Application of ASU 2018-12 to the Accounting for Long-Duration Contracts under U.S. GAAP

December 2023

Developed by

The Financial Reporting Committee's

Long-Duration Contracts Work Group

AMERICAN ACADEMY
of **ACTUARIES**

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Long-Duration Contracts Work Group

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In August 2018, the Financial Accounting Standards Board (FASB) issued *FASB Accounting Standards Update No. 2018-12, Targeted Improvements to the Accounting for Long-Duration Contracts* (ASU 2018-12). Though presented as a series of modifications to existing guidance, ASU 2018-12 represents the most significant change to insurance accounting under Generally Accepted Accounting Principles (GAAP) in the United States in at least 20 years.

ASU 2018-12 is effective for all public business entities, with the exception of companies classified as small reporting companies by the Securities and Exchange Commission (SEC), for fiscal years beginning after December 15, 2022. For all other entities, the guidance is effective for fiscal years starting after December 15, 2024.

ASU 2018-12 introduces numerous changes to *Financial Accounting Standards Board (FASB) Accounting Standards Codification®* (Codification) Topic 944, Financial Services—Insurance, with associated changes to related ASC Topics. There are four main items to which changes apply:

1. Liabilities for future policy benefits for traditional and limited-payment contracts;
2. Market risk benefits;
3. Deferred acquisition costs and similar balances; and
4. Disclosures.

This practice note covers issues related to items (1) and (3). Issues related to item (2) are discussed in a December 2022 public policy white paper, *Considerations in Market Risk Benefits,* issued by the Life Financial Reporting Committee of the American Academy of Actuaries. The committee also released a white paper related to item (4), *FASB Long-Duration Targeted Improvements—A Discussion of Enhanced Disclosures,* in March 2023.

This practice note is organized into seven sections, each covering relatively self-contained topics encountered by actuaries when applying the guidance. Section I covers considerations for aggregating policies for the purpose of measuring the liability for future policy benefits. ASU 2018-12 changes the unit of account for measuring such liabilities from the policy level to groups of contracts, so this section covers how groups of contracts are defined.

Sections II and III of the practice note cover considerations related to assumption setting when calculating liabilities for future policy benefits. Prior to ASU 2018-12, assumptions had been set at contract inception based on current estimates with a provision for adverse deviation.

Assumptions had been locked in for the life of contract, subject to adequacy testing. ASU 2018-12 provides for the periodic updating of most assumptions and largely prescriptive guidance related to discount rates. The application of these requirements is covered in these sections.

Section IV covers the application of ASU 2018-12 to contracts with long-tail benefit streams. The guidance considers the liability for future policy benefits to be an integrated whole covering all phases of the traditional or limited-payment insurance contract whereas prior practice applied different methods to the active-life and disabled-life phases of the contract. Section IV covers practical issues encountered in applying this aggregation.

Section V addresses issues unique to limited-payment contracts and subtle changes that ASU 2018-12 introduces for them.

Section VI covers the new method for amortizing deferred acquisition cost assets (DAC) under ASU 2018-12. The ASU changes the prior method of amortizing DAC for virtually all contracts issued by life insurance companies. Though presented as a simplification, it introduces some new considerations which are discussed in this section. Section VI also covers issues related to DAC-like balances, including unearned revenue liabilities and sales inducement assets.

Reinsurance is not explicitly addressed by ASU 2018-12, but the guidance has numerous downstream impacts to reinsurance accounting. Section VII covers the areas of reinsurance accounting affected by ASU 2018-12 from the perspectives of both ceding and assuming companies.

In addition to FASB Codification, this practice note makes frequent reference to the American Institute of Certified Public Accountants (AICPA) *Audit and Accounting Guide—Life and Health Insurance Entities*, herein referred to as *AAG-LHI*, consistent with the AICPA conventions. As of the publication date, all of the guidance related to the interpretation of ASU 2018-12 was found within Appendix A of *AAG-LHI*, and references are identified accordingly. This guidance will be included in Appendix A until ASU No. 2018-12 is fully effective, at which point it will be fully integrated in the main body of *AAG-LHI*. While the content will remain accurate, the geography of the references contained in this practice note will become outdated.

This practice note is specifically designed to cover issues of interest to actuaries and provides items for actuaries to consider in applying the guidance in practice. It is not intended to provide accounting advice nor to be a definitive source for acceptable practice. Users of this practice note are encouraged to seek input from accounting professionals when interpreting the provisions of ASU 2018-12 specifically, and accounting guidance in general.

Contents

I.   Level of Aggregation

Overall level of aggregation

Q 1.1: What is the guidance for determining the level at which contracts are to be grouped for the purpose of calculating reserves?

A: *FASB Accounting Standards Codification* (ASC) paragraph 944-40-30-7, as amended by ASU 2018-12, specifies that, "In determining the level of aggregation at which reserves are calculated, an insurance entity shall not group contracts together from different issue years but shall group contracts into quarterly or annual groups." This guidance applies specifically to traditional and limited-payment long-duration insurance contracts and does not impact the unit of account or aggregation considerations for reserves applicable to universal life-type contracts, investment contracts, most participating life insurance policies, or any of their associated liabilities.

As stated in ASC 944-40-65-2(d)(6) regarding transition, "For contracts in-force issued before the transition date, an insurance entity shall not group contracts together from different original contract issue years but shall group contracts into quarterly or annual groups on the basis of original contract issue date for purposes of calculating the liability for future policy benefits. For acquired contracts, the acquisition date shall be considered the original contract issue date." ASC 944-40-65-2(d)(5) clarifies that under the modified retrospective approach, "The transition date shall be considered the revised contract issue date for purposes of subsequent adjustments but not for purposes of contract grouping."

Thus, the annual issue year limitation applies both at transition and prospectively. However, if companies have blocks of older policies that are small and shrinking, the insurer may be able to aggregate across these older years based on materiality.

Guidance related to disclosure requirements also applies. ASC 944-40-50-6 requires that information be disclosed at a level of aggregation "that allows users to understand the amount, timing, and uncertainty of future cash flows arising from the liabilities. An insurance entity shall aggregate or disaggregate the disclosures … so that useful information is not obscured by the inclusion of a large amount of insignificant detail or by the aggregation of items that have significantly different characteristics." Cohorts must be constructed in such a way as to enable companies to comply with these disclosure requirements.

In addition, ASC 944-40-55-13H states that disclosure requirements related to DAC and the liability for future policy benefits, including the period-to-period roll-forwards of such amounts, should not be aggregated across reportable segments. Specifically, "[w]hen applying the guidance in paragraphs 944-30-50-2A through 50-2B, 944-40-50-6 through 50-7C, and 944-80-50-1 through 50-2, an insurance entity should not aggregate amounts from different reportable segments according to Topic 280, if applicable." Therefore, in order to comply with this requirement, cohorts cannot cross reportable segments.

Q 1.2: What other items could be considered when determining cohorts?

A: There is no other prescriptive guidance in ASU 2018-12 that defines what contracts should be grouped together for measurement purposes. This leaves the guidance to rely on fundamental principles of accounting, one of which is that accounting should result in a faithful representation of the underlying obligations being measured. Under this concept, the primary considerations for determining what contracts to group into cohorts relate to the defining characteristics of the contracts; contracts should only be grouped with contracts sharing similar, key characteristics to ensure that the measurement of the cohort of policies appropriately considers, and does not distort, the impact of these characteristics on the accounting.

Characteristics to consider in the establishment of cohorts include how the business is managed, the features of the underlying contracts and how the business is priced and measured. Only contracts sharing substantially similar characteristics should be combined into cohorts; those with differing characteristics should be measured separately. Characteristics such as the type of risk covered by the insurance policy and the duration of coverage may be considered as relevant to the aggregation decisions. For example, some companies may choose to disaggregate whole life from term life, or 10-year term from 30-year term, based on these considerations. Considerations are also discussed in Appendix A paragraphs A.101-A.103 in *AAG-LHI*.[1]

Another useful set of criteria are those contained in ASC 944-30-25-1B, which relates to the grouping of contracts for the purposes of allocating acquisition costs. It states that groupings of insurance contracts should be "consistent with the entity's manner of acquiring, servicing, and measuring the profitability of its insurance contracts." These considerations are relevant and useful for the determination of cohorts for measuring the liability for future policy benefits as well.

When considering how to set cohorts at a level lower than issue year, insurers may consider three competing drivers.

- Transparency attributing results to the right line of business: Smaller cohorts isolating key product groups would provide management more transparency into the performance of the business.

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[1] The American Institute of Certified Public Accountants (AICPA) publishes the AICPA Audit and Accounting Guide *Life and Health Insurance Entities* to assist practitioners in performing and reporting on their audit engagements, and to assist management in the preparation of their financial statements in conformity with GAAP and statutory accounting practices. An AICPA Guide containing auditing guidance related to generally accepted auditing standards (GAAS) is recognized as an interpretive publication. Interpretive publications are issued under the authority of the AICPA Auditing Standards Board (ASB) after all ASB members have been provided an opportunity to consider and comment on whether the proposed interpretive publication is consistent with GAAS. An AICPA guide containing accounting guidance for nongovernmental entities is a source of nonauthoritative accounting guidance. The Financial Reporting Executive Committee (FinREC) is the designated senior committee of the AICPA authorized to speak for the AICPA in the areas of financial accounting and reporting. Companies commonly look to this source for guidance in interpreting accounting standards and, consequently, the version of the guide that applies to life and health insurance entities is referenced in this document.

- Operational efficiency considering sources of data: If policies are accounted for in different administrative systems, different valuation systems, or are otherwise part of a separate data lineage, it may be operationally easier to keep them separate. Similarly, companies that report subsidiary GAAP statements may want to keep these separate for consolidated reporting. Otherwise, they would need to calculate two GAAP reserves— one for the subsidiary and one for the consolidated reporting. As noted in Q 1.1, companies should not combine policies across reportable segments due to disclosure requirements.
- Volatility: Generally, more products and policies within a cohort will result in a lower risk of piercing the 100% net premium ratio (NPR) cap and thereby reduce the volatility that may result due to hitting this cap.

Q 1.3: Once cohorts are established, can they be changed later?

A: Cohorts may not be changed once established. For example, two cohorts may not be combined into a single cohort after the cohorts have been established unless it can be shown that such a combination does not result in materially different reported financial results in each reporting period over the remaining lifetime of the business. Similarly, a single cohort may not be deconstructed to form two or more cohorts after it is initially established. This topic is addressed in Appendix A paragraph A.99 of *AAG-LHI*.

This does not mean that new cohorts of similar contracts must follow past decisions about what constitutes a cohort. As recommended in the *AAG-LHI*, "the concepts regarding characteristics of the contracts for aggregation purposes … should be considered each reporting period for new contracts" (Appendix A, paragraph A.105). For example, if actuaries find it better to separate two products that were grouped together in prior years' cohorts into separate cohorts when establishing new issue-year cohorts, or to combine products that were previously measured in separate cohorts in prior years, they may do so. Similarly, an actuary may have established annual cohorts in the past and choose to establish quarterly cohorts for new business in the future. While consistency from year-to-year is expected if the considerations going into the cohorting decision have not changed, changes in facts and circumstances may warrant such changes in practice over time.

Q 1.4: How should DAC grouping affect cohorting?

A: For traditional and limited-pay contracts, there is a choice of amortizing DAC at either a contract-level basis or a grouped basis. If a contract-level basis is chosen, then DAC is not affected by the grouping used to calculate the liability for future policy benefits. However, if DAC is amortized on a grouped basis, then the grouped basis for DAC must be consistent with the grouped basis for determining the net premium ratio and the liability for future policy benefits.

Product considerations

Q 1.5: What are the product considerations when establishing a cohort?

Other than grouping contracts on either an annual basis or quarterly basis, no prescriptive guidance is provided to define a cohort, so actuaries would apply considerations that align with the principles underlying the guidance and GAAP in general. Product considerations are typically applied consistently across an insurance entity when determining what contracts to group together within cohorts. Considerations include, but are not limited to:

- Accounting model;
- Expected duration;
- Benefit type such as mortality, morbidity, or longevity; and
- Profitability level.

These are each discussed in the following questions.

Q 1.6: Can limited-payment and lifetime-pay policies be combined into one cohort?

A: No. As noted in *AAG-LHI* (Appendix A paragraph A.101), limited-payment policies are covered by a different accounting model than lifetime pay policies. Under limited-payment, profit is earned over the lifetime of the contract and generally emerges in proportion to insurance in force (life insurance) or benefit payments (annuities) through the establishment and release of a deferred profit liability. Lifetime-pay policies, on the other hand, recognize income in proportion to gross premiums through the net premium liability model. Because these policy types—limited-payment and lifetime-pay—are covered by different requirements under GAAP, it is not appropriate to combine them into the same cohort for the purpose of measuring the liability for future policy benefits.

Q 1.7: Can contracts with different expected durations be combined within a single cohort?

A: Combining contracts with different expected durations is not prohibited.

As noted in Q 1.2, the primary consideration for determining the composition of a cohort is the characteristics of the contracts themselves. To the extent that the expected duration of a contract is a significant, defining characteristic of the contract, or is an indicator of other significant attributes of the contract—including its market, pricing, and contract features—then it may be useful to consider duration of coverage when establishing cohorts. *AAG-LHI* (Appendix A paragraph A.102) makes this point as well.

This does not mean that it is necessary or even desirable to require contracts to be in separate cohorts solely because they have different expected durations. At the extreme, were the combining of policies with different durations prohibited, then separate issue-age cohorts would be required for products that mature or expire at a specific age. This would be impractical and

certainly not required or suggested in the guidance. Nonetheless, expected duration is a valid consideration.

An argument for combining products with different durations is to increase diversification within the cohort in line with the law-of-large-numbers principle underpinning insurance. Again, this is in the context of contracts being similar enough in all other significant characteristics to warrant combination within a cohort.

An argument against combining products with markedly different durations is that emerging profitability could be confusing and thereby frustrate one of the motivating factors for the targeted improvements—increased transparency. For example, combining a block of 10-year level term life insurance with a block of 20-year level term can create discontinuities in the liability measurement as the 10-year policies roll off the books.

Balancing the competing objectives of transparency, credibility, and maintainability is a judgment call. The threshold at which different durations constitute enough of a defining characteristic to require separate cohorts may differ from product to product and from company to company as the determination is made in the context of the entirety of the contracts' attributes. Though practice is still developing in this area, evidence suggests that actuaries are evenly split between those who would combine 10-year level term life insurance policies with 20-year policies and those who would maintain separate cohorts, all other contractual attributes being equal. Actuaries looking to make decisions around levels of aggregation may wish to test separate vs. combined results on benchmark products like these.

Q 1.8: Can products with different types of benefits be combined within a single cohort?

A: Combining different products within cohorts is not explicitly prohibited. However, as discussed in Q 1.1, disclosure requirements and other related guidance must be considered when making decisions around cohorting in order to ensure the ability to comply with such disclosure or other guidance.

As noted in Q 1.2, the primary consideration for determining the composition of a cohort is the characteristics of the contracts themselves. Actuaries assessing the characteristics of different products may conclude that they are similar enough in all significant respects (features, markets, pricing, etc.) that combination within the requirements of ASU 2018-12 guidance is appropriate. In other cases, different products will be significantly different enough in various attributes to require separation. The ASU disclosure example under ASC 944-40-55-29E separates term life insurance from whole life insurance. Some actuaries believe this suggests a prohibition against grouping across certain product types. Others note that this is only an illustration of a company with two products, and that different companies may come to different conclusions. Larger companies with more product types may find it appropriate to present them at a higher level, but form cohorts and perform calculations at a more granular level.

Q 1.9: Can products with different levels of profitability be combined?

A: Combining different products within cohorts is not explicitly prohibited.

As noted in Q 1.2, the primary consideration for determining the composition of a cohort is the characteristics of the contracts themselves. The pricing and expected profitability of a contract are among many characteristics to consider in determining whether to combine contracts within a single cohort, but they are not the only ones and are not necessarily determinative on their own.

Impacts of how the business was acquired
Q 1.10: For contracts, such as reinsurance or group insurance, covering a group of policies or insured lives, what is the unit of account (i.e., the level at which the liability is measured)?

A: The level of aggregation is not clearly defined in the ASU for groups of policies or insured lives within a contract. Examples include assumed reinsurance contracts, group long-term care (LTC), and pension risk transfer (PRT) business.

Relevant paragraph from the ASU:

> 944-40-30-7 In determining the level of aggregation at which reserves are calculated, an insurance entity shall not group contracts together from different issue years but shall group contracts into quarterly or annual groups.

Based on the above, the only prescriptive guidance is that an insurance entity shall not group contracts together from different issue years, but shall group contracts into quarterly or annual groups.

Using a newly issued reinsurance contract (from the perspective of the assuming reinsurer) as an example, an additional layer of complexity exists as to the date assigned to the underlying cash flows. This could impact both the level of aggregation at which contracts are grouped for measurement as well as the discount rate assigned to such cash flows. In this example, assume that the reinsurance applies contemporaneous to the writing of the direct insurance policies. There are at least two potential views:

1. The accounting date, and thus the "issue year," is the date the reinsurance contract becomes legally enforceable. This position takes the view that the overall contractual agreement is between the ceding company and the reinsurer and that the reinsurance of the underlying policies individually is not the defining relationship. A company adhering to this view would presumably need to consider future cash flows related to policies not yet written by the ceding company but projected to be written and reinsured under the terms of the reinsurance contract within the definition of the liability for future policy benefits. It would also define the discount rate associated with the contract as the rate applicable on the date the contract was entered.

2. The reinsurance contract is segregated into individual cohorts by underlying policy characteristics. This position takes the view that a reinsurer assumes the risk concurrent with issuance of the direct contracts and, consequently, that the grouping of reinsured

risks is consistent with the grouping of the directly written contracts. Discount rates align with the dates on which individual lives are reinsured. Under this approach, individual lives reinsured more than a year apart cannot be aggregated together, and there is no anticipation of not-yet-reinsured policies in the current period valuation. This "look through" method is acknowledged as "one acceptable approach" discussed in *AAG-LHI* (Appendix A, paragraph A.142).

See Q 7.27 and following for further questions related to aggregation for reinsurance assumed.

Though not entirely analogous, the treatment of some group insurance contracts may be subject to similar considerations as described above for reinsurance assumed.

For some long-duration group insurance contracts, such as long-term care insurance, the individual often receives a certificate that effectively behaves like an individual contract. The individual can continue the contract at the original terms when the individual is no longer part of the group. For these types of products, using the individual certificate level may be appropriate.

For PRT business, the lives are normally all acquired at the same time. Therefore, they all have the same "issue date" and could be part of the same cohort. However, it is unclear whether they are all one contract or are individual contracts. Some believe that the pension risk transfer contract constitutes a single contract and therefore, for DAC amortization purposes, the expected life for the contract extends until the last benefit payment to the last surviving individual is paid. Others believe this is inappropriate, as the interpretation could result in a very slow DAC amortization pattern where a large portion of the DAC balance could remain even after nearly all of the underlying individuals have left the group. By instead arguing that the individual lives within the contract are effectively separate contracts and that the DAC associated with each life is amortized over the life of that particular annuity, DAC would be amortized more rapidly, following more closely the size of the in-force population.

Q 1.11: For contracts acquired in a business combination, what is the issue date?

A: Pursuant to ASC 944-40-65-2(c)(6) the issue date should be the date of acquisition which is the date of the business combination.

ASC 944-40-65-2(c)(6) states:

> *For contracts in force issued before the transition date, an insurance entity shall not group contracts together from different original contract issue years but shall group contracts into quarterly or annual groups on the basis of original contract issue date for purposes of calculating the liability for future policy benefits. For acquired contracts, the acquisition date shall be considered the original contract issue date.*

For business entities that were combined prior to 2001 and for which the pooling of interests method was applied to account for the merger, the contracts existing in the two entities prior to merger are not considered "acquired contracts" in the meaning of ASU 944-40-65-2. The issue date of such contracts goes back to when they were first issued to the contract holder.

Q 1.12: Can business assumed through a reinsurance contract be combined with directly issued business in the same cohort?

A: As noted in Q 1.2, the primary consideration for determining the composition of a cohort is the characteristics of the contracts themselves. These characteristics may include the nature of the risks covered and the duration of the coverage provided by the policies. Considerations related to the manner in which a contract or set of contracts is acquired could constitute a relevant characteristic to consider in determining whether to group contracts within a cohort, or it could point the actuary to related characteristics (e.g., pricing, administration, markets) that are relevant characteristics as well.

Where a company is a direct writer of business and also a reinsurer, the ASU is silent on the aggregation of assumed and direct business. The ASU is, however, clear that "issue year" of assumed business is the year the business was assumed by the reinsurer. For example, if an in-force block of business that was originally sold between 2000 and 2020 by the cedant is assumed in 2020 by the reinsurer, the "issue year" for all the policies from the reinsurer's perspective is 2020, irrespective of whether the assumed policies are disaggregated into separate cohorts for measurement purposes. Therefore, if a company concludes that it is appropriate to combine business assumed through reinsurance with direct business and the company defines its cohorts by calendar year of issue, only direct business also sold in 2020 could be combined with the reinsured business into a cohort (or cohorts).

Issue date considerations
Q 1.13: Can cohorts be smaller than an issue year?

A: Yes. ASC 944-40-30-7 specifies that contracts can be combined into annual or quarterly cohorts for purposes of calculating the net premium ratio and determining the liability for future policy benefits. However, actuaries are advised not to take quarterly to be the most granular level at which cohorts may be set. Flexibility to set cohorts at lower levels is acceptable. This interpretation is supported in *AAG-LHI* as well (Appendix A, paragraph A.100).

In some cases, actuaries may choose to set cohorts lower than quarterly levels to achieve the objective of grouping contracts with like characteristics or to increase the transparency of the results of certain products. For example, if a product is repriced, actuaries may choose separating contracts sold before and after the repricing into separate cohorts. Similarly, actuaries may choose separating PRT transactions or other large transactions of several contracts that occur in the same quarter. Such granular aggregation is not required but may provide more reasonable results in some circumstances.

Therefore, actuaries may choose to group some contracts into issue year cohorts, but group other contracts into smaller cohorts. While such differences in grouping may be appropriate, it is unlikely that actuaries will find it necessary to change the frequency with which they establish new contract cohorts from year to year unless there is a triggering event such as repricing. Once the type of cohort is determined for a product, actuaries would typically apply that same grouping to future contracts.

Q 1.14: Can cohorts be bigger than an issue year?

A: No. ASC 944-40-30-7 specifies that contracts should not be grouped together from different issue years. However, there are some nuances to this guidance. For example, contracts acquired through a business combination are deemed to have the acquisition date as the issue date for accounting purposes. This may well result in contracts sold to policyholders in different years residing in the same cohort for measurement under ASU 2018-12. See the relevant question covering "Impacts of how the business was acquired" for further clarification.

Q 1.15: Can an annual cohort be different than a calendar year? Can it be different by product?

A: ASC 944-40-30-7 specifies that contracts within a group should not arise from different issue years. However, actuaries might find it appropriate to align the issue year cohort with a timeframe other than the calendar year, and there is nothing in the guidance that prohibits this practice. For example, if an insurance entity's fiscal year is different from a calendar year, it may be easier to follow the fiscal year timing for purposes of aligning the cohorts with disclosure requirements. It may also be desirable to align the issue year cohort with something other than the insurer's fiscal year. For example, actuaries might find it useful to align issue years with their annual assumption update calendar.

Other considerations

Q 1.16: What discount rate should be used to measure the liability for future policy benefits for a cohort while it is open?

A: Normally, the approach aligns with the approach that will be used to lock in the discount rate once the cohort is closed. For example, if the company has adopted a practical expedient to set the locked-in discount rate based on the average of the upper-medium grade fixed-income instrument yields that exist on the middle of each month that the cohort is open, then the selection of discount rate to use while the cohort is still open might follow this same formula. The underlying concept that the discount rate should represent the rates applicable within the cohort when the contracts were acquired should be applied even when valuation occurs at a date before the cohort is closed.

However, the application of any methodology that applies an average rate or rates to all contracts in the cohort cannot be considered "locked-in" until the cohort is closed to new entrants. These methodologies have implications specifically for companies that produce interim quarterly reporting, since they result in a disconnect in the locked-in rate assumptions from one period to another. The only method that results in a true lock-in that is unchanged while the cohort is still open and beyond is one that assigns a discount rate to each contract as it is acquired and locks in that rate to apply to that contract forever, resulting in multiple discount rates within a single cohort. If practical, this quality of the contract-specific discount rate approach may be attractive.

Q 1.17: Can products with cash flows denominated in different currencies be combined within a single cohort?

A: The guidance is silent on the aggregation of products with different currencies. However, because products denominated in different currencies are likely sold in different markets and may have other significant differences in product design, it is normally expected that products with cash flows in different currencies would be held in different cohorts. Similarly, disclosure guidance (944-40-50-5A) may require segregation of contracts with different currencies to the extent that such currencies indicate differences in territories in which contracts are written and disclosures are constructed at that level. Consequently, *AAG-LHI* states that "cash flows denominated in different currencies should not be aggregated in the same cohort for measuring the liability for future policy benefits" (Appendix A, paragraph A.101).

In some instances, however, there may be facts and circumstances that would encourage the actuary to aggregate products with different currencies into a single cohort. This may be the case in certain reinsurance assumed transactions, for example, where cash flows in different currencies may exist within the same contract. Actuaries planning to aggregate contracts with cash flows in different currencies would have to address numerous practical and conceptual issues in addition to the AICPA guidance, so any such decision should be made only after extensive consultation with accounting professionals.

II.   Cash Flow Assumption Setting and Remeasurement

Q 2.1: How are assumptions used in the measurement model for the liability for future policy benefits of traditional and limited-payment long-duration insurance contracts under ASU 2018-12?

A: The way that assumptions are used in the measurement model does not change from how reserves were calculated under GAAP prior to ASU 2018-12. The net level premium method is preserved. Only the standards for setting assumptions are changed. ASU 2018-12 provides fairly restrictive guidance for establishing discount rate assumptions (which are locked in for purposes of interest accretion) and the requirement that cash flows assumptions be updated periodically, at least once per year. Provisions for adverse deviation are eliminated as well. But the measurement model, and how assumptions are used therein, is unchanged by ASU 2018-12.

Q 2.2: How is assumption setting different under ASU 2018-12 relative to how reserves were calculated under GAAP prior to ASU 2018-12?

A: ASU 2018-12 distinguishes between "cash flow assumptions" and "discount rate assumptions," with different requirements for each. Cash flow assumptions (e.g., mortality, morbidity, and terminations) are current expectations without any provision for adverse deviation. Instead of remaining locked-in, the assumptions "shall be reviewed—and if there is a change, updated—on an annual basis at the same time every year" (ASC 944-40-35-5a) for subsequent valuations, with the possible exception of nonlevel expense assumptions (see Q 2.15). In addition, actual cash flow experience is substituted for expected at least once each year. The change in reserve due to these updates creates a corresponding charge or credit to net income.

The discount rate assumption is an upper-medium grade fixed-income instrument yield. The discount rate used throughout the life of the cohort to calculate the net premium ratio and the interest accretion on the reserve through net income is tied to when the policies are issued. The current rate as of each reporting date is used to update the carrying amount of the reserve, with the impact from the change in the discount rate recognized through other comprehensive income. Considerations related to discount rate assumptions are covered more thoroughly in Section III.

Table 1 provides a high-level summary of the changes related to assumptions used to calculate reserves for traditional and limited-payment long-duration insurance contracts.

Table 1

GAAP prior to ASU 2018-12	GAAP after ASU 2018-12
Assumptions are locked-in at inception, except in the case of a premium deficiency.	Cash flows are updated at least annually to incorporate actual experience and current expectations. Discounting at current market rates are applied at each reporting date. Expense assumptions may be locked-in at inception or treated like other cash flows, per the insurer's entity-wide election.
Maintenance expenses are a component of the liability for future policy benefits.	Only nonlevel costs, such as claim settlement costs, are included in the liability for future policy benefits. Though inflation is considered in expense assumptions, it is not considered when determining whether a cost is level or non-level.
Cash flow assumptions are best estimate plus a provision for the risk of adverse deviation (PAD). They are set at contract inception.	Assumptions are current best estimate, with no PADs.
The discount rate is based on the entity's expected portfolio yield. A small reduction to the discount rate is normally made as a provision for the risk of adverse deviation.	The discount rate is an upper-medium grade fixed-income instrument yield. The rate is determined based on contract issue date is used for reporting interest accretion on the liability for reporting in net income.

The change in present values due to updating to current discount rate is reflected in other comprehensive income (OCI). The net premiums are not updated for changes in discount rates. |
| Assumptions are updated only for a premium deficiency (loss recognition). | Assumptions are reviewed and updated at least annually and, if necessary, more frequently. Net premiums are capped at 100% of gross premiums at the cohort level and therefore the liabilities for future policy benefits are not subject to separate loss recognition. |

Q 2.3: How should assumptions be determined upon transition to ASU 2018-12?

A: As mentioned above, current assumptions without provision for adverse deviation are needed. There are two key dates for implementation of the new standard—the effective date and the transition date. Unless early application is adopted, the transition date is defined as "the beginning of the earliest period presented" (ASC 944-40-65-2 c.) in the financial statements. This is normally two years prior to the effective date for a public business entity and one year prior for other entities, but there may be exceptions.

The effective date is the start of the fiscal year beginning after December 15, 2022, for public business entities that meet the definition of a SEC filer, excluding entities eligible to be smaller reporting companies and the start of the fiscal year beginning after December 15, 2024, for other entities. Early adoption of the guidance is permitted.

For contracts in force as of the transition date, best estimate cash flow assumptions are required as of the transition date and as of the end of any reporting period presented in the financial statements at the effective date of ASU 2018-12 applicable for the company. For contracts issued after the transition date but before the effective date, best estimate assumptions are required as of the end of any reporting period presented in the financial statements prepared at the effective date of ASU 2018-12.

For contracts in force as of the transition date, the discount rate assumption depends on the transition method. Where modified retrospective transition is applied, the previously existing discount rate is maintained for purposes of calculating the net premium ratio and reserve impact reflected in net income (ASC 944-40-65-2 d. 1). As discussed in ASC 944-40-65-2i(1), the upper-medium grade fixed-income instrument yield as of contract inception is needed for all cohorts to which retrospective transition applies. The change in the liability for future policy benefits resulting from the change in discount rates at transition on these retrospective-transition cohorts is recorded to retained earnings at transition. Contracts issued after the transition date use the upper-medium grade fixed-income instrument yield applicable to the cohort in which they reside based on the open period of the cohort (ASC 944-40-30-9). All contracts reflect the change in present values due to the updated discount rate at each date presented in the financial statements in other comprehensive income (ASC 944-40-35-6A b. 1).

Q 2.4: How should actual cash flows be incorporated upon transition to ASU 2018-12?

A: In implementing ASU 2018-12, a company needs actual experience from the transition date to the effective date.

Whether additional actual cash flow experience is needed depends upon the elected transition method. As noted in ASC 944-40-65-2e(2), the retrospective election should be made at the same contract issue year level for both the liability for future policy benefits and DAC for that contract issue year and all subsequent contract issue years, on an entity-wide basis (applied to all contracts and product types).

As described in ASC 944-40-65-2i(3) and 2j, when retrospective transition is applied, a cumulative catch-up adjustment to the opening balance of retained earnings as of the transition date is equal to the difference between the carrying value of the liability for future policy benefits (adjusted for the removal of any related amounts in accumulated other comprehensive income [AOCI]) and the liability for future policy benefits calculated using the updated net premiums. Additionally, as described in ASC 944-40-65-2j, the difference between the liability for future policy benefits using the interest accretion rate and the current discount rate should be recorded to AOCI. These adjustments require the use of actual, historical cash flows.

If a company elects the full retrospective transition as described in ASC 944-40-65-2(e) for any of its business, then actual cash flows are needed for all years since issue of the business subject to this election. ASC 944-40-65-2(e)(3) states, "Estimates of historical experience information shall not be substituted for actual historical experience information."

Modified retrospective transition, the default method described in the guidance, does not require actual cash flows prior to the transition date and only depends on the reserves recorded at the transition date for subsequent measurement. In other words, the availability of historical actual data may affect the decision on which transition method is permitted.

For measurement in subsequent periods, actual cash flows from the transition date to the reporting date are needed for all cohorts. For cohorts transitioned under the modified retrospective approach, the net premium ratio in the reserve calculation is the present value of projected benefits and expenses as at transition, minus the reserve at transition, all divided by the present value of projected gross premiums as at transition. Actual experience between the transition date and the measurement date is used in calculating the present values.

Q 2.5: How frequently should assumptions be reviewed?

A: ASC 944-40-35-5 states, "Cash flow assumptions (that is, the assumptions used to derive estimated cash flows, including the mortality, morbidity, termination, and expense assumptions referenced in ASC 944-40-30-11 through 30-15) shall be reviewed—and if there is a change, updated—on an annual basis, at the same time every year."

Each of the cash flow assumptions should be evaluated at least annually at the same time each year. The guidance does not prohibit more frequent assumption review (see Q 2.6). A change to cash flow assumptions is only made if justified by the analysis from the review. The assumptions do not have to be evaluated at the same time across all products and cohorts. However, if during an annual review a company determines that an assumption update is required for one cohort of business, the company must evaluate whether this indicates that assumptions for cohorts of business with similar characteristics should be updated as well, even if it is not concurrent with its scheduled annual review.

Appendix A of *AAG-LHI* (paragraphs A.45-A.53) provides useful perspective on the requirement to keep all aspects of the liability measurement current. It states that when a cash flow assumption is updated, actual experience should be updated as well. Similarly, when actual experience is updated, an assessment should be made as to whether assumptions need to be updated. The two actions are linked and necessary when updating the net premium ratio. Simply updating the reserve for actual in force—without updating the net premium ratio—is not an assumption or experience update per se. Assumption review is therefore needed whenever the net premium ratio is updated for actual experience in order to reaffirm that the existing assumptions are appropriate or to update them if necessary. Similarly, if any assumptions are updated in the determination of the net premium ratio for reserves, actual experience must be reflected to the valuation date. The guidance does not specify the level of assumption review required when substituting actual experience for expected, but it is not expected that a fully rigorous review supported by experience studies be performed each reporting period.

Q 2.6: Do all assumptions for all cohorts and lines of business need to be updated at the same time every year, or can different assumptions and groups of cohorts be reviewed and updated on different time schedules?

A: ASC 944-40-35-5 states that "Cash flow assumptions … shall be reviewed—and if there is a change, updated—on an annual basis, at the same time every year."

ASC 944-40-35-5 seeks to balance two competing objectives. One objective is to inform users of the financial statements that, at least once every year, all assumptions used in calculating the aggregate liability for future policy benefits have been reviewed and are judged to be appropriate. Another objective is to update the liability whenever "evidence suggests that cash flow assumptions should be revised" (ASC 944-40-35-5(a)(1)).

To balance the workload for more efficient use of resources, many companies spread the performance of extensive experience studies over different times throughout the year for different cohorts or different assumptions. There is nothing in the standard to prohibit such resource planning. The requirement is to complete a comprehensive assumption review for each cohort "on an annual basis, at the same time every year" (ASC 944-40-35-5(a)). However, companies are also required to consider all available information in the interim to conclude that all applicable assumptions remain the company's best estimate. This interim threshold is clearly less rigorous than what is required for annual assumption reviews, though the requirement that when an assumption is changed all other assumptions must be deemed current as well remains.

Different cohorts may be reviewed at different times as long as all assumptions for each cohort are reviewed at the same time. However, if a company concludes that an assumption applicable to one cohort needs to be updated, the company should consider whether this indicates that a similar assumption applied to a different cohort requires updating as well. This point is emphasized in *AAG-LHI* (Appendix A, paragraph A.49). For example, updating a mortality assumption in one cohort of policies due to experience analysis indicating deterioration in the general population may indicate the need to update mortality assumptions in other cohorts of policies, even if it is not their time for review in the annual cycles. As discussed in more detail in the answer to Q 2.5, there must be at least one time each year at which every assumption used within a cohort of business is current.

Q 2.7: When should actual experience be substituted for expected?

A: ASC 944-40-35-6 states, "The liability for future policy benefits shall then be updated for actual experience at least on an annual basis," and "An insurance entity need not update the liability for future policy benefits for actual experience more often than on an annual basis, unless cash flow assumptions are updated."

These references to annual updates do not mean that an actuary must base interim reserves on expected contracts in force rather than actual contracts in force. Reserves are always based on actual in force. The concern here is when to update the net premium ratio.

Thus, actual experience must replace expected at least annually during the assumption review (and update) process, and at any other time when an assumption is changed. Companies may

update for actual cash flows more frequently, such as at each reporting period. See Q 2.10 for an example and Q 2.6 for the effect of such updates on assumption review requirements.

Q 2.8: What might trigger an assumption update outside of the routine annual review period?

A: ASC 944-40-35-5(a)(1.) states "Cash flow assumptions shall be updated in interim reporting periods if evidence suggests that cash flow assumptions should be revised." If cash flow assumptions are updated at an interim period, then actual experience should be updated in the liability calculation as well.

This implies that actual experience and significant events are monitored throughout the reporting cycle. Assumption changes outside of the normal review cycle are likely to be infrequent because normally it takes several periods of observed experience to update an assumption which would have been considered as current at the most recent assumption review date. Some considerations in determining whether an interim update is needed are:

- large deviations in experience from expected, allowing for whether the event in question is credible and/or explainable;
- an unusual interest rate or economic environment that could have an impact on surrender rates;
- an unanticipated major one-time event that impacts future assumptions (pandemic, regulatory changes, etc.).

In addition, as discussed in the answers to Q 2.5 and Q 2.6, if assumptions for different cohorts are updated at different times during the year and an assumption is updated in one cohort, this may be an indication that the same assumption should be updated in other cohorts of contracts with similar characteristics, even if it is not time for the regularly scheduled annual assumption update for such other cohorts.

Q 2.9: How do assumption changes made outside of the routine annual review period affect the rest of the review cycle?

A: If an ad hoc study leads an actuary to conclude that cash flow assumptions are to be revised before the normal annual review period, then all assumptions for the affected cohorts are reviewed so that the resulting liability represents the company's current best estimate. Actual experience is updated at the same time.

Whenever a company updates an assumption for a cohort, it should also assess whether there are indications that a similar assumption should be updated in other cohorts. If so, then those other cohorts' assumptions would need to be assessed and updated in totality, and actual experience brought into the calculations.

An off-cycle assumption change would not alter the timing of the normal annual assumption review cycle.

Q 2.10: How should the revised reserve and charge or credit to net income be calculated?

A: ASC 944-40-35-6A(a) states, "An insurance entity shall update its estimate of cash flows expected over the entire life of a group of contracts using actual historical experience and updated future cash flow assumptions." The revised cash flow streams are used to calculate a revised net premium ratio as of the inception date of the cohort (or the transition date, for cohorts existing at transition to which a modified retrospective transition was applied) using the original, locked-in discount rate applicable for that cohort. This net premium ratio is applied to the new projected cash flow stream to calculate the new liability as the present value of benefits less the present value of net premiums as of the valuation date.

With respect to calculating the charge to net income, called the "remeasurement gain or loss," ASC 944-40-35-6A(a)(1.) states,

> The revised net premiums shall be used to derive an updated liability for future policy benefits as of the beginning of the current reporting period, discounted at the original (that is, contract issuance) discount rate. The updated liability for future policy benefits as of the beginning of the current reporting period shall then be compared with the carrying amount of the liability as of that date (that is, before the updating of cash flow assumptions) to determine the current period change in liability estimate (that is, the liability remeasurement gain or loss) to be recognized in net income for the current reporting period.

Other approaches to calculate the remeasurement amount, which do not require fully revaluing the reserve at the prior date, may be considered if they arrive at materially the same results.

For example, when a company updates for actual experience, the effect of remeasurement can be determined without recalculating the liability as of the beginning of the period. This may be achieved by multiplying accumulated actual premium as of the beginning of the period by the difference between the most recent net premium ratio (from the prior period or from the last assumption change model) and the new net premium ratio (from the current end-of-period valuation model).

Another potential method is described in "Traditional Contract Analytics" in the December 2018 issue of *The Financial Reporter*. The article includes formulas to calculate remeasurement amounts directly from known deviations from expected cash flows and changes in present values together with other information available from the current and prior valuations. This method begins with the change in present value of benefits minus the change in present value of net premiums—before updating the net premium ratio. Measured at the beginning of the reporting period, these present value changes include variances from expected cash flows and changes in expected future cash flows. The portion of the net present value change charged to current income (the remeasurement gain or loss) is the product of the change in the ratio of actual (historical) premiums to expected lifetime (actual historical and expected future) premiums, all discounted at the locked-in interest accretion rate.

These methods are both designed to be mathematically equivalent to the calculation described in ASC 944-40-35-6A(a).

Q 2.11: How does incorporating actual experience and updating assumptions impact financial results?

A: For any given cohort, replacing the previously projected cash flows with actual experience in the reserve calculation moves the reserve in the opposite direction of the variance between actual experience and expected. This is because the actual experience increases the net premium ratio when actual claims exceed expectations (lowers the ratio when claims are lower), which then flows through the reserve formula (present value (PV) of benefits minus PV of net premiums). Assumption updates move the reserve in the same direction as the revised expectation (e.g., an expectation of more claims in the future increases reserves because of the increase of the PV of benefits in the reserve formula). So higher actual claims produce a lower reserve, but higher expected (future) claims produce a higher reserve.

The extent of these effects depends heavily on the age of the cohort (unless the net premium ratio is capped at 100% or the reserve is floored at zero). For any given magnitude of variance or change, new cohorts have proportionately large reserve adjustments for actual claim variances and proportionately small adjustments for assumption changes. The opposite is true for older cohorts. The difference is found in the relative magnitudes of past and future premium when discounted to a common date.

In aggregate, the combined offset from experience updates in multiple reserve cohorts can be any proportion of the combined claim variances, even less than 0% or more than 100%. If, for example, claims were high on a new cohort and low by about the same amount on an old cohort, the aggregate claim variance would be near zero. Updating the net premium ratios, however, would produce a large offset on the new cohort and a small offset on the old. Depending on which cohort had the larger variance, the aggregate offset could be more than 100% or less than 0% of the aggregate claim variance.

In the absence of an assumption change, reserve offsets for actual experience accumulate if claims trend higher or lower than expected. If the mortality or morbidity assumption is later unlocked, then the reserve update substantially reverses the earlier offsets.

Finally, consider that some experience variances have impacts on future projected cash flows in addition to the effect on the current period. For example, an unexpected death in the current period has an incremental impact on future cash flows because the policy experiencing the unexpected death is no longer in force. While not an assumption update per se, the recognition of this death in the future projections has the same effect as an assumption change and a consequent impact on reserves. While normally not a significant driver of reserve impacts when applied to death or other claim experience, this second-order impact of current period experience difference may be worth considering when analyzing deviations from lapse and other termination experience.

Q 2.12: What are some considerations in determining whether assumptions should be updated?

A: An important consideration when assessing potential assumption changes is to distinguish between trends in experience and random fluctuations as quickly as possible in order to limit the accumulated deferral of actual experience adjustments that must then be reversed when a trend is finally recognized and an assumption is updated. The techniques for making this distinction might vary depending on the sensitivity of different cohorts to the distinction. Some potential techniques are:

- The use of confidence intervals to distinguish random fluctuations in experience versus trends.
- Credibility weighting and use of industry data when volume is thin.
- Comparison of cohort-level experience to aggregate or secular experience.

Confidence intervals and credibility weighting may be most helpful for older products, where an assumption is based at least in part on a large amount of credible experience for the product or similar products of the same generation.

Comparison to aggregate or secular experience may be most helpful for newer products, where differences may signal an inconsistency between the new product experience and that of the older products that formed the basis of the new product assumption. In contrast, a variance that is seen consistently across multiple cohorts or in secular data for the period may be attributed to unusual (random) circumstances, such as an especially severe influenza season.

Within the requirements of the standard and as discussed in the answer to Q 2.5, the insurer has some flexibility to choose the frequency and timing of updates for actual experience. As noted in the example above, interim reserve changes from experience updates could potentially be reversed if assumptions are updated later. In all cases, sound actuarial judgment should be applied and the actuary should be satisfied that assumptions at any reporting date represent management's best estimate.

Q 2.13: Can assumption reviews and the setting of assumptions be performed across multiple, calculation level cohorts?

A: Yes. ASC 944-40-30-7 states, "In determining the level of aggregation at which reserves are calculated, an insurance entity shall not group contracts together from different issue years but shall group contracts into quarterly or annual groups." This guidance applies to the level at which reserves are calculated. ASU 2018-12 sets new standards for cash flow assumptions (current without provision for adverse deviation) but does not change how those assumptions are determined. For that, we look to U.S. actuarial standards of practice (ASOPs) or other applicable actuarial standards. For most insurers and products, the calculation-level cohorts are likely too small for meaningful experience analysis. Therefore, combining calculation cohorts for assumption setting and review may be an acceptable practice.

Q 2.14: Can assumptions vary for different calculation-level cohorts within a block of business?

A: Yes. There is nothing that prohibits assumptions to vary across cohorts, provided the differences are justified. ASOP No. 10, section 3.3, which provides guidance regarding the use of best-estimate assumptions, states,

> In instances where GAAP requires best-estimate assumptions, the actuary should use assumptions that reflect management's assessment of emerging experience without provisions for risk or uncertainty. Where there is no emerging experience, the actuary should use assumptions that reflect management's expectations of how experience will emerge.

Differences in assumptions between cohorts are typically supported by experience study data and/or distinctions that justify different expectations. One example may be different assumptions for newer issue cohorts without extensive experience data vs. older, more established cohorts of the same type of policies. Still, whenever assumptions are changed for a particular cohort, actuaries would consider whether such changes indicate the need for changes on other cohorts with similar characteristics, even if such changes do not align with the annual assumption review cycle for those cohorts.

Q 2.15: How can the treatment of expense assumptions differ from the other assumptions?

A: ASC 944-40-35-5(a)(2) states, "An insurance entity may make an entity-wide election not to update the expense assumption referenced in ASC 944-40-30-15."

The guidance recognizes that a regular process of allocating expenses to contracts can be subjective, costly, and time-consuming, yet be much less significant to the reserve calculation than other assumptions. Therefore, the guidance permits an insurance entity to determine an expense assumption at the inception of a cohort, or group of cohorts, and then use the resulting expense assumption in all subsequent valuations, provided the entity makes an entity-wide election not to update.

Q 2.16: What types of expenses are included in the reserve?

A: ASC 944-40-30-15 states:

> Expense assumptions used in estimating the liability for future policy benefits shall be based on estimates of expected non-level costs, such as termination or settlement costs, and costs after the premium-paying period. Renewal expense assumptions shall consider the possible effect of inflation on those expenses. However, expense assumptions shall not include acquisition costs or any costs that are required to be charged to expense as incurred, such as those relating to investments, general administration, policy maintenance costs.

The above guidance states that only non-level costs and those after the premium-paying period are included and mentions termination and settlement costs as some that are included. Routine policy maintenance costs are excluded. This suggests that only benefit-payment-related expenses

are to be included. ASC 944-40-25-11 states, "[t]he liability for future policy benefits represents the present value of future benefits to be paid to or on behalf of policyholders and *certain related expenses* less the present value of future net premiums receivable under the insurance contracts" (italics added for emphasis). Claim settlement costs such as expenses incurred in the investigation and payment of death claims are common examples of what might be included. However, routine costs associated with the payment of recurring benefits, such as monthly annuity benefits, are likely not included, even though they are incurred after the (single) premium payment period.

The exclusion of policy maintenance brings into question what is meant by the inclusion of expenses after the premium-paying period. One possible meaning is that when the cessation of premium payment activity makes necessary additional monitoring activity to determine if the insured remains alive, this additional expense could perhaps be considered related to the payment of benefits.

This differs from a common practice under GAAP prior to ASU 2018-12 of including all inflation-sensitive expenses as non-level in the reserve calculations. The effect of inflation must be considered in setting assumptions, but not in determining whether a cost is non-level.

Q 2.17: If the expense assumption is locked in, do actual expense cash flows need to be substituted for expected?

A: No, the election is whether to update the net premium ratio for changes in the expense assumption. Because update for actual experience is considered part of the assumption update process, the election applies to both actual expenses and the expense assumption used in cash flow projections. A company makes the same choice for both, and the choice applies across all products.

Q 2.18: What methods can be used to demonstrate that actual experience used in the reserve calculation represents the results of the entity?

A: The requirement to use "actual" cash flows in net premium calculations may raise questions not directly addressed in the guidance as to the source of information and the allocation of items not directly tied to cohorts of policies.

According to *AAG-LHI*, "FinREC believes that … 'actual historical benefits and related actual (if applicable) historical expenses' include benefits paid" (Appendix A, paragraph A.19). Under this guidance, the term "actual" relates to cash flows recorded on the financial statements in the period in question and should be obtainable from the general ledger. Other items, such as incurred but not reported (IBNR), might be estimated apart from basic cash flow projections but according to the same paragraph are not actual benefits, but instead represent "Estimates of future claim payments and updates to those estimates are part of 'updated remaining expected benefits and related expenses.'" Still, methods are needed to allocate such amounts to individual cohorts and to include them in net premium calculations. In addition, certain timing and claim dispute processes, for example, may need to be considered in determining the appropriate amounts to be included in cohort-level updates.

The amount, level of detail, and types of actual experience data available vary among insurance entities, so defining actual amounts at the cohort level may require judgment. Some cash flows and other recorded items are generally available at a detailed level, so benefit payments and premium payments, for example, can be exact. Others are not, so adjustments for IBNR liabilities, for example, need to be allocated and will require a consistent company procedure. The same may be true of "actual" expenses, which may be actual cash flows but are not specific to individual contracts or cohorts, if the option to lock in expense assumptions has not been elected.

Each entity needs to develop its own procedures to perform this demonstration.

If a company has corresponding practices currently or previously in use for similar amounts, such as IBNR's incorporation into actual and estimated gross profits and excess payments when calculating universal life DAC amortization rates and benefit ratios, perhaps these could provide an appropriate framework.

Q 2.19: When the net premium ratio is capped at transition, does the original reserve or the increased reserve carry forward for subsequent remeasurement?

A: At transition, the net premium ratio calculated for a cohort of policies may exceed 100%. In such a case, the net premium ratio is capped at 100% and the increase in the resulting reserve is recorded to retained earnings. For subsequent measurement of the liability for future policy benefits, the carryover basis originally applied (i.e., the reserve recorded for the cohort of policies immediately prior to transition) remains unchanged for the life of the cohort. In other words, the carryover basis for subsequent measurement is not stepped up to the higher reserve resulting from the capping of the net premium ratio at transition.

Q 2.20: How are other liabilities, such as claims IBNR or claims in course of settlement (ICOS), handled at transition?[2]

A: When associated with traditional, long-duration contracts (other than those long-duration participating life insurance contracts identified in paragraph 944-20-15-3) for which a liability for future policy benefits is calculated, cash flows that form the basis for other liabilities such as IBNR and ICOS are considered as part of the unified cash flow stream that is used to calculate the liability for future policy benefits. Consequently, such items must be considered in conjunction with all other contract liabilities and cash flows.

For products with long-tail claims, such as long-term care and disability income, ICOS and IBNR may depend more heavily on expected claim continuance than on amounts due and payable upon approval of a claim. Refer to Section IV for more information about the handling of liabilities for such products.

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[2] Appendix A of *AAG-LHI* contains useful information related to the incorporation of claim liabilities within the ASU 2018-12 measurement model in the section "Claim Liabilities Associated with Long-Duration Traditional Insurance Contracts."

The cash flow projection for the calculation of the liability for future policy benefits at transition includes expected future payment of claims incurred prior to transition and the existing liability for those claims needs to be included as part of the current reserve when calculating the net premium ratio at transition. The liability recorded for such future contingent payments on incurred claims, whether recorded as a separate disabled life reserve or embedded within IBNR, is part of the carryover basis used for measurement of the liability for future policy benefits.

Key to this concept is consistency between cash flow projections at transition and liabilities carried forward in the net premium ratio calculation. Where past due cash flows (i.e., cash flows that were due but not paid prior to transition) are included in the projection, the corresponding liability is included in the transition net premium ratio calculation. If past due cash flows are not included in the projection, the corresponding liability is excluded from the transition net premium ratio calculation. In any case, care must be taken to align the discount rate used to establish the liabilities included in the carryover basis to be consistent with the discount rate used to calculate the liability for future policy benefits. Though different approaches may be taken, they all must arrive at the same total liability at transition, and the same allocation between amounts recorded in retained earnings and AOCI, as a unified calculation under which the liability is calculated considering all cash flows associated with the contract. Companies have the choice of whether to deconstruct the liability into component pieces (e.g., reporting IBNR separately) but the total liability must be the same.

The same logic applies to other liabilities and assets (such as unpaid premiums) for cash flows that were due but unpaid at transition.

III.   Discount Rate Assumptions

Q 3.1: What interest rate is used to discount a liability for future policy benefits (FPB)?

A: ASC 944-40-30-9 specifies that "the liability for future policy benefits shall be discounted using an upper-medium grade (low-credit-risk) fixed-income instrument yield." Paragraph BC60 of the Basis for Conclusions to ASU 2018-12 states that the term "upper-medium grade (low-credit-risk) fixed-income instrument yield" is generally interpreted to mean a single-A credit rating.

Q 3.2: Is the discount rate a single rate or a yield curve?

A: Topic 944 does not specify whether the discount rate is a single rate or a yield curve, though the *AAG-LHI* (Appendix A, paragraph A.128) states that either could be appropriate. ASC 944-40-30-9 states that the discount rate should reflect "the duration characteristics of the liability." Use of a full discount rate curve presumably satisfies the requirement since the cash flow at each duration would be discounted at a rate that is appropriate for that duration. It might also be acceptable to discount all liability cash flows at a single rate—for example the A-rate, which reflects the average duration of the liability—but it is prudent for care to be taken to ensure that use of a single rate adequately incorporates the duration characteristics of the liability cash flows.

Q 3.3: If the discount rate is a single-A rate, which single-A rate should be used?

A: The selection of the discount rate that complies with the guidance is primarily based on the guidance in Topic 820 *Fair Value Measurement* of FASB Accounting Standards Codification related to fair value measurement. Briefly stated, this requires the maximum use of market-observable, relevant information in determining the discount rate assumptions.

Topic 944 does not specify which single-A rate should be used. Multiple ratings services might publish single-A yield curves, and there could be several single-A curves. Because ASU 2018-12 does not specify which of the several single-A possibilities to use, judgment is needed.

There might be multiple rating subgroups within the "upper-medium grade" classification. For example, ratings of A1, A2, and A3 could fit this definition. Again, there is no specific guidance as to whether the single-A rate used to discount the liability should be based only on "pure" A-rated bonds or some measure (e.g., average, median) that incorporates observed variations within upper-medium grade subcategories, as long as the rate meets the definition.

Market observable information is available from various data sources—for example, Moody's, Standard & Poor's, Bloomberg, Barclays Live, Reuters, and 144A Bond Index from Barclays. Companies should be consistent in the source used across the entity and from period to period.

Private-placement single-A rated bonds can have different rates than publicly traded single-A bonds. The ASU does not explicitly prohibit incorporating yields observed on private-placement bonds, though obtaining reliabl

e, observable rates on private placements may be difficult.

However, 944-40-30-9 states that "an insurance entity shall maximize the use of relevant observable inputs and minimize the use of unobservable inputs in determining the discount rate assumption." This guidance incorporates criteria consistent with the guidance related to the use of observable information included in Topic 820. This means that all relevant, observable information must be considered in arriving at the rate used. If the company incorporates private-placement bond data in developing A-rates, the standard of observability must be met. Returns on some private securities, known as rule 144A securities, may be market observable and are currently included in an AA curve used to discount pension liabilities.

Q 3.4: What discount rates are assumed for points beyond the observable yield curve?

A: Many insurance liabilities have cash flows that extend beyond the observable yield curve. For example, the observable single-A bond yield curve may extend for 30 years but insurance liabilities may have cash flows that go on for 60 years or more. This is directly an issue when a yield curve is used for discounting, but even if a single rate is used, ASC 944-40-30-9 states that the discount rate needs to reflect "the duration characteristics of the liability." So even if a single rate is used, rates beyond the observable yield curve will need to be considered in order to calculate the single rate.

ASC 944-40-55-13E provides some guidance on projecting the yield curve beyond the observable data. It states, "In determining points on the yield curve for which there are limited or no observable market data for upper-medium-grade (low-credit-risk) fixed-income instruments, an insurance entity should use an estimate that is consistent with existing fair value measurement in Topic 820, particularly for a Level 3 fair value measurement." Liquidity may be an additional lens through which to consider the market data cutoff point to the extent that it influences the relevance of the observable data for use in determining the yield curve. While in the U.S. this is less of a concern (observable and liquid periods are usually similar), this is particularly important for international economies (see Q 3.10).

ASC 820-10-35-52 states that "Level 3 inputs are unobservable inputs for the asset or liability" and ASC 820-10-35-53 states that "unobservable inputs shall reflect the assumptions that market participants would use when pricing the asset or liability, including assumptions about risk." This suggests that for extending the discount curve beyond observable points, the objective is to estimate rates that a market participant would use in pricing instruments.

A yield curve can be represented either as a series of spot rates or as a series of forward rates. In extending a yield curve, one typically decides which representation to extend directly, with the awareness that the other representation is dependent upon it. If directly extending the spot rate

curve, one might consider whether the associated forward rate curve is oddly shaped or difficult to explain, in which case an alternative method might be considered. An approach to extending the yield curve is often characterized by three choices: 1) a value for the ultimate long-term projected rate, 2) the duration at which the ultimate projected rate starts to apply, and 3) a method of interpolation between the last observable liquid rate and the ultimate long-term rate. There are many ways to make a determination.

The simplest approach is to keep the rate at the last observable liquid point constant—that is, by applying the last observable liquid rate (whether spot or forward) to all cash flows beyond that point. This last liquid point approach has the advantage of being simple and requiring few assumptions to be made. It sets the duration at which the ultimate projected rate starts to be the last observable liquid point and eliminates the need for any interpolation.

However, there are disadvantages to the last liquid point approach. The resulting rate might not be deemed to be a realistic long-term assumption. The key rate duration at the last liquid point will be very high, which reflects that the liability valuation will be very sensitive to small changes in the last liquid rate, since it will apply to all cash flows at that point and beyond.

The sensitivity of the valuation to small changes in the last liquid rate can be reduced by specifying an ultimate rate that is stable from one valuation to the next. The ultimate rate starts to apply well beyond the duration of the last observable rate and points on the yield curve between the last observable rate and the ultimate rate are determined through some form of interpolation. If this approach is used, assumptions are needed to set the ultimate rate and the duration at which it is reached. The approach used to grade from the last observable rate to the ultimate rate also needs to be selected. For example, if observable rates are available through 30 years, one option would be to grade from the 30-year rate to the ultimate rate assumption linearly over 20 years. Then the ultimate rate would be used for cash flows 50 or more years out. Of course, linear interpolation over 20 years is not the only possible approach. A different grading method could be used, or the grading period for linear interpolation can be adjusted based on the results/grading mechanics achieved by other grading methods prescribed by other frameworks. For example, the Smith-Wilson method is commonly used for Solvency II purposes and might be considered as a viable alternative here as well, or as a useful benchmark to validate a simpler technique.

Some factors that could be used to help guide the choice of an ultimate rate include:

- Historical nominal risk-free and upper-medium-grade interest rates;

- Historical real risk-free and upper-medium-grade interest rates;

- Current levels of nominal and real interest rates;

- Current and historical long-term inflation expectations;

- Current and historical spreads between risk-free and upper-medium-grade interest rates;

- Projections of long-term economic growth;

- Banker, economist, investment professional surveys;

- Decisions by regulatory bodies such as the International Association of Insurance Supervisors (IAIS) in extending the yield curve for regulatory purposes; or

- Data from internal or external deals.

In some instances, the derivatives market can provide information to help guide choices of unobservable long-term rates. For example, there may be very long-term rates implicit in some swap contracts. Such information needs to be used with care, however, because such derivatives may not trade in liquid markets and the terms of the derivatives may obscure the true, long-term interest rate that is implied. Also, derivatives generally trade based on risk-free rates, rather than upper-medium-grade rates.

The International Actuarial Association (IAA) sponsored a book, *Discount Rates in Financial Reporting: A Practical Guide*, authored by Milliman, Inc., which is a resource on the topic of discount rates. Actuaries may find this book to be a useful resource for discount rates considerations. However, because it was not written specifically as a resource for GAAP, care should be taken to ensure that ideas suggested therein comply with GAAP guidance.

Q 3.5: Is there a difference between the discount rate used to accrete interest on the liabilities for the income statement and the discount rate used to determine the value of liabilities on the balance sheet? What rates should be locked in as the interest accretion rate used to determine interest credited and net income?

A: Paragraph 944-40-35-6A (b) states that for measurement of the insurance liability subsequent to recognition:

Net premiums shall not be updated for discount rate assumption changes.

1. The difference between the updated carrying amount of the liability for future policy benefits (that is, the present value of future benefits and expenses less the present value of future net premiums based on updated cash flow assumptions) measured using the updated discount rate assumption and the original discount rate assumption shall be recognized directly to other comprehensive income (that is, on an immediate basis).

2. The interest accretion rate shall remain the original discount rate used at contract issue date.

Thus, the liability is calculated twice: once at the current discount rate (or discount rate curve) and once at the original discount rate (or discount rate curve). The original discount rate is used to determine interest accretion of the liability, which is included in net income, as well as the net premiums to be used in both calculations. The impact of remeasurement from the original, locked-in discount rate to the current discount rate is reported in accumulated other comprehensive income. So, the original discount rate is locked in at contract inception for use in determining future net income related to that contract.

Q 3.6: What rate is locked in as the interest rate used to determine interest accretion and net income?

A: ASC Topic 944 does not provide specific guidance on how to lock in the original discount rate for a cohort. First, consider the case of business that is newly issued after the transition date (see Q 3.7 for issues related to existing business at transition). If an equivalent level discount rate (i.e., not a curve of rates) were used to determine the initial liability—for example, if an A-rate reflecting the weighted average duration of the liability were used—then that rate could be locked in. If a yield curve were used to discount the initial liability, there are a number of options that are considered for locking in that curve, including:

1. Locking in the forward rate curve consistent with the initial discount curve. In future periods, the curve is shortened by dropping off the initial forward rates for periods that have passed. This has the effect of changing the spot rates.

2. Locking in the spot rate curve consistent with the initial discount curve. In future periods, the discount rate associated with a cash flow projected to occur on any particular date in the future is unchanged. The curve is shortened by dropping off the spot rates for periods that have passed. This has the effect of changing the forward rates.

3. Locking in a single effective yield that equates the initial liability (i.e., zero, unless the net premium ratio is capped at 100%) to the present value of projected benefits minus the present value of projected net premiums at contract inception. The single effective yield determined at contract inception is consistent with the fact that there is no AOCI adjustment at issue.

Each of these options has advantages and disadvantages. Forward curves are used in the theory of risk-neutral market-consistent valuation. But the interest accretion rate is an amortized cost concept that is inherently inconsistent with pricing in the financial market. In an economic environment with a typically upward-sloping yield curve, locking in the forward curve will typically result in less interest accretion to the liability (and thus more net income) in the early years and higher interest accretion (and thus less net income) in the later years, compared with the other approaches.

Locking in a spot curve is less of a concern with an amortized cost calculation because amortized cost is inherently inconsistent with current prices. Spot curves may produce a better match with net investment income from fixed-income assets backing the liability, especially if a laddered investment strategy is used.

A locked-in, single effective yield averages the yield curve over all cash flows and produces a single rate that can be locked in. Were one to calculate a theoretical adjustment to AOCI at inception under such a method, the adjustment would be zero—thus maintaining conceptual consistency with the fact that no adjustment is allowed at inception. Some practitioners find the locking-in of a single rate as attractive due to its apparent simplicity (i.e., only one rate needs to be tracked per cohort). Others find it to be less precise than other methods because it assigns the same discount rate to all cash flows irrespective of duration.

Locking in a single rate or a spot rate curve generally, though not always, produces more levelized interest accretion than locking in the forward rates. In a normally sloped yield curve environment, locking in a forward rate path will result in lower interest accretion (slower growth in the liability) in the early years as the liability interest accretions follow the upward-sloping forward curve.

The potential for slower accretion of interest to the liability in the early years can be viewed as a desirable attribute of locking in the forward rates. However, other considerations could impact the decision as well. When the yield curve does not follow a smooth, upwardly sloped pattern, forward rates can exhibit large fluctuations from period to period and may become negative for a time, resulting in similar, volatile accretions of interest. In addition, practitioners may want to consider the accounting treatments of assets to see how well they align with the interest accretion patterns under the various lock-in practices for liability measurement.

If a forward curve or spot curve is locked in, it is important that the curve be applied consistently in future years. For example, if a spot curve is locked in, when calculating interest accretion as of the end of policy year 3, cash flows one year out (i.e., occurring at the end of policy year 4) would be discounted at what was originally the year 4 spot rate, not the original year 1 spot rate.

A disadvantage of the single rate approach is that it might require some additional work to determine the effective yield at issue, essentially an internal rate of return calculation. For contracts that have cash inflows for a long period of time prior to the payment of benefits, the leverage created by the initial negative cash flows could produce high effective yields.

For example, assume a 5-year contract with the following parameters:

	1	2	3	4	5
Expected Premium (BOY)	1000	1000	1000	1000	1000
Expected Benefit (EOY)	0	0	0	0	4500
Discount Curve Spot Rate	2.0%	2.2%	2.4%	2.6%	3.0%
Discount Curve Forward Rate	2.0%	2.4%	2.8%	3.2%	4.6%

The initial liability for future policy benefits is zero with an initial ratio of net premiums to gross premiums of 81.35%. The effective yield that generates a starting reserve of zero using the same net premiums is 3.39%, which is higher than the highest spot rate on the discount curve, though not higher than the highest forward rate. This same phenomenon can be observed when locking in spot rates; the positive cash inflows in the early years, to which lower discount rates are applied, leverages the overall rate of interest accretion on the liability.

Q 3.7: Are there methods in addition to those discussed in the answer to Q 3.6 that might be considered for locking in the interest rate used for interest accretion and net income?

A: The guidance is not prescriptive, so other methods could be considered. However, in assessing other methods, one might consider whether the method accretes the initial, discounted value of individual cash flows to the nominal cash flow amount at the point at which it occurs. All the three methods described in Q 3.6 share this characteristic, though for the single effective yield method, this outcome is observed only if cash flows exactly match projected cash flows at issue. The result of adhering to an approach with this characteristic is that it eliminates from net income the reporting of any movements in liability values occurring from movements in interest rates. This aligns with the guidance, relegating such changes to other comprehensive income instead.

Adherence to this accretion criterion eliminates other ways of locking in discount rates that may have been considered. For example, were one to lock in a static yield (i.e., one that applies the same discount rate at each future measurement date to cash flows of a given nominal duration from the measurement date), the method would not accrete the discounted cash flows at issue to the amounts projected to be paid, even if the projected amounts never change after issue.

Q 3.8: If a cohort contains contracts issued over many dates, how is the locked-in interest accretion rate determined?

A: ASU 2018-12 does not prescribe the timing of locking in the discount rate, or rates, for new business for net income. However, language within ASU 2018-12 provides indications that the discount rate, or rates, used should reflect the timing of when the contracts within the cohort

were issued. 944-40-35-6A.a.1, for example, states that the revised net premium ratio used for remeasurement is based on "the original (that is, contract issuance) discount rate." The connection is drawn between the time when the contract is written, not when the cohort is established. Since there is no prescribed technique to bridge the gap between those dates, a variety of averaging techniques might be available to achieve the principle of contract inception. For example, for operational efficiencies, the rate existing at the beginning of the cohort may be considered. However, if the rate at the beginning of the cohort does not adequately represent the rates existing when contracts were written during the entire period due to volume or rate changes during the course of the cohort period, an average covering multiple points within the period during which the cohort is open for new contracts may be considered instead. In practice, any method that relies on a single, observed rate or curve at a particular point in time might not align closely enough with the rates at the time when contracts were issued unless most contracts are issued in a compressed timeframe within the cohort, or if rates are particularly stable throughout the period.

In moving toward a method that reflects rates that cover the period when the cohort's contracts are issued, daily curves could be averaged or representative points could be used. For example, if the cohort covers one quarter's worth of sales, the discount curve may be an average of the mid-month curves. More points could be chosen to include in the average, depending on operational concerns. If sales during the quarter are relatively smooth, a pure average of the yield curves may work well. If sales are "lumpy," a weighted average of yield curves (using sales volume as weights) could be considered.

Another alternative might be to lock in different curves for different subsets of sales. Using a quarterly cohort as an example, the first month's sales could lock in the discount curve from the middle of month 1, the 2nd month's sales could lock in the discount curve from the middle of month 2, and the 3rd month's sales could lock in the discount curve from the middle of month 3. A single ratio of net premiums to gross premiums would apply across the cohort. This method has the advantage that the locked-in interest accretion curve will be from a date relatively close to the date each contract was sold. At the extreme, individual discount rate curves could be locked-in daily to align with each contract's issuance date. This might be especially useful for institutional contracts, like PRTs, where transactions are infrequent and are priced using market rates at the time of the transaction.

In any case, the method selected should be shown to be appropriate for the contracts in the cohort and the specific facts related to the timing of contract issuance within the cohort and the interest rate environment existing while it is open to new business.

Q 3.9: What are considerations for the discount rate for in-force business at transition when the retrospective approach is not elected?

A: Q 3.1 to Q 3.8 treat aspects of discount rate guidance for business issued after the transition date. For business in-force at transition, ASU 2018-12 requires that the discount rate used in the calculation of transition carrying values should be used as the accretion rate for income statement purposes. Typically, this will be the rate(s) locked in at issue of the contracts. Where assumptions have previously been unlocked for loss recognition, this is the discount rate locked-in at the most recent loss recognition event. Where a company had applied current discount rates for long-tail claim liabilities, this is the discount rate used in the most recent estimate of the contract liabilities. While these rates are well-defined at the individual policy level, it is possible that individual policies with different discount rates may be aggregated into a single cohort on transition.

ASU 2018-12 does not specify what to do in this case. Locking in the existing individual policy discount rates by policy would adhere to the letter of the guidance. Where this is impractical, it may be possible to determine an aggregate rate (or curve of rates) that represents an aggregation of the different rates previously applied to the individual policies in the cohort. Presumably, the resulting rate (or curve of rates) would have to reproduce the sum of the individual policy reserves of the cohort at transition and provide a materially similar value at each subsequent measurement date to be considered faithful to the transition guidance.

For those who apply different discount rates to different blocks of business within a cohort, the transition guidance would seem to require that the company retain the different interest rates in a manner similar to that applied to its new business going forward. Whichever method is employed, the company should not generate an impact on retained earnings for changes in the discounting resulting on transition to ASU 2018-12, because this is the effect of retaining previously locked-in discount rates for in-force business. In addition, in no case should the method of locking in the interest rates at transition for future application be changed (*AAG-LHI*, Appendix A, paragraph A.133). For example, it would be inappropriate to change a single-rate assumption into an equivalent yield curve of locked in spot rates or forward rates, even if a company intends to lock in discount rate curves for new business.

Q 3.10: What discount rate should be used to discount cash flows of products that are denominated in foreign currencies?

A: If a company issues products that are denominated in currencies other than U.S. dollars, the company will likely need to discount cash flows using discount rates appropriate for the economy of that currency, consistent with the guidance in ASC 830, *Foreign Currency Matters*. The ASU 2018-12 requirements in 944-40-30-9 quoted in earlier answers of this section still apply. Therefore, such discount rates need to be "upper medium grade," based on sources that "maximize the use of relevant observable inputs and minimize the use of unobservable inputs," and "[reflect] the duration characteristics of the liability," concepts which all draw from ASC Topic 820, *Fair Value Measurement.* The remainder of this answer

addresses specific challenges in developing such rates from data available in foreign economies.

Few economies have the depth and liquidity in fixed-income securities as the U.S. markets. It may be necessary to consider the frequency, transparency, and orderliness of trading in certain maturities.

Single-A rates might exist at longer tenors (and occasionally at intermediate points) but trade at low volumes that are not considered reliable. Consistent with the principles outlined in ASC Topic 820, such publicly available data at those maturities cannot be ignored, but its lack of depth may make it less reliable than other sources and therefore its use in determining discount rates may be limited. The term last liquid point (LLP) is used to indicate the longest maturity at which a class of securities is traded frequently enough to yield reliable data. Observable single-A rates, where liquid, will generally serve as the most relevant source of data.

In some economies, non-government fixed-income securities might be observable only within a shorter range of maturities than government securities. Suppose, for example, there are observable and liquid single-A rates available through 20 years but observable and liquid risk-free rates available through 30 years. In this case, it could be possible to use the longer-term observable risk-free rates by adding an assumed spread to the risk-free rates at those periods. This spread can be taken from the longest observable upper medium grade rate, or the spread can grade to a long-term assumption.

For example, assume observable rates on government securities are available through 30 years and observable upper-medium grade rates though 20 years. The 20-year government rate is 4%, the 30-year government rate is 4.5% and the 20-year upper-medium grade rate is 5%. One approach would be to apply the 1% spread at 20 years to years 21–30. In this case, the assumed 30-year upper-medium grade rate would be 4.5% + 1% = 5.5%. Alternatively, there might be evidence that a valid long term spread assumption is 1.5%. In this case, the spreads applied to the observable government rates in years 21 through 30 could grade from 1% in year 20 to 1.5% in year 30. The assumed 30-year upper-medium grade rate would be 4.5% + 1.5% = 6%.

In determining the quality of a foreign fixed-income security or index of such securities, one interpretation is that a global equivalent scale should be used so that "upper-medium grade" is consistent with the definition used in the United States. In many economies, local agencies provide ratings of fixed-income securities issued in those economies. These local agencies often use scales that are systematically different (usually higher) than ratings that a global rating agency might give the same security on a global equivalent basis. The local ratings, however, tend to cover the securities more comprehensively than global rating agencies. If local ratings are used as a source of rate observations, it might be necessary to notch the ratings to be consistent with the global ratings. The notching could be based on comparing the local and global ratings where that is possible.

The government securities of a foreign economy are rated to reflect the sovereign risk of that economy. Global equivalent ratings of non-government securities tend to be no higher than the sovereign ratings of government securities within that economy. Therefore, the rating of corporate securities of a company is unlikely to exceed the rating of the government debt of the country in which the company is located.

In economies whose government securities are rated A or higher and have liquid public securities with global equivalent A or higher in some maturities, the same general approach as described in the Q 3.4 can be used to develop the observable portion of an A-discount rate curve, as for example in the following algorithm:

1. The government securities could be used to construct a curve up until the LLP for those securities.

2. Spreads of public corporate debt securities with global equivalent rating of A could be added up to the LLP applicable to those securities.

3. If the LLP in 2) is less than 1), as is often the case in foreign economies, the corporate spreads could be extrapolated to the end of the LLP of the government securities. (In this case, the observable portion of the curve corresponding to Q 3.3 is partially extrapolated using unobservable data).

Once the observable portion of the A-curve is constructed, the techniques outlined in Q 3.4 (ultimate forward or ultimate spot approach) may be used to extend the single-A curve to unobservable maturities.

If government securities are rated higher than single-A, but the corporate security market is not deep enough to support global equivalent spreads equivalent to single-A, one response might be to develop a spread over governments based on the U.S. economy, for example taking the ratio of U.S. A-rates to U.S. government securities. To better reflect the sovereign rating of the economy, a ratio adjustment that incorporates the sovereign debt rating of the country could be considered. For example, if the sovereign debt is rated AA, the spread adjustment could be [(U.S. Treasury + U.S. A spread)/(U.S. Treasury + U.S. AA spread) – 1] x sovereign debt rate].

If government securities are rated less than single-A, there might be no debt securities in the economy rated A on a global basis. One approach to deriving a single-A rate entails adjusting observable government rates with a negative spread that produces a global equivalent single-A rate. This could be done using the ratio approach outlined in the previous paragraph. Though some actuaries believe that the appropriate discount rates in this situation are the highest-quality fixed-income rates available in the economy (e.g., the government rates), this position conflicts with the provisions of ASC 820, which require the use of observable information and adjustment for other considerations, if necessary, to arrive at an upper-medium fixed-income yield, even if the necessary adjustments must be estimated because

observable information regarding the adjustments is not available. This point is covered in *AAG-LHI* (Appendix A, paragraph A.130) as well.

In working out how to develop rates in a foreign economy, one source to consider for potential approaches is pension accounting. Under GAAP, pension liabilities are required to be discounted using a "high-quality" fixed instrument yield, which is usually interpreted as AA-rated debt instruments. Pension liabilities also encounter this situation when the pension is denominated in a currency for which AA-rated instruments do not exist (or do not exist in a liquid market).

Another possibility is to look to swap rates in the relevant currency. If swap rates are regarded as being risk-free or AA quality, a spread may need to be estimated to increase the discount rate from the AA swap to a single-A rate to be used for discounting the insurance liability.

For some currencies, government bonds might be rated single-A and some corporate bonds might also be rated single-A. There is no requirement in ASU 2018-12 that either prohibits or requires the government bond rates to be included in the yield curve used to discount the liabilities. If the corporate single-A bond rates include a spread over the government bond rates, some actuaries believe that this spread is more consistent with the characteristics of the insurance liability and so these actuaries generally believe it would be preferable to exclude the government bond rates from the insurance liability discount rate. However, the requirement that all observable, relevant information be used should also be considered.

IV. Claim Reserves and Long-Duration Health Insurance

Scope
Q 4.1: Does ASU 2018-12 affect health insurance contracts?

A: ASU 2018-12 applies to the sections of ASC Topic 944 that address long-duration contracts. As such, ASU 2018-12 affects accounting for health insurance contracts such as LTC and individual long-term disability, including base policies and riders, that are classified as long-duration. ASU 2018-12 does not affect health insurance contracts that are classified as short-duration.

Topic 944 classifies insurance contracts as short-duration or long-duration depending on whether the contracts are expected to remain in force for an extended period of time during which the parties have limited or no rights to unilaterally alter the terms or price of the coverage. Health insurance contracts may be short-duration or long-duration. For example, Medicare Advantage contracts are generally classified as short-duration, while Medicare Supplement contracts are often classified as long-duration, with the different classifications arising from different policyholder renewability rights between the two types of contracts.

Prior to the adoption of ASU 2018-12, DAC assets, claim liabilities, and active life reserves (ALRs) were typically recorded relating to long-duration health insurance contracts. There were, however, some long-duration health insurance contracts for which a positive active life reserve did not develop because of the expected pattern of premiums and benefits at the level the reserves are calculated. For these contracts, an unearned premium reserve was often the only reserve recorded for contracts not in a disabled life status.

It is also important to note that the distinction between ALR and disabled life reserve (DLR) is not an explicit GAAP concept. ALR and DLR have traditionally been mapped to GAAP's "liability for future policy benefits" and "liability for unpaid claims," respectively, both of which are defined in the ASC 944-40-20 Glossary.

Q 4.2: Does ASU 2018-12 change the definition of "short-duration" and "long-duration" in the classification of health insurance contracts?

A: No.

Q 4.3: Does ASU 2018-12 affect long-tail claim liabilities of short-duration contracts?

A: No. As noted in Q 4.1, short-duration contracts are not in scope of the ASU 2018-12 and the long-tail claim liabilities are considered a component of the overall contract. Therefore, the new standards do not change the accounting treatment of long-tail claim liabilities arising from short-duration contracts.

Q 4.4: Does ASU 2018-12 apply to long-duration contracts that had no active life reserve under prior GAAP standards?

A: Yes, the new standards apply to all long-duration contracts. Whether a long-duration contract had an ALR under GAAP prior to the adoption of ASU 2018-12 has no bearing on the scope of the new standards.

Consistent with GAAP prior to its adoption, ASU 2018-12 does not exempt any long-duration contracts from an ALR calculation, but it does require regular review and update of assumptions at least annually. Because assumptions, with the exception of discount rates and the possible exception of expenses, are no longer fixed at issue, an actuary can no longer rely on an initial demonstration that active live reserves will not develop during the life of the business.

In considering the effect of the ASU on the relationship between ALR and DLR, *AAG-LHI* states that "'future benefits to be paid to or on behalf of policyholders and certain related expenses' represent all payments under the contract, including future expected claims and claims for which the disability, morbidity, or other insurance event has occurred but for which claims have not yet been paid" (Appendix A, paragraph A.17). Though the paragraph goes on to say that "entities may elect to present the incurred claim component of the liability measurement separately from the liability for future policy benefits as a claim liability," the DLR is a part of the liability for future policy benefits.

Though ALR and DLR were historically recorded separately, they are both part of a single liability for future policy benefits, so the prohibition of a negative liability (ASC 944-40-30-7A) applies to the combined liability for future policy benefits, not to the parts separately.

Together, the assumption update requirement and the fact that the measurement methods apply to the contract as a whole and not to the ALR and DLR individually suggests a reexamination of reserving practices for most products that have produced no ALR under the earlier standards.

Though the new standard does not provide specific guidance on grouping of contracts into reserve cohorts, other than stating that the cohorts may cover no more than one year's issues of contracts, actuaries might include the absence of ALR or the expectation of no ALR among the policy characteristics and attributes considered when assigning contracts to cohorts at transition or at issue of new contracts.

Long-tail claim liabilities

Q 4.5: How does ASU 2018-12 affect the calculation of long-tail claim liabilities of long-duration contracts?

A: Like DLR, "long-tail claim liability" is not an explicit GAAP concept. In some circumstances, "disabled life reserve" and "long-tail claim liability" might be used interchangeably. Regardless of whether they have the same meaning in any specific context, GAAP considers them to be part of one liability for future policy benefits for long-duration contracts, and that liability for future policy benefits also includes any ALR (see Q 4.4). Under this guidance, long-tail claim liabilities are now measured under the updated standards. The total liability, therefore, is the same irrespective of whether calculations are performed in pieces (e.g., claim liability calculated first then embedded as an input into an aggregate liability for future

policy benefits) or as a fully integrated liability for future policy benefits for all policies in force, and regardless of whether policies are in an active life or claim status.

Q 4.6:   Do discount rate provisions of ASU 2018-12 for traditional long-duration contracts apply to claim liabilities and IBNR?

A: Yes—because expected future payments on disabled lives are considered "future benefits" and part of the overall liability for future policy benefits, the discount rates used to calculate long-tail claim liabilities and IBNR must comply with the guidance provided in ASU 2018-12 for discounting the liability for future policy benefits. Additionally, these rates must be the same as the rates applied to the cohort in which the contract resides. The discount rate does not change when the contract moves from the active-life to the claim-payment phase. Similarly, the guidance relating to the application of current discount rates for the purpose of recording the current value of liabilities on the balance sheet (i.e., the adjustment to reserves recorded through other comprehensive income) applies to long-tail claim liabilities arising from long-duration contracts as well.

However, repeating a point made in Q 4.3, the guidance related to discount rates in ASU 2018-12 does not apply to claim liabilities arising from short-duration contracts.

Q 4.7:   Is it acceptable to include the present value of amounts not yet due on claims incurred in the basic reserve rather than set up a separate claim liability?

A: Yes, *AAG-LHI* (as discussed in Q 4.5) does not distinguish between future benefit payments on claims to be incurred in the future and future benefit payments not yet due on claims incurred in the past, except optionally for presentation. Based on this interpretation, all "future policy benefits to be paid to or on behalf of policyholders" are included in the calculation of the liability for future policy benefits (ASC 944-40-25-8). A company may choose to report this aggregate reserve as a single number, without distinguishing between the portion attributable to disabled lives.

One consequence of this practice could be that the "Liability for Unpaid Claims," defined in the ASC 944-40-20 glossary to be "[t]he amount needed to provide for the estimated ultimate cost of settling claims relating to insured events that have occurred on or before a particular date (ordinarily, the balance sheet date)" is limited to benefit payments that are already past due (i.e., it does not include amounts that will be due at future dates subject to future contingencies, such as continued disability). However, it also appears to accommodate an interpretation under which the Liability for Unpaid Claims is more broadly defined as including all future benefit payments on lives that are currently disabled.

Q 4.8:   Does the recognition of long-tail claim liabilities as part of the liability for future policy benefits mean that expected term for DAC amortization includes the expected claim payment period for contracts with the potential for long-tail claims?

A: Yes, *AAG-LHI* advises that "the expected term of the contract for the amortization of capitalized acquisition costs is the period for which there are contractual cash flows, including those related to claim settlement" (Appendix A, paragraph A.68).

Q 4.9:   Does the recognition of long-tail claim liabilities as part of the liability for future policy benefits rather than as a liability for unpaid claims suggest that contracts with the potential for long-tail claims be classified as limited-payment contracts?

A: No, in contrast to the clarification of "future policy benefits" and "expected term," there is no new guidance regarding classification of contracts as "limited-payment." Because ASU 2018-12 did not alter the definition and since there is no new guidance on interpretation of the definition, classifications developed at contract inception remain appropriate.

Updates for actual experience and assumption changes
Q 4.10:   When updating the net premium ratio and disclosing updates, what is actual experience for new claims where future benefit payments are contingent upon a continuing claim status?

A: When analyzing how the estimate of future cash flows for claim payments in a cohort has changed, there will be components relating to actual experience differences (e.g., the fact that more people satisfied the criteria to make a claim than had been expected) and assumption updates (e.g., use of a new mortality table). The boundary between these two classifications may sometimes blur, causing challenges in preparing the required disclosures.

According to ASC 944-40-35-6A(a), the net premium ratio must be updated for "actual historical benefits" and "updated remaining expected benefits." This paragraph does not refer to "actual experience." According to *AAG-LHI* (Appendix A, paragraph A.19),

> for purposes of determining the net premium ratio in accordance with FASB ASC 944-40-35-6A, 'actual historical benefits and related actual (if applicable) historical expenses' include benefits paid. That is, the ultimate payout amount of a disability, LTC, or other insurance claim reflects the amount and timings of the final historical benefit payments. Estimates of future claim payments and updates to those estimates are part of 'updated remaining expected benefits and related expenses.'

The implication is "actual historical benefits" includes only the amount of benefits paid. Projecting the new claims using disabled life assumptions rather than active life assumptions on policies that entered claim status during the period produces "updated remaining expected benefits."

Disclosure guidance is included in ASC 944-40-55-13I, which distinguishes between the "effect of actual variances from expected experience" and the "effect of changes in cash flow assumptions." Note the difference in wording—"actual variances from expected experience" versus "actual historical benefits," and "changes in cash flow assumptions" versus "updated remaining expected benefits." Because a new claim is an actual event, it represents actual experience, even if its effect is predominantly on "updated remaining expected benefits."

The distinction between the effects of "actual variances" and "changes in cash flow assumptions" can still be complicated when there is a change in cash flow assumptions. This raises the question of whether the new claims should be measured first under and against prior assumptions to determine the "actual variance" and then included in the assumption change, or

whether the assumption change should be measured first, and then new claims measured under and against the new assumptions. Because the guidance does not require a specific order of changes in the roll-forward disclosure, each company will need to determine the appropriate ordering and apply its decision consistently.

The distinctions made in ASC 944-40-35-6A(a) and 55-13I do not affect the separate presentation of remeasurement gain required by ASC 944-40-45-4 because it includes the combined effects of all changes.

Q 4.11: For continuing claims, how do changes in the disabled life portion of the liability affect the net premium ratio and disclosure of the updates?

A: As noted in Q 4.10, updates to the net premium ratio depend on "actual historical benefits" and "updated remaining expected benefits." For continuing claims, only benefit payments are included in "actual historical benefits." Any change in the liability, including any reduction corresponding to actual benefit payments, is part of "updated remaining expected benefits."

For new claims, "actual variances from expected experience" become relevant when preparing the liability roll-forward disclosure. The key concern is how actual benefit payments and actual changes in the liability relate to expected benefit payments and expected changes in the liability. This, too, can be complicated when there is a change in cash flow assumptions since it requires some ordering of the two. Again, the guidance does not specify the order of such changes and each company will need to determine the appropriate ordering and apply its decision consistently.

See Q 4.13 for some techniques that have been proposed for dealing with changes in the portion of the liability associated with disabled lives prior to final settlement of a claim.

Q 4.12: How does the exit from claim status by death or recovery affect the net premium ratio and disclosure of the updates?

A: The exit from claim status affects the net premium ratio in the same way as any other change in the claim cash flows. The actual claim payments in the current period are "actual historical benefits." Release of liability for actual claim payments and for termination of the claim status is part of the update to "remaining expected benefits."

Disclosure looks at "actual variances from expected experience." Again, separating these effects from the effects of "changes in cash flow assumptions" depends on ordering of their measurement, and each company will need to determine the appropriate ordering and apply its decision consistently.

Q 4.13: Is there a correct or best way to incorporate changes in claim liabilities when updating the net premium ratio?

A: Yes—under AICPA guidance, the correct way to incorporate changes in a claim liability into the net premium ratio is by including all cash flows, historic and projected, directly into the net premium ratio calculation without an interim step of calculating a separate claim liability. This is consistent with the concept, as articulated in Appendix A of *AAG-LHI*, paragraph A.17, that the

liability for future policy benefits "represent all payments under the contract, including future expected claims and claims for which the disability, morbidity, or other insurance event has occurred but for which claims have not yet been paid."

When the method described by *AAG-LHI* is impractical, various techniques have been proposed to include changes in the claim liability in the net premium ratio. Some of these were already in use before ASU 2018-12 for unlocking universal life benefit ratios. Other than the distinction between actual experience and assumption changes (see Q 4.10 to Q 4.12) updates to the net premium ratio do not require a clear split between "actual historical benefits" and "updated remaining expected benefits." Consequently, there is no single "correct" way to incorporate claim liability changes into the net premium ratio for portions of the liability that are calculated in a separate step, provided that whatever method is chosen generates the single, correct result. What constitutes the best way may depend mostly on practical considerations. Because the net premium ratio does not require a split between actual and projected benefits, separately calculated claim liabilities can be treated as "actual" benefits in the numerator of the net premium ratio without distorting the result. Here are three possible approaches:

- Add the present value of actual benefit payments and the PV of the current claim liability.
- Increase the previously determined PV of actual experience for new claim payments and the change in the claim liability.
- Recalculate prior claims as of their incurred date to include actual benefit payments on those claims and the corresponding change in the remaining PV of future benefit payments.

Other techniques may also be possible.

With proper discounting, the end result will not depend on the technique used to include changes in the claim liability. See Q 4.6 for determining the discount rate in the calculation of claim liabilities in the first two approaches or the recalculation of incurred claims in the third approach.

Q 4.14: How do the requirements to incorporate actual experience and assumption changes into cohort-level reserve calculations impact the calculation of claim reserves?

A: For claim reserves that are calculated on an individual claim basis, these seriatim reserves are associated to the cohort based on the underlying policy from which the claim was generated. Other than conforming to the discount rate requirements, no specific changes to the calculation of seriatim claim reserves are required.

For reserves that are calculated on an aggregate basis, for example IBNR, actuaries would develop an allocation methodology so that these reserve amounts can be reflected in cohort-level calculations. Because GAAP sees only one liability for all future policy benefit payments, there is no prescribed methodology to allocate the results of aggregate calculations. Some possible methods include:

- No changes to the calculation methodology of the aggregate reserve amounts, but development of an allocation to annual cohort by estimated exposure.

- Development of IBNR through completion factors based on recent paid claim experience by cohort.
- First-principle development based on expected claims at the policy level, then aggregated to cohort level.

For any approach, actuaries could consider the extent to which any discounting is applied in the reserve calculations, and the discount rate(s) used are adapted as necessary to conform to the prescribed discount rates.

Other concerns
Q 4.15: How does ASU 2018-12 affect the accounting for waiver of premium?

A: Conceptually, the ASU does not require any change in the accounting for waiver of premium. Practically, the requirement to use current assumptions and reflect actual experience adds complexity to waiver of premium as well as to other features of the contracts.

Under GAAP prior to the adoption of ASU 2018-12, practice had evolved whereby waived premium could be included as both a claim payment and a premium payment or it could be excluded from both. Approximate methods and practical expedients were common. Under ASU 2018-12, either of the aforementioned methods could be applied, provided care is taken to ensure internal consistency in its handling. If waived premiums are included in any part of the net premium ratio and reserve calculations, they must be included in all parts (claims and premiums, actual and projected). If they are excluded from any of those elements, they must be excluded from all.

Q 4.16: How does ASU 2018-12 affect accounting for premium rate increases on guaranteed renewable contracts?

A: Actual experience and future assumptions must reflect the effects of approved premium rate increases.

Projections should also include assumptions about future premium rate increases and the effect of future rate increases on future policyholder behavior. These best estimate assumptions are based on actuarial judgment considering, for example, actual and expected claims experience and the likelihood that increases of a projected amount will be approved and implemented.

Transition
Q 4.17: How do the transition provisions in ASU 2018-12 affect long-tail claim liabilities?

A: The transition provisions for long-tail claim liabilities are the same as for the traditional liability for future policy benefits and the "carrying amount" for net premium measurement (ASC 944-40-65-2(d)(2)) is the total of the existing claim liability and ALR. Because GAAP regards future claim payments as future benefits regardless of when a claim is (or was) incurred (see Q 4.4), a company that chooses to present active and disabled life reserves separately may experience changes in both reserves at transition. The total liability would not change, however, unless the net premium ratio is capped at 100%.

In principle, transition combines active and disabled lives into a single calculation pivoting on the combined liability. (See Q 4.18 for information about discount rates at transition.) A decision to present them separately would require a separate calculation of, or allocation to, the claim liability.

Given the net premium ratio's dependence on actual experience and assumption changes for both active and disabled lives, separate calculations of ALR and DLR might require, at transition and at times following transition, a demonstration that the results do not differ materially from the one-liability standard.

Q 4.18: *How does modified retrospective transition work if active and disabled life reserves were using different discount rates previously?*

A: According to ASC 944-40-65-2, "an insurance entity shall retain the discount rate assumption that was used to calculate the liability immediately before" transition. *AAG-LHI* advises that this provision "extends to claim liabilities" and that "transition may effectively be achieved by computing a weighted average rate" or "an entity may retain the existing separate transition date discount rate" but notes that "claims reported after the transition date would, instead, be measured using the transition date liability for future policy benefits discount rate" (Appendix A, paragraph A.22). That final stipulation recognizes that, in calculating the NPR for subsequent measurements, separate discount rates are fixed for individual contracts within a cohort and do not depend on the claim status of a contract.

Actuaries choosing to maintain separate discount rates within a cohort would also ensure that the carried over rates do not change when a contract moves into or out of a claim status. Once the contracts in a claim status at transition have all terminated, the claim liability discount rate carried over at transition will no longer be required or even allowed for discounting future benefits of the remaining contracts. Instead, cash flows from claims incurred after transition will use the discount rates associated with the contracts prior to going on claim.

Another possibility is to determine a single average discount rate. Liability and income projections using a single average discount rate, when compared to projections using separate rates, "should produce substantially similar but not necessarily equal results for the total policyholder liability as of each reporting date, and total income, expense, and other comprehensive income in each period" (*AAG-LHI*, Appendix A, paragraph A.24). Where a company uses discount rates with a durational shape, a number of curves could satisfy this criterion, so care should be taken to construct a shape of the curve that is similar to the shape of the existing curves.

V.   Limited-Payment Contracts

Q 5.1:   What characteristics of limited-payment contracts are subject to ASU 2018-12, and what special considerations apply to them under the new guidance?

A: Contracts known as "limited-payment" are fixed-term, long-duration insurance contracts for which fixed premiums are paid over a time period less than the period over which benefits are provided. ASU 2018-12 does not change the definition of "limited-payment contracts" in the ASC 944-40-20 Glossary:

> Long-duration insurance contracts with terms that are fixed and guaranteed, and for which premiums are paid over a period shorter than the period over which benefits are provided. Limited-payment contracts subject the insurer to risks arising from policyholder mortality and morbidity over a period that extends beyond the period or periods in which premiums are collected.

Some examples of limited-payment contracts are single premium whole life, X-pay whole life (e.g., 3-pay, 5-pay, 10-pay) or premium pay-to-65. Life-contingent payout annuities are also examples of limited-payment products. According to ASC 944-20-15-11, the scope also includes "limited-payment participating and limited-payment nonguaranteed-premium contracts that are not, in substance, universal life-type contracts."

Limited-payment contracts are subject to many of the same changes under ASU 2018-12 that apply to traditional contracts, such as recurring premium whole life. However, because there are two liabilities to track—the liability for future policy benefit and a deferred profit liability (DPL)—additional considerations apply. The DPL for these products is not new under ASU 2018-12, and the ASU does not change any guidance relevant to the establishment of DPL. ASC 944-40-65-2 subparagraphs n, o, and p address the treatment of DPL at transition.

Q 5.2:   What are the mechanics of updating the liability for future policy benefits and DPL for experience and assumption changes for limited-payment products?

A: This answer addresses the treatment for policies issued after the transition date. For treatment of policies in force at transition, see Q 5.3.

For limited-payment contracts, there are two interrelated liabilities that require at least annual updating under ASU 2018-12: the liability for future policy benefits and the DPL. The liability for future policy benefits establishes the foundational liability for the contracts and follows the same mechanics as applied to traditional long-duration insurance contracts. The DPL defers profits generated over the premium paying period and amortizes them over the life of the contracts using an appropriate measure of in force as an amortization basis. See Q 5.7 below for discussion of the in-force measurement basis. Both liabilities are calculated at the cohort level using the same aggregation principles that are applied to traditional contracts, as explained in Section I.

As in GAAP prior to the adoption of ASU 2018-12, the profit to be deferred in any period is the difference between the gross premium and the net premium received in that period (ASC 944-605-25-4A). An amendment to ASC 944-40-30-15, however, removes acquisition costs and other costs that are required to be expensed as incurred, such as policy maintenance costs from the liability for future policy benefits calculations. That change effectively removes them from the net premium used in determining the amount of profit to defer.

ASU 2018-12 establishes a discounted present value calculation for liability for future policy benefits and amortized accumulated value calculation for DPL. Let FPB denote the liability for future policy benefits. At any valuation date:

    (1) FPB = Present Value (PV) (benefits and claim costs) minus (if applicable) PV(net premiums after the valuation date), where net premiums equal gross premiums times a net premium ratio which is updated at least annually with retrospective remeasurement as of the contract issue date.

    (2) DPL = Accumulated deferrals prior to and including the valuation date minus accumulated amortization, where "deferrals" equals the difference between gross and net premium, and "amortization" equals the product of the measure of in force policies and an amortization ratio which is updated at the same time as the net premium ratio.

The DPL has an equivalent prospective formula, which may prove helpful in some processing:

    (3) DPL = (amortization percentage) times PV (future amortization basis)
           minus (one minus the net premium ratio) times PV (future gross premiums)

ASU 2018-12 mandates that the net premium ratio and DPL amortization rate in these formulas are updated for actual experience and current cash flow assumptions at least annually. For business issued after the transition date, an upper-medium grade rate of appropriate duration is established as the discount rate at issue and locked in. This rate is used in all subsequent updates of the net premium ratio and amortization percentage and is the accretion rate used in calculating net income. At each valuation, an adjustment is recorded through other comprehensive income representing the change in the liability for future policy benefits from discounting the projected benefits and net premiums with the current period upper-medium grade fixed-income instrument yield instead of the locked-in discount rate. No such adjustment is made to the DPL (see Q 5.10).

For business issued after the transition date, the following algorithm could be used for updating the liability for future policy benefits and DPL at a valuation date T after the inception of the business cohort (time 0 for this discussion). This is discussed in two cases: a) single premium, and b) multiple but limited-payment premium, although the same general formula applies to each case. The cases are separate for illustration purposes. In both cases, deferrable acquisition expenses and DAC are not presented, though they would be deferred and amortized consistent with the methods applied to any other long-duration contracts under ASU 2018-12. Considerations that apply at transition are discussed in Q 5.3.

Case 1: Single premium issued after transition date

In this case, although the liability for future policy benefits given by formula (1) above may be calculated at valuation date T without considering past experience, it is still necessary to perform calculations at time 0 in order to properly determine the DPL at time T ("DPL(T)").

   i.   First, determine whether there is a DPL. Calculate the net single premium (the PV of benefits and claim expenses at time 0) using actual cash flows from time 0 to time T and current cash flow assumptions as of time T thereafter. If this amount equals or exceeds the gross premium received at time 0, set DPL0 (the DPL calculated as at time 0 but using information known at time T) equal to 0 for input to the next step. Otherwise, set DPL0 as the difference between the gross and net single premiums.

   ii. If DPL0 is greater than 0, calculate the amortization percentage that applies at time T by solving for the amortization percentage K(T) =DPL0/PV(measure of in force policies). The present value uses actual in force from 0 to time T, and in force projected using current cash flow assumptions as of time T thereafter.

   iii. Set FPB(T) as the PV(benefits and claims expenses) from time T. Set DPL(T), the DPL at time T, as the amortized value of DPL0 at time T given by formula (2) from earlier in this answer, or alternatively it may be calculated prospectively from time T using formula (3).

In the above algorithm, the DPL may change between zero and non-zero from one valuation date to another if experience variances or assumption updates change the outcome of step 1.

Example 1 shows the calculations performed at issue and two years later, in a scenario in which mortality increases to 110% of mortality expected at issue in year 2 and is assumed to continue at that level in the liability for future policy benefits and DPL update at the end of year 2.

Example 1: single premium policy issued after transition date

Calculations at Issue

FPB NPR	89.54%
DPL amort	0.042%
discount rate:	0%

	Duration	Premium	claims	FPB	DPL	earnings expected from Issue
PV		100000	400	358		42
	0		400		358	42
	1	10000		29	330	38	4.2
	2	10000		33	296	33	4.2
	3	10000		36	260	29	4.2
	4	10000		36	224	25	4.2
	5	10000		36	188	21	4.2
	6	10000		36	152	17	4.2
	7	10000		38	114	13	4.2
	8	10000		38	76	8	4.2
	9	10000		38	38	4	4.2
	10	10000		38	0	0	4.2

Update for assumps and exp at end of duration 2

FPB NPR	97.78%
DPL amort	0.009%
discount rate:	0%
Experienced and assumed mortality increase	10.0%

	Duration	Premium	claims	FPB	DPL	Earnings recalc from issue	FPB dur 0,1 historical dur 2-10 projected	DPL dur 0,1 historical dur 2-10 projected	earnings dur 0,1 historical dur 2-10 projected
PV		100000	400	391		9			9
	0		400		391	9	358	42	
	1	10000	0	29	363	8	0.9	330	38	4.2
	2	10000	0	37	326	7	0.9	326	7	-2.4
	3	10000	0	40	286	6	0.9	286	6	0.9
	4	10000	0	40	247	5	0.9	247	5	0.9
	5	10000	0	40	207	4	0.9	207	4	0.9
	6	10000	0	40	167	4	0.9	167	4	0.9
	7	10000	0	42	125	3	0.9	125	3	0.9
	8	10000	0	42	84	2	0.9	84	2	0.9
	9	10000	0	42	42	1	0.9	42	1	0.9
	10	10000	0	42	0	0	0.9	0	0	0.9

Case 2: Multiple premium limited-payment issued after transition date

In this case, there are deferrals after the inception date to consider.

i. Calculate the net premium ratio, PV(benefits and claim expenses) divided by the PV (premiums) as of the inception date using actual cash flows from time 0 to time T and current cash flow assumptions as of time T thereafter. The discount rate is the discount rate established at inception date. If NPR(T) exceeds 1, it is capped so that net premiums equal gross premiums.

ii. Solve for the amortization percentage K(T) such that the K(T) = PV(the excess of gross premiums over net premiums) / PV(measure of in force policies). The present values use actual cash flows from 0 to time T, and cash flows projected using current cash flow

assumptions as of time T thereafter. When net premiums equal gross premiums, there is no profit margin to defer; DPL and K(T) will both be 0.

iii. FPB(T), the liability for future policy benefits at time T, is then given by formula (1) above. If time T is after the premium paying period in this formula, there is no net premium offset. Set DPL(T) as the accumulated value of deferrals net of amortization as in formula (2), or equivalently use the prospective formula (3) from time T.

Note that in the above algorithm, the DPL may change between zero and non-zero from one valuation date to another if experience variances or assumptions updates change the outcome of step 1. DPL(T) is 0 if and only if NPR(T) is 1.

Example 2 shows the calculations performed at issue and two years later, in a scenario in which mortality increases to 110% of mortality expected at issue in year 2 and is assumed to continue at that level in the update of the liability for future policy benefits and DPL update at the end of year 2.

Example 2: multi-pay premium policy issued after transition date

Calculations at Issue

FPB NPR	90%
DPL amort	0.042%
discount rate:	0%

Duration	Premium	claims		FPB	DPL	earnings expected from Issue
PV	100000	400	358			42
0				0	0	
1	10000	80	29	43	4	4.2
2	10000	80	33	82	8	4.2
3	10000	80	36	117	13	4.2
4	10000	80	36	153	17	4.2
5	10000	80	36	188	21	4.2
6	10000		36	152	17	4.2
7	10000		38	114	13	4.2
8	10000		38	76	8	4.2
9	10000		38	38	4	4.2
10	10000		38	0	0	4.2

Update for assumps and exp at end of duration 2

FPB NPR	97.78%
DPL amort	0.009%
discount rate:	0%
Experienced and assumed mortality increase	10.0%

Duration	Premium	claims		FPB	DPL	Earnings recalc from issue	FPB dur 0,1 historical dur 2-10 projected	DPL dur 0,1 historical dur 2-10 projected	earnings dur 0,1 historical dur 2-10 projected
PV	100000	400	391			9			9
0				0	0	0	0	0	0
1	10000	80	29	50	1	0.9	43	4	4.2
2	10000	80	37	91	2	0.9	91	2	-2.4
3	10000	80	40	130	3	0.9	130	3	0.9
4	10000	80	40	168	4	0.9	168	4	0.9
5	10000	80	40	207	4	0.9	207	4	0.9
6	10000		40	167	4	0.9	167	4	0.9
7	10000		42	125	3	0.9	125	3	0.9
8	10000		42	84	2	0.9	84	2	0.9
9	10000		42	42	1	0.9	42	1	0.9
10	10000		42	0	0	0.9	0	0	0.9

Q 5.3:   What are the mechanics of updating the liability for future policy benefits and DPL for experience and assumption changes for limited-payment policies in force at transition?

A: For limited-payment contracts in force at transition, for each aggregation (cohort) of limited-payment business there is a DPL (possibly zero) and liability for future policy benefits as last calculated under GAAP prior to ASU 2018-12. There may also be DAC, if the premium paying period has not expired at transition. Any shadow adjustment that might have applied to the liability for future policy benefits is removed. These values are referred to as "FPBcarry" and "DPLcarry." Assume these amounts are greater than or equal to zero in this answer; other questions in this section address exceptional situations. In addition, the discount rate to be used in NPR calculations and income statement liability accretion is the rate originally locked-in for

the policies. This is referred to as the "locked-in discount rate." See Section 3 for considerations related to determining the locked-in discount rate upon aggregation of contracts at transition.

The discussion below includes two illustrative cases. In case 1, the transition date is after the date of last premium receipt, in which case there is no net premium ratio to consider. In case 2, premiums are due after the transition date, in which case there is a net premium ratio to update at least annually each year after the transition date, even for valuation dates that fall after the date the cohort becomes fully paid up.

First, outline the calculations *at the transition date.* Then generalize this to the case where the valuation is at some time, T, after the transition date.

Calculations at transition date

Case 1: No premiums due after the transition date.

In this discussion, time 0 refers to the transition date. The algorithm outlined in Q 3.2 then becomes:

  i.   Using the locked-in discount rate and current cash flows from the transition date, determine the present value of benefits and expenses at the transition date. This amount becomes the liability for future policy benefits at transition: FPB0

  ii. Next, DPL0 is determined as: DPL0 = max(0, the excess of the sum of FPBcarry and DPLcarry over FPB0). This formula preserves the total carried liability at time 0, unless FPB0 exceeds the total liability carried over, in which case there is a retained earnings charge and the DPL0 is 0.

If DPL0 is greater than zero, the company also calculates the amortization percentage K(0) = DPL0 ÷ PV(measure of in-force policies) for use in subsequent valuation dates until there is an update for assumptions and/or experience. The PV uses the locked-in discount rate.

Example 3: in force at transition, no premium expected after transition

				Carried over balances		
				FPB		375
DPL amort	0.042%			DPL		25
discount rate:	0%					

	Duration		Premium	claims	FPB	DPL	earnings expected from transition
PV			100000	0	358		42
	0					358	42	
	1		10000	0	29	330	38	4.2
	2		10000	0	33	296	33	4.2
	3		10000	0	36	260	29	4.2
	4		10000	0	36	224	25	4.2
	5		10000	0	36	188	21	4.2
	6		10000		36	152	17	4.2
	7		10000		38	114	13	4.2
	8		10000		38	76	8	4.2
	9		10000		38	38	4	4.2
	10		10000		38	0	0	4.2

Case 2: Premiums due after the transition date

If premiums are expected after the transition date, there is a net premium ratio to consider. The algorithm follows ASC 944-40-65-2, subparagraphs n, o, and p.

i. Using the locked-in discount rate and best estimate cash flows from the transition date, calculate the NPR(0) as the ratio of (a) PV(benefits and claim expenses) less FPBcarry divided by (b) PV(gross premiums). If NPR(0) is greater than 1, it is capped at 1. Then FPB0 equals PV(benefits and claim expenses) less the product of NPR(0) and PV(gross premiums). Note that FPB0 equals FPBcarry if NPR(0) is less than 1 but exceeds FPBcarry if NPR(0) is capped at 1.

ii. DPL0 is determined as: DPL0 = max(0, the excess of the sum of FPBcarry and DPLcarry over FPB0).

iii. The company also calculates the amortization percentage, K(0) = [DPL0 + (1 – NPR(0)) × PV(gross premiums)] ÷ PV(measure of in-force policies), to amortize DPL in subsequent valuation dates until there is an update for assumptions and/or experience.

Calculations at time T after transition date

Example 4: in force at transition, premium expected after transition

At transition		Carried balances	
FPB NPR	83%	FPB	151
DPL amort	0.051%	DPL	8
discount rate:	0%		

	Duration	Premium	claims		FPB	DPL	earnings expected from transition
PV		100000	250	358			51
	0				151	8	
	1	10000	50	29	164	11	5.1
	2	10000	50	33	172	15	5.1
	3	10000	50	36	177	18	5.1
	4	10000	50	36	183	22	5.1
	5	10000	50	36	188	25	5.1
	6	10000		36	152	20	5.1
	7	10000		38	114	15	5.1
	8	10000		38	76	10	5.1
	9	10000		38	38	5	5.1
	10	10000		38	0	0	5.1

For business in force at the transition date, the transition date serves as the issue date of the cohort when performing subsequent remeasurements for actual experience and assumption changes. Just as calculations are reperformed as of the issue date in the case of business newly issued after the transition date, it is necessary to perform calculations as of the transition date when updating NPR and the DPL amortization percentage at any subsequent valuation date for business existing at the transition date. In the case of business in force as of transition date, FPBcarry and DPLcarry play a role in each subsequent valuation.

Case 1 (extended): No premiums due after the transition date.

In this discussion, time 0 refers to the transition date. The algorithm outlined in Q 3.2 becomes:

i. Using the locked-in discount rate, actual cash flows from time 0 to time T, and expected cash flows using current assumptions at time T from time T, determine the present value of benefits and expenses as of time 0. Call this amount FPB0.

ii. DPL0 is determined as: DPL0 = max(0, the excess of the sum of FPBcarry and DPLcarry over FPB0). This formula preserves the total carried liability at time 0, unless FPB0 exceeds the carried over total, in which case there is no DPL to consider at valuation T. If

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DPL0 is greater than zero, calculate the amortization percentage K(T) = DPL0 ÷ PV(measure of in-force policies).

iii. Set FPB(T) as the PV(benefits and claim expenses), the present value is as of time T, and uses the locked-in discount rate and the current cash flow assumptions from time T. Set DPL(T) as DPL0 plus interest accretion less amortization at the remeasured amortization rate, K(T), to time T.

Example 3 extended builds on example 3 at a valuation date 2 years after transition in a scenario in which mortality increases to 110% of mortality expected at transition in year 2 and is assumed to continue at that level in the liability for future policy benefits and DPL update at the end of year 2.

Example 3 extended: in force at transition, no premium expected after transition

Update for assumps and exp at end of duration 2   Carried over balances

| | | | | | | | | | FPB | 375 | | |
| DPL amort | 0.009% | | | | | | | | DPL | 25 | | |

discount rate: 0%

Experienced and assumed mortality increase   10.0%

PV	Duration		Premium	claims	FPB	DPL	Earnings recalc from transition	FPB dur 0,1 historical dur 2-10 projected	DPL dur 0,1 historical dur 2-10 projected	earnings dur 0,1 historical dur 2-10 projected
		100000		0	391		9			9
	0				391	9		358	42	
	1	10000	0	29	363	8	1	330	38	4.2
	2	10000	0	37	326	7	1	326	7	-2.4
	3	10000	0	40	286	6	1	286	6	0.9
	4	10000	0	40	247	5	1	247	5	0.9
	5	10000	0	40	207	4	1	207	4	0.9
	6	10000		40	167	4	1	167	4	0.9
	7	10000		42	125	3	1	125	3	0.9
	8	10000		42	84	2	1	84	2	0.9
	9	10000		42	42	1	1	42	1	0.9
	10	10000		42	0	0	1	0	0	0.9

Case 2 (extended): Premiums expected after the transition date

If premiums are expected after the transition date, there is a net premium ratio to consider.

i. Using the locked-in discount rate, actual cash flows from time 0 to time T, and expected cash flows using current assumptions at time T from time T, calculate the NPR(T) as the ratio of (a) PV(benefits and claims expenses) less FPBcarry, divided by (b) PV(prem). These PVs are all as at time 0. If NPR(T) is greater than 1, it is capped at 1. Then set FPB0 equal to PV(benefits and claim expenses) less the product of NPR(T) and PV(gross premiums). Note that FPB0 equals FPBcarry if NPR(T) is less than 1, but exceeds FPBcarry if NPR(T) is capped at 1.

ii. Next, DPL0 is determined as: DPL0 = max(0, the excess of the sum of FPBcarry and DPLcarry over FPB0). If DPL0 is greater than 0, the company calculates the amortization percentage, K(T), such that K(T) = [DPL0+(1 - NPR(T))×PV(gross premiums)]/PV(measure of the in-force policies). Present values are as of time 0,

including actual cash flows from time 0 to time T and expected cash flows using current assumptions at time T from time T.

iii. Set FPB(T) as the PV(benefits and claims expenses) less NPR(T)×PV(gross premiums after T). The present values are as of time T and use the locked-in discount rate and the current cash flow assumptions from time T. Set DPL(T) as the accumulated value (with interest at the locked-in discount rate) of DPL0 and the excess of gross over net premiums received since transition, minus amortization at the remeasured amortization rate, K(T), to time T. Or, DPL(T) can be calculated from time T using the equivalent prospective formula (3) in Q 3.2.

Example 4 extended builds on Example 4 at a valuation date 2 years after transition in a scenario in which mortality increases to 110% of mortality expected at transition in year 2 and is assumed to continue at that level in the liability for future policy benefits and DPL update at the end of year 2.

Example 4 extended: in force at transition, premium expected after transition

Update for assumps and exp at end of duration 2		Carried balances	
FPB NPR	96.05%	FPB	151
DPL amort	0.018%	DPL	8
NPR precap	96%		
Experienced and assumed mortality increase		10.0%	

Duration	Premium		claims	FPB	DPL	Earnings recalc from transition	FPB dur 0,1 historical dur 2-10 projected	DPL dur 0,1 historical dur 2-10 projected	earnings dur 0,1 historical dur 2-10 projected
PV	100000	250	391			18			18
0				151	8		151	8	
1	10000	50	29	171	8	1.8	164	11	5.1
2	10000	50	37	182	8	1.8	182	8	-1.5
3	10000	50	40	190	9	1.8	190	9	1.8
4	10000	50	40	199	9	1.8	199	9	1.8
5	10000	50	40	207	9	1.8	207	9	1.8
6	10000		40	167	7	1.8	167	7	1.8
7	10000		42	125	5	1.8	125	5	1.8
8	10000		42	84	4	1.8	84	4	1.8
9	10000		42	42	2	1.8	42	2	1.8
10	10000		42	0	0	1.8	0	0	1.8

How to treat the carried-over DPL when NPR equals 1

In Example 4 and Example 4 extended, there is a discussion of the case in which business is in force at transition and premiums are expected after the transition date. In both the valuation at transition and at later valuation dates, it is possible that the net premium ratio, which depends on the carried over benefit reserve and experience and/or assumptions after the transition, could exceed 1, in which case it is capped and the benefit reserve appropriate as of the transition date exceeds the carried over benefit reserve.

If NPR(0) (the NPR calculated at transition) is capped at 1, ASC 944-40-65-2n.2 to n.4 say to:

1. Set net premiums equal to gross premiums.

2. Increase the liability for future policy benefits and, for limited-payment contracts, reduce the deferred profit liability balance to zero.

3. Recognize a corresponding adjustment to the opening balance of retained earnings as of the transition date.

Though this guidance is specific to transition, it also points toward a solution for dealing with the NPR cap in subsequent measurement of cohorts that were in force at transition.

Because an "adjustment to the opening balance of retained earnings as of the transition date" is not possible during subsequent measurements, DPL0 can be reduced only by an amount not to exceed the increase in FPB0. The DPL is still floored at 0.

It is, therefore, possible to have a positive amount of DPL0 even when the NPR is capped at 1 during subsequent measurements. Conceptually, this means that unamortized profit margins at transition were greater than the current effect on FPB0 of resetting the assumptions to best estimate (i.e., the impact on FPB0 of capping the NPR at 100%). The excess continues to amortize over the remaining life of the business even though, with net premiums equal to gross premiums, there are no new deferrals during the remeasured period post-transition.

An increase in FPB0 of more than the amount of pre-remeasurement DPL0 means that post-transition losses are expected to exceed the unamortized amount of pre-transition profit. In this case, expected lifetime profit is negative and DPL0 is floored at 0.

Building on Example 4 extended, suppose that the increased mortality beginning in the second year after the transition date is 13.1% (rather than 10%) of the mortality assumed at transition. Retrospective calculations increase the net premium ratio to the 100% cap and reduce DPL0 to offset the increase in FPB0.

Example 4a extended: in force at transition, premium expected after transition

Update for assumps and exp at end of duration 2		Carried balances	
FPB NPR	100.00%	FPB	151
DPL amort	0.008%	DPL	8
NPR precap	100%		
Experienced and assumed mortality increase		13.1%	

	Duration	Premium	claims	FPB	DPL	Earnings recalc from transition	FPB dur 0,1 historical dur 2-10 projected	DPL dur 0,1 historical dur 2-10 projected	earnings dur 0,1 historical dur 2-10 projected
PV		100000	250	401			8			8
	0				151.3	7.7		151	8	
	1	10000	50	29	173	7	0.8	164	11	5.1
	2	10000	50	38	185	6	0.8	185	6	-3.6
	3	10000	50	41	194	5	0.8	194	5	0.8
	4	10000	50	41	204	5	0.8	204	5	0.8
	5	10000	50	41	213	4	0.8	213	4	0.8
	6	10000		41	172	3	0.8	172	3	0.8
	7	10000		43	129	2	0.8	129	2	0.8
	8	10000		43	86	2	0.8	86	2	0.8
	9	10000		43	43	1	0.8	43	1	0.8
	10	10000		43	0	0	0.8	0	0	0.8

Q 5.4:   Is the DPL floored at zero?

A: If there are multiple years of deferral and the measure of in force used in amortization of the DPL for a group of contracts is decreasing (e.g., decreasing term), it is possible that the DPL could dip negative during the premium paying period of the cohort. The question arises: Should it be floored when this happens? Note the algorithm presented in the answers to Q 5.2 and Q 5.3 floors the DPL at time 0. However, depending on the amortization and deferral pattern, the DPL could still roll forward to the current valuation period in such a manner that it dips negative. Overall, the profits are levelized with respect to in force, but involve some periods in which the DPL may be an asset.

Under GAAP prior to ASU 2018-12, the pattern described above is not common, and is sometimes tolerated on small clusters of policies as a matter of practice. An example of a product on which it is sometimes encountered is life insurance that covers the unpaid balance of a mortgage, where the declining face amount of the product may generate profits that increase as a percent of the insurance in force over time.

There does not appear to be any new guidance under ASU 2018-12 addressing negative DPL. However, given the explicit proscription against negative liability for future policy benefits in ASC 944-40-35-7B at the level of aggregation at which the calculations are made, it appears that the guidance intends to extend the proscription to DPL at the same level of aggregation.

Q 5.5:   What happens if in applying the algorithm in Q 5.3, the net premium ratio is negative?

A: For policies in force where future premiums are expected after the transition date, it is possible that margins in the carried over liability for future policy benefits at the transition date are more than sufficient to discharge future benefits without receipt of any future premiums. In this case, a negative net premium ratio could result. While this situation may occur on traditional long-duration insurance contracts (in which case the negative net premium ratio is used), it presents complications when observed on limited-payment contracts.

Transition guidance in ASC 944-40-65-2.p.2 states that in the event of favorable cash flow assumptions at transition, an insurance entity shall "Not decrease the liability for future policy benefits, except for limited-payment contracts, in which case any increase in the deferred profit liability shall be offset with a corresponding decrease in the liability for future policy benefits." The exception for limited-payment contracts offers no guidance on what to do with the NPR for limited-payment contracts still in the premium paying period.

There are at least two ways to handle this situation:

A. Allow NPR(T) to go negative, in which case FPBtime0 will equal FPB0 and DPLtime0 will equal DPL0. The formulas in the algorithm described in the answer to Q2 otherwise work as written. But note, the roll-forward of the liability for future policy benefits from 0 to the end of the premium paying period then includes an extra amortization of the

excess liability for future policy benefits at time 0, which is drawn down as each negative net premium is recognized. Extra deferrals of the negative net premiums offset the amortization in the DPL roll-forward.

B. Floor NPR(T) at 0, in which case FPBtime0 will equal PV(benefits). Then DPLtime0 will increase to absorb the gain.

Approach A is consistent with the transition guidance for other traditional premium-paying contracts, which places no floor on the net premium ratio. This approach keeps the excess margin in the liability for future policy benefits at transition but gradually moves it into DPL as premiums are collected.

Approach B is the only viable option for contracts that are fully paid up at transition because there are no premiums for which a negative net premium ratio would allow the reserve formula to reproduce FPBcarry. Applying this approach to other limited-payment contracts at transition would be consistent with transition guidance for paid-up contracts. This approach moves the excess margin into DPL immediately at transition.

In the absence of any assumption or experience changes, the benefit reserve and DPL roll-forwards of methods A and B converge at the end of the premium-paying period. Thus, for valuation dates after the end of the premium-paying period, it does not matter which method is used in the retrospective update. If the valuation date falls within the premium-paying period, the total of the benefit reserve and DPL at the valuation date will likely be very close to one another if not identical, but the allocation to DPL and benefit reserve will be different.

Q 5.6: What if the DPL carried over at transition (before applying the transition guidance) is negative for some aggregation of policies?

A: This situation is likely to be rarely, if ever, encountered, as it is generally accepted that DPL cannot be an asset.

In this case, a possible solution is to net FPBcarry and DPLcarry together and use the net result as FPBcarry in the Q 5.3 algorithm, with DPLcarry set to 0. In accordance with ASC 944-40-65-2(d)(3), this approach prevents an adjustment to opening retained earnings if NPR(0) does not exceed 1.

Q 5.7: What amortization bases are permitted under ASU 2018-12 for DPL?

A: ASU 2018-12 does not add new guidance to the method of amortizing the DPL, nor does it alter the definition of the measure of in-force policies. ASC 944-605-35-1A states, "The deferred profit liability shall be amortized in relation to the discounted amount of the insurance in force or expected future benefit payments, discounted as described in ASC 944-40-30-9, and interest shall accrue to the unamortized balance. The use of interest in the amortization is consistent with the determination of the deferred profit using discounting."

ASC 944-40-30-9, referenced in the preceding paragraph, refers to the "upper-medium grade (low-credit-risk) fixed-income instrument yield" applicable for the calculation of the liability for future policy benefits.

Industry practice has traditionally used the following bases for amortizing DPL on life and annuity contracts:

1. face amount (life insurance);

2. benefit payments (payout annuities);

3. present value of benefit payments (i.e., reserves) (payout annuities).

For other products, the guidance does not prescribe amortization bases, and companies have traditionally used some measure of volume in force, similar to those used for life and annuities. For example, any one of the daily maximum benefits, the maximum lifetime benefit, the remaining lifetime benefit, or the present value of expected benefit payments might be used to amortize DPL on LTC insurance.

Because the ASU does not add or change the guidance around amortization basis, consultation with accounting professionals is suggested before changing an amortization basis.

Q 5.8:   Does ASU 2018-12 allow or require switching basis at the transition date?

A: Because ASU 2018-12 does not add or change the guidance around amortization basis, consultation with accounting professionals is suggested before changing an amortization basis.

Q 5.9:   Can a policy grouping include limited-payment contracts of different pay periods (e.g., 3-pay, 10-pay, paid-up at 65)?

A: Considerations related to the grouping of policies are covered in Section I and all items discussed there apply to limited-payment contracts as well. In addition, paragraphs A.98 to A.107 in Appendix A of the *AAG-LHI* discuss aggregation considerations as well. Still, limited-payment contracts may introduce unique considerations.

Grouping policies together in one cohort with different pay periods suggests an aggregate NPR is calculated, unless some sort of subgroup processing is used. Each premium contributes the same portion of deferred profit. Because limited-payment policies with different, fixed payment periods all fall under the same, limited-payment accounting model, their aggregation is not precluded as it would be for combining limited-payment and recurring premium contracts, as discussed in Q 1.6.

However, there appears to be consensus in interpreting ASU 2018-12 as dissimilar policies would not be grouped together, which may apply to limited-payment products with dissimilar profit patterns or pricing. Company and auditor judgment are recommended in this case.

Q 5.10: Does an AOCI adjustment comparable to that required for the liability for future policy benefits apply for the deferred profit liability?

A: No. Though DPL can be calculated using present value techniques, its measurement is defined in ASC 944-605-35-1A as an amortized balance. Discounting is used only to determine the amortization rate (similar to discounting in the determination of the net premium ratio). ASC 944-605-35-1B describes the requirements for assumption updates. With respect to interest, this

paragraph specifies only that "The interest accretion rate shall remain the original discount rate used at contract issue date." There is no guidance that allows for the DPL to be adjusted to reflect current market interest rates.

VI.   Deferred Acquisition Costs

Introduction

Formulas and examples included in this section are intended to help illustrate the dynamics of the new amortization guidance for DAC and other balances (e.g., unearned revenue liabilities) amortized under methods applicable to DAC.

For ease of illustration, these formulas and examples present annual amortization with cash flows and amortization all occurring at the beginning of each year. For consistency, accompanying narratives also refer to years.

In practice, calculations would be performed at the appropriate reporting frequency (quarterly for many companies) and the illustrative formulas would require modification for differences in assumed timing of cash flows and amortization within reporting periods.

Companies preparing financial statements more frequently than annually should view the reporting period as the fundamental time unit with balances recorded as at the end of the prior reporting period constituting the starting point for all current-period calculations. This is covered in Appendix A, paragraph A.72 of *AAG-LHI*. Additional discussion of this point may be found in Q 6.30.

Deferred Expenses

Q 6.1:   Does ASU 2018-12 change the definition of what costs can be deferred from what had been deferrable under prior GAAP?

A: The ASU for the most part does not change the definition of what is deferrable. However, it expands the definition of deferrable expenses previously applicable to universal life-type contracts (ASC 944-30-25-4) to all long-duration contracts. The practical impact of this change is that it eliminates "acquisition costs that tend to be incurred in a level amount from period to period" from being deferred on traditional long-duration contracts, whereas previously such expenses could be deferrable. There are no other changes in the definition of what expenses are deferrable.

ASU 2018-12 does, however, limit amortization to costs that have already been incurred; expected future acquisition costs are not to be included when calculating current amortization. Specifically, ASC 944-30-30-2 states that "acquisition costs, including future renewal costs, shall not be capitalized or amortized before the incurrence of those costs." Any new acquisition costs (e.g., nonlevel renewal commissions) are capitalized after they are incurred and then included in subsequent amortization.

In addition, ASU 2018-12 removed the test of recoverability applicable to deferrable expenses. Therefore, though the expenses that are deferrable were unchanged by the guidance, removal of the recoverability limitation could result in more expenses being deferred than would have been the case previously.

Q 6.2: ***What is the basis (individual contract or grouped contract) of amortization presented in the ASU?***

A: ASC 944-30-35-3A defines the basis of amortization as "a constant level basis—either on an individual contract basis or on a grouped contract basis—over the expected term of the related contract(s)." If an individual contract basis is selected, then amortization follows a straight-line basis. If a grouped contract basis is selected, then a constant-level basis that approximates a straight-line basis is applied to a grouping that is consistent with that used to estimate the liability.

Though individual contract amortization has been common for traditional insurance products and grouped amortization has been common for universal life-type contracts, the updated standards make either basis practical for all products.

Individual contract basis
Q 6.3: ***How does the ASU change the amortization of DAC on an individual contract basis from what had been used previously for DAC on traditional insurance products?***

A: Previously, DAC for traditional insurance contracts was amortized in proportion to gross premiums, with interest accreting to the DAC balance. Under the ASU (ASC 944-30-35-3A and ASC 944-30-35-3C), DAC is amortized on a straight-line basis with no accretion of interest to the DAC balance.

One way to understand the changes is to compare new and old formulas.

Under GAAP prior to the adoption of ASU 2018-12, seriatim DAC amortization followed a Fackler accumulation formulation with a tilde (~)to indicate fixed assumptions as set at inception of the contract.

[1] $\quad DAC_0 = 0$

[2] $\quad DAC_t = \dfrac{\left[\left(DAC_{t-1} + E_t - \tilde{k} \times G_t\right) \times (1 + \tilde{\iota})\right]}{\left[(1 - \tilde{w}_t) \times (1 - \tilde{q}_{x+t-1})\right]}$

[3] $\quad \tilde{k} = \dfrac{\left[\sum_{t=1}^{\omega} E_t \times {}_{t-1}\tilde{p}_x \times (1 + \tilde{\iota})^{1-t}\right]}{\left[\sum_{t=1}^{N} G_t \times {}_{t-1}\tilde{p}_x \times (1 + \tilde{\iota})^{1-t}\right]}$

In this formulation, the recognized expense in each period for a persisting policy is less than the product of premium and the amortization rate because of interest accretion and the persistency adjustments.

The updates simplify the formulas but require frequent changes in the amortization rate with a hat (^) to indicate current assumption.

[4] $\quad DAC_t = DAC_{t-1} + E_t - \hat{k}_t$

[5] $\quad \hat{k}_t = \dfrac{[DAC_{t-1} + E_t]}{Expected\ Term_{t-1}}$

With the policy itself as the amortization basis (one policy equals one unit of amortization basis) but without interest accretion and persistency adjustments, the recognized expense in each period for a persisting policy is equal to the amortization rate. And, without the persistency adjustment, the amortization rate will change in each period that the expected termination rates were not zero, even if there is no assumption change.

(Refer to the Supplement that follows this section for a walkthrough of the detailed changes from GAAP prior to adoption of ASU 2018-12 to updated standards.)

Notation: Each tilde (˜) in formulas [2] and [3] indicates an original locked-in assumption with provision for adverse deviation (PAD).
The hat (^) in formulas [4] and [5] indicates a current assumption without PAD.
Subscript x indicates issue age.
Other subscripts indicate policy year or years since issue as appropriate.
i is the GAAP valuation discount rate (assumed constant for all years).
w is the assumed withdrawal rate (lapse or surrender).
q is the assumed mortality rate.
G is the gross premium.
E is an acquisition cost.
k is the DAC amortization rate.
ω is the term to maturity or expiry.
N is the premium paying period

The survival function (p) in formula [3] is a recursive calculation:

[6] $_0p_x = 1$

[7] $_tp_x = {}_{t-1}p_x \times (1 - w_t) \times (1 - q_{x+t-1})$

Q 6.4: What is the "expected term" for an individual contract?

A: *AAG-LHI* defines the expected term as the period for which there are contractual cash flows, including those related to claim settlement (Appendix A, paragraph A.68). The expected term is similar to life expectancy except that it considers all assumed decrements, not just mortality. Its measurement should be consistent with the assumptions used for liability calculations. However, for "contracts with accumulation and payout phases," like deferred annuities, "the expected term of the contract for the amortization of capitalized acquisition costs includes only the accumulation phase of the contract because the payout phase is required to be accounted for as a separate contract" (*AAG-LHI*, Appendix A paragraph A.69).

Continuing from the formulas in Q 6.3, expected term at issue of a new contract is simply:

[8] $Expected\ Term_0 = \sum_{t=0}^{\omega} {}_t\hat{p}_x$

See Q 6.32 for consideration to apply in determining the term of contracts based on their attributes.

Q 6.5:   Can (or must) I calculate the expected term of the contract stochastically if I use dynamic lapse assumptions with stochastic scenarios for liability measurement?

A: There is nothing to prohibit an actuary from using the same dynamic lapse assumptions and stochastic scenarios of the reserve valuation to calculate the expected term of the contract and the corresponding DAC amortization rate. That measurement of the expected term should use assumptions that are "consistent" with those used for liabilities, however, does not mean the two necessarily have to be identical.

In its Basis for Conclusions, paragraph BC86 of the ASU includes an expression of a key purpose of the DAC amortization changes, "From a user perspective, simplification improves the understandability of an insurance entity's financial results because the amortization pattern is easier to understand and forecast."

Consequently, the complexity of stochastic measurements could be a consideration when deciding whether stochastic methods are appropriate for DAC measurement.

An actuary may, however, find it easier to use the stochastic reserve projections to calculate expected term stochastically or believe that such a calculation provides a better estimate than a deterministic alternative.

In any given situation, actuarial judgment will be needed to weigh these alternatives and determine an appropriate measurement technique to use.

Q 6.6:   When and how do I update the expected term for an individual contract?

A: Without a persistency adjustment, the DAC amortization rate will change after every period for which expected termination rates are not zero. Because the DAC amortization rate is a function of the remaining expected term, updating the rate will require an update of the remaining expected term.

The remaining expected term of a contract is calculated in the same way as the original expected term, except that it starts from the date as of which the DAC amortization rate is updated.

Continuing the illustrated formulations, if an assumption is changed in year t and the DAC amortization rate is updated as of the beginning of the year for amortization in that year, expected term in formula [5] is:

[9] $Expected\ Term_{t-1} = \sum_{s=t-1}^{\omega} {}_{s-(t-1)}\hat{p}_{x+t-1}$

Alternatively, some people believe a company may choose as a matter of accounting policy not to incorporate assumption changes in the determination of the amortization recorded in year t but rather initiate recognition of the new assumptions in the amortization of DAC in the following year. In that case, the expected term of formula [9] and the amortization rate of formula [5] would be updated at time t, the beginning of year $t+1$, with the corresponding changes in the time subscripts.

Q 6.7: How do I reconcile the requirement to expense DAC "on a straight-line basis" with a changing expected term?

A: To reconcile "on a straight-line basis" with a changing expected term, first note that "a straight-line basis" is not the same as straight-line amortization. A straight-line basis means only that, looking forward from each valuation date, the amount of the amortization basis is fixed for as long as the contract remains in force. Without terminations, this would produce straight-line amortization. Including terminations means that amortization itself will not be straight-line, but the amortization basis remains straight-line. In fact, by including expected and actual termination rates, the result will not be straight-line except in rare circumstances (where early termination is not contractually permitted or where expected terminations are so low that straight-line amortization would reasonably approximate the required method).

Q 6.8: What happens to the remaining DAC on an individual contract when that contract terminates?

A: When a contract terminates, its DAC is written off and charged immediately to expense.

Q 6.9: Because expected term already anticipates expected termination rates, does the write-off of DAC remaining on terminated contracts result in amortizing twice for terminations—at an accelerated rate for expected terminations and then by the write-off of remaining balances on actual terminations?

A: Yes, taken together, formula [4] and a release of remaining balances on termination accelerates DAC run off for terminations.

Q 6.10: Can I adjust the unamortized balance on persisting contracts to avoid the acceleration caused by the combination of expected term and immediate expensing of actual terminations?

A: No. In accounting, amortization is generally determined as the product of an amortization rate and an amortization basis. Under prior standards, amortization for long-duration contracts was tied to liability valuation in methodology as well as assumptions, which made such adjustments appropriate. The simplified DAC amortization method realigns long-duration contracts with the amortization methodology for finite-lived intangible assets under Topic 350, Intangibles—Goodwill and Other (BC 88), making such adjustments inappropriate.

Grouped amortization basis
Q 6.11: How does the ASU change grouped DAC calculations from what we have been using for universal life-type products?

A: As with individual contract amortization, perhaps the easiest way to understand the changes is to compare new and old formulas.

Prior to adoption of the ASU, the unamortized DAC balance on a group of contracts could be calculated using either discounted calculations or a retrospective accumulation. Either approach led to the same result. *Expense* refers to the vector of actual or expected deferrable expenses and

Gross Profit refers to the vector of actual or projected estimated gross profits as used to amortize the DAC on nontraditional insurance contracts prior to the adoption of the ASU.

[10] $k_t = [AV_t(Expense) + PV_t(Expense)] \big/ [AV_t(Gross\ Profit) + PV_t(Gross\ Profit)]$

[11] $DAC_t = (1 + i_t) \times$

$\qquad [DAC_{t-1} - (k_t - k_{t-1}) \times AV_{t-1}(Gross\ Profit) + Expense_t - k_t \times Gross\ Profit_t]$

[12] $DAC_t = k_t \times PV_t(Gross\ Profit) - PV_t(Expense)$

Formula [10] is calculated as of the valuation date rather than the issue date to simplify the distinction between actual and projected expenses and gross profits. It has the added benefit of allowing the use of the same present values in both formulas [10] and [12]. Under GAAP prior to the ASU, it made no difference to the results if the amortization rate was calculated by discounting to the issue date or discounting and accumulating to the valuation date.

For grouped amortization, the ASU simplifies the formulas and offers some flexibility that was not available with individual contract amortization but also imposes some new constraints compared to the previous grouped-amortization standards. In addition, grouped amortization under ASU 2018-12 is fully prospective and incorporates no looking back prior to the start of the current reporting period.

[13] $k_t = [DAC_{t-1} + Expense_t] \big/ \sum_{s=t-1}^{\omega} Basis\ in\ Force_s$

[14] $DAC_t = DAC_{t-1} + Expense_t - k_t \times Basis\ in\ Force_{t-1}$

[15] $DAC_t = k_t \times \sum_{s=t}^{\omega} Basis\ in\ Force_s$

Notation: Each accumulated value (AV) is the accumulation with interest at the contract rate of actual expenses and gross profits from inception of the cohort to the valuation date. Each present value (PV) is the amount of all expected future expenses and gross profits discounted to the valuation date at the contract rate.
Subscript t is the policy year or years since issue as appropriate.
k is the amortization rate, which will change with an assumption change and with actual experience different from expected.
i is the contract rate (assumed to be constant, in this example).
Basis in Force is the amount of the new constant-level amortization basis in force or projected to be in force.

(Refer to the Supplement that follows this section for a walkthrough of the detailed changes from GAAP prior to adoption of ASU 2018-12 to updated standards.)

For new expenses and for assumption changes made as of the beginning of the year, the amortization rate (formula [13]) and projected in force amounts (in formulas [13] and [15]) are updated before calculating a new balance. If a company chooses as a matter of accounting policy not to incorporate assumption changes in the determination of the amortization recorded in year t

but rather initiate recognition of the new assumptions in the amortization of DAC in the following year, the effects of the assumption change on projected amounts in force are not updated until the following year.

Regardless of when a company updates projected in force amounts for assumption changes, the sums in the denominator of formula [13] and in formula [15] begin with actual amounts in force at times t-1 and t, respectively.

The ASU does not prescribe a method for the treatment of unexpected terminations. As discussed in Appendix A, paragraphs A.70-A.74, of *AAG-LHI*, experience updates are not limited to the one approach illustrated in the ASU. Two approaches specifically mentioned in *AAG-LHI* are:

- Immediate adjustment (as illustrated in ASC 944-30-55-7B and sometimes referred to as the "ASU approach" because it is illustrated in ASU 2018-12) is applied only after amortizing the DAC balance (formula [14]) with an amortization rate (formula [13]) using expected amounts in force, ignoring actual terminations. The remaining balance is then adjusted for actual terminations in excess of expectation, either by multiplying the result of formula [14] by the ratio of the actual to expected amounts in force at time t or by applying formula [15] with the projection of amounts in force updated for actual in force at time t. Either way, the adjustment can only be applied to reduce the unamortized balance; reversal of amortization is not permitted.

- Prospective adjustment of the amortization rate (as illustrated in *AAG-LHI*, and sometimes referred to as the "webcast approach" because it was discussed on a webcast presented by the FASB soon after the publication of ASU 2018-12) updates the amortization rate (formula [13]) for actual terminations before calculating current amortization. In the denominator, the first term (amount in force at time t-1) is unchanged, but the second term is equal to actual in force at that time t and the remaining terms are projected from the latter amount using current assumptions. In effect, expected terminations in the period are set equal to actual terminations and the projection of amounts in force is revised accordingly. This approach does not require an additional adjustment and may be applied to both excess and reduced terminations. To be clear, "prospective" in the naming of this approach should be interpreted as applying as of the beginning of the current period (i.e., from time t-1) because it incorporates actual experience in the current period as well as updated projections beyond time t.

Examples 1-3 compare these two approaches. All calculations include:

DAC$_{t-1}$ recorded at end of prior period (time t-1)   100

Additional deferrals in period t 0

Amount in force at end of prior period   1,000

Assumption changes (if any) have already been applied or will be applied after the experience adjustments. (Note, however, that a prospective experience adjustment can be combined with an assumption change as illustrated in *AAG-LHI*.)

Example 1
Illustrate immediate and prospective adjustments if there is no deviation in experience

Projected in force from the beginning of the current period (time *t*-1)

	Expected Terminations	Basis in Force	
t-1		1,000	Actual
t	10.0%	900	Expected
t+1	11.1%	800	
t+2	10.0%	720	
t+3	9.7%	650	
t+4	10.8%	580	
t+5	100.0%	0	
Sum		4,650	

With no deviation from expected terminations, there is no adjustment.
Regardless of adjustment approach:

formula [13] $\qquad k_t = (100 + 0)/4650 = \qquad$ 2.15%
formula [14] $\qquad DAC_t = 100 + 0 - 2.15\% \times 1000 = $ 78.49

Example 2
Illustrate immediate and prospective adjustments if actual terminations are greater than expected

Actual basis in force at end of period (time *t*) $\qquad$ 850
Immediate adjustment
Amortization rate without considering actual terminations
formula [13] $\qquad k_t = (100 + 0)/4650 = \qquad$ 2.15%
Amortized DAC before adjustment
formula [14] $\qquad DAC_t = 100 + 0 - 2.15\% \times 1000 = $ 78.49
Unamortized DAC balance after immediate adjustment
$\qquad DAC_t = 78.49 \times MIN(850/900,1) = $ 74.13
Prospective adjustment
Revised projected in force from the beginning of the current period (time t-1)

	Expected Terminations	Basis in Force	
t-1		1,000	Actual
t		850	Actual
t+1	11.1%	756	Updated Expected
t+2	10.0%	680	
t+3	9.7%	614	
t+4	10.8%	548	
t+5	100.0%	0	
Sum		4,447	

With revised projection using actual in force at end of period (time t)
formula [13] $\qquad k_t = (100 + 0)/4447 = \qquad$ 2.25%
formula [14] $\qquad DAC_t = 100 + 0 - 2.25\% \times 1000 = $ 77.51

Example 3

Illustrate immediate and prospective adjustments if actual terminations are less than expected

Actual basis in force at end of period (time t)   950

Immediate adjustment

Amortization rate without considering actual terminations

formula [13] $k_t = (100 + 0)/4650 =$ 2.15%

Amortized DAC before adjustment

formula [14] $DAC_t = 100 + 0 - 2.15\% \times 1000 =$ 78.49

Unamortized DAC balance after immediate adjustment

$DAC_t = 78.49 \times MIN(950/900,1) =$ 78.49

Prospective adjustment

Revised projected in force from the beginning of the current period (time t-1)

	Expected Terminations	Basis in Force	
t-1		1,000	Actual
t		950	Actual
t+1	11.1%	844	Updated Expected
t+2	10.0%	760	
t+3	9.7%	686	
t+4	10.8%	612	
t+5	100.0%	0	
Sum		4,853	

With revised projection using actual in force at end of period (time t)

formula [13] $k_t = (100 + 0)/4853 =$ 2.06%

formula [14] $DAC_t = 100 + 0 - 2.06\% \times 1000 =$ 79.39

Q 6.12: What considerations go into determining which policies are grouped together?

A: When using a grouped contract basis, "contracts shall be grouped consistent with the grouping method used in estimating the liability for future policy benefits (or any other related balance) for the corresponding contracts" (ASC 944-30-35-3A(b)).

For nontraditional contracts, any of the additional liabilities required by ASC 944-40-25-25B(c) (annuitization, death, or other insurance benefits) might serve as an "other related balance."

If there is no grouping for reserves, then DAC grouping considerations would be similar to those used when grouping for reserves for other products. For example, some universal life contracts have no liabilities other than the basic policy account balance, which GAAP considers to be an individual deposit-type liability. However, it is widely believed that the prohibition against grouping contracts issued more than one year apart holds for DAC amortization irrespective of the grouping, or lack thereof, applied to the contract reserves.

Refer to Section I for more information about grouping.

Q 6.13: What does "constant-level basis" mean?

A: There is nothing in ASU 2018-12 that specifically defines the term "constant-level basis." However, it is generally interpreted that a constant-level basis is one that stays level over the

contract term for an individual contract on a contractual basis. This is consistent with the concept that grouped amortization methods approximate straight-line methods. Stated differently, the term "constant" in the phrase "constant-level basis" is interpreted as constant with respect to time.

Relating this to formula [15], this means that *Basis in Force$_s$* as measured at time t is the sum of the expected values of the constant level measures assigned to each contract, where the weights are the probabilities that each individual contract in force at time t will still be in force at time s:

[16] $Basis\ in\ Force_s = \sum_{n=1}^{N} B_n \times {}_{s-t}p_{x+t}$

Where B_n is the measure of the constant level basis for contract n within the group of N contracts that are combined for the purpose of amortizing DAC. Also, x represents the issue age of contract n and may vary among the N contracts in the group. B_n does not vary over time, with the possible exception of situations described below.

An example of a constant-level basis is policy count, which is always one "for an individual contract on a contractual basis." Practically, however, policy count might not approximate "straight-line amortization on an individual contract basis" (see Q 6.15). Other examples might include the face amount of a level term insurance contract, the death benefit of an option A universal life contract,[3] the amount deposited into a deferred annuity contract, or benefit payments of a level benefit immediate annuity contract.

Some contracts permit a policyholder election that could change the basis. That does not necessarily preclude the use of such a basis. For example, a universal life policyholder may have a right to increase the death benefit subject to underwriting approval or a deferred annuity contract holder may have a right to make additional deposits. In these instances, specified amount and amount deposited could still be considered constant-level bases if amortization does not anticipate any future changes. This may be especially relevant when such changes coincide with additional acquisition costs. Then, increasing the amortization basis along with the increase in the deferred expense could help to reflect the relative significance of a contract to the overall amortization group without slowing (or accelerating) amortization in anticipation of future increases (or decreases).

While the definition of constant-level basis normally requires that the measure remain unchanged over the life of the contract (absent certain policyholder elections described above), there may be certain contract designs that allow for modifications in this interpretation. For example, where the amount of insurance in force changes over time by contractual provision, it may be appropriate to adjust the basis as well. For example, a life insurance policy designed to retire a mortgage obligation on the death of the insured provides for a declining amount of insurance coverage over time. The fact that the amount of insurance in force is entirely predictable over its lifetime within terms that are entirely fixed and guaranteed may qualify the insurance in force as

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[3] An "option A" universal life insurance policy is one under which the death benefit (cash value plus the net amount of insurance risk) remains level over the life of the policy.

a constant-level basis. This position is not universally accepted by all actuaries, so consultation with accounting professionals is suggested before adopting such a basis for DAC amortization.

Q 6.14: What does it mean when it says that grouped contract amortization "approximates straight-line amortization on an individual contract basis?"

A: According to paragraph A.67 of Appendix A of *AAG-LHI*,

> FASB ASC 944-30-35-3A states that grouped contracts should be amortized 'on a constant-level basis that approximates straight-line amortization on an individual contract basis.' Amortization amounts will differ between grouped contracts and individual contracts because of the write-off of unamortized DAC for terminated contracts, even if actual results are in line with expectations. Therefore, FinREC believes that the focus of the assessment of whether grouped contract basis amortization approximates straight-line amortization on an individual contract basis is on the pattern of amortization. Further, FinREC believes that entities are not required to perform a quantitative materiality analysis to demonstrate that approximation. Rather, when determining the constant-level basis for grouped contracts, entities should consider the nature of the products underlying the grouped contracts to ensure an appropriate pattern of amortization will be realized.

What constitutes "an appropriate pattern of amortization" is not defined further in *AAG-LHI*. Some considerations that might be applied include:

- The correlation between the amortization basis and the amount of deferrable acquisition costs generated.
- The diversity in expected termination rates among contracts and the resulting sensitivity of the pattern of amortization to the choice of basis.

Q 6.15: What must I do to demonstrate that my grouped amortization approximates individual amortization?

A: There are no explicit requirements for this demonstration and even general guidelines are sparse. As noted in *AAG-LHI*, "Amortization amounts will differ between grouped contracts and individual contracts because of the write-off of unamortized DAC for terminated contracts, even if actual results are in line with expectations." *AAG-LHI* explicitly states the belief that "entities are not required to perform a quantitative materiality analysis to demonstrate that approximation." See Q 6.14 for additional considerations in interpreting the guidance that grouped contract amortization "approximates straight-line amortization on an individual contract basis."

Q 6.16: May different amortization bases be used for different cohorts?

A: Yes. The ASU deliberately leaves open the question of what should be used as a constant-level basis because no single basis is likely to work well for all products. A good basis for one product might not be good for another product. Even for a given product, a company may find good reason to use a different basis for new cohorts.

Q 6.17: For DAC amortization, the ASU states that the "amortization amount shall not be a function of revenue or profit emergence." Does this mean I cannot use premium as an amortization base under any circumstances?

A: For some products, premium may satisfy the conditions for a constant-level basis. (See Q 6.13.) An example would be a traditional ordinary life contract with level premiums payable for the entire life of a contract. In contrast, premiums would not form a constant-level basis for a limited-payment contract because the amount of premium decreases to zero at the end of the premium-payment period.

Whether premium can be used further depends on interpretation of the stipulation in ASC 944-30-35-3A that "[t]he resulting amortization amount shall not be a function of revenue or profit emergence." Because premium is recorded as revenue for traditional insurance contracts, some see this as prohibiting the use of premium as an amortization basis. Others, however, believe that this prohibition does not preclude the use of a constant-level premium base as a measure of the size of the contract when it does not depend on the revenue recorded for the contract. Under this interpretation, a measure such as annualized premium in force might satisfy the constant-level condition without violating the ASC 944-30-35-3A stipulation.

When considering premium as an amortization basis, the actuary may consider consulting with an accounting professional.

Excess terminations
Q 6.18: There is an explicit requirement to reduce the unamortized balance for excess terminations but there is no mention of what to do if actual terminations are less than expected. Does this mean that positive adjustment for actual terminations less than expected is not allowed?

A: The standard itself is silent on the question of lower-than-expected terminations but paragraph A.72 of Appendix A to *AAG-LHI* states that "the rate used to amortize DAC for the current reporting period should be calculated as of the beginning of the current reporting period using information known either at that time (thereby excluding actual current reporting period experience) or at the end of the current reporting period (thereby including actual current reporting period experience and any assumption updates). Actual current reporting period experience includes terminations."

Addressing the immediate adjustment approach (see Q 6.11), paragraph A.73 states, "No adjustment would be made under this calculation methodology if there were fewer than expected terminations."

Addressing the prospective adjustment approach (see Q 6.11), paragraph A.74 continues, "In contrast, if current reporting period experience and any assumption updates are included in the calculation of the current period amortization rate, no separate experience adjustment would exist because the amortization rate calculation considers the current reporting period experience."

From this, it is understood that a positive adjustment is not permitted under the immediate approach but that the prospective amortization rate can be reduced when terminations are less than expected. Under the latter approach, the amortization rate is recalibrated as of the beginning of the period (before calculating current amortization) for known terminations. No explicit adjustment to true-up to the actual in force is needed at the end of the period under this method.

When considering these or other possible approaches to adjust for reduced terminations, paragraph A.72 further states, "An entity should select one of these calculation methodologies and apply it consistently."

Q 6.19: What is "actual experience in excess of expected" if I amortize on individual contracts, which either terminate (100%) or persist (0% termination)?

A: Though this language seems to be inconsistent with the idea of individual contract amortization, the ASU does not stipulate that it applies only to grouped amortization. The meaning of this for individual contract amortization may simply be that a company may not continue to hold DAC on terminated contracts, that the unamortized balance must be expensed immediately upon termination.

Q 6.20: For individual contract amortization, is it permissible to adjust the balance on persisting contracts to offset the accelerating effects of amortizing at a rate that already anticipates some terminations and writing off of remaining balances on terminating contracts?

A: No. (See Q 6.10.)

Q 6.21: Is "actual experience in excess of expected" measured separately for each reporting period or cumulatively?

A: In some circumstances (such as lower-than-expected terminations following a period of higher-than-expected), a cumulative measure might effectively reverse amortization expense recorded in a prior period. Because that is prohibited (*AAG-LHI*, Appendix A, paragraph A.72) actual experience in excess of expected is measured separately for each reporting period. Therefore, if a company prepares quarterly financial statements, the test is performed at each quarter.

For companies using the immediate adjustment approach, it is not possible to prevent random variances from accelerating DAC run-off. Excess terminations in a reporting period result in a permanent write-down of DAC that cannot be recovered. One consequence of this requirement is that a company experiencing higher-than-expected terminations early in the year and lower-than-expected terminations later in the year is not able to aggregate the full year of experience for determining the full-year adjustment. Each quarter stands on its own.

For companies using the prospective approach, however, the impact of higher-than-expected termination experience in any one quarter accelerates current period amortization only to the extent that it shortens the expected term of the cohort, and this might be substantially reversed to the extent that later experience increases expected term.

Q 6.22: How do I calculate adjustments for excess or reduced terminations?

A: The ASU does not say how to adjust for excess terminations, except to say that the unamortized balance is to be reduced. An illustration in ASC 944-30-55-7B demonstrates one possible technique that may be applied on a grouped amortization basis, but it does not prescribe this technique. Refer to Q 6.11 for more information.

Q 6.23: Does it matter whether the same adjustment technique is used for both excess and reduced terminations?

A: Referring to adjustment techniques, paragraph A.72 of Appendix A to *AAG-LHI* states that "the rate used to amortize deferred acquisition costs for the current reporting period should be calculated as of the beginning of the current reporting period using information known either at that time (thereby excluding actual current reporting period experience) or at the end of the current reporting period (thereby including actual current reporting period experience and any assumption updates). Actual current reporting period experience includes terminations, such as those resulting from lapse or death. An entity should select one of these calculation methodologies and apply it consistently." If the immediate adjustment approach is used, then adjustments are only made for excess terminations and no adjustment is made for reduced terminations. If the prospective approach is used, then an explicit adjustment is not applicable for either excess terminations or reduced terminations because the impacts of both are incorporated implicitly within current amortization.

Q 6.24: Are there any constraints on adjustments for excess or reduced terminations?

A: As noted previously, no adjustment for reduced terminations is allowed under the immediate method, and no explicit adjustment is necessary for either excess or reduced terminations under the prospective method. In addition, under no circumstances should an adjustment for reduced terminations result in a reversal of prior amortization.

Q 6.25: If I have an increase in the constant-level basis of one or more contracts in a cohort, how would that affect the adjustment for excess terminations?

A: Increases are separate events from terminations. If an addition is made to an existing contract thereby increasing the constant-level basis, the calculations would be no different than if a new contract were added to the cohort, adding the new basis and updating the projected basis along with addition of any new expense. Excess terminations may then be assessed relative to the new projection.

Starting with the example in ASC 944-30-55-7A, imagine a slightly different fact pattern. In this altered situation, the additional $10 of deferrable acquisition costs in 20X2 is accompanied by a $200 increase in the amortization basis. The revised total lifetime basis, projected as of the beginning of 20X2, would then be $1,200+1,200+1,200+1,200=$4,800 and the new 20X2 amortization rate would be $74/$4,800=1.54%.

Applying the immediate adjustment technique of ASC 944-30-55-7B to the altered situation, 20X2 amortization would be $1,200×1.54%=$19. With $300 of excess terminations, the 20X2

experience adjustment would be ($74-$19)×[(1,200-900)/1,200]=$14, leaving a balance of $41 at the end of year 2. As in ASC 944-30-55-7B's schedule five, the assumption change would then be applied to revise the amortization rate for 20X3.

Alternatively, the prospective adjustment technique described in Q 6.11 could be used to recalculate the 20X2 amortization rate using all information known at the end of the year (additional expense and basis, excess terminations, and assumption change). The revised total lifetime basis, projected as of the beginning of 20X2, would then be $1,200+900+500+250=$2,850 and the revised amortization rate would be $74/$2,850=2.6%. Amortization in 20X2 would be $1,200×2.6%=$31, leaving a balance of $43 with no need for further adjustment.

Assumption setting and updating
Q 6.26: Must DAC amortization assumptions exactly match the reserve assumptions?

A: ASC 944-30-35-3 requires the use of assumptions that are "consistent with those used in estimating" reserves.

In the case of the traditional liability for future policy benefits and additional (SOP 03-1) liabilities on universal life contracts, which like DAC require the use of current assumptions without provision for adverse deviation, consistent could mean identical or it might allow for simplification of an assumption that is significant for reserve calculations but insignificant to expected term.

GAAP considers actual experience to be part of an assumption update but does not require true-up of the net premium ratio for actual experience every reporting period. According to paragraph A.76 of Appendix A to *AAG-LHI*,

> [U]pdating the DAC amortization in the current reporting period for actual experience without updating actual experience within the calculation of the liability for future policy benefits (prior to the entity's annual review of cash flow assumptions) would not violate the principle that the assumptions be consistent between the two measurements. That is, FinREC believes that the updating of the outstanding units (for example, actual in force amounts) for DAC amortization may not require an update to the net premium ratio or other cash flow assumptions used to calculate the liability for future policy benefits.

Paragraph A.77 continues, "However, in all cases, as required by FASB ASC 944-40-35-5(a), actual experience should be analyzed to determine if a change is necessary to the future cash flow assumptions used to calculate the liability for future policy benefits and, if updated, corresponding changes should also be made to the estimate of future amortization of DAC."

Because DAC must be adjusted for actual terminations in excess of expected (ASC 944-30-35-3B), there may be a difference between the actual termination rate used for the DAC adjustment and the assumed termination rate used in the calculation of the net premium ratio at times when the net premium ratio is not updated. Even in that situation, however, the reserve calculation would, like DAC, adjust the new balance for actual amounts remaining in force.

In the case of liabilities recorded at fair value, consistent would seem to allow for a difference to the extent that the reserve assumptions include a risk adjustment or anything else that might not be considered a current cash flow assumption without provision for adverse deviation.

Q 6.27: Does the "constant-level basis" requirement for grouped amortization imply any limitations on the assumptions that are used to project that basis?

A: "Constant-level basis" refers to the basis used in amortization, not to the assumptions used to project the amount of basis in force. It is expected that the basis in force for a group will decline with terminations, and for this purpose it doesn't matter whether terminations are projected using static or dynamic assumptions.

Except for terminations, assumptions should not cause a change in projected basis. It is inconsistent with the requirement if, for example, cumulative deposits were chosen as a constant-level basis and projections included future increases for new deposits or future decreases for partial withdrawals.

Q 6.28: How do the disclosure requirements around persistency and DAC potentially affect the viability of incorporating current period experience and updated projections in the determination of DAC amortization?

A: The disclosure requirements do not affect the viability of the approach taken to amortize DAC (i.e., either the prospective or immediate adjustment options discussed in Q 6.11).

The ASU requires an adjustment for excess terminations and a roll-forward disclosure of the DAC balance. It includes illustrative examples of both but does not require that either follow the examples precisely. The persistency adjustments and the roll-forward disclosure designs need to be structured to satisfy the requirements and meet FASB objectives for these requirements—DAC amortization that is easy to explain and that provides meaningful information to users of financial statements.

If the amortization rate is adjusted as of the beginning of the period to reflect actual experience in the period, the change may be reflected directly in amortization without any additional persistency adjustment.

Other considerations
Q 6.29: What other balances, with similar amortization methods to DAC, are affected by the new amortization? Are there any special considerations for the other balances?

A: Sales inducements (ASC 944-30-35-18) and unearned revenue (ASC 944-605-35-2) must be amortized similarly to DAC. The provision that "future deferrable" amounts "not be included before the incurrence and capitalization" may be especially significant to some of these balances.

Other balances such as present value of future profits (PVFP), also commonly called the value of business acquired (VOBA), from acquired business and deferred cost of reinsurance on ceded business might be affected by the new DAC amortization method, but that is not a requirement. Whether the new standards are applied to such balances is a matter to be decided in a company's

accounting policy. See Q 6.31 for considerations related to changing existing accounting policy. See Q 6.36 for considerations related to changes in the accounting for reinsurance.

Q 6.30: For a company that prepares and presents financial statements on a quarterly basis, do DAC balances in the second-, third-, and fourth-quarter financial statements start with the prior-year-ending DAC balance and calculate amortization year-to-date, or start with the prior quarter's ending balances and calculate amortization for the current quarter only?

A: The DAC balances are calculated in increments consistent with the presentation of financial statements. Consequently, for a company presenting statements quarterly, the DAC balances are calculated starting with the prior quarter's recorded ending value. The calculations are not performed year-to-date. Year-to-date presentation of DAC amortization is determined by summing the amounts from the quarterly statements.

Paragraph A.51 of Appendix A to *AAG-LHI* states that "for entities that issue quarterly financial statements, the current reporting period refers to the beginning of the quarter in which the net premium ratio is revised. For all other entities, the beginning of the current reporting period could refer to the beginning of the quarter in which the net premium ratio is revised (if the entity prepares quarterly financial information) or could refer to the beginning of the year in which the net premium ratio is revised (if the entity only prepares annual financial statements)."

Q 6.31: Can we reevaluate, and possibly change, company policy for amortizing the present value of future profits on acquired business (PVFP) in light of the ASU's DAC amortization changes?

A: Amortization of PVFP is not directly addressed by Topic 944 and is, therefore, not directly affected by the ASU.

If the basis for the amortization of PVFP previously was unrelated to the basis used to amortize DAC, the ASU provides no explicit justification for changing the amortization basis.

Where the basis for amortizing PVFP is tied to the method for amortizing DAC as a matter of accounting policy, many believe that it is appropriate to change prospectively the PVFP amortization basis to align with the new DAC amortization basis. Whether such alignment is required may depend on whether the existing accounting policy explicitly references DAC amortization or refers directly to "estimated gross profits" or "gross premiums" without explicit reference to DAC amortization.

Regardless of whether an actuary considers the new DAC amortization methods appropriate for this intangible asset, the issue should be discussed with the company's accountants as preservation or change would be a matter of accounting policy.

Q 6.32: How do long-tail claims, nonforfeiture benefits, and annuitizations affect expected term?

A: Paragraph A.68 of Appendix A to *AAG-LHI* explicitly states that "the expected term of the contract for the amortization of capitalized acquisition costs is the period for which there are contractual cash flows, including those related to claim settlement." This is consistent with the

concept that both the premium-paying period and the period over which benefits are paid represent a unified contract that is accounted for as a single instrument.

In contrast, paragraph A.69 states "[f]or contracts with accumulation and payout phases … the expected term of the contract for the amortization of capitalized acquisition costs only includes the accumulation phase of the contract because the payout phase is required to be accounted for as a separate contract." Similarly, for "an annuity contract with a guaranteed withdrawal benefit contract feature accounted for as a market risk benefit … the contract term ends upon extinguishment of the account balance and derecognition of the market risk benefit." For these conditions, the accumulation and payout phases represent separate contracts accounted individually and not in unison.

Whether nonforfeiture benefits, such as reduced paid-up or extended term coverage, affect the expected term depends on whether they are accounted for as separate contracts or as continuations of existing contracts. The determination is governed by the accounting guidance related to contract replacements. If election of the nonforfeiture feature results in a substantially changed contract, then the period over which the nonforfeiture benefit is paid does not constitute part of the term of the contract for DAC amortization. If the election results in a substantially unchanged contract, then the term is extended by the estimated life of the nonforfeiture benefit. For traditional long-duration contracts, whether they are included in the term of the insurance contracts should be consistent with the treatment of such features in the liability for future policy benefits.

All of these situations should be discussed with accounting professionals and a company's interpretations written into its accounting policy.

Transition
Q 6.33: *What happens to existing DAC at transition to the new standards?*

A: DAC balances reported immediately prior to the transition must be "adjusted for the removal of any amounts in accumulated other comprehensive income" (ASC 944-40-65-2(c)).

Any shadow DAC and any shadow loss recognition that was recorded as an adjustment to the DAC balance is removed at transition. Except where the company elects full retrospective transition (ASC 944-40-65-2(e)), the remaining DAC balances, after removal of such amounts, carry over without further changes at transition. Any balances that are measured at a higher level of grouping than is permitted under the updated standards will have to be allocated to the new groups.

Where full retrospective transition is elected, detail of all prior deferrals (both amount and timing) and the full history of the chosen amortization base must be applied to a recalculation of the unamortized balances at the transition date under the new standards. The unamortized DAC balance at transition is calculated using the actual historical basis in force from contract inception to the transition date and projected basis at the transition date. It is not necessary to determine what assumptions and experience adjustments would have been had the guidance been in effect

since the inception of each DAC cohort; only the actual historical amounts in force are required for times preceding the transition date.

Q 6.34: How does the exclusion of expected future acquisition costs affect transition if the previously recorded balance was based in part on expenses that were expected to be incurred after the transition date?

A: This has no effect on the carryover DAC balance whenever modified retrospective transition is applied. The requirement to carry over the transition date balance, excluding any accumulated other comprehensive income adjustment, means just that and no attempt is made to increase the DAC balance to reverse any prior amortization related to expected future deferrals. The transition date balance may well be lower than what it would have been had the DAC been calculated retrospectively using the new method due to not including expected future deferrals in the amortization rate. Amounts previously credited to the DAC asset for interest or negative amortization may have the opposite effect.

Wherever the full retrospective transition is elected, the transition balance is calculated directly using the historical information and the current projection of future balances. That includes reversal of any prior amortization based on subsequent deferrals, any interest on the unamortized balance, and a full restatement on the new amortization basis.

Q 6.35: How does the change in unearned revenue amortization affect additional (SOP 03-1) reserves for insurance or annuitization benefits at transition?

A: According to ASC 250-10-05-2, "This Subtopic establishes, unless impracticable, **retrospective application** as the required method for reporting a **change in accounting principle** in the absence of explicit transition requirements specific to a newly adopted accounting principle" (emphasis in original).

Because the ASU is silent about any transition of additional reserves, any change requires full retrospective recalculation of additional reserves. Where unearned revenue is present, its effect on additional reserves at transition depends on the transition method applied to unearned revenue.

If the modified retrospective transition method is applied to unearned revenue, then unearned revenue is unchanged at transition and there is no effect on pre-transition assessments, on the additional liability at transition, or on retained earnings. The indirect effect of the change to future unearned revenue amortization is reflected in remeasurement of the additional liability during the first reporting period after transition.

For any segments applying the full retrospective transition method to unearned revenue, the assessment pattern used in calculation of the additional reserves includes fully restated amortization up to the transition date and projected amortization from then forward following the new standard. Consistent with the restatement of past and future assessments, the additional liability is retrospectively restated at transition. Any change that results from the recalculation is applied to retained earnings at transition.

Though the new amortization standards do not allow current amortization to anticipate future front-end loads, the additional reserve calculation requires a projection of future assessments, including future revenue amortization. Projection of future amortization for contracts that require future front-end loads would seem to require projection of such loads and the future amortization that will come from them. In other words, for the additional reserve calculation, projected assessments would include expected amortization on expected future revenue deferrals.

Reinsurance

Q 6.36: How do the updates affect the relationship between reinsurance and DAC?

A: The part of ASC 944-30-35-64 that calls for "[p]roceeds from reinsurance transactions that represent recovery of acquisition costs" to reduce the unamortized balance is unchanged. The relationship between reinsurance and DAC amortization is affected only if DAC was previously amortized on a basis that is net of reinsurance.

If DAC was previously amortized on a direct basis, there is nothing in the updates that requires or even permits a change to a net basis.

If DAC was previously amortized on a basis net of reinsurance, the company may consider whether the new amortization basis can or should also be net of reinsurance. A net basis must still satisfy the conditions described for a constant-level basis. (See Q 6.13)

If a decision is made to change from a net basis to a direct basis, the actuary may consider consulting with an accounting professional to determine whether the change can be made as part of the transition or as a change in accounting under ASC Topic 250, *Accounting Changes and Error Corrections*.

Supplement—A Walk Through the Changes to Amortization of Deferred Acquisition Costs

	For this walkthrough of changes to DAC amortization, individual formulas begin with calculations following the method applied prior to adoption of ASU 2018-12 for seriatim amortization of traditional contract DAC. Grouped formulas begin with the prior calculations for cohort amortization of universal life contract DAC. For either, the unamortized balance may be calculated as a present value of future amortization or as an accumulation of past deferral and amortization. Once all changes are made, either individual or grouped amortization may be used for any product and a company may choose whichever is most appropriate for each product.
Notation	In the following formulas:
Individual	k is the DAC amortization rate. G is the gross premium, the amortization basis prior to ASU 2018-12. E is an acquisition cost. ω is the term to maturity or expiry. N is the premium paying period. i is the GAAP valuation discount rate (assumed constant for all years). w is the assumed withdrawal rate (lapse or surrender). q is the assumed mortality rate. x is issue age. Other subscripts indicate policy year or years since issue as appropriate. Tilde (˜) indicates an original locked-in assumption with provision for adverse deviation (PAD). Hat (^) is introduced later to indicate a current assumption without PAD.
Grouped	k is the amortization rate, which will change with actual experience and assumption changes. *Expense* represents aggregate acquisition costs. *Gross Profit* is the amortization basis prior to ASU 2018-12. *Basis in Force* is the amount of the new constant-level amortization basis in force or expected to be in force. i is the contract rate. Subscript t is the policy year or years since issue as appropriate. Each accumulated value (AV) is the accumulation with interest at the contract rate of actual expenses and gross profits from inception of the cohort to the valuation date. Each present value (PV) is the amount of all expected future expenses and gross profits discounted to the valuation date at the contract rate. To simplify the distinction between actual and projected expenses and gross profits, the amortization rate is calculated as of the valuation date rather than the issue date. This has the added benefit of using the same present values in calculating both the amortization rate and the unamortized balance. It makes no difference to the results if the amortization rate is calculated by discounting everything to the issue date or to the valuation date.
Begin with	$DAC_0 = 0$
Individual	$$\tilde{k} = \left[\sum_{t=1}^{\omega} E_t \times {}_{t-1}\tilde{p}_x \times (1+\tilde{\imath})^{1-t}\right] \Big/ \left[\sum_{t=1}^{N} G_t \times {}_{t-1}\tilde{p}_x \times (1+\tilde{\imath})^{1-t}\right]$$

	$$DAC_t = \tilde{k} \times \left[\sum_{s=t+1}^{N} G_s \times {}_{s-(t+1)}\tilde{p}_{x+t} \times (1+\tilde{\imath})^{t+1-s}\right]$$ $$- \left[\sum_{s=t+1}^{\omega} E_s \times {}_{s-(t+1)}\tilde{p}_{x+t} \times (1+\tilde{\imath})^{t+1-s}\right]$$ $$DAC_t = \left[(DAC_{t-1} + E_t - \tilde{k} \times G_t) \times (1+\tilde{\imath})\right] \Big/ \left[(1-\tilde{w}_t) \times (1-\tilde{q}_{x+t-1})\right]$$ The survival function (p) is a recursive calculation: $${}_0p_x = 1$$ $${}_tp_x = {}_{t-1}p_x \times (1-w_t) \times (1-q_{x+t-1})$$
Grouped	$$k_t = \left[AV_t(Expense) + PV_t(Expense)\right] \Big/ \left[AV_t(Gross\ Profit) + PV_t(Gross\ Profit)\right]$$ $$DAC_t = (1+i_t)$$ $$\times \left[DAC_{t-1} - (k_t - k_{t-1}) \times AV_{t-1}(Gross\ Profit) + Expense_t\right.$$ $$\left. - k_t \times Gross\ Profit_t\right]$$ $$DAC_t = k_t \times PV_t(Gross\ Profit) - PV_t(Expense)$$
ASC 944-30-35-3 requires that assumptions be consistent with those used for the reserve, which can no longer include PADs.	
Individual	Remove the PADs (~) from all variables. $$k = \left[\sum_{t=1}^{\omega} E_t \times {}_{t-1}p_x \times (1+i)^{1-t}\right] \Big/ \left[\sum_{t=1}^{N} G_t \times {}_{t-1}p_x \times (1+i)^{1-t}\right]$$ $$DAC_t = k \times \left[\sum_{s=t+1}^{N} G_s \times {}_{s-(t+1)}p_{x+t} \times (1+i)^{t+1-s}\right]$$ $$- \left[\sum_{s=t+1}^{\omega} E_s \times {}_{s-(t+1)}p_{x+t} \times (1+i)^{t+1-s}\right]$$ $$DAC_t = \left[(DAC_{t-1} + E_t - k \times G_t) \times (1+i)\right] \Big/ \left[(1-w_t) \times (1-q_{x+t-1})\right]$$
Grouped	No change.
ASC 944-30-35-3A requires (a) a straight-line basis for individual amortization over expected term of the contract and (b) a constant-level basis for grouped amortization over expected term of the group.	
Individual	Substitute a new, unchanging basis (B) for the policy year specific gross premium (G_t) and replace the premium paying period (N) with the term to maturity or expiry (ω). $$k = \left[\sum_{t=1}^{\omega} E_t \times {}_{t-1}p_x \times (1+i)^{1-t}\right] \Big/ \left[\sum_{t=1}^{\omega} {}_{t-1}p_x \times (1+i)^{1-t}\right]$$ $$DAC_t = k \times \left[\sum_{s=t+1}^{\omega} {}_{s-(t+1)}p_{x+t} \times (1+i)^{t+1-s}\right]$$ $$- \left[\sum_{s=t+1}^{\omega} E_s \times {}_{s-(t+1)}p_{x+t} \times (1+i)^{t+1-s}\right]$$ $$DAC_t = \left[(DAC_{t-1} + E_t - k) \times (1+i)\right] \Big/ \left[(1-w_t) \times (1-q_{x+t-1})\right]$$
Grouped	Substitute a new, unchanging *Basis* for the variable amounts of *Gross Profit*. Though *Basis* is unchanging, the aggregate amount of *Basis in Force* will decline as contracts terminate.

	$k_t = \left[AV_t(Expense) + PV_t(Expense)\right]\Big/\left[AV_t(Basis) + PV_t(Basis)\right]$ $DAC_t = (1 + i_t)$ $\quad\quad\quad \times \left[DAC_{t-1} - (k_t - k_{t-1}) \times AV_{t-1}(Basis) + Expense_t\right.$ $\quad\quad\quad \left. - k_t \times Basis\ in\ Force_{t-1}\right]$ $DAC_t = k_t \times PV_t(Basis) - PV_t(Expense)$

ASC 944-30-35-3A also requires that contracts be grouped consistent with the grouping used in estimating reserves.

Individual	Not applicable.
Grouped	For most products, this will not require any change. In any case, it does not alter these formulas.

ASC 944-30-35-3B requires reduction in the unamortized balance for "unexpected contract terminations."

Individual	When a contract terminates, charge its unamortized DAC balance immediately to expense.
Grouped	This does not affect the formulas, but it does affect how they are applied as explained in Q 5.11.

ASC 944-30-35-3B also specifies that assumption changes "shall be recognized over the remaining expected contract term as a revision of the future amortization amounts."

Individual	Recalculate the amortization rate prospectively for the new assumptions (^), pivoting off of the most recently reported DAC balance. $\hat{k}_t$ $= \left[DAC_{t-1} + \sum_{s=t}^{\omega} E_s \times {}_{s-1}\hat{p}_{x+t-1} \times (1+i)^{t-s}\right]\Big/\left[\sum_{s=t-1}^{\omega} {}_{s-(t-1)}\hat{p}_{x+t-1} \times (1+i)^{t-s}\right]$ $DAC_t = \hat{k}_t \times \left[\sum_{s=t+1}^{\omega} {}_{s-(t+1)}\hat{p}_{x+t} \times (1+i)^{t+1-s}\right]$ $\quad\quad\quad - \left[\sum_{s=t+1}^{\omega} E_s \times {}_{s-(t+1)}\hat{p}_{x+t} \times (1+i)^{t+1-s}\right]$ $DAC_t = \left[(DAC_{t-1} + E_t - \hat{k}_t) \times (1+i)\right]\Big/\left[(1-\hat{w}_t) \times (1-\hat{q}_{x+t-1})\right]$
Grouped	Update the present values for an assumption change. Remove accumulated values from the amortization rate calculation and, in the numerator, replace it with the most recently reported DAC balance. Remove the unlocking adjustment (change in amortization rate times accumulated basis) from the retrospective DAC accumulation formula. $k_t = \left[DAC_{t-1} + PV_t(Expense)\right]\Big/PV_t(Basis)$ $DAC_t = (1 + i_t) \times \left[DAC_{t-1} + Expense_t - k_t \times Basis\ in\ Force_{t-1}\right]$ $DAC_t = k_t \times PV_t(Basis) - PV_t(Expense)$

ASC 944-30-35-3C stipulates that "No interest shall accrue on the unamortized balance…."

Individual	Remove interest (i) from the formulas. $\hat{k}_t = \left[DAC_{t-1} + \sum_{s=t}^{\omega} E_s \times {}_{s-1}\hat{p}_{x+t-1}\right]\Big/\left[\sum_{s=t-1}^{\omega} {}_{s-(t-1)}\hat{p}_{x+t-1}\right]$

	$$DAC_t = \hat{k}_t \times \left[\sum_{s=t+1}^{\omega} {}_{s-(t+1)}\hat{p}_{x+t}\right] - \left[\sum_{s=t+1}^{\omega} E_s \times {}_{s-(t+1)}\hat{p}_{x+t}\right]$$ $$DAC_t = \left.(DAC_{t-1} + E_t - \hat{k}_t)\middle/{[(1 - \hat{w}_t) \times (1 - \hat{q}_{x+t-1})]}\right.$$
Grouped	Remove interest (i) from the formulas and replace present values with sums of projected amounts. $$k_t = \left.[DAC_{t-1} + \sum_{s=t}^{\omega} Expense_s]\middle/{\sum_{s=t-1}^{\omega} Basis\ in\ Force_s}\right.$$ $$DAC_t = DAC_{t-1} + Expense_t - k_t \times Basis\ in\ Force_{t-1}$$ $$DAC_t = k_t \times \sum_{s=t}^{\omega} Basis\ in\ Force_s - \sum_{s=t+1}^{\omega} Expense_s$$

ASC 944-30-35-3C also stipulates that "In determining amortization expense, future deferrable costs shall not be included before the incurrence and capitalization of those costs."

Individual	Reduce the sum of projected expenses in the numerator of the amortization rate formula to just the amount of expense in the current period (E_t) and drop the sum of projected expenses from the prospective DAC calculation. $$\hat{k}_t = \left.[DAC_{t-1} + E_t]\middle/{[\sum_{s=t-1}^{\omega} {}_{s-(t-1)}\hat{p}_{x+t-1}]}\right.$$ $$DAC_t = \hat{k}_t \times \sum_{s=t+1}^{\omega} {}_{s-(t+1)}\hat{p}_{x+t}$$ $$DAC_t = \left.(DAC_{t-1} + E_t - \hat{k}_t)\middle/{[(1 - \hat{w}_t) \times (1 - \hat{q}_{x+t-1})]}\right.$$
Grouped	Reduce the numerator of the amortization rate formula to just the sum of the previously reported DAC balance and the amount of the current new expense. Remove expected future expenses from the present value DAC formula. $$k_t = \left.(DAC_{t-1} + Expense_t)\middle/{\sum_{s=t-1}^{\omega} Basis\ in\ Force_s}\right.$$ $$DAC_t = DAC_{t-1} + Expense_t - k_t \times Basis\ in\ Force_{t-1}$$ $$DAC_t = k_t \times \sum_{s=t}^{\omega} Basis\ in\ Force_s$$

Stepping through the changes one by one still allows for favorable persistency adjustments to the ending balance. Getting past this requires stepping above the detailed changes to see them as a coordinated set.

Under standards before ASU 2018-12, DAC amortization and reserve accrual are intertwined in multiple ways. Cash flow assumptions are the same. Discounting and interest accretion are the same. DAC amortization and reserve accrual bases are the same. All expected cash flows are included in the calculations at inception of the contract. Both balances are subject to loss recognition. Except for loss recognition, assumptions are fixed at issue such that, for any given contract remaining in force, the benefit reserve and DAC balance are exactly what initial calculations said they would be.

Targeted improvements break all these commonalities except the consistency of cash flow assumptions. In explaining the changes, the FASB noted that "deferred acquisition costs are similar to debt issuance costs" which are "amortized as long as the borrowing is outstanding." In accounting, amortization is always a reduction to the outstanding balance. The persistency adjustments for insurance contract DAC under standards prior to ASU 2018-12 are an atypical element that fit the intertwining of DAC and reserve calculations. Favorable end-of-period adjustments do not satisfy basic

amortization principles. Without the intertwining that made them acceptable under prior standards, they cannot be supported under ASU 2018-12.

Given the new restrictions, aggregate grouped amortization will often be much different than aggregated individual contract amortization. The difference, however, is caused by differences in how the two approaches handle actual terminations, not in how they handle basic amortization. As long as grouped adjustments follow the same principles as individual adjustments, differences in aggregate result from the different adjustments do not violate the requirement that grouped amortization approximate individual.

Individual	Remove the denominator from the retrospective DAC calculation. Drop the prospective DAC calculation. $$\hat{k}_t = [DAC_{t-1} + E_t] \Big/ \left[\sum_{s=t-1}^{\omega} {}_{s-(t-1)}\hat{p}_{x+t-1} \right]$$ $$DAC_t = DAC_{t-1} + E_t - \hat{k}_t$$
Grouped	No change in the formulas but, if the amortization is not recalculated using actual terminations, the retrospective DAC calculation will be required and must be followed by either: - A proportionate adjustment at the end of the period for excess terminations. - A prospective DAC calculation using a projection that reflects actual terminations. Either way, the second calculation can only be used to reduce the unamortized balance from the retrospective calculation. A positive adjustment is not permitted.

VII. Reinsurance

<u>General</u>

Q 7.1:   What aspects of the previously existing accounting standards for reinsurance are affected by ASU 2018-12?

A: Generally, the scope of ASU 2018-12 covers accounting for long-duration contracts regardless of whether those contracts are directly written, ceded, or assumed. The changes outlined in this ASU considered through the lens of reinsurance have both explicit and implicit impacts on reinsurance accounting.

Q 7.1a. What explicit changes were made to reinsurance-specific standards?

A: The following reinsurance-specific paragraphs were changed by ASU 2018-12.

Deferred Acquisition Costs

- ASC 944-30-35-64 addresses the effect of reinsurance on deferred acquisition costs. The only change is to align amortization of the net deferred costs with the new DAC amortization method.

Claim Costs, Market Risk Benefits, and Liabilities for Future Policy Benefits

- ASC 944-40-25-40 and 25-41 address reinsurance of annuitization, death, and other insurance benefits. ASC 944-40-25-40 instructs the ceding and assuming companies to determine whether the reinsurance includes a market risk benefit, a derivative, or an embedded derivative. For both companies, the determination is made by reference to the account value of the directly written policy. ASC 944-40-25-41 stipulates that if the reinsurance does not include a market risk benefit, derivative, or embedded derivative, then the corresponding provisions for direct features apply.
- ASC 944-40-30-29A covers initial measurement of an insurance feature (including reinsurance) that wraps a noninsurance contract, confirming treatment for reinsurers should be consistent with that of direct issuers.
- ASC 944-40-35-18 covers subsequent measurement of an insurance feature (including reinsurance) that wraps a noninsurance contract, also confirming treatment for reinsurers should be consistent with that of direct issuers.
- ASC 944-40-50-6 includes disclosure requirements related to reinsurance, stating that (a) the liability roll forward shall be gross of any reinsurance recoverable and that (b) reinsurance recoverable be presented as a component of the disaggregated roll forwards or as accompanying information.

Premium Deficiency and Loss Recognition

- ASC 944-60-15-5 now includes, in the scope of premium deficiency testing, explicit reference to the existing requirement of ASC 944-30-35-63 that the PVFP (VOBA) from assumed contracts is subject to deficiency testing. That paragraph makes clear that

requirement still applies to PVFP on traditional contracts even though the liability for future policy benefits on such contracts is not subject to premium deficiency testing.

Q 7.1b. What other changes implicitly affect accounting for reinsurance?

A: There are other paragraphs that did not change as a result of LDTI but may be implicitly impacted by those paragraphs that did change.

Assumed Reinsurance

Assumed reinsurance contracts are generally valued under the same standards as direct contracts. Changes to accounting for direct contracts, therefore, also apply to assumed reinsurance contracts.

Ceded Reinsurance

Except for the explicit changes noted above, the explicit requirements for reinsurance ceded have not changed. However, several of those requirements refer to the accounting for the underlying reinsured contracts and may require some change to accounting for reinsurance.

- ASC 944-40-25-34 requires consistency in manner and assumptions between reinsurance recoverable and the related liabilities of the underlying reinsured contracts.
- ASC 944-605-30-4 partly defines the cost of reinsurance by reference to the liabilities of the underlying reinsured contracts.
- ASC 944-605-35-15 requires amortizing the cost of reinsurance using assumptions that are consistent with those used for the underlying reinsured contracts.
- Though there is no stipulation on the method of amortizing the cost of reinsurance, changes to DAC and liability measurement may influence decisions to retain or modify existing amortization methods, with existing accounting policies of an entity playing a key role in such decisions.

Q 7.2: Are there provisions within the guidance that affect the accounting for reinsurance on universal life-type contracts?

A: ASC 944-40-25-40 and 25-41 will, as noted in answer to Q 7.1, affect reinsurance of some features of universal-life-type contracts.

Ceded reinsurance that is a direct passthrough of underlying contract terms (e.g., coinsurance) could be affected similarly to effects on direct universal life-type contracts, including the changes to the amortization of deferred acquisition cost, deferred sales inducement, and unearned revenue.

Ceded reinsurance that is not a direct passthrough (e.g., yearly renewable term (YRT)) might be affected, depending on the methods used in the measurement of reinsurance recoverable and cost of reinsurance.

Q 7.3: Must ceding and assuming insurers match each other's grouping for their respective reinsurance reserve calculations?

A: No. For additional details, see Q 7.12 and Q 7.14 for considerations related to ceded reinsurance, and Q 7.29 through Q 7.32 for considerations related to assumed reinsurance.

Q 7.4: *How does a party to a reinsurance contract (ceding or assuming) measure its asset or liability when the counterparty administers the business but does not provide the data needed for valuation in a timely basis?*

A: There is no real substitute to actual data. Companies should work with their counterparties to ensure that the necessary data is provided in a timely, complete, and accurate manner. Companies need to discuss situations where data is incomplete with their accounting professionals and auditors.

Ceded (General)

Q 7.5: *Does ASU 2018-12 impact the establishment of a reinsurance recoverable for the ceding company in the situation of coinsurance on traditional contracts?*

A: ASU 2018-12 does not fundamentally change the requirement to account for these coinsurance transactions through the establishment of a reinsurance recoverable that is "recognized in a manner consistent with the liabilities … relating to the underlying reinsured contracts" (ASC 944-40-24-34). However, because the ASU changes the manner of measuring the liabilities of the underlying contracts, the measurement of reinsurance recoverable also changes.

Q 7.6: *Does the 100% cap on the net premium ratio (NPR) for the liability for future policy benefits also apply to the NPR for the reinsurance recoverable?*

A: Appendix A, paragraph A.92, of *AAG-LHI* lays out this question in terms of distinct periods—1) prior to or at inception of a reinsurance transaction, and 2) subsequent to inception.

The substance of paragraph A.92 centers on whether a cedant can recognize an immediate reinsurance gain on business where, due to the NPR capping requirement, it is required to take a direct loss. The conclusion is "that to the extent the insurer has recognized a loss on the reinsured portion of the direct contracts in the current period, the insurer should recognize an immediate gain on the reinsurance ceded contract." However, if a loss due to the capping of the NPR was recognized in a period prior to the inception of the reinsurance contract, "the insurer should not recognize a gain at inception of a reinsurance transaction to offset a previously recognized loss on direct business as that would violate the FASB ASC 944-40-25-33 prohibition of gain recognition upon entering into the reinsurance contract."

The paragraph recognizes that "[w]hen the reinsurance is coinsurance of the entire cohort with all terms matching the direct contracts," capping of the ceding net premium ratio may be appropriate but "in other fact patterns, for example, where all the terms are not proportional, such as yearly renewable term reinsurance agreements, it may not be appropriate to cap the ceded net premium ratio at 100%."

Q 7.7: *Does the zero floor on the liability for future policy benefits and on the additional universal life liabilities also apply to the reinsurance recoverable asset? (i.e., does the ASU prohibit recognition of a reinsurance recoverable liability?)*

A: Generally, no, the floor on direct liabilities does not apply to reinsurance recoverable, but flooring the direct liability may affect the reinsurance recoverable.

AAG-LHI recognizes that in the circumstance of "coinsurance of the entire cohort with all terms matching the direct contracts, the insurer should follow consistent accounting for the related reinsurance recoverable and floor the reinsurance recoverable asset at zero as well" (Appendix A, paragraph A.94). In general, it advises that a reinsurance recoverable can be a liability (i.e., when dealing with non-proportionate reinsurance), but the reinsurance liability may be reduced and an immediate gain recognized "to the extent of any immediate loss recognized for the reinsured portion of the direct liability" (Appendix A, paragraph A.95).

Q 7.8: *How would a reinsurance recoverable be calculated when only a subset of underlying contracts within a cohort is reinsured?*

A: Reinsuring only a subset of the underlying contracts does not alter the basic calculations. See Q 7.9 and Q 7.12 for more about considerations specific to this situation.

Q 7.9: *For traditional contracts, what is the formula for determining the net premium ratio for the reinsurance recoverable?*

A: The method for establishing a reinsurance recoverable for long-duration reinsurance ceded follows the method for accounting for the direct contract liability for the contracts covered by the reinsurance. For traditional insurance contracts, this means a method aligned with the net premium method of calculating the liability for future policy benefits. While this answer may sound prescriptive, in practice there are multiple interpretations available. Q 7.10 initiates the discussion of multiple interpretations for YRT reinsurance and is a useful complement to this question.

The formula for calculating a reinsurance recoverable for reinsurance of traditional contract liabilities is fundamentally the same as the formula for calculating direct contract liabilities. Using $VRecov_t$ to represent the reinsurance recoverable at time t associated with a cohort of reinsurance, its calculation is similar to those used for calculating the liability for future policy benefits on traditional and limited-pay contracts:

$$VRecov_t = PV_t(ReinsBen) - NPR * PV_t(Prem)$$

$$NPR = \frac{PV_0(ReinsBen)}{PV_0(Prem)}$$

Where $PV_t(X) = \sum_t^\infty X_t / (1+i)^t$

NPR may be capped at some number greater than or equal to 100% in certain circumstances to offset a current-period loss recorded on the cohort of contracts to which the reinsurance applies (see Q 7.6).

Multiple interpretations of the components of these formulas are possible. Two main approaches are described below.

Standalone approach: Under this approach, the reinsurance recoverable is calculated solely with reference to the cash flows associated with the reinsurance contract. *ReinsBen* is defined as the vector of reinsurance benefit reimbursements received (and expected to be received) over the life of the reinsurance cohort. *Prem* is defined as the vector of reinsurance premiums paid (and expected to be paid) over the life of the reinsurance cohort. The reinsurance recoverable under this approach could be positive or negative (i.e., it could be an asset or a liability). Though self-contained and simple to apply, calculation of the reinsurance recoverable using this standalone method may not complete the entries needed to account for the reinsurance coverage. This might be the case when the *Prem* vector is not proportional to the basis used by the company to measure the liability for future policy benefits of the underlying reinsured contracts. For example, if reinsurance premiums increase relative to direct premiums (as is typical of yearly renewable term reinsurance), remeasurement gains and losses in a standalone reinsurance recoverable will be smaller than the corresponding direct remeasurement losses and gains that result from reinsured variances and assumption changes. In such cases, remeasurement of a separate cost of reinsurance asset or liability is needed to rectify this inconsistency. Because this is an accounting determination, it should be discussed with an accounting professional and company auditors.

Integrated approach: Under this approach (also known as the "net cost" approach; see Q 7.10), the reinsurance recoverable is calculated with reference to the underlying, reinsured contracts. *ReinsBen* is defined as the vector of reinsurance benefit reimbursements received (and expected to be received) minus reinsurance premiums paid (and expected to be paid) over the life of the reinsurance cohort. *Prem* is the vector of direct premiums received (and expected to be received) over the life of the cohort of policies to which the reinsurance cohort is aligned. The resulting reinsurance recoverable could be positive or negative. Ordinarily, this approach eliminates the need to record a separate cost of reinsurance asset or liability because it implicitly results in the cost of reinsurance being recognized in proportion to a metric (direct premiums) associated with the reinsured policies that align with the constant profit margin concept.

One aspect of the integrated approach warranting consideration is its applicability to a reinsurance cohort that only covers a portion of the policies in the cohort of directly written contracts to which it is aligned. In this situation, the cost of reinsurance is implicitly amortized in proportion to all direct premium received in the cohort, including premium on policies or portions of policies that are not covered by reinsurance. Some actuaries view this as a flaw with this method because it does not recognize the cost of reinsurance solely with respect to the policies reinsured. Others view it as consistent with the concept that the unit of account under ASU 2018-12 is the cohort and with the manner of measuring the liability for future policy benefits of the reinsured policies because that liability accrues on direct premiums for the entire cohort without any regard to whether or which policies are reinsured. Neither view is addressed in FASB or AICPA guidance.

A variation of the integrated approach may also be considered, amortizing the cost of reinsurance premiums and accruing for reinsurance recoveries separately using a consistent net premium methodology and the same direct premium base.

Q 7.10: How does ASU 2018-12 affect YRT accounting for the cedant?

A: GAAP prior to adoption of ASU 2018-12 did not prescribe any specific techniques to account for YRT reinsurance, and ASU 2018-12 does not add any specificity. However, certain changes as defined in ASU 2018-12 might cause a ceding company to reconsider its approach.

Some companies have accounted for ceded YRT on traditional business by recording an unearned premium reserve without any long-duration reinsurance reserve calculation or cost of reinsurance asset or liability.

In such cases, the effects of ASU 2018-12 on YRT accounting depend on classification of the reinsurance as either short-duration or long-duration.

If companies have determined that their YRT treaties were short-duration contracts, then they remain short-duration and are out of scope for ASU 2018-12.

However, whereas unearned premium alone might have been considered a reasonable approximation of the treaty's impact under locked-in assumptions for a long-duration contract, it is unlikely to remain so with the introduction of unlocking for traditional products. *AAG-LHI* notes that practitioners "should also employ a net premium approach with retrospective updating of cash flows" (paragraph A.83). Short-duration accounting for YRT is not a net premium approach and produces no retrospective update to offset in the reinsurance accounting for the effects of variances and assumption changes on the direct contract reserve even though actual or expected recoveries from the reinsurance might offset actual or expected direct cash flows.

Therefore, companies that have simply recorded unearned premium to account for long-duration YRT reinsurance may need to change their approach to align with the new long-duration standards. Because this is an accounting determination, it should be discussed with an accounting professional and company auditors.

The remainder of this answer describes two approaches that might be considered: 1) standalone accrual of a reinsurance recoverable, or 2) amortization of an integrated cost of reinsurance (CoR).[4] The first alternative accrues for expected YRT recoveries as a constant percentage of YRT premiums (= 88.78% in illustration below). The second amortizes the cost of the YRT contract (YRT premiums less YRT recoveries) as a constant percentage of direct premiums (= 9.40% in illustration below). Either approach could result in an asset or liability.

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[4] For clarification, it is important to note that the requirements of accounting for these two balances, reinsurance recoverables (subtopic 944-40) and the cost of reinsurance (subtopic 944-605), are different. Both must use assumptions that are consistent with accounting for the underlying direct contracts but the recoverable must also be "recognized in a manner consistent with the liabilities relating to the underlying reinsured contracts."

Simple illustration:

Underlying product: 7-year Level Term

Interest = 0%

Reinsurance = 100% YRT of statutory net amount at risk

Experience Variance in Year 3 = 50% more claims than expected

Within the tables below, the top section assumes experience emerges as expected, while the bottom section reflects the impact of the experience variance. (Cash flow assumptions are exaggerated to simulate the aging of a longer-term product.)

Observations:

- The box on the left-hand side depicts the net income of the direct writer before reinsurance, emerging as a constant percent of direct premiums (25%). (This is as expected when applying the net premium method.)
- The middle box depicts the development of the reinsurance recoverable on the Standalone approach. (See Q 7.9 for a more complete description[5].) Under this approach, recognition of reinsurance recoveries does not align with recognition of the reinsured benefit costs. As a result, net income is a declining percentage of direct premium (column (A)). Note, all income in the illustration is shown from the direct writer's point of view, i.e., positive income for the reinsurer is negative income for the direct writer.
- In contrast, the Integrated Net Cost approach (again, refer to Q 7.9) amortizes the net cost of the YRT contract over direct premiums. As a result, total expected net income for the direct writer emerges as a smooth, constant percentage of direct premiums.
- The contrast in volatility is exacerbated when experience deviates from expected as depicted in the bottom section and the chart just below. Although the reinsurer reimburses the direct writer for 99% of the excess claims, remeasurement under the Standalone method recognizes a smaller portion of the recovery than is recognized of the claim variance in remeasurement of the direct liability.

As noted in Q 7.9, a separate cost of reinsurance asset or liability might be needed to avoid the apparent distortions of the Standalone approach.
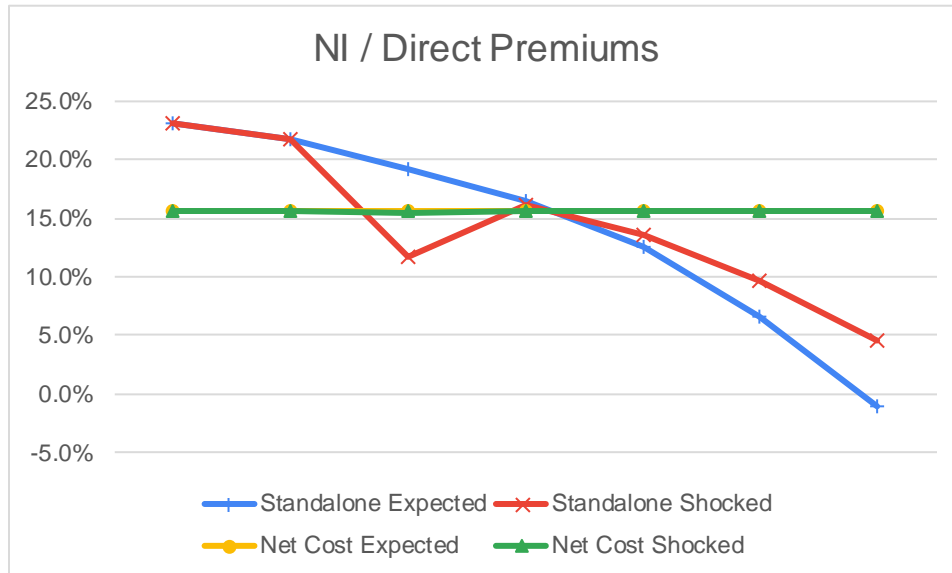
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[5] As further reference, the Standalone method is illustrated for reinsurance of traditional contracts in §17.6.3.2 of the second edition of GAAP for Life Insurers. The Net Cost method is illustrated for reinsurance of universal life contracts in the same textbook §17.7.

EXPECTED EXPERIENCE

	DIRECT					REINSURANCE: STANDALONE APPROACH							REINSURANCE: NET COST APPROACH					
	PV 26,835	PV (20,126)	NPR 75.00%			PV (22,480)	PV 19,958	NPR 88.78%				(A)	PV 2,522	NPR 9.40%				
Year	Premium	Benefit	Reserve	NI	% Dir Prem	Premium	Recovery	Recoverable	NI Reins	% Reins Prem	NI after Reins	% Dir Prem	Net Cost	CoR Balance	NI Reins	% Dir Prem	NI after Reins	% Dir Prem
0			0					0						0				
1	5,990	(800)	3,692	1,497	25.0%	(990)	800	79	(111)	11.2%	1,386	23.1%	190	373	(563)	-9.4%	935	15.60%
2	4,100	(1,040)	5,727	1,025	25.0%	(1,210)	1,033	120	(136)	11.2%	889	21.7%	177	581	(385)	-9.4%	640	15.60%
3	3,807	(1,741)	6,840	952	25.0%	(1,964)	1,719	144	(220)	11.2%	731	19.2%	245	694	(358)	-9.4%	594	15.60%
4	3,569	(2,449)	7,068	892	25.0%	(2,710)	2,411	140	(304)	11.2%	588	16.5%	299	731	(335)	-9.4%	557	15.60%
5	3,341	(3,380)	6,194	835	25.0%	(3,730)	3,329	122	(418)	11.2%	417	12.5%	401	644	(314)	-9.4%	521	15.60%
6	3,121	(4,633)	3,902	780	25.0%	(5,104)	4,583	70	(573)	11.2%	208	6.7%	521	416	(293)	-9.4%	487	15.60%
7	2,908	(6,083)	0	727	25.0%	(6,773)	6,083	0	(760)	11.2%	(33)	-1.1%	689	0	(273)	-9.4%	454	15.60%

SHOCKED EXPERIENCE

	DIRECT					REINSURANCE: STANDALONE APPROACH							REINSURANCE: NET COST APPROACH					
	PV 26,817	PV (20,974)	NPR 78.21%			PV (22,455)	PV 20,796	NPR 92.61%					PV 1,659	NPR 6.19%				
Year	Premium	Benefit	Reserve	NI	% Dir Prem	Premium	Recovery	Recoverable	NI Reins	% Reins Prem	NI after Reins	% Dir Prem	Net Cost	CoR Balance	NI Reins	% Dir Prem	NI after Reins	% Dir Prem
0			0					0						0				
1	5,990	(800)	3,692	1,497	25.0%	(990)	800	79	(111)	11.2%	1,386	23.1%	190	373	(563)	-9.4%	935	15.60%
2	4,100	(1,040)	5,727	1,025	25.0%	(1,210)	1,033	120	(136)	11.2%	889	21.7%	177	581	(385)	-9.4%	640	15.60%
3	3,807	(2,612)	6,416	505	13.3%	(1,964)	2,579	(556)	(61)	3.1%	444	11.7%	(615)	1,108	88	2.3%	594	15.59%
4	3,564	(2,445)	6,758	776	21.8%	(2,706)	2,408	(457)	(200)	7.4%	577	16.2%	299	1,030	(221)	-6.2%	556	15.60%
5	3,336	(3,375)	5,992	727	21.8%	(3,725)	3,324	(332)	(275)	7.4%	452	13.5%	400	836	(206)	-6.2%	520	15.60%
6	3,117	(4,626)	3,804	679	21.8%	(5,097)	4,577	(189)	(377)	7.4%	302	9.7%	520	509	(193)	-6.2%	486	15.60%
7	2,904	(6,075)	0	633	21.8%	(6,763)	6,075	0	(500)	7.4%	133	4.6%	688	0	(180)	-6.2%	453	15.60%

NI / Direct Premiums — Standalone Expected, Standalone Shocked, Net Cost Expected, Net Cost Shocked

The following table identifies elements of the calculation with sample answers that are open to interpretation:

Element for interpretation	Net Premium Reserve as Recoverable Asset (or liability)	Cost of Reinsurance (CoR) Asset (or Liability)
Sample formula	PV(YRT recoveries) less NPR×PV(YRT premiums)	This can be written prospectively: Amort% × PV(Direct premiums) -

Element for interpretation	Net Premium Reserve as Recoverable Asset (or liability)	Cost of Reinsurance (CoR) Asset (or Liability)
		[PV(YRT premiums) - PV(YRT recoveries)]
Level of calculation	Follow cohort structure of direct	Follow cohort structure of direct
Insurance assumptions	Follow direct cohort structure, including timing of any updates	Follow direct cohort structure, including timing of any updates
Discount rate locked in for income statement purposes	The upper-medium grade fixed-income instrument yield rate or curve that applies at the issue dates of the direct policies in the cohort, except: • The rate used under GAAP prior to adoption of LDTI applies to reinsurance in force at the LDTI transition date. • The "upper-medium grade fixed-income instrument yield discount rate assumption at the date the reinsurance contract is recognized in the financial statements" applies to "contracts that reinsure existing (in force) traditional and limited-payment long-duration insurance contracts" (*AAG-LHI*, Appendix A, paragraph A.87).	Same as for a recoverable asset.
Issue date used for retrospective remeasurement purposes and for locking in the interest rate used for the NPR	The later of the issue date applying to the direct policies, and the transition date, except: • The effective date of the reinsurance applies to contracts that reinsure existing long-duration insurance contracts.	Same as for a recoverable asset.
Capping of NPR used in recoverable calculation (See also Q 7.6)	Generally, the guidance on NPR capping in direct calculations does not apply in ceded calculations. If capping of the direct NPR occurs, producing an immediate loss on the direct side, it is appropriate to adjust the ceded calculations so that an immediate gain commensurate with the reinsurer's share in the direct loss results. In some situations, this may be equivalent to capping the NPR in the ceded calculations.	Generally, capping of the amortization ratio is not an appropriate adjustment and interferes with the goal of recognizing level reinsurance costs. However, if capping of the direct NPR occurs, producing an immediate loss on the direct side, it is appropriate to adjust the CoR commensurate with the reinsurer's share of the immediate loss. For quota-share coinsurance, the quantity of this adjustment may be the reinsurer's quota-share times the direct capping adjustment.
Flooring of a reinsurance credit	Generally, the guidance in direct calculations to floor reserve	Generally, the guidance in direct calculations to floor reserve

Element for interpretation	Net Premium Reserve as Recoverable Asset (or liability)	Cost of Reinsurance (CoR) Asset (or Liability)
(asset only allowed, see also Q 7.7)	calculations is not relevant to ceded calculations. However, if flooring occurs in direct calculations, producing an immediate loss on the direct side, it is appropriate to recognize an immediate gain commensurate with the reinsurer's share of the flooring adjustment. In some situations, this may be equivalent with flooring the ceded reserve.	calculations is not relevant to CoR ceded calculations. However, if flooring occurs in direct calculations, producing an immediate loss on the direct side, it is appropriate to adjust the CoR commensurate with the reinsurer's share of the flooring adjustment.

Q 7.11: How are premium rate increases on YRT treaties handled?

A: Often, YRT rates are subject to future adjustments.

Because rate increases affect actual and expected cash flows, the ceding company needs to update cash flow projections to reflect actual adjustments to YRT rates and use best estimate assumptions about future adjustments based on the terms of the contract, general industry practice, and expected mortality experience.

As with other insurance assumptions, assumptions about future reinsurance premiums must be a current estimate, and it is therefore necessary to update expected YRT premiums when rate changes are expected. The update will produce a remeasurement gain or loss in the YRT reserves as calculated by either of the methods discussed in Q 7.10, as well as changing future accruals. Related to YRT premium rate assumptions, it is also appropriate to consider probable direct company responses to rate increases.

Q 7.12: What requirements and options apply to grouping of contracts for ceded reinsurance reserves?

A: According to Appendix A of *AAG-LHI*, "a ceding entity should use cohorts … consistent with those of the underlying reinsured direct policies" (paragraph A.83). A company might consider this requirement when grouping contracts for the direct liability calculations because that grouping will affect reinsurance grouping.

Fundamentally, the requirement is that the valuation approach must calculate both the value of the direct (gross of reinsurance) liability and the value of the ceded liability. An actuary could apply several approaches based on the situation and actuarial judgment:

- If all of the direct business within a product grouping is subject to coinsurance or YRT accounted for on a long-duration basis, there would be no need to separate the business further beyond annual issue year cohorts unless the actuary determined this was preferred, based on factors such as the nature of the underlying business.
- If only some of the direct business within a product grouping is subject to reinsurance, the actuary may determine that it would be preferred and consistent with general

grouping requirements under ASU 2018-12 to separate the business into direct cohort(s) for which reinsurance is applied, and separate cohort(s) for which reinsurance does not apply. While this may facilitate calculation and analysis, it is not a requirement and, depending on the nature and timing of the reinsurance coverage, may not be consistent with the general principles for defining cohorts. Additionally, it may not always be obvious how to separate the retained risks from the reinsured risks. Actuarial judgment should be applied along with consultation with accounting professionals.

Once cohorts are established, they may not be changed even if conditions used when defining them change. According to paragraph A.99 of *AAG-LHI*, "a cohort is a decision made at initial measurement and cannot be changed once established."

Q 7.13: How are recaptured policies and/or contracts treated in the calculation of the reinsurance recoverable?

A: There is no formal guidance directly addressing recapture of either a treaty or of individual contract coverage under a treaty. How recapture is treated depends on the specific facts and circumstances of the recapture.

In some instances, recapture of individual contracts is tied to an increase in a retention limit. Full recapture applies for contracts within the new limit and partial recapture applies for larger contracts. In this situation, one approach to consider is treating recapture as a termination or reduction of the individual coverage, leaving all prior cash flows in the updated reinsurance net premium calculations but adjusting projected cash flows to be consistent with the recapture. For underlying contracts that are not yet eligible for recapture, but will be recaptured when they become eligible, the cash flow projection would reflect the expected recapture.

Recapture of an entire reinsurance contract results in the extinguishment of the contract and elimination of all rights and responsibilities associated with the contract. It is then necessary to determine whether historical reinsurance cash flows, as well as projected reinsurance cash flows, should be removed from any remaining reinsurance calculations. It currently appears that the removal of historical cash flows is not acceptable under GAAP. Because this is an accounting determination, actuaries are encouraged to consult with an accounting professional when dealing with recapture of entire reinsurance contracts.

Q 7.14: Does each reinsurance treaty constitute its own cohort for the purpose of calculating reinsurance recoverables, or can multiple treaties be combined in the same cohort?

A: According to *AAG-LHI*, "a ceding entity should use cohorts … consistent with those of the underlying reinsured direct policies" (paragraph A.83). Consistency requires separate calculations of reinsurance recoverable for each direct cohort, even if a treaty covers underlying policies in multiple cohorts. Within direct cohorts, consistency could mean combining multiple treaties but does not mean that it is a requirement. As long as a reinsurance recoverable calculation does not span multiple direct cohorts, an insurer can choose whether to combine treaties within a common cohort or value them separately.

In many situations, however, it will prove administratively convenient and conceptually consistent with the treatment of the reinsured policies to aggregate treaties covering the same policies within a single reinsurance cohort. For example, if a company cedes risks to a pool of reinsurers with each reinsurer taking a fixed percentage of the underlying risk, it would be natural to aggregate the individual treaties into a single reinsurance cohort to align with the cohort in which the directly written contracts reside.

In some situations, a single treaty may be represented in multiple cohorts. For example, if the treaty covers multiple issue years of policies, the treaty may be deconstructed into components (such as issue year) that align with the underlying reinsured policies. This may result in those components of a treaty being aggregated with components of different treaties in the same cohorts. In general, the grouping of components of individual treaties with components of other treaties follows the aggregation decisions made for the reinsured policies.

Ceded (Concurrent)

Q 7.15: Some companies establish a "cost of reinsurance" asset or liability to amortize the present value of recurring new business reinsurance costs. How does ASU 2018-12 affect this calculation?

A: According to ASC 944-605-35-14 (which is unchanged by ASU 2018-12), "The cost [of reinsurance] shall be amortized over the remaining life of the underlying reinsured contracts if the reinsurance contract is long-duration." Other than the period for amortization, there is no guidance on how to amortize the cost of reinsurance and the ASU 2018-12 does not add any such guidance.

The general purpose of a CoR accounting adjustment for concurrent reinsurance is to amortize net reinsurance costs for ceded reinsurance (outlays less recoveries, adjusted for changes in any recoverables) over the life of the reinsured contract. Through the method used or whether certain aspects of the calculation are locked-in or not, industry practice has tended to align the method with the accounting classification of the underlying business. For example, industry may remain consistent with GAAP practices prior to the adoption of ASU 2018-12, amortize with respect to premiums when the underlying business is traditional, or estimate gross profits or assessments when the business is universal life-type.

If the underlying business is traditional, ASU 2018-12 presents the opportunity but not the explicit requirement to update the method used at the transition date for consistency with the new standards for valuing the liabilities of the underlying direct policies. This could include a change in amortization basis, remeasurement for experience or discount rate, and groupings into cohorts that are consistent with the calculation requirements that apply to the direct business. If the company follows this approach, the discount rate on CoR for income accrual purposes would by analogy be consistent with the locked-in rate used to calculate the reinsurance recoverable associated with the reinsurance cohort. In making such a change to the amortization method, a company will need to consider the guidance in ASC Topic 250 regarding accounting changes.

An actuary should discuss specific circumstances with an accounting professional to determine whether a change is subject to the company's policy choice about the modified retrospective transition method.

Q 7.16: If the cost of reinsurance is implicitly included in DAC amortization prior to the adoption of ASU 2018-12 (i.e., DAC is amortized using net of reinsurance estimated gross profits [EGPs]), must it be identified separately at transition and subsequent valuations?

A: With DAC amortization moving to a constant-level basis, the concept of implicit cost of reinsurance for universal life-type contracts will have no meaning under ASU 2018-12. Therefore, it will be necessary to reconsider the method of amortizing the cost of reinsurance whenever the implicit method has been used.

For transition, there is no guidance on whether new amortization can pivot on the existing (zero) balance because of its existing tie to DAC amortization or be retrospectively restated. Except for deferred sales inducements and unearned revenue, both of which are subject to the DAC amortization and transition provisions, the ASU does not explicitly provide for modified retrospective transition of universal life balances. Consultation with accounting professionals is suggested in determining how to transition from the implicit method.

Q 7.17: How precise must a ceding company be in establishing gross and ceded reserves for a block of business that is 100% coinsured from its inception?

A: There is no guidance that explicitly allows for simplification of reserve calculations for blocks of business that are 100% coinsured. Even materiality considerations can't focus only on net exposure because recognition (ASC 944-20-40-4) and disclosure (ASC 944-40-50-6) both require separation of direct and ceded reserves.

For coinsurance put in place concurrent with the issuance of a direct cohort, mirroring should produce the same result as separate calculations of the reinsurance because amounts in force and all assumptions, including discount rates, will be the same as used in calculating the direct reserve.

See Q 7.20 for reinsurance put in place subsequent to issuance of a direct cohort.

Q 7.18: How do coinsurance allowances affect the measurement of reinsurance recoverable and cost of reinsurance?

A: Coinsurance allowances that are in nature reimbursements for direct company acquisition costs are part of direct company DAC calculations (ASC 944-30-35-64), just as they always have been under GAAP. Under ASU 2018-12, such amounts scheduled to be paid in future periods do not affect calculations until the applicable future period. If such allowances exceed capitalized costs, it may be necessary to characterize the excess as unearned revenue or as a non-level allowance to be included in the cost of reinsurance calculation. Actuaries are encouraged to consult with an accounting professional when faced with this situation.

Allowances not characterized as reimbursements for acquisition expense could generate accounting adjustments to recognize the timing of non-level patterns. In direct calculations, ASU

2018-12 does not permit maintenance expenses to be included in benefit reserves or other adjustments (ASC 944-40-30-15). This guidance does not directly apply to ceded recoverable calculations, but it would be appropriate to exclude such expenses "in a manner consistent with the liabilities … relating to the underlying reinsured contracts." (ASC 944-40-25-34)

Ceding (Existing in Force)

Q 7.19: At inception of an in-force reinsurance contract, is the initial Cost of Reinsurance based on book value of the liability for future policy benefits (as accrued through net income at the original discount rate) or on its statement value (reported in the balance sheet at the current discount rate)?

A: *AAG-LHI* advises that "the reinsurance recoverable and the cost of reinsurance should be measured using the liabilities for future policy benefits of the underlying direct contracts reinsured, as remeasured using the upper-medium grade fixed-income instrument yield discount rate assumption at the date the reinsurance contract is recognized in the financial statements" (Appendix A, paragraph A.87).

In taking this position, *AAG-LHI* (Appendix A, paragraph A.87) cites the "ASC 944-40-25-34 requirement that the reinsurance recoverable 'be recognized in a manner consistent with the liabilities ... relating to the underlying reinsured contracts,'" and "that this is also consistent with the requirements of FASB ASC 944-40-25-33 because there is no immediate comprehensive income or loss relating to the initial recognition of the reinsurance recoverable." Were the reinsurance recoverable and cost of reinsurance based on the book value of the direct liability, adjustment of the reinsurance recoverable for current discount rates would produce an immediate gain or loss in OCI.

Q 7.20: How does ASU 2018-12 affect the amortization of a cost of reinsurance asset or liability arising from the cession of an existing book of business?

A: To determine the effect, it will be helpful to distinguish two cases regarding the pattern of cost of reinsurance:

- Case 1: Treaty terms are such that ongoing reinsurance costs can be charged to income as incurred. This is likely the case if coinsurance is used and the primary concern is measuring the initial value of the reinsurance and amortizing that cost over the life of the underlying business.

- Case 2: Treaty terms are such that post-inception costs also need to be amortized (e.g., if premiums for the reinsurance are not equal to its quota-share of the direct premiums). Reinsurance of an existing treaty by YRT would be an example.

ASU 2018-12 does not add specific guidance on cost of reinsurance calculations. Moreover, prior to issuance of ASU 2018-12, guidance was minimal on this topic and industry practice has varied. However, certain principles of the guidance in ASU 2018-12 may apply indirectly or by analogy.

With respect to case 1, many companies have in the past aligned the amortization of the CoR with the DAC amortization method corresponding to the accounting classification of the underlying business. Depending on how that is expressed in their accounting policies, companies might be able to consider whether to align CoR amortization with the new DAC amortization standards, continue the method used in the past or, if the underlying direct policies are traditional business, modify the method at transition date to follow the retrospective adjustment and other calculation aspects that apply to direct benefit calculations with the aim of achieving constant level recognition of the cost of reinsurance.

With respect to case 2, it may be more difficult to exactly follow the simplified amortization outlined in ASU 2018-12 at least from the point of view of needing to consider future costs when determining the period's amortization by that method.

An additional methodology issue to interpret in either case is the form of retrospective remeasurement. As discussed in Q 7.22, the interpretation affects how well the CoR movements will offset (to the extent of the reinsurance) the movements in the direct accounting.

Q 7.21: How precise must a ceding company be in establishing gross and ceded reserves for an existing block of business that is now 100% reinsured? Can a simplified single cohort be established at inception of the reinsurance?

A: For reinsurance put in place subsequent to issuance of a direct cohort, the issue date of the reinsurance contract will differ from the direct contracts, which would call for an at-issue discount rate for the reinsurance set independently from the at-issue discount rate for the direct contracts (*AAG-LHI*, Appendix A, paragraph A.88). The difference in issue dates may also result in different amounts of actual experience reflected in the NPR calculations, resulting in reinsurance offsets that are not 100% of the direct liability (see Q 7.22)

GAAP makes no specific allowance for a single cohort or any other simplification. Its general exemption for immaterial items (ASC 105-10-05-6), however, may permit some simplifications.

Given these circumstances and likely requirements, it is up to individual companies to determine with their auditors whether simplifying assumptions and concepts of materiality could come into play with respect to the underlying reserve calculations. Concepts such as single cohort calculations at transition, given an immaterial impact on net results, may be an acceptable option for some carriers, but they will need to work through their individual facts and circumstances to determine if this is appropriate.

Q 7.22: How does the new retrospective update requirement apply to remeasurement of ceded reserves for reinsurance of existing business?

A: The ASC 944-40-25-34 requirement to recognize reinsurance recoverable "in a manner consistent with the [direct] liabilities" implies that retrospective updates for actual experience and assumption changes are required for reinsurance recoverables because direct liabilities recognize such effects in that manner. According to *AAG-LHI*, "the recognition of ceded reinsurance recoverables for traditional and limited payment long-duration contracts should also

employ a net premium approach with retrospective updating of cash flows" (Appendix A, paragraph A.83).

Though ASC 944-605-35-15 requires use of consistent assumptions for measuring the cost of reinsurance, there is no guidance on how to amortize this cost. Retrospective remeasurement of the cost of reinsurance asset or liability is therefore permitted but not required. ASU 2018-12 does not change that.

Determining *whether* to include remeasurement when amortizing the cost of reinsurance begins with a review of a company's accounting policy prior to adoption of ASU 2018-12. Is there anything that would require or prohibit alignment with the ASU's remeasurement standards? Next, is a policy change necessary to comply with the ASU? If a policy change is not necessary, would it be preferable (ASC 250-10-45-2)? If a change is to be made, a company might specify in its accounting policy the conditions under which it will or will not include remeasurement of the cost of reinsurance to avoid blanket precedent with possibly unintended consequences. Actuaries are encouraged to consult with an accounting professional when making these determinations.

There is no formal guidance on how to remeasure the reinsurance recoverable (as required) or the cost of reinsurance (as permitted). In the absence of formal guidance, some actuaries believe it is best to consider key objectives of having reinsurance—to protect income and equity from adverse experience in exchange for a known cost. Though not a strict requirement, GAAP generally intends for accounting to reflect the economics of a transaction. Combining these objectives, actuaries could look for remeasurement of reinsurance recoverable, perhaps combined with remeasurement of cost of reinsurance, to offset remeasurement of the direct liability to the extent the events driving remeasurement are reinsured.

For treaties that were already in effect at the transition date of ASU 2018-12, remeasurement of reinsurance is the same as remeasurement of the direct liability—recalculate the respective net premium ratios as of the transition date, pivoting on the respective transition reserves.

For treaties entered into after transition to ASU 2018-12, there is no guidance from either the FASB or the AICPA on how to handle the remeasurement of reinsurance balances. Generally, there appear to be three methods that have been considered for remeasurement of reinsurance reserves. The methods vary in how well they align remeasurement of direct and ceded reserves depending, in part, on the methods chosen for measuring reinsurance generally. (See Q 7.9 and 7.10.)

(A) A modified retrospective method is analogous to the modified retrospective method used for transition to the new standards. The effective date of the treaty is treated as if it were a transition date and the net premium calculation thereafter pivots on the initial reinsurance reserve.

Though simple to apply, this method would fail to produce an offset to remeasurement of the direct liability that is consistent with the extent of reinsurance coverage.

(B) A dynamic retrospective method recognizes that in remeasuring the direct net premium ratio as of the issue date of the underlying contracts, the company is in effect remeasuring the liability as of the treaty inception. Because the direct liability is remeasured in a manner that recognizes all experience since the underlying contracts were issued, accounting for reinsurance recoverable in a consistent manner also looks at all experience since the underlying contracts were issued—not just the experience since the effective date of the reinsurance. This method also pivots reinsurance net premium calculations on the direct liability as of treaty inception but uses the remeasurement of that balance rather than the amount that was reported at inception of the treaty.

This is the most complex method for ongoing reinsurance calculations because it adds a step to remeasure the direct liability balance as of treaty inception as part of all subsequent remeasurements.

This method would produce consistent remeasurement between direct and ceded reserves only if the initial reinsurance recoverable is a function of the direct liability (as implied in ASC 944-605-30-4) and only if applied to reinsurance recoverable. It would fail to align to direct and ceded remeasurement if applied in the variation of the integrated approach described in the last paragraph of the answer to Q 7.9.

(C) An attributed retrospective method also recognizes that accounting for reinsurance recoverable in a consistent manner makes it dependent, in part, on all experience since the underlying contracts were issued. Rather than retrospectively remeasuring the direct liability as of treaty inception whenever updates are required, this method looks for actual history that is implicit in the initial reinsurance recoverable asset. That implied history is then attributed to "actual" experience as of treaty inception and treated thereafter as if it were actual cash flow. (See the Supplement for an explanation of the formulas needed to perform this attribution.)

This method requires some additional calculations at inception of a treaty and the recording of attributed cash flows as at-inception cash flows in the reinsurance valuation. (Attributed cash flows are not recognized in income.) Once those amounts are recorded, subsequent calculations will follow the same calculation routines as any other retrospective remeasurement.

This method would produce consistent remeasurement between direct and ceded reserves when used in combination with any of the methods described in Q 7.9 and 7.10, for both reinsurance recoverable and cost of reinsurance balances.

To compare methods, consider the following illustration of a 7-year term cohort, coinsured 100% two years (beginning of its third year) after inception. All experience is as expected except for excess claims in cohort year five and the correspondingly lower amounts remaining in force after year five. The discount rate at inception of the cohort is 4%. The current discount rate at inception of the reinsurance is 2%.

Expected	Direct Cash Flows		Ceded Cash Flows	
Year	Premium	Benefit	Premium	Recovery
1	5,392	800	0	0
2	3,690	1,040	0	0
3	3,427	1,741	3,427	1,741
4	3,212	2,449	3,212	2,449
5	3,007	3,380	3,007	3,380
6	2,810	4,633	2,810	4,633
7	2,618	6,083	2,618	6,083

With premiums at the beginning of year, benefits at the end of year, and 4% discounting, the direct net premium ratio is 75%. With experience as expected for the first two years, the accrued liability at the end of year two is 5,380. Remeasuring the liability with a 75% net premium ratio but 2% discounting, the reported liability at the end of year two is 6,136.

At the beginning of year three, the company pays 5,000 to coinsure 100% of the remaining risk. An initial reinsurance recoverable asset equals the 6,136 direct liability. An initial cost of reinsurance liability is established for the 1,136 difference between the amount paid for the reinsurance and the initial reinsurance recoverable.

Experience continues as expected through years three and four. Excess claims in year five require remeasurement for the cost of the extra benefit payments and for the unexpected reduction in the amount remaining in force.

Revised	Direct Cash Flows		Ceded Cash Flows	
Year	Premium	Benefit	Premium	Recovery
5	3,007	6,760	3,007	6,760
6	2,793	4,604	2,793	4,604
7	2,602	6,046	2,602	6,046

Upon remeasurement, the direct net premium ratio increases to 87.55%, producing a 2,198 remeasurement loss at the beginning of year five. The remeasurement gain from reinsurance recoverable depends on the method used. With reinsurance discounting at a locked-in 2% rather than the 4% used for remeasurement of the direct liability, a precise offsetting from reinsurance is not expected, but it is expected to be near the 100% quota share.

(A) Modified retrospective remeasurement of reinsurance recoverable would produce a remeasurement gain of 1,485. Remeasurement of the cost of reinsurance would produce a gain of 1 for a net loss after reinsurance of 711.

(B) Dynamic retrospective remeasurement of reinsurance recoverable would produce a remeasurement gain of 2,241. Remeasurement of the cost of reinsurance would produce a loss of 754 for a net loss after reinsurance of 711.

(C) Attributed retrospective remeasurement of reinsurance recoverable would produce a remeasurement gain of 2,217. Remeasurement of the cost of reinsurance would produce a gain of 2 for a net gain after reinsurance of 21.

As seen in this example, retrospective remeasurement of both reinsurance recoverable and cost of reinsurance will substantially offset remeasurement of the direct liability only under the attributed retrospective remeasurement method. If, however, retrospective remeasurement is not applied to the cost of reinsurance, then dynamic retrospective remeasurement of reinsurance recoverable will perform almost as well as attributed retrospective remeasurement in this situation.

Q 7.23: What discount rate would be used for the reinsurance recoverable when reinsurance is noncontemporaneous (i.e., entered into subsequent to the writing of the reinsured business)?

A: For income, the discount rate for reinsurance recoverable is based on the upper-medium grade fixed-income yield as of the inception of the reinsurance coverage—the effective date of the treaty in this case. Similar to the liability for future policy benefits for the reinsured policies, the reported reinsurance recoverable balance is based on a current discount rate.

According to *AAG-LHI*, "[U]sing the upper-medium grade fixed-income instrument yield discount rate assumption at the reinsurance contract recognition date as the locked-in interest rate for the recognition and initial measurement of the ceded reinsurance contract and subsequent income statement measurement also is consistent with the guidance in FASB ASC 944-40-35-6A(b)(2)" (Appendix A, paragraph A.88).

Also according to *AAG-LHI*, "In periods subsequent to the reinsurance contract recognition date, the current upper-medium grade fixed-income instrument yield discount rate assumption would be used for balance sheet remeasurement purposes … with the difference … recognized in other comprehensive income" (Appendix A, paragraph A.89). That paragraph goes on to recognize that these requirements will result in differences between direct and ceded calculations in both interest accretion and remeasurement at current discount rates.

Q 7.24: If the reinsurance recoverable at treaty inception on a noncontemporaneous treaty exceeds the direct contract liabilities, should a gain be reported upon entering the treaty?

A: Recognition of a gain upon entering into a treaty is not permitted "unless the reinsurance contract is a legal replacement of one insurer by another" (ASC 944-40-25-33). To avoid any gain at inception of the reinsurance—in either net income or other comprehensive income—*AAG-LHI* advises that "the reinsurance recoverable and cost of reinsurance should be measured using the liabilities … as remeasured using the … discount rate assumption at the date the reinsurance contract is recognized" (Appendix A, paragraph A.87). In general, this concept should apply to losses at inception of a reinsurance treaty as well. Keep in mind that any initial consideration exchanged between the entities entering into the transaction is part of the gain or loss calculation.

Any difference between the income and balance sheet measurements of the direct liability that exists at inception of the reinsurance will gradually reverse through other comprehensive income, just as it accrued through other comprehensive income, without having any effect on measurement of reinsurance reserves.

Q 7.25: *How is assumption reinsurance treated?*

A: Under most forms of reinsurance, the liability to the policyholder remains with the ceding company. This requires the ceding company to retain a liability to cover its obligation to the policyholder, with the accounting for the reinsurance contract recorded separately. This is not the case with assumption reinsurance. Under assumption reinsurance, the ceding company is completely relieved of its obligation to the policyholder, with that role being fully assumed by the assuming reinsurer, and its liability to that policyholder is derecognized.

When an entire cohort of contracts is ceded through assumption reinsurance, the accounting treatment is clear. The company is no longer obligated under the contracts, so the entire cohort is removed from the ceding company's books. If the cohort had been reinsured via coinsurance or some other form of reinsurance prior to the assumption agreement, the balances associated with the previous reinsurance are eliminated as well.

Questions may arise when assumption reinsurance is affected over time, or when only a portion of a cohort of directly written contracts is ceded via assumption reinsurance. This may occur, for example, when a block of policies has been ceded via coinsurance with the reinsurance converted to assumption reinsurance at policy anniversary dates or only when the individual policyholders agree to a novation, as may be required by law. In these cases, the concept of derecognizing the liability, and any associated reinsurance item, from the records of the ceding company applies. All future cash flows for the assumed policy and associated reinsurance are removed from the cohorts used to calculate the reserve or reserve credit under the measurement model. If such removal generates a gain or loss because of an unequal impact on the cohort for the direct liability relative to the cohort for the reinsurance recoverable, such difference is recorded immediately in earnings and is not deferred as a cost of reinsurance or otherwise eliminated. In no case would it be appropriate or even possible to maintain a liability and an offsetting reinsurance recoverable for a contract that has been ceded via assumption reinsurance.

It might be appropriate or necessary to include any consideration generated as part of the cession in historical cash flows so that remeasurement of the liability for contracts remaining in the cohort will align the cost of the cession with the derecognition of the liability. For the same reason, when a contract that was initially coinsured is novated at a later date, it might be appropriate or necessary to record an in-substance surrender benefit in the direct and ceded cash flows.

Actuaries are encouraged to consult with an accounting professional when considering such alternatives.

Assumed

Q 7.26: Should renewal allowances be included in the assumed liability for future policy benefits? Some cedants pay reinsurance premiums net of renewal commission—is that commission considered an expense (e.g., a premium rebate) or a reduction to revenue?

A: In determining whether renewal allowances should be included in the assumed liability for future policy benefits, the company must first determine the accounting classification of the allowances. Standards prior to ASU 2018-12 did not provide explicit guidance on this determination and the updates do not add any further clarification. Depending on the nature or intent of the allowances and how they are expressed in the treaty, they might be classified as commissions, expense allowances, or reductions to the reinsurance premiums.

Once the accounting classification decision has been made, whether and how the allowances enter into the liability calculation can be assessed:

- Unchanged from prior standards, commissions are considered to be acquisition costs and are therefore excluded from liability calculations.

- Also unchanged from prior standards, reinsurance premiums are the basis on which the assumed liability is accrued. Allowances, therefore, will affect the liability calculation if they are considered to be reductions in the reinsurance premium.

- Whether expense allowances will be included in the liability calculation requires further consideration of their characteristics. Level costs are still not included in the liability calculation. Non-level costs must be further evaluated for determination of whether they are included in the liability calculation. ASC 944-40-30-15 now stipulates that "expense assumptions shall not include acquisition costs or any costs that are required to be charged to expense as incurred, such as those relating to investments, general administration, policy maintenance costs, product development, market research, and general overhead" (see paragraph 944-720-25-2).

Q 7.27: What is the "issue year" for grouping of assumed reinsurance?

A: ASU 2018-12 does not specify how to determine issue-year for annual grouping of assumed reinsurance, whether to use the date of the reinsurance contract or the issue years of the underlying policies (a look-through approach). ASU 2018-12 does not prohibit reinsurers from aggregating at the reinsurance contract date, but it also does not prohibit a lower level of aggregation, such as at the underlying issue year cohort level.

AAG-LHI advises that "one acceptable approach would be for the assuming entity to effectively 'look through' the legal contract to the direct reinsured contracts issued by the ceding entity … for direct insurance contracts that are issued for a period subsequent to the inception date of the reinsurance contract" (Appendix A, paragraph A.142). It continues to say that "under this approach an assuming entity's annual grouping limitation should be based upon underlying direct reinsured contract policy issue dates, not the reinsurance contract issue date." The discount rate applied under the look-through approach would look to the dates at which each of the individual underlying contracts were reinsured.

The use of the contract-date approach may require that all expected cash flows under the reinsurance contract include cash flows from expected but not-yet-written underlying contracts be included in the cohort projections. (More on this in Q 7.28.). The discount rate under this approach would look to the issue date of the reinsurance contract.

When assuming coverage of previously issued long-duration insurance contracts, the effective date of the reinsurance is the issue date for both the issue year grouping restriction and for setting of the original discount rate. The assuming entity may group at a lower level for liability measurement purposes, which could include consideration of the original issue date of the underlying reinsured contracts, but doing so does not change the issue date of the reinsurance contract.

In general, the level of aggregation depends on the facts and circumstances and actuaries are encouraged to consult with an accounting professional.

Q 7.28: Should future new business that has not yet been written by the ceding company be included in the reinsurance reserve cash flows?

A: Nothing in GAAP (either before adoption of ASU 2018-12 or after) provides explicit guidance in this area.

AAG-LHI advises that if a company chooses to look through to the issue date of underlying contracts for the purpose of grouping, then "coverage for direct insurance contracts that are issued for a period subsequent to the inception date of the reinsurance contract would be recognized by the assuming entity as the direct reinsured contracts are issued" (Appendix A, paragraph A.142). Under this approach, projected cash flows used to calculate reinsurance reserves include only contracts in force as of the valuation date. New business expected to be written after the valuation date is not considered for purposes of calculating the reserve, even if reinsurance coverage of newly written business is contractually guaranteed over a certain future horizon.

If a company chooses to group according to the reinsurance contract rather than look through to underlying contracts, then the reinsurance contract is the basic unit for determining "future benefits to be paid" and "future net premiums" for measurement of the liability (ASC 944-40-30-7). In that case, liability calculations should include all future cash flows expected over the life of the contract, including those attributable to future new business of the ceding entity that is expected to be assumed under the reinsurance contract.

Actuaries are encouraged to consult with an accounting professional.

Q 7.29: Which requirements and options apply to grouping of contracts for assumed reinsurance reserves?

A: The requirements for grouping assumed reinsurance under the ASU follow the same requirements for grouping of direct business: quarterly or annual groups should be used for business within each reporting segment.

For assumed reinsurance, the issue year may be determined based on the effective date of the reinsurance; while this would be the same year for most coinsurance situations, reinsurance agreements entered into subsequent to direct policy issue may result in a different cohort year in comparison to the grouping used by the ceding company.

If the effective date of the reinsurance treaty is applied, this may compel the assuming reinsurer to increase projected reinsurance cash flows by any future business that may be added according to the terms of the treaty.

Alternatively, the assuming company might "look through" to the direct issue date (e.g., year) for grouping purposes, resulting in more granular cohorts in comparison to the reinsurance effective date, and eliminating the potential requirement to project any future reinsurance that would fall under the treaty.

There is not a requirement to group at a more granular level than the approaches described above. For example, it is not a requirement to cohort by ceding company or otherwise align to the ceding company cohorts. It is also acceptable to group assumed reinsurance with similar direct-issued contracts within the same issue year cohort provided they meet the other grouping requirements of the standard, based on reporting requirements.

In these situations, an actuary would consider practical aspects, such as measuring and monitoring the business and providing any required counterparty data.

Q 7.30: Can a single treaty that reinsures multiple product types be included in a single cohort?

A: *AAG-LHI* advises that situations where reinsurers "provide coverage for different types of cedant products (such as reinsurance of whole life, disability, long term care and universal life insurance) in a single legal reinsurance contract … require judgment in the evaluation to 'determine the level of aggregation at which reserves are calculated'" (Appendix A, paragraph A.141).

See section I, level of aggregation, for more information about the determination of cohorts.

Q 7.31: Does each reinsurance treaty constitute its own cohort for the purpose of calculating the liability for future policy benefits or should multiple treaties be combined in the same cohort?

A: For reinsurance assumed that is classified as traditional or limited-payment insurance, the aggregation requirements and principles are the same as those that apply to directly written traditional insurance contracts. Consequently, assuming reinsurers may combine multiple contracts with similar characteristics into cohorts. Questions and considerations related to aggregation are discussed in Section I.

Further, as discussed in Q 7.27, a look-through approach would mean that treaties spanning multiple issue years of underlying reinsured policies, components of reinsurance contracts (i.e., individual lives reinsured) reside in multiple cohorts for the purpose of calculating the liability for future policy benefits and for amortizing any associated DAC.

A consequence is that components of individual treaties may reside in multiple cohorts and be aggregated with components of different treaties within each of those cohorts. When applying the look-through approach, decisions related to aggregation should rely primarily on an analysis of the individual lives insured rather than the characteristics of the treaties themselves.

Q 7.32: For assumed business, is there a requirement to establish separate cohorts for the reinsured vs. direct business?

A: No, a set of contracts including direct business and business assumed through reinsurance contract(s) may be included in the same cohort provided they meet the other grouping requirements of the standard, based on reporting requirements and issue year. An insurer may choose to define separate cohorts for direct and assumed, and within assumed business for separate treaties, but this is not a requirement.

Q 7.33: How are recaptured policies and/or treaties treated in the calculation of the liability for future policy benefits?

A: There is no prescriptive guidance addressing the treatment of recaptured policies. Two approaches, in particular, could be considered.

- Under the first approach, the cash flows associated with the recaptured policies remain within the cohort after recapture and any recapture fees are added to the cohort cash flows as well.

- Under the second approach, the cash flows associated with the recaptured policies are removed from the cohort entirely and valuation of the cohort proceeds as if the recaptured policies never existed.

Current indications are that the second approach may not be acceptable under GAAP. Consultation with accounting professionals is suggested before implementing either approach.

Q 7.34: How are premium rate increases on YRT treaties handled?

A: The first questions to analyze are whether the contract is long-duration, and whether the contract meets GAAP risk transfer. There may be profit-sharing mechanisms in addition to rate increases. There may be clear contract boundaries to consider if re-pricing effectively occurs at some fixed duration.

Assuming the treaty is classified as long-duration and that GAAP risk transfer occurs, a reinsurer would apply the same guidance as a direct company issuing traditional business with non-guaranteed premiums—treating premium rate changes as elements of actual experience and subject to an assumption about possible future changes. In the quarter of any change, a retrospective adjustment would apply in the calculations.

Supplement—Attributed Retrospective Remeasurement of Ceded Reinsurance

The attributed retrospective remeasurement method is built from the fundamental equivalence between accumulated and discounted reserve calculations when the net premium ratio is not constrained:

$$Reserve = PV(Benefits) - NPR \times PV(Premiums)$$
$$= NPR \times AV(Premiums) - AV(Benefits)$$

When reinsuring an existing block of business, the ceding company typically sets an initial reinsurance recoverable asset equal to the ceded share of the direct liability. In the case of 100% coinsurance, the initial asset is equal to the direct liability.

Regardless of whether that amount is measured using the accumulated or discounted reserve formula, under ASU 2018-12 the calculation will be a function of actual cash flows that preceded the effective date of the reinsurance because the NPR is in part a function of those cash flows.

The attributed retrospective remeasurement method solves for the amount of history implicit in the initial ceding reserve.

In the simple case of 100% coinsurance using the same discount rate as the direct liability, implied history will equal the accumulated value (at the liability discount rate) of actual gross premiums and benefits.

For a variety of reasons, the simple case will seldom apply in practice. Often, the discount rate for reinsurance will differ from the direct liability discount rate. Sometimes, a portion of the business is already reinsured under existing treaties such that the new reinsurance covers only the risk not subject to other treaties. For these and other possible circumstances, a generic technique is needed to determine the amount of history implied by the initial ceding reserves.

Implicit in the initial ceding reserve is an accumulation of past premium. As illustrated in the response to Q 7.9, this might be either reinsurance premium or direct premium. Whatever "Premium" is used to accrue reinsurance reserves, the initial ceding reserve implies a matching of the relationship between direct and ceded historical ratios:

$$Attributed\ Premium \div [Attributed\ Premium + PV_T(Treaty\ Premium)] = h$$

Where:

Treaty Premium is the premium base (direct or ceded) for accrual or amortization of the reinsurance reserve.

$$h = \frac{PV_0(Actual\ Direct\ Premium)}{PV_0(Actual\ Direct\ Premium) + PV_0(Projected\ Direct\ Premium)}$$

With PV_x indicating the present value at time x of the respective cash flows.

PV_T is measured as of time T (treaty inception) using the reinsurance discount rate.

PV_0 is measured as of time 0 (cohort inception) using the direct liability discount rate.

Solving for *Attributed Premium*:

$$Attributed\ Premium = PV_T(Treaty\ Premium) \times h \div (1-h)$$

Also implicit in the initial ceding reserve is an accumulation of past benefit. As illustrated in the response to Q 7.9, this benefit might be recoveries from the reinsurance or the net cost of the reinsurance (the excess of reinsurance premiums over recoveries).

For a reinsurance reserve that accrues as an asset for a "Benefit" that represents either recoveries alone or recoveries minus reinsurance premium, the initial ceding reserve implies an initial benefit such that:

$$Reserve_T = PV_T(Benefit) - rNPR_T \times PV_T(Treaty\ Premium)$$

Where:

$Reserve_T$ is the initial reinsurance recoverable asset.

$rNPR_T$, the reinsurance net premium ratio measured at treaty inception,

$$= \frac{Attributed\ Benefit + PV_T(Benefit)}{Attributed\ Premium + PV_T(Treaty\ Premium)}$$

Solving for *Attributed Benefit*:

$$Attributed\ Benefit = [PV_T(Benefit) \times h - Reserve_T] \div (1-h)$$

For a reinsurance reserve that amortizes as a liability for a "Cost" that represents the initial cost of reinsurance as defined in ASC 944-605-30-4 plus any future amortizable costs (which might be 0, ceding premiums, or the excess of ceding premiums over recoveries), the initial ceding reserve implies an initial cost such that:

$$Reserve_T = cNPR_T \times Attributed\ Premium - Attributed\ Cost$$

Where:

$Reserve_T$ is the initial cost of reinsurance liability.

$cNPR_T$, the cost of reinsurance amortization rate measured at treaty inception,

$$= \frac{Attributed\ Cost + PV_T(Cost)}{Attributed\ Premium + PV_T(Direct\ Premium)}$$

In this formulation, $PV_T(Cost)$ does not include $Reserve_T$, the initial cost deferred at time T, which will effectively be included in *Attributed Cost*.

Note that *Attributed Premium* may be different for cost of reinsurance than for reinsurance recoverable if cost is amortized on direct premium and recoverable is accrued on ceded premium. For reinsurance of limited-payment contracts the direct deferred profit liability

amortization basis replaces direct premium in the calculation of this Attributed Premium and *cNPR*.

Solving for *Attributed Cost*:

$$Attributed\ Cost = [PV_T(Cost) \times h - Reserve_T] \div (1 - h)$$

Under some circumstances, the initial reinsurance recoverable asset could be negative (a liability) or the initial cost of reinsurance liability could be negative (an asset) or the reinsurance net premium ratio may be measured as the excess of reinsurance premiums over recoveries (negative of the *rNPR* calculation shown here). In those instances, care must be taken to align signs in these calculations so that the resulting asset or liability at inception equals the respective *Reserve_T*.