DRAFT EDUCATIONAL NOTE

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SOURCES OF EARNINGS: DETERMINATION AND DISCLOSURE

COMMITTEE ON THE APPOINTED/VALUATION ACTUARY

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MEMORANDUM

TO: All Fellows, Associates and Correspondents of the Canadian Institute of Actuaries

FROM: D. Allen Loney, Chairperson
Committee on the Appointed/Valuation Actuary

DATE: August 18, 2004

SUBJECT: **Educational Note – Sources of Earnings: Determination and Disclosure – Exposure as a Draft**

The Committee on the Appointed/Valuation Actuary has developed the attached Educational Note on Source of Earnings: Determination and Disclosure. This educational note is being exposed in draft form to allow for further input and comment from practitioners before finalization. It is intended to assist actuaries in developing source of earnings information for disclosure purposes in a way that encourages consistency across the life insurance industry in Canada. This may be for company purposes, or based on requirements of regulatory authorities for the disclosure of such information, either as part of regulatory reporting, or in public disclosure.

Currently, no public source of earnings disclosure is mandated. Several companies have chosen to disclose this information in various forms and for various reporting periods. To the extent that actuaries are involved in a company's determination and disclosure of source of earnings information, it is in the profession and public's interest to encourage consistency of practice.

In accordance with the Institute's policy for Due Process, this educational note has been approved by the Committee on the Appointed/Valuation Actuary, and has received final approval for distribution as a draft by the Practice Standards Council. As outlined in Section 1220 of the Standards of Practice (SOP), the actuary should be "familiar with the relevant educational notes and other designated educational material," and be aware that a "practice which the notes describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation" and that "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."

The Committee on the Appointed/Valuation Actuary thanks the authors of and contributors to this draft educational note: Doug Brooks (chair of the subcommittee), Tom O'Sullivan, Lynne Patterson, Jacques Potvin, Larry Rae, Barry Senensky, and recognizes with thanks the participation of Phil Arthur, Allan Brender, Helmut Engels, and Martin Ouellet.

Actuaries wishing to comment on the draft educational note should contact Doug Brooks at doug.brooks@sunlife.com. It is anticipated that the educational note will be finalized after actuaries have had an opportunity to work with it in their 2004 year-end activities.

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1. INTRODUCTION

1.1 Scope of Paper

The purpose of this educational note is to provide a framework for disclosure of Sources of Earnings that would result in reasonable consistency of approach and disclosure across the industry. It is not intended to address detailed technical questions with respect to the determination of Sources of Earnings.

This note is directed to life insurance company actuaries whose work in Canada is involved with the determination and disclosure of Sources of Earnings analysis. This note describes acceptable methodologies for doing Sources of Earnings analysis, discusses elements of the calculation as well as reporting and disclosure issues. Although the principles may be valid for other reporting bases, it covers only reporting in accordance with Canadian Generally Accepted Accounting Principles (GAAP).

1.2 Definition of Sources of Earnings Analysis

Sources of Earnings analysis is a methodology for identifying and quantifying the various sources of Canadian GAAP income of an insurance company. It is a presentation of net income in a different format from the traditional income statement, with emphasis on these sources. Examples are expected profit, experience gains and losses, changes in assumptions or in methodology, the impact of new business, income on capital and surplus, or the impact from error corrections and Management Actions.

1.3 Benefits of a Good Sources of Earnings Analysis Process

A good Sources of Earnings analysis process provides an important overall control on the integrity of the company's Reported Earnings by providing insight into the validity of the company's data, systems, and financial statement preparation process. It also provides stakeholders, including shareholders, policyholders, directors, management, financial analysts and regulators, with a better understanding of the business and the financial results, and may identify opportunities for improving profitability.

Unexplained variances may provide direction in identifying financial data or system irregularities. Consistent gains or losses from any one element should help in setting pricing or valuation assumptions or adjusting operating procedures or controls.

1.4 Characteristics of a Good Sources of Earnings Analysis

A good Sources of Earnings analysis process will have the following characteristics:

- Easy for users to understand;
- Consistent with the way earnings are reported and the way the business is managed;
- Can be produced in a timely manner;
- Well documented and validated;
- Consistently applied from period to period;
- Technically robust. Reported Earnings are consistently explained (between reporting periods);
- Include all material components of Reported Earnings; and
- Can be used by management to assist in managing the business by identifying the fundamental drivers of earnings.

1.5 Principles of Good Sources of Earnings Disclosure

Effective Sources of Earnings disclosure would display some of the same attributes as a good underlying system, as well as some additional characteristics:

- Easy for external users to understand;
- Comparable to other companies' analyses;
- Reconcile to Reported Earnings without material "balancing items";
- Consistently applied from period to period;
- Consistent with the manner in which earnings are reported and described and the way the business is managed;
- Produced and disclosed in a timely way; and
- Describe all material components of Reported Earnings.

2. METHODOLOGY

2.1 Overview of the Calculation

The Sources of Earnings analysis is an alternative presentation (i.e., from the traditional income statement) of the income reported by the Company under Canadian GAAP accounting. It provides an analysis of the difference between actual income and the income that would have been reported had all assumptions been realized, and none changed, during the reporting period.

Expected income from operations for the period consists of the release of Provisions for Adverse Deviations (PfAD) on business inforce at the beginning of the period, expected income on fee-based businesses, expected income on deposits, and possibly the expected income from new business written in the period. Actual income from operations will differ from expected due to expected assumptions not being realized. Analysis is done relative to valuation best estimate assumptions. Total income will be further impacted by changes in valuation best estimate assumptions, other unanticipated activity (e.g., Management Action, correction of errors, etc.) as well as earnings on surplus.

There are a number of components that make up a Sources of Earnings analysis. The most common of these are described below in some detail, but the list is not intended to be exhaustive. Some companies may have additional sources of earnings that are material that would be calculated (and perhaps disclosed) separately. The components listed below would be calculated regardless of their materiality.

Within each component category, the high level approach and principles are discussed. Examples are for illustrative purposes only and are not meant to be exhaustive. For instance, Universal Life products include funding levels that require additional components. Some of the factors listed below may be immaterial for a particular company, or may be combined with other factors for simplicity. However, a review of all factors is still likely to be useful to ensure a proper understanding of the Sources of Earnings.

2.1.1 Components of Calculation

a) Expected Profit

The first component of the Sources of Earnings would represent the profit of the company based on the achievement of its best estimate assumptions. It would include the release of PfADs and any net management fees (i.e., net margin on mutual fund and/or segregated fund, ASO contract, etc.), as well as expected income on deposits. Expected profit after renewals on inforce business would also be included in the expected profit category. Expected profit should also reflect scheduled amortization of balance sheet allowances for acquisition expenses and other capitalized expenses. For clarity, the best estimate assumptions referred to mean the valuation best estimate assumptions as defined in the Standards of Practice.

b) Impact of New Business – Point of Sale

New business may have an impact on income at the time of sale that would be identified. That is, the difference between the premium received and the sum of the liability established at the point of sale and expenses incurred and allocated constitutes a gain or, if negative, a loss (or strain) at issue.

The impact is influenced by the relationship between the valuation margin and the profit margin inherent in the pricing, the difference between valuation best estimate assumptions and pricing best estimate assumptions, including the difference between the actual initial expenses charged and the current best estimate acquisition expenses.

Experience after the point of sale would be considered as experience gains and losses rather than as related to new business. Similarly, an element of expected profit (PfAD release, as noted above) will arise from the point of sale to the end of the reporting period.

Another issue to be addressed is the precise definition of what is to be included as new business. Most forms of Group protection business and some annuity renewal business are examples that do not have a universally accepted standard for reporting purposes. It is suggested that the business included as new business for this purpose be consistent with the business included in other metrics that are disclosed, internally or externally, such as new business premium or value of new business (as part of embedded value disclosure). An important criterion in determining the appropriate categorization is understandability and meaningfulness to the user of the information.

c) Experience Gains and Losses – Current Period

Experience gains and losses emerge when experience differs from the best estimate assumptions determined at the beginning of the analysis period that are used to calculate the expected profit. It is important that only the differences in experience that are not in the Control of the Company[1] be included in this component. If, for example, the company

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[1] The phrases “control of the company” and “management action” are used in this note to distinguish between areas in which the company exerts influence over the business and its financial results, and those areas that are primarily external in nature. For disclosure purposes, it is important for users to understand these distinctions. Examples of management action include, but are not limited to: changes in the price of a product; changes in fees or fee structures; changes in assumptions that are related to expenses; changes in methodology that are initiated by management. Examples of items that are not in the control of the company, or do not constitute management action are: mortality results; interest rate and equity market results. Changes in

decides to increase its profit margin on fee income business, the impact would be shown in the Management Action component (see d) below) rather than in the experience gains and losses component. On the other hand, if the profit on fee income business were higher than anticipated because there were more funds under management resulting from a lower lapse or a higher natural increase, the difference from the anticipated profit would be included in the experience gains and losses component.

Note that to the extent valuation best estimate assumptions contain conservatism, variances may arise, creating experience gains, that otherwise might have been reflected as a PfAD release, or expected profit. This may occur if a company uses approximate methods to determine liabilities. It may also occur when valuation assumptions are artificially constrained by actuarial standards. Restrictions arising out of the use of "Term of the Liability" in projecting expected cash flows might have a similar impact.

Differences between current period actual experience and accounting estimates (accruals) made in previous reporting periods would be included as experience gains and losses.

The impact of currency changes during the reporting period would be shown as experience gains and losses. That is, the beginning of period exchange rate would be used in the determination of expected profit.

d) Changes in Assumptions and Other Changes

There are a number of distinct elements within this category. Some delineation of these items is included in recognition of the fact that a company may find it useful to determine (and potentially disclose) material items within the category. Note that the impact of changes in assumptions would be determined as of the end of the reporting period, and would be consistent with the manner in which these changes are disclosed in the Appointed Actuary's Report.

Best Estimate Assumptions and Margins

Best estimate assumptions are generally reviewed regularly and systematically in the normal course of business. For example, mortality and persistency rates may be typically studied annually and the associated best estimate assumptions may be updated to reflect any long-term changes that are identified.

The change in PfAD resulting from changes of this nature (for example if PfADs are determined as a percentage of the best estimate assumption) would be included as part of this item. The impact of a change in Margins for Adverse Deviations (MfAD) due to a change in criteria for selecting the margin (e.g., due to a change in the credibility of the experience data, would also be included here).

The amount included is the present value of the changes made to assumptions.

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actuarial assumptions would be categorized and disclosed consistently with the manner in which they are reported in other disclosure and the Appointed Actuary's report.

Changes in Methodology

When a change in methodology affects the net income of the company, it would be identified as a source of gain or loss. As the Sources of Earnings analysis is used only to explain income, the impact of a change in methodology that directly affects surplus without impacting the income statement would not be reflected in the Sources of Earnings analysis. Changes in methodology can fall into different categories that may be determined and disclosed separately if material. Examples of the types of changes include:

- changes in methodology arising from new actuarial or accounting standards;
- changes in methodology arising from refinement to valuation methods (including the use of new systems) – these sorts of changes are generally frequent and (normally) minor – if significant, they may point to inappropriateness of previous methods and/or assumptions; often, however, within a specific block of business, there may be implicit recognition of these inadequacies with offsets against other similar and related items – in this event, it is legitimate to net the offsetting changes in analysis.

Correction of Errors

Error corrections may be identified separately and categorized with other non-experience related valuation changes. Materiality would determine whether separate identification is appropriate.

Management Actions

The impact of Management Actions (see earlier footnote on items in the control of the company and management action for further discussion) that impact income apart from the normal operation of the business, such as changes in expense assumptions as a result of an acquisition or merger, changes to fees charged, or exiting from a line of business, may be identified separately where material.

e) Income on Surplus

Income on surplus would be shown as a separate line in the analysis (net of associated expenses), and would be aligned with the company's total reporting (i.e., the Sources of Earnings analysis would reconcile the reporting earnings by geography, business segment, etc.). Debt servicing costs (other than those already reflected in liabilities) would be netted against other surplus income. If corporate expenses are charged against net surplus investment income for reporting purposes, then they would be charged against surplus income for Sources of Earnings purposes as well. Therefore, the net result is that the Sources of Earnings analysis would identify those earnings for a particular business segment that arise from the business itself separately from those related to the surplus allocated to the business segment.

f) Taxes

Companies may choose to analyse results on a pre- or post-tax basis for internal purposes. That is, a company choosing to analyse results on a post-tax basis would determine the impact of tax on a line-by-line basis in the analysis, and would then include an experience gain for tax as well as for other experience factors (that is, the difference between expected and actual taxes). For disclosure purposes, it would be preferable for companies to disclose on a pre-tax basis. (See section 3.1 for a discussion on the rationale for this preference.)

2.2 Specific Calculation Issues

2.2.1 Seriatim Reserves

Normally, seriatim reserves are a prerequisite in order to perform a Sources of Earnings analysis. However, under the Canadian Asset Liability Method (CALM) of calculating reserves, seriatim reserves are no longer required. The Sources of Earnings analysis may, however, be performed in any valuation environment as long as it is possible to differentiate the PfAD from the best estimate assumption. The Committee on Life Insurance Financial Reporting (CLIFR) has developed a paper on CALM aggregation and attribution methods (dated September 2003). This paper provides guidance on how to approximate seriatim reserves.

2.2.2 Analysis of New Business Impact

There may be practical difficulties in determining the specific components necessary to complete the analysis of the impact of new business. For example, it may be difficult to isolate the impact of new business within a CALM valuation. Reasonable approximations should be applied in such instances. Again, the educational note "Aggregation and Allocation of Policy Liabilities" referred to above should be used as a reference in determining and applying approximations.

2.2.3 Order of Calculation

When determining specific elements of a Sources of Earnings analysis, the order of calculation, or the methodology used, may affect the results. For example, when calculating experience gains and losses, there could be inter-relationships between various experience factors, and the order of determination may affect the result. Similarly, the impact of assumption changes could depend on the methodology. The principles that would be used to make these determinations are that: a consistent approach should be followed from period to period; if there are other places in which the same or very similar information is produced or disclosed, a consistent approach would be taken. Therefore, if a company determines to vary one factor at a time in determining the impact of assumption changes, it would follow the same order each time. Similarly, if a company were to calculate the effect of each item separately, and deal with the impact of inter-relationships by allocating the difference on a pro rata basis, then this practice would be followed consistently from period to period. As well, if the impacts of assumption changes were determined for reporting in the Appointed Actuaries Report, for example, the same methodology would be applied.

2.2.4 Period-by-Period or Year-to-Date

A similar issue arises with respect to reporting on a period-by-period basis or a year-to-date basis. For example, expected profit for a quarter could vary if an assumption is changed during a year. Again, the principles of consistency with past practices and other determination or disclosure would be followed. As well, consideration should be given to the intended purpose. That is, if the intent were to explain the earnings for the period via the Sources of Earnings analysis, then assumption changes affecting that quarter would be reflected. If the intent is to explain year-to-date earnings, then it may not be appropriate to reflect the assumption change.

2.2.5 Participating Business

Participating business presents a number of special considerations, as experience gains and losses may not flow into income, but may be absorbed by policyholder dividends. Furthermore, there are different structures for participating products depending on jurisdiction and whether a company has a closed block (or blocks) as a result of demutualization. The purpose of a Sources of Earnings analysis is to explain the company's net income through identifying the sources of that income. In the case of participating insurance, then, it is important that items not be identified unless they actually contribute to the net income being analyzed, which would be clearly defined in the presentation of the results.

In a "closed block" situation resulting from demutualization, if variations of experience within the closed block have no impact on the company's net income, those variations would not be identified in the Sources of Earnings analysis. In this situation, the expected release of PfADs should form part of Expected Profit. Changes to assumptions that affect these amounts would be appropriately categorized as changes in assumptions, and experience changes that affect the amount of PfAD released (for example, changes in persistency) would be determined as such.

Similarly, in a Canadian "open block," experience variations may or may not have a material impact on the net income of the company, depending on whether they are passed through to policyowners. Their impact on the shareholder net income would reflect the interest of the shareholder in the income of the participating fund, which is constrained by Section 461 and related provisions of the Insurance Companies Act. If the Sources of Earnings analysis were an analysis of the net income of the company, it would include the impact of experience within the Participating Account that is not expected to be passed through to policyowners. If the Sources of Earnings analysis were an analysis of shareholder income only, it would include the anticipated contribution to shareholder net income from the participating fund as Expected Profit, and categorize items that affect this contribution under the appropriate categories. In this situation, the remainder of the net income of the Participating Account would be excluded from the analysis.

In some jurisdictions, net par income after provision for dividends may form part of shareholder income. In these instances, the analysis would determine the net impact of changes in experience on the company's income, and categorize them as experience gains and losses. For example, if a portion of mortality gains or losses were not reflected in dividend changes, then this portion would be considered as an experience gain or loss.

The handling of expenses for participating business may vary from company to company. If expenses are fully reflected within the participating accounts mechanisms for pass through of experience to policyowners, then no experience gains or losses would result. If, on the other hand, expenses were guaranteed by the shareholders to the participating account, the variation between actual and guaranteed expenses would be recognized as an experience gain or loss to the shareholders.

2.2.6 Group Businesses

Group insurance, or coverages that are sold on a group-like basis, also present some challenges to Source of Earnings determination and presentation. In particular, the determination of the impact of new business may be problematic, and the calculation of experience gains and losses are subject to some of the same issues as discussed above in relation to participating insurance with respect to pass through of experience.

The term “new business” is not as clear (or perhaps meaningful) in group businesses as it is in individual businesses. Business may be effectively repriced each year, even if it stays on the books. To the extent that this creates a gain or loss, it could potentially be considered in a number of categories. The principles are similar to those that apply with respect to other elements of the analysis. That is, consistency with other reporting, and consistency with internal management. This may well mean that the concept of the “impact of new business” is not relevant for group business and would be set to zero. For clarity, expected profit from new sales during a period should then be included in the “expected profit” category.

Expected profit may be viewed and determined differently for group business than for individual business. That is, an explicit profit margin may be built into pricing as a percentage of premium, rather than as a valuation margin. The expected profit in the Sources of Earnings analysis would be consistent with the profit anticipated from the business to create a meaningful pattern of profit.

The impact of experience variations may not flow directly to the bottom line. If that were the case, then, as for participating insurance (see above), the analysis would be constructed with respect to those factors that do influence the bottom line. Factors that do not influence the bottom line because they are absorbed through other means would not be shown as experience gains or losses.

2.3 Materiality and Approximations

A level of materiality would be determined as part of the process of producing a Sources of Earnings analysis. The level of materiality and the use of approximations would be a function of the intended use for the Sources of Earnings analysis.

2.4 Data Integrity and Audit Trail

Data used in the Sources of Earnings would be consistent with the general ledger data to avoid irreconcilable gains and losses.

In order to minimize errors, procedures for calculating the Sources of Earnings would be formalized and automated. The process would be well documented and periodically subject to either internal or external peer review.

A practice of formal review every reporting period, where results are presented to senior management or other stakeholders, could help add rigour and discipline to the process.

It is unlikely that it would be possible to precisely reconcile the Sources of Earnings analysis to reported earnings in any given reporting period. Thus, there would normally be a residual amount of profit that cannot be explained. The tolerance level for the unexplained amount (or “balancing item”) would be a function of the intended use of the analysis, the sophistication of the process for determining the Sources of Earnings, and the size and complexity of the line of business.

A large unexplained amount would usually indicate an error or omission in the Sources of Earnings calculation. An unexplained amount that is consistently either positive or negative in every reporting period would likely also suggest that there is an error or omission in the Sources of Earnings calculation.

3. Reporting and Disclosure

3.1 What Constitutes Appropriate Disclosure?

The level of reporting for external use would normally be consistent with the level of reporting of the external financial statements. The level of reporting for internal use would depend on the needs and objectives of management, but would ideally include all material segments of the business. The level of materiality and use of approximations for Sources of Earnings analysis that is based on audited financial statements would be consistent with the level of materiality and approximations used in producing the financial statements.

For external disclosure purposes, it is expected that items not fully reconciled in the Sources of Earnings analysis would be immaterial, and therefore would be allocated to other components of the analysis based on approximations or judgement. The existence of material unreconciled items would either result in withholding disclosure of Sources of Earnings until the differences are reconciled, or would result in disclosure of the unreconciled amount.

When certain of the basic components of a Sources of Earnings analysis are immaterial for a particular company, or where internal use and practice differs from these guidelines, these elements would nevertheless be identified in public disclosure. Disclosure would also be recast in the recommended form for public disclosure to promote consistency. Examples of this may be the handling of tax (discussed further below), or the determination of earnings on surplus, if a company does not segment surplus earnings distinctly.

As discussed above, changes in methodology may be internally or externally driven. Their materiality and source would provide the criteria for disclosure:

- changes in methodology arising from new actuarial or accounting standards – these do not form part of "normal" earnings and therefore consideration would be given to disclosing these separately if material;
- changes in methodology arising from refinement to valuation methods (including the use of new systems) – if material, these may constitute corrections, and, as with other material corrections, consideration would be given to separate disclosure; to the extent that there was implicit recognition of inadequacies with offsets against other similar and related items, it would be legitimate to net the offsetting changes in analysis rather than disclosing the components separately.

It is preferred, as illustrated in the sample disclosure below, that Sources of Earnings analysis be externally disclosed on a pre-tax basis. That is, the components of the Sources of Earnings analysis would reconcile to Net Income Before Taxes. Tax would then be shown as a line item. The reasons for this preference are:

- this treatment of tax would be consistent with other disclosure (i.e., earnings are shown on a pre-tax basis);
- pre-tax disclosure has been the majority practice to date, and no concern has been expressed by users;
- allows better tracking of pure trends in experience categories, unclouded by changes in tax rates; this is particularly relevant for multi-nationals where tax rates may change in different jurisdictions.

3.2 Sample Report – Basic Components

The following sample report outlines the basic components of a Source of Earnings report that would be included for external reporting purposes. The analysis is shown as it would apply at a total company level, but the same elements would be included for each business unit or territory for which Source of Earnings analysis is disclosed.

Note that there may be unusual items in a company's income for a particular period. If disclosed as unusual items in a company's reported income for Canadian GAAP purposes, they would be shown in a consistent manner for Sources of Earnings reporting purposes.

Items shown may be subdivided where they are either material or relevant to understanding business results. For example, experience gains and losses may be separated into mortality, investment income, expense and other items. If this is done, the sub-total of experience gains and losses should be shown, and the items would be similarly separated for each reporting period.

Sources of Earnings
(C$ millions)

	Reporting Period 1	Reporting Period 2
Expected Profit on Inforce Operations	**x,xxx**	**x,xxx**
Impact of New Business	**xxx**	**xxx**
Experience Gains & Losses	**xxx**	**xxx**
Changes in Best Estimate Assumptions and Other Changes	**xxx**	**xxx**
Earnings on Operations Before Taxes	**xxx**	**xxx**
Earnings on Surplus	**xxx**	**xxx**
Net Income Before Taxes	**x,xxx**	**x,xxx**
Less: Taxes	**xxx**	**xxx**
Net Income Before Minority Interests	**xxx**	**xxx**
Less: Minority Interests	**xxx**	**xxx**
Net Income	**xxx**	**xxx**

3.3 Aggregation

The level of aggregation of the various sources (i.e., subcategories of the primary categories noted above) and by line of business depends on the users. Generally, to ensure appropriate confidentiality, the more externally focused the analysis, the higher the level of aggregation, for example by product line or territory.

APPENDIX A: ANALYSIS OF CALCULATIONS

The following is a simplified income statement analysis for an insurance company and is intended to be illustrative only. In particular, the impact of taxes is over-simplified. It may not be appropriate for fee-based income products or group protection business.

Net Income =

Premiums
+ Fee Income
+ Investment Income
- Benefits Paid
- Expenses
- Change in Actuarial Liabilities
- Taxes

For the purposes of this illustrative analysis, the amortization of balance sheet allowances for acquisition expenses as well as capitalized expenses is reflected in the Expenses line.

This can be expanded slightly as follows (i.e., breaking down investment income and expenses)

Net Income =

Premiums
+ Fee Income
+ Product-related Investment Income
+ Surplus-related Investment Income Net of Debt Service Costs
- Benefits Paid
- Product-related Expenses (split between acquisition expenses and ongoing expenses)
- Fee Income-related Expenses
- Surplus-related Expenses
- Change in Actuarial Liabilities
- Taxes

The change in actuarial liabilities can be broken down as follows:

Change in Actuarial Liabilities (before tax) =

Expected Premiums (including fee income where reflected in liabilities)
+ Required Investment Income (i.e., the investment income required at the best estimate valuation rate)
- Expected Benefits
- (Expected Best Estimate Reserve Released on Termination – Actual Best Estimate Reserve Release on Termination)
- Expected Expenses
- Expected PfADs Released in the Period
+ Expected Change in Tax Timing Differences
+/- Pricing Gains/Losses (e.g., time zero reserve, net of PfADs if not included above)

+/- Effect of Changes in Assumptions

+/- Effect of Changes in Methodology

Substituting this into the earlier formula and breaking down the Fee Income, we have:

Net Income =

Premiums

+ Actual Fee Income – Expected Fee Income

+ Expected Fee Income

+ Product-related Investment Income

+ Surplus-related Investment Income Net of Debt Service Costs

- Benefits Paid

- Product-related Expenses

- Actual Fee Income-related Expenses + Expected Fee Income-related Expenses

+/- Expected Fee Income-related Expenses

- Surplus-related Expenses

- Expected Premiums

- Required Investment Income (i.e., the investment income required at the best estimate rate)

+ Expected Benefits

+ Expected Expenses

+ (Expected Best Estimate Reserve Released on Termination – Actual Best Estimate Reserve Release on Termination)

+ Expected PfADs Released in the Period

+ Expected Change in Tax Timing Differences

+/- Pricing Gains/Losses

+/- Effect of Changes in Assumptions

+/- Effect of Changes in Methodology

- Taxes

The Sources of Earnings analysis would then be a recasting of this equation as follows:

Net Income Breakdown	**Earnings Analysis Component**
Premium – Expected Premium	Experience Gains/Losses
Expected Fee Income – Expected Fee Income-related Expenses	Net Fee Income (perhaps included with Expected Profit)
Actual Fee Income – Actual Fee Income-related Expenses – (Expected Fee Income – Expected Fee Income-related Expenses)	Experience Gains/Losses
Product-related Investment Income – Expected Investment Income	Experience Gains/Losses
Surplus-related Investment Income – (Surplus-related Expenses + Debt Service Costs)	Income on Surplus

Expected Benefits – Benefits Paid – (Expected Best Estimate Reserve Released on Termination – Actual Best Estimate Reserve Release on Termination)	Experience Gains/Losses
Expected Expenses – Product-related Expense	Experience Gains/Losses
Expected PfADs Released in the Period	Expected Profit
Expected Change in Tax Timing Differences – Taxes	Experience Gains/Losses and Changes in Tax Environment
Pricing Gains/Losses	New Business Impact
Effect of Changes in Methodology and Assumptions	Changes in Methodology and Assumptions

Note that, depending on the method chosen to implement an earnings analysis, there could be items that cannot be precisely reconciled. There could be second-order effects of experience variations during a particular reporting period. If, for example, expected benefits are determined based on the beginning of a quarter in force, the actual terminations and new business during the quarter could create some movement in the expected number. Depending on materiality, however, it may not be practical to determine the impact on the expected number. In any case, the residual that cannot be precisely calculated would be allocated in some reasonable manner that does not otherwise negate the benefits outlined in Section 1.

For those interested in a more detailed presentation, a number of references exist. For example, "The Analysis of Insurance Earnings," by McGarry and Pledge, was presented at the CIA meeting in June 2002 (TS-45).