RECORD OF SOCIETY OF ACTUARIES
1976 VOL. 2 NO. 2

PHILOSOPHY AND PRACTICE OF INVESTMENT INCOME ALLOCATION

Moderator: JAMES F. REISKYTL. Panelists: J. JACQUES DESCHÈNES, KIHONG SUNG, THOMAS C. SUTTON.

1. Philosophy and implications of investment income allocation for individual and group products.
   (a) Equity among classes
   (b) Appropriate degree of pooling
   (c) Administration/cost/benefit
   (d) Variation of investment strategy by line of business (immunization)

2. Bases available for subdivision of investment income by line and within lines of business, including treatment of federal income taxes for qualified and non-qualified plans, capital gains or losses, and rollover of funds.
   (a) Mean assets/mean liabilities
   (b) Investment year method
   (c) Simplified investment year method (papers by Messrs. Chapman and Sutton)

3. Applicability of "new money" rates to individual and group products.
   (a) Determination of the "new money" rates
      i. Based on current investments, current commitments, or some combination thereof
      ii. Investment period
      iii. Federal income taxes
      iv. Capital gains or losses
      v. Rollover

   (b) Application to products, including appropriate investment strategy, guaranteed rate period, and withdrawal values
      i. Group pension
      ii. Individual immediate annuity
      iii. Individual deferred annuity
      iv. Individual life insurance

4. Regulatory restraints.
   (a) New York Regulation 33; any other similar state requirements
   (b) Valuation (excess interest reserves)
   (c) Dividend illustrations and cost disclosure
   (d) Other accounting and reporting requirements

MR. JAMES F. REISKYTL: Many companies began using investment generation methods for group annuities in the early sixties. At that time every company, I believe, asked for and received approval for deviations from the New York Regulation 33 rules as they did not want to use the investment year method for the individual life insurance or annuity lines. These requests had to show that these individual lines of business did not possess characteristics so similar to the group annuities as to require its use to be equitable, or that like treatment was impractical or not feasible. Today a few companies have asked New York for approval to apply the method to the individual lines. What has changed in the last few years? Why are some companies changing their philosophies and pricing practices?

Tom Sutton will begin our discussion with his view of the philosophy and implications of investment income allocation for individual products with special emphasis on equity. Equity requires a non-discriminatory allocation between policyowners and that contracts be self-supporting. Is the new money method equitable and practical for all lines of business?

The concept of equity is that each policyowner should receive value equal to what he has paid. If one receives more value than he pays for, he profits at the expense of others. If he receives less, they profit at his expense. The temptation will always exist to take advantage of the fact that the purchaser may not know whether he is getting value equal to the price he paid. The seller must resist this pressure, both from a sense of fairness and because,in the long run, such activity must be self-defeating. Equity, therefore, is not composed of an indefinite number of subjective statements, but rather is reduced to an observation of objective results. We must analyze the effect of the different pricing bases on the parties at interest.

MR. THOMAS C. SUTTON: One of the most challenging and interesting features of the actuary's job is the use of judgment and ingenuity in striking a practical balance between objectives which are essentially in opposition. There are a number of these pairs of opposing objectives, but I would like to mention two by way of quotations:

1. "The two predominant principles of mutual life insurance, first - pooling of risks and second - individual equity, are essentially opposites. If we gave complete recognition to the pooling principle, we would have absolute uniformity of cost for all classes of policyholders. If, on the other hand, we gave complete recognition to the individual equity principle, our operation would degenerate into an individual trust operation and could no longer even be called insurance." Ed Matz, TSA XIII page 320.
2. "The actuary has two often-conflicting objectives, insurer solvency (or profit) and the maintenance and improvement of a competitive marketing position. Both are dictated by economic necessity." Casualty Insurance, Kulp & Hall.

These two pairs of opposites are well-known and they have been widely discussed. What perhaps has not been discussed as often i s their relationship: that is, the effect of competition in setting a balance between equity and pooling.

Suppose that in the market place for a particular type of insurance, there were only one classification of insureds and thus complete pooling. That fact alone would not imply equity or inequity as to the treatment of individuals in that group. To make a judgment about equity we would have to consider a number of questions, for example:

1. How homogeneous is the class with respect to the exposure or hazard present for the risk insured against? For a truly homogeneous class, all members are clearly treated "equitably".
2. How practical or costly is it to distinguish characteristics that contribute to any possible inhomogeneity? Some characteristics may not be susceptible to physical measurement or, if they are, the expense or inconvenience of doing so may far outweigh the improvement of equity.
3. How equitable or inequitable is the classification thought to be by insureds, salespersons, consumer advocates, and regulatory officials? This is a consideration of ever-growing importance.
4. Are there considerations of social desirability which could overshadow theoretical equity? Clearly, this is a concern in automobile insurance, and it is a growing influence toward unisex tables.

But let us for the moment assume that the weight of opinion in the past has been that there is a

reasonable degree of equity in the classification. Further, let us suppose that premiums are adequate so that profit is probable, and that premiums are not excessive so that competition is active.

Now consider what happens if one company, for whatever reason, "refines" its classification, and thus has two classes, each with a different premium. If the distribution of business between the two classes is undisturbed, the average premium paid will be the same as it was before the "refinement", increased by the added expense of differentiating between the two classes. So what has been accomplished? If judgment and statistics indicate that the premiums for the two classes provide a more reasonable recognition of the respective profits or risks, then it would be appropriate to say that the degree of equity has increased. The price for this increase of equity is the difference in average premiums before and after the change. As a practical matter, that difference, that price for equity, should be a reasonably small fraction of the difference between the higher and lower premium.

Since the classifications have been enlarged and equity increased, does it go without saying that pooling has decreased? Probably it does but I think that depends on what is meant by pooling:

- If pooling means averaging of results among insureds, then certainly the degree of pooling has been decreased.
- If pooling means averaging of random fluctuations among insureds, then perhaps pooling has not suffered as much as it first would appear. In practice, the truly random cannot be completely distinguished from total experience, but it can be approximated. The degree of error in the approximation would then reflect a decrease in pooling.

So the conflict I first mentioned between individual equity and pooling is clearly a conflict between equity and averaging of results, and it is a conflict between equity and averaging of random fluctuations only to the extent of the errors arising from measuring what may be random.

Now back to the example. Under the conditions described, the distribution of business between the two newly-recognized "sub-classes" would not stay the same. Competitive forces would generate change. The "refined" premium company would be very competitive for the class with lower than average premiums and would attract more sales from among that class. The other companies would sell less to that better class and more to the worse class. But their rate for the worse class would be inadequate, so they would face simultaneous problems of negative profits and poor competitive position. Some of these companies might simply price products for the worse class and abandon the better class market; others would want to maintain a position in both markets and this latter group of companies would be forced to adopt the same or a similar refinement of classes as the first "refined" premium company.

All this is quite obvious, and the conclusions are probably obvious, too, but let me state them anyway:

- Competition is the vehicle which conveys judgments made concerning equity throughout the industry. So equity and competition are interrelated, not necessarily antithetical. It is certainly true that a change prompted by competition could have either positive or negative impact on equity, but the nature of the impact should be judged on its own merits, and, overall, competition should generate greater equity.

The refinements in the allocation of Investment Income which have occurred since the 1950's have largely been prompted by competition, but with considerable support from competition's paired opposite: profit. During WWII the few companies marketing group annuities were

crediting dividends based on a portfolio rate in excess of the rate available on new investments. The sophistication of the policyowners and the permitted flexibility of premium deposits led to some clear investment selection against the companies and threatened profits. In the fifties, with increasing interest rates, competition became the prod to refine interest allocations which would enable the companies to better compete with other investment media. Finally, by the late sixties, the great bulk of group pension business was being written by companies using an investment generation or equivalent method of allocating Investment Income. Now, in the seventies, such approaches are almost universally accepted in group pensions, as being practical in application and providing reasonable and necessary recognition of the sources of investment gains. The current concerns relate to details of treatment rather than to the propriety of the general approach.

In the Ordinary lines, the questions of propriety, equity, and practicality are current topics. The pressures arising from cost comparisons, greater sophistication of agents, and alternative investments are prompting consideration of greater refinement in interest allocation to Ordinary products. In some companies consideration has blossomed into implementation. Concern about equity (or Equitable) in this matter has been voiced by actuaries as well as others. For example:

- Halsey Josephson's article in Probe entitled "Good-bye Portfolio Rate and Mutuality"
- Joe Belth's article in the Insurance Forum entitled "Great News - Except for Equitable's Old Policyholders".

Such concerns should be addressed; the questions of equity should be spoken to; and judgments should be made. The fact that attention has been focused in this area by competitive pressure during a period of market conditions that may or may not be temporary should not affect these judgments. In my opinion the conditions will not be temporary.

My personal feeling is that nothing is wrong actuarially, philosophically, or perhaps even legally with the application of a new money theory to ordinary dividend distribution. However, there are a number of specific questions or problems which should be recognized, and I would like to enumerate some:

1. Investment Return Pooling - The buyer of an individual policy with values expects, in some sense, a pooling of investment return. But judging from the stiff competition in annuities based largely on the highest interest rate, the buyer does not expect pooling to mean that all insureds receive the same rate of return. Instead, I believe, the buyer wants to obtain a share of a diversified and stable portfolio of assets and to avoid sharp effects of random fluctuations.
2. Capital Guarantees - Another apparent desire of the buyer is guaranteed principal and to some extent guaranteed rates of return. This desire is in obvious conflict with seeking the highest possible rate of return, and this conflict is one which poses the greatest potential financial risks for an insurer. Hence the pricing should include a specific risk charge for this hazard, which increases as the level of guarantees increases. If the dividend interest rate of a given company based on portfolio interest is deemed appropriate, then clearly the maximum risk charge could be computed as the new-money dividend interest rate before risk charge, less the portfolio dividend interest rate. A timely paper in the Transactions might be one that devised a systematic way for a company to quantify the degree of guarantees under various contracts and to use such results in setting appropriate risk charges, at least in a relative sense.
3. Practicality of Application - The use of the usual 10 to 25 cell interest rate/rollover rate approach on a seriatim basis for individual contracts is

quite mind-boggling even with the use of modern computers. The level of costs, the possibilities of errors, the potential for manipulation, and the difficulties of auditing all make such an approach impossible to imagine. Some practical simplifications are necessary and they will be discussed under the next topic.

4. Use of Surplus - For ordinary dividends, the pattern of surplus strain "repayment", the interest rate charged on such repayment, and how the strain is defined are elements to consider. Further, the degree to which interest earnings on accumulated surplus may be used to increase dividends might add another factor.
5. Replacements - There can clearly be added expense and investment selection exercised by some policyowners by replacing old policies with new. But it may also be true that many of the later duration lapses occurring now arise from replacing permanent insurance with term and a certificate of deposit. In any case, the impact on profitability must be recognized.
6. Illustrated Dividends - If a company using an investment year approach illustrates dividends for new issues on its "current" scale, the results will probably be different than the corresponding actual dividend just paid. This multiplies the problems of cost disclosure and policy comparisons beyond their already tangled web.
7. Policy Loans - The availability of loans, the rates at which they are made, and the degree to which they are made must be considered carefully. The use of the new money approaches for ordinary might add to the pressure to specifically adjust each policy dividend based on actual loans on that policy.
8. Federal Income Tax - With the Menge or 10 for 1 approximation applying to non-qualified insurance reserves, the marginal tax rate increases dramatically as the average earnings rate increases. My personal feeling is that if an investment year approach is used for pre-tax interest rates, these rates should be reduced by the marginal tax rate computed with an average earnings rate equal to the pre-tax investment year rate.
9. Other Elements - It seems silly to use a micrometer to measure a part of a road, then to pace off the rest and add the results together. That is, the degree of refinement in the various elements comprising the dividend scale should be of the same general order of magnitude. This is clearly a matter requiring great judgment.
10. New Cash Flow - Finally, I believe that any new-money method used to determine dividend interest rates should reflect actual new cash flow whether on new or old contracts. Going somewhat further, I would suggest that a change from a portfolio to an investment year basis should be applied only to new cash flow occurring after the time of change. If this principle were adhered to, there would be no marketing advantage to be gained by a company changing from investment year to portfolio in a period of decreasing interest rates.

This covers my thoughts on (a), (b) and (c) under this topic. Concerning (d), I would agree that immunization by line could reduce uncertainty and therefore risk charges made in pricing new products. The easiest to understand and the most practical explanation of immunization that I've seen is a paper by D. D. Ezra on "Immunization - Some Practical Aspects", that was presented to the Canadian Institute in 1975.

MR. KIHONG SUNG: Tom has expounded in depth on the philosophical questions with respect to utilization of the investment year method in life insurance products in general. I would like to add a few comments on this aspect applicable to Group products.

When I mention Group products, I am, in general, excluding Group Insurance as the savings

element in this product is not significant. For Group Pension business, the pros and cons explained in detail by Tom on the investment year method become much more biased for the pro side.

Some reasons against adopting an investment year method, namely the long-term nature of the contract, administrative complexity, maintenance of the dividend scale, etc., become less important in the Group Pension business.

On the other hand, the main reasons for adopting the investment year method - greater equity, competitive advantage in the rising interest environment, being more in tune with other financial institutions and current economic conditions - become much more prominent. Of course, the strongest argument of all is that without the investment year method of allocation an insurance company would be out of business in the Group Pension market in the current environment. We cannot realistically expect to compete with other financial institutions without offering prevailing interest rates.

During the last year or two a number of large life insurance companies started to offer investment-only type contracts under which an insurer guarantees principle and interest for a certain number of years, such as five to ten years, at the prevailing interest rate. Such a guarantee sometimes involves current deposits only, but other times it extends to all future deposits.

In the past the interest guarantee both for Individual and Group products has been relatively modest. When the interest rate was high the duration was relatively short. For Group Pension products insurers frequently assessed market value deficiencies in case of withdrawal. Under these circumstances, an insurer is not taking a great deal of investment risk in terms of interest rate.

With the marketing of investment-only type contracts it appears that insurers are taking greater and greater investment risks. In order to guard against asset loss from this type of contract, many insurers are adopting the Immunization Theory in matching assets and liabilities. This Theory is well publicized in Irwin Vanderhoof's paper in the Transactions XXIV.

There are a number of difficulties in the practical application of the Immunization Theory. First, segregation of assets within the General Account is not usually allowed under the many state laws. Secondly, immunization requires the frequent reshuffling of the asset portfolio which in turn would require extensive trading, which might result in substantial Federal capital gains tax. Thirdly, in order to engage in extensive trading, the asset portfolio of the insurer has to be highly marketable, and this cannot be achieved without sacrificing the yield rate.

It appears that in order to overcome these obstacles most insurers opted to achieve the immunization through internal accounting and by arranging their cash flow of liabilities through a proper mixture by duration and volume of pension business.

MR. SUTTON: Of the several bases available for subdivision of investment income, the Mean Fund method, whether based on assets or liabilities, has simplicity as its strongest advantage. Investment income and net capital gains can merely be spread in proportion to those assets or liabilities, after adjusting for assets earmarked by line, such as policy loans. Specific rollover rates of funds are not needed and usually not even computed. Even the portfolio rate of interest is computed almost as an afterthought. The allocation of federal tax by line may be more involved to reflect variations in tax between qualified and non-qualified life insurance reserves, and contracts eligible for interest paid deductions. But overall the method is quite simple and can be extended with ease to allocate interest to smaller and smaller classes, right down to the individual policy level. However, for the reasons alluded to previously, pressures to refine this method have led to the widespread use of an Investment Year method.

An Investment Year method is a procedure for distributing net investment income which

recognizes year-by-year variations in the yield on new investments, and which takes into account the incidence, by year of investment, of cash flow from operations and funds available for reinvestment. This definition is largely lifted from the New York code. In this broad sense there are a number of Investment Year methods differing in details or degree of refinement. But most of them are Investment Generation methods.

Under an Investment Generation method, the results of as many as two dozen separate generations (usually calendar years) of investments are traced, and records for them are maintained. Each class of policyowners is assigned a fractional share of each generation, in proportion to the net contribution made by that class to the total investable funds comprising that generation. In future years such fractions of the investment results for that generation are allocated to the appropriate class of business. The investment results so allocated include not just interest but sometimes also net realized capital gains. Each year a rate of return and a rate of rollover are determined for each generation and these rates are usually the basis for a formula allocation of results to classes smaller than lines of business, for example, to a single group pension case.

The outstanding feature of this method is its complexity in application. I will happily leave further discussion of these complexities to the other panelists. However, even if this method were practical enough to apply down to the individual policy level, a theoretical criticism is that there could be an insufficient degree of portfolio diversification and stability. Results could be unduly affected by specific investment decisions or changes in types of new investments made in a given year. In short, I believe that greater pooling of investment types, year-to-year rollover, and "random" variations is desirable, especially for use within the Ordinary line, and, as a practical matter, such greater pooling could contribute to simplifying the allocations.

The 1974 paper by Chris Chapman described a simplified approach called the Investment Generation Model Method. This approach identifies generations of assets with differing investment characteristics and associates a fractional share of each generation with a line of business, just as with the regular Investment Generation method. However, instead of earmarking the actual assets purchased for each generation, a model of the assets is developed. The model assets have the same characteristics as the actual assets, but only in certain respects which are specified, such as rate of return and term of investment. The only characteristics used are those which are regarded as essential to accomplish an equitable distribution of investment results according to given criteria.

The operation of the model then produces potential investment income for each line and asset generation. Actual investment income is allocated in proportion to this potential. So this method has most of the characteristics of the regular Investment Generation method but it is simpler in application and achieves that simplicity by a greater pooling of results.

The Adjusted Asset Base Method is intended to be an Investment Year Method that is not an Investment Generation Method, at least in the sense in which I've just used those terms. The incidence of receipt of funds, the yield rates available at the time of receipt, and the rollover of invested assets are reflected by using a computational tool called the adjusted asset base. At this point I should mention that this method was devised for allocation within a subline of Ordinary, and not for allocation among the lines or sublines of business. It may be applicable to those larger blocks, but as yet I have not explored that possibility.

But within a subline of Ordinary, for example, the annuity subline, let us suppose that each contract has an associated quantity called the adjusted asset base and that we want to distribute a known amount of investment income among those contracts. The method entails allocating the known total amount of investment income among the contracts in proportion to the adjusted asset base for each contract. In this sense the adjusted asset base acts merely as a proportionality

constant. Further, the total to be distributed need not be all investment income but can be reduced by taxes, contributions to profit or investment reserves,or by whatever other charges are appropriate.

But that doesn't say exactly what the adjusted asset base is. For the whole subline we are discussing, the total Adjusted Asset Base can be computed by dividing the net Investment Income by the new money rate of interest. Or conversely, the net Investment Income is given by the product of the new money rate of interest and the Adjusted Asset Base. A similar type of relationship holds between the Market Value of the assets and the "market value investment income". But the latter is not the same as the statutory investment income and this difference results in the Market Value and the Adjusted Asset Base being different.

Another way to approach the Adjusted Asset Base is to describe the events which cause it to change, and contrast the effect of those events on market and book values. First, income from operations cause all three to change by the amount of such income. In this respect they are equivalent. Second, a change in the new money interest rate changes the Adjusted Asset Base and the Market Value but leaves the Book Value unchanged. Third, rollover of invested assets changes the Adjusted Asset Base, does not cause the Market Value to change, and may or may not cause the Book Value to change.

The nature of pooling implicit under the Adjusted Asset Base method is a significant feature, compared with the nature of pooling under the other methods. The Portfolio Method pools both yield rates and rollover rates; the Investment Generation Method pools neither. The Adjusted Asset Base Method is in between, pooling rollover rates but not yield rates. It is this greater degree of pooling, as compared with the Investment Generation Method, which makes the Adjusted Asset Base Method practical to apply to individual contracts. I'll briefly describe application of the Adjusted Asset Base method to individual annuity business under the next topic.

MR. J. JACQUES DESCHENES: Canadian companies whether stock or mutual generally write participating as well as non-participating business and most of the larger companies write business in many different countries. They are required to keep separate accounts for participating and non-participating business and between Canada and out-of-Canada business. In the annual statement the companies must describe how they apportion items of income and expenditures to the several funds and to the lines of business. In 1974, out of about 50 Canadian companies, only 4 were using a year-of-investment method and 5 more were crediting on a year-of-investment basis to certain lines and using a mean fund method for the balance.

There appears to be a fair number of companies using new money concepts in rating group pensions and ordinary annuity business while, for statement purposes, allocating investment income on a mean fund basis. Sooner or later, I would think, they will be forced to revise their method of allocation of investment income.

Ideally, for any company issuing a variety of lines and sublines of business with comingled assets, the process of communications between the investment department and the product actuaries should be somewhat along the following lines:

1. The investment department and the product actuaries would determine jointly the asset characteristics which would provide the basis for asset class differentiation. The objective would be to differentiate classes of assets that might appeal differently to varying patterns of liabilities. Such characteristics might include currency or country of issue, type of asset (bond, mortgage, equity, etc.), term, call features, repayment options, etc.
2. For each class of asset, the investment department would supply periodically an estimate of yield rates to be obtainable at various times in the future, separately between immediate investments and commitments for later

delivery. Also supplied would be best estimates of occurrence of the optional repayment features.

3. For each subline of business the product actuary would determine the best mix of assets that would fit his liability pattern and compute his preliminary rates accordingly, taking into consideration expected sales volume, guaranteed values, and income tax impact.
4. Each product actuary would then be in a position to estimate cash flows available for investment for future new business and specify to what classes of investment such cash flows should be attributed.
5. For business already on the books the product actuaries would evaluate the performance of their products with respect to sales, cancellations, expenses and investment income, and revise, if appropriate, their estimated future cash flows and distribution between classes of assets.
6. The sum of all estimated cash flows from all sublines subdivided into the specified classes of assets would represent the tentative investment program for the year. A number of iterations would then be required in order to obtain a workable investment program, after considering investment opportunities and statutory limitations.

In practice, not all lines of business need the same degree of sophistication in matching of assets and liabilities or in the application of new money concepts for rates and dividends.

In Canada, in recent years, there has been a phenomenal growth of non-participating single premium annuity sales, triggered by a systematic application of new money concepts in rate making. For example, our Company collected $5,000,000 of non-participating single premium annuity income in 1972 for 1.2% of total premium income; this increased to $10,500,000 in 1973, $18,500,000 in 1974, and $49,000,000 or 9.4% of total premium income last year. This was due partly to a growth in the market itself, but mostly to an ability to compete effectively with other financial institutions offering high yield rates on savings.

I will describe briefly our procedures for determining and applying our new money rates for our non-participating single premium annuity (incidentally, the procedure is similar for our flexible premium retirement product and for our group pension products).

1. Each month our Investment Department provides estimates of new money interest rates obtainable within the next 6 months and the following 12 months. For each territory, separate estimates are made for public bonds, private bonds, single family mortgages, other mortgages, and real estate. The estimates, especially those covering 7-18 months, include a weighting for known or expected commitments.
2. The product actuary, using a predetermined mix of assets, appropriate investment expense assumptions, and a margin for investment risk and profit, computes a theoretical net rate to compare with the current premium rate. (Incidentally, we have found that at current new money rates, the net impact of income tax on non-registered immediate annuities is minimal in the situation where the first year loss is an immediate tax shield rather than a carry-forward loss so that, in our company at least, there is no need to provide explicitly for income tax in the formula.) If the difference between the theoretical net rate and the current rate is significant, upwards or downwards, an immediate change in premium rate is indicated.
3. In between monthly periodic estimates, attention is paid on an informal basis to significant events, such as a sharp change in new money interest rates, unavailability of assets of the desired class, etc.
4. In addition, the product actuary continuously monitors the rates offered by competing companies and institutions and compares with our own.

There has been no difficulty in changing rates fairly quickly and often. At one time last year, we actually revised our rates on each of two successive months.

How long it will be before we can enjoy a more complete system such as I described earlier is difficult to tell. This will depend on whether or not we can develop a system that can satisfy, in a consistent fashion, the actuarial objectives of pricing and distribution of earnings, and the investment objectives of establishing and managing an investment program reasonably consistent with the actuarial needs. I suspect that the unit pooling method of investment income allocation may have been short-changed over the years, and may turn out to be a better system than the investment generation method, at least for certain classes of assets.

MR. SUNG: The application of the new money approach to Group Pension products is quite simple. It is done either through non-participating high guarantee interest rates or through a combination of dividends and guaranteed interest rates on participating products.

Until recently, the insurance company practice was through the participating type product with the modest interest guarantees, but with the additional earnings included as a dividend.

Determination of the new money rate might be based on the declining index method or the fixed index method,depending upon whether rollover is considered as new or old money.

For Group Pension products, the implication of Federal Income Tax has become controversial. Peter Plumley's paper on Federal Income Tax explains quite well the phenomenon of marginal tax on pension business due to the discrepancy between new money rates and current earnings rates. Many companies ignore this marginal tax effect, simply assuming interest credit to the Group Pension product will get interest paid deductions under either 805(e)1 or (e)2 of the Internal Revenue Code. Several companies have obtained favorable advance rulings on certain types of Group Pension products. However, there are a number of disagreements between the IRS and life insurance companies on this aspect.

One troublesome aspect of determining the new money rate is capital gains or losses - especially those arising from the type of asset where capital gains are the main reason for the investments, such as, common stocks and real estate. Because of the fluctuating nature of common stock prices, allocation of unrealized capital gains or losses creates undue fluctuations, to the contractholders' dissatisfaction. Many companies simply assume this type of asset earns the same as fixed income assets.

With the passage of ERISA and the creation of the Individual Retirement Account (IRA), extensive competition developed between banks and life insurance companies for this new source of pension money. For the obvious reasons, an insurer cannot afford to utilize the traditional portfolio rate concept to attract IRA funds. Some companies, including my own - Mutual of New York - started to offer Individual Deferred Annuity products utilizing the new money concept. This was done through a combination of a lower premium and a higher dividend interest rate associated with new money. Due to administrative complexity and the cost involved, the approach is somewhat different from that used for Group Pension business. Rather than utilize the precise accounting approach, many companies more or less use a formula basis taking properly into account the approximate cash flow for each year of issue. Tom Sutton's Adjusted Asset Base Method could conveniently be utilized for this product.

MR. SUTTON: As long ago as 1974 it was quite obvious that there were some companies using an investment year approach to justify crediting very high rates of interest on individual annuities, particularly tax-favored annuities. This development was soon noticed by our field force, and there was increasing pressure to take some similar action. However, in considering alternatives we imposed two constraints on ourselves. The first was that the interest allocation method had to be specific, documented, and suitable for use not just when interest rates happen

to be high, but indefinitely into the future whatever interest rate variations might occur. The second type of constraint was that this be accomplished in some relatively simple and easy fashion that would be reasonably inexpensive. These constraints were not easy to satisfy simultaneously. Attempting to do so resulted in the development of the Adjusted Asset Base Method. The actual writing of the paper occurred almost as an afterthought.

Now I would like to describe very briefly how to apply the Adjusted Asset Base Method to credit interest to individual annuities. The first step is to determine a suitable new money rate. A starting point that many companies might have available to them is the new money rate produced through the usual investment generation method of earmarking assets and investment income. The most appropriate rate might be that for bonds and mortgage loan investments only. That rate may be more stable than the rate for all investments. If one makes the presumption that capital gains added to investment income on equity investments will some day give about the same or better aggregate results as compared to the return on bonds and mortgage loans (a questionable assumption, perhaps), then there is no great distortion.

The next step is to reduce this new money rate by a number of factors. First, Federal Income Taxes should be deducted - perhaps a relatively small amount for tax favored plans and a rather sizable reduction for non-qualified plans. Another reduction might be an amount intended to cover some general overhead, which has not been taken directly into account in the premium loading on the product. If the contract provides for guaranteed values, I believe that some specific reduction in the rate for the liquidity risk that is inherent should be made. The size of that charge is, of course, a matter of judgment. Finally a reduction for profit and contingency margins might be made.

The final result is a net new money rate for purposes of crediting interest to qualified plans and a separate rate for non-qualified plans. Application of the method then proceeds in the same way for either type.

This description obviously assumes a retrospective determination. In fact, it is simpler to use a prospective approach for which the starting point is the estimated new money rate for the oncoming year. The estimated net rate can be quoted for sales purposes and, if desired, even guaranteed for that calendar year. The estimated rate can also be used for computing interest for a portion of the year for those who terminate.

A second factor that is needed is an aggregate rollover rate for invested assets and, with the prospective approach, this also will be an estimate. Next, the record file for each policy must include the policy's Adjusted Asset Base.

To calculate interest for a particular year, the new money interest rate for the year is multiplied by the beginning of the year Adjusted Asset Base and pro-rata interest at that rate for new cash flow during that year is added.

The only other special calculation is the annual updating of the Adjusted Asset Base for each policy. All that is necessary is the beginning Adjusted Asset Base, the new cash flow and interest credited for the year, the new money interest rate for the current year, and the aggregate rollover rate. With these items and a few simple arithmetic operations, it is possible to compute the updated Adjusted Asset Base.

The whole process is one that can readily be programmed and is quite easy to apply. I believe it is quite equitable for individual contracts and certainly reflects the interest rates at which the premiums paid under those contracts are invested much better than the portfolio method.

Moving to an even more controversial application, it is possible to modify the three-factor dividend formula to employ an Adjusted Asset Base approach. The situation is rather different than with annuities because the cash flow is less well identified. However, in analyzing the

increase in reserve from one year to the next, one can readily separate the increase elements into cash flow elements and allocation elements. With this separation the Adjusted Asset Base can be computed, updated, and then used in computing the policy dividend in a modified three-factor formula.

MR. SUNG: The foremost regulatory requirement governing the investment income allocation of a life insurance company is New York's Regulation 33. I am reasonably certain most of the audience is familiar with this regulation as its contents are part of the Examination Syllabus.

Regulation 33 was promulgated in 1961 and was revised ten years later in 1971. The Regulation allows a licensed New York insurer to allocate investment income to major lines of business either in proportion to the mean fund or in proportion to reserves and liabilities. Alternatively, the insurer may use the investment year method subject to certain constraints. The regulation states that if the investment year method is used in allocating investment income to major lines, it must also be used in allocating investment income to the secondary annual statement lines and, to the extent feasible, within the annual statement line of business.

Regulation 33 allows exceptions for certain types of assets such as real estate, stocks, short-term notes, etc. Furthermore, a licensed life insurer can deviate from the rule if approval is obtained from the Superintendent. The crux of the regulation is to allow an insurer to use the investment year method throughout all product lines, with certain exceptions for administrative convenience.

The history of the investment year method is well-known. With rising interest rates and a rapidly increasing volume of Group Pension business, it has become increasingly necessary for an insurer to offer high interest rates on Group Pension contracts.

The main function of life insurance is protection against lost income of breadwinners. The importance of the protection element of life insurance far outweighs the savings element incidental to the life insurance business. On the other hand, the interest element plays a far greater role in Group Pension business. Because of these circumstances, life insurance companies abandoned the traditional portfolio rate concept and adopted the investment year method in order to attract and retain Group Pension business.

New York Regulation 33 was promulgated for the purpose of establishing certain rules and to curb any abuse of the new money concept. I do not personally know of any other State requirement specifically aimed at the investment year method other than Regulation 33.

In practice, most insurance companies obtained deviations allowed under Regulation 33 in order to limit the investment year method to the Group Pension line and, more recently, to certain non-participating Individual Annuity and Supplementary Contracts.

I have to say it is ironic that a major New York domiciled company would have a great deal of difficulty in obtaining New York Insurance Department approval to apply the method to the Individual Life line. If one reads the regulation carefully, it spells out that a licensed insurer must use the investment year method for all lines of business if such method is used in one line of business. I am not advocating the pros or cons of applying the new money concept to the Individual Life line. This was explored by Tom. What I am emphasizing is that the New York Insurance Department has no justifiable ground for denying any insurer permission to use the investment year method on the Individual Life line if such method is used for the insurer's Group Pension business.

One point of contention in Regulation 33 is the meaning of "within the annual statement line of business". It seems the New York Insurance Department interprets this as related to the determination of dividend interest rates. As you know, under Rhine vs. New York Life and Greeff vs. Equitable Life, the Court established that an insurer has broad discretion in determining

the dividend scale as long as the insurer maintains equity among a broad class of policyholders and is acting in good faith. It appears to me the interpretation of Regulation 33 along these lines would violate the spirit and the substance of the Court's opinion rendered in these cases.

Valuation standards of some of the States requiring additional reserves for all future interest guarantees in excess of the maximum valuation interest rate has become a major problem for large pension companies. Until 1974 all companies doing business in New York were required to hold excess interest reserves based on the maximum interest rate of 3½%. A 1974 revision of the New York law placed the maximum interest rate at 4% for Individual Deferred Annuities and 6% for Individual Immediate Annuities and Group Annuities except the maximum rate is 3½% for Group money received prior to 1968.

When the relative size of pension business was small, the interest rate guarantee was modest, and surplus was large, the excess interest reserves requirement was not a major problem. Many companies opted for holding larger reserves for Federal Income Tax reasons. With the rapidly increasing volume of business, high interest guarantees, and the depletion of surplus due to profit squeeze and the depressed common stock market in 1974, the surplus strain has become a major problem for large pension companies.

In 1974 the New York Insurance Department, under extreme pressure from large domestic companies, liberalized the maximum valuation interest rate applicable to Group Pension Deferred Annuity business to 7½% and in 1975 further liberalized the maximum interest rate so that such rates are now derived from an industry average of new money rates applicable to mortgages and securities. But, there are still several States requiring unrealistically low maximum valuation interest rates for this type of product.

Extensive studies and discussions are being conducted by the National Association of Insurance Commissioners, the Society of Actuaries, and life companies in order to arrive at a uniform and reasonable valuation standard for this type of business. In connection with the liberalization of the valuation interest rate, the New York Insurance Department now requires filing of new money rates each year. I do not know of any accounting and reporting requirements besides the New York form.

Dividend illustrations may pose a significant moral dilemma to life insurance companies if the new money concept is extended to the Individual Life and Annuity product line. Due to the rising portfolio interest rate, life companies have enjoyed consistently higher actual dividend payout than illustrated dividends for more than 20 years despite the rising inflation rate. It is unlikely that companies using the portfolio approach will pay less than illustrated dividends in the foreseeable future.

With the new money approach, however, the situation will be quite different. It is quite likely that many life insurance companies will not be able to pay the illustrated dividend scale in the future unless interest rates continue to rise or mortality experience becomes extremely favorable. Since we actuaries are in a position to know that there is a real danger of a decrease in the dividend scale in the future, is it morally right to illustrate the dividend scale based on current interest rates? Furthermore, if a life insurer does not incorporate some inflation rate into expenses for future illustrated dividend scales, I have no question in my mind that such dividend scales would not be supportable. Although legal requirements in many States are such that dividend scales must be based on the current payable scale with the usual disclaimer, I am not certain it is ethically correct to continue the current illustration practice.

Once an outside speaker at a Society meeting said that one of the more important roles of an actuary in a life company should be that of a moral philosopher. My final remark at this session, as an actuary and a moral philosopher, is that the current dividend illustration practice and the new money approach for the Individual Life line may not be compatable.

MR. DESCHENES: For Canadian companies the maximum rate of interest prescribed for valuation is 3½% for insurance and 4% for annuities, except that a higher rate may be authorized by the Superintendent for a class of policies if a company provides satisfactory evidence that a higher rate is appropriate. It seems that most companies active in group pensions and/or ordinary annuities have been able to obtain permission to use a higher valuation rate than 4% for their annuities. I have examined the Superintendent's report for 1974 and found that 7½ or 8% for 15 years and 3½ or 4% thereafter was quite common in 1974; there was even one company with more than 50% of its annuity reserves (15% of total reserves) valued at 9½%.

MR. THOMAS F. EASON: I would like to address a question to the long-term viability of new-money investment allocation to individual annuities. If a person thinks that 8½% AAA bond yields are permanent, he is more likely to adopt a new-money approach to individual products. I am staunchly opposed to this. Mr. Sutton commented that he doesn't think current market conditions are temporary. What is the basis for your thinking, Mr. Sutton? Are you aware of studies which support this position?

MR. SUTTON: There are a great many studies of what the future might hold and one could look upon nearly all of them with the same degree of skepticism. Predicting the long-term situation is highly speculative and is almost a matter of personal opinion. A decision to use an investment year method should be approached with a view to maintaining it over a long period of time. The group pension operation has gone through this same type of thinking. Both Individual and Group must be wedded to the method and not expect to abandon it if interest rates go down. But, specifically, the use of a given method cannot be justified on some presumption about what is going to happen during long periods of time in the future. Instead, a method has to be sound under almost any conceivable set of circumstances short of complete catastrophe. So I don't think that what has appeared to be my advocacy of the use of an investment year method is, in my own mind, nor should it be, tied to a personal opinion of what may happen in the future. If you want my personal guess, I would speculate that interest rates would probably stay high. I believe that the fundamental reasons would relate to the political climate in the country and the expectations of people to have an increased standard of living. The speaker during the general session this morning described several future scenarios. If scenario number one continues, I would certainly expect that interest rates would stay high. If scenario number three came to pass, then I could see inflation abating and interest rates going down to the level of 3%. But again, I don't think that my personal opinion, nor anyone else's, about what the future may hold ought to be the basis for adopting some particular method of distributing investment income to policyowners.

MR. GEORGE W. SHELLY: One of the questions Jim asked earlier was, "What has changed?" My feeling is that nothing has happened dramatically, but a lot of things have happened over a long period of time. The market interest rates began to exceed the portfolio rate by an amount that I did not feel we could live with. We were out of phase with economic reality. For an extended period the individual lines had not been getting their share of available investment dollars. For some reason everybody seems to feel the investment year method or some variation has to be used for individual deferred annuities. In my view the same reasoning applies equally to individual life insurance. Other investment media are competing for the investment dollar in life insurance as well as annuities. If we are willing to sell only term insurance then we can continue to use a portfolio rate.

Equity has to improve with the Investment Year Method if equity is defined as returning surplus to the source from whence it came. Old policy holders are not hurt if you do not give them what they are not entitled to. When all the items are taken into account, including all ten of Tom's items plus the initial expense, the difference between new and old money is much smaller than many people would expect. The difference will vary from one company to another, but my observation is that the interest rate difference between the oldest block of policy holders and the newest will be approximately 1/2%.

As to cost disclosure, in my view this is letting the tail wag the dog. There are enough things wrong with comparing interest-adjusted costs between companies; this is just one more relatively small item. But that is another topic. Frankly I believe it is more appropriate to judge a company on its current performance than on its portfolio rate. The portfolio rate varies from company to company. In one it may reflect the sum of thirty years of investment experience. In a newer or rapidly expanding company, it may only reflect the investments of a relatively few recent years. The latter would be close to a new money rate.

The most difficult decision that we had to make in considering the investment year method for individual life insurance was whether we would be willing to stick with it when the chips fall the other way. I think that it is obviously best to go both ways because then you are always in phase with current conditions.

MR. REISKYTL: We are quite concerned about the increasing lack of comparability of dividend illustrations. New money and portfolio based illustrations are not comparable because they are based on different underlying investment assumptions. One assumes that the new money rates remain high. The other, that the new money rate drops to the portfolio rate and stays there. There are many other factors that make it difficult for the buyer to choose between companies using the interest-adjusted cost factors. I believe it is essential that the Society's Committee on Dividend Philosophy develop a proposal to insure comparable results. Hopefully this proposal will provide a basis for a Society of Actuaries opinion in this critical area. Who is better qualified than we are to establish the guidelines? Yet if we fail to act, someone else is likely to do so.

Our preliminary studies suggest that the best basis for comparable illustrations is one that uses the same experience factors to calculate each dividend illustrated as are used for the dividend paid in the current year for that policy duration. For example, the tenth illustrative dividend factors would be the same as those used to calculate the dividend paid in 1976 for a comparable policy issued in 1966. Arithmetical adjustments would be made to reflect different reserve bases and other differences in contractual arrangements. This basis provides disciplined information to the buyer. It doesn't tell him what he will receive in the future--that's a projection and prohibited by state law. Even if it were permissible, it would not be useful to the buyer without another index that measures the actuary's optimism, or lack of it, and his past credibility. Dividend histories could be used as a basis. They are very meaningful, but may not adequately reflect recent changes that are likely to affect current purchasers. If all dividends, both actual payments and illustrations, use the same experience factors, the buyer will have comparable information to make his choice. I believe this approach merits further discussion.

One final comment on the question of new money applicability to individual products: I believe three prerequisites must be satisfied before one can properly apply new money pricing to any product. These prerequisites, which have been suggested by others in the previous discussions of this topic, are:

1. There must be a pronounced possibility of investment anti-selection. This possibility can arise only if the policyowner controls the premium payments. The individual buyer of a flexible premium annuity policy has such control. Does the individual life buyer? Are ordinary life purchases specifically made for permanent protection or for the investment element?
2. Very limited, if any, withdrawal privileges. Guaranteed cash values in my opinion make it difficult to apply new money pricing to individual products. If actively pursued, it is possible that the investment risk will exceed the mortality risk for many insurance companies. Policy loans are also a complicating factor as this right provides unlimited withdrawal rights, as do surrenders, of course. How is equity to be maintained?
3. Substantial improvement in equity relative to the expenses incurred to achieve it. Is equity substantially enhanced? Under what conditions? Tom

referred to several expensive requirements earlier: record keeping, allocations, setting various assumptions, etc. How are dividend classes established? When are rates changed? Are replacements a problem? Is the present valuation/solvency system applicable? What happens when the policy cash flow in later years is negative?

The application of new money to individual products raises many questions. Hopefully, some will be answered at the workshops following or at a subsequent concurrent session limited to this topic.