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A Summary of the Conclusions of a Survey of
Post-EPISA Small Pension Plan Valuation Assumptions

by

Arnold P. Shapiro

The Pennsylvania State University

Introduction

Most discussions of actuarial assumptions used in pension plan valuations deal almost exclusively with large plans, with the result that very little specific information is available regarding assumptions used in small plan valuations. Additionally, there is very little published information regarding actuarial assumptions used since the passing of EPISA. This study provides information in each of these areas.

The study is based on a sample of actuarial reports attached to the Form 5500C, Schedule B, which were sent to the Department of Labor during the period June 1976 to May 1977. Since only small plans were to be considered, the study was restricted to plans of twenty active participants and less. In all, 181 valuations of 91 actuaries were reviewed and classified. Of these, 35 contained disclaimers and were excluded from most of the analysis. No attempt was made to randomize the sample other than to make certain that each group of 100 enrolled actuaries, based on ascending enrolled actuary numbers, was represented.

Conclusions

The main conclusions of the study may be summarized as follows:

Discounting for interest was the most common explicit assumption for plans of 15 active participants or less. In fact, 60 percent of all plans analyzed use interest as the sole discounting factor. This was somewhat lower than the percentage for the combination plans,* where almost three

*The term "combination plan" is used to describe those plans that use a combination of individual contracts and an unallocated conversion fund. Such arrangements also are called "split-funded plans."

quarters of the plans used interest as the sole discounting factor. On the other hand, the percentage of plans which explicitly discounted for interest, mortality, salary, and withdrawal was considerably less for the combination plans than for the fully trustee plans. Once again, this was true for plans of 15 active participants and less.

Most of the pre-retirement interest rates fell between 5 and 6 percent with a mode at 5 percent and an average at 5.4 percent. This distribution was essentially the same for both combination plans and fully trustee plans. A comparison was made between the distribution of interest rates in this study and those reported in the 1972 Chase Manhattan Bank study. As a general observation, the concentration of rates between 5 and 6 percent was considerably higher than that found in the Chase Manhattan Study.

The data did not seem to indicate any significant tendency in the interest rates as a function of the explicit assumptions. For example, the average interest rate when interest was the only explicit assumption, 5.3 percent, was comparable to the average interest rate where the explicit assumptions included interest, mortality, salary, and withdrawal, 5.4 percent.

The active-life mortality tables most often cited were the Ga-1951 and the 1971 GAM Tables, or modifications thereof. Also cited were the 1958 CSO, the a-1949 and the ASPA 1 Tables. The former was used only in combination plan valuations. In all instances, projected tables were used without an age setback for males. In about 75 percent of the situations the tables were used without an age setback for females. Where there was an age setback for females, it was generally 5 or 6 years, and was restricted to the Ga-1951 and the 1971 GAM Tables.

Most Actuaries apparently have concluded that it is not necessary to incorporate salary scales into the valuation as long as their probable impact is taken into account. The most common method of disclosure in this instance was simply to indicate that no salary projection was used, but that one was "implicit in the interest rate."

There were, on the other hand, a number of valuations that did include a salary scale. This was less predominant in combination plan valuations than in fully trustee plan valuations. For both of these groups combined, the most common salary scales were 3 and 4 percent, with the average being 3.4 percent.

The interest rate/salary scale differentials ranged

from 1.5 percent to 3.5 percent, with an average of 2.4 percent. This evidence leads one to hypothesize that there does not appear to be a "standard" differential between the interest rate and the salary scale.

Termination rates like salary scales were less predominant in combination plan valuations than in fully trusteeed plan valuations. For both of these groups combined the majority of termination rates cited came from the Actuary's Pension Handbook, with Turnover Tables T-1, T-2 and T-3 being the most common. As expected, in none of the cases studied were select tables used and most actuaries apparently use the same table for both sexes. Furthermore, there appeared generally to be no attempt at involving the plan sponsor in the selection of appropriate turnover tables.

The actuarial cost methods used varied with the funding instrument under consideration. For combination plans the Individual Level Premium Cost Method was the most common valuation method, being used in 58 percent of the valuations. The Aggregate Cost Method, which was used in 24 percent of these valuations, was the next most popular method. The Frozen Initial Liability Cost Method and the Entry Age Normal Cost Method received about equal use, both being used by about 10 percent of the combination plan valuations. The Accrued Benefit Cost Method and the Attained Age Normal Cost Method were not cited in any combination plan valuation. This distribution of actuarial cost methods was distinctly different from the distribution of cost methods for fully trusteeed plans, where the Frozen Initial Liability Cost Method was most popular, being used in 37 percent of the cases, and the Individual Level Premium Cost Method was the second most popular, being used in only 22 percent of the cases. The Entry Age Normal and the Aggregate Cost Methods were each used in 15 percent of these reports.

There seemed to be a tendency to use either the Individual Level Premium Cost Method or the Aggregate Cost Method when interest is the only explicit assumption. When the explicit assumptions also include mortality, salary scale and withdrawal, the Frozen Initial Liability Cost Method seemed favored.

The post-retirement interest rates range from 3 to 6.5 percent, with an average of 4.49 percent. These observations should be tempered, however, since most of the reports studied did not explicitly give the post-retirement interest rate, and even where the post-retirement interest rate was given the conversion charge, if any, was generally not mentioned.

The post-retirement mortality table most often cited was the Ga-1951 Table. The 1971 GAM, the 1971 IAM, the a-1949 and the Progressive Annuity Tables were the next most often cited. Also mentioned were the 1955 American Annuity Table and the Standard Annuity Table. Projected tables were used without an age setback for males and in about 70 percent of the cases the tables were used without an age setback for females. As before, where an age setback was used for females, a 5 or 6 year age setback was the most common.

Contrary to expectations, the unadjusted market value was the most common asset valuation method in the reports studied. This was true both for the combination plans and the fully trustee plans. In both instances unadjusted market value was used in over 76 percent of the valuations.

The crediting of interest in the Funding Standard Account is one area where a consensus has not been reached. The majority of reports, 53 percent, showed an interest adjustment for both charges and credits, while 35 percent of the reports showed no adjustment for either item.

Only 7 percent of the reports showed a funding deficiency in the Funding Standard Account, regardless of the funding instrument. However, a credit balance was shown in 48 percent of the combination plan reports as opposed to 74 percent of the reports of the fully trustee plans.

One question which has been raised is whether actuaries are using the same assumptions across plans. While the data was sparse in this connection, different assumptions were used in for the two most recent valuations of the same plan size category in about 53 percent of the valuations and for the two most recent valuations of different plan categories in about 63 percent of the valuations.

The final conclusion is that most reports that mentioned data sources stated their dependency on the plan administrator and/or trustee for financial and census data.

Limitations of the Study

It is important to realize that there are a number of reasons why the foregoing conclusions should not be considered as definitive. A major reason is the limited number of actuaries in the data base. While 91 actuaries were included in the sample, this represents less than 4 percent of the enrolled actuaries. It is questionable whether one can extrapolate to the current state of the art with such a small sample. A related problem is the limited amount of data in some of the classification cells, particularly in the 11-15 and 16-20 plan size categories. Care must be

taken not to attribute more to these categories than is suggested by the data. Finally, it must be emphasized that the period of this study is a transitory one. It may well be that actuarial practice of the first few post-PRISA years will not prevail, and that ultimate actuarial practice of even the actuaries of this study will be decidedly different than was herein observed.

