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VALUATION OF COMMON STOCKS IN A NON-INSURED PENSION PLAN

by Charles C. McLeod

At a recent workshop of the Canadian Institute of Actuaries on pension plan investments, there was considerable discussion about adjusted book values of common stocks. The practice of valuing common stocks at market was discussed as being subject to too many fluctuations. These sentiments are echoed in the Society's Study Notes which describe in detail eight different methods of deriving adjusted book values.

What are we to do, however, if we do not know the book or cost value of the assets? This would be the case, for example, if units were bought in a mutual fund where dividends are invested in buying further units. When payments are being made into and out of the fund at random points during the year, it may be hard, if not impossible, to calculate what part of the assets represents dividend income and what part represents unrealized capital gains. This leads one to consider whether to use market value of assets in such a case, or to go one step further, to use market value in all cases even if the book value of the assets is known.

Let us distinguish at this stage between conservative valuation and undervaluation. Actuarial liabilities are usually valued conservatively. These liabilities relate to events in the future which we frequently cannot evaluate with any great accuracy. We therefore use a turnover scale, a valuation interest rate, etc., less than that which we expect. On the other hand we are usually certain of the value of the stocks in the portfolio. The prices are quoted daily and if we sold the portfolio, we know how much we would realize. (The only possible exception would be the sale of a block of shares so large that the size of the sale would depress the market value.) If the market value of our assets is $100,000 and we choose to value them at $80,000, this is not conservative valuation but *undervaluation.*

One reason given for undervaluing the assets is to allow for possible depreciation. This can be rebutted in a number of ways. First, if it is thought that the stocks will go down in value, then they should be sold. Second, the stocks were bought presumably in expectation of growth, so why should this growth (which has taken place) not be reflected in the valuation balance sheet? However, if one feels that the assets are not likely to go down in value but wishes to take precautions in case they do, one can hold an investment reserve liability equal to x% of the market value of assets. The value of x would vary with the possibility of loss. This could be done for each stock separately or for the portfolio as a whole.

It sometimes seems that many actuaries are apprehensive about common stock valuation in a pension plan and this may arise from historical actuarial background with life insurance companies. The situations however are different. If a life company's liabilities exceed the market value of its assets, then the company is insolvent. There is thus the tendency not to take a capital gain into account until the asset is sold and to use cost value until that time. With pension plans, the liabilities will frequently exceed the assets; for example a new plan providing past service benefits. If market values are depressed below cost value (assuming we know the latter), this will rarely mean that the plan must be terminated.

This short article has not considered the practical aspects in detail, nor the special problems which may occur—e.g., fixed-cost Taft-Hartley plans. Nevertheless, I hope it indicates that market value, or at least adjusted market value, of common stocks would give a better picture of the financial status of a pension plan than book or adjusted book (sometimes called "phony") values. □

ACTUARIAL MEETINGS

Oct. 7, Canadian Institute of Actuaries—Toronto

Oct. 8, Nebraska Actuaries Club—Omaha

Oct. 8, Actuaries Club of Indiana, Kentucky and Ohio—Columbus, Ohio

Oct. 9, Baltimore Actuaries Club

Oct. 14, Actuaries Club of New York, Joint Meeting—Tarrytown

Oct. 16, 17, Actuarial Club of the Pacific States—Pebble Beach

Oct. 24, Middle Atlantic Actuarial Club—Washington, D. C.

Oct. 30, 31, Southeastern Actuaries Club, Louisville

Programming Language

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language programs so that they may be properly accommodated in the new version, particularly where multiple variable task techniques are being employed as a matter of more efficient operations.

Of necessity, the following questions naturally occur:

(a) Who will write the compiler for the actuarial programming language and set forth and enforce the standards for the various compilers, which experience has shown to be absolutely essential?

(b) Who will provide the maintenance of such language?

(c) Will the manufacturers or actuaries undertake such responsibilities?

When we consider the different types by the same manufacturer — currently ment produced by various manufacturers and different computers produced by the same manufacturers — currently in use among insurance companies it becomes a formidable problem. We should not lose sight of the fact that the cost of developing a programming language and the associated compilers is very high in both time and money.

There has indeed been a trend toward a "multiplicity of these computing languages." However, it may be a serious mistake to interpret this as "increasing evidence of the case for deciding that an actuarial programming language is not only feasible but appropriate" as Mr. Mueller states. On the contrary, many professional persons and systems and programming personnel deplore this multiplicity of languages and feel we need fewer but better languages.

From a practical viewpoint, the actuaries should focus attention on the current compilers, FORTRAN and PL/I. This method would be more feasible, obtain quicker results, and achieve through the manufacturer the support of the functions, notations and symbols typical of our actuarial mathematics.

Following this, the next step for facilitating computer usage by and for actuaries could be the establishment of a central library of actuarial programs written in existing standard high-level languages such as FORTRAN and PL/I. In the long run it would be far better and less costly to follow this kind of approach than to construct a purely actuarial programming language and its associated compilers. □