

Feldblum, “**The Insurance Expense Exhibit and the Allocation of Investment Income**,” (Fifth Edition), CAS Study Note, May 1997.

Syllabus Information

Sections D.1. & D.2.

Learning Objectives: Evaluate the financial health of an insurance entity;  
Calculation of Insurance Expense Exhibit (IEE)

Range of Weights: [small] part of 30-35 percent and ~1/6<sup>th</sup> of 8-12 percent  
of 2007 Exam 7, or roughly 2-4 points in total

Outline: Feldblum provides history, purpose, and construction algorithms of the IEE, a supplement to the Annual Statement due April 1 each year. Of specific interest are the NAIC promulgated methodologies for allocation of various items, such as investment income and PHS, to line of business.

### **Structure of the IEE**

**Part I – Allocation to Expense Groups**

**Part II – Allocation to Lines of Business Net of Reinsurance**

**Part III – Allocation to Lines of Direct Written Business**

**Part I** is virtually identical to **Part 3 – Expenses** of the Underwriting and Investment Exhibit, which is Page 11 of the Annual Statement. However, there are several differences, and **the first 3 of these have been tested**:

1. While Page 11 breaks Total Expenses into 3 categories (LAE, OUE, & Investment), IEE-Part I has 5 expense categories. LAE & Investment expenses are identical on both exhibits, but *the IEE splits OUE into 3 pieces*:
  - a. Acquisition, Field Supervision, and Collection Expenses
  - b. General Expenses
  - c. Taxes, Licenses and Fees
2. Both exhibits provide calendar year expenses incurred, but *Page 11 provides* additional rows showing BOY & EOY unpaid expense to compute *calendar year Paid Expenses*.
3. *Page 11 is shown in whole dollars, while the entire IEE is in \$000's.*
4. Line 23, Reimbursements by uninsured A&H plans, is XXX'd out on the IEE.

**Parts II & III** are the sections where premiums, losses, expenses, reserves, and profits are allocated to line of business, both in dollars (\$000 omitted!) and as percentages to EP. There are **4 differences between Parts II & III**:

1. *Part II is Net; Part III is Direct.*
2. Since it is Direct, *Part III omits the row for Reinsurance lines of business.*
3. Net data has numerous A.S. cross-checks, but *there are few Direct cross-checks.*
4. Both sections show Profits on a pre-tax basis excluding all investment gains. However, *Part II contains additional columns showing investment gains* (“Investment Gain on Funds Attributable to Insurance Transactions” and “Investment Gain on Funds Attributable to Capital and Surplus”) *so that Total Pre-Tax Profit can be measured by line of business on a Net basis.* Investment income is earned on assets held by the company, which are Net of reinsurance.

Specific columns of items shown by line of business on Parts II & III of the IEE are as follows: (The NAIC presumes those items shown in normal font are readily available or allocable by LOB within company records. Those in ***bold italics*** must be allocated to line using NAIC-prescribed methods.)

- WP
- EP
- PHD
- Loss Inc'd
- DCC expenses Inc'd
- A&O expenses Inc'd
- Loss Reserves
- DCC Reserves
- A&O Reserves
- UPR ← offset by any accrued retrospective premiums
- Agents' Balances ← excludes any accrued retrospective premiums
- Commissions & Brokerage expenses Inc'd
- Taxes, Licenses & Fees Inc'd
- ***Other Acquisition, Field Supervision, and Collection expenses Inc'd***
- ***General expenses Inc'd***
- ***Other Income less Other Expenses*** (on **Part II** this equals AS P4, L15 minus L5)
- Pre-Tax Profit or Loss Excluding All Investment Gain (a calculation)
- ***Investment Gain on Funds Attributable to Insurance Transactions (Part II only)***
- Profit or Loss Excl. Investment on Capital and Surplus (calculation; **Part II** only)
- ***Investment Gain on Funds Attributable to Capital and Surplus (Part II only)***
- Total Profit or Loss (calculation; **Part II** only)

The meat of Feldblum's article, at least from the perspective of Exam 7 learning objectives and knowledge statements, is the algorithms for allocating the 5 items shown above in ***bold italics***. The 4<sup>th</sup> and 5<sup>th</sup> of these items are often tested.

1. ***Other Acquisition, Field Supervision, and Collection expenses Inc'd*** – generally allocated by line by formula. Feldblum mentions New York Regulation 30 as a source for these formulas. Reg 30, the “Uniform Classification of Expenses” used to be on Exam 7 years ago. It provided bases for the allocation of each expense type, such as advertising being allocated on the basis of WP by line.
2. ***General expenses Inc'd*** – allocated same as Other Acquisition (see above).
3. ***Other Income less Other Expenses*** – Feldblum does not tell us how this item should be allocated by line. But he does note that “Other Expense” is not to be confused with OUE. “Other Expense” here is Aggregate write-ins for U/W deductions. It includes things like net gain or loss from agents or premium balances charged off.
4. ***Investment Gain on Funds Attributable to Insurance Transactions***
5. ***Investment Gain on Funds Attributable to Capital and Surplus***

## Allocation of Investment Income by Line of Business

**Conceptual Level** – Investment income is allocated in proportion to the investable funds in each line. Investable funds come from insurance transactions and capital & surplus.

- a) Funds attributable to Insurance Transactions =

$$\text{Loss Reserves} + \text{UPR} - \text{prepaid expenses} - \text{uncollected premiums}$$

- b) Funds attributable to Capital and Surplus are allocated to line in proportion to total reserves plus earned premium for the year.

**Component Level** – Elements in the allocation formula, including adjustments:

- a) Balance sheet items (always averages of current and prior year-end values):
- i) Mean Net Loss and LAE Reserves
  - ii) Mean Net UPR
  - iii) Mean Net Agents' Balances
  - iv) Mean PHS
- b) Prepaid expenses are the following incurred underwriting expenses:

$$\text{Commission} + \text{Taxes, Licenses, Fees} + \text{Other Acquisition} + \frac{1}{2} \text{ of General}$$

- c) Net investment gain or loss =

$$\text{Net Investment Income Earned} + \text{Net Realized Capital Gains or Losses}$$

Note that Unrealized capital gains or losses are excluded.

### **The Allocation**

- d) Surplus: Allocate mean PHS to line in proportion to

$$\text{Mean Net L\&LAE Reserves} + \text{Mean Net UPR} + \text{Earned Premium for the year}$$

Note that here UPR is unadjusted. It is the amount the insurer is required to hold on the balance sheet, regardless of the amount of investable funds from premiums. Feldblum does not explicitly tell us here, but the EP is Net of reinsurance.

- e) Determine the company's overall "Investment Gain Ratio" as:

$$\frac{\text{Net Investment Gain}}{(\text{Mean L\&LAE Reserves} + \text{Mean UPR} - \text{Mean Agents' Balances} + \text{Mean PHS})}$$

Note that the denominator in this case is intended to represent investable funds. Therefore, here UPR is adjusted by removing [admitted] Agents' Balances. However, in Statutory Accounting prepaid expenses are expenditures, not assets. Since they have been "expensed" they have already reduced PHS [as have non-admitted Agents' Balances through the Capital and Surplus Account].

- f) **Investment Gain on Funds Attributable to Insurance Transactions** (IEE Part II, Column 35) is the company's overall investment gain ratio times the funds attributable to insurance transactions for a given line of business, which equal:

$$\text{Mean L\&LAE Reserve} + \text{Mean UPR} \times \left(1 - \frac{\text{prepaid expenses}}{\text{curr yr Net}}\right) - \text{Mean Agents Bal WP}$$

Here, the full UPR is reduced by the proportion of WP that is funded from PHS.

- g) **Investment Gain Attributable to Capital and Surplus** (IEE Part II, Column 39)

$$\text{Total Investment Gain for Line} - \text{Inv. Gain Attributable to Ins. Transactions}$$

Total investment gain for a line =

$$(\text{Overall investment gain ratio}) \times (\text{Investable funds associated to Line})$$

Investable funds associated to each line =

$$\text{Mean L\&LAE Reserve} + \text{Mean UPR} - \text{Mean Agents Balances} + \text{Allocated PHS}$$

UPR is reduced by uncollected WP, while prepaid expenses are funded from PHS.

**Data Level** – All data elements for the allocation of investment income come from either the Annual Statement or prior columns of IEE, Part II. Feldblum introduces notation for each of these data elements and identifies their source locations (at least where they were found in statutory documents from the early 1990's), and using this notation he proceeds to repeat everything he previously discussed verbally. In the next section he provides a step-by-step illustration of the allocation procedures, but without using this notation!

*Conclusion: Know the procedures, not the notation.*

#### **Commentary on the Allocation:**

- Other items beyond Agents' Balances and Prepaid Expenses may reduce investable funds from insurance transactions, such as bills receivable taken for premium. Feldblum believes most other adjustments are minor and would not materially affect the allocation.
- The investment gain ratio is applied uniformly to the investable assets of each line. However, the duration of liabilities varies by line. Investable assets from insurance transactions in shorter-tailed lines, such as Auto Physical Damage, can only be invested for relatively short periods. Contrast this with funds from longer-tailed lines, such as Other Liability, which can be invested for longer terms. Ignoring those rare and brief intervals of inverted yield curves, longer term investments produce higher investment yields. Therefore, long-tailed lines should have higher investment gain ratios. Feldblum believes inaccuracies to be slight and that the practical considerations overwhelm any theoretical advantage.
- Retrospective profitability should be measured using discounted losses. The IEE seeks to measure profitability using investment income earned during the past year on held reserves as a proxy for the amount of discount in those reserves. This is only reasonable for lines in that are in steady state; it is misleading where EP in a line significantly grows or declines.
- Since income is allocated based on total surplus, the loss of surplus (such as from a cat event in one line) will cause profitability in other lines to improve! Analyze inferred IEE results!!
- Other comments: FIT & cash needs vs. unrealized gains; "risk-free" investment income.