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Draft Educational Note

IFRS 17 – Coverage Units for Life and Health Insurance Contracts

Document 219131

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Committee on Life Insurance Financial Reporting

December 2019

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MEMORANDUM

To: Members in the life insurance area

From: Steven W. Easson, Chair
Standards and Guidance Council

Marie-Andrée Boucher, Chair
Committee on Life Insurance Financial Reporting

Date: December 17, 2019

Subject: **Draft Educational Note: IFRS 17 Coverage Units for Life and Health Insurance Contracts**

The Committee on Life Insurance Financial Reporting (CLIFR) has prepared this draft educational note to provide guidance on the selection of appropriate coverage units for the purpose of amortizing the contractual service margin for insurance contracts within the scope of the International Financial Reporting Standard (IFRS) 17.

More details can be found in International Actuarial Association (IAA) guidance or other CIA documents.

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 draft educational note has been prepared by CLIFR and has received approval for distribution from the Standards and Guidance Council on December 10, 2019.

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CLIFR would like to acknowledge the contribution of its subcommittee that assisted in the development of this draft educational note: Marie-Andrée Boucher (Chair), Stéphanie Beaulne, Yannick Laurence Bourassa, Paula Kwiatkowska, Sylvain Lefebvre, Ping Ling, David Littleton, Samuel Nadeau, Christopher Piper, Andrew Ryan, Mary Stock, Catherine Sun, and Maxime Turgeon-Rhéaume.

Questions or comments regarding this draft educational note may be directed to Marie-Andrée Boucher at mboucher@eckler.ca.

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1. Introduction

IFRS 17 establishes principles for the recognition, measurement, presentation, and disclosure of insurance contracts.

IFRS 17 introduces the concept of contractual service margin (CSM) as the mechanism by which unearned profit is deferred and amortized over the period in which services are provided for a group of insurance contracts. Amortization of CSM in a given period is based on the proportion of services provided in that period relative to services provided over the entire service period. To this end, the concept of coverage units, which represents the quantity of service provided by each contract in the group, is created.

This draft educational note provides guidance on the selection of appropriate coverage units for insurance contracts within the scope of IFRS 17, for products that are typically sold in Canada. This note implicitly assumes that the actuary is accountable for choosing the coverage unit basis, and should be read within that context.

The guiding principles that the CLIFR Subcommittee followed in writing this note were the following:

- First and foremost, consider Canadian-specific perspectives, rather than simply repeating international actuarial guidance.
- Provide application guidance that is consistent with the IFRS 17 standard and applicable Canadian actuarial standards of practice and educational notes, without unnecessarily narrowing the policy choices available in the IFRS 17 standard.
- Consider practical implications associated with implementation of potential methods; in particular, ensure that due consideration is given to options that do not require undue cost and effort to implement by recognizing that data availability and materiality would be considerations in the coverage unit choice.
- Recognize that the selection of coverage units requires the use of the actuary's judgment.

At its January 2019 meeting, the International Accounting Standards Board (IASB) tentatively approved an amendment to the Standard so that in the general model, the contractual service margin is recognized on the basis of coverage units that are determined by considering both insurance coverage and investment-return service. The June 2019 *Amendments to IFRS 17* exposure draft does include this proposed amendment.

Chapter 6 of the draft CIA educational note *Application of IFRS 17 Insurance Contracts* provides further general guidance on coverage units. This draft educational note, published in February 2019, is an adoption without modification of the exposure draft of International Actuarial Note (IAN) 100. Another exposure draft of the IAN 100 is expected to be published later in 2019, which will address the comments made by the different bodies in addition to providing additional guidance related to the proposed amendments to the Standard.

This draft educational note includes some references to principles articulated by the IASB Transition Resource Group (TRG) and to staff papers prepared for the TRG meetings. Note that the TRG is not a governing body and the staff papers are not binding. The role of the TRG is to communicate to the IASB on the practical issues associated with the implementation of the Standard.

CLIFR acknowledges the exposure draft status of the IFRS 17 Standard regarding the definition of investment-return services, and the evolving nature of the associated international guidance. The CIA has provided specific comments on the definition of investment-return services to the IASB. It is therefore not possible at this time to provide conclusive guidance on the identification of investment-return services in typical products. Nevertheless, CLIFR believes this draft educational note has sufficient content to be beneficial to Canadian actuaries implementing IFRS 17, and as such has chosen to publish this draft educational note now, rather than waiting for international standards and guidance to be finalized. For the purpose of this draft educational note, some general assumptions have been made regarding the existence of investment-return services for typical Canadian products. These assumptions have been made to help illustrate the concepts presented in this draft educational note with regard to coverage units. Note that CLIFR intends to issue an adjusted version of this draft educational note in the next year or so, if necessary, to remain consistent with emerging international guidance on investment-return services.

2. General considerations

2.1. Insurance contract services

Under IFRS 17.B119, a portion of the CSM is recognized as profit each period "to reflect the insurance contract services provided under the group of insurance contracts in that period".

Insurance contract services are defined in Appendix A of the IFRS 17 Standard as:

(a) coverage for an insured event (insurance coverage);

(b) the generation of an investment return for the policyholder (an investment-return service) for contracts without direct participation features;

(c) management of underlying items on behalf of the policyholder (investment-related service) for contracts with direct participation features.

Regarding investment-return services, IFRS 17.B119B states that "insurance contracts without direct participation features may provide an investment-return service if, and only if:

(a) an investment component exists, or the policyholder has a right to withdraw an amount;

(b) the entity expects the investment component or amount the policyholder has a right to withdraw to include a positive investment return (a positive investment return could be below zero, for example, in a negative interest rate environment); and

(c) the entity expects to perform investment activity to generate that positive investment return."

Investment component is defined in IFRS 17 Appendix A as "the amounts that an insurance contract requires the entity to repay to a policyholder in all circumstances, regardless of whether an insured event occurs."

An assessment of whether insurance contract services are, or are not, provided in a particular period is the first step in developing the coverage units for a group of contracts. That assessment would be made based on the facts and circumstances of the product, with reference to the definitions above. General guidance is provided in Section 3 of this draft educational note. As noted in the introduction, the interpretation of what constitutes an investment-return service is evolving, and this draft educational note will be updated to reflect emerging international guidance.

Once it is established whether services are provided based on the facts and circumstances of the group of contracts, the actuary would use judgment to derive a coverage unit basis that is a reasonably proxy for the insurance contract services provided by the group of contracts. Considerations for doing so are discussed in the next section.

2.2. Definition of coverage units

Coverage units are a representation of the insurance contract services provided, and the means to determine the portion of the CSM to be amortized into insurance revenue. Under IFRS 17.B119(a), coverage units are defined as "the quantity of services provided by the contracts in the group, determined by considering for each contract the quantity of the benefits provided under a contract and its expected coverage period."

As such, the key considerations in the definition of coverage units are "quantity of services" and "expected coverage period". Services would include both insurance coverage and, in some circumstances, investment-return service or investment-related service. The IASB acknowledges that significant judgment will be required in determining a single quantity of service measure, and as such requires disclosure [IFRS 17.117(c)(v)] of the approach used to determine the relative weighting of the benefits provided by insurance coverage and investment-return service.

In this draft educational note, for contracts where investment-return services exist, general assumptions are made regarding the determination of the quantity of services that would represent the investment-return services being provided. For example, if a life insurance product has a cash surrender value (CSV) that is considered to provide an investment-return service, the death benefit could be defined as the CSV plus the net amount at risk (NAAR, where NAAR is defined as face amount less CSV). Choice of the death benefit (or equivalently the face amount) as the quantity of services would imply that the CSV would appropriately represent the investment-return services being provided. Other definitions of quantity of services could be used based on the facts and circumstances of the given product.

Supplemental discussion on the determination of coverage units is provided in IFRS 17 Basis for Conclusions paragraphs BC279–283. These paragraphs articulate the following key principles underlying determination of coverage units:

- Quantity of services would generally not be based on expected claims or release of risk adjustment.
- It is optional (based on judgment) to use discounting in the calculation of quantity of services provided under a contract. If the actuary has opted to use discounting, the selection of discount rates to be used for that purpose would be based on judgment, as the Standard is silent on this topic.
- The coverage period extends to the end of the period in which insurance contract services are provided, and would not extend to the period over which claims are settled.

Except for this discussion, IFRS 17 does not prescribe a particular form or basis for the definition of coverage units. Therefore, as a general statement, any coverage unit construct that satisfies the above requirements would in theory be an acceptable approach.

A general method that would work for most Canadian products is a dual factor approach. Coverage units would be defined as (1) a volume weighting (reflecting the IFRS 17.B119 requirement to consider the quantity of services provided under the contract), and (2) expected survivorship of the given contract (reflecting the IFRS 17.B119 requirement to consider expected coverage period). The combination of the dual factors would facilitate aggregation amongst contracts with different periods and different volumes of service.

$$CU_t = (Quantity\ of\ Services)_t * ({}_tp_x)$$

Where ${}_tp_x$ represents the survivorship factor at the beginning of reporting period t.

Specifically, the TRG made the following observations (most of them are listed under Question 6.13 of the *Application of IFRS 17 Insurance Contracts* educational note):

- Lapse expectations are included to the extent they affect expected duration of coverage (coverage period).
- The different levels of service across periods need to be reflected in determination of coverage units. They would consider the quantity of benefits to be received, not the costs of providing those benefits.
- The quantity of benefits is determined from the policyholder perspective not the quantity of benefits expected to be incurred by the insurer.
- A policyholder benefits from the insurer standing ready to meet valid claims, hence the quantity of benefits relates to amounts that could potentially be claimed.
- Different probabilities of insured events across periods do not of themselves affect the stand-ready quantity of benefits provided to a policyholder, but where there are different types of insured events, their different probabilities might affect the stand-ready benefit provided by the insurer. For example, within a life insurance policy with a level face amount, the increasing probability of death as the policyholder ages would not affect the level of the insurance contract services over time. However, when a contract combines two different types of coverages, different relative probabilities of the insured events may affect the choice of coverage units for the contract as a whole;

this combination of coverages situation is addressed in Section 4 of this draft educational note.

- Particular methods are not specified by IFRS 17 and different methods may achieve the objective of reflecting the service provided in each period.
- The allocation of the CSM would reflect the service rendered in a period. The determination of coverage units that achieve this objective is not an accounting policy choice but involves judgment and estimates that would be determined systematically and rationally.
- Any method achieving the objective of reflecting the insurance contract services provided in each period is appropriate (e.g., maximum amount or amount expected to be claimed in each period).
- Premiums or expected cash flows would not be a good basis for coverage units, unless they can be demonstrated to be a reasonable proxy for the services provided in the period (such as the group insurance example noted in approach 3 of Section 4).

2.3. Practical considerations

A practical reality is that any chosen approach would preferably be operationally efficient, perhaps making use of readily available information and valuation system functionality. Furthermore, it would be helpful if the approach was intuitive, as less complex methods might be easier to explain and justify in meeting the above requirements.

Future coverage units would generally be projected consistently with the fulfilment cash flows, although in certain circumstances it might be reasonable to make simplifying assumptions in the determination of future coverage units. Simplifications in the projection of coverage units are acceptable, provided that the requirements of IFRS 17.B119 are met and that the principles articulated in BC279–283 are considered.

For example, it could be operationally complex to project coverage units using market-consistent inflation expectations for products with indexed benefits, or to project coverage units reflecting market consistent growth expectations for universal life (UL) account values. In these situations, reasonable simplifications could be used in the construct of the coverage units. Similarly, inflation could align with the market consistency requirements of estimates of future cashflows or alternatively inflation could reflect the entity's view of inflation for projecting coverage units, if it reasonably reflects service expected to be provided.

2.4. CSM amortization

Coverage units would be based on the services to be provided over the expected coverage period, which represents the probability-weighted average coverage period of the contract. The expected coverage period is reassessed each period.

To determine the proportion of CSM to be amortized for provision of service during the period *i*, under this approach the following formula would be used:

$$\frac{CU_i}{\sum_{t=i}^{T} CU_t v^{(t-i)}}$$

Where v is the discount factor. Note that the actuary could decide not to apply discounting by calculating the discount factors with a 0% interest rate.

2.5. General illustrative examples

As an illustrative example, consider a contract that provides level insurance coverage of $1,000 over a 10-year period, with an initial CSM of $100. There are assumed decrements of 5% per year, and no investment-return service is provided. In this simplified example, the interest rate used to discount the coverage units and the interest used to accrete the CSM are zero. The resulting coverage units and amortization of the CSM could be calculated as follows:

Period	1	2	3	4	5	6	7	8	9	10	Total
Coverage	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%	
(A) Current service (CU_t)	1,000	950	903	857	815	774	735	698	663	630	
(B) Current + future service	8,025	7,025	6,075	5,173	4,315	3,501	2,727	1,992	1,294	630	
CSM amortization factor [(A)/(B)]	12.5%	13.5%	14.9%	16.6%	18.9%	22.1%	[illegible]	35.1%	51.3%	100.0%	
Opening CSM	100.0	87.5	75.7	64.5	53.8	43.6	34.0	[illegible]	16.1	7.9	
Insurance finance expense (C)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	[illegible]	0.0	0.0	0.0
CSM amortized (D)	12.5	11.8	11.2	10.7	10.1	[illegible]	[illegible]	[illegible]	8.3	7.9	100.0
Ending CSM	87.5	75.7	64.5	53.8	43.6	34.0	[illegible]	16.1	7.9	0.0	
Profit Realized [(D)-(C)]	12.5	11.8	11.2	10.7	10.1	9.6	9.2	8.7	8.3	7.9	100.0

The above example is an oversimplification intended to illustrate the practical application of the general formulas in Sections 2.2 and 2.4 above. The coverage units in any period (CU_t) are defined as the product of the quantity of services and the probability of survival of the contract. The CSM amortization factor in any given period is the ratio of current service in the period to the sum of current and future service in all subsequent periods.

In practice, the CSM will be accreted at a discount rate that is locked-in when the group of contracts are issued. Assume that the locked-in discount rate is 3%, and everything else in the example is the same. The definition of coverage units and calculation of the CSM amortization factor would be identical to the example above, but the amortization of the CSM would differ as follows due to accretion of interest on the CSM:

Period	1	2	3	4	5	6	7	8	9	10	Total
Coverage	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%	
(A) Current service (CU_t)	1,000	950	903	857	815	774	735	698	663	630	
(B) Current + future service	8,025	7,025	6,075	5,173	4,315	3,501	2,727	1,992	1,294	630	
CSM amortization factor [(A)/(B)]	12.5%	13.5%	14.9%	16.6%	18.9%	22.1%	27.0%	35.1%	51.3%	100.0%	
Opening CSM	100.0	90.2	80.3	70.4	60.5	50.6	40.6	30.5	20.4	10.2	
CSM With Interest Accretion	103.0	92.9	82.7	72.5	62.3	52.1	41.8	31.4	21.0	10.6	
Insurance finance expense (C)	3.0	2.7	2.4	2.1	1.8	1.5	1.2	0.9	0.6	0.3	16.6
CSM amortized (D)	12.8	12.6	12.3	12.0	11.8	11.5	11.3	11.0	10.8	10.6	116.6
Ending CSM	90.2	80.3	70.4	60.5	50.6	40.6	30.5	20.4	10.2	0.0	
Profit Realized [(D)-(C)]	9.8	9.9	9.9	9.9	10.0	10.0	10.0	10.1	10.2	10.2	100.0

As noted in Section 2.2, discounting of the coverage units would be an acceptable option under IFRS 17. Assuming the locked-in discount rate was used in the calculation of the coverage units, the above example would be modified as follows.

Period	1	2	3	4	5	6	7	8	9	10	Total
Coverage	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%	
Discount Factor	100.0%	97.1%	94.3%	91.5%	88.8%	86.3%	83.7%	81.3%	78.9%	76.6%	
(A) Current service (CU_t)	1,000	922	851	785	724	667	616	568	524	483	
(B) Current + future service	7,139	6,139	5,217	4,366	3,581	2,858	2,190	1,575	1,007	483	
CSM amortization factor [(A)/(B)]	14.0%	15.0%	16.3%	18.0%	20.2%	23.4%	28.1%	36.1%	52.0%	100.0%	
Opening CSM	100.0	88.6	77.5	66.8	56.5	46.4	36.6	27.1	17.9	8.8	
CSM With Interest Accretion	103.0	91.2	79.8	68.8	58.2	47.8	37.7	27.9	18.4	9.1	
Insurance finance expense (C)	3.0	2.7	2.3	2.0	1.7	1.4	1.1	0.8	0.5	0.3	15.8
CSM amortized (D)	14.4	13.7	13.0	12.4	11.8	11.2	10.6	10.1	9.6	9.1	115.8
Ending CSM	88.6	77.5	66.8	56.5	46.4	36.6	27.1	17.9	8.8	0.0	
Profit Realized [(D)-(C)]	11.4	11.0	10.7	10.4	10.1	9.8	9.5	9.3	9.0	8.8	100.0

Note that the key difference in this example is the addition of a discounting factor to the definition of current service projections. The discounting factor reduces the relative weight of future service and results in a slightly more accelerated release of the CSM.

In practice, modifications to this general approach could be made to accommodate specific product features, provided that the resulting coverage units reasonably reflect the insurance contract services being provided.

In each of the above general examples, the coverage is assumed to be a flat $1,000 per period. In practice, the definition of coverage will vary by product type. Section 3 of this draft educational note provides examples of the definition of coverage units for products typically sold in Canada.

2.6. Reinsurance contracts held

This document addresses coverage unit choices for direct contracts. The considerations in the selection of coverage units for reinsurance contracts held would follow similar logic, taking into account the risks ceded to the reinsurer. However, as per paragraph IFRS 17.66(e), the coverage units would be based on services received (rather than services provided).

2.7. Summary: general principles

Due to the breadth of benefit designs, and to the fact that the IFRS 17 Standard does not specify particular coverage unit constructs, the actuary would apply judgment in choosing coverage units that reflect the insurance contract services provided. In applying judgment, the actuary would adhere to the following key principles:

- Coverage units would reflect insurance contract services provided in each period. Insurance contract services include both insurance coverage and investment-return services (or investment-related services for contracts with direct participation features), if applicable.
- Section 3 of this draft educational note builds upon the general coverage unit formula outlined in Section 2.2 and suggests potential coverage unit choices for typical Canadian products, but other choices are possible if they are a reasonable representation of the insurance contract services provided for the given product.
- The actuary would select coverage units that are consistent across products. For example, discounting of coverage units (or not) would be applied consistently across

similar products. As another example, the choice of current benefit versus present value of future benefits as the basis for coverage units for similar products would be applied consistently. Moreover, the selection of coverage units would not be changed in the future for a particular group of contracts. In Section 3 of this draft educational note, the examples are deliberately similar, and even somewhat repetitive, to illustrate consistency of application of the general formula in Section 2.2 to the various products.

- The actuary would ensure that the resulting CSM amortization pattern results in a faithful representation of the insurance contract services provided.

The mechanics of CSM interest accretion, changes in fulfilment cash flows relating to future service, and considerations related to the treatment of experience adjustments are out of scope for this draft educational note. Nevertheless, considering the above principles in the construction of a coverage unit basis, the resulting amortization of the CSM would have the following general characteristics:

- To the extent that insurance contract services are provided in a reporting period, there would be an amortization of CSM in that period. An approach that would result in the CSM being fully amortized before all insurance contract services are provided would not be appropriate.
- The percentage of the CSM amortized in any period is the proportion of the insurance contract services provided in that period relative to the insurance contract services provided in current and future periods.
- If the expected coverage declines over time (due to expected survivorship or other reasons), then the expected dollar amount of CSM amortization would generally decline over time as well.
- The amortization of the CSM would be the last step performed in the calculation of the carrying amount of the CSM at the end of a reporting period as paragraph IFRS 17.BC279 (b) specifies that the amortization of the CSM would be performed with the most up-to-date assumptions.

3. Product types

This section discusses considerations in the choice of coverage units for most Canadian insurance product types. The suggested general approaches outlined in this section would satisfy the requirements of IFRS 17, but other approaches that also satisfy the requirements of the Standard would be equally acceptable, as the selection of coverage units is based on judgment.

For simplicity, the illustrations in this section do not include the impact of discounting in the construct of the coverage units. But as noted in the general considerations section, the use of discounting is permitted under IFRS 17.

3.1. Individual life insurance

3.1.1 Traditional non-participating products

Individual life insurance contracts typically provide lump sum payments, payable upon the occurrence of an insured event (i.e., the death of the insured). These contracts may or may not have cash surrender values (CSV).

For contracts without CSV, the insurance coverage would be the full face amount (death benefit) of the contract. The face amount would be representative of the quantity of benefits since it is not expected that such a contract would provide investment-return services.

For contracts with a CSV, we have assumed that the CSV represents the investment-return service being provided. Using this assumption, the net amount at risk (NAAR, or face amount less CSV) would represent the insurance coverage. The quantity of services provided under the contract would be the NAAR plus the CSV, which is the face amount. The remainder of this section makes these assumptions, and thus the face amount is illustrated as the quantity of services for all life insurance contracts in this section, with or without a CSV. Different definitions of quantity of services could be appropriate depending on the facts and circumstances of the CSV in particular contracts or if contracts include other forms of investment-return services.

As mentioned in the introduction, the projection of the coverage units would consider the expected coverage period of the contract. Expected decrements (lapses, deaths) would be considered in the projection of coverage units in future periods.

The general coverage unit choice could therefore be as follows:

$$CU_t = (Face\ Amount)_t * ({}_tp_x)$$

As an illustrative example, consider a 10-year non-renewable term product with face amount of $1,000. There are assumed decrements of 5% per year for lapse and mortality. The resulting coverage units and CSM amortization factors would be as follows:

Period	1	2	3	4	5	6	7	8	9	10
Face Amount	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Probability of Survival (${}_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	1,000	950	903	857	815	774	735	698	663	630
(B) Current + future service	8,025	7,025	6,075	5,173	4,315	3,501	2,727	1,992	1,294	630
CSM amortization factor [(A)/(B)]	12.5%	13.5%	14.9%	16.6%	18.9%	22.1%	27.0%	35.1%	51.3%	100.0%
Opening CSM	100.0	87.5	75.7	64.5	53.8	43.6	34.0	24.8	16.1	7.9
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	12.5	11.8	11.2	10.7	10.1	9.6	9.2	8.7	8.3	7.9
Ending CSM	87.5	75.7	64.5	53.8	43.6	34.0	24.8	16.1	7.9	0.0

Special considerations may be given to products that have a variable face amount. In some instances, the face amount can vary depending on an external index such as the Consumer Price Index. The suggested coverage units would reflect the fact that the face amount is not fixed but may vary at some or all policy anniversaries.

Another example of a product with a variable face amount would be one that covers the outstanding balance of a loan up to a certain maximum amount; for example, mortgage insurance where the claim payable is related to principal outstanding. The outstanding balance of the loan would be projected when determining the fulfilment cash flows. The outstanding loan balance used in the fulfilment cash flows would be a reasonable representation of the quantity of benefits provided under the contract. The maximum amount of the loan defined in the contract could also be an appropriate coverage unit choice.

3.1.2 Individual participating life insurance

For individual participating life insurance business that is expected to qualify as insurance contracts with direct participation features, the management of the underlying items would be a good representation of investment-related services provided to the policyholder. Therefore, the use of the fair value of the underlying item as the coverage unit would be appropriate.

The use of the general formula illustrated in Section 3.1.1 may be also be an appropriate method, especially in situations where the block of business does not have material dividend room.

In either case, there would be additional considerations with respect to the projected underlying item or future face amount. The potential payment of dividends and related dividend options could have an effect on the projection of these amounts, which could impact the insurance coverage amounts, the investment component amounts, and the investment-related services. In theory, the projection of future coverage units should account for the following items:

- additional insurance coverage that could be provided under various dividend options (e.g., term additions, paid-up additions)
- additional investment component amounts (and investment-related services) that could result, (e.g., dividends on deposit, policy loans) including those that could be related to additional insurance coverages (e.g., cash surrender values of paid-up additions)

3.1.3 Universal life

The coverage unit considerations under universal life are generally consistent with those listed in the traditional products section.

One common type of universal life is where upon the death of the insured, the beneficiary is paid an amount equal to the sum of the account value (AV) and the face amount (FA) of the contract. In such a case, the suggested coverage unit choice could be the amount payable upon death:

$$CU_t = (Face\ Amount + Account\ Value)_t * ({}_tp_x)$$

This formula is based on the assumption that the account value is representative of an investment-return service (or an investment-related service if universal life products qualify as contracts with direct participation features), and the face amount is representative of insurance coverage. Alternate interpretations could be possible based on the facts and circumstances of the specific product design.

As an illustrative example, consider a UL product with face amount of $1,000, and an initial account value of $200. There are assumed decrements of 5% per year for lapse and mortality. The account value is expected to grow at 5% per year. For ease of illustration, a 100% lapse rate was assumed at the end of the 10th year. The resulting coverage units and CSM amortization factors would be as follows:

Period	1	2	3	4	5	6	7	8	9	10
Face Amount	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Account Value	200	210	221	232	243	255	268	281	295	310
Death benefit	1,200	1,210	1,221	1,232	1,243	1,255	1,268	1,281	1,295	1,310
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	1,200	1,150	1,102	1,056	1,013	971	932	895	859	826
(B) Current + future service	10,003	8,803	7,653	6,552	5,496	4,484	3,512	2,580	1,685	826
CSM amortization factor [(A)/(B)]	12.0%	13.1%	14.4%	16.1%	18.4%	21.7%	26.5%	34.7%	51.0%	100.0%
Opening CSM	100.0	88.0	76.5	65.5	54.9	44.8	35.1	25.8	16.8	8.3
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	12.0	11.5	11.0	10.6	10.1	9.7	9.3	8.9	8.6	8.3
Ending CSM	88.0	76.5	65.5	54.9	44.8	35.1	25.8	16.8	8.3	0.0

Another form of universal life product provides a level death benefit amount. Upon the death of the insured, the beneficiary is paid an amount that corresponds to the face amount of the contract, plus any amount of account value exceeding the face amount. The amount of insurance coverage declines as the fund value increases (NAAR = face amount less account value).

Using logic similar to the above, the insurance coverage would be the NAAR, and the investment-return service (or investment-related service, where applicable) would be the account value. In such a case, the suggested coverage units would correspond to the amount payable upon death:

$$CU_t = (Max(Face\ Amount, Account\ Value))_t * ({}_tp_x)$$

Following on the previous example, consider a level death benefit UL product with face amount of $1,000, and an initial account value of $200. There are assumed decrements of 5% per year for lapse and mortality. The account value is expected to grow at 5% per year. Again, for ease of illustration, a 100% lapse rate was assumed at the end of the 10th year. The resulting coverage units and CSM amortization factors would be as follows:

Period	1	2	3	4	5	6	7	8	9	10
Face Amount	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Account Value	200	210	221	232	243	255	268	281	295	310
Death benefit	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	1,000	950	903	857	815	774	735	698	663	630
(B) Current + future service	8,025	7,025	6,075	5,173	4,315	3,501	2,727	1,992	1,294	630
CSM amortization factor [(A)/(B)]	12.5%	13.5%	14.9%	16.6%	18.9%	22.1%	27.0%	35.1%	51.3%	100.0%
Opening CSM	100.0	87.5	75.7	64.5	53.8	43.6	34.0	24.8	16.1	7.9
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	12.5	11.8	11.2	10.7	10.1	9.6	9.2	8.7	8.3	7.9
Ending CSM	87.5	75.7	64.5	53.8	43.6	34.0	24.8	16.1	7.9	0.0

In both examples, the coverage units represent the benefit that would be payable upon death under the given product design.

The considerations outlined in Section 3.1.1 regarding variable face amounts would also apply to this subsection.

Other types of universal life products are of the limited-pay form (i.e., the cost of insurance charges is deducted from the funds for a period that is shorter than the benefit period). It is then common for such products to include guaranteed cash surrender values. If the CSV is considered an investment-return service (or investment-related services, where applicable), the general formulas illustrated above would continue to be appropriate; otherwise, adjustments to the formulas would be required to account for the specific facts and circumstances.

3.2. Annuities

The life insurance products discussed in Section 3.1 deal with the case where the insured risk is the potential one-time occurrence of an event during the coverage period; therefore, the concept of an insurer providing service by way of "standing ready" to pay valid claims at any time makes sense for those products. In contrast, in the case of annuity contracts, the insured risk is the continuing survival of the annuitant, i.e., the persistence of an initial state and the *non-occurrence* of an "event" (death of the annuitant). Because of this difference in the nature of coverage, for annuity contracts it generally makes more sense to think of an insurer "standing ready" throughout the lifetime of the contract to make periodic payments as they come due as long as the annuitant survives.

Annuity products include both:

- Contracts sometimes referred to as "immediate annuities" or "payout annuities" with no accumulation period. The amount of annuity payments is usually determined based on the amount of premium paid.
- Contracts often referred to as "deferred annuities" with an accumulation period prior to annuitization, during which premiums are held in an investment account with surrender and/or maturity benefits available; the amount of annuity payments being determined based on the account value at the date of annuitization.

In the case of immediate annuities, it is clear that there are insurance contract services provided from the inception of the contract until the last benefit payment is made. For deferred annuities, it is equally clear that insurance contract services are provided during the payout phase, but not as clear whether insurance contract services are provided during the accumulation period. CLIFR's position is that insurance contract services are provided from the inception of the contract, based on paragraph BC55 of the June 2019 Basis for Conclusions of the amended IFRS 17 Standard, which specifically mentions deferred annuities as one of the driving reasons for the inclusion of investment-return services in the definition of insurance contract services. CLIFR acknowledges that this is a preliminary interpretation that may change as international guidance regarding the draft June 2019 amendments evolves, and based on the facts and circumstances of specific deferred annuity product designs.

Given that insurance contract services are provided from inception of an annuity contract through the last payment, the next step would be to define a metric to reasonably represent the services provided in any given period. Insurance contract services under an annuity can generally be viewed from two perspectives: (1) service is represented by the periodic benefit payable (or potentially by the next benefit payable where benefits are not payable in every period), or (2) service is represented by the present value of all future payments under the contract (or the account value in the accumulation phase of a deferred annuity). These two perspectives are explored in approaches 1 and 2.

The pattern of revenue recognition (CSM amortization) may differ significantly between different approaches; approach 1 will tend to generate slower CSM amortization compared to approach 2. Under approach 1, the annual benefit represents a proxy for the next amount the contract holder could potentially receive under the contract in a given period. Under approach 2, the service in a period is based on the value to the policyholder of surviving to the end of the period (i.e., the potential to receive a stream of future payments). The remaining value of the contract declines as payments are made over the life of the contract, similar to a life insurance product covering an outstanding loan balance. These definitions of service are fundamentally different, but both are consistent with the concept of the insurer standing ready to pay while the annuitant survives, and therefore both would be reasonable approaches provided that the choice is applied consistently.

Variable benefit amounts under a given product design would be captured in the quantity of service element of the general formula. It is beyond the scope of this note to address all potential product features.

Approach 1: based on periodic benefit payable

$$CU_t = (Benefit\ Payment)_t * ({}_tp_x)$$

The definition of "benefit payment" in the above formula would depend upon the specific terms of the contract. The definition would be relatively straightforward for immediate annuities, but more complex for deferred annuities in periods in which annuity payments are not payable. Considerations and examples are presented below.

Immediate annuities

For immediate annuities, insurance coverage in the form of annuity payments would occur throughout the lifetime of the contract. The "benefit payment" term in the general formula would simply be the amount of the periodic benefit payment.

As an illustrative example, consider a 10-year immediate annuity with an annual benefit amount of $1,000 that does not provide any investment-return service. There are assumed decrements of 5% per year for mortality, and no discounting is assumed in the definition of the coverage units. The resulting coverage units and CSM amortization factors based on the above formula would be as follows:

Period	1	2	3	4	5	6	7	8	9	10
Annual Payment	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	1,000	950	903	857	815	774	735	698	663	630
(B) Current + future service	8,025	7,025	6,075	5,173	4,315	3,501	2,727	1,992	1,294	630
CSM amortization factor [(A)/(B)]	12.5%	13.5%	14.9%	16.6%	18.9%	22.1%	27.0%	35.1%	51.3%	100.0%
Opening CSM	100.0	87.5	75.7	64.5	53.8	43.6	34.0	24.8	16.1	7.9
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	12.5	11.8	11.2	10.7	10.1	9.6	9.2	8.7	8.3	7.9
Ending CSM	87.5	75.7	64.5	53.8	43.6	34.0	24.8	16.1	7.9	0.0

For immediate annuities that provide investment-return services, insurance coverage in the form of annuity payments would occur throughout the lifetime of the contract, and an amount representing the investment-return service may have to be determined depending upon the facts and circumstances of the product design.

Some annuity contracts have a guarantee period, during which benefits would be payable regardless of whether the insured survives. Assuming that the benefits paid during the guarantee period are representative of investment-return services being provided, the amortization of the CSM would follow a similar pattern as an immediate annuity with no guarantee period (except the probability of survival would be 100% during the guarantee period, with a cliff at the end of the guarantee period).

Deferred annuities

Most deferred annuities would have an account value (AV) in the deferral period, and potentially a surrender value (SV) giving the policyholder the right to withdraw some or all of the account value. The AV or SV might be reasonable proxies for the insurance contract services provided in the deferral period, and the annuity payment could be the proxy for the insurance contract services during the payout period.

The following example considers a deferred annuity with an annual benefit amount of $1,000 payable in years four through 10, and a SV of $5,000 over the three-year deferral period, with no SV after the deferral period. The example assumes that the SV appropriately reflects the insurance contract services provided under the contract during the deferral period and that the annuity payment appropriately reflects the insurance contract services during the payout phase. There are assumed decrements of 5% per year for mortality, and no discounting is assumed in the definition of the coverage units. The resulting coverage units and CSM amortization factors based on the above formula would be as follows:

Period	1	2	3	4	5	6	7	8	9	10
Annuity Payment (AP)	0	0	0	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Surrender Value (SV)	5,000	5,000	5,000	0	0	0	0	0	0	0
Service Measure (SV or AP)	5,000	5,000	5,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	5,000	4,750	4,513	857	815	774	735	698	663	630
(B) Current + future service	19,435	14,435	9,685	5,173	4,315	3,501	2,727	1,992	1,294	630
CSM amortization factor [(A)/(B)]	25.7%	32.9%	46.6%	16.6%	18.9%	22.1%	27.0%	35.1%	51.3%	100.0%
Opening CSM	100.0	74.3	49.8	26.6	22.2	18.0	14.0	10.2	6.7	3.2
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	25.7	24.4	23.2	4.4	4.2	4.0	3.8	3.6	3.4	3.2
Ending CSM	74.3	49.8	26.6	22.2	18.0	14.0	10.2	6.7	3.2	0.0

The actuary would ensure that the resulting coverage units appropriately reflect the combination of investment return services and insurance coverage. In particular, an overweighting of surrender value relative to annuity payment, as illustrated in the above example, would unreasonably front-end the amortization of the CSM, and might make approach 2 a more reasonable choice for certain product designs.

Alternatively, the actuary could adjust the weighting on the SV in the service measure calculation, to account for the fact that the calculation above combines a single payment measure (the benefit amount) with a present value measure (the surrender value, which in this example represents the PV of all future payments). One way of doing so would be to normalize the SV, for example by dividing SV by an annuity factor or by the benefit period. In the following example, the $5,000 SV is divided by 7 (the benefit period), creating a much smoother representation of insurance contract services than in the previous example.

Period	1	2	[illegible]	4	5	6	7	8	9	10
Annuity Payment (AP)	0	0	0	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Weighted Surrender Value (WSV)	714	714	714	0	0	0	0	0	0	0
Service Measure (WSV or AP)	714	714	714	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	714	679	645	857	815	774	735	698	663	630
(B) Current + future service	7,2[illegible]0	6,496	5,817	5,173	4,315	3,501	2,727	1,992	1,294	630
CSM amortization factor [(A)/(B)]	9.9%	10.4%	11.1%	16.6%	18.9%	22.1%	27.0%	35.1%	51.3%	100.0%
Opening CSM	100.0	90.1	80.7	71.7	59.9	48.6	37.8	27.6	17.9	8.7
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	9.9	9.4	8.9	11.9	11.3	10.7	10.2	9.7	9.2	8.7
Ending CSM	90.1	80.7	71.7	59.9	48.6	37.8	27.6	17.9	8.7	0.0

Approach 2: based on present value of the benefits provided

$$CU_t = \sum_{i=t}^{T} PV(Benefit\ Payment)_i * (\ _ip_x)$$

This approach reflects the value available to the policyholder if the annuitant survives to the end of the period.

Immediate annuities

To illustrate the difference compared to approach 1, consider an identical example case: a 10-year immediate annuity with an annual benefit amount of $1,000 and no investment-return service. There are assumed decrements of 5% per year for mortality, and no discounting is assumed in the definition of the coverage units and in the calculation of the present value of payments. The resulting coverage units and CSM amortization factors based on the above formula would be as follows:

Period	1	2	3	4	5	6	7	8	9	10
Annual Payment	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
PV of Annual Payments	10,000	9,000	8,000	7,000	6,000	5,000	4,000	3,000	2,000	1,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	10,000	8,550	7,220	6,002	4,887	3,869	2,940	2,095	1,327	630
(B) Current + future service	47,520	37,520	28,970	21,750	15,748	10,861	6,992	4,052	1,957	630
CSM amortization factor [(A)/(B)]	21.0%	22.8%	24.9%	27.6%	31.0%	35.6%	42.1%	51.7%	67.8%	100.0%
Opening CSM	100.0	79.0	61.0	45.8	33.1	22.9	14.7	8.5	4.1	1.3
CSM amortized	21.0	18.0	15.2	12.6	10.3	8.1	6.2	4.4	2.8	1.3
Ending CSM	79.0	61.0	45.8	33.1	22.9	14.7	8.5	4.1	1.3	0.0

Deferred annuities

To illustrate the difference compared to approach 1, consider a similar example case: a deferred annuity with an annual benefit amount of $1,000 payable in years four through 10, and a SV reflecting declining surrender charges of $6,700 grading to $7,000 over the three-year deferral period, with no SV after the deferral period. There are assumed decrements of 5% per year for mortality, and no discounting is assumed in the definition of the coverage units and in the calculation of the present value of annuity payments. The example assumes that the SV appropriately reflects the insurance contract services provided under the contract during the deferral period and that the annuity payment appropriately reflects the insurance contract services during the payout phase. The resulting coverage units and CSM amortization factors based on the above formula would be as follows:

Period	1	2	[illegible]	4	5	6	7	8	9	10
Annuity Payment (AP)	0	0	0	1,000	1,000	1,000	1,000	1,000	1,000	1,000
PV of Annuity Payments (PVAP)	7,000	7,000	7,000	7,000	6,000	5,000	4,000	3,000	2,000	1,000
Surrender value (SV)	6,700	6,850	7,000							
Service Measure (SV or PVAP)	6,700	6,850	7,000	7,000	6,000	5,000	4,000	3,000	2,000	1,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	6,700	6,508	6,318	6,002	4,887	3,869	2,940	2,095	1,327	630
(B) Current + future service	41,275	34,575	28,068	21,750	15,748	10,861	6,992	4,052	1,957	630
CSM amortization factor [(A)/(B)]	16.2%	18.8%	22.5%	27.6%	31.0%	35.6%	42.1%	51.7%	67.8%	100.0%
Opening CSM	100.0	83.8	68.0	52.7	38.2	26.3	16.9	9.8	4.7	1.5
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	16.2	15.8	15.3	14.5	11.8	9.4	7.1	5.1	3.2	1.5
Ending CSM	83.8	68.0	52.7	38.2	26.3	16.9	9.8	4.7	1.5	0.0

3.3. Accident and sickness

Coverage under accident and sickness (A&S) products generally takes the form of either (1) a lump sum payment upon the occurrence of the insured event such as in the case of critical illness products or (2) periodic payments for a defined period while the insured event persists, such as the continuation of disability under disability income (DI), long-term disability (LTD), and long-term care (LTC) products. Furthermore, benefits can be subject to maximums per occurrence, as in the case of extended health products.

For simplicity, this section assumes that there are no investment-return services in A&S products. To the extent that investment-return services do exist, considerations for reflecting investment-return services in the quantity of benefits metrics would be similar to those discussed in previous sections.

3.3.1 Benefits in the form of an annuity

For products that provide coverage in the form of an annuity when a policyholder becomes disabled, such as individual disability insurance (DI), group long-term disability (LTD), and long-term care (LTC), contractual benefits continue as long as the policyholder remains disabled, or for the duration of payments guaranteed in the contract, whichever occurs first. Consideration would be given to whether the company's obligation to pay benefits will be treated as a liability for incurred claims (LIC) or a liability for remaining coverage (LRC) as this will impact the determination of both the coverage units and the coverage period. As a result, it would also impact the amortization pattern of the CSM.

For the LRC view, the coverage units would be the same regardless of whether the contract holder was in active life status or in disabled life status. In the LIC view, there would be no coverage for contract holders while in disabled life status, and the actuary would consider how recoveries from disability and return to active life status would affect the projection of coverage units.

The IASB staff, in the September 2018 TRG AP01, allow for both the LIC and LRC approaches; deeming that both approaches represent valid interpretations of IFRS 17 and that application is a matter of judgment.

LIC approach

The LIC approach views the insured event as the uncertain event that a policyholder becomes disabled, and the annuity payments are simply settlement of the claim. Under this approach, services would only be provided prior to disability and the quantity of services would be consistent with the accounting view of the amount of the incurred claim, which would be the estimated present value of all future annuity payments that would settle the claim. Coverage units would therefore be treated conceptually similar to a life insurance contract, where the full amount of the potential claim is recognized as the measure of the quantity of benefits:

$$CU_t = PV(Annuity\ Payments)_t * ({}_tp_x)$$

As an illustrative example, consider a 10-year disability policy that pays an annual benefit of \$1,000 while the insured is disabled during the term of the contract. This example assumes decrements of 5% per year for lapse, no discounting in the definition of the coverage units, no interest accretion of the CSM, and no consideration of claim termination rates. The resulting coverage units and CSM amortization factors based on the above formula would be as follows:

Period	1	2	3	4	5	6	7	8	9	10
Benefit Payments	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
PV of Future Benefits	10,000	9,000	8,000	7,000	6,000	5,000	4,000	3,000	2,000	1,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	10,000	8,550	7,220	6,002	4,887	3,869	2,940	2,095	1,327	630
(B) Current + future service	47,520	37,520	28,970	21,750	15,748	10,861	6,992	4,052	1,957	630
CSM amortization factor [(A)/(B)]	21.0%	22.8%	24.9%	27.6%	31.0%	35.6%	42.1%	51.7%	67.8%	100.0%
Opening CSM	100.0	79.0	61.0	45.8	33.1	22.9	14.7	8.5	4.1	1.3
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	21.0	18.0	15.2	12.6	10.3	8.1	6.2	4.4	2.8	1.3
Ending CSM	79.0	61.0	45.8	33.1	22.9	14.7	8.5	4.1	1.3	0.0

This example implicitly takes the view that the "PV of future benefits" is the maximum amount payable under the contract (i.e. the sum of all future possible payments) for ease of illustration. In practice, the actuary could consider expanding the PV of future benefits calculation to include claim terminations and/or discounting assumptions. Such enhancements would reflect the expected present value of the claim, rather than the maximum amount payable.

LRC approach

The LRC approach considers the insured events as both the uncertain event of the policyholder becoming disabled, and also remaining disabled and eligible to claim. Under this approach, services would be provided throughout the term of the contract, regardless of whether the policyholder is active or disabled. The annuity benefits are considered part of the insurance services provided under the contract, and therefore the definition of coverage units would be conceptually similar to an annuity contract. Either of the coverage unit options presented in Section 3.2 could be an appropriate choice. Approach 1 is illustrated below:

$$CU_t = (Annualized\ Annuity\ Payment)_t * ({}_tp_x)$$

Consider the same 10-year disability policy illustrated above. Using the LRC approach, the resulting coverage units and amortization of the CSM based on the above formula would be as follows:

Period	1	2	3	4	5	6	7	8	9	10
Benefit Payments	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	66.3%	63.0%
(A) Current service (CU_t)	1,000	950	903	857	815	774	735	698	663	630
(B) Current + future service	8,025	7,025	6,075	5,173	4,315	3,501	2,727	1,992	1,294	630
CSM amortization factor [(A)/(B)]	12.5%	13.5%	14.9%	16.6%	18.9%	22.1%	27.0%	35.1%	51.3%	100.0%
Opening CSM	100.0	87.5	75.7	64.5	53.8	43.6	34.0	24.8	16.1	7.9
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	12.5	11.8	11.2	10.7	10.1	9.6	9.2	8.7	8.3	7.9
Ending CSM	87.5	75.7	64.5	53.8	43.6	34.0	24.8	16.1	7.9	0.0

As noted in the annuity section, the pattern of revenue recognition (CSM amortization) may differ significantly between different approaches; an approach based on the annuity payment will lead to a slower amortization pattern than an approach based on the present value of future payments.

3.3.2 Benefits in the form of a lump sum

For benefits that pay a lump sum upon the occurrence of a specified insured event, such as critical illness, the quantity of benefits would generally be analogous to the coverage under a life insurance contract. Coverage units would therefore generally take the following form:

$$CU_t = (Lump\ Sum\ Benefit\ Amount)_t * ({}_tp_x)$$

When the face amount is variable, for example, when it is dependent upon the specific condition/illness, the amount used in the fulfilment cash flows would generally be the best representation of the quantity of benefits provided under the contract. However, the maximum amount payable under the contract would be an appropriate coverage unit choice.

3.4. Segregated funds

Segregated funds typically have one or more insurance guarantees linked to an underlying account value that is driven by market fluctuations. Since the underlying items are managed by the entity and any excess market fluctuation is typically returned to the policyholder, the account value would be a good representation of investment-related or investment-return services. In addition, insurance services are provided when the guarantees embedded in the contract are higher than the account value. Therefore, the insurance contract services would be derived by analyzing the account value cash (AV) and the guarantee-related cash flows (GV) of the contract.

Due to asymmetric cash flows of these products, a stochastic valuation will generally be used to measure the probability-weighted estimate. The coverage units could be derived from the same valuation approach as is used for fulfilment cash flow measurement; therefore, if measured stochastically, coverage units could be calculated for each risk-neutral scenario. However, as specified in Section 2.3, alternative approaches, such as real-world stochastic scenarios or deterministic valuation, could be used to project coverage units.

In a similar fashion to other products presented in this document, a dual factor approach considering (1) the expected survivorship of the contract and (2) a volume weighting function of the account value (AV) and the guarantee-related cash flows (GV) of the contract could be used:

$$CU_t = \mathrm{CTE}_0(f(AV_t, GV_t) * ({}_tp_x))$$

The volume weighting adjustment is at the discretion of the actuary but would reflect the quantity of benefits provided to the policyholder during the coverage period. Conceptually, two perspectives could be used: (i) based on the maximum cash amount that could be paid to the policyholder in the period (approaches 1 or 2) or (ii) based on the remaining risk exposure of the contract (approach 3).

Approach 1*: *based on the account value

$$f(AV_t, GV_t) = AV_t$$

This approach is reasonable when the service provided is deemed to be largely related to the management of the account value on behalf of the policyholder over the duration of the contract, which would generally be the case for segregated funds.

Approach 2: based on the maximum benefit that could be paid in the current period

$$f(AV_t, GV_t) = max\left(AV_t, GMMB_t \cdot 1(t = Maturity\ date)^1, GMDB_t, LWA_t, GWA_t, SPIA_t\right)$$

Where LWA and GWA represent the lifetime withdrawal amount and the guaranteed withdrawal benefit available to be paid during the period, respectively. SPIA represents the life annuity payment during the reporting period from a GMIB or the life annuity guarantee generally embedded in segregated funds.

As an illustrative example, consider a GLWB contract sold to a 50-year-old policyholder. The contract has an initial account value of $1,100, a GMMB of $1,050 payable at attained age 100, and a GMDB of $1,000 with 5% annual decrements. The GLWB balance is set at $1,000 with a payout ratio of 5% starting at age 55. For simplicity, the GMMB and GMDB are reduced on a dollar-for-dollar basis in accordance with the LWA withdrawals. In this example, the coverage units are derived from a deterministic account value return scenario which is deemed to be a reasonable approximation of the stochastic returns. The expected net account value return of 2.5% is decomposed into a gross return of 4.5% less a management expense ratio (MER) of 2%.

Period	1	2	3	4	5	6	7	8	51
Net account value return		2.5%	2.5%	2.5%	[illegible]	2.5%	2.5%	2.5%	2.5%
Account value	1,100	1,128	1,156	1,185	[illegible]	[illegible]	1,212	1,178	0
GMMB	1,050	1,050	1,050	1,050	1,050	[illegible]	988	926	0
GMDB	1,000	1,000	1,000	[illegible]	[illegible]	1,000	938	876	0
LWA	0	0	0	0	0	62.2	62.2	62.2	62.2
Probability of Survival ($_tp_x$)	100.0%	95.0%	[illegible]	[illegible]	81.5%	77.4%	73.5%	69.8%	7.7%
(A) Current service (CU_t)	1,100	1,071	1,043	[illegible]	989	963	891	823	5
(B) Current + future service	15,231	14,131	[illegible]	[illegible]	11,001	10,012	9,049	8,158	5
CSM amortization factor [(A)/(B)]	7.2%	[illegible]	[illegible]	8.5%	9.0%	9.6%	9.8%	10.1%	100.0%
Opening CSM	100.0	92.8	[illegible]	78.9	72.2	65.7	59.4	53.6	0.0
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	7.2	7.0	6.8	6.7	6.5	6.3	5.8	5.4	0.0
Ending CSM	92.8	[illegible]	78.9	72.2	65.7	59.4	53.6	48.2	0.0

Approach 3: based on the maximum remaining benefit that could be paid in the current or any future period

$$f(AV_t, GV_t) = max(AV_t, GMMB_t, GMDB_t, PV_t(LWA), PV_t(GWA), PV_t(SPIA))$$

This method differs from approach 2 since it captures at each time step the expected contractual cash flows that could be required to be paid until the end of the coverage period. In a similar fashion to approach 2 presented in Section 3.2, guarantees with recurring cash flows would be considered on a present value basis. This methodology would ensure that insurance services are being provided throughout the lifetime of the contract for all guarantees.

Consider the same 10-year segregated funds and account value return scenario. Approach 3 would produce the following results:

[1] 1(t = Maturity date) is a dummy variable equal to 1 at maturity date and 0 otherwise.

Period	1	2	3	4	5	6	7	8	51
Net account value return		2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Account value	1,100	1,128	1,156	1,185	1,214	1,245	1,212	1,178	0
GMMB	1,050	1,050	1,050	1,050	1,050	1,050	988	926	0
GMDB	1,000	1,000	1,000	1,000	1,000	1,000	938	876	0
LWA	0	0	0	0	0	62.2	62.2	62.2	62
PV(LWA)	945	989	1,034	1,082	1,131	1,183	1,175	1,167	59
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%	7.7%
(A) Current service (CU_t)	1,100	1,071	1,043	1,016	989	963	891	823	5
(B) Current + future service	18,976	17,876	16,805	15,762	14,747	13,758	12,795	11,904	5
CSM amortization factor [(A)/(B)]	5.8%	6.0%	6.2%	6.4%	6.7%	7.0%	7.0%	6.9%	100.0%
Opening CSM	100.0	94.2	88.6	83.1	77.7	72.5	67.4	62.7	0.0
Insurance finance expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSM amortized	5.8	5.6	5.5	5.4	5.2	5.1	4.7	4.3	0.0
Ending CSM	94.2	88.6	83.1	77.7	72.5	67.4	62.7	58.4	0.0

The three approaches presented above require entities to analyze at each time step all contractual features to measure the coverage unit pattern. If deemed reasonable, the simplifications presented below could be used to reduce operational complexity.

***Simplification 1**: based on expected maximum amount between account value and a chosen guaranteed value at each time step*

$$f(AV_t, GV_t) = max(AV_t, GV_t^*)$$

Where GV_t* would represent a chosen guaranteed base. Similar to approach 3 presented in Section 4, this option seeks to be simpler by looking only at one guarantee which would be representative of the quantity of services to be provided in the contract.

***Simplification 2**: constant volume weighting*

$$f(AV_t, GV_t) = max(AV_1, GMMB_1, GMDB_1, PV_1(LWA), PV_1(GWA), PV_1(SPIA))$$

This simplification would not require contractual information at each time step and therefore, does not require projection of future expected market returns. It could be used when the weighting adjustment is not expected to change materially during the coverage period.

3.5. Group insurance

The choice of coverage units for group insurance may have limited implications compared to longer term individual contracts for the following reasons:

- The coverage period is typically one year and usually does not exceed three years. As the CSM is amortized quickly, revenue recognition may be less sensitive to the choice of coverage units.
- The quantity of benefits provided under a given contract would not be expected to vary much during the coverage period. Therefore, the choice of coverage units is more a matter of weighting the benefits provided within and between each contract in the group.
- Insurers may decide to value group insurance under the premium allocation approach (PAA), under which there is no CSM. Coverage units may still be necessary to demonstrate that the PAA produces a reasonable approximation to the general

measurement approach (GMA) for contracts with a coverage period that exceeds one year.

The choice of coverage units for group insurance would generally be consistent with similar coverages for individual contracts. In practice however, it may be operationally difficult to apply the same coverage unit choices proposed for individual contracts to group contracts because the data may not be readily available for some benefits.

Furthermore, group insurance often combines multiple coverage types (such as life, disability, and extended health). Therefore, the considerations described in Section 4 of this document regarding combinations of coverages would need to be assessed. Since group insurance coverages have different frequency and severity levels, it might be reasonable to apply some type of normalization of the coverage units prior to combination. Judgment may be required such that the amortization of the CSM is reasonable with regard to the service provided. See Section 4 for examples.

4. Combination of coverages within a contract

The guidance in the previous sections focused on contracts with a single type of coverage. This section will focus on the principles that an actuary would follow in establishing coverage units for groups of contracts that combine more than one coverage within a single contract. The overarching objective would always be to establish a coverage unit basis that produces a reasonable proxy for the aggregate quantity of service provided by the contracts in the group, in accordance with the requirements of paragraph IFRS 17.B119.

Different potential approaches for developing coverage units in the context of a group of contracts with multiple coverages include the following:

1. Simple sum of the various contractual coverages
2. Normalization of the coverages prior to combining them
3. Determining a coverage unit reflecting the characteristics of all benefits

Any choice would be acceptable provided that it reasonably represents the quantity of insurance contract services. For example, approach 3 might be used if the actuary believes that approach 1 puts too much weight on one coverage relative to the others or if approach 2 cannot be used due to lack of a suitable base for normalization. The remainder of this section discusses potential considerations with respect to the various approaches.

Approach 1: simple sum of the various contractual coverages

This approach is consistent with the approach presented by the IASB staff in the May 2018 TRG Agenda Paper 05 (AP05), in addition to being relatively simple to implement.

As an illustrative example, consider an entity that has a group comprised of two group insurance contracts. The first contract has a one-year rate guarantee and offers a full suite of group benefits, while the second contract has a two-year rate guarantee and offers only group life benefits. The specifics of the two contracts are summarized in the following table:

		Group Insurance contract #1			Group Insurance contract #2	
Rate Guarantee (quarters)		4			8	
Initial CSM		100			200	
Coverages in the Group Contract		Maximum Coverage	Expected Premiums per quarter		Maximum Coverage	Expected Premiums per quarter
Health		500,000	100			
Dental		2,500	50			
STD		2,000	50			
LTD		60,000	100			
Life		10,000	100		200,000	2,000
Total		**574,500**	**400**		**200,000**	**2,000**

Approach 1 would be a simple summation of the various maximum contractual coverages. In this illustration, there are no decrements and the interest rate used to discount the coverage units and to accrete the CSM are assumed to be zero.

Period	1	2	3	4	5	6	7	8
Quantity of Benefits	774,500	774,500	774,500	[illegible]	[illegible]	200,000	200,000	200,000
Probability of Survival ($_tp_x$)	100.0%	100.0%	100.0%	[illegible]	[illegible]	100.0%	100.0%	100.0%
(A) Current service (CU_t)	774,500	774,500	774,500	[illegible]	[illegible]	200,000	200,000	200,000
(B) Current + future service	3,898,000	3,123,500	2,349,000	[illegible]	800,000	600,000	400,000	200,000
CSM amortization factor [(A)/(B)]	19.9%	24.8%	[illegible]	[illegible]	25.0%	33.3%	50.0%	100.0%
Opening CSM	300.0	240.4	[illegible]	[illegible]	61.6	46.2	30.8	15.4
Insurance finance expense	0	0	0	0	0	0	0	0
CSM amortized	59.6	59.6	[illegible]	59.6	15.4	15.4	15.4	15.4
Ending CSM	240.4	180.8	121.2	61.6	46.2	30.8	15.4	0.0

If in the judgment of the actuary and in the context of the specific circumstances, the summation of contractual coverages would not produce a reasonable representation of the services being provided, the actuary would choose another method. In the example above, the CSM is amortized quickly over the first four periods. In this case, the actuary would apply judgment in assessing whether this amortization pattern produces a reasonable representation of the services being provided.

Approach 2: normalization of the coverages prior to combining them.

The actuary could assess whether the exposures for each of the coverages are easily comparable. For example, a whole life policy with a term life rider might have coverages that are easily comparable based on the relative size of the respective death benefits, whereas it might be more difficult to compare the respective exposures of a dental coverage and a life coverage under a group insurance contract. The actuary would choose a coverage unit basis that reasonably represents the insurance contract services being provided.

Following on the previous example, the actuary may decide that a more sophisticated weighting may be more appropriate in this situation. Normalization of the coverage units could be based on expected premiums as an approximation for the quantity of benefits provided under the group contracts. The use of the expected premiums technique would produce the following CSM amortization pattern:

Period	1	2	3	4	5	6	7	8
Quantity of Benefits	2,400	2,400	2,400	2,400	2,000	2,000	2,000	2,000
Probability of Survival ($_tp_x$)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
(A) Current service (CU_t)	2,400	2,400	2,400	2,400	2,000	2,000	2,000	2,000
(B) Current + future service	17,600	15,200	12,800	10,400	8,000	6,000	4,000	2,000
CSM amortization factor [(A)/(B)]	13.6%	15.8%	18.8%	23.1%	25.0%	33.3%	50.0%	100.0%
Opening CSM	300.0	259.1	218.2	177.3	136.4	102.3	68.2	34.1
Insurance finance expense	0	0	0	0	0	0	0	0
CSM amortized	40.9	40.9	40.9	40.9	34.1	34.1	34.1	34.1
Ending CSM	259.1	218.2	177.3	136.4	102.3	68.2	34.1	0.0

Use of premiums as a coverage unit choice would not be appropriate in all circumstances. Question 6.16 of the *Application of IFRS 17 Insurance Contracts* draft educational note specifies that premiums may be used as proxies of coverage units to the extent that the premiums:

- Are not receivable in different periods than the services provided.
- Do not reflect different probabilities of claim for the same insured event in different periods rather than different levels of stand-ready service.
- Do not display different levels of profitability in contracts.

In the context of this example, use of expected premiums would likely be appropriate, but it may not be appropriate in the context of a longer duration contract if premiums reflect different probabilities of claim as time passes.

Where the use of premiums for normalization would not be appropriate, a more sophisticated normalization approach may be appropriate, such as calculation of a notional CSM for each coverage. A notional CSM approach would essentially amortize a CSM calculated for each coverage as if it was a separate contract, but contract classification (onerous or not) would be based on the aggregate CSM for the entire contract to satisfy the requirements of IFRS 17.16 and IFRS 17.47.

Under this approach, a notional CSM would be established for each of the component coverages, based on the profitability of each of the component coverages. The aggregate CSM for a group of contracts would be the sum of the notional CSMs for the underlying coverages in the contract. The notional CSMs for the component coverages could be negative or positive. For the purposes of amortizing the CSM into income each period, the CSM amortization would be the aggregation of the CSM amortization for each coverage derived from the notional CSMs and their respective coverage units.

This approach is illustrated by considering a simplified example which combines a base whole life insurance contract with a critical illness term rider. The contract as a whole is profitable, but the rider is assumed to have a negative notional CSM:

Period	1	2	3	4	5	6	7	8
Critical Illness Rider Coverage	10,000	10,000	10,000	10,000	10,000			
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%			
(A) Current service (CU_t)	10,000	9,500	9,025	8,574	8,145			
(B) Current + future service	45,244	35,244	25,744	16,719	8,145			
CSM amortization factor [(A)/(B)]	22.1%	27.0%	35.1%	51.3%	100.0%			
Opening Rider CSM	(200)	(156)	(114)	(74)	(36)			
Insurance finance expense	0	0	0	0	0			
Rider CSM amortized	(44)	(42)	(40)	(38)	(36)			
Rider Ending CSM	(156)	(114)	(74)	(36)	-			

Life Insurance Base Coverage	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Probability of Survival ($_tp_x$)	100.0%	95.0%	90.3%	85.7%	81.5%	77.4%	73.5%	69.8%
(A) Current service (CU_t)	100,000	95,000	90,250	85,738	81,451	77,378	73,509	69,834
(B) Current + future service	673,159	573,159	478,159	387,909	302,172	220,721	143,343	69,834
CSM amortization factor [(A)/(B)]	14.9%	16.6%	18.9%	22.1%	27.0%	35.1%	51.3%	100.0%
Opening Base CSM	5,200	4,428	3,694	2,997	2,334	1,705	1,107	539
Insurance finance expense	0	0	0	0	0	0	0	0
Base CSM amortized	772	734	697	662	629	598	568	539
Base Ending CSM	4,428	3,694	2,997	2,334	1,705	1,107	539	-

Opening Contract CSM	5,000	4,272	3,580	2,923	2,298	1,705	1,107	539
Insurance finance expense	0	0	0	0	0	0	0	0
Contract CSM amortized	728	692	657	624	59[illegible]	598	568	539
Contract Ending CSM	4,272	3,580	2,923	2,298	1,705	1,107	539	-

As with any other approach, the actuary would ensure that the notional CSM approach produces a reasonable proxy for the aggregate quantity of services provided by the contracts in the group based on the specific facts and circumstances of the group of contracts. In particular, any approach that amortizes all CSM before all insurance contract services are provided would not be appropriate.

Approach 3: determine a coverage unit reflecting the characteristics all benefits.

One application of this approach would be in situations where there are multiple coverages within a contract, but one of the coverages is clearly dominant relative to the others. In such situations, it could be reasonable to have the coverage units reflect only the base coverage.

In the context of the specific examples used to illustrate approaches 1 and 2 above, it would not be appropriate to ignore some of the benefits as insignificant, therefore those illustrations have not been extended to this section. Had there been a dominant benefit, the considerations described in Section 3 of this draft educational note could be used to determine the coverage units for that dominant benefit.

Another potential application of approach 3 would be a metric that is a good proxy for all of the coverages. For example, creditor insurance may provide life and disability insurance based on the amount of the loan; in this example, it might be reasonable to use the projected loan balance as the basis for the combined coverage units reflecting all benefits. As another example, the number of certificates might be a good proxy for coverage units for group insurance, provided that the volume of coverage does not vary substantially between certificates.

Finally, for segregated funds, approach 1 in Section 3.4 is an example whereby the account value and/or a single guarantee value could be a good proxy for all coverages under the contract.