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ALLOCATION OF INVESTMENT INCOME

A. What problems are involved in the allocation of investment income by lines of business for life insurance companies using the investment year method? How are the following treated:
   1. Interest on policy loans
   2. Realized and unrealized capital gains and losses
   3. Income on investments which have been refinanced
   4. Income from real estate
   5. Uninvested funds
   6. Short-term investments
   7. Warrants and convertible bonds?

B. How are the allocation of (1) federal income tax, and (2) changes in mandatory security valuation reserves affected by the investment year method?

C. To what extent should the investment year method be used on other than group annuity coverages? What are the most appropriate areas? What practical problems would be involved in producing dividend illustrations?

Jacksonville Regional Meeting

MR. EDWARD A. GREEN: In referring to the problems involved in using *the* investment year method I would like to stress the fact that many allocation formulas, varying as to details and differing in complexity of application and precision of results, can be developed within the basic principles of the investment year method. This point was brought out clearly by Bill Rae in a discussion of the paper I presented last fall on the subject when he said, "Investment-generation methods are in their infancy. Improvements will undoubtedly be forthcoming in future years provided there is sufficient freedom to encourage their development."

Recognizing that no one method is *the* method, I would like to outline how my Company is meeting some of the problems in designing *an* investment year method of allocating investment income by line which we hope to use in allocating 1962 income. By way of background, I should state that we felt:

a) that current accounting procedures and their existing degree of mechanization should be used to the full extent possible in order to keep any additional expense of processing data at a minimum;

b) in view of the lines of business issued by the Company and their history of growth, that equity required that the investment year method should be introduced at the second level as defined in my paper—that is, that all allocations after the date of introduction of the method should be in accordance with the past history of flow of funds;

c) that the allocation by line should be consistent with the investment year method used in calculating the asset shares used in determining group annuity dividends; and

d) that the method should comply with insurance laws and regulations, including Regulation No. 33 of the New York Insurance Department to the extent applicable.

One of the first problems was whether the allocation should be made by calculating rates of yield for each investment year or by a direct accounting breakdown of investment income according to the year of investment from which it was derived. A look at our accounting records showed that currently we could readily determine the calendar year in which all investments had been acquired and relate all investment income and amounts becoming available by repayment of principal on bonds and mortgages or by sale of invested assets to the year of investment. Furthermore, similar data were available for prior years except for principal repayments on pre-1958 mortgages which could be reconstructed reasonably accurately from records of the amounts invested each year in mortgages and the amounts outstanding at the end of each year.

With these accounting figures readily available, it seemed most efficient to allocate accounted investment income and realized capital gains and losses to annual statement lines of business, separately for each year of investment, in proportion to investment allocation ratios. The allocation ratio for an annual statement line for a particular investment year is the ratio of the amount made available for investment by the line for the year to the corresponding amount made available by all lines for the year after deducting increase in policy loans. It is computed as the ratio of the sums of the following items for the line to the corresponding sum for all lines:

a) The algebraic excess of income over disbursements for the year other than income and disbursements related to investments.

b) The algebraic excess of interest from policy loans over increase in policy loans during the year.

c) Net investment income and the proceeds from the sale, redemption, and principal repayments arising during the year from each investment year allocated by line according to the investment year allocation ratios applicable to such investment year.

Income from policy loans is allocated directly to the line of business giving rise thereto. Investment income due and accrued and related items and readjustments for the difference between book and investment values are allocated to lines of business in the same manner as investment income and capital gains and losses.

Since more than 99% of our outstanding investments have been made within twenty-five years, it seemed both equitable and practical to use twenty-six investment year classes in making the allocations. The investments of each of the most recent twenty-five years are treated as a separate class and all other investments are treated as a single class.

Under this method, short-term investments outstanding at the end of any year are automatically reinvested at market rates in the ensuing year and the income from the reinvestment is, in effect, credited to the year of initial investment. In applying the method, cash outstanding at the end of any year is included in amounts made available for investment in the ensuing year in calculating the allocation ratios for that year. The income from fixed or frozen assets, such as home office real estate, is spread over all investment year classes. This is accomplished mechanically by assigning a calculated yield to these assets equivalent to that realized on the balance of the investments of the year and spreading any shortage or overage of actual income on the fixed or frozen assets proportionately to the income of all investment years.

In view of the fact that there are hundreds of group annuity dividend accounts compared to a handful of lines of business, and to maintain consistency with our existing practice, it seemed desirable to derive investment yield rates from the data used in allocating by line for use within the group annuity line. The procedure for deriving and applying these rates to group annuity asset shares can be outlined as follows:

1. The current rate of yield on the investments of each of the twenty-six investment year classes, exclusive of fixed or frozen assets and short-term notes and bills, which are outstanding during the current year are determined from the data used for the between-line allocation.
2. The rate at which investments made in each of these classes were reinvested is determined from the same data. From these reinvestment rates, the portions of the funds first made available for investment in any year by the group annuity line which are now among the outstanding investments of subsequent years as a result of reinvestment are determined.
3. By multiplying the fund portions obtained in (2) by the appropriate yield rate obtained in (1), the amount of income earned in the current year on outstanding investments which have arisen from funds first made available for investment in each of the investment year classes is determined. In making this calculation it is assumed that reinvestments occur in the middle of the year. For the most recent year of investment where all monies were not invested for a full year, the incidence of income and disbursements by month are taken into account by weighting these amounts by the number of months for which they were available for investment earning purposes.
4. The investment earnings obtained in (3) for funds first made available for

investment in each of the investment year classes are divided by the increase in the asset share of the group annuity line for such year to obtain a series of yield rates. Asset share interest factors are obtained by scaling these yield rates proportionately to distribute the total net investment income of the group annuity line, thereby adjusting for income on cash, bills, short-term notes, and fixed or frozen assets.

5. Allocation of investment income to individual group annuity asset shares is made by multiplying the factors obtained in (4) by the asset share increase for the corresponding year, weighting the asset share increase for the most recent year to reflect the monthly incidence of income over disbursements.

In closing may I say that as we have worked on the development of our procedures I have become more convinced than ever that there are many ways of handling the details of an investment year method which are consistent with the two basic principles set forth in my paper for testing the equity and consistency with the broad insurance principle of risk-sharing of such a formula. These principles were that, in the first place, each class should get the advantage of a rise in a company's over-all interest rate to the extent to which it contributed to such rise and should not suffer in a decline of a company's over-all interest rate to the extent that other classes contributed to the decline, and, secondly, the formula should maintain the stability and diversity of pooled investments which are inherent in the design and offer to the buying public of any particular type of contract.

MR. J. DARRISON SILLESKY: In commenting on the question, "Will the passing of legislation allowing companies to segregate assets lessen the need for investment year methods?" I think the same sort of thing is accomplished in the separate account by working on a market-value basis. But, since this is limited to the separate account, it doesn't in any way obviate the need for the use of an investment year method in the general account. Certainly you've all heard Mr. Green say many times that we have felt—at least at the Hancock—that an investment year method is needed for greater equity. If this is true—and we think it is—then it's needed just as badly in the general account if you have separate accounts as if you don't.

MR. HOWARD H. HENNINGTON: In further answer to the question referred to by Mr. Sillesky, the New York legislation for separate accounts requires specifically that funds for retired employees must be invested in the conventional manner to provide annuities. This means, therefore, that it will be desirable to use the investment year method for the investment income allocation with respect to that part of the group annuity contract applicable to the annuities for retired employees.

One other point concerning separate accounts is that some insurance companies may use them only for common stock investments and then the investment year method would be used for other advance funding in terms of fixed income investments.

I might just add that, as far as I have followed Mr. Green's description of the investment year method, although there are presumably very many opportunities for differences in detail, we, in the Equitable, have a program which is very similar to what he described.

For example, in connection with the line of business allocation we, too, are going to handle it by an accounting process of identifying the items of investment income by investment year and then allocating amounts of income. The allocation within the group annuity line will be done by defining different rates of return applicable to the different investment years.

We expect to handle policy loans by allocating them to the ordinary line of business, and we expect to handle capital gains and losses by the investment year method. Real estate, cash and short-term investments will be handled by an over-all aggregate method, rather than the investment year method.

The distinction in the Equitable is that we are making no attempt to back up for previous investments to identify the investment year applicable to them, but will treat all investments prior to 1962 as one group for purposes of allocation. We will distinguish investments from this point forward by the investment year.

MR. SIDNEY H. COOPER: The previous speakers appear to have been dealing principally with the particular problem of equity in the distribution of dividends to group annuity policyholders. There is, however, the more general problem of equity in the distribution of interest income and capital gains and losses between the participating and nonparticipating funds.

I have in mind a situation such as that where a company may quite properly be quoting very favorable terms for nonprofit group annuities, based on the fact that it is receiving the money now and can invest it on favorable terms in relatively long-term securities. The rates quoted assume that the interest income will be protected against a fall in interest rates. If the rate of interest falls over a period, the protection that has been assumed for the nonprofit group annuity business will be lost if the high long-term yield secured by the original investment has to be spread over the investments of the whole company and distributed on the basis of the over-all yield on the funds.

In a similar way a company may be quoting favorable terms for immediate annuities, based on the fact that it can invest in mortgages which are relatively well matched to the emerging liabilities under immediate annuity contracts. Business issued on such terms may produce serious deficits if the company is not able to retain for the annuity business the income from the particular investments upon which the rates were predicated. This could entail a strain upon the whole operation if the excess interest is in fact distributed to policyholders under contracts with dividends geared to the over-all yield on the funds.

It seems to me that the only answer to this problem is to distribute investment income and profits and losses on securities on the basis of a segregation of the investments according to the lines of business for which they were made, having regard to the particular investment policy predicated in the rates basis. It would not be possible to segregate assets absolutely for this purpose, as the security of the whole of the assets must remain available for the whole of the liabilities, but I believe an internal segregation for the purpose of allocating interest income would be practicable and desirable.

I suggest that this problem should receive consideration by the authorities and by the companies when formulating and approving regulations regarding the allocation of investment income.

MR. DONALD J. LEAPMAN: My problems and the previous speaker's are not the same. He's associated with a Canadian company, and I'm associated with a British company, which has no problem of maintaining separate funds.

However, there seems to be one basic assumption which may not be justified. At yesterday's session there was discussion on the life insurance industry's part in promoting savings and on its dual lines of business—protection and savings.

As savings organizations, life companies encourage lenders to provide money to invest; in a savings market the interest rate demanded reflects the security of the investment; if the public is sold life insurance policies which require them to save money by giving it to the life company to invest, it is reasonable to assume that the terms on which they will do this will take some account of the apparent security which the company offers.

This apparent security is dependent on the stature of the company and on its previous history, and when one writes new policies today the return which the investor or policyholder expects on his investment reflects the strength of the company, which itself reflects money which previous policyholders have paid to the company to build up funds, reserves and surplus.

For this reason there appears little justification for new money coming in this year to reflect now and for the future the full extent of the investment experience of that new money. The terms on which this money is obtained are, in part, dependent on the money received in the past, and for this reason the application of the generation investment principle does not appear fully justified.

It is certainly interesting to do such an analysis, but the new policyholder, even of a group annuity, applying to a company today is accepting terms which are guaranteed in the contract and which are acceptable to the policyholder only because we have received or are receiving premium income from previous or present policyholders. Then should not at least the present policyholders be entitled to some share of the surplus we make on the new policyholder's premiums by reason of improved investment earnings, *i.e.*, since we can obtain savings money at interest rates lower than those we can earn?

Chicago Regional Meeting

MR. HAROLD A. GARABEDIAN reviewed the discussion presented by Mr. Edward A. Green at the Jacksonville regional meeting.

MR. WILLIAM J. NOVEMBER: A number of companies base their allocation on rates of return of individual investment years, adjusted by a ratio method to take account of asset turnover, but the Equitable has adopted the method of identifying with specific calendar years individual investments other than real estate and short-term investments. This information is required anyway to a large extent for the purpose of the annual statement schedules. It is not too difficult, then, to take account of what happens to these investments in future years. That approach was perhaps more feasible in our case since we are using the investment year method prospectively only and we could work into this more detailed method gradually.

Having identified the investments with a calendar year, we can easily assign investment income to the calendar year in which the investments producing the income were made. This will be largely a machine process. The investment income of each investment year will then be distributed to lines of business by ratios that represent the contributions of the different lines to the funds invested in that year.

The Equitable has received approval from the New York Insurance Department under the regulations prescribed by the Department for the adoption of an investment year method. Questions were raised about some of the items discussed below, but we were able to satisfy the Department.

1. Interest on policy loans: Policy loan assets are treated, in their entirety, as assets of the Ordinary insurance line of business and all interest on policy loans is allocated to the Ordinary insurance line.
2. Realized and unrealized capital gains and losses: Realized capital gains and losses (arising largely from sales and maturities) are identified with the investments from which they arose and therefore by investment year. The gains or losses of each investment year are allocated among the lines of business in the same proportions as is other investment income arising from that year, and then become part of the funds that determine the investment income distribution ratios. Unrealized gains and losses do not enter the funds used to allocate investment income. For purposes of surplus analysis, however, unrealized gains are allocated by line in the same manner as realized gains.
3. Income on investments which have been refinanced: Two broad types of "refinancing" are involved. The repayment of an investment (as in a refunding operation) and the reinvestment of the money thus received is one type. Under our method the new investment and the income on it will be identified with the reinvestment year, but in determining the line-of-business investment income distribution ratios for that year, account will be taken of the distribution ratios which pertained in the original investment year to the amount being reinvested. The second type is the so-called "roll-over" transaction, where an outstanding investment is refinanced at a higher rate of interest as part of a package involving an increase in the amount of the investment. For such a transaction the original return on the original investment will be retained for the original investment year, while the higher rate of interest plus the increased return on the original investment will be treated as the investment return on the additional investment in the year of the refinancing. Recognition of the two parts will be fairly precise when a substantial amount of additional investment is involved and on an approximate basis for lesser amounts.
4. Income from real estate: Real estate investments are frequently made over a period of years and may involve no return at the start on the initial amounts put in and an increasing return as the investment reaches maturity. Because of those factors, we are not identifying real estate investments with individual years but are treating them on an over-all basis. However, although no recognition is given to the year from which real estate income arises, the amount of real estate income allocated to a line will reflect the relative contribution of that line to the total amount invested in real estate.

5 & 6. Uninvested funds and short-term investments: We are allocating income arising from uninvested funds and short-term investments to lines of business in proportion to the total mean funds of the lines. A reasonable amount of cash and at times of short-term investments is required to carry out insurance and investment operations in an efficient manner.

> Besides, new cash flow into the company arises not only from net cash income on the insurance operations of the current year, but also from the turnover of investments of the prior years, which are substantial in relation to the total net cash flow. Such considerations as well as the fact that cash and short-term investments account for a very small portion of the total investment income led us to the total mean fund approach.

Adoption of the investment year method has not led to change in our allocation of federal income tax or changes in the mandatory securities valuation reserve. We allocate the tax charge by applying the tax formula, with some modifications, to the investment income and other basic data of each major line of business and then adjusting the results to make the total of the charges for individual lines equal the tax actually paid.

Our objective in allocating the change in the mandatory securities valuation reserve is to produce a distribution which is in the same proportions as the distribution by line of total invested funds. Since composition of invested funds by type and subdivision by year acquired are ignored, the investment year method does not affect the distribution of this reserve.

Before the investment year method is adopted for a subdivision of business, I feel the following conditions should almost certainly be satisfied.

1. The possibility of investment antiselection should be pronounced. Single premium contracts are, for example, more susceptible to this possibility than annual premium contracts.
2. There should be very limited, if any, cash value privileges. If the policyholder has the right to surrender the contract for a substantial cash value, the system can break down when favorable investment returns are obtainable elsewhere on new money.
3. The expense of administration should be reasonable in relation to the results that can be achieved. This criterion bears heavily on the applicability of the method to annual premium contracts because for them the administration is much more complicated and the results by the investment year method will be not much different from the average portfolio method over the long pull.

Other than group annuities, there are only limited areas where the method can be used successfully. One such area is Ordinary immediate annuities. In the future the Equitable intends to relate its charges for such contracts more closely to returns obtainable on new investments. Another area where the investment year method has applicability is with respect to certain special funds in the group insurance lines, such as funds for postretirement benefits and special contractual reserves for experience fluctuations.

The Equitable will also use the method in maintenance of internal funds for the premium waiver and disability income portions of the fund for the disability line of business.

In the application of the investment year method to group annuity experience funds, we will, as a matter of practical necessity, use a set of yield rates to determine the investment income to be credited to each fund. These rates will be determined from the same basic data as are used in effecting the line-of-business allocation and will be consistent therewith.

None of the areas in which the method will be used by us involves dividend illustrations. I would be very sorry to see new investment rates enter into illustrative dividend figures that are used in the sale of new business. If we think we have a replacement problem now, we are likely to regard the current situation as representing the golden age if it ever develops that the investment returns on new money, when substantially higher than the average portfolio rate, are worked into dividend illustrations. There are problems attached to the investment year method, and I regard that possibility as being one of the more serious. Fortunately, the competitive pressures in our business do not seem to have developed any movement in that direction.