Canadian Institute of Actuaries
Institut canadien des actuaires

EXPLANATORY REPORT

IFRS 17 Discount Rate Applications

March 2023

IFRS 17 Discount Rate Applications

Committee on Life Insurance Financial Reporting

The Committee on Life Insurance Financial Reporting (CLIFR) would like to acknowledge the contribution of its subcommittee that assisted in the development of this report: Amal Rajwani (co-chair), Stéphanie Fadous (co-chair), Emmanuel Hamel, Étienne Morin, Gabriel Bisson, Gwen Weng, Ian Blackie, Ivy Lee, Jean-Francois Fontaine, Matthew Garnier and Wes Foerster.

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The actuary should be familiar with relevant other guidance. They expand or update the guidance provided in an educational note. They do not constitute standards of practice and are, therefore, not binding. They are, however, intended to illustrate the application of the Standards of Practice, so there should be no conflict between them. The actuary should note however that a practice that the other guidance describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation. Responsibility for the manner of application of standards of practice in specific circumstances remains that of the members. As standards of practice evolve, other guidance may not reference the most current version of the Standards of Practice; and as such, the actuary should cross-reference with current Standards. To assist the actuary, the CIA website contains an up-to-date reference document of impending changes to update other guidance.

Contents

Preamble

The Committee on Life Insurance Financial Reporting (CLIFR) has prepared this explanatory report to provide information concerning the application of discount rates used in accordance with IFRS 17 requirements.

This explanatory report is structured into seven sections. The first section introduces the content presented in this report. The second section lays out terminology used throughout the report. The third section presents considerations related to the use of the locked-in yield curve under the general measurement approach under IFRS 17. The fourth section discusses setting the discount rates for reinsurance contracts held and whether it is appropriate to use the same discount rates as are used for the underlying direct contracts. The fifth section discusses how considerations laid out in sections three and four would apply to the risk adjustment for non-financial risk. The sixth and seventh sections discuss the presentation of the finance income or expenses in the financial statements.

Process

A preliminary version of the explanatory report was shared with the following committees:

- Property and Casualty Financial Reporting Committee (PCFRC)
- Committee on Risk Management and Capital Requirements
- Committee on the Appointed/Valuation Actuary
- International Insurance Accounting Committee
- Committee on Workers' Compensation

A preliminary version of the explanatory report was also shared with the staff of the Accounting Standards Board (AcSB) to broaden consultations with the accounting community. Given that this report provides actuarial guidance rather than accounting guidance, the AcSB staff review was limited to citations of and any inconsistencies with IFRS 17. CIA reports do not go through the AcSB's due process and therefore are not endorsed by the AcSB.

The explanatory report was also presented at the Actuarial Guidance Council (AGC) for approval. CLIFR is satisfied it has sufficiently addressed the material comments received from the various committees.

The creation of this memorandum and explanatory report has followed the AGC's Protocol for the Adoption of Educational Notes and other material. In accordance with the Institute's *Policy on Due Process for the Approval of Guidance Material Other Than Standards of Practice and Research Documents*, this report has been prepared by CLIFR and has received approval for distribution from the Actuarial Guidance Council on March 22, 2023.

Responsibility of the actuary

The actuary should be familiar with relevant other guidance. They expand or update the guidance provided in an educational note. They do not constitute standards of practice and are, therefore, not binding. They are, however, intended to illustrate the application of the Standards of Practice, so there should be no conflict between them. The actuary should note however that a practice that the other guidance describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation. Responsibility for the manner of application of standards of practice in specific circumstances remains that of the members. As standards of practice evolve, other guidance may not reference the most current version of the Standards of Practice; and as such, the actuary should cross-reference with current Standards. To assist the actuary, the CIA website contains an up-to-date reference document of impending changes to update other guidance.

Your feedback

Questions or comments regarding this explanatory report may be directed to the chair of CLIFR and this subcommittee (noted above) at guidance.feedback@cia-ica.ca.

1. Introduction

IFRS 17 establishes principles for the recognition, measurement, presentation and disclosure of insurance contracts. The purpose of this explanatory report is to provide practical considerations relating to the application of discount rates for different purposes under IFRS 17.

References to specific paragraphs of the IFRS 17 standards are denoted by IFRS 17.XX in this report, where XX represents the paragraph number.

The guiding principles that the CLIFR subcommittee followed in writing this draft report were to:

- Consider Canadian-specific perspectives, rather than simply repeating international actuarial material.
- Provide application options that are consistent with the IFRS 17 standard and applicable Canadian actuarial standards of practice and educational notes, without unnecessarily narrowing the choices available in the IFRS 17 standard.
- Consider practical implications associated with the implementation of potential methods; in particular, ensure that due consideration is given to options that do not require undue cost and effort to implement.

IFRS 17 requires an entity to adjust the estimates of future cash flows to reflect the time value of money and the financial risks related to these cash flows. The standard lays out the requirements around the use and setting of discount rates; however, some requirements can be applied in different ways. For example:

- A locked-in yield curve set at initial recognition is required for many purposes as listed in Section 3 of this report. The locked-in yield curve can be set with different frequency and format.
- The illiquidity premiums for direct contracts and reinsurance contracts held are set independently.
- There are multiple approaches to setting the discount curve for the risk adjustment for non-financial risk (RA), if a discount rate is used to set the RA.
- There are multiple approaches to explaining the insurance finance income or expenses presented in the financial statements.

The purpose of this explanatory report is to provide actuaries with practical considerations related to the use and development of IFRS 17 discount rates/yield curves. This report supplements the educational note *IFRS 17 Discount Rates for Life and Health Insurance Contracts*.

2. Terminology

The following terminology is used in this report:

- **Current yield curve**: The current yield curve reflects prevailing market rates at a specific date. The date may vary based on the context (e.g., date of issue of a contract; date at the end of a reporting period).
- **Discount rate or curve**: Rate used to discount estimates of future cash flows, which are consistent with the timing, liquidity, and currency of the insurance contract cash flows.

- **Spot rate:** The spot yield to maturity (YTM) is the estimated annual rate of return for a bond assuming that the investor holds the bond until its maturity date. The zero spot YTM is the estimated annual rate of return of a zero-coupon bond assuming that the investor holds the latter until its maturity date. In this document, the spot rates are defined as the zero spot YTM.
- **Forward rate**: The interest rate implied by the yield curve over a given future period. Mathematically, the forward rate over time [n-1, n] is

$$f_n = \frac{(1 + y_n)^n}{(1 + y_{n-1})^{n-1}} - 1,$$

where y_n denotes the spot rate for maturity n. The forward rate over time [n-1, n] can be conceptualized as the interest rate that equates the strategies of

  - investing in the n-year spot rate; and
  - investing in the (n-1)-year spot rate and then in the one-year forward rate at year (n-1).

- **Level effective yield:** The level interest rate used at all durations, such that the present value of future cash flows is the same as the present value of future cash flows discounted using another (non-level) yield curve (for example, the reference curve).

3. Locked-in yield curve

The locked-in yield curve (or locked-in rates) refers to the discount rates used at initial recognition of a group of contracts. Under IFRS 17, locked-in yield curves are used after initial recognition for all contracts measured under the general measurement approach (GMA), including insurance contracts issued and reinsurance contracts held, and for some contracts measured under the premium allocation approach (PAA). For contracts applying the PAA, the locked-in yield curve for the liability for incurred claims (LIC) refers to the discount rates at the date of the incurred claim.

3.1 Uses of the locked-in yield curve

The IFRS 17 standard references the use of locked-in yield curves for the following purposes for contracts measured under the GMA:

A. Calculating the contractual service margin (CSM) at initial recognition.

B. Accreting interest on the CSM as per IFRS 17.B72(b).

C. Measuring the changes to the CSM resulting from (i) certain experience adjustments, (ii) changes in estimates of the present value of future cash flows that relate to future service, and (iii) if disaggregation is elected, changes in the RA as per IFRS 17.B72(c) and IFRS 17.B96(a), (b), (d). This will be referred to as "adjusting the CSM" in this report.

D. Systematic allocation of insurance finance expense to the income statement if the entity chooses to disaggregate the insurance finance income or expenses between profit and loss and other comprehensive income (OCI) as per IFRS 17.B72(e).

For contracts measured under the PAA:

- For discounting cash flows, if there is a significant financing component, or coverage and premium extend beyond a year, as per IFRS 17.56.
- For discounting the LIC if the entity chooses to disaggregate the insurance finance income or expenses between profit and loss and OCI, the discount rates determined at the date of the incurred claim per IFRS 17.B133 and IFRS 17.B72(e).

Locked-in yield curves might also be used for the following purposes:

- Reversing the loss component as per IFRS 17.51(c).
- Allocating the coverage units provided in the period and the expected remaining coverage units to the extent an entity reflects the time value of money in determining such allocation. Reflecting the time value of money and using the locked-in yield curves are not required per IFRS 17.BC282.
- To calculate the RA if the RA is set using a discounted cash flow approach.

Locked-in yield curves are determined in the same manner as current yield curves as described in the educational note *IFRS 17 Discount Rates for Life and Health Insurance Contracts*. The locked-in yield curves may differ in format for different purposes (refer to Section 3.3).

Note this section focuses on locked-in yield curves in the context of discount rates that do not reflect the variability of the returns on any financial underlying items (i.e., the rates described in IFRS 17.B74(a) and IFRS 17.B74(b)(ii)). Locked-in curves in the context of discount rates that reflect the variability of the returns on any financial underlying items (i.e., IFRS 17.B74(b)(i)) were not considered in the development of this explanatory report.

3.2 Determining the locked-in rates

Based on the educational note *Application of IFRS 17 Insurance Contracts* (Question 3.46), three approaches may be used to determine the locked-in curve at initial recognition of a group:

- Determine the locked-in yield curve for each contract within the group based on each contract's respective issue date and perform the present value calculation (required for the CSM calculation) at the contract level.
- Determine the locked-in yield curve at the date of initial recognition of the group of contracts (i.e., at the issue date of the first contract included in the group).
- Per IFRS 17.B73, use a weighted-average discount curve based on the issue dates/months of the contracts in the group.

Note that per IFRS 17.28, the locked-in yield curve at the date of initial recognition of a group of contracts may change as contracts are added to the group. However, the calculation of the initial CSM for the contracts in the group would not be revised. Any change to the locked-in yield curve of a group would only be used going forward.

An entity may use different approaches with respect to the frequency of locking in the yield curve, depending on the purpose of the locked-in yield curve. For example, consider the case where contracts are grouped into annual cohorts and financial statements are prepared quarterly.

To calculate the CSM at initial recognition (Use A.), the entity could use any of the following approaches to determine the locked-in yield curve of a group of insurance contracts:

i. Current yield curve in effect the day each insurance contract in the group was recognized.

ii. Current yield curve from the week, month, or quarter the insurance contract was recognized (using either beginning-of-period, mid-period, or end-of-period yield curve).

iii. Average of the current yield curves over the quarter the insurance contract was recognized (using either daily, weekly, or monthly yield curves over the quarter in the averaging calculation and using either a simple or weighted averaging approach).

For accreting interest on the CSM (Use B.), there are fewer choices, because interest is accreted at the group level. Hence, the averaging expedient in IFRS 17.B73 will often be needed, and the entity will use a weighted average of the locked-in curves from (Use A.) to determine the locked-in yield curve for (Use B.). That could be, for instance, a weighted average of the locked-in curves used at initial recognition, where the weights at initial recognition could be the coverage units, the premiums, the amount of insurance, etc. Depending on the circumstances, a simple average (i.e., equal weights) may be appropriate.

For the purpose of adjusting the CSM (Use C.), locked-in yield curve information is available at the group level but could also be available at the contract level. Hence, the potential approaches for setting the locked-in yield curve are the same as those listed for initial recognition (Use A.), plus, per IFRS 17.B73, the weighted-average yield curve for the year that contracts in the group are issued (i.e., Use B.).

An example is provided in Appendix 1.

3.3 Format of locked-in yield curves

In this section, we address possible approaches for applying the locked-in rates in practice. Similar to establishing the discount rate curve, the locked-in curve may be expressed as forward rates, spot rates, or a level effective yield.

Note the profit recognized is the same under each approach. However, there could be timing differences in recognition of earnings, and the amounts recognized in revenue (CSM amortization) and insurance finance expense (interest accretion on CSM) may differ under each approach.

3.3.1 Forward rates

If a forward rate is selected as the format for the locked-in rate, the locked-in rate would follow the forward rate curve.

Let $f_{t,t+1}$ be the forward rate used to discount a cash flow from time t+1 to time t, as determined for a group of insurance contracts at initial recognition.

The interest rate to be accreted on the CSM (Use B.) during period t would then simply be $f_{t,t+1}$.

For adjusting the CSM (Use C.), one would “roll down” the forward curve. That is, the present value of a cash flow CF_N discounted from time N to time t would be given by:

$$\frac{CF_N}{\prod_{k=t+1}^{N}(1+f_{k-1,k})}$$

This approach is likely the simplest to implement operationally.

3.3.2 Spot rates

If a spot rate is selected as the format for the locked-in rate, it is necessary to differentiate between the rates used for the purpose of interest accretion (Use B.) and for adjusting the CSM (Use C.).This is because the one-year spot rate would be inappropriate for Use B., as it does not reflect the average amount of interest accreted on the cash flows during the period.

To describe the approach to determining the rate for accreting interest on the CSM (Use B.), let s_t be the spot rate used to discount a cash flow from time t to initial recognition.

To determine the interest accreted on the CSM (Use B.) during period t:

$$i_{CSM,t} = \frac{\sum_{k=t}^{N} s_k CF_k^{out}\,(1+s_k)^{-(k-t+1)}}{\sum_{k=t}^{N} CF_k^{out}(1+s_k)^{-(k-t+1)}}$$

This amount is essentially the amount of interest accreted on each cash outflow (CF_t^{out}) at the corresponding spot rate for one year over the present value of all future cash outflows.

If a different approach is taken, care would be exercised in selecting the cash flows used. For certain cash flow profiles (when including cash inflows and outflows) where the present value is close to 0, it is possible that the resulting interest rate could be artificially higher or possibly negative. For this reason, it is suggested to solve for this rate using only cash outflows, or to solve for a rate that is within an appropriate boundary and close to replicating the present value of cash flows at initial recognition.

To determine the rates used to adjust the CSM (Use C.), the entity would roll down the spot curve. That is, the entity would successively shorten the spot curve by removing the earliest remaining rate. For example, the initial one-year rate would be removed after the first year, the initial two-year rate would be removed after the second year, etc.

3.3.2.1 Illustration of the formula for determining the locked-in rate using spot rates

To illustrate the application of the formula for accreting interest on CSM in period t, consider the abbreviated table of cash flows and spot rates at initial recognition given by the following formula:

$$i_{CSM,t} = \frac{\sum_{k=t}^{N} s_k CF_k^{out} (1+s_k)^{-(k-t+1)}}{\sum_{k=t}^{N} CF_k^{out} (1+s_k)^{-(k-t+1)}}$$

Time	Cash outflow	Spot rate
1	10,724,000	1.01%
2	16,126,105	1.11%
3	20,126,102	1.24%
4	24,182,499	1.39%
5	28,421,437	1.55%
6	33,004,511	1.71%
7	38,029,671	1.87%
8	43,544,855	2.02%
9	49,408,893	2.17%
10	55,626,325	2.30%
…		
96	8	5.15%

Applying the formula would yield:

Time	$CF_k^{out}(1+s_k)^{-(k-t+1)}$	$s_k CF_k^{out}\ (1+s_k)^{-(k-t+1)}$
1	10,724,000 * 1.0101^(-1)	1.01% * 10,724,000 * 1.0101^(-1)
2	16,126,105 * 1.0111^(-2)	1.11% * 16,126,105 * 1.0111^(-2)
3	20,126,102 * 1.0124^(-3)	1.24% * 20,126,102 * 1.0124^(-3)
4	24,182,499 * 1.0139^(-4)	1.39% * 24,182,499 * 1.0139^(-4)
5	28,421,437 * 1.0155^(-5)	1.55% * 28,421,437 * 1.0155^(-5)
6	33,004,511 * 1.0171^(-6)	1.71% * 33,004,511 * 1.0171^(-6)
7	38,029,671 * 1.0187^(-7)	1.87% * 38,029,671 * 1.0187^(-7)
8	43,544,855 * 1.0202^(-8)	2.02% * 43,544,855 * 1.0202^(-8)
9	49,408,893 * 1.0217^(-9)	2.17% * 49,408,893 * 1.0217^(-9)
10	55,626,325 * 1.023^(-10)	2.3% * 55,626,325 * 1.023^(-10)
…		
96	8* 1.0515^(-96)	5.15% * 8* 1.0515^(-96)
$\sum_{k=t}^{N}$	74,749,627	2,445,150,937

$i_{CSM,1}$ = 74,749,627 / 2,445,150,937 = 3.06%

3.3.3 Level effective yields

If a level effective yield is used as the format for the locked-in rate, the locked-in rate would be a single rate of interest, i, determined at initial recognition of a group as follows:

$$Present\ value\ of\ future\ cash\ flows = \sum_{k=0}^{N} \frac{CF_k}{(1+s_k)^k} = \sum_{k=0}^{N} \frac{CF_k}{(1+i)^k}$$

This rate i could be used to accrete interest on the CSM (Use B.) and could be used to adjust the CSM (Use C.).

When solving for a level effective yield, care would be exercised in selecting which cash flows to use. For certain cash flow profiles (when including cash inflows and outflows) where the present value is close to 0, it is possible that the resulting interest rate (or rates if mathematically there is more than one solution) could be artificially high or possibly negative. For this reason, it is suggested to solve for this rate using only cash outflows, or to solve for a rate that is within an appropriate boundary and close to replicating the present value of cash flows at initial recognition.

3.3.4 Impact of changes in fulfilment cash flows on the spot or effective yield

If the spot or effective yield method is used to determine the locked-in discount rates, the question arises as to whether changes in the fulfilment cash flows would necessitate a change in the effective yield. IFRS 17 does not provide guidance in this respect; however an effective interest method is prescribed in

IFRS 9 for the recognition of interest revenue, and the modification of cash flows for an asset is discussed in paragraph 5.4.3.

IFRS 9 paragraph 5.4.3 notes "… The gross carrying amount of the financial asset shall be recalculated as the present value of the renegotiated or modified contractual cash flows that are discounted at the financial asset's **original** effective interest rate *…"* [**emphasis added**]

Given the lack of guidance in IFRS 17 and the above guidance in IFRS 9, it may be appropriate to maintain the same effective yield for the locked-in discount rate following a change in fulfilment cash flows. In particular, if a company has elected to record the change in discount rates through OCI as its accounting policy, it is more likely that a better accounting match would be achieved if there is alignment between the locked-in discount rates for liabilities and the effective yields that are applicable to the assets backing those liabilities.

3.4 Locked-in yield curves for GMA contracts where stochastic modelling is used

Situations may arise where stochastic modelling techniques are used to calculate the estimates of future cash flows of insurance contracts measured using the GMA that offer financial guarantees, for example, some universal life contracts.

In these situations, the educational note *IFRS 17 Market Consistent Valuation of Financial Guarantees for Life and Health Insurance Contracts* provides guidance on the development of the stochastic scenarios used to calculate the estimates of future cash flows.

Note that the following will be available at each reporting date (including initial recognition):

1. the current yield curve, which is the input yield curve to the stochastic scenario generator,
2. the volatility assumptions in the stochastic scenario generator, and
3. the resulting stochastic scenarios.

The remainder of this section will use the terminology "input yield curve" to reference the set of deterministic discount rates used to generate the stochastic scenarios that are used to determine the present value of estimates of future cash flows.

In this section of this explanatory report, we address considerations regarding the locked-in yield curves in this stochastic context for insurance contracts measured using the GMA. Note:

- This section assumes that the stochastic valuation techniques utilize risk-neutral scenarios; however, the concepts can be extended to situations where real-world models with deflators are used.
- Additionally, this section frequently refers to the set of stochastic scenarios used at "initial recognition"; however, this phrase should also be interpreted to capture the set of stochastic scenarios used at the transition date (to determine the CSM) as required.

The following sections outlining some potential options for the format of the locked-in yield curves.

3.4.1 Locked-in stochastic yield curves consistent with the stochastic scenarios used at initial recognition (Approach 1)

Since the valuation entails the use of stochastic modelling techniques to calculate the present value of estimates of future cash flows, the set of stochastic scenarios used at initial recognition to determine the CSM could be used as the locked-in yield curves.

Note that for any locked-in yield curves, with the passage of time the entity could not preserve the curve but would need to truncate historical periods. For deterministic forward curves, this is easy to do.

However, in the stochastic context, the stochastic scenarios would need to be regenerated. For example, if the input forward curve was 3% in year 1 and 4% in year 2, then the locked-in stochastic scenarios would be based on that input forward curve at year 1 but would be regenerated at year 2 starting from the 4% year-2 rate.

For this reason, this approach is the most complex and time consuming of those described.

3.4.2 Input yield curves utilized in an adjusted deterministic valuation that reproduces the stochastic estimate of future cash flows used at initial recognition (Approach 2)

Another approach would be to set the locked-in rates to be equivalent to the input yield curves in an adjusted deterministic valuation that reproduces the stochastic estimate of the present value of future cash flows at initial recognition.

Note, the reason a deterministic valuation might be introduced in this stochastic valuation context is for practicality. Once a “locked-in basis” is determined, it is not subject to changes in financial assumptions, and thus the measurement can be alternatively derived using a deterministic approach. Some adjustment might be necessary to equate the deterministic valuation result to that of the stochastic valuation. Two such adjustments are:

> **Approach 2A** – While making no changes to assumptions or cash flows, calculate a single deterministic yield curve that reproduces the present value of estimates of future cash flows at initial recognition derived using the stochastic scenarios used at initial recognition. For example, the single deterministic yield curve could be the input yield curve with a flat basis point adjustment to the entire curve. Under this approach, the locked-in yield curve would be this derived single deterministic yield curve.
>
> **Approach 2B** – Make no change to the discounting (i.e., use the unadjusted input yield curve) and instead introduce an additional cash flow into the deterministic valuation. For example, the cash flow could be a basis point charge on the fund value. Under this approach the locked-in yield curve would be the unadjusted input yield curve. Note that any additional cash flows introduced under this option would ideally scale with the size of the group. This can be accomplished via the use of fund-based cash flows (e.g., basis point charge). Additionally, any deterministic valuation utilizing the locked-in yield curve (unadjusted input yield curve) would also utilize the additional cash flow. However, the additional cash flow would not be appropriate for use in the stochastic valuation.

If using Approach 2, the adjustments would be appropriate for the contract type. For example, if the direct insurance contracts offer a financial guarantee but the associated reinsurance contracts held do not, then the adjustments would not be applied to the reinsurance contracts held.

Note, in a stochastic valuation there may be a secondary impact on the valuation of reinsurance contracts held. If so, it is suggested that the entity assess if any adjustments are relevant to the valuation of the reinsurance contracts held. The example below illustrates this issue. In the example below, the adjusted deterministic valuation for direct contracts has similar results to the stochastic valuation and the result could be viewed as being reasonable.

	Present value of future cash flows		
	Direct contracts (having financial guarantee)	Reinsurance contracts held	Total
Deterministic valuation with no adjustments	100	(40)	60
Stochastic valuation	120	(38)	78
Adjusted deterministic valuation for direct contracts	120	(40)	80

3.4.3 Input yield curve used at initial recognition with no adjustment (Approach 3)

Like Approach 2 above, a deterministic valuation would be used for setting the locked-in basis in Approach 3; however, no adjustments are made. That is, the locked-in yield curve is the input yield curve to the development of the stochastic scenarios. This is the same locked-in yield curve as under Approach 2B but without the additional cash flow.

The IFRS 17 standard is not specific with respect to the locked-in curve for stochastic applications, and there are multiple interpretations.

3.4.4 Impact of the locked-in yield curve determination on the uses of locked-in rates

There are several different uses of the locked-in yield curves, and some of the approaches to setting locked-in rates may be better suited to a particular use than another. Below we discuss some of the potential uses for a group of insurance contracts measured using the GMA where stochastic modelling techniques are used to determine the present value of estimates of future cash flows.

Use B – Accreting interest on the contractual service margin

IFRS 17.B72(b) describes one use of the locked-in rates, which is to accrete interest on the CSM, and describes the rate to be used as “discount rates determined at the date of initial recognition of a group of contracts, applying paragraph 36 to nominal cash flows that do not vary based on the returns on any underlying items.”

The focus of this paragraph on “applying paragraph 36 to nominal cash flows that do not vary based on the returns on any underlying items” suggests that the locked-in rates for this application are the same as the input yield curve at initial recognition (i.e., deterministic rates).[1] That is, despite financial guarantees being present and valued using stochastic modelling techniques, the locked-in rates for CSM interest accretion would be the same as that for products without financial guarantees and not valued using stochastic modelling techniques.

Use C – Adjusting the CSM

A key use of locked-in rates is referenced in IFRS 17.B72(c), and that is “to measure the changes to the contractual service margin.” The text in this section references “discount rates applying paragraph 36 determined on initial recognition.”

[1] It also implies that the rates used should ignore any adjustment to discount rates to reflect variability when cash flows vary based on the returns on any underlying items (IFRS 17.B74(b)).

These could be the same locked-in rates that are used for accretion of interest on the CSM (Use B.).[2]

A second possible approach would be to use the adjusted rates described in Approach 2A above.

3.5 Locked-in assumptions – Sources of financial risk

IFRS 17.B97(a) requires that the CSM in respect of a group of insurance contracts shall not be adjusted for "the effect of the time value of money and changes in the time value of money and the effect of financial risk and changes in financial risk."

It is possible to avoid adjusting the CSM for the effects of changes in financial risk by locking in other financial risk assumptions as well as discount rates. An example of this is Approach 2B above, where the basis point charge on the fund is locked in as a means of locking in the impact of financial guarantees in the product.

Some non-discount-rate financial risks that might be locked in include:

- Inflation (see paragraph B128 for circumstances when inflation is considered a financial vs. non-financial risk).
- Interest rates specified pursuant to Part XII.3 of the *Income Tax Act* in respect of the tax on investment income of life insurers (IIT).
- Volatility or other stochastic parameters used to generate a scenario, e.g., in Approach 1 above.

The following is a simple example of locked-in inflation:

- A three-year annuity is issued. The premium is $300 and the benefits are $100 per year, indexed at the CPI rate in the second and third years.
- For simplicity, assume no expense or risk adjustment.
- At initial recognition, the discount rate is 5%, the expected inflation rate is 2%, and the expected mortality is 0.
- For subsequent measurement, the CSM is amortized based on the passage of time.
- At the end of the first year, inflation is 2.2%, the discount rate remains at 5%, the expected inflation rate increases to 3%, and the mortality rate is set to 1%.

At initial recognition, the cash flows, fulfilment cash flows (FCF), and CSM would be:

	Time			
	0	**1**	**2**	**3**
Premium	300.00			
Benefit	-	100.00	102.00	104.04
Discount rate	5%			
Present value of future cash flows	277.63			
CSM	22.37			

[2] Assuming B74(b) does not apply.

At the end of the first year, immediately after the benefit payment of $100 is made, the expected cash flows, FCF, and CSM would be:

	Time		
	0	**1**	**2**
Premium	-		
Benefit	-	102.00	104.04
Discount rate	5%		
Present value of future cash flows	191.51	(a)	
CSM	15.66		

Where the CSM is calculated as $22.37 * 1.05 * 2 / 3 (for straight-line amortization).

Based on the locked-in assumption of 2% inflation, but now updating for the 1% mortality rate, the expected cash flows, FCF, and CSM would be:

	Time		
	0	**1**	**2**
Premium	-		
Benefit	-	100.98	101.97
Discount rate	5%		
Present value of future cash flows	188.66	(b)	
CSM	17.56		

Where the CSM is calculated as [$22.37 * 1.05 + 191.51 (a) - 188.66 (b)] * 2 / 3.

The expected cash flows are determined as:

- $100.98 = $102.00 * 0.99
- $101.97 = $102.00 * 1.02 * (0.99^2)

Both the impact of the in-year variance of inflation (2.2% versus 2.0%) and the change in the inflation assumption (2.0% to 3.0%) do not impact the CSM.

The liability on the balance sheet would be:

	Time		
	0	**1**	**2**
Premium	-		
Benefit	-	101.18	103.17
Discount rate	5%		
Present value of future cash flows	189.94	(c)	
CSM	17.56		

Where the CSM (which is not adjusted for changes arising from inflation) is calculated as [$22.37 * 1.05 + 191.51 (a) − 188.66 (b)] * 2 / 3.

The expected cash flows are determined as:

- $101.18 = $102.20 * 0.99
- $103.17 = $102.20 * 1.03 * (0.99^2)

4. Setting the discount curve for reinsurance contracts held

IFRS 17 requires that the discount rates applied to a group of insurance contracts reflect the characteristics of such contracts. This section outlines considerations for developing illiquidity premiums for reinsurance contracts held.

Though assessed separately, it could be the case that the liquidity characteristics of the underlying direct contracts will be similar to the liquidity characteristics of the associated reinsurance contract held. If so, the same illiquidity premium might be used.

4.1 Illiquidity premiums for reinsurance contracts held

IFRS 17.36(a) requires discount rates to reflect the time value of money, the currency of the cash flows, and the liquidity characteristics of the insurance contracts. The timing and currency are automatically captured through the curve's term structure. The remainder of this section considers the liquidity characteristics.

Liquidity characteristics for reinsurance contracts held are assessed separately from the liquidity characteristics of the underlying contracts. The educational note *IFRS 17 Discount Rates for Life and Health Insurance Contracts* discussed three criteria for assessing the liquidity characteristics of an insurance contract: exit value, inherent value, and exit cost. Question 3.18 of the educational note *Application of IFRS 17 Insurance Contracts* also indicates that liquidity differences between direct and reinsurance contracts held could arise "due to termination conditions."

Below we discuss these considerations for developing illiquidity premiums for reinsurance contracts held in further detail.

Exit value: Reinsurance treaties typically do not have recapture provisions that allow the entity (i.e., the ceding company) to force the issuer of the reinsurance contract held (i.e., the reinsurer) to make payments earlier than the occurrence of insured events or dates specified in the contracts. Therefore, reinsurance contracts held would typically be considered illiquid.

Exit cost: Recapture provisions typically put restrictions on the ceding company's ability to recapture, which would reinforce the view that reinsurance contracts held would typically be considered illiquid.

Inherent value: The inherent value of a reinsurance contract held is high when, for example, reinsurance premiums are fixed despite unfavourable changes in the underlying risk profile. A high inherent value would also suggest that a reinsurance contract held is illiquid.

4.2 Implementation considerations

It is possible for a single reinsurance contract to cover direct business from multiple direct liability portfolios. If the illiquidity premiums of these liability portfolios are the same and the liquidity characteristics of the reinsurance contract are similar, there are no operational challenges in setting the discount rates for the reinsurance contract held. If the illiquidity premiums of these liability portfolios are different or the liquidity characteristics of the reinsurance contract held are different, there may be operational challenges in setting the discount rates for the group of reinsurance contracts held.

Approaches might include using blended discount rates, using different discount rates within a group, or separating the group of reinsurance contracts held into more than one group (if the different coverages within a treaty are considered separate contracts).

5. Risk adjustment considerations

IFRS 17 requires that a risk adjustment for non-financial risk (RA) be explicitly included in the measurement of insurance contract liabilities to reflect the compensation the entity requires for the uncertainty associated with non-financial risk in the present value of estimates of future cash flows. Consistent with Chapter 3 of the CIA educational note *IFRS 17 Risk Adjustment for Non-Financial Risk for Life and Health Insurance Contracts*, the use of IFRS 17 discount rates to measure the RA is not a requirement; however, a measurement based on the present value of cash flows (sometimes called the "margin" approach) could be the best representation of the entity's compensation requirements.

This section will focus on considerations when the RA is measured using current or locked-in IFRS 17 discount rates.

According to IFRS 17.B90, the RA is separate from the present value of estimates of future cash flows, which contains the provisions related to financial risk. Therefore, when the RA is measured using current or locked-in IFRS 17 discount rates, the RA will vary with assumptions related to financial risk, but only because the compensation the entity requires for uncertainty related to non-financial risk so varies. The measurement of RA contains no provision for financial risk per se.

5.1 Current versus locked-in IFRS 17 discount rates

The measurement of RA reflects the entity's compensation requirements. The use of locked-in or current discount curves in the RA would be consistent with those compensation requirements.

5.2 Disaggregating the change in RA

IFRS 17.81 provides an option for insurers not to disaggregate the change in the RA between insurance service results and insurance finance income or expenses. If this option is elected, the total release of RA in the period will be reported as insurance revenue, and the total change in the RA related to future service will be offset by the CSM. If the option is not elected, the impact of the time value of money and changes in discount rates on the RA will be reported as insurance finance income or expenses. If the RA is measured using locked-in IFRS 17 discount rates, only the time value of money would be reported as insurance finance income or expenses as there would be no impact from change in discount rates on the RA.

5.3 Risk adjustment confidence level

Section 7 of the educational note *IFRS 17 Risk Adjustment for Non-Financial Risk for Life and Health Insurance Contracts* indicates that the confidence level of the RA is based on the probability distribution of the present value of future cash flows for the contracts, measured using current discount rates.

Therefore, if IFRS 17 locked-in discount rates are used to measure the RA, the corresponding confidence level might change as current discount rates change, dependent on the confidence level approach used, relationship of locked-in rates to current discount rates, and product portfolio. The actuary may want to consider the difference between risk adjustment discount rates and discount rates used in the quantification of the confidence level to ensure that there is no unwanted noise in confidence level.

6. Insurance finance income or expenses

IFRS 17.87 states:

> 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.

In this report:

- The "effect of the time value of money" is referred to as the unwinding of the yield curves and represents the effect of discounting due to the passage of time.
- The "effect of changes in the time value of money" is referred to as the effect of changes in yield curves and represents the change in the liability due to changes in the yield curve (other than unwinding of the yield curve).

IFRS 17 does not require these two components to be calculated separately; however, it might be useful as part of the explanation of the relationship between insurance finance income or expenses and the investment return on assets that is required by IFRS 17.110.

It's important to note that the approaches below have no impact on the total insurance finance income or expenses, only how it is decomposed between the time value of money (sometimes called the "expected" change) and changes in the time value of money (sometimes called the "unexpected" change).

6.1 Unwinding the yield curve

Note that the discussion in this section is specific to the unwinding of the yield curve on the fulfilment cash flows (if the option to disaggregate the RA is elected) or on the present value of estimates of future cash flows (if the option to disaggregate the RA is not elected). The insurance finance income or expenses related to CSM is simply the accretion of interest on the CSM, which, for contracts measured using the GMA, is at the locked-in curve (see Section 3.3).

The release of the effect of discounting (unwinding) during a reporting period can be conceptualized as the difference between discounting the cash flows to the beginning of the period and discounting to the end of the period. Equivalently, the unwinding can be calculated by applying unwinding rates to the beginning-of-period present value cash flows.

The unwinding of the yield curve does not include the effect of changes in yield curves; however, yield curves at a given reporting date may include then-current expectations about how the yield curves will change over time. When an entity does not elect to disaggregate the insurance finance income or expenses between profit and loss and OCI (i.e., the "OCI option") per IFRS 17.B72(e), three possible methods for calculating the impact of unwinding are presented below.

When the OCI option has been elected, the unwinding of the yield curve is determined from the allocation of the finance income or expenses between profit or loss and OCI. That is the locked-in rate (see Section 3.1 for locked-in rate discussions) when changes in financial assumptions do not have a substantial effect on the amounts paid to the policyholders (IFRS 17.B131), and a constant or crediting rate when changes in financial assumptions have a substantial effect on the amounts paid to policyholders (IFRS 17.B132).

6.1.1 No change in yield curve

Unwinding by assuming no change in the yield curve assumes market rates will be constant over the period. Under this assumption, the unwinding expense is calculated by using the same yield curve at the beginning and end of the period. The assumption that the yield curve would remain static over an investment horizon is commonly used by bond portfolio managers, and it forms the basis of a yield curve roll-down strategy.

The equivalent unwinding rates are the forward rates implied by the yield curve. Calculating the unwinding expense by multiplying the forward rates by the beginning-of-period discounted cash flows will produce the same result as calculating the unwinding expense as the difference between the cash flows discounted to the beginning and end of the period. The table below shows the calculation of the unwinding expense **over one year** under this approach.

		Projected cash flow and interest expense attributed to each cash flow in 2021					Total interest expense over one year (2021)
1	Year	2021	2022	2023	2024	2025	
2	Undiscounted cash flow	100	100	100	100	100	500
3	BoP discount curve	1.2%	1.8%	2.3%	2.5%	2.7%	
4	EoP assumed discount curve		1.2%	1.8%	2.3%	2.5%	
5	BoP discounted cash flow	98.81	96.49	93.41	90.60	87.53	466.84
6	EoP discounted cash flow	100.00	98.81	96.49	93.41	90.60	479.31
7	Unwinding expense = (6) − (5)	1.19	2.32	3.09	2.81	3.07	12.47
8	Forward rate	1.2%	2.4%	3.3%	3.1%	3.5%	
9	Unwinding rates = (8)	1.2%	2.4%	3.3%	3.1%	3.5%	
10	Unwinding expense = (5) * (9)	1.19	2.32	3.09	2.81	3.07	12.47

Notes:

- Assumes end-of-year cash flows.

- Yield curves are shown on a spot rate basis.
- (5) = (2) discounted to beginning of 2021 using (3).
- (6) = (2) discounted to beginning of 2022 using (4).

6.1.2 Unwinding using forward rates

Unwinding using the forward rates assumes that the term structure of interest rates is determined by market expectations of future interest rate changes assuming risk neutrality and the no-arbitrage principle. Under this assumption, the forward rates implied by the current yield curve represent the sequence of expected future single-period spot rates.

This method calculates the unwinding expense using the end-of-period yield curve that is predicted by the forward rates of the initial yield curve. The equivalent unwinding rate is the one-period spot rate (i.e., one-year spot rate for annual reporting frequency, one-month spot rate for monthly reporting). The end-of-period yield curve is calculated by unwinding one year of forward rates. That is, if $S_{BoP,t}$ and $S_{EoP,t}$ are the spot rates at time t, in the beginning- and end-of-period yield curves, respectively, then:

$$S_{EoP,t} = \left(\frac{\left(1+S_{BoP,t}\right)^{t}}{1+S_{BoP,1}}\right)^{\frac{1}{(t-1)}}$$

The table below shows the calculation of the unwinding expense over one year under this approach.

1	Year	Projected cash flow and interest expense attributed to each cash flow in 2021					Total interest expense over one year (2021)
		2021	2022	2023	2024	2025	
2	Undiscounted cash flow	100	100	100	100	100	500
3	BoP discount curve	1.2%	1.8%	2.3%	2.5%	2.7%	
4	EoP assumed discount curve		2.4%	2.9%	2.9%	3.1%	
5	BoP discounted cash flow	98.81	96.49	93.41	90.60	87.53	466.84
6	EoP discounted cash flow	100.00	97.65	94.53	91.68	88.58	472.44
7	Unwinding expense = (6) − (5)	1.19	1.16	1.12	1.09	1.05	5.60
8	Unwinding rates = (3) col. 1	1.2%	1.2%	1.2%	1.2%	1.2%	
9	Unwinding expense = (5) * (8)	1.19	1.16	1.12	1.09	1.05	5.60

Notes:

- Assumes end-of-year cash flows.
- Yield curves are shown on a spot rate basis.
- (5) = (2) discounted to beginning of 2021 using (3).
- (6) = (2) discounted to beginning of 2022 using (4).

6.1.3 Unwinding using spot rates

This method calculates the unwinding expense using an end-of-period yield curve that is equal to the beginning yield curve shifted by one period. That is, the two-year spot rate becomes the one-year spot rate, the three-year spot rate becomes the two-year spot rate, and so on. The equivalent unwinding rates are the beginning-of-period spot rates. The table below shows the calculation of the unwinding expense over one year under this approach.

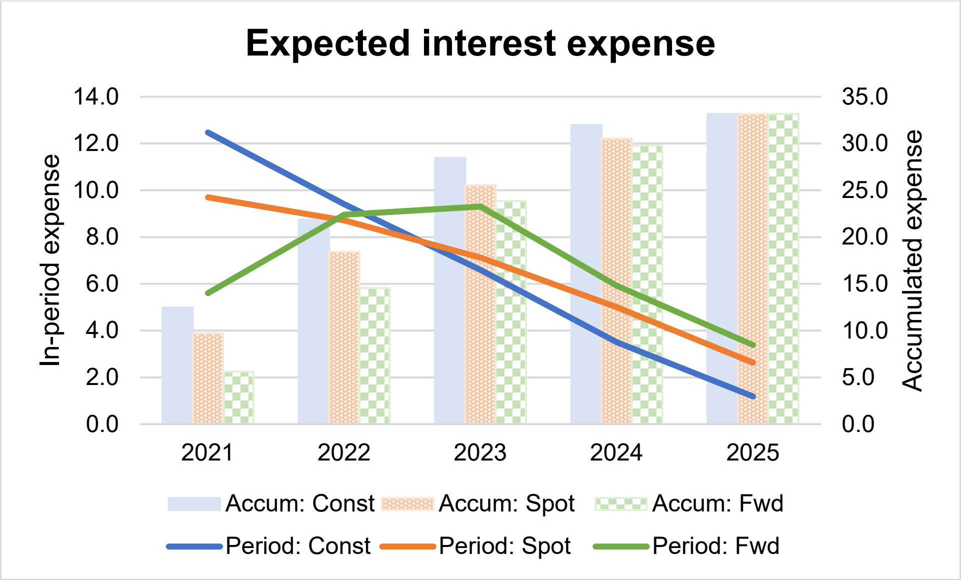
1	Year	Projected cash flow and interest expense attributed to each cash flow in 2021					Total interest expense over one year (2021)
		2021	2022	2023	2024	2025	
2	Undiscounted cash flow	100	100	100	100	100	500
3	BoP discount curve	1.2%	1.8%	2.3%	2.5%	2.7%	
4	EoP assumed discount curve		1.8%	2.3%	2.5%	2.7%	
5	BoP discounted cash flow	98.81	96.49	93.41	90.60	87.53	466.84
6	EoP discounted cash flow	100.00	98.23	95.55	92.86	89.89	476.54
7	Unwinding expense = (6) − (5)	1.19	1.74	2.15	2.26	2.36	9.70
8	Unwinding rates = (3)	1.2%	1.8%	2.3%	2.5%	2.7%	
9	Unwinding expense = (5) * (8)	1.19	1.74	2.15	2.26	2.36	9.70

Notes:

- Assumes end-of-year cash flows.
- Yield curves are shown on a spot rate basis.
- (5) = (2) discounted to beginning of 2021 using (3).
- (6) = (2) discounted to beginning of 2022 using (4).

6.1.4 Comparison of methods

The tables above showed the calculation of the unwinding expense over one year under three different methods, and while the result can be quite different in a given year, the total accumulated interest expense will be the same under all three approaches over the entire projection period. The graph below shows both the in-period expected interest expense on the fulfilment cash flows and the accumulated interest expense over the five-year projection in the prior examples to illustrate this.



6.2 Effect of changes in yield curves

The effect of changes in yield curves on the insurance finance income or expenses encompasses changes relative to the expectations about how the yield curve will change over time (i.e., through the unwind of the discount rate), but not changes in cash flows.

The effect of changes in yield curves would capture the difference between "expected" interest expense (based on the unwinding method used) and the total insurance finance expense.

If the OCI option is elected, the effect of changes in yield curves is the amount reported in OCI.

6.3 Implications of unwinding method

The method used for unwinding the discount rate has various implications. These are outlined below.

6.3.1 Rebasing of the yield curve

Due to the ultimate rate typically used within IFRS 17 yield curves, there would be an impact each period from "rebasing" the yield curve – i.e., the ultimate rate gets pushed out one period further at each subsequent valuation date. For contracts with significant cash flows in the unobservable period, the impact of this dynamic can be significant, in particular if an ultimate spot rate approach is used.

Under the constant yield curve approach, the impact of rebasing the curve is included in the unwinding of the discount rate. Under the other methods as described, the impact of rebasing the curve is included in the effect of changes in yield curves. A modification to the other methods to unwind only the observable period rates and re-interpolating to the ultimate rate assumption would move the impact of rebasing to the unwinding of the discount rate.

Whether the impact of rebasing is reported with "expected" interest expense or with "unexpected" would be consistent with the manner in which the insurance finance income or expenses is explained per IFRS 17.110.

6.3.2 Expected investment income on assets

If the "expected" investment income on assets is also used in the IFRS 17.110 explanation of insurance finance income or expenses, the method used to unwind the discount rate would be aligned with the method used to determine expected investment income on assets to avoid mismatches.

This will be demonstrated by building on the example from Section 6.1. The following assumptions have been made for this example:

- The liability is perfectly matched with zero-coupon bonds.
- The liability yield curve is based on the backing assets.
- Impacts of any credit adjustment are ignored for simplicity.
- Similar to the liability unwind expense, different approaches could be used to calculate the asset expected investment income, but that is beyond the scope of this report.
- In the example below, asset expected investment income is calculated using projected asset balance * spot rates consistent with the assumptions described above under unwinding using spot rates.
- Similar to the tables in Section 6.1, the tables below show the calculation over a single year.

If unwinding using forward rates is used for the liability expected interest expense, there will be a mismatch in the expected net investment result as the method does not align with the asset expected investment income method above.

1	Year	2021	2022	2023	2024	2025	Total
2	Undiscounted cash flow	100	100	100	100	100	500
3	BoP discount curve	1.2%	1.8%	2.3%	2.5%	2.7%	
4	EoP assumed discount curve		2.4%	2.9%	2.9%	3.1%	
5	BoP discounted cash flow	98.81	96.49	93.41	90.60	87.53	466.84
6	EoP discounted cash flow	100.00	97.65	94.53	91.68	88.58	472.44
7	Unwinding expense = (6) – (5)	1.19	1.16	1.12	1.09	1.05	5.60
8	Asset income = (5)*(3)	1.19	1.74	2.15	2.26	2.36	9.70
9	Net investment income = (8) – (7)	0.00	0.58	1.03	1.18	1.31	4.10

Whereas, if unwinding using spot rates was used for the liability expected interest expense, that would align with the approach used for asset expected investment income and there is no mismatch in the expected net investment result.

1	Year	2021	2022	2023	2024	2025	Total
2	Undiscounted cash flow	100	100	100	100	100	500
3	BoP discount curve	1.2%	1.8%	2.3%	2.5%	2.7%	
4	EoP assumed discount curve		1.8%	2.3%	2.5%	2.7%	
5	BoP discounted cash flow	98.81	96.49	93.41	90.60	87.53	466.84
6	EoP discounted cash flow	100.00	98.23	95.55	92.86	89.89	476.54
7	Unwinding expense = (6) – (5)	1.19	1.74	2.15	2.26	2.36	9.70
8	Asset income = (5)*(3)	1.19	1.74	2.15	2.26	2.36	9.70
9	Net investment income = (8) – (7)	0.00	(0.00)	0.00	0.00	0.00	0.00

The key point in the examples above is that the methods used to calculate the expected amounts on assets and liabilities would be aligned, in which case any of the three methods can produce a reasonable expected net investment result. The overall net investment results, reflecting both expected and unexpected amounts, will not be affected by the method used to calculate the expected results.

7. Financial statement presentation

For financial statement presentations, in accordance with IFRS 17.88, an accounting policy choice (the OCI option) is made between

a. including insurance finance income or expenses for the period in profit or loss (P&L), or

b. disaggregating insurance finance income or expenses for the period to include in P&L an amount determined by a systematic allocation of the expected total insurance finance income or expenses over the duration of the group of contracts.

The accounting policy choice made on the OCI option will impact both the

1. statement of financial position, and
2. statement of comprehensive income.

7.1 Statement of financial position

The fulfilment cash flows presented in the statement of financial position are calculated using current yield curves whether the OCI option is elected or not.

If the OCI option is elected, accumulated other comprehensive income (AOCI) includes the difference between the fulfilment cash flows calculated at current rates and

- the fulfilment cash flows calculated at locked-in rates for contracts where changes in financial assumptions do not have a substantial effect on the amounts paid to policyholders (IFRS 17.B131), or
- the fulfilment cash flows calculated at a constant or crediting rate for contracts where changes in financial assumptions do have a substantial effect on the amounts paid to policyholders (IFRS 17.B132).

There are no amounts related to insurance contracts in AOCI if the OCI option is not elected.

7.2 Statement of financial performance

If the entity elects the OCI option, the insurance finance income or expenses is disaggregated between amounts included in P&L and OCI. IFRS 17.B130 requires that this disaggregation be determined by a systematic allocation of the expected total finance income or expenses over the duration of the group of insurance contracts.

Paragraph IFRS 17.B131 requires that for groups of insurance contracts for which changes in assumptions that relate to financial risk do not have a substantial effect on the amounts paid to the policyholder, the systematic allocation be determined using the yield curves specified in paragraph IFRS 17.B72(e)(i) – i.e., locked-in yield curves determined at initial recognition.

The determination and format of locked-in yield curves is discussed in Section 3.

Paragraph IFRS 17.B132 requires that for groups of insurance contracts for which changes in assumptions that relate to financial risk have a substantial effect on the amounts paid to the policyholders, the systematic allocation be determined in one of the following ways:

1. using a rate that allocates the remaining revised expected finance income or expenses over the remaining duration of the group of contracts at a constant rate; or
2. for contracts that use a crediting rate to determine amounts due to the policyholders – using an allocation that is based on the amounts credited in the period and expected to be credited in future periods.

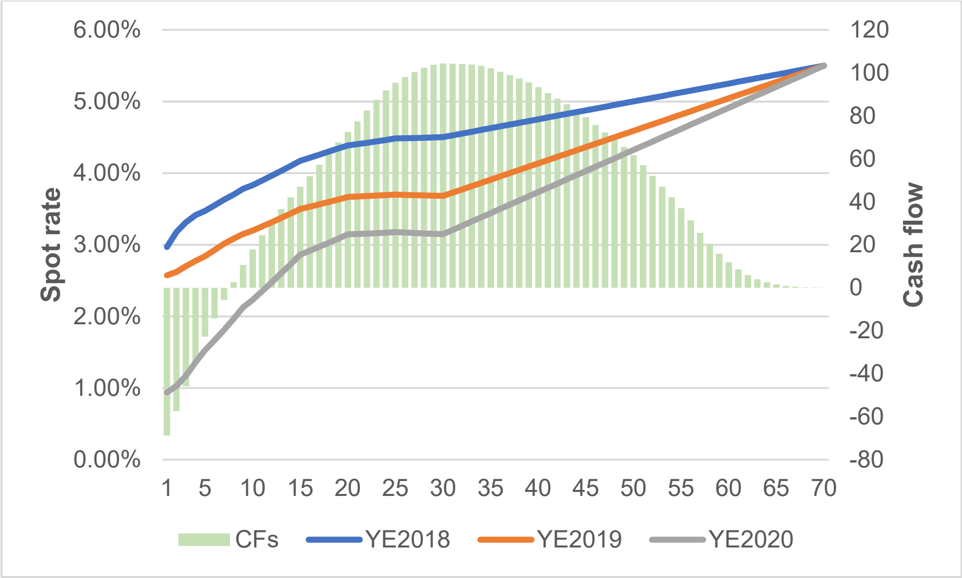
7.3 Example

To illustrate the financial statement presentation, an example was created based on a sample set of cash flows for a long-term insurance product. The example illustrates when the OCI option is elected and when it is not.

Assumptions:

- Changes in assumptions that relate to financial risk do not have a substantial effect on the amounts paid to the policyholder for this product.
- The educational note *IFRS 17 Discount Rates for Life and Health Insurance Contracts* illiquid reference curve was used as the yield curve in each period.
- The risk adjustment is based on a discounted cash flow approach, and the change in risk adjustment is disaggregated between insurance service result and insurance finance income or expense.
- CSM is ignored for simplicity.

The graph below shows the yield curves and product cash flows underlying the example.



The tables below show the financial statement presentation over two years, assuming an initial measurement date of December 31, 2018.

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Table 1 – Fulfilment cash flow movement

FCF movement	(a) Current discount rate		(b) Locked-in rate					
			Forward rates		Effective		Spot rates	
	2019	*2020*	*2019*	*2020*	*2019*	*2020*	*2019*	*2020*
(1) BOP	673	957	673	761	673	772	673	774
(2) CF	69	57	69	57	69	57	69	57
(3) Interest	216	200	20	26	31	36	33	36
(4) EOP	957	1,214	761	844	772	865	774	868

Table 2 – Financial statement presentation

Financial statement presentation		OCI option not elected		OCI option elected					
				Forwards		Effective		Spots	
		2019	*2020*	*2019*	*2020*	*2019*	*2020*	*2019*	*2020*
Financial position	FCF	957	1,214	957	1,214	957	1,214	957	1,214
	AOCI	0	0	196	370	185	349	183	346
Financial performance – IFIE	P&L* (Expected)	-38	-47	-20	-26	-31	-36	-33	-36
	P&L* (Change in YC)	-178	-153	n/a	n/a	n/a	n/a	n/a	n/a
	OCI	0	0	-196	-174	-185	-164	-183	-163
	Total	-216	-200	-216	-200	-216	-200	-216	-200

*P&L amounts would not typically be shown separately. The breakup is shown here for illustrative purposes. Expected/unwinding based on constant yield curve.

Statement of financial position:

- The fulfilment cash flows in the statement of financial position always reflect current yield curves – Table 1 (4a).
- When the OCI option is not elected, no amount is reported in AOCI.
- When the OCI option is elected, the amount in AOCI is the difference between the value of fulfilment cash flows under current yield curves, Table 1 (4a), and the value of fulfilment cash flows under locked-in rates, Table 1 (4b).

Statement of financial performance:

- Total insurance finance interest or expenses is always the same regardless of OCI option election and reflects the current yield curve – Table 1 (3a).
- When the OCI option is not elected, all calculations are based on current yield curves and no amount goes through OCI. Therefore, the amount in profit and loss simply aligns with (3a) in Table 1.

- When the OCI option is elected:
  - The amount of insurance finance income or expenses included in the profit and loss is based on the locked-in rate, which would align with (3b) in Table 1.
  - The amount of insurance finance income or expenses included in OCI is the difference between the total insurance finance income or expenses, Table 1 (3a), and the amount included in profit and loss, Table 1 (3b).
- Note that only the insurance finance income or expenses line is shown, and hence there is asset investment income. If asset classification is aligned with the liability measurement (i.e., fair value changes through P&L or OCI), then there should be largely offsetting movement in P&L and OCI from the asset investment income (assuming asset and liabilities are reasonably matched).

Appendix 1 – Yield curve used for CSM at initial recognition, CSM accretion and adjusting the CSM

Below we present an example where:

- End-of-quarter (EOQ) current yield curve is used for the purpose of (Use A.) and (Use C.).
- Weighted average of EOQ current yield curve is used for the purpose of (Use B.).

In this example, an entity issues five-year term insurance contracts grouped in annual cohorts.

At each reporting period, the CSM for the quarter's new contracts added to the group would be determined using the current quarter-end yield curve, and the weighted-average locked-in yield curve, for (Use B.), would be adjusted to reflect the addition of new contracts. The CSM would accrete interest based on this new locked-in curve.

Date issued	**Premiums**	**Quarterly expected claims (prior to assumption change)**	**CSM at initial recognition at the quarter locked-in curve**	**Quarter-end locked-in curve**	**Weighted average locked-in curve**[3]
Q1	5,000	125	2,626	0.50%	0.50%
Q2	1,000	25	559	1.23%	0.62%
Q3	2,500	62.5	1,282	0.25%	0.51%
Q4	4,000	N/A[3,4]	122	0.74%	0.59%[5]

At the beginning of Q4, the entity implements an assumption change that doubles the expected claims. The change in fulfilment cash flows that adjusts the CSM is determined using the locked-in yield curve specific to the quarter in which contracts were issued.

[3] Weighted average based on premiums.
[4] The change in assumption occurs in the third quarter; therefore, the expected claims prior to change in assumptions in Q4 are irrelevant.
[5] For adjusting the CSM, the entity uses the quarter-end locked-in curves in perpetuity, while for accreting, it uses the weighted-average locked-in curve determined for the quarterly reporting occurring in the year of issue. Once the group is closed (i.e., no contracts will be added), the CSM is accreted using the final locked-in curve, which is the Q4 value in subsequent valuation periods.

Date issued	Premiums	Quarterly expected claims (prior to assumption change)	Quarterly expected claims (after assumption change)	CSM at initial recognition at the quarter locked-in curve	Impact of Q4 basis change at the quarter locked-in curve	Quarterly effective locked-in curve	Weighted-average locked-in curve
Q1	5,000	125	250	2,626	-2,033	0.50%	0.50%
Q2	1,000	25	50	559	-402	1.23%	0.62%
Q3	2,500	62.5	125	1,282	-1,158	0.25%	0.51%
Q4	4,000	N/A	200	122	N/A	0.74%	0.58%

The resulting CSM roll-forward (first six quarters) is shown in the table below (for simplicity, the CSM is amortized on the remaining duration of the group at the time of the amortization). It reflects:

- New business CSM determined at the quarter locked-in yield curve.
- Interest accretion on the CSM at the weighted-average (WA) locked-in yield curve.
- Impacts on the CSM of basis change are determined at the quarter locked-in yield curve.

	1Q20X1	2Q20X1	3Q20X1	4Q20X1	1Q20X2	2Q20X2	3Q20X2	4Q20X2
Opening CSM	-	2,507	2,930	4,022	527	502	477	451
Assumption change adjustments	-	-	-	(3,593)	-	-	-	-
New contracts	2,626	559	1,282	122	-	-	-	-
Int. accretion at YTD WA LIC	13	19	21	3	3	3	3	3
Experience adjustment	-	-	-	-	-	-	-	-
Amortization	(132)	(154)	(212)	(28)	(28)	(28)	(28)	(28)
Ending CSM	2,507	2,930	4,022	527	502	477	451	426

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