Educational Note

Guidance for the 2002 Valuation of Policy Liabilities of Life Insurers

Document 202046

Canadian Institute of Actuaries • Institut Canadien des Actuaires

MEMORANDUM

TO: All Life Insurance Practitioners

FROM: Jacques Tremblay, Chairperson
            Committee on Life Insurance Financial Reporting

DATE: October 2002

SUBJECT: **Guidance for the 2002 Valuation of Policy Liabilities of Life Insurers**

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The purpose of this letter is to provide guidance to actuaries in several areas affecting the valuation of the 2002 year-end policy liabilities of life insurers.

The guidance in this letter represents a consensus view of members of the Committee on Life Insurance Financial Reporting (hereafter referred to as CLIFR in this note) of appropriate practice consistent with CIA standards. As documented in the CIA Due Process paper, this letter has not gone through due process and does not represent standards of practice.

The key topics covered in this letter are listed below. Some guidance provided last year is still appropriate, and has been duplicated in this letter. Other guidance has been slightly modified either to reflect recent developments or to add clarity. In addition, new guidance is provided on other topics.

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10. Balance Sheet Allowance for Acquisition Expenses (DAC) *(Modified from last year's letter)*

11. Term Structure of Interest Rates *(Duplicated from last year)*

CLIFR has published one new educational note this year: *"Expected Mortality: Fully Underwritten Canadian Individual Life Insurance Policies"* (July 22, 2002). Components of this educational note will be discussed under the section on mortality assumptions below. However, as outlined in Section 1220 of the final *"Consolidated Standards of Practice – General Standards"* (June 2002), the "actuary should be familiar with relevant educational notes and other designated educational material," considering that a practice described "for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation." As well, "educational notes are intended to illustrate the application (but not necessarily the only application) of the standards, so there should be no conflict between them."

While the exposure draft of the *"Consolidated Standards of Practice – Practice-Specific Standards for Insurers"* was published in March 2002, members are cautioned that this material does not yet represent standards of practice.

Similarly, Members are cautioned that the *Proposed Changes to Standards of Practice for the Valuation of Policy Liabilities of Life Insurers* (July 31, 2002), which suggests changes to upper and lower bounds on "plausible" ultimate rates for interest rate scenario testing, and modifications to the return assumption for non-fixed income investments, does not represent standards of practice at this time. This document has been submitted for comments, and if ultimately adopted will require changes to *"Consolidated Standards of Practice – Practice Specific Standards for Insurers."* Such changes will be deferred for evaluation once these standards have been adopted.

1. Canadian Asset Liability Method (CALM) *(New guidance)*

1.1 CALM – Approximations

The Canadian Asset Liability Method (CALM) is a theoretically rigorous method. However, regulators have asked CLIFR to provide guidance on the degree of rigor used in implementing the CALM methodology.

CLIFR would like to emphasize that compliance with the "spirit and intent" of standards is not sufficient if the result does not materially reproduce an exact application of CALM.

The *"Consolidated Standards of Practice – General Standards"* (June 2002) outlines the appropriateness of approximations, given materiality considerations:

1340.01 Deviation from a particular recommendation or other guidance in the standards is accepted actuarial practice if the effect of so doing is not material.

1340.02 Judgement about materiality pervades virtually all work and affects the application of nearly all standards. The words "materiality" and "material" seldom appear in the standards, but are understood throughout them. For example, the recommendation that approximation is appropriate if it does not affect the result means that it does not materially affect the result.

1510.01 An approximation is appropriate if it reduces the cost of, reduces the time needed for, or improves the actuary's control over, work without affecting the result.

1510.04 Like materiality, to which it is related, approximation pervades virtually all work and affects the application of nearly all standards. The words "approximation" and "approximate" seldom appear in standards, but are understood throughout them.

1510.05 Approximation permits the actuary to strike a balance between the benefit of precision and the effort of arriving at it.

While materiality would drive the frequency with which such analysis would be performed, it would be appropriate to assess key approximations to CALM for each key reporting date for readers of financial statements. Other approximations to CALM would be assessed at least annually. This assessment can be done off-cycle (i.e., in advance of the reporting date). This can be done provided that at reporting time, the actuary can demonstrate that neither changes in liability cash flows or asset cash flows, nor the interest environment has significantly changed the liability. (Else, the actuary would adjust results of the CALM analysis to reflect the impact.)

Unless the actuary can clearly demonstrate non-materiality or non-sensitivity, approximations to interest rate risk testing (and other scenario-tested variables) in particular, and approximations (e.g., discount rate approach) to using an explicit cash roll forward from an explicit asset portfolio in general would be assessed for each key reporting date.

1.2 CALM – Aggregation And Allocation Of Current And Projected Policy Liabilities

The CALM is naturally applied on an "aggregate", rather than seriatim, basis. The October 2001 "*Life Standard of Practice*" (LSOP) provided no explicit guidance on grouping or business segmentation for application of CALM. CLIFR feels that the issue is addressed in the CSOP exposure draft (March 2002), Section 2320.09. "The actuary would usually apply the Canadian Asset Liability Method to policies in groups which reflect the insurer's asset-liability management practice for allocation of assets to liabilities and investment strategy. That application is a convenience, however, which would not militate against calculation of policy liabilities that, in the aggregate, reflect the risks to which the insurer is exposed."

The provision for interest rate risk needs to be appropriate for the insurer. Where material, it is appropriate for interest rate scenarios to be consistent across any independently tested asset/liability portfolios. However, when determining the amount of provision for interest rate risk, the actuary is cautioned to ensure that the potential synergies (C-3 offset from one line of business to another) are real, and persisting and not simply a transitory result.

Accounting for synergies reduces the overall C3 provision. The allocation of the C3 provision back to each portfolio would:

- Ensure that the provision is positive for each portfolio (each single portfolio is subject to at least some interest rate risk);

- Reflect the relative interest rate risks between the portfolios; and

- Ensure consistency over successive reporting periods.

Compliance with LSOP does not require the allocation of policy liabilities to individual policies or to policy groupings in determining policy liabilities under Canadian GAAP. However, such allocation may be required for determining negative policy liabilities, provisions for adverse deviation by products, future tax cash flows, current tax liabilities, or MCCSR calculations. Where required, the actuary is advised to develop, and document, a reasonable methodology for allocating policy liabilities to individual policies, or groups of policies, consistent with the overall valuation method followed.

A good allocation method has the following characteristics:

- It reflects the basic characteristics and risks of the policies, or blocks of policies, valued. (For example, some policies may have adjustable premiums, or minimum guarantees, such as the minimum interest credited to some Universal Life policies. Other policies may pass results back to policyholders through dividends, or similar mechanisms.)

- It reflects the characteristics of the assets currently being held (or to be held) on behalf of such policies, or blocks.

- It allows for a reasonable projection of policy liabilities (for purposes of e.g., Future Tax Liabilities, DCAT, and Embedded Value).

- It can be used for the different purposes of allocation, and over successive reporting periods.

1.3 CALM – Calculation of Negative Policy Liabilities

The calculation of negative policy liabilities is a specific example of an allocation of liabilities under CALM. A method of allocation is selected in accordance with the above characteristics of a good allocation method. While negative policy liabilities are to be determined using a policy-by-policy allocation, for companies that cannot calculate seriatim policy liabilities for all or for a particular block of business, a different allocation method will be needed for the affected lines. In such instances, the policy liabilities would need, at a minimum, to be determined at a product and cohort level.[1] Such calculations would consider assets backing the various cohorts (i.e., consistent with the company's ALM).[2]

Considering the work required to allocate policy liabilities by product/cohort groupings, actuaries could perform that task off the valuation cycle, and project allocation results (e.g., for negative policy liabilities) to the valuation date.

2. Lapse Margin for Adverse Deviations *(Duplicated from last year's letter)*

Section 7.2.4 of the LSOP states: "The standard range for margins for adverse deviations on rates of lapse and partial withdrawal is 5% to 20% of the expected assumption. For each duration, the direction of the margin would result in an increase in the policy liability net of reinsurance. Any reasonable grouping of policies can be applied for this purpose (e.g., it would generally not be appropriate to group lapse-supported products with non-lapse-supported products). Sensitivity testing may be required to determine the proper application of the margin for adverse deviations (MfADs). Moreover, the proper application of the margins may be different for different interest rate scenarios."

CLIFR acknowledges that some software currently available and / or being used for the year-end 2002 valuation will not allow for rigorous application of this standard. In this context:

- The actuary is to comply with the spirit and intent of the standard - that the valuation result appropriately take into account the potential for the direction of lapse sensitivity to change by duration.

- While the standards describe the theoretical ideal, in practice the actuary's work is constrained by available time, resources and tools. Therefore, it is appropriate for the actuary to strike a reasonable balance between the theoretical ideal and the constraints, and use his/her judgment on the appropriateness and materiality of approximation used and in the resulting level of MfADs selected.

- The actuary would do sufficient testing to ensure that he or she understands the changes in exposure by duration and can defend the appropriateness and materiality of approximations used.

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[1] A cohort may be defined by product issue periods, not normally exceeding one year of issues. A product may be defined as a set of premium rates priced simultaneously, having homogeneous risk characteristics.

[2] The actuary would ensure that the determination of the aggregate quantum of negative policy liabilities at the cohort level does not mask negative policy liabilities with offsetting policies with positive policy liabilities in a material amount.

3. Mortality Assumption *(New guidance)*

3.1 New Educational Note

CLIFR has published an educational note on "*Expected Mortality: Fully Underwritten Canadian Individual Life Insurance Policies*" (July 22, 2002). The note provides assistance in setting the expected mortality assumptions for Canadian GAAP valuations, and speaks to matters covered by Sections 7.1.1, 7.2.2, and 7.2.5 of Life SOP. In addition, many concepts covered in the note will be useful to actuaries in establishing mortality assumptions for other types of business.

Key sections of the note are:

1) Section 500 on Credibility recommends the normalized method as the preferred approach for determining credibility, and 3007 deaths as the minimum needed for 100% credibility.

2) Section 610 on New Underwriting Techniques discusses considerations in setting the mortality assumption when changes to underwriting techniques and thresholds are occurring (e.g., preferred underwriting).

3) Section 630 discusses unique considerations in setting the expected mortality assumption for multiple life policies, and discusses using a joint equal age or equivalent single approach to set the mortality assumption.

3.2 Future Mortality Improvement

Section 7.2.1 of the Life SOP prescribes no mortality improvement for life insurance products with respect to the expected mortality assumption beyond the valuation date. CLIFR would like to clarify that the expectation of future mortality improvement does not justify the use of lower MfADs than would be appropriate in the absence of such an expectation.

3.3 Death Supported Policies

With respect to death-supported policies (i.e., policies where a decrease in mortality rates increases the policy liabilities) a negative MfAD (or mortality improvements) would increase the policy liabilities.

For example, the presence of a reinsurance treaty covering a sub-segment of a block of policy liabilities may produce a mortality hedge for that block. If mortality deteriorates, the policy liabilities will increase for the sub-segment of the block without reinsurance, where it would decrease for the reinsured sub-segment. If mortality improves, the policy liabilities associated with these sub-segments would decrease/increase in opposite directions.

The actuary has to ensure that the company's mortality PfAD is appropriate in aggregate. However, it is appropriate for the actuary to select mortality MfADs that reflect such reinsurance offset. Such reinsurance reduces the risk of mis-estimation of the mean, and deterioration of the mean. The actuary would ensure that, in the absence of reinsurance, the mortality of both sub-segments would be expected to behave the same way, and that the block of policyholders would be homogeneous.

Other situations may create a similar dynamic and the same logic would apply.

3.4 Preferred Underwriting Products

For products underwritten on a prefered basis, the margins would be at least the average of the low and the high margins for years where no credible experience exists. For durations without credible experience, the margins are normally higher than the margins for adverse deviations applied to standard regular underwriting mortality assumptions, at least until the effect of any preferred underwriting is assumed to wear off.

Another consideration to keep in mind in setting the mortality margins for adverse deviation is that the recent market proliferation of preferred underwriting products may have impacted the mortality of products offered on a non-preferred basis (e.g., insured populations may differ from insured populations before the emergence of these products).

4.   Critical Illness *(Modified from last year's letter)*

When establishing expected claims assumptions, the actuary would consider the level and quality of underwriting, the definition of insured events, and the ability to monitor experience. Diagnostic techniques have advanced. Courts might widen their interpretation of definitions. Hence, it may be appropriate to apply morbidity deterioration factors to arrive at expected experience. Historical claims experience may not be indicative of future claims experience.[3]

The actuary needs to be familiar with the underwriting standards, and the definitions of insured events, used to develop underlying experience studies or expected claims.

The actuary may wish to rely on the experience of other countries, but is cautioned to recognize differences (social or other) among countries.

The level of the MfAD would consider many risk factors associated with critical illness contracts (e.g., medical advances, earlier detection, the ability of the company to change premiums or cancel contracts, medical changes in definitions of the insured conditions, or limited relevant experience).

The actuary would also consider expected lapse rates, especially the impact on lapses of any return of premium benefits or riders.

5.   Treatment of Non-Fixed Income Assets Backing Policy Liabilities *(Duplicated from last year's letter)*

In recent years, there has been increased use of non-fixed income assets by life insurers to support life insurance policy liabilities. The Prescribed Scenarios Section in the October 2001 Life SOP (Section 6.3.1) does not generally anticipate this use of non-fixed income assets. An issue that has been raised is whether all trading of non-fixed income assets would be interpreted to be reinvestments under Section 6.3.1 of the Life SOP, in particular for the restriction that reinvestments in the twentieth and later years are limited to risk-free normal coupon paying bonds.

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[3] Consider the condition colloquially known as a "heart attack". Not long ago, the widely accepted diagnosis in the medical field of a heart attack was the presence of chest pain, the evaluation of cardiac enzymes, and recent changes in their ECG. Now, the presence of a cardiac marker, troponin, is sufficient evidence to indicate that a heart attack has occurred.

In CLIFR's view, trades that replace non-fixed income assets with other non-fixed income assets of equal market value need not be treated as reinvestments under Section 6.3.1.

In addition, for a prescribed scenario, if the net cash flow forecasted for a period is positive, it is reasonable that the actuary would assume its reinvestment in debt investments, except that the actuary may assume reinvestment, i.e., new investments, in non-debt investments:

- not to exceed their proportion of investments at the valuation date if the insurer controls investment decisions and if such reinvestment is consistent with its investment policy, or

- in the proportion expected to be selected by policyholders if policyholders control investment decisions (e.g., Universal Life type contracts).

Similarly, for a prescribed scenario, if the net cash flow forecasted for a period is negative, it is reasonable that the actuary would assume disinvestment of debt investments, except that:

- For insurer controlled investment decisions, the actuary may assume short-term borrowing to cover temporary negative cash flows to the extent it is consistent with the investment policy. For sustained and for temporary negative cash flows not covered by short-term borrowing, disinvestment of non-debt securities would be assumed to the extent necessary to stay within investment policy ranges.

- For policyholder controlled investment decisions, in the proportion expected to be selected by the policyholders.

The limitations outlined above on reinvestment in non-debt instruments are intended to apply in situations where reflecting an increased utilization of these instruments will reduce the policy liabilities.

6.   Cyclical Credit Loss Provisions *(New guidance)*

Provisions for expected credit losses typically represent long-term average expectations. They are derived from industry and insurer experience, and are modified considering factors outlined under the LSOP (Section 3.2). In some circumstances, it may be reasonable to establish additional positive or negative short-term provisions or margins to reflect the impact of an economic cycle. Cyclical credit loss provisions are established by special modifications to the short-term cash flows, or by a separate stand-alone provision.

In keeping with the principles of the LSOP, the following guidelines would apply to cyclical credit loss provisions:

1. The economic cycle considered is relatively short term. (It is extremely difficult to project with any degree of confidence the economic cycle of credit losses beyond five years.)

2. The determination of the provision is based on a forward-looking review of expected future credit losses.

3. The expected economic conditions are consistent with the expectations of the actuary's and of the company's investment advisors.

4. Excess asset defaults attributable primarily to inadequate credit underwriting is provided within the expected long term expected asset default assumption. Excess asset defaults clearly related to the deteriorating economic cycle would be considered in the cyclical credit loss provision.

5. The provision is calculated on a consistent basis from period to period.

6. The company establishes and documents a policy for cyclical credit loss margins.

In addition, the actuary would ensure that there is consistency between the accounting provisions for all credit losses and the base line credit loss provision in the policy liabilities.

7.   Selection of Interest Rate Models *(New guidance)*

If the liabilities are determined using stochastic simulation, the actuary would adopt policy liabilities in the range defined by CTE (60%) and CTE (80%). Furthermore, the PfADs for the scenario-tested assumptions are determined by the selection of the CTE coverage level, not through application of specific margins (as for all non-scenario tested assumptions).

Section 6.3 of the "*Standards of Practice for the Valuation of Policy Liabilities of Life Insurers (October 2001)*" describes the elements of an interest rate scenario (risk-free interest rates, credit spreads, default rates, inflation, investment strategy), and suggests that the assumed terms of interest rates should permit assumption of changes in the shape and steepness of the yield curve. That implies a minimum of short-, medium- and long-term rates.

Notwithstanding any definition for a plausible range of Canadian default-free interest rates, the above provides little guidance in the selection, fitting and use of a stochastic interest rate model. CLIFR wants to promote narrowing of the range of practice, and believes additional guidance would clearly be helpful to the actuary.

Interest rate modelling requires a thorough understanding of stochastic methods and statistical techniques, and demands the use of higher mathematics and sophisticated algorithms. Ignoring technical specifications, there are some desirable attributes of an interest rate model (or models) for Canadian GAAP valuation.

At the outset, the actuary must recognize the differences between scenarios created under the real-world and risk-neutral probability measures (P-measure and Q-measure, respectively). Real-world scenarios are used for projection; risk-neutral scenarios are used for market pricing (i.e., fair value determination). Real-world (P-measure) models give sample *distributions*, while risk-neutral (Q-measure) models provide single measurements of value (typically the mean). Canadian GAAP valuation requires projection under real-world interest rates. Whether a risk-neutral pricing model is required within this framework depends on:

1. the assets under consideration;

2. the strategy for covering negative cash flows; and

3.   the re-investment strategy.

Monte Carlo simulation is a common technique for projection, but other models (e.g., lattice models) can be used when market values are required.

The following general conditions offer some guidance on the appropriate use of a Monte Carlo interest rate simulation model.[4] However, some of the points may not be relevant or even desirable for a given application. Indeed, certain attributes may be in conflict for some models; by itself, this would not invalidate the use of the model for valuation. The actuary must determine which features are most appropriate to the risks being valued.

- The random number generator is robust. (The generated sequences need to pass standardized statistical tests for randomness. This generally means that the generator would: 1) exhibit long periodicity; and 2) not suffer from serial correlation.)

- Variance reduction techniques (e.g., low discrepancy sequences) can be effectively used for pricing or market valuation.

- The model reflects the correlation among yields of varying maturities.

- Various yield curve shapes are permitted, consistent with historical observation. (This would ordinarily necessitate modelling directly, or indirectly, at least 3 points on the yield curve: short, medium, and long. The frequency and severity of curve inversions need to be reasonable.)

- Generally, nominal yields remain non-negative. (If permitted by the model, negative rates occur rarely, and are not persistent. The actuary runs additional testing to ensure that the inclusion of negative yields does not materially affect the results of the valuation).

- Interest rates do not increase without bound. (The maximum rates produced by the model are consistent with history.)

- The projections start from the conditions prevailing at the valuation date (e.g., the starting yield curve).

- Ideally, the model captures the tendency of interest rates to experience reasonably long periods of relative stability, interspersed with periods of instability. This does not necessarily imply the need for a regime switching or stochastic volatility model, but could suggest the inadequacy of single-factor models for certain applications.

- Ideally, interest rate movements are correlated with other economic factors, such as equity returns. (At the very least, rates of inflation would bear a logical relationship to interest rates.)

- Ideally, the interest rate model does not permit the earning of material profits at no risk, nor positive profits at zero net cost - i.e., "arbitrage free." (The actuary confirms that any admittance of arbitrage opportunities does not materially distort the valuation results.) However, it is important to note that the "no arbitrage" condition may not be relevant for many applications where the assumed re-investment policy is static or does not involve a "trading" strategy.

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[4] Note: some of the desirable characteristics are described in academic and professional literature as "stylized facts."

- Parameter estimation is based on sound statistical methods. (While judgement may be applied in setting the valuation parameters, the actuary is aware of the "most probable" parameters suggested by the data - e.g., those obtained through maximum likelihood estimation.)

- Enough scenarios are generated to produce reasonable convergence in the results. (The required number of scenarios for "convergence" will vary by application, but would typically exceed 100. As a general rule, more scenarios are required for convergence whenever the asset and/or liability cash flows are sensitive to changes in the economic environment (e.g., contain embedded options).

Sometimes only a single rate (e.g., the short rate) is needed for certain applications. In that case, some of the above conditions might not apply, and the actuary may decide to adopt a simpler model that would be reasonable and adequate for the circumstances. These models are relatively easy to construct, and parameter estimation is straightforward.[5]

8. Valuation of Segregated Fund Investment Guarantees *(Modified from last year's letter)*

For valuation of the general account policy liability associated with segregated fund guarantees, CLIFR believes it is appropriate to establish the policy liability for the guarantee element using stochastic techniques.

CLIFR advises the actuary applying stochastic techniques to value segregated fund guarantees to review the papers on "*Use of Stochastic Techniques to Value Liabilities under Canadian GAAP*" (August 2001) and "*Report: CIA Task Force on Segregated Fund Investment Guarantees*" (March 2002). While these are research papers, and therefore do not represent standards of practice, or even illustrations or expansions of standards of practice (as with educational notes), CLIFR believes these documents to be a valuable guide to application of these techniques in a Canadian GAAP valuation environment.

CLIFR recognizes there may be situations where the exposure to this risk is immaterial, and a simpler approach is warranted. The recommended approach for determining the policy liability under such circumstances is to take percentages of the total balance sheet requirement (TBSR) resulting from the application of the TBSR requirements for MCCSR (i.e., policy liability = F x calculated TBSR requirement). The factor F varies as follows by type of Benefit and Fund Category, and, therefore, requires this split of the TBSR. The result is intended to correspond to approximately a CTE (80) result assuming conservative MV/GV ratios for each Fund Category.

Guaranteed Minimum Death Benefits	F = 0.65 (all fund types)
Guaranteed Minimum Maturity Benefits	F = 0.60 (Money market)
	F = 0.25 (bond)
	F = 0.30 (balanced)
	F = 0.50 (diversified equity)
	F = 0.55 (intermediate equity)
	F = 0.60 (aggressive equity)

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[5] One example of such a model is that proposed by Cox-Ingersoll-Ross. There are many others.

9. Cost of Minimum Interest Guarantees and Embedded Options. *(Duplicated from last year's letter)*

With the continuing trend to low interest rates, CLIFR would like to remind actuaries of the need to assess and make appropriate provision for the cost of any minimum interest guarantees or other embedded economic options (e.g., guaranteed purchase options). These costs may not be appropriately captured in the deterministic base and prescribed scenarios within the Life SOP, as these scenarios may continue to ascribe zero cost to these features when in reality near or in the money guarantees or options can have substantial value. Stochastic modelling or option pricing techniques (stochastic or mathematical) could, therefore, ascribe material value to these features in the current interest environment. While the actuary is not required to model these features stochastically, the actuary would review the exposure to minimum interest guarantees and other embedded options in the business being valued, and determine whether an increase in the policy liabilities is warranted.

10. Balance Sheet Allowance for Acquisition Expenses (DAC) *(Modified from last year's letter)*

Acquisition expenses are expenses incurred in the acquisition of new and renewal insurance policies and annuity contracts. They are expenses that are both primarily related to the acquisition of policies and contracts, and consistently allocated to new business in product pricing and internal company expense allocations.

For some policies (e.g., segregated fund contracts), it may be reasonable to expect the insurer to recover acquisition expenses from revenue received beyond the term of the policy liabilities. Then, the cash flows for a policy may extend beyond the term of its policy liabilities, recognizing cash flows that offset remaining non-recovered portion of such acquisition expenses.

However, this extension must not result in a more favourable balance sheet position than would be the case had no acquisition expense been incurred, and no extension of the cash flows beyond the term of the liability taken place.

Where such a cash flow extension takes place, normal valuation assumptions would be used to extend the cash flow projection. The actuary needs a systematic methodology to establish and recognize the amount of acquisition expense at policy issue (this amount will reduce the policy liability for the policies to which it applies), justify its recoverability, and write the initial balance of acquisition or similar expenses down to zero.

In testing the recoverability of the balance of acquisition or similar expenses, the actuary need consider only projected net cash inflows beyond the term of the liability. Future net cash inflows that the insurer expects to receive over the term of the liability are already recognized in the valuation of the policy liabilities. The actuary needs to demonstrate that the realization of such future net cash inflows beyond the term of the liability is reasonably assured, in order to justify the balance of acquisition or similar expenses (i.e., recoverable using normal valuation assumptions, including margins for adverse deviations (MfADs)).

The balance of acquisition or similar expenses would be written down to zero using an appropriate method. Such a method would:

(a) have a term consistent with the extended term established at inception;

(b) have a write-down pattern reasonably matched with the net cash flows available to offset these expenses at inception; and

(c) be locked in, so the amount of write-down in each period will not fluctuate from expected amounts established at inception provided such balance is recoverable from the additional cash flows recognized at the balance sheet date, and where not fully recoverable at the balance sheet date, is written down to the recoverable amount, with the expected amount of write-down in each future period proportionately reduced.

A method that writes down the balance of acquisition or similar expenses in each period in an amount sufficient to eliminate any profit as it is earned in that period is not appropriate.

The balance of acquisition or similar expenses after inception of the contract is subject to both recoverability justification, and a limit equal to the "unamortized" portion of the initial policy liability adjustment (where the pattern of "amortization" is established at inception of the contract).

In addition, a draw-down of the balance of acquisition or similar expenses that have been charged against income (either through the regular amortization or draw-down of the balance of acquisition or similar expenses, or because some portion had been deemed irrecoverable) cannot be reinstated later.

11. Term Structure of Interest Rates (*Duplicated from last year's letter*)

Conditions, including the decision of the US Government to stop issuing 30-year treasury bonds, have created an environment in which the term structure of interest rates beyond 20 years does not reflect an equilibrium market. In these conditions, and should the term structure of interest rates in North America continue to reflect reducing yields as the term extends beyond 20 years, the following modifications would be appropriate:

- For the base scenario (i.e., expected scenario), assume that the yields for fixed interest investments with a term greater than 20 years move over a period not less than 3 years to yields consistent with the current rates modified to assume flat forward rates beyond 20 years at the level of the 1-year implied forward rate for the final year of a 20-year bond.

- For scenario 7, similarly modify the forward rates to use flat forward rates beyond 20 years at the level of the 1-year implied forward rate for the final year of a 20-year bond.

CLIFR does not believe that adjustments are required to the current rate component for prescribed scenarios 1 to 6.