based on duration.

1. Liquidity buffer based on the terms and conditions of the insurance contract

Based on the assumption that a contract is totally liquid when its underlying cash flows are highly unpredictable, the first step is to consider whether or not the insurance policy includes features that could be seen as highly unpredictable.

In its consultation paper, EIOPA has proposed the following grouping:

Group of illiquidity	Features of the contracts	Typical examples of contracts
High illiquidity	• Without any surrender/cancellation option or where the surrender value does not exceed the market value of the assets	• Annuities in payment phase • Term life insurance (without savings component) • Disability insurance
Medium illiquidity	• Contracts with limited surrender risk: - including disincentives for surrender - low risk charge for the risk of a permanent increase in lapse rates... • Contracts with low mortality risk and catastrophe risk...	• State subsidized pension products
Low illiquidity	• Contracts that do not fall into the first two categories	• Unit linked contract

Depending on the degree of liquidity, a different liquidity factor would be applied to the liquidity premium calculated on the assets portfolio backing these liabilities.

16 Paragraph 138 of the Basis for Conclusions from CFO Forum – April 2016

2. Liquidity buffer based on duration

Another feature that could influence the liquidity of a liability is its duration, or more precisely the change in its duration when stressed events occur (mass lapse due to a systemic event for example). The assessment of this type of liquidity can be based on Macaulay duration: the more sensitive a contract's duration is to stressed scenarios, the more liquid is the contract, or on an assessment of the duration variation using stochastic scenarios.

17 Liquidity Premium buckets EIOPA Report on the fifth Quantitative Impact Study (QIS5) for Solvency II – March 2011 ***LINK***

5. Conclusion

Well before the IFRS17 Standard was published, the European Commission has defined guidelines and techniques related to the long-term estimation of the time value of insurers' liabilities, based on either observable market data (historical or market-consistent) or on expert judgment. These estimation techniques present many advantages that incentivise insurers in Europe and beyond to think about reusing them in the context of IFRS17. It is clear that these have a common influence on the methods underlying the prescribed Solvency 2 discount curves as well as the principles-based IFRS17 guidance.

In relation to this, it will be of interest to insurance companies to monitor the proposed 2020 EIOPA Solvency 2 review of long-term guarantees, where the techniques behind setting discount curves are discussed.

Finally, whilst Solvency 2 discounting methodology shares much in common with the discounting requirements of IFRS17, important differences remain. The more principles-based philosophy of IFRS17 presents an opportunity to insurers to examine where these differences allow them to consider their own liabilities and potentially assets to drive their discount rates. The comparative freedom of interpretation, however, means that a range of outcomes from one insurer to the next is to be expected, and time will be needed for insurers to settle on their final chosen approach.

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