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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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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 accounting 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. □

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%. Fed Income Tax provision (both current a... 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. □