

## ***Educational Note***

# **IFRS 17 Estimates of Future Cash Flows for Life and Health Insurance Contracts**

## **Committee on Life Insurance Financial Reporting**

**June 2022**

Document 222085

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*The actuary should be familiar with relevant educational notes. Educational notes are not binding; rather they are intended to illustrate the application of the standards of practice. A practice that an educational note describes for a situation is not necessarily the only accepted practice for that situation nor is it necessarily accepted practice for a different situation. Responsibility for ensuring that work is in accordance with accepted actuarial practice lies with the actuary. As accepted actuarial practice evolves, an educational note may no longer appropriately illustrate the application of standards. To assist the actuary, the CIA website contains a reference of pending changes to educational notes.*

## MEMORANDUM

**To:** Members in the life insurance area

**From:** Steven W. Easson, Chair  
Actuarial Guidance Council

Steve Bocking, Chair and Marie-Andrée Boucher, Immediate Past Chair  
Committee on Life Insurance Financial Reporting

**Date:** June 30, 2022

**Subject:** **Educational Note: IFRS 17 Estimates of Future Cash Flows for Life and Health Insurance Contracts**

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The Committee on Life Insurance Financial Reporting (CLIFR) has prepared this educational note to provide information concerning the estimates of future cash flows in accordance with IFRS 17 requirements.

This educational note is structured into five sections. Section 1 introduces the content presented in this educational note. The second section highlights the differences between IFRS 4 and IFRS 17 with regards to estimates of future cash flows. Section 3 constitutes the main section of the educational note and presents general considerations related to estimates of future cash flows and specific actuarial assumptions. Section 4 presents considerations for cash flows that vary with assumptions related to financial risk. The fifth and final section discusses other miscellaneous topics.

This educational note is written primarily from the perspective of Canadian actuaries and is not intended to duplicate any other guidance. Further information (guidance) can be found in the International Actuarial Association guidance and other Canadian Institute of Actuaries (CIA) documents.

A preliminary version of the draft of this educational note was shared with the following committees prior to publication:

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

A preliminary version of the draft of this educational note was also shared with the staff of the Accounting Standards Board (AcSB) to broaden consultations with the accounting community. Given that this educational note provides actuarial guidance rather than accounting guidance, the AcSB staff review was limited to citations of and any inconsistencies with IFRS 17. CIA

educational notes do not go through the AcSB's due process and therefore, are not endorsed by the AcSB.

The draft of this educational note was also presented several times at the Actuarial Guidance Council (AGC) in the months preceding the request for approval. CLIFR satisfied itself that it had sufficiently addressed the comments received on the draft of this educational note and it was published in September 2019.

The following highlights the changes between this educational note and the draft published version:

- Updates on references and wording to the final version of the [Application of IFRS 17 Insurance Contracts](#) educational note (published in August 2021)
- Updates on document references to IFRS 17 publications since September 2019
- Minor updates to wording

Given that the changes made to the final version of this educational note relative to the draft published version were not substantial, the final version of this educational note was only subject to a limited review by the CIA committees.

The creation of this memorandum and educational note has followed the AGC protocol for the adoption of educational notes. In accordance with the CIA's *Policy on Due Process for the Approval of Guidance Material other than Standards of Practice and Research Documents*, this educational note has been prepared by CLIFR and has received approval for distribution from the AGC on February 8, 2022.

The actuary should be familiar with relevant educational notes. Educational notes are not binding; rather they are intended to illustrate the application of the standards of practice. A practice that an educational note describes for a situation is not necessarily the only accepted practice for that situation nor is it necessarily accepted practice for a different situation. Responsibility for ensuring that work is in accordance with accepted actuarial practice lies with the actuary. As accepted actuarial practice evolves, an educational note may no longer appropriately illustrate the application of standards. To assist the actuary, the CIA website contains a reference of pending changes to educational notes.

CLIFR would like to acknowledge the contribution of its subcommittee that assisted in the development of this educational note: Wilson Ho (Chair), Steve Bocking, Marie-Andrée Boucher, Eric Chuen Cheong, Ricky Chu, Nathalie Cloutier, Dina Elkasir, Simon Fortin, Ritchie Hok, Salim Kassam, Boyang Liu, Chris Piper, Andrew Ryan, Mario St-Hilaire, and Ping Xu.

Questions or comments regarding this educational note may be directed to the Chair of CLIFR and this subcommittee (noted above) at [guidance.feedback@cia-ica.ca](mailto:guidance.feedback@cia-ica.ca).

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## 1. Introduction

IFRS 17 establishes principles for the recognition, measurement, presentation and disclosure of contracts within the scope of the Standard. This educational note provides practical application guidance on Canadian-specific issues relating to the estimates of future cash flows under IFRS 17. Traditional approaches used by Canadian life insurance practitioners in setting the best estimate assumptions have been reviewed for appropriateness under IFRS 17.

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

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

Estimates of future cash flows are discussed in paragraphs 33 to 35, B36 to B71, and BC146 to BC184 of IFRS 17. In particular, IFRS 17.B37 states that, “the objective of estimating future cash flows is to determine the expected value, or probability-weighted mean, of the full range of possible outcomes, considering all reasonable and supportable information available at the reporting date without undue cost or effort. Reasonable and supportable information available at the reporting date without undue cost or effort includes information about past events and current conditions, and forecasts of future conditions (see paragraph B41). Information available from an entity’s own information systems is considered to be available without undue cost or effort”.

This educational note applies to cash flows of life and health insurance products.

Considerations unique to participating insurance products are covered in the educational note [\*IFRS 17 Measurement and Presentation of Canadian Participating Insurance Contracts\*](#).

Additional guidance on the valuation of financial options and guarantees are covered in the educational note [\*IFRS 17 Market Consistent Valuation of Financial Guarantees for Life and Health Insurance Contracts\*](#).

Chapter 2 of the [\*Application of IFRS 17 Insurance Contracts\*](#) educational note provides further guidance on the IFRS 17 estimates of future cash flows. This educational note, published in October 2021, is an adoption of the International Actuarial Note (IAN) 100, which is accompanied by a preamble. The preamble outlines a number of additional clarifications on the topics discussed in the final version of the IAN 100 that CIA members should be aware of.

This educational note includes references to educational notes and other guidance that were developed prior to IFRS 17. A future review of pre-IFRS 17 guidance may lead to changes in these materials.

## 2. Comparison between IFRS 4 and IFRS 17

Prior to the effective date of IFRS 17, insurance contract liabilities were subject to IFRS 4, which for life and health insurance contracts in Canada was accepted as being the Canadian asset liability method (CALM) as guided by CIA Standards of Practice and educational notes. As such, references in this educational note to IFRS 4 pertain to the application of CALM in Canada.

In Canada, there are established practices to set assumptions used to project best estimate cash flows for the valuation of insurance products. The concept of probability-weighted cash flows in IFRS 17 is broadly aligned with IFRS 4 best estimate cash flows. In most cases, one can expect current practices would be materially consistent with IFRS 17 requirements and that little change to current practices will be required.

There are some subtle differences between the IFRS 17 probability-weighted cash flows and IFRS 4 best estimate cash flows and it is important to recognize the potential implications of those differences. In particular, IFRS 17 is more specific about how the aggregate liability is separated into “estimates of future cash flows” and “risk adjustment for non-financial risk”. The estimates of future cash flows are expected to represent the mean of the cash flow distribution under IFRS 17.

Under IFRS 4, deterministic assumptions are commonly used to project cash flows that follow a reasonably symmetrical distribution, with scenario testing limited to cash flows known to have an asymmetrical distribution, such as excess of loss coverages. Application of current IFRS 4 deterministic approaches to developing estimates of future cash flows under IFRS 17 is appropriate when cash flow distributions are reasonably symmetrical.

If cash flow distributions are less symmetric, current deterministic approaches may still represent a reasonable estimate of the mean of the cash flow distribution. In some cases, the actuary may have expressly considered cash flow asymmetry in selecting best estimate assumptions, and therefore the resulting best estimate cash flows will be a reasonable representation of the mean. In other cases, the asymmetry may not be sufficiently large to produce a material difference. In particular, there may be challenges in specifying distributions and generating cash flow scenarios founded on “reasonable and supportable information”.

Such distributions may not be observable without “undue cost or effort”, and the potential mis-estimation of parameters may have a larger impact than the asymmetry itself. The actuary would, therefore, be particularly conscious in assessing the materiality of the asymmetry of the cash flows in determining whether an adjustment is appropriate. If an adjustment is made through the margin for adverse deviations under IFRS 4 (and if material), the actuary would report the adjustment with the estimate of future cash flows rather than the risk adjustment for non-financial risk under IFRS 17.

The approaches and methods to set actuarial assumptions and project cash flows are expected to be similar between IFRS 4 and IFRS 17. Some of the exceptions and considerations are:

- Potential contract boundary changes for certain products, where the IFRS 17 contract boundary may be shorter or longer than the corresponding IFRS 4 term of the liability.
- Additional deposits for segregated fund business are generally not reflected in the IFRS 4 valuation but may be included within the contract boundary of an existing

contract under IFRS 17. This evaluation will be dependent on the nature of the guarantee and contractual wording.

- For cash flows that are assumed to vary with assumptions related to financial risk, they are projected under real world scenarios in IFRS 4 and typically have a best estimate and provision for adverse deviations component. These cash flows would be projected consistent with observable market prices under IFRS 17 and reported as part of the estimates of future cash flows. For cash flows that are not assumed to vary with market conditions, there is no change under IFRS 17.
- Section 7 of the [Comparison of IFRS 17 to Current CIA Standards of Practice](#) educational note highlights a number of other key changes.

The treatment of expenses under IFRS 17 is generally similar to IFRS 4 – policy maintenance expense cash flows and claim adjudication expense cash flows are included in both IFRS 4 and IFRS 17 valuations. The expenses in scope of the valuation could differ, as IFRS 17 restricts the expenses included in the valuation to those “directly attributable” to the portfolio. Another change from IFRS 4 is the inclusion of acquisition expenses in the initial valuation of insurance contract liabilities. Under IFRS 17, acquisition expense cash flows that are directly attributable to the portfolios of insurance contracts are required to be included in initial insurance contract valuation, primarily to facilitate measurement of the contractual service margin (CSM) and presentation of financial results.

The treatment of tax is significantly different under IFRS 17. Canadian IFRS 4 estimates of cash flows consider all policy-related tax cash flows including income taxes. The estimates of future cash flows under IFRS 17 would exclude income tax cash flows. Investment income tax (IIT) and premium taxes would be included in the IFRS 17 estimates of future cash flows.

### 3. General Considerations

#### 3.1 Introduction

IFRS 17.33 specifies “the estimates of future cash flows shall incorporate, in an unbiased way, all reasonable and supportable information available without undue cost or effort about the amount, timing and uncertainty of those future cash flows (see paragraphs B37–B41). To do this, an entity shall estimate the expected value (ie the probability-weighted mean) of the full range of possible outcomes”.

##### 3.1.1 Estimation of expected value of the full range of possible outcomes

Question 2.5 of the [Application of IFRS 17 Insurance Contracts](#) educational note provides guidance on the estimation of the expected value: “the reference in IFRS 17 to scenarios is about the defining characteristic of the mean value of a distribution function rather than providing guidance regarding how to estimate the expected value. IFRS 17 does not require that all possible (or even any) scenarios be explicitly constructed nor is it expected that entities will develop stochastic models for all IFRS 17 reporting”.

As mentioned above, the estimates of future cash flows under IFRS 17 would be unbiased and represent a reasonable estimate of the mean of the cash flow distribution. In particular, if the actuary expects that the cash flow distribution is materially skewed, then the mean of the probability-weighted cash flows would account for such skewness. However, any uncertainty

involved in the probability distribution, including estimates of expected value, variance and relevant higher moments of a probability distribution would be covered in the risk adjustment for non-financial risk to the extent that the entity requires compensation for such uncertainty. For example, if there is an expectation of potentially significant offsetting exposures in the tails of the cash flow distribution (i.e., upside risk and downside risk from extreme scenarios), then this may not impact the expected value but the risk adjustment may be higher than if there were no exposure to extreme scenarios, per the characteristics of the risk adjustment noted in IFRS 17.B91.

Question 2.5 provides further guidance on reflecting the extreme scenarios: “IFRS 17 requires that conceptually all scenarios are covered in estimating the expected value of future cash flows, including scenarios in the extreme tails of the distribution. Where the variability in future cash flows follows a symmetric distribution, it may be appropriate to conclude that the impact and likelihood of favourable and unfavourable extreme scenarios not explicitly considered may broadly offset each other; however, where the distribution of future cash flows is skewed, it may be necessary to adjust the expected value to reflect extreme scenarios not considered explicitly.”

### **3.1.2 Level of aggregation of cash flows**

Guidance on the level of aggregation of cash flows, in general and upon initial recognition, is provided in IFRS 17.24, IFRS 17.47, and IFRS 17.17. Under IFRS 17, the level of aggregation for measurement of the CSM is groups of contracts. In practice, the objectives of IFRS 17 could be accomplished by measuring the cash flows at the groups-of-contracts level, summing the cash flows from the individual-contracts level or allocating the cash flows from the portfolio-of-contracts level.

- IFRS 17.24 states “... To measure a group of contracts, an entity may estimate the fulfilment cash flows at a higher level of aggregation than the group or portfolio, provided the entity is able to include the appropriate fulfilment cash flows in the measurement of the group ... by allocating such estimates to groups of contracts.”
- IFRS 17.47 states “An insurance contract is onerous at the date of initial recognition if the fulfilment cash flows allocated to the contract, any previously recognized insurance acquisition cash flows and any cash flows arising from the contract at the date of initial recognition in total are a net outflow ... To the extent that paragraph 17 applies, an entity may identify the group of onerous contracts by measuring a set of contracts rather than individual contracts.”
- IFRS 17.17 states “If an entity has reasonable and supportable information to conclude that a set of contracts will all be in the same group ... it may measure a set of contracts to determine if the contracts are onerous ... If the entity does not have reasonable and supportable information to conclude that a set of contracts will all be in the same group, it shall determine the group to which the contracts belong by considering individual contracts.”

IFRS 17.47 refers to a potentially lower-level measurement of cash flows at the individual contract level (for purposes of determining whether the contract is onerous at initial recognition), unless the entity has other reasonable and supportable information to



determine the grouping per IFRS 17.17. Determination of actuarial assumptions would facilitate calculation of most cash flows at the individual contract level, which can then be added up for groups of contracts. These aggregated seriatim cash flows could be supplemented by allocations of other higher-level cash flows, such as allocations of expenses directly attributable to portfolios of contracts, provided that the entity has other processes (such as its pricing) to provide reasonable support for the grouping of contracts.

Considerations for specific actuarial assumptions are discussed in the following sections. Note that, unless specified otherwise, where the term “assumptions” is used in the remainder of this section, it represents the assumptions used to determine the estimates of future cash flows.

These assumptions would not include any margins that might be added for the purpose of calculating the risk adjustment.

### **3.2 Mortality assumptions**

The mortality assumption is used to project life contingent cash flows for various insurance products such as life insurance, long-term care, disability, and annuities.

The mortality assumption is generally based on the company’s experience and industry data adjusted for historical and future mortality improvements. Typically, experience studies incorporate five- to-10 years of data. A credibility level based on the number of deaths in the study determines the weight applied to the company’s experience. The [Educational Note: Expected Mortality: Fully Underwritten Canadian Individual Life Insurance Policies](#) provides additional information related to the setting of the mortality assumption.

The Canadian population mortality improvement assumption usually relies on scales published by the CIA or other public sources. Refer to the [Task Force Report on Mortality Improvement](#) for details on the construction of the CIA MI-2017 Mortality Improvement scale. The actuary would consider adjustments to this mortality improvement scale as appropriate.

The actuary would consider extreme mortality and mortality improvement/deterioration scenarios in the probability-weighted cash flows. The [Considerations for the Development of a Pandemic Scenario](#) research paper published in 2009 provides some examples of that nature. To the extent that the actuary believes that the future is equally exposed to offsetting extreme scenarios, there would be no need to adjust the mean of the probability-weighted cash flows to account for extreme scenarios, although the uncertainty of offsetting exposures to extreme mortality events could be accounted for in the entity’s risk adjustment.

### **3.3 Morbidity assumptions**

The morbidity assumptions primarily encompass the incidence rates for critical illness, health, disability, and long-term-care products and the termination rates for disability and long-term care products.

The morbidity assumptions usually rely on industry tables, to which modification factors are applied. Reinsurers have also developed their own experience with respect to the morbidity assumptions and often share their knowledge with the ceding companies. In general, the credibility associated with the morbidity assumptions is more limited than with the mortality assumptions. As such, the resulting morbidity assumptions usually represent a blend of industry

and company experience. Secular morbidity trends are sometimes reflected when there is credible data or reliable benchmark data. The combination of the morbidity assumption and of the morbidity trends form the basis for projecting the expected morbidity claims.

The [Educational Note: Valuation of Group Life and Health Policy Liabilities](#) provides additional information related to the setting of the morbidity assumptions for group insurance.

Most of the considerations related to the extreme scenarios discussed in the mortality section also apply to the determination of the morbidity assumptions. A pandemic-type scenario could have an adverse impact on the incidence/termination rates of certain disability and critical illness products. However, medical breakthroughs could result in lower incidence rates for these same products. The actuary would consider these favorable and unfavorable extreme scenarios and would make a judgment on whether the likelihood and impact of these extreme scenarios may broadly offset each other.

### 3.4 Lapse assumptions

Insurance contract holders often have an option to unilaterally terminate the contract. The actuary would generally reflect such optionality in the contractual cash flows through the use of a lapse assumption.

The lapse assumption is usually guided by an experience study that involves calculating an average based on recent years of company historical data. Expected lapse rates are set considering both the historical experience and the expectation for the future; for example, to reflect changes in the market or the economy that may have an impact on lapse experience. For new products, experience lapse rates for a similar product or insights from reinsurers may be used, and adjustments are made to reflect differences in product features, distribution channels, or target markets. If company lapse experience is not credible on a stand-alone basis, it may be blended with industry data, if available, to achieve reasonable credibility.

The CIA guidance listed below provides additional information relating to the setting of the lapse assumption.

- Educational Note Supplement: [Selective Lapsation for Renewable Term Insurance Products](#)
- Educational Note Supplement: [Selective Lapsation for Renewable Term Insurance Products – Illustration of Methods](#)
- Educational Note: [Valuation of Universal Life Insurance Contract Liabilities](#)

A consideration related to the financial impact of lapses in an extreme scenario is the presence of withdrawal penalties. If the product includes explicit surrender charges, market value adjustments or other similar penalties, this would reduce the impact to the company of an extreme scenario. As a result, extreme scenarios may not need to be included as a possible outcome or would not materially affect the setting of the lapse assumption. Administrative costs of moving insurance carriers, knowledge and sophistication of policyholders, and tax consequences would also be taken into consideration, as this would affect the policyholder's decision under an extreme scenario. The actuary would consider the favourable and unfavourable extreme scenarios and would make a judgment on whether the likelihood and impact of these extreme scenarios may broadly offset each other.

In certain circumstances, the lapse assumption may depend on financial conditions, such as dynamic lapses on Universal Life products. Refer to Section 4.1 for further discussions on dynamic policyholder behaviour.

### 3.5 Expense assumptions

As a general statement, IFRS 17 valuation includes cash flows that relate directly to the fulfilment of an insurance contract. This includes expense cash flows that are directly attributable to a portfolio of insurance contracts. These include both acquisition and maintenance expenses.

IFRS 17.B65 provides examples of cash flows that would be included in an insurance contract valuation, including expense cash flows. Expenses specifically addressed in B65 include claims handling costs, policy administration costs, costs of paying benefits, acquisition costs, allocation of overhead directly attributable to fulfilling insurance contracts, etc.

IFRS 17.B66 then provides examples of the types of cash flows that would *not* be included in insurance contract valuation. Specific exclusions addressed in B66 are expenses outside of the contract boundary, expenses not directly attributable to the fulfilment of insurance contracts, expenses from abnormal amounts of wasted labour, income tax payments and receipts the insurer does not pay or receive in a fiduciary capacity or that are not specifically chargeable to the policyholder under the terms of the contract, etc.

Insurance acquisition cash flows are defined as “the costs of selling, underwriting and starting a **group of insurance contracts** that are directly attributable to the **portfolio of insurance contracts** to which the group belongs. Such cash flows include cash flows that are not directly attributable to individual contracts or **groups of insurance contracts** within the portfolio.” (Appendix A of IFRS 17). Questions 2.23 to 2.29 of the [Application of IFRS 17 Insurance Contracts](#) educational note provide further guidance related to insurance acquisition cash flows.

The distinction between “directly attributable” and “not directly attributable” expenses is significant to an IFRS 17 contract valuation. This distinction is discussed in more detail in the explanatory report [IFRS 17 Expenses](#).

### 3.6 Tax assumptions

IFRS 17 excludes income taxes from estimates of future cash flows. In Canada, insurance companies are required to pay the greater of income tax or a minimum tax based on capital. If the minimum tax is paid, the excess over income tax could be offset against future income taxes. This capital tax would be excluded from the estimates of future cash flows as well.

Transaction-based taxes (such as premium taxes, value-added taxes and goods and services taxes) and levies (such as fire service levies and guarantee fund assessments) that arise directly from insurance contracts are included per IFRS 17.B65(i).

Investment income tax (IIT) is a Canadian-specific consideration and as such, is given special attention in this educational note. IIT is directly related to insurance contracts and would be included in the estimates of future cash flows, based on the following considerations:

- IIT is not considered as “income tax” and is not subject to IAS 12 Income Taxes.

- While IIT is an obligation of the company, the intent of the Department of Finance is to tax the inside build-up of investment income within certain life insurance contracts (companies get deduction from taxable investment income from any T5 amounts issued to policyholders from gains on actual or deemed dispositions), and it arises directly from existing insurance contracts.

IIT is calculated based on 60-month moving average rate of over 10-years Government of Canada yields (Series V122487). The rates used to project IIT would be internally consistent with the risk-free part of the discount rates of the fulfilment cash flows. Refer to the educational note [IFRS 17 Discount Rates for Life and Health Insurance Contracts](#) for approaches to set the discount rate.

#### **4 Cash Flows That Vary with Assumptions Related to Financial Risk**

Under IFRS 17, estimates of cash flows that vary with assumptions related to financial risk would be consistent with observable market prices at the measurement date, which includes provision for financial risk. Possible approaches include deterministic projection with implied market rates, or stochastic modelling under either a risk-neutral or real world with deflators framework. The educational note [IFRS 17 Market Consistent Valuation of Financial Guarantees for Life and Health Insurance Contracts](#) outlines the considerations for market-consistent valuation of financial guarantees using stochastic modelling. Refer to the educational note [IFRS 17 Discount Rates for Life and Health Insurance Contracts](#) for the discussion on assumed rate of return to project cash flows that vary with assumptions related to financial risk.

In the measurement of any options and guarantees related to financial risk, the technique used would be consistent with observable market prices (if any) for such options and guarantees. While stochastic modelling is a commonly cited approach, IFRS 17 does not prescribe the methodology to value the cost of options and guarantees. In particular, IFRS 17.B48 specifies “judgement is required to determine the technique that best meets the objective of consistency with observable market variables in specific circumstances”.

Also, materiality may be considered in the valuation of the cost of options and guarantees. Often, a full stochastic valuation requires significant time and effort. The actuary could consider performing off-cycle valuation and developing approximation approaches (e.g., proxy deterministic scenarios), as appropriate, for the valuation at the reporting date.

Some specific situations are discussed in more detail in the following subsections.

##### **4.1 Universal life contracts**

Universal life contracts often include features that are similar to financial options and that vary with market conditions. Some examples include the following:

- Credited interest rates on policyholder account values are generally linked to the returns, minus a spread, of indices available to the policyholder as investment options. These credited rates could be subject to minimum interest rate guarantees, the value of which vary according to current and projected interest rates.
- Performance and persistency bonuses that vary according to the past financial performance of the contract and/or the persistency of the policyholder (e.g., bonus that becomes effective after a certain duration, under certain conditions).

Question 2.19 of the [Application of IFRS 17 Insurance Contracts](#) educational note commented that the basis for the estimate of future expected behaviour is based on experience and judgment, not necessarily rational financial behaviour (see IFRS 17.B62). Another consideration is the possible effects of policyholder anti-selection. In certain circumstances, policyholder behavior may depend on financial conditions, and the actuary may consider reflecting policyholder behaviour assumptions that vary according to market parameters in the estimates of future cash flows (e.g., dynamic lapse or future premium persistency could depend on projected market conditions or amount of funds available). The estimates of future cash flows implicitly include a provision for financial risk when dynamic policyholder behaviour that varies with financial variable is modeled. The mis-estimation of the relationship between dynamic policyholder behaviour and financial variable is considered non-financial risk and potentially included in the risk adjustment.

#### 4.2 Index-linked payments

Some annuity or disability insurance payments are indexed based on a defined, published index such as the Consumer Price Index (CPI), often subject to some floors and caps. Under IFRS 17, inflation might be considered a market variable and, if so, would require the resulting cash flows to be consistent with market prices.

Consider the following example of three different annuities, each with different payment indexation:

1. Flat 2% per year indexation.
2. Indexation of annuity payments based on 100% of the CPI variation.
3. Same as item 2 but with a floor of 0% and a cap of 5%.

In the first example, cash flows would simply be projected based on contractual indexation. Market prices are not considered because indexation does not depend on any market variable.

In the second example, indexation does depend on a market variable, and thus consistency with market prices is required by IFRS 17. Since the relationship with the market variable remains the same regardless of the actual CPI-index level, implied forward CPI could be used to reflect market information. Central bank targets could be considered if there is no reliable market information.

The third example is more complex because of the presence of floors and/or caps. Stochastic modelling that is consistent with market prices is one of the possible approaches to estimate the liability.

#### 4.3 Expense inflation

IFRS 17 recognizes (e.g., IFRS 17.B128) situations where the inflation assumption is related to financial risk (e.g., if the liability cash flows are linked to an index of prices or interest rates) and situations where the inflation assumption is not related to financial risk (e.g., expense budget based on an entity's expectation of productivity improvement and expense growth).

In situations where assumptions about inflation are related to financial risk, consistency with market prices would be required by IFRS 17. Similar to index-linked payments where the relationship between the cash flow and the market variable remains unchanged regardless of

the market variable's level, market prices can be reflected by using future implied inflation rates, or central bank targets if there is no reliable market information.

## 5 Other Items to Include in the Estimates of Future Cash Flows

Some items could be deemed distinct investment components as per IFRS 17.B31–B32, in which case they would be separated and reported under IFRS 9. Similarly, items that are deemed as distinct service components as per IFRS 17.B33–B35 would be separated and reported under IFRS 15. There are other items that are considered part of the insurance contract under IFRS 17, and therefore would be included in the estimates of future cash flows.

Such items would be included only if they are part of the insurance contract. If the rights and obligations are part of a separate contract with the policyholder, they would not be reported under IFRS 17 and would not be included in the cash flows.

IFRS 17.BC114 indicates that policy loans are included in the cash flows of the insurance contract. Question 2.12 of the [Application of IFRS 17 Insurance Contracts](#) educational note provides further guidance on policy loans.

The following lists some, but not necessarily all, items that might need to be included as part of the estimates of future cash flows, to the extent they are not distinct investment and service components:

- Prepaid premium account – Question 2.13 of the [Application of IFRS 17 Insurance Contracts](#) educational note provides further guidance on prepaid premiums.
- Policyholder deposit type accounts such as amounts on deposit, UL side account, claim fluctuation reserve, premium stabilization reserve, etc.
- Market conduct Provisions (liability held against litigation).

Explicit cash flows could be developed for policy loans and other items mentioned above. Alternatively, if the profits expected from them are not material, the fulfilment cash flows could be based on the balance at the valuation date rather than the present value of a cash flow projection.