

**TRANSACTIONS OF SOCIETY OF ACTUARIES  
1965 VOL. 17 PT. 2 NO. 47 AB**

**DIGEST OF DISCUSSION OF SUBJECTS  
OF SPECIAL INTEREST**

**INDIVIDUAL LIFE INSURANCE**

*Leased Life Insurance*

- A. What are the advantages and disadvantages to the policyholder of "leased" life insurance, considering: the cost of coverage, control of the policy, and deductibility of part or all of the lease charge from the policyholder's taxable income?
- B. What peculiar underwriting problems are involved in leased life insurance?
- C. What has been the volume of sales?

*New York Regional Meeting*

MR. T. ARNOL CROWTHER: On the basis of such information as we have so far received at the Metropolitan, leased life insurance appears to operate in the following manner. The policyholder sells and assigns his policies to a service company. He is then given a lease-buy back agreement by the service company. This calls for an annual leasing charge and describes the benefits, conditions, etc. The term of the leasing agreement is generally 20 years, and the leasing charge appears to be in the nature of a term insurance premium. The service company may reassign these policies to a bank and trust company under a trust indenture with a finance company. The policyholder relinquishes possession of his policies when he sells and assigns them to the service company. Under certain conditions he may repurchase them later.

Based upon a review of those service companies' forms that have come to our attention and on other material we have seen which companies have distributed, the arrangement that has been worked out apparently involves the following:

1. An assignment absolute in form from the insured to the service company.
2. The execution of a life insurance policy lease-buy back agreement.
3. In most instances, an assignment by the service company to a bank.

The indebtedness incurred by the service company to purchase the policy and keep it in force is covered by some kind of term insurance in an insurance company.

This type of operation is generally handled by a life insurance agent of still another insurance company in conjunction with the sale of new life insurance.

In this leasing arrangement, there are four items which should be of particular interest to the policyholder:

1. Are the "leasing" charges reasonable?
2. Is the policyholder as fully protected as he thinks he is?
3. Is continuance of the agreement assured?
4. Are leasing charges deductible for income tax purposes?

Rather than judge what someone else might consider reasonable, we choose to show what a similar arrangement would cost our policyholder in the Metropolitan in the form of a change to term insurance, or by borrowing on his policy, instead of selling it to the service company. In those few cases where we have sufficient facts to make this comparison, our costs show up very favorably.

As to the completeness of his protection, the income tax question, and the continuance of the protection, we refer him to his own counsel. For the benefit of his counsel, we call attention to the fact that the beneficiary arrangements under the policy and the leasing agreement should be considered very carefully in conjunction with the fact that the insured must sign an assignment, absolute in form, to the service company and that they in turn generally reassign the policies to a bank and trust company in conjunction with a trust indenture between the bank and another finance company. This reassignment is for the purpose of borrowing funds through the other finance company. As to continuation of protection, what would be the insured's position should the service company inadvertently fail to pay a premium on the policy when due, particularly in the case where the insured's health had deteriorated to the point where the insurance company would not reinstate the policy? Also, what is the reason for the provision of the lease-buy back agreement under which the service company may terminate a lease if it does so with respect to all "similarly situated leases," and exactly what is meant by the quoted phrase?

This arrangement is not covered in the Internal Revenue Code or the regulations, and no ruling has been published on it. Thus at the present time there would appear to be a question as to whether the Internal Revenue Service will allow the leasing charge as an interest deduction. Moreover, even if the IRS were to rule favorably, there certainly appears to be a further question as to how much of the leasing charge it would permit a taxpayer to take as a deduction.

For example, one policyholder apparently "sold" his policy to the service company for \$72 and "leased" it back for \$120 a year. Can he convince the IRS that he is paying \$120 a year as interest on a loan?

The policyholder and his counsel should also consider the policyholder's

disability waiver of premium coverage. Disability benefits have not been covered in any lease-buy back agreement which I have seen, although they have been described in sales literature.

As an actuary, you will wonder how all these parties cover expenses and make a profit. All in all there are about eight companies or individuals involved, the service company, its related finance company, the bank and trust company, those who actually loan the necessary funds to the service company, the insurance company which covers the indebtedness, the second insurance company which issues the new insurance, a third insurance company which gets into the act for some reinsurance, and, last, the insurance agent who handles the transaction.

My understanding is that if the transaction is handled by a life insurance agent, the leasing arrangement of outstanding policies is available only in conjunction with the sale of new insurance, the service company receives a commission on the new insurance written, and the new issuing company must reinsure part of this new insurance in the third life insurance company, which is closely related to the service company.

Further, since the leasing arrangement is, in effect, term insurance paid for by a level premium, these leasing charges would generally be substantially in excess of one-year term cost in the early years of the lease. Thus on policies which drop out of the agreement in the early years, there should be a substantial profit, and the service company would seem to be protected against loss in later years by the cancellation clause referred to previously. As an example, one of our policyholders whose gross annual premium with us was \$250, was charged \$120 under the leasing arrangement. If he elected to buy back his policy at the end of the first year, it would cost him \$70 more than he "saved." In other words, for this \$130 "savings" he gave up \$15 dividend and \$185 increase in cash value. The loss in the next year would be just about the same.

**MR. HAROLD G. WIEBKE:** Leased life insurance ostensibly involves the sale of existing life insurance to a service company (for a price equal to the policy cash value) with an immediate leasing back of the insurance benefits to the original policyholder for a level annual charge. The IRS could be expected to look beyond the "purchase, lease-back" appearance of the arrangement and conclude that what is really taking place is borrowing on the security of the policy. It seems likely that at least a part of the annual charge can be considered to be interest on a loan, which may, therefore, be deductible from the policyholder's income in determining his income tax.

I'd like to consider the effect on leased life insurance of Section 264 of the tax law and of the supporting regulations which were adopted Novem-

ber 23, 1964. The law and regulations essentially provide that, with certain exceptions, no deduction shall be allowed for interest paid or accrued on indebtedness incurred to purchase or continue a life insurance policy if such borrowing is part of a plan of purchase which contemplates systematic borrowing against the policy. The regulations provide that a systematic borrowing plan will be deemed to exist if there is borrowing in connection with premiums for more than three years—in that event the burden is on the policyholder to demonstrate otherwise.

The exceptions are, briefly, (1) the 7-year exception—if premiums for 4 out of the first 7 years are paid without borrowing; (2) the \$100 exception—if the deduction will be no more than \$100; (3) the unforeseen events exception—indebtedness incurred because of an event not foreseeable at the time of purchase of the insurance; and (4) the trade or business exception—indebtedness incurred in connection with trade or business (note that the regulations rule out of this exception, key man insurance, split-dollar insurance and stock retirement plans).

This law is applicable to contracts purchased after August 6, 1963. The regulations state, however, that a contract entered into on or before August 6, 1963, but purchased or acquired in a transaction after that date, is subject to the new law. It seems quite possible that the purchase, lease-back transaction could be held to involve such a purchase, and this would make the leased life insurance subject to the regulations even if the policy was originally issued on or before August 6, 1963. It would appear then that the only way any interest charges involved could be deductible would be if one of the exceptions was applicable. Neither the 7-year exception nor the unforeseen events exception would seem to be possible, so only the \$100 exception and the trade or business exceptions are available for this purpose. Thus leased life insurance probably should not have appeal to a policyholder because of tax considerations as to interest deductions.

I might mention that from a review of recent assignments, we find that there are about three or four Equitable Society policies being placed under a lease arrangement each month. These policies are usually of small size—\$10,000 or so—which could indicate that tax concerns are not factors in the policyholder's decision to lease. From the addresses involved, it appears leasing proponents are active in only about four or five spots in the country. There is no indication that this basis is spreading to other areas of the country.

**MR. ERNEST J. MOORHEAD:** Mr Crowther has made it clear that if the policyowner buys back at an early duration, he loses under this arrangement. I am wondering whether we can be sure that he also loses if he

continues the leasing procedure for the whole 20 years. Let us assume for this purpose that the insured himself cannot get a federal income tax deduction for any part of the leasing charge that he pays.

It is important that we satisfy ourselves that we are conducting our business in such an expert and economical fashion that no intermediary can step in and give our policyholder a proposition that is superior to ours whether it be through higher investment yield with comparable security or through lower charges for term coverage of indebtedness.

MR. CROWTHER: In the example which I cited, the policyholder would lose under the leasing arrangement no matter when he decided to buy back his policy or eliminate the indebtedness. The loss would reach a maximum of about \$485, or 4 years' leasing charge, at the end of 14 years. But even if it appeared at the outset that he would have a lower cost under the leasing arrangement at the end of 20 years, that is not of too much significance because the policyholder has no guarantee that the agreement will be continued for the full 20 years of the lease. This, of course, is because in the leasing agreements which we have seen the service company has the contractual right to terminate the lease during the term of such lease.

*Denver Regional Meeting*

MR. ROBERT C. TOOKEY: There are two types of policy leases: (1) the lease-buy back agreement that would apply to an old policy and (2) the lease agreement with option to purchase which would apply to a new policy just being written. The calculation of the lease charge is the same in either case. The total lease charge is made up of (1) the total loan interest on the cash value, (2) the total cost of increasing term insurance equal in any year to the cash value of the policy, (3) the difference between the total gross premiums payable and the total increase in cash value of the policy during the lease period, and (4) an expense and profit factor. The annual lease charge is simply the total lease charge divided by the term of the lease.

In the lease of an existing policy the policyholder simply assigns his policy to the leasing company which then pays him a consideration equal to the cash value reduced by any loans against the policy. The first annual lease charge may also be deducted for the convenience of the policyholder who now becomes the lessee. The normal lease runs for 20 years, although the lessee may recover his policy at any time during the term of the lease by simply paying to the leasing company an amount equal to the cash value. At the end of the lease period, the lessee may either renew the

lease at a new rate, recover his policy in the manner previously indicated, or allow it to terminate on a full loan lapse. The latter result would obtain in event of default during the lease term.

With either a new or an old policy under lease, upon death of the insured, the beneficiary receives the full face amount of insurance. This is effectuated through the use of an individual credit life policy on the yearly renewable term plan which provides an amount of insurance equal to the cash value at the time of death. This credit life insurance offsets the reduction in face amount of the fully encumbered policy itself. Although the assignment is absolute in form, the insured is normally granted the right to change his beneficiary.

The advantages and disadvantages of leased life insurance are similar to those applicable to minimum deposit life insurance. From a net cost standpoint, the annual lease charge on a 20-year lease compares quite favorably with the average 20-year net cost under a whole life with return of cash value policy. On the other hand, the annual lease charge is somewhat higher (up to 20 per cent at issue age 30) than the annual premium for a 20-year level term policy. The causes of this are the same as the factors causing a similar difference in the case of minimum deposit insurance; the annual interest charge, at a rate higher than the interest rate in the reserve; the higher commission (the dollar amount, not the percentage) paid to the agent; the fact that the premium rate on a high cash value policy must often contain an additional margin to absorb the losses resulting from early withdrawals. Despite the difference in cost, leased life has some attractive features. For example, if the insured were to convert his 20-year term policy at the end of the term period, he would probably have to get along with the low early year cash values which would not be the case on a permanent policy taken out 20 years earlier. Also, in the latter case he would have valuable settlement options that might not be available on a converted policy. The tax treatment of interest paid could result in a more favorable net cost under the leased policy than under the 20-year term.

One attractive feature of the leasing arrangement is that the total annual outlay is level. In other words, the lessee is paying interest in advance over the first half of the lease term which will later cover the interest deficiency that would arise in the second half. With minimum deposit insurance the outlay may be quite nominal in the early years but increase to a rather high amount at the later durations where the interest on the cash value becomes a very material sum.

Regular underwriting rules apply in the case of leasing either a new policy or an existing one. The volume of leased life insurance sales is quite

nominal because of the newness of the concept. Well over 50 per cent of leases are made on old policies, and at least half of these policies are already encumbered by loans indicating that leased life insurance would appeal to the policyholder who is accustomed to borrowing his cash value for various purposes.

MR. HENRY S. HUNTINGTON III: Mr. Tookey, do you know whether the question has been put to Internal Revenue as to the degree to which the lease charge may be deducted?

MR. TOOKEY: In the case of policies issued prior to August 6, 1963, the company that performs this leasing service thinks that the entire lease payment is tax deductible. The four-out-of-seven rule may apply to policies issued after that date. Any prospective lessee would be wise to check with his own tax counsel.

MR. T. ARNOL CROWTHER repeated the discussion which he had presented at the New York regional meeting.

*Agent Training and Support*

Has greater emphasis on the development of the "higher income market" produced problems of coordination between actuarial and agency departments, with regard to

- A. Increased complexity of agent training?
- B. The creation of units in the home-office agency or actuarial departments to deal particularly with business insurance and estate planning proposals?
- C. What techniques are used, such as computer-prepared programming guides or sales illustrations?

*New York Regional Meeting*

MR. MANUEL R. CUETO: About 10 years ago at the New York Life, we took a long stride forward in recognizing the complexities of this market by revising training methods and establishing formal courses in business insurance and estate conservation planning which were made available to agents and men in agency management. These courses, together with the necessary training material, were prepared by our advanced underwriting unit of the marketing department in close cooperation with our legal and actuarial departments.

In addition to this training and education, various types of sales illustrations are prepared by our computers to assist the agent in the higher income market.

The sales illustrations in connection with business insurance and estate conservation proposals may be divided into two groups. The first group is concerned with all-age illustrations for all leading plans which are prepared in booklet form and are changed only when dividend scales are changed or a new policy edition is introduced. This group includes such illustrations as Split-Dollar, which is associated with the fifth dividend option, and our so-called Whole Life Computer, which gives not only premiums, cash, and nonforfeiture values and dividend illustrations year by year but also a ledger statement tracing the financial results of the policy each year for the first 20 policy years from the point of view of the policyowner.

The second group involves illustrations, prepared for specific applicants at the agent's request, which are computed about twice a week depending upon the number of illustrations requested. Under this group we have our so-called Nyl-A-Tronic and Personalized Sales Illustrations—both of which were introduced last year.

Nyl-A-Tronic is a new electronic programming service designed to aid our field underwriters in answering specifically the broad question: How



much life insurance is enough? The agent supplies on a request form especially prepared for this purpose such information as

- a) Birth dates of applicant, wife, and children.
- b) Social Security coverage.
- c) Government insurance.
- d) Present life insurance.
- e) Cash and income needs of prospect's family at his death.
- f) Retirement needs of the prospect.

With these data the computer prepares a complete and accurate insurance program detailing how much life insurance is needed to meet the applicant's requirements and how the settlement options of such insurance should be arranged in event of the prospect's death or upon his retirement. The results are printed out by the computer in an attractive and easily understood form with the applicant's name. Further details regarding this program are given on page D293 of Volume XVI, Part II, of the *Transactions*.

Personalized Sales Illustrations are prepared in our company for nine main plans of insurance in six different types of illustrations for almost any amount of insurance up to one million dollars, or any odd or even amount of premium within the policy's underwriting limits or the limits of the illustration. Illustrations are prepared for the first 20 policy years and include the following types.

- a) Savings Type
- b) Accumulated Dividends Statement
- c) Dividend Additions Statement
- d) Insurance Account
- e) One-Year Term Dividend Option
- f) "Keogh Law" Illustration

The field underwriter makes his request for these types of illustrations on a form which when properly completed furnishes the necessary information with respect to the applicant and indicates the type or types of illustrations desired. The results are printed out in an attractive format, one sheet for each type of illustration.

This program has also been well received by our field men. Since January 1 of this year, the number of Personalized Sales Illustrations prepared by our computers has averaged about 2,100 per week.

**MR. JOHN J. MARCUS:** The change in the Prudential rate book from a 350 page pocket-sized publication to a 1,000 page volume with  $8\frac{1}{2}'' \times 11''$

pages evidences the increased complexity of the agent training process. Tax-sheltered annuities, Keogh plans, business insurance, and estate insurance have become commonplace.

Proper agent training has required increasing coordination between sales, law, and actuarial personnel. In our shop we have had to take measures to better train unit managers so that they are better prepared to cope with agents' problems.

About one year ago, advanced underwriting units were formed in our Ordinary agencies in regional and corporate capacities. Referrals to the Actuarial Department increased in varying degrees in our Regional Home Offices depending on the activities of the advanced underwriter in the Sales Department. It has been suggested that the respective duties of the Actuarial and Sales Departments be defined as shown below.

## ACTUARIAL DEPARTMENT

## SALES DEPARTMENT

## CORPORATE RESPONSIBILITIES

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| <ol style="list-style-type: none"> <li>1. Develop new and revised products in accordance with decisions of Marketing Committee and Policy Plans and Rates Committee.</li> <li>2. Prepare rate books, field office reference books, ledger statement binders, etc.—includes design, content, preparation, and distribution.</li> <li>3. Review training material and sales promotion material for actuarial soundness and accuracy. On request, furnish technical assistance in preparation of material.</li> <li>4. Furnish Regional Home Offices with competitive comparisons of major plans of major competitors.</li> </ol> | <ol style="list-style-type: none"> <li>1. Furnish advice and suggestions to aid Actuarial and New Business Dept. in developing salable products.</li> <li>2. Work closely with Actuarial and New Business Dept. with respect to design, content, and distribution of rate books, field office reference books, etc.</li> <li>3. Design, prepare, and distribute training material. Work with the Public Relations and Advertising Dept. in design and preparation of sales-promotion material.</li> <li>4. Conduct training meetings of Field Force in advanced underwriting areas.</li> </ol> |
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## REGIONAL RESPONSIBILITIES

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| <ol style="list-style-type: none"> <li>1. Prepare competitive comparisons which must be presented in a more elaborate format than can readily be calculated in the field.</li> <li>2. Prepare year-by-year type illustrations which are not programmed for the computer and which would present problems to the field even</li> </ol> | <ol style="list-style-type: none"> <li>1. Design, prepare, and distribute training material. Work with the Public Relations and Advertising Dept. in design and preparation of sales-promotion material.</li> <li>2. Provide advice and assistance to Field on specific cases regarding competition, estate planning, busi-</li> </ol> |
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- if they were furnished with the figures.
3. Review for actuarial soundness and accuracy training material and sales-promotion material prepared for distribution to Field in individual RHO's. On request, furnish technical assistance in preparation of material.
- ness insurance problems, tax implications of various arrangements, etc. Actuarial and New Business Dept. is available for technical consultation when necessary.
3. Conduct training meetings of Field Force in advanced underwriting areas.

There has been increasing emphasis on home-office preparation of illustrations for agents to present to prospects. Taking advantage of computer programs which were available, we now prepare illustrations on a ledger statement basis, a keyman deferred compensation form and the Split-Dollar plan. Dividends may be shown as purchasing one-year term insurance or paid-up additions, or as being used to reduce premiums, or with a combination of these uses.

The computer will produce these illustrations for any of five policy forms. We require that the proposed amount of insurance be at least \$20,000. Requests received in the home office can be acted upon and mailed out the next day. Illustrations are being prepared currently at the rate of 400 per week. There is no charge to the agent, but we do exercise control through a system of managers' reports.

**MRS. ANNA MARIA RAPPAPORT:** At the Standard Security Life, special ledger-sheet illustrations are prepared by the Actuarial Department on data-processing equipment, reproduced, and mailed to all general agencies.

We do not plan to do programming by computer. We feel that programming should be done on an individualized basis because the majority of the field force would not understand a long and complex computer-prepared illustration, and only a complex illustration can handle programming effectively.

**MR. J. STANLEY HILL:** I am concerned about the cost of the services we provide in terms of the amount of insurance sold which would not otherwise be sold without those services.

*Denver Regional Meeting*

**MR. BENJAMIN R. WHITELEY:** At Standard Insurance Company the problems created by emphasis on the "higher income market" generally have not been problems of coordination between actuarial and agency departments, but rather problems of expense. The cost of provid-

ing advanced underwriting service for agents may be substantial. At Standard, direct costs, that is, costs exclusive of overhead expenses of advanced underwriting services amounted to \$0.60 per thousand of new insurance issued in 1964.

Advanced underwriting services provided by the company for agents include:

1. Direct help in proposal preparation and sales presentations through a specially organized department in the Sales Division. Actuarial and legal support are sometimes asked for and given the department, but generally the department is considered a sales department and is staffed with sales administration personnel. So far, no use has been made of the computer in preparation of sales proposals; however, computer applications are under consideration.
2. Specialized training of agents and managers. Annually, the company holds an advanced underwriting forum for which agents qualify by meeting certain production requirements. The requirements are such that about 25 per cent of our agents and all agency managers qualify to attend this forum each year. At these forums business insurance, pensions, and estate-planning methods are examined in detail. Additionally, agents and managers are continually urged into the LUTC and CLU programs. The company pays the cost of the agent's participation in these programs.
3. Preparation of specialized sales manuals. Trying to develop efficient rate manuals which service the needs of agents operating in the lower as well as the higher income market has been difficult. Just a few years ago we published a small rate manual, which contained premiums and guaranteed values, and another small one which contained dividend information. Now these have grown into (a) a large  $8\frac{1}{2}'' \times 11''$  size loose-leaf manual; (b) a larger "small manual" than we used to have; (c) an  $8\frac{1}{2}'' \times 11''$  manual containing complete extensions of dividend information; (d) a separate ordinary life book showing ledger cost statements; (e) a small separate manual for simplified selling of a specialized sale of our Multipurpose ordinary life plan; (f) a separate health insurance rate book. In short, what used to be done with two rate manuals has now multiplied to six.

MR. WILLIS J. LUTZ: The Minnesota Mutual has created several special units to work in the specialized sales areas. In the Agency Department, there are two such units—an Advanced Underwriting Group and a Professional Sales Group. The special unit in the Actuarial Department lends support to these two units and, in addition, handles all special quotations coming directly from agents.

Regular and Split-Dollar ledger sheets are prepared by computer. To date we have resisted programming estate analysis work because we are not convinced that the results justify the cost. As a matter of fact, there is underway an attempt to measure the results obtained from the current

expenditures involved in the sales support unit. All agents requesting help have been asked to report whether or not a sale resulted. This procedure has not met with overwhelming cooperation on the part of the agents. We are seriously considering a basis where future assistance to any given agent is contingent upon proper reporting on the outcome of prior assistance.

MR. ALEXANDER MARSHALL: There is an organization which will, for \$1.00, prepare a program so that the agent can get the specifications of a prospect's insurance program and his needs. The agent enters certain information on pre-printed sheets and mails them to this organization. Within a week he will get back a program sheet which will outline the prospect's insurance needs. This service has the advantage of an objective third-party appraisal. It likewise solves the question of cost. If the agent pays for it, he will use it only when necessary.

MR. T. ARNOL CROWTHER: With respect to agents' training, I think that actuaries should become well acquainted with the course of study required of chartered life underwriters. The program is most comprehensive and up to date. Many excellent texts on law, trusts, economics, estate planning, sales psychology, business insurance, and financial management are included in the syllabus. It might be well for some actuaries to take these examinations themselves.

*Participating and Nonparticipating Business*

What are the actuarial principles involved in

- A. Issue by mutual life insurance companies of nonparticipating life insurance policies and nonparticipating deferred and immediate annuity contracts?
- B. Determination of the amount of profits on participating business which is to be retained for stockholders of a stock life insurance company?

*New York Regional Meeting*

MR. DANIEL J. LYONS: I have found two references to what might be considered actuarial principles involved in the issuance of nonparticipating insurance by a mutual company. The following is an excerpt from the Armstrong Report.

If the premiums are charged at a lower rate than the actual cost of carrying the insurance including a fair share of expenses, it is an imposition upon the other policyholders who must contribute to pay the difference. If, on the other hand, the premiums are at a rate higher than that demanded by the cost of carrying the insurance, the excess is without excuse and those who take the policies are overcharged and are deprived of the returns to which they should be entitled. In short, the nonparticipating policy issued by a company doing business upon the mutual plan can be justified only upon the supposition that the exact results of the business can be foreseen and the premium adjusted accordingly. This, of course, is an impossibility. The business of companies conducted upon the mutual plan should be exclusively mutual.\*

I have also found the following in J. B. MacLean's book on insurance:

In New York domestic mutual companies are restricted to the issue of participating policies. The reason for this law was, apparently, the idea that some inequity might arise in the cost as between the two classes where both were issued by the same company. It is difficult to see, however, how that could happen at least in a mutual company. The nonparticipating policyholders, with policies calling for a fixed annual premium or cost, have no concern with the profits or losses of the company so long as it is solvent and able to meet all its obligations. The participating policyholders, in a mutual company, should properly get the benefit (in increased policy dividends) of any profits on nonparticipating business and, similarly, should stand any losses. As already pointed out, nonparticipating business in a mutual company (sale of nonparticipating annuities) is in the nature of an investment by the participating policyholders, from which they hope to derive profit but may sustain losses.

In Canada, mutual companies may issue both par and nonpar. The same is true in the United States except for New York and New Jersey, the latter by a ruling of the Commissioner of Banking and Insurance. The actuarial principles involved in the issue of nonpar policies by a mutual

\* Also referred to, in part, by Mr. E. S. Jackson and Mr. Arthur Pedoe.

company appear to me to be the same as those that apply to all policies written by life insurance companies. Each contract must be soundly financed, and the issuing company must be strong enough to carry it out even when confronted with substantial deviations from averages.

The two major life insurance trade organizations have supported a proposed statute in New Jersey permitting either a stock or mutual company to issue both par and nonpar policies, provided that the right or absence of right of participation is reasonably related to the premium charged; that the policy indicate on its first page whether it is par or nonpar; and that the insurer is not otherwise in violation of sections relating to separate accounting of par and nonpar policies, unfair discrimination, or rebates.

Some of the reasons advanced against writing nonpar insurance by mutual companies are:

1. The concept of mutuality is breached.
2. Any significant increase in nonpar insurance might lead to less liberal treatment (for all companies) under Phases 2 and 3 of the Federal Income Tax.
3. Issue of nonpar policies by mutual companies could be misleading to policyholders.
4. Par policyholders might subsidize the nonpar insurance.
5. Mutual companies might write nonpar insurance as loss leaders.
6. Issue of nonpar insurance by mutual companies might lead to separate accounting requirements for all companies in reporting to the statutory bodies.
7. The surplus of mutual companies, ordinarily smaller than for stock companies, would not provide the proper margin of safety.

With respect to Section B, again there are no special actuarial principles involved. Determination of the profits for the stockholders is entirely a matter for stockholders to decide. Calculation of earnings on each class of business must follow well-known actuarial and accounting principles which have been used by mutual companies for many years. There are, however, some nonactuarial questions involved. A principal consideration is whether the agent might mislead the policyholder as to the profits. Some regulatory bodies have become concerned about this, and recently the New Jersey Department issued a letter requiring each stock company to limit the portion of par policy profits that can inure to the benefit of stockholders, not, apparently, based on actuarial principles, but instead, on the conviction that there should be a full disclosure to the policyholders of the company's intentions.

**MR. E. SYDNEY JACKSON:** It is common for mutual companies in other countries to sell par and nonpar insurance, for example, in Canada, the United Kingdom, Australia, and South Africa. The opposition in some

quarters in the United States to this practice apparently stems from the Armstrong Investigation, but any attempt to determine the principles involved by reviewing this opposition leaves one in confusion. The Armstrong Committee felt that stock as well as mutual companies should be forbidden from writing both par and nonpar insurance, and their criticism was of nonpar insurance as such rather than a criticism of nonpar insurance sold by companies offering both par and nonpar insurance.

In 1927 the New York Superintendent of Insurance said, in writing to a stock company, that if the nonpar premiums are too low the par policyholder will suffer, whereas if the nonpar premiums are too high the stockholders benefit. In other words, the par policyholder receives no compensation for the risk he takes. One might conclude that if the par policyholder were compensated, there would be no objection. As this would be true in a mutual company—since nonpar profits inure to the benefit of the par policyholders—it is surprising that New York permitted stock companies to write both lines of insurance in 1955 but continued to refuse permission to mutual companies.

The actuarial principles involved in a mutual insurance company's writing nonpar contracts are no different from the actuarial principles involved in any insurance company's writing one or more lines of business. However, I would like to comment on two questions which have been raised regarding this problem.

1. *Should par policyholders be exposed to the risk of losses on nonpar business?*

The view that they should not must surely rest on the assumption that there is no such risk in writing par, or a much lower risk than in writing nonpar. But this is not necessarily so. Competitive pressure has forced mutual companies to reduce participating premium margins, particularly in group insurance where some mutual companies issue "participating" policies with premiums at the same level as the best nonpar premiums. Mutual companies coinsure nonpar policies; under current state regulations they are forced to call the coinsurance participating and hold out the prospect of a dividend. In a number of states mutual companies are permitted to invest in the common stock of stock life insurance companies and to have wholly-owned subsidiary stock insurance companies. There, mutual company par policyholders are exposed to the same risk of loss as if the mutual were permitted to write nonpar insurance directly.

2. *Equitable treatment*

It has been suggested there would be a tendency for mutual companies to issue nonpar insurance at inadequate rates at the expense of par policyholders' dividends. Is it more inequitable for par policyholders to sub-



subsidize nonpar policyholders than for one line of par policyholders to subsidize another par line? The actuary should insure that each line will be self-supporting. If one line of business has a greater risk of loss, the actuary should make a charge in the premiums for this risk so that a greater contingency reserve will be built up to protect the line against the loss expected.

From a regulatory point of view there seems to be nothing unique about nonpar insurance. If regulatory authorities can supervise companies to see that all the different classes that can exist within a single company (individual, group, A and H, annuities) are treated equitably, the addition of nonpar policyholders in a mutual company should not raise any new problem.

**MR. EDWIN B. LANCASTER:** A complete answer to this question is that there is no difference in actuarial principles between par and nonpar policies and contracts. In either case, the actuary must assume responsibility for (1) adequacy of premium rates, (2) analysis of experience, and (3) interpretation of results.

Since there is no difference in the basic actuarial principles involved, we turn to the application of these principles and related considerations.

In the case of nonpar business, whether issued by a stock or a mutual company, the margins in the premium rates for a new line of policies must be adequate in the light of foreseeable future experience. Each new policy series must be considered anew in this regard at the time it is introduced. Premium rates contain modest margins for contingencies and profits, which, over the lifetime of the policies, are expected to be somewhat more than adequate to provide for contingencies. The actuary must determine, in the light of experience on a line of policies, for how long margins should be accumulated before profits may begin to be released for the benefit of stockholders in a stock company or for the benefit of the company as a whole in a mutual company. This basic question of how much can be safely released faces the actuary throughout the whole time the policies continue in force.

In the case of par policies, the actuary's objective is to set premiums for each class of policy at such a level that dividends can be paid throughout the period the policies continue in force. Ordinarily, for par policies it is desirable to begin payment of dividends shortly after issue. Since this permits little time for premium margins to accumulate surplus, premiums for par policies should contain somewhat more margin than nonpar premiums. Furthermore, it is especially important for this business that premiums for each dividend classification be sufficient to provide reason-

able margins out of which dividends can be paid throughout the period the policies continue in force, since otherwise the fundamental requirement that each class of policy will be charged only for its own cost of insurance will break down.

Thus we see, from considering each type, that the basic actuarial principles are the same for par and nonpar business. Tracing the experience and following the surplus earnings and the surplus to be accumulated which is required for nonpar business from the standpoint of company profits has its counterpart in determination of dividends to be paid to par policyholders. If anything, the analysis of par business must be even more detailed and complete than for nonpar business, for each class of par policies has an equal right to dividends which carry through the fundamental concept of participation that each class of policies is charged only for its own cost of insurance.

All the foregoing applies with the same force to annuities as to life insurance. The actuarial principles are the same.

There are many kinds of policies and annuities which should be issued on a nonpar basis not only from the standpoint of administrative simplicity and some small economies in operation but also in a very real sense to best serve the interests of policyholders.

In summary, Metropolitan supports the thesis that mutual companies should have the right to issue nonpar as well as par policies and annuities.

**MR. ARTHUR PEDOE:** Throughout my career in England and Canada I have always been associated with companies which wrote both par and nonpar business. I have always been intrigued by the law of New York which prohibits a company writing both par and nonpar business within its borders and restricts a mutual company to writing participating business only.

I think it a pity that this as well as other "life insurance commandments" proclaimed following the monumental Armstrong-Hughes investigation have not been dealt with at Society meetings by a panel.

In Canada the federal law to which all but a few companies are subject insists on a separate accounting between par and nonpar business. In a stock company the shareholders are entitled to the whole of the profits of the nonpar business but to a defined and limited proportion of the profits from participating business: 10 per cent for the smaller companies, decreasing to  $2\frac{1}{2}$  per cent for the largest.

In Britain there is no law on the subject, each company's practice being determined by its articles of association; but the general practice is for all profit, both par and nonpar, to go into the same pool and—with a stock

company—for shareholders to be limited to 10 per cent of the divisible surplus. The largest British company has for several years voluntarily reduced the shareholders' proportion gradually until according to the latest accounts the proportion of profits allotted to shareholders has been 6.2 per cent.

What are the actuarial principles behind these limitations? For many years, say, over a century, it has been accepted that life insurance was a special class of business. I have always understood that the early stock life insurance companies realized this or found it necessary or desirable for competitive purposes to allow policyholders to participate in the profit earnings and otherwise limit the profits to be paid to shareholders.

I must confess that I have always been of the opinion that when you deal with contracts which may extend for fifty years or longer, some adjustment of the contract in accordance with changing conditions is essential. This justifies par contracts whether written by a stock or a mutual company. On the other hand, should one tie a company's hands so that it cannot issue nonpar business of any kind? The prohibition of nonpar business might result in a company writing more than one kind of par contract with differing rates of premium.

There is an aspect of the problem which has become of major importance in recent years—that of annuities. Throughout the two centuries that life insurance has become an established business it has been favored by continually reducing rates of mortality. On the other hand, annuity business has always been a source of frustration. While annuities were a minor part of the life insurance business, this was not of importance.

At the end of 1963 the group annuity liabilities of U.S. life insurance companies represented 16.3 per cent of their total liabilities, whereas at the end of 1956 they were only 12.6 per cent, the increase representing an increase of \$8½ billions in the seven years. Taking the ten largest Canadian life insurance companies, annuity liabilities at the end of 1963 represented 30 per cent of total liabilities.

With the high interest earnings of life insurance in recent years, undoubtedly nonpar business has been very profitable. There is a temptation to assume that these high interest rates will continue and base premium rates and long-period guarantees on them. The principle which the Armstrong-Hughes report tried to establish—that one cannot determine the cost of long-period life contingency obligations—becomes of major importance when annuity obligations of the magnitude we have described are concerned and where, historically, actuaries have always been on the wrong side of the fence.

MR. HARRY WALKER: The introduction of the investment-year method for allocating investment income has highlighted the desirability of mutual companies issuing their immediate annuities on a nonparticipating basis, and this was one of the considerations which led my company to switch from participating to nonparticipating immediate annuities.

We had in mind that annuitants could be misled as to the meaning of dividend illustrations under a participating immediate annuity with rates based on the "new money" net yield on investments. The dividends in future years are not likely to be much affected by changing investment rates as the new money rate in the year of purchase should largely govern. Any change in expense rates is likely to be in the direction of increased rather than reduced expenses and in any event the bulk of the expense is incurred in the year of issue. Furthermore, the history of annuitant mortality would hold out little hope of an increase in dividend scale arising from the mortality factor.

What, then, is the agent to say to his prospect as to the meaning of the dividend illustrations appearing in his sales proposal? Should he refer to the possibility of future dividends being greater or less than those illustrated at issue, or should he say that dividends could go down but are not likely to go up?

MR. ALTON P. MORTON: The sales popularity in the same company of nonparticipating may become relatively greater than for participating insurance. This I illustrate by what was the common experience of such companies during the depression years of the thirties. The attitude then of many buyers of insurance favored the lower gross premium outlay of nonparticipating insurance. This was because the economic outlook seemed so uncertain to so many people that a guaranteed cost seemed more important than the possibility of dividends under participating insurance which *might* ultimately result in a better average net cost over the longer range.

The effect on the companies was a nonparticipating new business strain. Its financing brought some difficult problems for management of both stock and mutual companies.

Needless to say, insurance company managements shared some of the widespread feelings of uncertainty as to the economic future, including some degree of concern for the adequacies of gross premiums, especially for nonparticipating insurance.

My other point is to draw attention to the historical fact that nonparticipating business of this era did eventually pay its way and, in fact, resulted in a very satisfactory level of profits in most companies.

Some conclusions to be drawn from these facts are that a mutual company doing both a par and nonparticipating business may find that its nonpar insurance business venture on behalf of its participating policyholders may yield profits which will emerge in very uneven amounts over a long period of years. Management judgment of a high order is needed if these profits are to be distributed equitably.

For a stock company the risk capital is furnished by the stockholders. At a time when for any reason its nonparticipating business becomes extremely popular, a stock company's management may find itself on the defensive with its stockholders because of negative earnings arising from the heavy nonparticipating new business strain. This possibility of criticism will be greater should the general economic outlook at the time be very uncertain.

My personal conclusion would be that a stock or a mutual company may properly issue both participating and nonparticipating insurance and annuity contracts. Satisfactory actuarial and accounting techniques do exist to assure that fair treatment can be accorded to both types of policyholders and to stockholders.

*Denver Regional Meeting*

MR. THOMAS B. MORRISON: The principles that result in most mutual life insurance companies' issuing immediate annuities on a nonpar basis are, I think, practicability and common sense. Immediate life annuity reserves decrease with duration so that over a period of time surplus derived from excess interest tends to diminish. With a typically improving annuitant mortality and small loading margins at issue, surplus earned on immediate life annuities decreases over the years. Even where small increments of additional annuity are purchased with the surplus, it is difficult to get a satisfactory basis for distribution of dividends, and because of the nature of the contract, dividends at the longer durations would appear to be paid to the wrong people.\*

The same principles apply to deferred annuities after income commences. In some states, such as New York, mutual companies can issue deferred annuities nonpar after the period of deferment. In other states mutuals may sell all annuities on a nonpar basis. I have never heard any concern expressed about the possible adverse effects of such a practice on the general body of par policyholders. In some mutual life insurance companies reserves for nonpar annuity contracts add up to a substantial proportion of total reserves.

While it is widely accepted that mutual companies can sell nonpar an-

\* Mr. L. S. Norman concurred.

nuities and, in many states, A and H, and accept reinsurance on a nonpar basis, there is a ban in some states on the sale of nonpar ordinary insurance by mutuals. Since 1945, however, fourteen states plus Puerto Rico have included a specific statutory provision authorizing mutual companies to issue both par and nonpar life insurance policies. Furthermore, it is possible through existing practices for mutual companies to issue nonpar life insurance in at least seventeen additional states.

Are there any actuarial principles supporting the position that it is quite proper for a mutual company to sell nonpar immediate annuities and other nonpar contracts in certain situations, but not ordinary insurance on a nonpar basis? If so, I have not discovered them. In my view, actuarial principles are the same, and the actuary's responsibilities run along similar lines no matter whether the life company is stock or mutual or the insurance is par or nonpar. In all these areas the actuary is concerned with interest, mortality, expense, and contract persistency for the purposes of rate-making and for the ascertainment of surplus earnings.

MR. RICHARD H. TALLMAN: Those who spoke on this topic at the New York meeting last week were pretty generally of the opinion that there were no actuarial principles involved. I suppose the meaning of "actuarial principles" is a matter of definition. Before that meeting I had about concluded that the actuarial principles involved in the conduct of the two lines of business—par and nonpar—probably revolve around the interest, mortality, expense, and lapse factors which form the basis for the calculation of premium rates and determination of dividend scales. My comments are therefore directed to each of these items and in particular the way Northwestern National handles them.

First, as to interest. Under our financial structure, the company's investments are not segregated between the mutual and stock branches but are a single fund owned jointly by the two branches. The effect is that each branch has the same net interest rate earned as the total company.

Second, as to mortality. Theoretically, mortality rates experienced in each line should be reflected in premium rates for that line. Practically, mortality rates are more likely to vary between plans of insurance than between par and nonpar on the same plan. Our company's practice is to use the same select and ultimate mortality table for all individually underwritten plans of insurance in both branches, the table being derived from combined experience.

Third, as to expenses. Some obvious differences in expenses occur between par and nonpar policies, such as premium taxes and commissions, which are percentages of the gross premium. Such items of expense are

charged directly in calculating rates and dividends. Less obvious and more difficult is the allocation of overhead expenses where the expense is not directly related to one line or the other. We have concluded that differences in unit expense factors between the two lines have not been great enough to justify separate expense factors. We therefore use the same unit expenses for both lines.

Fourth, as to lapses. Again as a practical matter, since we do not usually distinguish between plans of insurance in applying lapse rates, we do not distinguish between lines of business.

Another principle is the one of consistency between net costs for the two lines. As in many areas of our "scientific" profession, whatever the theoretical actuarial principles are, they must be applied with a considerable leavening of practicality, the goal being an end result in terms of net cost to the policyholder which will do equity to both policyholders and stockholders. Perhaps the *doing* of equity *is* the actuarial principle involved.

On Part B, the answer in our company is very simple. The amount of profits on par policies which can be retained for the stockholders is zero. Similarly, no profits from the nonpar policies can be used for the benefit of par policyholders. This has all been determined by the terms of the company's charter and is carefully enforced by our home state insurance department.

More generally, it seems to me that the principles involved are not so much actuarial as they are accounting principles, since the processes involved in determining the profits on each line are primarily cost accounting, expense allocation, and related processes.

MR. RALPH H. NILES: I believe you indicated that the participating insurance had a lower net cost. At what point did that develop?

MR. TALLMAN: It is anywhere from two to twelve years before the particular year's participating net cost is less than a nonparticipating cost in my company.

MR. LALANDER S. NORMAN: The American United Life is a mutual company formed by merging a stock company and a mutual. For about fourteen years following the merger, the company issued both par and nonpar policies because of practical necessity. Agents of the former stock company could not be expected to change suddenly to the sale of par insurance since all their training had been along nonpar lines.

To minimize the differences and the problems of equity between par and nonpar policyholders, gross premiums for par policies were kept

relatively low and the dividend scales relatively flat, the latter by use of a two-factor dividend method in which the experience premium was computed at an interest rate high enough to leave relatively little excess interest to be distributed by the second factor.

This treatment kept par asset shares relatively close to nonpar, and the same cash values were used for both series. It also eased the transition to the writing of par business by agents of the former stock company by producing net payments in the early policy years that were closer to nonpar premiums than if an orthodox three-factor dividend formula had been used.

During the period referred to, a few states objected to the sale of nonpar insurance by mutual companies, and our company also pushed the sale of par in preference to nonpar policies. By 1950 we were able to discontinue the sale of nonpar insurance without causing any special problems with our field force.

As a matter of general principle, I see no reason why a mutual company should not be authorized to engage in the sale of nonpar insurance, if it is done under circumstances that can be expected to benefit mutual policyholders. For term coverages, particularly where the term is short or the amount of insurance is rapidly decreasing, there is relatively little need for the safety margins that might be provided by high premiums, since there will be relatively little time for conditions to change from those that prevail at the time of issue. Sudden swings in mortality experience, such as might be produced by war, epidemic, or other catastrophe are generally expected to be covered by surplus or other contingency reserves rather than by reliance on the margin contained in current premiums. The largest long-term swings in the cost of meeting obligations on policies other than term are likely to result from changes in the rate of interest earned. This element is relatively minor in the term coverages. At American United Life our term policies have low gross premiums and small margins for dividends, in keeping with the foregoing principle. However, reliance on surplus to cover a sudden surge in mortality carries with it the obligation for these policies to contribute to create surplus during normal years.

In the case of deferred annuities, particularly if cash values are present and even more where the buyer has the right to decide whether or not to continue premiums, a par basis seems to be almost a necessity in order to avoid trying to provide insurance against changes in the yield rates on future investments. While we like to sell guarantees, we cannot prudently guarantee for future investments a rate of interest as high as that currently being experienced, and if we can't illustrate the effect of current interest earnings, we can hardly make the annuity attractive enough to sell. Par



annuities with dividend illustrations serve this purpose well. Although annuities do provide many more guarantees than do any otherwise comparable media for investing for future return, the purpose of the annuity is not to serve as a speculation to "beat the game" or to outguess the economy but rather to insure completion of plans and to provide a known income that cannot be outlived.

MR. ALEXANDER MARSHALL: Topic B appears to be somewhat removed from the tenor of the Society motto. The question appears to stem from a foregone conclusion, or a premise, that it *is* proper to so limit the amount of profits on par business, and that there *are* valid actuarial principles involved in such determination. Such a premise is by no means valid; nor is it fully and completely established to the satisfaction of all who are concerned with this problem.

The question should be whether there *ought* to be any such limitation, and, if so, are there any actuarial principles involved? Fully stated, the question would perhaps point out that as recently as December 1964 a special subcommittee of the Laws and Legislation Committee of the NAIC was appointed to inquire whether there is even a *need* for legislation which would specify such a limitation. Perhaps the question ought properly to be broadened to reflect that the limitation derives directly from the major question of the segregation of par versus nonpar accounts, a matter which for six consecutive years has been thoroughly thrashed out, and soundly defeated each time, in the Blanks Committee of the NAIC.

The question asks only for a discussion of the "actuarial principles" involved. Certainly there can be some interesting actuarial ingenuity applied to analyzing the sources of profit of par policies. Complex dividend formulas, projecting dividends for as long as 65 years into the future, have been devised. However, such formulas and the resulting dividends are merely nothing but mathematical exercises. Actuaries and companies are careful to try to avoid any implication that projections are guaranteed for the future. In spite of these professional safeguards, we know that the sale of billions of dollars of insurance each year is based largely on these dividend projections, without ever questioning their propriety because they were made by actuaries using actuarial principles. It might well be expected that dissertations, such as those by Professor Kimball\* and by

\* Professor Spencer L. Kimball, professor of law, University of Michigan. Joint author with Jon S. Hanson, member of the Wisconsin Bar, of "The Regulation of Specialty Policies in Life Insurance," *Michigan Law Review*, December 1963, Vol. 62, No. 2.

Professor Belth\* could be extended to cover the subject of "Nonguaranteed Projections of Dividends to Age 65," or the "Determination of the Amount of Profits on Participating Business Which Is To Be Retained by a Mutual Life Insurance Company." But then any discussion of these topics before the Society would not be proper if it were limited to: "What Are the Actuarial Principles Involved in. . . ."

I think a similar danger exists here. A discussion of the actuarial principles in the Society of Actuaries on such profit limitation as is proposed here, makes it unnecessary to face up to the nasty question of whether or not such a proposal really attempts to dictate management policies or to question just how far-reaching are the effects of such a proposal on the conduct of the insurance business. Thus, it seems to me, that this whole question really reaches to the philosophical and political bases on which our business operates and cannot, in good conscience, be limited to a discussion of the "actuarial principles" involved.

A passing reference to the fact that the Society has discussed the actuarial principles involved in the question at hand, could be *used* to help sell the idea politically that there *ought* to be such limitation or segregation. Not too many people in any one company are closely engaged in the political maneuverings of the industry. Consequently it often is relatively easy to get a professional group to discuss certain aspects of a problem without a full knowledge or appreciation of how what they say can be used later in an entirely different context by those outside the Society.

Some eleven or twelve jurisdictions have some requirements in the par versus nonpar accounting area. A smaller number of these have a limitation on the amount of profits on par business which is to be retained for stockholders. However, in the NAIC Blanks Committee it has been pointed out repeatedly that the proposals affecting the par/nonpar segregation are an attempt to legislate through uniform requirements of the annual statement rather than through the means of duly elected legislative bodies in each of the states, with the right of the industry and other interested parties to be heard by these bodies before adoption of legislation. Those familiar with the history of the NAIC know of no other item affecting the insurance industry which has been handled in a manner such as this, wherein a committee composed of staff members of various insurance departments has persisted in bringing up an item after

\* Professor Joseph M. Belth, Ph.D., assistant professor of insurance, Indiana University. Author of "Participating Life Insurance Sold by Stock Companies," published for the S. S. Huebner Foundation for Insurance Education, University of Pennsylvania, by Richard D. Irwin, Inc., January, 1965.

due deliberation, proper discussion, and determinative action have been taken by the entire body. A number of industry people feel that this is contrary to the usual practices and procedures of the NAIC and borders on harassment. Repulsed so decisively so many times in direct confrontation, the attack now seems to be shifting to an oblique attack via the closely allied question of the limitation of par earnings that may be kept by stockholders of a stock company. Such a proposal if successfully put across would thus gain indirectly what the proponents of the par/nonpar segregation have been unable to accomplish directly, since such limitation would require more elaborate account segregation for supervisory officials than is currently needed. That this highly political and controversial question should be injected into Society discussions under the guise of a discussion of the "actuarial principles" involved is somewhat regrettable.

MR. NORMAN: I would not care to talk about them particularly, but for those who are interested and may not be aware of it, Mr. Marshall made a brief reference to Professor Belth. There is this book in existence, recently published under the title, *Participating Life Insurance Sold by Stock Companies*. It is published by the Irwin Press, and from my perusal of it in a brief period, I got the impression that it had a very good marshalling of a lot of facts as to how many companies issue both types of policies, what the state requirements are in the various states, etc. I think this could be a valuable book. You might not want to agree with the indicated conclusions there because I think he points out the separation of accounts. However, the actual material is good.

*Multiple Interest Rates*

What are the advantages and disadvantages of the use of more than one interest rate (e.g., 3 per cent for twenty years and  $2\frac{1}{2}$  per cent thereafter) for determining reserves and cash values under currently issued participating policies?

MR. J. EDWIN MATZ: Without considering specifically the advantages and disadvantages of the two-interest basis for reserves and cash values, I think I might give you some idea of the rationale behind our adoption of such bases.

About 16 months before the effective date of my company's 1958 CSO program, I had an inquiry from a state insurance department (not Massachusetts) as to whether we had given consideration to such a basis and what we thought about its appropriateness.

My letter of reply said largely this:

We have indeed given some thought to the use of such a basis, although we have not at this point made any firm decisions. There is a logical sequence of thought which leads to the conclusion that a two-interest rate basis might be a very desirable one. Obviously in today's investment market there would be good reasons for adopting, for new policies, an interest rate basis somewhat higher than has been used by most companies in recent years. On the other hand, the political and economic climate is still sufficiently uncertain that a company might well want to be in a position to hold reserves upon a rather conservative basis, if necessary, at some future point, say, 20 years from now. These circumstances would seem to be answered by a two-rate basis, beginning with a rate in the neighborhood of 3 per cent but providing for the accumulation of sufficient funds to hold reserves at the end of 20 years on an interest basis in the neighborhood of  $2\frac{1}{2}$  per cent.

Such provision would not be without precedent among large companies. You may recall Mr. Bassford's paper describing the premium rate basis of the Metropolitan's 1942 rates, in which the stated contract rate was  $2\frac{1}{2}$ , but premium calculations were all made on a lower interest basis, and the projected dividend scales included provision for the accumulation of funds so that, if necessary, reserves in the future could be strengthened with respect to interest. While our thinking in this instance did not stem from that Metropolitan practice, I believe the two cases would be entirely similar except that the Metropolitan then provided for the accumulation of the necessary funds in surplus, while the use of a two-interest rate basis would provide for the accumulation of funds directly in reserves. If a company feels it wise to provide for such an accumulation at all, under the present federal income tax law, the provision should certainly be in the reserve structure rather than in surplus.

In our consideration of this matter, it had not occurred to us that there is any need for approval by any state insurance department of the use of a two-interest rate basis so long as the proposed reserve and cash value structures comply with the minimum statutory requirements in each instance.

I hope this summary will be helpful to you in your own considerations. As I mentioned, we are not prepared to make any submissions ourselves at this time. However, we are continuing our studies, and, if you have any further inquiries, we will be happy to render any assistance we can.

Of course, we realized that a two-interest reserve basis had less flexibility than a single-interest basis augmented by the accumulation of surplus funds. We also recognized the complexities that would be introduced into our calculations but, with present-day computer equipment, these did not seem to be insuperable. On balance, the approach appealed to our judgment as a desirable one.

MR. DONALD B. MAIER: Effective January 1, 1965, Metropolitan adopted the 1958 CSO Mortality Table for its United States business. For this business we began using a dual interest reserve basis, namely, 3 per cent during the first 20 policy years and  $2\frac{1}{2}$  per cent thereafter.

This basis permits recognition of current favorable interest earnings, while making allowance for possible long-range declines in future interest rates. This is of greater importance in connection with the 1958 CSO table, where the mortality margins are smaller than in the 1941 CSO table.

Compared with a straight  $2\frac{1}{2}$  per cent basis, the dual ( $3-2\frac{1}{2}$  per cent) basis produces the following results:

The dual basis produces *lower* premiums, particularly on high premium plans such as short-term endowments.

Dual basis reserves are *lower* in early policy years, but on plans with long premium-paying periods the dual reserves are necessarily higher after the twentieth year and generally higher from about the twelfth year on.

Over the first 20 policy years the dual basis generally produces a flatter scale of dividends. This results from the fact that during the early policy years the reserve accumulations are smaller and in the later policy years the interest requirement (3 per cent) is more significant.

The effect on net costs varies by plan of insurance, but generally there tends to be a slight increase in 20-year net costs for plans with relatively short premium-paying periods, and some reduction for plans with longer premium-paying periods, such as Whole Life.

The chief disadvantage of a dual interest basis is the increased complexity of various actuarial calculations. However, with modern electronic equipment available for experimental work as well as for mass calculations, this has not become a problem. So far, we have not encountered any administrative difficulties that were not anticipated. We feel that under prevailing conditions the advantages of the dual interest reserve basis far outweigh any disadvantages.

MR. J. STANLEY HILL: Effective February 1, 1965, Minnesota Mutual adopted a new rate basis and cash value basis, on which the cash values and reserves are based on 3 per cent interest for the first twenty years,  $2\frac{1}{2}$  per cent thereafter. In addition to the considerations stated by the previous speakers, we felt there were these advantages: a cash value pattern which could be more easily harmonized with the asset share pattern, which we seem to produce; cash values in the later years, which were more nearly like those available under the previous rate basis, less of a traumatic shock in changing the mortality table.

The only disadvantage that we saw has been mentioned by Mr. Matz, namely, the complexity, particularly when you deal with the various non-forfeiture options. Again, in keeping with Mr. Matz' beliefs, we felt that these were quite readily overcome with modern equipment.

MR. ALVIN B. NELSEN: We made some tests at the Equitable Society on the impact on our dividends and costs, assuming that our current gross premiums and dividend scale factors (three-factor formula) were maintained but that net premiums and reserves were shifted from the 1958 CSO table with a  $2\frac{1}{2}$  per cent interest rate to the 1958 CSO table with a 3 per cent interest rate for twenty years followed by a  $2\frac{1}{2}$  per cent interest rate thereafter. For the ordinary life plan this "split" interest basis would, of course, produce lower net premiums, lower reserves in early policy years, and higher reserves and cash values at the end of the twentieth policy year.

The tests, made for an ordinary life plan at issue ages 35 and 45, produced some interesting results. First, the "split" interest rate gave a flatter scale of dividends for the first twenty years. Second, in the twenty-first year the shift from a 3 per cent to a  $2\frac{1}{2}$  per cent guaranteed interest rate produced a sharp rise in dividends. A modification of the dividend factors would be needed if an orderly increase of dividends by duration were desired, and this in turn would present the problem of maintaining consistency of dividend factors for various series of contracts. Third, the split interest basis gave higher twenty-year net outlays and about the same or slightly higher twenty-year conventional net costs. It appears that the use of a split interest rate to increase the twentieth-year cash values, when associated with a reduction in net premiums, does not in itself result in a reduction in conventional net costs.

MR. MELVIN L. GOLD: This topic talks mostly about participating policies, but there are such things as nonparticipating policies also. I have used double interest rates on occasion to achieve the objective of having

higher twentieth-year cash values, which became an important consideration with the introduction of the 1958 CSO.

The other speakers have all talked about  $3-2\frac{1}{2}$  per cent. I'd like to make just one comment. If you are interested in a  $3\frac{1}{2}$ -3 per cent cash value basis, you might make sure that you are not in a state which has a maximum valuation basis of 3 per cent, because it gets rather awkward. One administrative problem is, of course, calculation of extended term where you have a loan.

**MR. IRWIN T. VANDERHOOF:** Since the question of nonparticipating insurance has been brought up, I feel I have to mention that Standard Security Life has been using multiple interest rates on the 1958 CSO table age last birthday since 1960. The complexities of the actuarial work get quite formidable, since in some cases we have cash values which grade from minimum values at  $3\frac{1}{2}$  per cent to the CRVM reserve at the end of twenty years, where the reserve is based upon 3 per cent for the first twenty years and  $2\frac{1}{2}$  per cent thereafter. In nonparticipating insurance this does seem to allow considerably more control of the cash values than any other technique.

However, despite this, when we started issuing participating insurance in 1964, we did not use multiple interest rates. We decided against the use of this technique for two reasons. First, we do not feel that the protection afforded by the lower interest rate is needed. In fact, if we felt that there was a real possibility that interest rates would drop that far, we could not, in good conscience, suggest the purchase of anything except nonparticipating insurance.

Second, we do not feel that the additional complexities imposed on the interest contribution are justified for participating insurance, since the year-by-year net cost can easily be controlled by appropriate modifications of the loading factor. This degree of control of the net costs can be handled only through the interest rates on nonparticipating insurance and accounts for the difference in our approach to the two lines of business.

#### *Denver Regional Meeting*

**MR. DONALD B. MAIER** repeated the discussion which he had presented at the New York regional meeting.

**MR. HERBERT ORENSHEIN:** The Standard Nonforfeiture law establishes a minimum cash value for a given rate of interest. The law refers to "the rate of interest . . . per annum" and, no doubt, did not contemplate the use of more than one interest rate in the basis of values.

A number of companies now base cash values on a dual interest basis, 3 per cent for the first twenty years and  $2\frac{1}{2}$  per cent thereafter. Since these cash values have apparently met with the approval of regulatory bodies in the fifty states, we must accept the concept that "the rate of interest" may vary at least once, and, possibly, from year to year.

Is there a minimum cash value?

If we assume a given mortality table and a maximum rate of interest of  $3\frac{1}{2}$  per cent, we can easily see that a lesser minimum cash value than by the use of a straight  $3\frac{1}{2}$  per cent could be obtained at time  $t$  by the use of 0 per cent for  $t$ -years and  $3\frac{1}{2}$  per cent thereafter. (The net premium would be higher on the dual- than on the single-interest basis and, consequently, the present value of future benefits minus the present value of future premiums would be lower.)

For a given mortality table, two elements are involved: The interest rates used and the point in time  $t$ . We have calculated the minimum cash value on a net level basis for  $t = 0, 3, 10,$  and  $20$  for ages 20, 35, and 50 for the Ordinary life, 20-pay life, and 20-year endowment plans, using the 1958 CSO "age-nearest-birthday male" table with interest rates of 0 per cent for the first  $t$ -years and  $3\frac{1}{2}$  per cent thereafter.

A *minimum* "minimum cash value" at any duration  $t$  appears to vary with the basis used.

A similar situation appears if we attempt to find a *maximum* "minimum cash value." Certainly one would think that the greatest cash value would occur if 0 per cent interest were used throughout (we ignore the impractical assumption of a negative interest rate). But we found that  $3\frac{1}{2}$  per cent for  $t$ -years and 0 per cent thereafter produces a greater cash value (all other things equal) at time  $t$  and thereafter (up to the paid-up period) than a straight 0 per cent.

Certainly if two interest factors can create such oddities, three, four, or more should add to the confusion. Calculations were made for five different combinations of interest rates (curtate functions) according to five parabolic bases. While these mathematical manipulations are interesting, no significant conclusions were apparent, and similar effects could be obtained in fact by other means. (Reserves for parabolic bases have been omitted from the following tables of minimum cash values.)

To get a low cash value, one could combine reducing term with Whole Life. To get a high cash value, a single-interest basis with an interest rate of 2 per cent or less appears to be the simplest method. The multiple-interest system does not provide a high *early* cash value. For this reason this system would not be particularly desirable for "minimum deposit" plans.



One reason for the use of a multiple-interest system (which complicates calculations and administration considerably) is its effect on net costs. For a participating company the 20-year net cost could be reduced for long-term plans by the use of high to low interest arrangements (i.e., 3 per cent for 20 years;  $2\frac{1}{2}$  per cent thereafter). The reserve and cash-value patterns for these plans tend to put more money in the reserve and allow less for dividends over a 20-year span than a single-interest basis with the same ultimate-interest rate. The added amounts placed in the reserve enjoy the benefits of interest and survivorship and, consequently, produce the more favorable net cost pattern.

**STANDARD NONFORFEITURE LAW MINIMUM CASH VALUES**  
**WHOLE LIFE**

AGE	DURATION	INTEREST RATE ASSUMED							
		0 Per Cent for No. of Yr. Indicated, 3½ Per Cent Thereafter				3½ Per Cent for No. of Yr. Indicated, 0 Per Cent Thereafter			
		0	3	10	20	0	3	10	20
20.....	1	- 18.30	- 17.78	- 17.79	- 17.51	- 14.29	- 14.72	- 14.80	- 15.35
20.....	2	- 10.73	- 9.93	- 9.68	- 8.36	4.19	3.91	3.32	0.86
20.....	3	- 2.92	- 2.08	- 1.58	0.78	22.67	23.20	22.07	17.63
20.....	4	5.14	5.98	6.51	9.91	41.16	41.68	41.49	35.00
20.....	5	13.49	14.32	14.59	19.04	59.67	60.18	61.60	52.98
20.....	6	22.12	22.94	22.67	28.16	78.19	78.69	82.44	71.62
20.....	7	31.05	31.86	30.73	37.28	96.72	97.21	104.03	90.91
20.....	8	40.27	41.08	38.79	46.38	115.27	115.74	126.38	110.89
20.....	9	49.80	50.60	46.81	55.46	133.81	134.28	149.53	131.58
20.....	10	59.63	60.42	54.81	64.52	152.35	152.81	173.50	152.99
20.....	11	69.78	70.57	65.02	73.54	170.89	171.33	191.57	175.15
20.....	12	80.26	81.03	75.54	82.53	189.41	189.85	209.64	198.09
20.....	13	91.07	91.83	86.40	91.49	207.93	208.36	227.70	221.84
20.....	14	102.21	102.97	97.61	100.40	226.44	226.86	245.74	246.42
20.....	15	113.70	114.45	109.16	109.26	244.93	245.34	263.77	271.86
20.....	16	125.53	126.26	121.04	118.05	263.38	263.78	281.76	298.17
20.....	17	137.68	138.41	133.25	126.75	281.79	282.18	299.71	325.38
20.....	18	150.16	150.87	145.79	135.32	300.13	300.51	317.59	353.51
20.....	19	162.92	163.63	158.62	143.75	318.38	318.75	335.39	382.58
20.....	20	175.97	176.67	171.74	151.99	336.53	336.89	353.08	412.61
35.....	1	- 16.24	- 15.82	- 15.70	- 15.04	- 12.12	- 12.45	- 12.66	- 13.65
35.....	2	- 2.15	- 1.70	- 0.91	1.91	13.17	13.29	12.09	7.91
35.....	3	12.30	12.29	13.76	18.75	38.37	39.85	37.60	30.11
35.....	4	27.10	27.09	28.28	35.43	63.45	64.89	63.89	52.96
35.....	5	42.22	42.21	42.60	51.93	88.38	89.70	90.95	76.45
35.....	6	57.66	57.65	56.71	68.22	113.15	114.51	118.81	100.59
35.....	7	73.40	73.39	70.57	84.29	137.73	139.05	147.46	125.38
35.....	8	89.44	89.43	84.19	100.12	163.13	163.42	176.96	150.85
35.....	9	105.79	105.78	97.54	115.70	186.34	187.59	207.32	177.01
35.....	10	122.44	122.43	110.60	131.01	210.35	211.56	238.59	203.90
35.....	11	139.37	139.36	127.76	146.02	234.15	235.33	261.53	231.53
35.....	12	156.57	156.57	145.19	160.71	257.72	258.86	284.26	259.91
35.....	13	174.04	174.03	162.88	175.05	281.04	282.14	306.75	289.07
35.....	14	191.73	191.73	180.81	188.99	304.10	305.17	328.98	319.03
35.....	15	209.65	209.64	198.97	202.51	326.88	327.91	350.95	349.82
35.....	16	227.77	227.76	217.32	215.57	349.36	350.36	372.63	381.47
35.....	17	246.06	246.05	235.85	228.12	371.53	372.50	394.00	414.02
35.....	18	264.52	264.51	254.56	240.14	393.39	394.32	415.08	447.53
35.....	19	283.12	283.12	273.41	251.57	414.91	415.81	435.83	482.05
35.....	20	301.86	301.86	292.40	262.37	436.10	436.96	456.26	517.67
50.....	1	- 15.82	- 15.54	- 15.18	- 13.90	- 11.06	- 11.43	- 12.64	- 14.23
50.....	2	8.11	8.05	9.95	15.13	23.39	23.87	20.65	14.22
50.....	3	32.26	31.03	34.49	43.60	57.35	59.91	54.60	43.10
50.....	4	56.61	55.41	58.38	71.49	90.80	93.27	89.22	72.40
50.....	5	81.13	79.96	81.60	98.76	123.72	126.10	124.53	102.12
50.....	6	105.80	104.66	104.11	125.39	156.09	158.39	160.37	132.27
50.....	7	130.59	129.47	125.84	151.32	187.90	190.11	197.35	162.84
50.....	8	155.44	154.36	146.73	176.52	219.12	221.24	234.91	193.82
50.....	9	180.33	179.29	166.71	200.94	249.71	251.75	273.30	225.22
50.....	10	205.23	204.21	185.73	224.52	279.67	281.63	312.58	257.06
50.....	11	230.08	229.09	211.17	247.20	308.96	310.84	340.53	289.33
50.....	12	254.86	253.90	236.54	268.94	337.58	339.38	367.84	322.07
50.....	13	279.52	278.59	261.80	289.67	365.50	367.23	394.49	355.33
50.....	14	304.03	303.14	286.90	309.32	392.71	394.36	420.46	389.16
50.....	15	328.34	327.48	311.79	327.79	419.20	420.77	445.73	423.62
50.....	16	352.40	351.57	336.43	345.00	444.92	446.43	470.28	458.79
50.....	17	376.14	375.34	360.74	360.79	469.85	471.29	494.07	494.78
50.....	18	399.48	398.71	384.64	375.01	493.95	495.33	517.07	531.70
50.....	19	422.34	421.60	408.05	387.48	517.18	518.49	539.24	569.74
50.....	20	444.68	443.97	430.93	398.02	539.52	540.77	560.56	609.14

**STANDARD NONFORFEITURE LAW MINIMUM CASH VALUES**  
**20-PAY LIFE**

AGE	DURATION	INTEREST RATE ASSUMED							
		0 Per Cent for No. of Yr. Indicated, 3½ Per Cent Thereafter				3½ Per Cent for No. of Yr. Indicated, 0 Per Cent Thereafter			
		0	3	10	20	0	3	10	20
20	1	14.02	13.64	13.18	10.91	10.36	10.43	6.52	2.22
20	2	0.25	0.60	2.14	8.68	61.69	63.60	55.47	35.23
20	3	15.02	14.84	17.46	28.29	113.09	118.71	106.20	74.03
20	4	30.31	30.13	32.78	47.90	164.55	169.85	158.78	114.24
20	5	46.13	45.97	48.11	67.53	216.10	221.07	213.28	155.91
20	6	62.53	62.37	63.45	87.18	267.73	272.38	269.79	199.11
20	7	79.50	79.36	78.80	106.84	319.45	323.76	328.37	243.89
20	8	97.08	96.94	94.14	126.51	371.24	375.23	389.09	290.30
20	9	115.26	115.14	109.48	146.19	423.12	426.77	452.05	338.41
20	10	134.08	133.97	124.81	165.86	475.07	478.40	517.31	388.37
20	11	153.56	153.45	145.07	185.54	527.11	530.11	565.16	439.95
20	12	173.71	173.61	166.03	205.21	579.23	581.90	613.09	493.52
20	13	194.56	194.48	187.73	224.88	631.45	633.79	661.11	549.06
20	14	216.14	216.06	210.17	244.54	683.76	685.77	709.21	606.65
20	15	238.45	238.39	233.40	264.18	736.18	737.85	757.41	666.36
20	16	261.53	261.47	257.41	283.80	788.69	790.03	805.70	728.28
20	17	285.37	285.33	282.22	303.37	841.32	842.32	854.09	792.50
20	18	310.00	309.97	307.86	322.88	894.07	894.74	902.59	859.12
20	19	335.42	335.41	334.33	342.31	946.95	947.29	951.22	928.25
20	20	361.65	361.65	361.65	361.65	1,000.00	1,000.00	1,000.00	1,000.00
35	1	11.19	10.91	10.15	6.91	9.03	9.07	5.24	3.41
35	2	10.92	10.88	13.43	23.01	60.79	62.65	54.55	34.66
35	3	33.70	32.57	36.91	52.85	112.54	118.11	105.57	74.02
35	4	57.15	56.06	60.26	82.58	164.26	169.51	158.34	114.68
35	5	81.27	80.23	83.46	112.10	215.95	220.88	212.93	156.68
35	6	106.06	105.07	106.48	141.66	267.61	272.21	269.40	200.07
35	7	131.53	130.60	129.32	170.97	319.23	323.51	327.85	244.89
35	8	157.70	156.83	151.96	200.13	370.85	374.80	388.36	291.22
35	9	184.61	183.80	174.40	229.13	422.47	426.10	451.05	339.12
35	10	212.27	211.52	196.63	257.97	474.12	477.42	516.03	388.68
35	11	240.70	240.01	226.37	286.65	525.82	528.80	563.61	439.98
35	12	269.93	269.31	256.96	315.15	577.60	580.25	611.26	493.11
35	13	299.97	299.42	288.41	343.47	629.48	631.81	659.01	548.17
35	14	330.86	330.38	320.76	371.60	681.50	683.50	706.89	605.28
35	15	362.62	362.21	354.04	399.53	733.72	735.39	754.94	664.57
35	16	395.30	394.96	388.29	427.26	786.18	787.52	803.22	726.19
35	17	428.93	428.68	423.57	454.78	838.95	839.96	851.79	790.32
35	18	463.59	463.41	459.93	482.12	892.11	892.79	900.71	857.18
35	19	499.33	499.24	497.46	509.27	945.76	946.10	950.08	926.98
35	20	536.24	536.24	536.24	536.24	1,000.00	1,000.00	1,000.00	1,000.00
50	1	11.11	10.94	9.89	3.33	6.02	5.99	2.00	6.42
50	2	20.38	19.90	23.65	37.95	57.72	59.49	51.06	32.60
50	3	52.45	50.22	56.69	78.82	109.13	114.59	101.51	72.54
50	4	85.10	82.97	89.21	119.27	160.27	165.42	153.44	113.45
50	5	118.35	116.31	121.19	159.31	211.17	216.00	206.95	155.37
50	6	152.21	150.28	152.61	198.94	261.86	266.38	262.16	198.38
50	7	186.70	184.88	183.44	238.16	312.38	316.59	319.20	242.52
50	8	221.84	220.12	213.66	276.97	362.76	366.66	378.22	287.89
50	9	257.65	256.05	243.23	315.38	413.07	416.66	439.42	334.57
50	10	294.19	292.71	272.13	353.40	463.38	466.66	503.03	382.70
50	11	331.51	330.14	311.22	391.06	513.77	516.75	549.70	432.40
50	12	369.67	368.43	351.22	428.39	564.37	567.04	596.56	483.89
50	13	408.78	407.67	392.23	465.44	615.30	617.66	643.73	537.37
50	14	448.95	447.97	434.39	502.25	666.73	668.78	691.36	593.11
50	15	490.33	489.49	477.85	538.91	718.86	720.58	739.63	651.46
50	16	533.08	532.38	522.79	575.47	771.90	773.30	788.75	712.80
50	17	577.42	576.88	569.45	612.04	826.15	827.21	838.99	776.67
50	18	623.61	623.24	618.12	648.72	881.94	882.66	890.66	844.57
50	19	672.01	671.82	669.16	685.66	939.71	940.08	944.17	920.37
50	20	723.08	723.08	723.08	723.08	1,000.00	1,000.00	1,000.00	1,000.00

**STANDARD NONFORFEITURE LAW MINIMUM CASH VALUES**  
**20-YEAR ENDOWMENT**

AGE	DURATION	INTEREST RATE ASSUMED							
		0 Per Cent for No. of Yr. Indicated, 3½ Per Cent Thereafter				3½ Per Cent for No. of Yr. Indicated, 0 Per Cent Thereafter			
		0	3	10	20	0	3	10	20
20	1	0.22	0.18	1.57	12.59	10.36	10.43	6.52	2.22
20	2	37.16	36.16	41.15	63.80	61.69	63.60	55.47	35.23
20	3	75.88	72.55	80.78	116.08	113.09	118.71	106.20	74.03
20	4	116.01	112.82	120.46	166.43	164.55	169.85	158.78	114.24
20	5	157.60	154.56	160.20	217.86	216.10	221.07	213.28	155.91
20	6	200.71	197.83	200.00	269.38	267.73	272.38	269.79	199.11
20	7	245.40	242.68	239.85	320.98	319.45	323.76	328.37	243.89
20	8	291.72	289.16	279.76	372.65	371.24	375.23	389.09	290.30
20	9	339.73	337.35	319.72	424.41	423.12	426.77	452.05	338.41
20	10	389.49	387.28	359.73	476.25	475.07	478.40	517.31	388.27
20	11	441.07	439.05	413.82	528.17	527.11	530.11	565.16	439.95
20	12	494.53	492.71	469.89	580.18	579.23	581.90	613.09	493.52
20	13	549.96	548.34	528.03	632.28	631.45	633.79	661.11	549.06
20	14	607.44	606.02	588.30	684.47	683.76	685.77	709.21	606.65
20	15	667.03	665.83	650.80	736.77	736.18	737.85	757.41	666.36
20	16	728.83	727.85	715.61	789.17	788.69	790.03	805.70	728.28
20	17	792.92	792.17	782.82	841.68	841.32	842.32	854.09	792.50
20	18	859.40	858.90	852.55	894.31	894.07	894.74	902.59	859.12
20	19	928.39	928.13	924.90	947.07	946.95	947.29	951.22	928.25
20	20	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00
35	1	1.70	1.65	0.23	11.01	9.03	9.07	5.24	3.41
35	2	36.30	35.35	40.52	62.66	60.79	62.65	54.55	34.66
35	3	75.60	72.29	80.76	114.31	112.54	118.11	105.57	74.02
35	4	116.19	113.03	120.93	165.93	164.26	169.51	158.34	114.68
35	5	158.12	155.11	161.03	217.52	215.95	220.88	212.93	156.68
35	6	201.43	198.57	201.02	269.07	267.61	272.21	269.40	200.07
35	7	246.17	243.48	240.93	320.59	319.23	323.51	327.85	244.89
35	8	292.42	289.89	280.74	372.10	370.85	374.80	388.36	291.22
35	9	340.25	337.89	320.48	423.62	422.47	426.10	451.05	339.12
35	10	389.72	387.54	360.15	475.17	474.12	477.42	516.03	388.68
35	11	440.94	438.94	413.84	526.77	525.82	528.80	563.61	439.98
35	12	493.97	492.16	469.45	578.44	577.60	580.25	611.26	493.11
35	13	548.94	547.33	527.08	630.22	629.48	631.81	659.01	548.17
35	14	605.95	604.54	586.85	682.14	681.50	683.50	706.89	605.28
35	15	665.14	663.94	648.91	734.25	733.72	735.39	754.94	664.57
35	16	726.66	725.68	713.40	786.61	786.18	787.52	803.22	726.19
35	17	790.68	789.93	780.53	839.27	838.95	839.96	851.79	790.32
35	18	857.42	856.91	850.50	892.33	892.11	892.79	900.71	857.18
35	19	927.10	926.84	923.57	945.87	945.76	946.10	950.08	926.98
35	20	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00
50	1	5.41	5.17	2.25	6.94	6.02	5.99	2.00	6.42
50	2	33.57	32.79	39.12	58.60	57.72	59.49	51.06	32.60
50	3	73.47	70.31	80.08	109.96	109.13	114.59	101.51	72.54
50	4	114.34	111.32	120.62	161.06	160.27	165.42	153.44	113.45
50	5	156.22	153.34	160.75	211.91	211.17	216.00	206.95	155.37
50	6	199.18	196.45	200.48	262.55	261.86	266.38	262.16	198.38
50	7	243.28	240.70	239.80	313.02	312.38	316.59	319.20	242.52
50	8	288.60	286.18	278.71	363.35	362.76	366.66	378.22	287.89
50	9	335.24	332.97	317.22	413.61	413.07	416.66	439.42	334.57
50	10	383.32	381.21	355.36	463.88	463.38	466.66	503.03	382.70
50	11	432.97	431.04	407.26	514.23	513.77	516.75	549.70	432.40
50	12	484.41	482.64	461.02	564.78	564.37	567.04	596.56	483.89
50	13	537.83	536.25	516.86	615.66	615.30	617.66	643.73	537.37
50	14	593.52	592.13	575.07	667.05	666.73	668.78	691.36	593.11
50	15	651.81	650.62	636.00	719.12	718.86	720.58	739.63	651.46
50	16	713.09	712.11	700.06	772.11	771.90	773.30	788.75	712.80
50	17	777.86	777.10	767.77	826.31	826.15	827.21	838.99	777.64
50	18	846.72	846.20	839.75	882.05	881.94	882.66	890.66	846.57
50	19	920.45	920.17	916.83	939.77	939.71	940.08	944.17	920.37
50	20	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

*Agents' Stock Options*

How are stock options to agents taken into account in projections of agency costs or premium margins?

*New York Regional Meeting*

MR. MELVIN L. GOLD: Stock options have become an important element in the compensation package offered to agents. This has been particularly true among recently formed life insurance companies.

The attractiveness of stock options is a function of many things: (1) the life insurance company itself; (2) current market enthusiasm for life insurance stock; (3) the stock option plan; (4) the agent's income tax bracket; and (5) the income tax implications of the plan.

Stock options cause a dilution of the stockholder's interest and as such the company should receive some commensurate benefit—such as lower regular commissions, better persistency, etc. Thus additional profit in the numerator would offset a larger denominator, i.e., more shares of stock outstanding.

The effect of stock options on commissions is many fold. Some companies, because of stock options and/or stock ownership, have reduced commissions by as much as one-third. Some companies have reduced first-year commissions by perhaps 5 per cent or 10 per cent. Other companies have made no apparent reduction in commissions at all.

Generally, premium rates assume "normal commission scale," even though a smaller amount is paid. Company executives are aware how elusive is the attractiveness of stock options and want to be in a position to shift over to a regular commission scale. This is particularly true where the new companies are initially performing the general agent's function. No one knows when the attractiveness of options might pale.

It is very difficult to judge the effectiveness of this new fringe benefit. How does one determine how many agents a company might otherwise have attracted, or how much business might otherwise have been sold and at what cost?

While enthusiasm has dampened somewhat this past year because of income tax considerations and a softening of life insurance company stock prices, it is apparent that stock options (where permitted by insurance law) have become another significant fringe benefit along with pension plans, group insurance, "housing," etc. As sometimes happens, the fringes may attract as much attention as the garment itself.

*Denver Regional Meeting*

MR. LOUIS GARFIN: I happened to notice in a recent publication a reference to this question of stock options which I thought might be of

some interest. This was in the CCH—*Federal Tax Service*. There is a paragraph with the heading “Stock Option Trap for Independent Contractors.”

Since the recipient of a qualified stock option must be an employee as defined in Code Section 3401(c), an optionee, determined by the Internal Revenue Service to be an “independent contractor,” will be presumed to have received taxable income at the time the option was granted rather than being permitted to defer payment of the tax until the stock is sold. The Regulations emphasize that an employer-employee relationship exists where one has the right to control not only the service to be performed by another, but the details and means by which the result is to be accomplished.

Now, whether this will have an important effect on the attractiveness of stock options, I have no idea. However, it seems as though it may have some bearing.

MR. WILLIAM D. SMITH: I think what you just read is very much to the point. I have a client who gave stock options to agents starting five years ago and their attorney determined at that time that the situation was exactly as you stated.

Whether, in fact, any of the agents actually pay their income taxes on this is a moot question.

As to how agents' stock options are taken into account in cost projections, I would be strongly tempted to say that they are not, and then sit down. Unfortunately, many of the smaller companies are using this scheme to attract agents, and their tendency is strong to ignore any cost involved in the stock option. I have not yet seen any company using a restrictive stock option plan. I would very much like to hear if any companies have successfully used that plan.

I have, however, seen a company use a qualified stock bonus trust, and the cost of it was taken into account in the profit margin studies directly. Of course, this was fairly simple because the plan provided a certain dollar benefit related to premiums to be available at the end of the second year if both the agent and the policyholder were still with the company.

Now as to the nonqualified stock option, which is used in most cases, and which has the tax difficulties outlined, it is certainly true that if the option is to have value to the agent, the option price must be less than the market price. The difference between those two prices is a cost to the company if indeed that market price is realistic.

My idea of one test of whether that price is realistic would be—could this company sell a large amount of that stock successfully on the open market at that price? This is often not true in many of the small, new

companies because there is so little stock available, and, therefore, the price would have to be wildly inflated. Of course, we also have the large public misunderstanding as to the true value of life company stock.

Incidentally, on this point there appears to be a good chance that the difference between the option price and the market price, even though it may be a wildly inflated price, could be taken by the company as a tax deduction for its federal income tax. It is my guess that very few companies are even thinking of this.

In addition, the option also must be available sometime in the future, the agent thus hoping to obtain even greater difference between his cost and market. On that point, the California Insurance Commissioner is pushing very strongly to have these options become available only after the business has been in force for at least five years.

Depending somewhat on the use, I would feel it most appropriate for the new company, if the actuary were to predict a value for the stock based upon his profit margin and production projections for each year in the future for which options will become due, including, if applicable, some going concern value and other factors. The value thus derived is perhaps only remotely connected to the market price but could very likely be more useful than the market value in determining costs. Perhaps the same factors should be used to set the option price. There is then no great mystery to a competent actuary in building the cost into the profit margin studies.

It seems to me that it is very appropriate for the actuary to be used in determining the option price, and probably his profit margin studies and his production projections will be useful in that regard.

**MR. HAROLD J. DEUTSCHER:** The use of stock option plans as a method of agency compensation is a relatively recent development. Many companies, both insurance and other types, have had some form of stock option plan for key employees for many years, but only recently has the idea been extended to producing agents.

The plans available naturally vary by company, but they all have the basic characteristic of granting the agent the right to buy stock in the company at some future time at a price set at time of issue of a policy. The number of shares may depend on volume, premium, or other requirements set by the company.

Neither the granting nor exercise of a stock option represents any cost to the company. On the contrary, the exercise of the option is a source of additional surplus. This is in direct contrast to other methods of agency compensation which represent a very real reduction in the company's

surplus. Any agency expense allowance paid is gone, and recovery of these expenses is dependent upon renewal business.

However, the individual stockholder's equity is diluted when the option is exercised. The extent of the dilution depends upon the difference between the market price and the purchase price when the option is exercised.

Thus the cost of this agency compensation bypasses the company and is transferred directly to the stockholder. The problem then becomes one of evaluating the effect of the options on the value of the stock rather than pricing the product. Since there is no cost to the company, the projection of agency cost is not a meaningful study.

The stock option represents a contingent cost to the stockholder. If the price of the stock increases, the agent will, of course, exercise his option. If the price of this stock decreases, the agent will not exercise his option, since he can buy the stock on the market at a lower cost. In the first case there is a dilution in the stockholder's equity, but in the second there is none. An additional contingency exists in connection with quality of business written. If the business does not meet the persistency requirements, the agent forfeits the options, and this element of agency cost is then non-existent as far as the stockholder is concerned.

The following example may illustrate the principles involved in evaluating the effect on the stock.

If, in true actuarial fashion, I may make an assumption which may not always be met by actual experience, let me assume that the market price actually represents the true value of the stock. Assuming also that the agency plant produces \$1,000,000 of premium and that the company stock option plan provides for purchase of stock by 10 per cent of the premium, \$100,000 would represent the value of the stock option granted, and if the stock option price is \$50.00, the agents would be granted options for 2,000 shares. Assuming that all the policies remained in force for a required three-year period and the stock was then selling at \$100.00 per share, the agents would exercise their right to purchase the 2,000 shares at \$50.00 per share. The exercise of these options would raise \$100,000 of additional capital and surplus, but the increased value would be divided among an increased number of shareholders. If there were originally 200,000 shares outstanding, there would now be 202,000 shares outstanding. At \$100.00 per share the total value of the company is \$20,000,000 before the options are exercised. The total value after the options are exercised is \$20,100,000, or \$99.50 per share. This represents a dilution of \$0.50 per share. To the agents this represents a gain of almost \$50.00 per share, or \$100,000, or 10 per cent of first-year premium.



If the price increase were more than assumed, the advantage to the agent is even greater.

The degree of dilution of stock is partially under control of the stockholders when they establish a plan. The final effect, of course, depends upon the unpredictable performance of the stock in later years.

I would like to make a comment, with respect to Mr. Garfin's statement. I have not seen the report referred to by Mr. Garfin, but there definitely is a type of agent who is an independent producer—one who is not an employee of any particular company. Taxable gains may be realized during the year in which these individuals receive an option. It may, however, depend upon the particular option plan used.

We have perhaps a different situation in that we allow the agents a right to purchase stock at less than the market price at that time. If the market price were \$10 a share, we would allow them to purchase stock at \$7.50 per share. This definitely is not a qualified stock option plan, and we have told them this from the beginning. How they handled the tax situation was their own particular problem, but they have been informed of this.

Next month is the first month in which some agents of Executive Life have a right to exercise their stock options. I am not sure that they have included any gain in their income for any prior year for tax purposes.

**MR. GARFIN:** You said that if the market price is \$10.00, they get an option price of \$7.50. Is the \$10.00 the price at the time the option is granted?

**MR. DEUTSCHER:** If the price of the stock was set at \$10.00 per share at the time the policy was issued, they would have the right to purchase at \$7.50 per share three years later.

**MR. SMITH:** Mr. Deutscher, you distinguished between cost to the company and to the stockholders. I certainly agree that the cost of this stock option is not the kind of a cost which appears on the annual statement or which reduces the gain from operations in the year. At the same time, I really cannot quite distinguish between cost to the company and cost to the stockholder in the final, ultimate sense. It seems to me that if there is a cost to the stockholder in dilution of his interest, this is a cost of the company because the stockholder is the company.

**MR. BYRON W. STRAIGHT:** All the four stock-option plans within my experience have created problems that were not foreseen at the time they were designed. They are all used by companies with full-time agents that represent only one company. One problem arose from the wide fluc-

tuations in the price of the stock. After recruiting some very good producers, the stock may rise suddenly so that options are issued at a fairly high price, with the possible result that they become exercisable a few years later when the price is much lower. Under an arrangement where the stock price is established at the time you recruit the men, there is a serious danger of inequitable treatment. The first men may be recruited with a fairly substantial number of shares under option at a low price. If the later recruits are obtained under the same arrangement, and at the same option price, when the market is much higher, you will be treating the later man more generously than the early recruit; the early man takes the greater risk in moving to a new company. Another problem is that the very good producer needs income, and it is not possible, at least in my opinion, to substitute for his regular income (his regular commission and production bonus) something of questionable value in a stock-option plan. You cannot reduce the commission and bonus income levels below the "usual" levels to allow for the stock-option plan. You have to give him his regular income first and then the stock option as an additional inducement.

Another problem arises from the valuation of the option in the mind of the agent. You might, for example, demonstrate the opportunity to obtain options on 10,000 shares at \$1.00, and if the shares go up to \$2.00, he will make \$10,000; but if the shares go to \$100.00, he will make a profit of \$990,000. Who is to put a price on the optimism? You might suggest three sample ranges of values and let the agent's own optimism and education apply. It might help to refer to both good and bad experiences in other companies as well. In Canada, if the agent is an "employee," the applicable income tax rate will usually be very low, close to zero in most cases.

Attempting to allow for the effects of the options on premium margins is an exercise in organized frustration, in the plans that have come to my attention, for several reasons:

1. The profit to the agent is based on the market price at the time he sells his shares, not on the net worth of the company at the time he exercises his option.
2. The dilution in the interests of the other shareholders depends among other things on the ratio of option shares to outstanding shares, and this depends on future production that cannot be predicted reliably when premiums are calculated.

The stock options should reflect the profitability of the business written by the agent, and qualification should require a high level of minimum production if the plan is to be used for recruiting career men.