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MORTALITY FLUCTUATION RESERVE AND GAAP ACCOUNTING (Continued)

Editor's Note: The Occidental Life Insurance Company of California also prepared a position paper on Mortality Fluctuation Reserves for Stock Life Insurance Companies and we are indebted to the Company for permission to reproduce the paper.

In anticipation of the issuance of an audit guide for life insurance companies, the Occidental changed the accounting methods to what we considered to be generally accepted accounting principles for the year ended December 31, 1970. We believe the methods we chose at that time conform to the Audit Guide for Stock Life Insurance Companies issued by the AICPA in December, 1972.

While we were not thinking precisely in terms of "provisions for adverse deviations" as referred to in the Guide, we did, and do, believe that the assumptions and methods used in adjusting statutory statements to GAAP should contain enough conservatism to be in keeping with the long-term nature of the contracts. Consequently, we adopted amortization periods of twenty (for term policies) and thirty (for permanent policies) years for acquisition costs instead of the premium paying period to provide for adverse variances in withdrawal assumptions, graded interest rates to non-inflationary rates over the same periods and set up a mortality fluctuation reserve.

We first considered the use of simply a more conservative mortality table (such as the 1958 CSO generally used for current issues under statutory accounting). Assuming that the mortality actually assumed was realistic, this would have allowed some portion of our profits to flow into earnings as we were released from the risk involved. We did not adopt this approach for two basic reasons:

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ACTUARIAL APTITUDE TEST

The Committee to Encourage Interest in Actuarial Careers announced this summer that the Actuarial Aptitude Test (AAT) has been revised. The new test was prepared by Educational Testing Service of Princeton, New Jersey as was the original AAT.

The AAT was introduced in 1962 and has been taken by more than 15,000 persons. It has proved to be a valuable aid in counselling students and other persons interested in an actuarial career.

The original AAT consisted of two parts, a mathematics section and a verbal section. In 1966, a detailed comparison was made of scores on the mathematics section of the AAT with grades received on the General Mathematics Examination (Part 1) for the nearly 2,000 students who had taken both tests by that time. A similar sample study was made in 1973. Both studies indicated a strong correlation between AAT mathematics scores and success on Part 1, suggesting the use of the AAT mathematics score as a predictor of the probability of success with Part 1. While no comparable correlation has been established for the verbal section of the AAT, this test is believed to be a useful indicator of the individual's facility with the English language, and therefore it too can be a valuable aid in counselling persons considering an actuarial career.

Like the original, the new AAT consists of a mathematics section and a verbal section. The new mathematics test differs only slightly from the original, representing minor updating of certain of the problems. The new verbal test, however is considerably different from the original. Specific word usages have been up-dated and improved and the structure of the test itself has been modernized.

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CLOSING THE GAAPs?

GAAP Assumptions—"Procedures for Adjusting Life Insurance Company Statutory Financial Statements to GAAP Basis," Life Office Management Association, Sept. 1974.

by Robert L. Lindsay

This Special Release of the Financial Planning and Control Division of the LOMA is a well-organized summary of the responses of 96 U.S. stock life insurance companies that adjust statutory statements to a GAAP basis. Results are presented in Section A for all 96 companies, in Section B for 36 companies with less than \$25 million of premium income, and in Section C for the remaining 60 companies.

The information gathered is quite extensive and the prospective reader may obtain some idea of the scope of the study from a partial list of the topics covered:

- I. Procedure for Deferring Acquisition Costs
 - A. Approach to amortization (e.g., accountant's worksheet, factors)
 - B. Lines of business where expenses amortized
 - C. Costs being deferred (e.g., commissions, managerial compensation, training allowances, sales conventions)
 - D. Amortization method (e.g., sum of premiums with or without interest discount)
 - E. Amortization period (by line of business)
 - F. Starting year for deferring acquisition costs
- II. Revaluation of Reserves
 - A. Lines of business revalued
 - B. Interest assumptions for current issues
 - C. Mortality or morbidity tables for current issues

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Letters

*(Continued from page 3)***Mortality Fluctuation Reserve**

Sir:

The September issue contains a "position paper" by Northwestern National which appears to confuse "margins for risks of adverse deviation" with "elimination of mortality fluctuations" under GAAP accounting. The paper suggests that unless mortality fluctuation reserves are established it will "... cause misunderstanding and possible apprehension on the part of users of the statements . . .", when in fact just the opposite is likely to occur.

The major reason, as I understand it, for the change to GAAP was that these same "users" were confused because in times of increased sales the statements showed increased losses. The same credibility gap will occur if in years of adverse fluctuations in mortality the company shows no adverse effect on earnings. What are the "true earnings" of life insurance companies if they do not include gains or losses due to mortality fluctuations? The "users" of our statements also use property and liability statements; in those statements adverse experience is reflected directly in the year's earnings.

Also, mortality results have generally been assumed to be independent from one year to another. If a company has experienced several "good years" (which would produce a large mortality fluctuation reserve) it has not increased its likelihood of producing several adverse years (the opposite is more likely).

Another reason for not having such a reserve is to avoid having to distinguish between "hard liabilities" and "soft liabilities" as we presently do under statutory earnings. If a mortality fluctuation reserve is used, disclosure would require a breakdown between the "formula" portion and the portion developed from prior random fluctuations, as well as distinguishing between mortality fluctuation reserves and GAAP benefit reserves.

Finally, I do not understand the concern over non-level insurance earnings. Insurance is an industry that deals with risks; as such, it is expected to have variations in earnings. If no variation in year-to-year earnings is the goal,

4% MONETARY TABLES TO BE PUBLISHED

Over 30 states have enacted legislation permitting the use of an interest assumption as high as 4% in determining life insurance reserves. It is likely that the remaining states will enact similar legislation. A little over a year ago, the Society of Actuaries Committee on Preparation and Publication of Monetary Values conducted a survey of insurance companies, consulting actuaries, and regulatory authorities to determine whether this change in legal valuation standards would create a need for the publication of 1958 CSO Monetary Values volumes at 4% interest. After a review of the results of this survey and a study of the computing and printing costs of such a project, the Society's Board of Governors has authorized the Committee to solicit orders for such volumes.

The Society is now accepting advance orders at special prepublication prices in order to finance the computing and printing of these volumes. Orders received by November 15 will qualify for lower prices. After November 15 prices will be increased. Anyone interested in taking advantage of this prepublication offer should write to the Society office and ask for an order form which gives the details.

The new volumes will have the same format and quality as those previously printed by the Society for lower interest assumptions. The Committee is planning to offer volumes on an age-last-birthday as well as an age-nearest-birthday basis. The questionnaire responses did not show sufficient interest to justify printing 4% volumes based on the 1959 Accidental Death Benefit Table or on the 1952 Disability Study.

The Life Insurers Conference is preparing a set of 4% volumes based on the 1961 CSI Table. The Society Committee, chaired by Walter L. Grace, and the LIC Committee, chaired by John M. Bragg, have been working together to avoid duplication of effort and to achieve all possible economies in the computing and printing work. The special prepublication prices will also apply to these tables. Anyone interested in the 1961 CSI volumes should write to the Life Insurers Conference, P. O. Box 6856, 1004 North Thompson Street, Richmond, Virginia 23230.

The success of this venture will depend on receiving a sufficient volume of prepaid orders to finance the computing and printing costs. It is most important, therefore, that all potential users of these tables send their orders (and checks) to the respective offices as soon as possible. □

management should set a zero retention level (which would properly eliminate the mortality fluctuation reserve under the stated formula), or else go into a business having no random fluctuations.

The solution to the interpretation of life insurance GAAP earnings should be the same as required in all industries. Annual earnings should be interpreted only after an in depth study of the industry. To assist such analysis, perhaps a footnote disclosure statement could display the expected mortality and the actual mortality (both after deduction of reinsurance recoveries) over a period of several years. In this way the "user" can see the "true earnings," as well as see the impact of random fluctuations on such earnings.

Howard H. Kayton

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Closing the GAAPs*(Continued from page 1)***III. Other**

- A. Deferred acquisition cost asset as % of premium income and of statutory total assets
- B. Ratio of GAAP to statutory stockholder equity

The wide range of responses to many questions indicates that GAAP results of different companies may be difficult to compare. For example, some companies amortize Field management compensation which is related to production, branch office operating expenses, maintenance costs and training allowances to new salesmen while others do not. The starting point for deferring acquisi-

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Mortality Fluctuation Reserve

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(1) it would operate to release a predetermined amount of income in a given year without regard to whether or not there was adverse experience in that year, which would seem to be not only arbitrary but in violation of the matching concept and (2) it would ignore completely the fact that both adverse variances and favorable variances are usually temporary for a large company in a short period of time—a month, a quarter, or a year.

In the case of the latter (temporary favorable variations) we would be in the position of overstating earnings in the particular period with a parallel understatement in subsequent or previous periods. To explain (or dismiss) these reversible fluctuations in earnings as due to "favorable" or "unfavorable" mortality in a particular short period of time does not seem to make good accounting sense. These fluctuations come from various causes, some natural such as disease epidemics, some company related such as retention limits and some completely random because of the limited number of lives exposed.

From our own experience, we have found that the shorter the period, the more violent these fluctuations tend to be. For example (and a typical example), using 100% as the level of "expected" mortality, our actual experience for 1973 and 1972 was as follows:

	1973	1972
January	115.3%	96.3%
February	122.8%	95.2%
March	103.2%	108.7%
1st quarter	108.3%	100.2%
April	76.7%	111.7%
May	99.2%	110.7%
June	94.8%	101.7%
1st half	99.2%	104.0%
July	130.0%	85.2%
August	94.2%	111.0%
September	113.8%	101.5%
1st 9 months	103.8%	102.5%
October	93.3%	100.7%
November	124.2%	84.5%
December	73.8%	83.8%
Year	101.7%	99.2%

Our overall mortality statistics have indicated that the mortality table used in our present rate book, and our two preceding rate books is still valid—that

is, over the extended future period, that currently issued policies will be in force, the actual mortality on these issues will be very close to that expected. Therefore, most short-term fluctuations and all material short-term fluctuations are expected to reverse over the long run.

With this in mind, we concluded that our "provision for adverse deviation"—our mortality fluctuation reserve—should consist of two elements. The first of these, which we call the "theoretical" part is based upon the size and the structure of our "in force." This portion does follow the "release from risk" pattern in that amounts are added and released as business is put on and taken off the books. Operation of this portion of the formula resulted in about an \$800,000 charge to earnings in 1973 based upon the increase in our amount at risk.

The second portion of the formula is called an "experience" adjustment and is made only in a period when a material deviation—favorable or unfavorable—occurs. In this connection, we have established a "band" of 5% in either direction of 100%—i.e., expected mortality. This band would not necessarily be the same for all companies, but it represents one "standard deviation" from the norm. Based on the statistics above, this portion of the formula produced no adjustment in 1972 and 1973 (and is never expected to result in a "material" adjustment).

Even though our statistics indicate that substantially all fluctuations will reverse over the lifetime of a block of business, we believe such a band is necessary for the following reasons, among others: (1) it would be unrealistic from an accounting point of view to charge earnings with a "standard" amount (expected mortality) in any given period, let alone every period and (2) assuming that in the long run our experience is actually worse than expected, the band allows this experience to be reflected in the periods in which it occurs.

The "theoretical" portion of the reserve is based upon a branch of Ruin theory and uses an approximate formula developed in Scandinavia. Essentially, it is the square root of the product of one year's expected claims on the current in force, times the maximum retention on any one life, times 3.61. Both it and the experience adjustment (if any) follow the "lock-in" concept of both good ac-

Closing the GAAPs

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tion costs ranges from 1900 to 1973 for Individual Life. Interest rates used for new issues of non-par Individual Life range from 7% down to 4% in the early durations to 5.75% and 3% ultimately. For individual annuities 8.5% was both the highest current and ultimate rate used, 3% was the lowest.

These substantial differences in assumptions find their way to the balance sheet in the form of deferred acquisition cost assets, restated benefit reserves and changes in stockholder equity. At December 31, 1973 deferred acquisition cost assets ranged from 1% to 117% of statutory assets for the 73 companies reporting this item (the median was 14%). From other details in this report one gathers that the 117% figure pertains to a predominantly Individual Health writer with premium income in excess of \$25 million a year.

Stockholder equity on a GAAP basis ranged from a high of 555% of the 12/31/73 statutory amount to a low of 1.6% with a median of 158%. Federal Income Tax provision (both current and deferred) as a % of GAAP basis before tax earnings ran from minus 45% to a high of 117%. It is not possible to split these figures between current and deferred taxes.

One wonders what adjustments the investment analysts will need to make to GAAP financial statements in order to obtain consistent results for the companies compared. Perhaps one of our members accomplished in this field would share his views with us on this point.

Non-members of the Association may obtain a copy of this report from the Association at a cost of \$7.85. □

counting and the Audit Guide and are not subject to any "management manipulation."

While we do not contend that this is the only method to provide for "adverse deviation" in mortality as required by the Guide, we certainly feel it is better than an artificial mortality table (or a real table that has been discarded by a major portion of the industry as a basis for rate setting) and infinitely better than any simplistic approach, such as a percentage of the basic table. □