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THE MERGER OF MUTUAL LIFE INSURANCE COMPANIES

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ABSTRACT

This paper explores the considerations involved in the merger of mutual life insurance companies, with emphasis on the unique problems of maintenance of equity between the various policyowners affected. It examines the reasons that might motivate such mergers, and attempts to identify fallacious justifications that the authors believe cannot be fulfilled. The benefits of merging mutuals and the basis for quantifying such benefits are also discussed.

The actuarial heart of the paper centers on the achievement of fair and equitable treatment of policyowners. This is discussed from the viewpoint of the various parties to the merger, in terms of both the theoretical and the practical problems faced by the actuaries of the two companies. The paper includes an accounting technique that will allow separation of earnings to permit return of surplus to the proper sources.

Appendix A contains illustrations of projections of two companies that are being merged; Appendix B illustrates why it is necessary to evaluate all aspects of a merger thoroughly (two merger situations are shown, one producing a 13 per cent tax increase and the other an 8 per cent tax decrease); and Appendix C illustrates the additional risk-taking capacity of the merged companies.

The paper concentrates on the actuarial and practical considerations of mutual company mergers and avoids restating surplus distribution theory and techniques that are not unique to the merger situation.

I. INTRODUCTION

WHILE mergers and affiliations between stock life insurance companies have monopolized the industry trade journal headlines over recent years (principally because of the feverish activity in this area—nearly ninety stock companies disappeared during 1970 by one means or another, compared with only two mutual company mergers), stock companies may anticipate some competition as a result of recent interest in small- and medium-sized mutual company mergers.

Many of the reasons for stock company mergers, such as the synergistic effects on net costs, apply with equal and perhaps even greater force to mutual companies. One need only experience a brief exposure to the tendentious proclamations of the supporters of consumerism to appreciate the mounting pressure on mutual companies to develop competitive net costs.

Both authors have been closely associated with a proposed merger of two fairly large mutual companies, one as an actuarial officer of one of the companies and the other as an independent consulting actuary looking over the companies' shoulders. Over six months were spent in extensive planning, problem-defining, problem-solving, and implementation determination. The soundness of the merger was indisputably established, and preliminary approval of the insurance departments of both states of domicile was obtained. Although the merger was called off at the eleventh hour for human reasons, the efforts were not made in vain; a wealth of valuable knowledge was obtained from the pioneer attempt at merging two large, healthy mutual companies. The authors feel privileged to share some of this information with their professional brethren.

II. UNIQUE ATTRIBUTES OF MUTUAL LIFE INSURANCE COMPANIES

A. *Historical Purpose*

The traditional role of a mutual life insurance company is to provide insurance at minimal net cost to policyowners. Mutual companies were formed because it was felt that they could best meet such a purpose. They seek to do so by avoiding the payout of profit to a stockholder group.

Theoretically, a mutual company would find it most difficult to compete in the marketplace if insurance were available from other companies at a materially lower net cost. While this is true, mutuals with higher net costs continue to survive, if not to thrive. On the other hand, the stock companies, while operating on profit motives (which require that a portion of earnings be payable as a dividend to stockholders), are able to compete. In fact, a greater percentage of new insurance written in the United States has been going to the stock companies than was the case thirty years ago. Therefore, it is necessary to re-examine this historical purpose in terms of current needs.

B. *Providing Insurance at Minimal Net Cost*

The mutual company is in a position to offer life insurance at a lower net cost than a stock company because of the nature of its ownership. It does so by eliminating the contribution to profit that stock companies

should extract from policyowners to pay a reasonable return to stockholders on the funds they have invested in the company. In a mutual company it is the policyowners' funds that are exposed to risk; hence it is not necessary to set aside a profit margin that produces a comparable return. In a well-run mutual life insurance company there will be funds contributed by prior generations of policyowners that are being used to finance new business. These amounts have generally been accumulated by withholding a small contribution to surplus from all policyowners. This may appear to be contradictory to the mutual concept of returning *all* surplus to the policyowners producing such surplus. But to achieve the return of the final dollar would generally "tontinize" the entire distribution system, since the working capital loaned to future generations to finance their insurance cannot be repaid until such future generations are self-supporting. Hence there is nearly always some type of revolving fund of surplus composed of contributions from all generations designed to provide working capital for the entire company.

Such a fund differs from the capital account in a stock company in the following two important respects:

1. It is the final residue that lingers on after considerable attempts have been made to return as much as possible to the class that produced the surplus.
2. It will ultimately revert to and redound to the benefit of policyowners, since they alone have a claim on it.

Furthermore, in terms of individual policyowners, the contribution to this surplus fund is likely to be smaller than the profit contributions built into the usual nonparticipating policy. This would imply that the mutual policyowners, as a class, can obtain insurance at a lower net cost than the purchaser of a nonparticipating policy from a comparable life insurance company which experienced identical operating results.

C. *Relative Interests of Policyowners versus Employees and Agents*

The continued existence of a mutual life insurance company is of major importance to its policyowners and to its employees and agents. If the company's purpose is to provide minimal net costs as previously stated, it is clear that the interest of the policyowner must prevail if a conflict arises. In fact, such conflicts do arise every day in questions of compensation for employees and agents.

This, of course, does not imply that employees and agents should be compensated at minimum salary levels; they should receive a reasonable compensation for the service they perform. But such compensation is reasonable only if it permits the company to be competitive in terms of

its resultant net costs. This should be the basis on which management gauges the relative interests of these two groups.

D. *The Mutual Life Insurance Company in 1972*

In today's world, which emphasizes "total financial services," many insurers are reviewing their purpose to determine whether it is still applicable or whether it has become archaic. Some companies have reaffirmed their historic purpose and focused efforts on life insurance sales alone; others have modified the purpose to embrace all financial services. In the latter case, it is necessary to determine whether the surplus produced by nonlife insurance business redounds to the benefit of the life insurance policyowners or to the benefit of the purchasers of the new service. If the latter, this may be, in effect, a redetermination of the beneficial ownership of the company and generally requires policyowner consent.

In many circumstances expansion into other lines of business will be beneficial to the policyowners. In others the expansion will be detrimental, requiring diversion of funds and causing dilution of management time and effort. Such expansion is beneficial if the product being sold is particularly beneficial to the insurance policyowners of the company or if it is sold as a profit-making line, provided that such profit is returned to the insurance policyowners. In many cases, the company's charter will preclude expansion beyond specific lines of business; in others, statutory requirements will preclude expansions into certain fields.

The main point here is to avoid expansions that are not motivated by the enhancement of the major purpose of the mutual company or that obviously conflict with one or more of the less major purposes. There is, of course, much room for judgment in making these determinations. For example, a move into mutual fund sales could enhance the purpose of the company if it enabled the company to maintain a quality field force that would properly service existing policies and sell sufficient amounts of new business to minimize unit acquisition costs; on the other hand, its main value might simply be to increase the compensation of agents and home office employees. Deciding which of the two applies is an authentic function of mutual insurance company management.

III. REASONS FOR THE MERGER OF MUTUALS

A. *Motivation*

It would be well to introduce this section with a brief discussion of the factors that motivate one party to seek a merger. Usually the company has some problem such as one of the following:

1. Lack of surplus for expansion.
2. Need to diversify.
3. Depletion of surplus funds due to mismanagement.
4. An aging management that has not groomed the necessary replacements.
5. Insufficient volume to maintain competitive net costs and justify the existence of the company to its publics.

An extremely small mutual company will often seek a merger partner for the last two reasons, and the aging chief executives might be willing to throw their full support behind the transaction if they can be included in the company pension plan.

In a fairly rare situation, pending insolvency will lead a company to seek a merger partner. Reasons for an anticipated impaired surplus situation could include excessive loss on insurance, excessive loss on investments, and excessive attrition through lapse due to the disintegration of the field force. The insolvency-bound company is in an extremely weak bargaining position, and, even if it can be helped through merger with a healthy company, the latter would be extremely vulnerable to lawsuits of its own policyowners if the facts were made known.

A theoretical merger situation could occur where the management of an aggressor company sees an opportunity to exercise control over larger resources (funds, agency, staff, territory, and so on), with the expectation of greater personal gains. Such takeover attempts, so common among stock life insurance companies, have virtually no opportunity for success among mutual companies and therefore should not even be considered.

The most probable motivation for merger, and one that would have the most opportunity for success, would be the economically motivated merger of two healthy companies. Both partners would recognize the many benefits resulting from merger. The numerous economic gains also known as synergistic benefits are quite similar to those that apply to mergers of stock companies.

B. *Synergistic Benefits of the Merger*

Given the nature and purpose of mutual life insurance companies stated above, what reasons are there for merging two, or more, of these companies into a single entity? The reasons can be described under the following six headings:

1. Marketing benefits (broader services).
2. Expense savings (most controllable item: elimination of duplication and spreading of expenses over larger number of insureds).
3. Increased risk-taking capacity.

4. Investment benefits.
5. Benefits in relation to personnel.
6. Benefits of size per se.

1. MARKETING BENEFITS

In describing the nature of mutual companies, we have indicated that a necessity for continuation of low net costs was the infusion of new business into the company. To accomplish this has, in the past, required a strong and geographically diversified marketing organization having a policy portfolio that is of widest appeal. If a particular mutual company is lacking in any of these respects, it can either (1) run the risks associated with not acquiring this advantage, (2) develop it on its own, or (3) buy fully developed marketing capabilities (agencies, personnel, products, and so on). Merger represents a combination of the latter two alternatives.

As an example, a company having a strong marketing organization in the West with only scattered offices in the East can decide to ignore its weakness in the East and instead concentrate its effort in its present markets. For many companies this will be the proper decision. However, such companies run the risk of never attaining their optimal size in terms of an efficient home office support function.

A second alternative is for the company to expand geographically by building its own field force in the East. However, because of all of the risks associated with such endeavors and the time required for such development, this is generally less desirable.

The third alternative is the purchase of an existing marketing organization, or products, to fill the undesirable gaps. The problems here are the availability for purchase of such an organization or product, the price, and the probability that the organization will continue successfully after acquisition.

Instead of the above alternatives for internal expansion, a company could attempt a merger with another company having a complementary marketing organization and perhaps a different type of product. It is very likely that there will be some overlap; however, it may be possible to use this to advantage by consolidating marketing offices or by using the better of the two products.

If one of the justifications of the merger is to achieve wider marketing capabilities, then the evaluation of the benefits can be done by quantifying the costs associated with the various alternatives. The cost of establishing a new marketing organization would include all start-up costs and managerial involvement costs, divided by the probability of success (which can be determined from other similar attempts or from LIAMA-

type sources). The cost of purchase of a facility should also be divided by the probability of success after it is purchased. The lesser of these two costs is the cost of the alternative to acquiring a wider marketing organization by merger.

To illustrate the quantification of these costs, we have assumed (1) that the two companies involved in the merger are basically geographically separate in their marketing operations; (2) that both have decided that they would, in the absence of the merger, have expanded geographically; and (3) that, if the two marketing operations are combined, the combined field forces will produce $50 million of additional insurance in force over the sum total that would have been produced by the individual units operating individually and without expansion. Furthermore, it is assumed that costs will be measured over a five-year period and that performance will be measured in terms of increased insurance in force after five years (on the assumption that the profits per $1,000 of in-force will be the same on all alternatives).

To develop the cost per $1,000 of additional insurance in force, we will compare the additional costs (i.e., the costs that cannot be absorbed in the present product pricing) of obtaining the increase by developing a "scratch" agency with the costs involved in purchasing a general agency, using the lower of these two costs as the measure of the synergy of the merger in terms of marketing benefits (Table 1).

Therefore, in the absence of merger, the minimum cost to either company for acquisition of the additional $50 million of insurance would be $845,000 (i.e., $50 million multiplied by the lesser of $25.60 or $16.90). Hence the $845,000 would become the quantified marketing benefit of the merger to these companies as determined from the simplified example shown above.

One further marketing concern is the possibility that consolidation of marketing facilities might be considered as being in restraint of trade. Recent decisions require that companies consider not only the over-all size of the two parties to the merger but also the impact on any local markets where there may be combinations of major marketing organizations. There is a sizable amount of literature on this subject available in legal publications.

2. EXPENSE SAVINGS

A company may include among its major reasons for merging the desire to effect major cost savings as a result of the elimination of duplicate facilities and functions, as well as the opportunity to spread its service over a larger number of policyowners. In fact, this is given as one

of the major reasons for horizontal mergers (mergers involving partners in the same industry, with approximately the same customers and suppliers).

Economies of scale can, and often do, occur in such mergers. However, they occur primarily as the result of the elimination of duplicate resources, whether these are people, buildings, equipment, or services.

TABLE 1

DEVELOPMENT OF COST OF AGENCY FOR MEASUREMENT OF MARKETING BENEFITS

	Cost of Development of Successful New Agency	Cost of Purchase of Successful Agency
1. Initial acquisition cost	$ 5,000	$1,000,000
2. Unabsorbable costs of five years of operations		
a) Manager's compensation	$ 50,000	$ 0
b) Agents' compensation (financing)	$200,000	$ 50,000
c) Expenses	$ 50,000	$ 10,000
3. Total initial and operational cost	$305,000	$1,060,000
4. Probability of agency's succeeding to fifth year	35%	85%
5. Effective cost = (3) ÷ (4)	$870,000	$1,250,000
6. Insurance in force at end of fifth year (in $1,000 units), from		
a) Successful agency	$ 24,000	$ 70,000
b) Unsuccessful agencies	$ 10,000	$ 4,000
c) Total	$ 34,000	$ 74,000
7. Unabsorbable costs per $1,000 in force = (5) ÷ (6)	$ 25.60	$ 16.90

Generally, the greatest potential gain is through the reduction of staff by the consolidation of functions. Unfortunately, many mergers are approached on the basis that most positions will continue as before but that it will still be possible to effect major expense savings. This is an entirely unrealistic position and is probably one of the important reasons for many of the postmerger problems.

Personnel reductions do occur by the spreading of the cost of experts over a larger base. But this is offset to a degree by the requirement of maintaining a consistent corporate policy through the creation of many levels of administrative personnel. This can place the combined operation

beyond the size of maximum efficiency, in which case we have "diseconomies of size." An example of this is the situation in which two units of eight people each, including one supervisor in each, are merged to form one unit of sixteen people, including a senior supervisor (to ensure consistency between areas) and two subordinate supervisors.

Reductions in expenses will also occur if office space can be consolidated or used more compactly. However, one possible cost savings offset may occur from the loss of a premium tax offset for one of the two "principal office" tax deductions (if available in the particular state).

In the area of computers a large potential exists for the consolidation of equipment and, equally promising, for the consolidation of software. The most obvious situation occurs when both firms are purchasing their software; the single entity will pay for the software (or for the license) only once and yet have it available for both segments. Even larger savings result from the combination of daily (and other cyclic) runs, where the small company's production is, in effect, processed on a marginal cost basis. From another point of view, fixed costs are paid for only once.

Here too, however, we must exercise caution to avoid overoptimistic forecasts. Even in situations in which both companies are using a system such as IBM's ALIS (Advanced Life Information System) for their daily processing, it is necessary to expend many man-years of effort to modify one of the versions of ALIS so that it can process records of both companies. This is because of the need for reconciling variations in insurance rules and procedures, as well as making modifications for special ALIS requirements. In the usual situation, where each company is using its own computer system, the costs of programming for the consolidation are significant and are a function of the degree of documentation and the numbers of different policy editions that are outstanding. Perhaps the most fortunate possibility would exist where one company is already on a third-generation system and the suitor has decided to "upgrade" to the third generation but has not yet begun its systems work.

The final area for cost reductions is the consolidation of professional services supplied to the company. Both companies may be using auditing services, management consulting services, actuarial consulting services, computer services, and the like.

In all cases the companies must take as an offset the costs of implementing the consolidation, ranging from the managerial, legal, and actuarial costs to the cost associated with developing the combined

company logotype. If the continuing operation of the merged company will consist of more than one home office, then it will be necessary to take as a further cost savings offset the expenses of longer lines of communication. These include the obvious costs of telephone, postage, and travel, as well as the costs associated with duplicating regional management. These costs could become so burdensome as to negate the benefits of the merger. Furthermore, it is generally not advantageous to set up duplicate regional offices, each run autonomously, since this produces diseconomies of scale.

3. INCREASED RISK-TAKING CAPACITY

When two companies merge, the combined risk-taking capacity will usually permit a substantial increase in retention limits and a corresponding reduction in reinsurance costs. Simple application of ruin theory will demonstrate dramatically the extent of this increased ability to assume larger risks. When the two companies are approximately the same size, it might be possible to double the retention limit and apply the increase retroactively to the extent permitted in the recapture provisions of the reinsurance treaties. These potential savings in reinsurance costs are most definitely nontrivial in magnitude and should be considered in the "quantification of gains" process.

Shown in Table 2 are the results of an example in which increased risk-taking capacity is measured in terms of a required contingency fund to avoid ruin in any single year (this can easily be expanded over a larger number of years by repeated iterations of the model). The results were obtained by using a sophisticated system called the "Risk Analyzer Program," which enables the user to evaluate all combinations of events involving binomial probabilities.

The event here was either life or death within one year for a group of 100,000 lives (and 200,000 lives after merger) distributed by age and amount as shown in Appendix C. There are, of course, $2^{100,000}$ combinations evaluated; the results summarized in Tables C1 and C2 of Appendix C were obtained by eliminating trivial results and summarizing nontrivial results into representative amount bands.

Appendix C may also be used to compare theoretical stop-loss premiums for the individual companies with those for the merged company. Comparisons are shown in Table 3 for stop-loss coverages effective at various levels of loss in excess of expected losses (i.e., deductibles).

TABLE 2*

REDUCTION IN REQUIRED CONTINGENCY FUND TO AVOID ONE-YEAR RUIN†

CONFIDENCE LEVEL	100,000 LIVES (TABLE C1)			200,000 LIVES (TABLE C2)			REDUCTION IN CONTINGENCY FUND [2×(2)−(5)]
	Assets (1)	Contingency Fund Surplus (2)	Ratio (3)	Assets (4)	Contingency Fund Surplus (5)	Ratio (6)	(7)
90.0%	$13,575,729	$ 998,129	7.35%	$26,561,668	$1,406,468	5.30%	$ 589,790
95.0	13,851,373	1,273,773	9.20	26,983,800	1,828,600	6.78	718,946
99.0	14,439,813	1,862,213	12.90	27,759,403	2,604,203	9.38	1,120,223
99.9	15,068,816	2,491,216	16.53	28,637,745	3,482,545	12.16	1,499,887

* Numbers have not been rounded, to facilitate reference to computer-produced output.

† "Contingency fund" is defined as the excess of assets required to cover losses at the specified confidence level, over the expected losses.

4. INVESTMENT BENEFITS

Benefits that occur because of consolidation of investment capabilities are often given as the principal benefits of merger. These may occur because of (1) ability to participate in larger offerings of investments, with their inherently higher yields; (2) ability to diversify the portfolio, hence avoiding excessive losses attendant on concentration of investment

TABLE 3

THEORETICAL STOP-LOSS PREMIUMS FOR INDIVIDUAL AND MERGED COMPANIES

Amount of Deductible in Excess of Expected Losses* (Twice This for Merged Company)	Individual Company of 100,000 Lives (Table C1) (1)	Total of Two Individual Companies (2)	Merged Company of 200,000 Lives (Table C2) (3)	Reduction of Stop-Loss Premium due to Merger [(2)—(3)] (4)
	A. Net Premiums			
$1,000,000	$38,491	$ 76,982	$16,073	$ 60,909
1,500,000	9,996	19,992	1,407	18,585
2,000,000	1,760	3,520	61	3,459
	B. Gross Premiums†			
$1,000,000	$89,529	$179,058	$37,968	$141,090
1,500,000	23,991	47,982	4,236	43,746
2,000,000	5,048	10,096	1,140	8,956

NOTE.—The above premiums are for unlimited stop-loss coverage for amounts in excess of the deductible. While this is correct on a theoretical basis, in practice the reinsurer will specify a limit because of the unknown hazards of war, natural catastrophe, airplane disaster, and so on.

* Expected losses are $12,577,600 for each company, or $25,155,200 for the merged company.

† Loading formula, "Gross premium = (2.3 × net premium) + $1,000," is arbitrary but not unreasonable.

risk; and (3) ability to spread the costs of administrative systems over a larger base of investments.

The first benefit arises both as a result of a wider knowledge of investment possibilities and as a result of the ability to participate in larger offerings. This is further enhanced if the merged company is able to continue two geographically separated investment offices, utilizing the investment talents of both partners. In such a case the combined company will become aware of opportunities available in both areas.

However, as noted above, longer lines of communication and possible duplication of management will impose an additional cost. An example of getting wider geographic exposure while avoiding excessive costs is the establishment of a securities office in the East and a real estate mortgage loan office in the West, utilizing the talents of each office.

The ability to avoid excessive loss by portfolio diversification is a basic tenet of investment theory, and its validity is beyond the scope of this paper.

The final advantage to be discussed is one that was alluded to above in relation to insurance but is equally valid with respect to investment. This involves the economies of scale brought about by increased use of experts and the ability to spread administrative systems development costs over larger bases of assets. Many firms are now investigating the possibilities of computer-based investment information systems. The usual justification involves such statements as, "The cost of this system will be recovered each year if we are able to achieve a 10-basis-point increase in portfolio earnings." If that statement is valid, then it will be possible to double the effect of that return if two investment departments are able to utilize the same systems.

5. BENEFITS IN RELATION TO PERSONNEL

It was noted above that a part of the expense savings would come as a result of termination of some employees or in reducing staff through attrition (curtailing new hires). If such terminations are planned and executed properly, the surviving staff may be more effective than the sum of the two predecessor staffs, even though it is smaller.

It is recognized that some employees of the merged company may perceive the merger as a reduction in their advancement potential, whereas, in fact, the opposite may be true. As a result, the merged company can probably expect to lose personnel who could make valuable contributions. On the other hand, the merger will afford the opportunity for management to reconsider the continued employment of many marginal people, who could not easily be replaced in the absence of a combination of two similar functions. The extent of success in achievement of this pruning will depend on the attitude of management and its ability to maintain objectivity in a highly emotional decision process.

The merged organization will also be able to benefit by an immediate increase in field personnel. In those areas where there are overlapping agencies (areas of negative value in marketing and antitrust considerations), the merged company will have an opportunity to eliminate the

marginal manager while strengthening the remaining agency by a shift of successful agents. In view of the high cost of agent acquisition, this could be of significant value in justifying the merger.

6. BENEFITS OF SIZE PER SE

Most discussions of merger benefits begin with the statement that one cannot view size per se as the major benefit of the merger. In subsequent discussions, not only is this benefit disregarded as a major justification, but often it is almost totally ignored. This unenlightened attitude as to the importance of size must be reversed if the full potential for corporate marriages among mutual companies is to be realized.

Life insurance companies are organizations of people who are selling products to people. If size alone is important to people (and it is very important to the sophisticated buyer), then it is also important to life insurance companies.

Intercompany statistics as reported by *Best's*, *Spectator*, the LIAMA, the ALC, the LIAA, the ILI, the HIAA, and other sources all include statistics relating to size. *Best's* and *Spectator* often show industry rankings in terms of assets and in-force and new business. Recently, there was a much-publicized battle for the number-one position in the industry in terms of assets. Boards of directors are concerned with industry rankings of their company. Potential employees are concerned with the ranking of their company. And companies go to considerable expense to publicize the areas in which they are among the leaders.

Buyers are also impressed by the rankings of the sellers. Sales campaigns may stress that a company is largest in a particular state in assets, in premium income, or in face amount. Agents stress their company's size, possibly as an indication of stability. However illogical, size is a factor in selling insurance.

Only recently have people begun to talk in terms of profitability in addition to, or in lieu of, size. But size itself continues to have large intangible benefits as well. We are not stating that the benefits of size per se should be a major justification for a merger, but it should be a positive factor. Perhaps current studies in motivation research will enable us to quantify these benefits in the future.

C. *Suitability of Partners*

1. PROFITABILITY OF INSURANCE IN FORCE

In Section IV below, "Fair and Equitable Treatment of Policyowners," the basis for maintaining equity between companies having lines

of business with unequal profit potentials will be discussed. The concern in this section is to treat the subject of compatibility and to point out situations where the potential gains of one partner may be thwarted by the losses of the other.

Irrespective of the accounting system used to maintain equity among policyowners, the combined assets of the merged company will be used for the protection of all policyowners. Hence an insurer must be certain that the profit potentials of all lines of business of its proposed partner are reasonably close to its own. This can be determined by prospective asset share calculations using similar assumptions as to expenses and investment return on new investments. Mortality levels would not necessarily be identical, since the business may have been underwritten using different selection standards. Also, earnings on the existing portfolio would not be identical if the combined company were to use a fund basis as described in Section IV below.

It may be that expenses charged to the lines will be different if there is a significant difference in the level of services provided that will continue to be maintained in the future. However, this would be difficult to justify in a mutual company. The correct expenses in such a case would be a blending of the two expense levels (as well as a blending of the two service levels). Differences in commission scales on renewal business would be reflected in the asset share assumptions (to the extent that such differences will be maintained), but differences in taxes should not be. In fact, the tax assumptions should be changed, in both situations, to reflect the new circumstances, that is, state of domicile for premium taxes (reflecting retaliatory implications) and phases of federal income taxation.

As we have stated above, it is not necessary that both blocks of business have identical levels of profit potential; the difference in profits will be reflected in differences in dividend scales. It is, however, vital that the loss potential of one line not require subsidies from gains of the other partner's business. This would be inequitable to the policyowners having the gains potential, since they would have been in a stronger position in the absence of the merger.

2. COMPLEMENTARY MARKETS AND PURPOSES

If the proposed partners have markets that complement each other, *and* if entry into those markets (for those markets in which each partner is weak) is part of the partners' purpose, then we have a very favorable match. Where this is not true, further evaluation is necessary.

If there is overlap in market areas, either in products (which is almost

a certainty) or in geographic area, it is generally possible to turn this into an opportunity—either an opportunity to sell the better of two products or an opportunity to eliminate a marginal agency and to consolidate the best talents (e.g., by placing the superior manager in the more successful agency). A further opportunity is afforded by the elimination of one competitor in the geographic area, although, because of the antitrust considerations, this cannot be (by definition) too large a benefit.

If there is a product area in which one partner is heavily involved but the other either is absent or is in the market on a defensive basis, then the purpose of the "absent" firm in this regard must be reassessed. Is this company absent from the market because of a conscious effort to remain out of the field? (Examples of such areas are health insurance, group credit, noncancelable long-term disability, mutual funds, and variable products.) If so, is there any reason why this purpose should now be altered? Possible reasons for altering the purpose are (1) that the present purpose is outdated because of a re-evaluation of purpose (see Sec. II above) and (2) that the event of the merger itself causes a change (e.g., where the purpose was concentration on individual life insurance because of limitations of management expertise).

Before proceeding, the partners must be certain that their purposes are complementary or, at least, reconcilable. One or both partners may partially compromise their purposes, but such compromises must be recognized and understood by management.

3. QUANTIFICATION OF PROPOSED GAINS

The partners should compare the results of the combined company with that of the individual pieces. If one or both companies have a computerized system for projection of financial results, this can be used to prepare the comparisons. Results should be prepared for each company in the absence of merger, summing these to obtain a "totaled company," and the exercise repeated by bringing in the effects of the synergistic benefits previously enumerated to obtain results for the "merged company." The models for the two companies should be based on similar assumptions with respect to the relationships of the future to the past; that is, both models should maintain the same optimism in setting sales forecasts. Also, the companies should not confuse forecasts with plans, goals, or objectives. Comparisons should be based on reasonable forecasts—results that are most likely to occur.

It is important that the companies resist the use of the best of both assumptions—for example, use of the rate of new-business growth of the

faster-growing company with the lapse rate of the slower-growing company, on the assumption that the combined company will always achieve the best of the two worlds by using the best of individual talents. This should occur in many areas, but not in offsetting areas such as new business and lapses.

The purpose of the projection is to tie together the benefits in a usable format for justifying the merger to the various parties concerned: managements, policyowners, and regulatory bodies. It also acts to give a basis for comparison of actual achievement to projected benefits.

A projection of the financial results of a merger appears in Appendix A, together with the assumptions used in that study. Obviously this is an oversimplified example, using only one plan and four issue ages for each company. The resulting savings are illustrative only and are not intended to be a guarantee or promise of results.

IV. FAIR AND EQUITABLE TREATMENT OF POLICYOWNERS

In the justification of a plan of merger of two mutual life insurance companies, the overriding consideration is the maintenance of fair and equitable treatment of all policyowners in all classes in both companies—present policyowners and future policyowners. The policyowners of both companies, through their respective boards of directors, and the regulatory authorities of the various states in which they are licensed must be assured of this fact before the merger can be permitted.

The major conceptual difference between stock and mutual mergers is that in the former the equity problem of the two groups of stockholders is settled by the rate of equalization, whereas in the latter the question is not really solved until all premerger policyowners have terminated. This produces a different type of synergism, namely, that the resultant equity problem of the actuary of the continuing company is greater than the sum of the problems of the actuaries of the predecessor companies. If we identify the three corporate entities involved as "Company R" (the retiring company), "Company S" (the surviving company), and "Company RS" (the successor company), we have the relative equity problems of (1) policyowners of Company R versus those of Company S, (2) policyowners of Company R versus those of Company RS, and (3) policyowners of Company S versus those of Company RS.

A. *The Concept of Equity in Company RS*

The concept of equity as relating to these groups is similar to that relating to a single mutual company. The single-company concept is

discussed in a considerable number of articles in the actuarial literature and is summarized concisely in the Study Notes for Part 9I.[1]

It is well to enumerate some of the many factors that have a significant bearing on equity. These should be compared in the two companies to place them on similar bases, so that a meaningful analysis of equity can be made. Such factors will include the following:

1. Federal income tax. If merging the companies results in a higher total tax than would otherwise be the case, it should be demonstrated that the other gains achieved through merger more than offset this.
2. Consistency in valuation of assets.
3. Reserve bases and methods of reserving.
4. Gross margins in the rate structure of the respective companies. (The higher the gross rate structure, the less stringent the contingency reserve requirement.)
5. Quality of business (relative to persistency, mortality, average size, mode of premium payment, and the like).
6. Present level of existing contingency funds of each company.
7. Present level of development of new business of each company and degree of subsidization thereof by old policyowners.
8. Recent development of a new department or a new line by either company, and amount of subsidy therefor.
9. Such actuarial factors as mortality, rate of interest on investments, unit expense rates, withdrawal rates during early policy years, acquisition costs, and indirect overhead.
10. Funding of the past service benefit of the company pension plan. (The plan of each company should be valued, taking into account the same types of assumptions, although such assumptions need not be identical but should reflect the actual experience of the plan.)
11. Investment accounting methods.
12. The actual return objective of each company, that is, what aggregate percentage of generated surplus is returned each year to policyowners.
13. Date of most recent revision of dividend formula. (Consider the case where one company has just improved its scale, while the other was just about to.)

The Study Note referred to above identifies three basic approaches of surplus distribution, which are (1) the classical three-factor dividend formula; (2) the asset share approach, which considers contributions from sources other than the classical three; and (3) the fund formula, which develops surplus by tracing the buildup of surplus historically.

[1] "Analysis and Distribution of Surplus for Individual Insurance" (9I4-1-63) (author not specified).

Regardless of which approach is followed by Companies R and S, there may be basic differences in concepts of the level of contingency reserves, credibility differences in recognition of experience trends, levels of contributions to permanent surplus, concepts relating to the nature of surplus funds, and the related concept of suitability of termination dividends. Each of these differences will have to be resolved before an approach can be decided upon for surplus distribution.

As noted above, there are three basic approaches to surplus distribution techniques, which give nine possible situations confronting the actuaries merging two mutuals; each of these can be solved by either of the three approaches for Company RS, giving twenty-seven possible situations for analysis. This paper will concentrate on a solution which the authors believe will produce the most reasonable result, namely, the fund accounting approach, regardless of the approaches used by the predecessor companies. This approach has the advantage of being more easily understood by nonactuaries, of providing traceable sources of surplus for distribution, and of being feasible for companies that have used the other approaches in the past. The major disadvantage is the effort involved in tracing histories of companies that do not have such fund accounts available.

A very reasonable question on the part of a prudent policyowner might be, "If my insurance company merges with another insurance company, (1) will my future dividends be at least as large as would be the case had the merger not taken place, and (2) can I ultimately expect dividends to be even greater than would have otherwise been the case?" The first part of the question would have to be answered in the affirmative, and, while the second would not have to be answered categorically in the affirmative, the policyowner might reasonably expect to be better off in some way as the result of the merger. To be prepared for the possibility of a suit on the part of dissenting policyowners, the companies should have the facility for demonstrating the relative positions of policyowners in Companies R, S, and RS. Fund accounting appears to offer the most logical approach for answering such objections. In the analysis that follows, we will focus our attention on a single line of business, using individual life for illustrative purposes where necessary.

B. *Fund Accounting Technique*

There are three techniques that can be used in Company RS for identifying the gains available for distribution to contributing parties.

1. ONE-FUND APPROACH

The simplest approach is possible where there are no *material* differences in the characteristics of the business, the invested assets, the surplus levels, and so on, of Companies R and S. The funds as developed are merged, and Company RS is faced only with the problems of a single mutual company.

The major problem with such an approach is that there are seldom situations involving no material differences, and, even where such situations exist, the companies involved are in the least defensible position if subsequent questions of equity arise.

2. TWO-FUND APPROACH

This approach involves the establishment of separate funds for the business coming from Company R and from Company S, the business of Company RS being assigned to the fund that has the most similar characteristics. An example would be a case in which Company RS issued the same portfolio that had been issued by Company S.

The problem of financing the new business by using the surplus available from both Company R and Company S could be handled by transfers of funds, initially from Fund R to Fund S to finance the new business, later from Fund S to Fund R to return the earnings on the new business, and eventually from Fund R back to Fund S in the form of permanent contributions to corporate surplus. The degree of equity will be reflected in the refinement involved in the determination of the transfer payments, as well as in the refinements used in allocating indirect income and expenditures.

Although this approach is theoretically sound in certain situations, it has the disadvantage of appearing to favor the former policyowners of Company S, since it appears to receive the benefits of new business (and the new money that goes along with it) and since Fund R eventually disappears. Because of this disadvantage, this approach becomes least defensible to nonactuaries.

3. THREE-FUND APPROACH

The continued separation of Fund R and Fund S from each other, and from Fund RS, offers the best solution for most situations. Since Fund RS will start off with a zero balance, it is necessary that the two other funds each transfer assets to Fund RS to enable it to sustain the strain of new business. Subsequent transfers will involve reimbursement of the financing and the permanent contributions to surplus as Funds

R and S disappear (similar to the transfers in the two-fund approach above). The advantages of this approach are that it is most understandable and that it requires continued segregation of results for the separate funds, requiring management to focus upon the gains of each block of business. The disadvantages are the additional accounting required and the potential problems involved in determining the allocation of investments by Funds R and S in Fund RS.

The fund accounting discussed above should be distinguished from the reporting used in the Annual Statement. Regardless of the approach used, reporting in the Annual Statement will be combined into a single line of business on page 5. The fund accounting referred to above is an internal technique for separating operating results into broad dividend classes. However, the separation does permit examination of the separate results by the proper regulatory authorities. Furthermore, although assets are separated for analysis of gains, all assets continue to be held for the benefit of all policyowners.

If either the two-fund or the three-fund approach is used, it would be desirable to establish guidelines for the eventual disappearance or assimilation of Funds R and S. This can be done in terms of (1) a minimum level of in-force, reserves, number of policies, or similar business parameters or (2) a time limit developed from projections of operating results or (3) a combination of the two.

Although the approaches discussed above relate to a maximum of three possible funds, it might be possible to have more funds—for example, where either Company R or Company S had more than one fund for the individual life line before the merger. This will complicate the practical aspects but will create no additional conceptual problems.

In the analysis that follows, it will be assumed that the three-fund approach has been selected, since the breakdowns required can then be combined to produce the breakdowns of data needed for the other two methods. The next problems confronting the companies are the mechanism for identification of direct items of income and expenditures and the techniques for allocation of indirect items. Here again, we will discuss only problems that are beyond those of the solo mutual company.

C. *Allocation of Indirect Income and Expenditures*

1. INVESTMENT INCOME

Most medium-sized companies writing more than one line of business already face this problem. The additional problem is really one of degree of pooling, as opposed to recognition of separate earnings potential. It

should be possible under an investment-year allocation approach to allocate investment income within a major line of business in recognition of different patterns of earnings, such as a predominance of low-yielding bonds in Company R as compared with higher-yielding mortgages in Company S. It would also be possible to maintain separate identification of specific assets with particular lines of business.

With regard to investment years starting after the merger date, all funds would receive credit for new money in proportion to their receipts. The transfers among funds would have to be done by removing assets at rates of interest in the same proportions as exist in the fund making the transfer, at the time of transfer, since this is what would normally happen in a one-fund, nonmerging company.

For example, when Funds R and S are transferring funds to Fund RS to finance new business, the funds transferred will be proportionate shares of the investment years in which Funds R and S are invested. By transferring out funds at their portfolio rates, Funds R and S benefit (in a period of rising interest rates) as the flow of new money from renewal premiums on their existing portfolios brings up their portfolio rates at a faster pace than in the absence of such transfers (i.e., Funds R and S do benefit from the influx of new business at current money rates). Fund RS, on the other hand, is required to average the new money received on new business with the lower portfolio rate on the assets financing the business, a fact which should surprise no one who has followed through the advantages and disadvantages of investment-year allocation.

The repayment of assets by Fund RS will again be with a proportionate share of all investment-year funds, since there is seldom any subdivision of investment income within the individual life line. The final transfer of assets to Fund RS, at the demise of the other two funds, offers no income allocation problem.

Problems of allocation within pension lines, where allocation by investment year is complete to the level of specific cases, are identical, whether or not the companies merge.

Whatever approach is used for allocation of investment income of specific assets to specific blocks of business (or funds) should also be followed for the allocation of capital gains and losses.

Finally, it will probably be desirable to merge assets for investment income purposes of Funds R and S at some point in time when the differences in characteristics have become immaterial as a result of the investment of *new* funds in identical portfolios. The criteria for identifying this point should be established in advance.

Again, it should be noted that, although for investment income purposes assets are viewed as segregated, they are all held for the benefit of all policyowners. Consequently, losses in the portfolio assigned to Company R, while largely affecting the income of Fund R, can eventually impair the earnings of Fund S or Fund RS by requiring the transfer of assets to avoid a theoretical insolvency.

Companies using a portfolio average approach for allocation of investment income will have to determine whether to use one or three separate portfolios for such allocations among Funds R, S, and RS. Here again, the problem concerns itself with the degree of similarities in the respective portfolios.

2. EXPENSE ALLOCATIONS

Many different approaches are used for expense allocations, ranging from sophisticated functional cost analyses to simple armchair guesses. The only additional problems faced as a result of the merger are to ensure consistency in degree of sophistication among the three funds and to make certain that the expense allocation procedures result in all expenses being allocated to one of the three funds.

One interesting side benefit will be an immediate separation of first-year and renewal expenses, since in the first year this will be synonymous with separation by fund. The results, if properly arrived at, will be of value to companies that have not previously exercised much sophistication in this area. Allocations of overhead are always troublesome and offer no new problems due to the merger.

A unique problem involving the merger is the distinguishing of different concepts with regard to expense recognition, such as different levels of past service liability and different rent charges for home office real estate (resulting in different levels of depreciation). Material differences should be recognized by assignment of the impact of these differences to the appropriate fund.

Tax allocations will again show a refinement of degree rather than of concept. In Appendix B we have shown two tax situations, one where the merger reduces the total tax bill and the other where the tax bill is increased. The combination resulting in a tax increase occurs because of the elimination of duplicate statutory allowances, while the decrease results from the combination of two companies in dissimilar tax situations. The allocation problem faced here is similar to the interline allocation problem that has been discussed in the *Transactions*.[2] The only additional

[2] *TSA*, XXI, D49 ff., D417 ff.

problem results from differences in concept between the two companies that have to be resolved.

3. DIVIDEND DISTRIBUTION

The only purpose of maintaining careful fund accounts is to identify respective earnings, so that the earnings are returned to the sources that produced them. Differences may exist in the dividend formulas for Companies R and S and could continue to exist after the merger. There is no reason why the merger should force a change in dividend formulas. Similarly, it is possible for the dividend scales of the two funds to have different slopes (resulting in differences in concept between persisting and terminating policyowners). However, it would not be proper to require different ultimate contributions (per unit) to the permanent surplus of Company RS from each of the other two companies. It is conceivable, however, that the contribution from new business would be at a level different from that of either Company R or Company S, since we currently have such differences between blocks of business within a single company.

The use of termination dividends in one of the companies but not in the other can be dealt with in the same manner as the question of the slope of the scale. A termination dividend can be viewed as a part of the dividend scale whose main purpose is to achieve equity between persisting and terminating policyowners. Hence the differences in pattern of dividend distribution could be continued.

D. *Summary of Fair and Equitable Treatment of Policyowners*

Since the merged company is merely a continuation of the two predecessor companies, new members are full members with the same rights to protection and participation in the same manner and degree as members who became insured in the predecessor companies. They have the same obligation to replenish the amounts that they took out of the revolving fund and to make their contributions to company general surplus. Members of the predecessor companies have no unique proprietary interest in the earnings from the new members of the merged company, nor is the reverse true.

The responsibility for achieving fair and equitable treatment is that of the respective actuaries during negotiations, but, once the negotiations are completed, it becomes the responsibility of the actuary of Company RS. This responsibility must be undertaken without regard to the actuary's former associations. Consequently, the actuary, in determining

an approach for maintaining fair and equitable treatment among the three groups, should avoid partisan approaches, since his ultimate role as actuary of Company RS requires that he be fair and equitable to all policyowners.

The approach settled upon should be flexible, to avoid tying future management to a specific approach. Actuaries of future generations should be free to develop creative means of maintaining equity without the burden of restrictions imposed in the merger agreement.

V. CONCLUSION

It is quite possible that the decade of the 1970's will witness several mergers of small and medium-sized mutual companies. Many of the considerations applicable to the merger of stock companies apply with equal or even greater force to the merger of mutuals. In particular, these considerations include lack of surplus for expansion, need to diversify, and insufficient volume to minimize unit expenses and maintain competitive net costs.

It is important to emphasize that the main competition to a mutual company is from other mutual companies, and a merger between two mutuals is not aimed primarily at improving the competitive position with stock companies. Indeed, there is little difference between stock and mutual companies from a purely pragmatic viewpoint, because the emphasis is on company growth in both types of companies. Growth will enable the stock company to maximize profits for stockholders and will enable the mutual company to reduce net costs to policyowners and improve both the breadth and the quality of service to its insureds. Since it is equally advantageous to both types of companies to grow and since growth can be accelerated by the merger route, it is quite logical that mutual companies should consider merging as stock companies have done for the past several decades.

Merger of two mutual life insurance companies presents many more complex problems than do mergers of stock companies. By far the most difficult is the maintenance of fair and equitable treatment for the policyowners of both predecessor companies as well as the policyowners of the new ongoing company.

Solution of these problems presents the actuary with an enormous challenge as well as a most stimulating assignment. Extensive studies must be made of the attributes of both companies, and, through rather precise fund accounting techniques, the surplus generated by each group of policyowners, or the appropriate portion thereof, must be equitably

returned to its source. The exact solution selected will depend upon the situation prior to the merger and the objective of the merged company. In any event, it will generally be necessary to expand the accounting system to maintain separate identity of the various policyowners, but to pool contingency charges where appropriate. The synergistic benefits which can result from the merger should justify the elaborate accounting required.

In addition to decisions concerning the source of earnings, the actuaries must face decisions relating to the incidence of return of earnings. Surplus exists for the protection of policyowners whose interests in the company are contractual and who have only such rights as are granted them in the contract of insurance and by statute. Surplus may be looked upon as a revolving fund from which each group of new policyowners can borrow with a view to repayment during the renewal years. It is owned by the company until it is declared distributable by the board of directors. A portion of surplus contributed by each class of policyowners should be retained by the company to ensure its continued growth and well-being and to enable it to take advantage of the numerous business opportunities that present themselves. Therefore, there will seldom be a need for the release of surplus at the time of merger (in the form of a special dividend) unless a change in operations is contemplated.

The end result of a merger of mutual insurance companies should be a company with greater strength, with the capacity to provide broader services at lower net cost, and with additional thrust acquired as a result of greater size. The theoretical advantages of mergers of mutual companies are obvious. However, the success or failure of such an attempt will be determined by the ability of management to solve the engineering problems, both human and actuarial.

VI. ACKNOWLEDGMENTS

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APPENDIX A

ILLUSTRATIVE PROJECTION OF THE MERGER OF TWO MUTUAL LIFE INSURANCE COMPANIES

I. ASSUMPTIONS: PROFIT STUDIES

	In-Force and Future Business		Future Business Merged Mutual RS
	Retiring Mutual R	Surviving Mutual S	
1. Plans of insurance	Ordinary life	Ordinary life	Ordinary life
2. Ages at issue	25, 35, 45, 55	25, 35, 45, 55	25, 35, 45, 55
3. Mortality	90% 1950–54 Male	95% 1955–60 Male	95% 1955–60 Male
4. Investment earnings	5%	5%	5%
5. Lapse rates	150% Linton A	Linton A	110% Linton A
6. Reserves	1958 CSO 3% CRVM	1958 CSO 3% N.L.	1958 CSO 3% N.L.
7. Expenses			
a) Acquisition:			
Per policy	$ 34.28	$ 39.86	$ 38.17
Per $1,000	$ 4.06	$ 5.75	$ 4.60
Per cent of premiums	7.86%	14.3%	10.4%
b) Renewal:			
Per policy	$ 2.71	$ 0.32	$ 1.50
Per $1,000	.....	$ 0.08	.....
Per cent of premiums	4.4%	3.7%	3.9%
c) Claim expense	$ 23.16	$ 47.80	$ 45.00
d) Surrender expense	$ 12.55	$ 12.28	$ 12.25
8. Commissions			
a) First year	90.75%	55.0%	55.0%
b) Renewal	Graded 15% to 4%	Graded 15% to 2.5%	Graded 15% to 2.5%
9. Premiums			
a) Age 25	$ 18.19	$ 16.93	$ 16.57
b) Age 35	$ 23.83	$ 20.39	$ 20.03
c) Age 45	$ 34.04	$ 32.29	$ 31.93
d) Age 55	$ 51.61	$ 49.44	$ 49.08
Policy fee	.....	$ 10.00	$ 15.00
10. Average size of policy	$16,000	$14,000	$14,000
11. Cash values*			
a) Year 2	$ 18	$ 18	$ 18
b) Year 5	$ 77	$ 77	$ 77
c) Year 10	$160	$160	$160
d) Year 20	$343	$343	$343
12. Dividends*			
a) Year 2	$ 0.94	$ 2.19	$ 2.19
b) Year 5	$ 2.95	$ 4.28	$ 4.28
c) Year 10	$ 6.07	$ 7.90	$ 7.90
d) Year 20	$ 10.40	$ 11.28	$ 11.28
13. Termination dividends	Yes	Yes	Yes

* The years shown are illustrative only, at age 35. The profit studies used cash values, dividends, and reserves at each of the ages for each of the thirty years included in the study.

II. ASSUMPTIONS: PROJECTIONS

The profit studies for Companies R and S were assumed to represent both in-force and future business. For Company RS, the in-force business is obtained as a weighted average of the in-force business for the two companies. This approach should not be followed in valuing an actual merger situation, since it ignores any improvement in expenses, lapses, earnings, and the like that may be possible on the in-force business.

Future profits have been discounted at an annual rate of 5 per cent. New business growth (in $1,000 units) is as follows:

Company R:	$140,000 of insurance growing at 3 per cent per year.
Company S:	$530,000 of insurance growing at 8 per cent per year.
Company RS:	$670,000 of insurance growing at 10 per cent per year.

III. RESULTS

Table A1 compares the summed results for the two companies with that for the combined company. The differences, shown in column 5, are the measures of the synergy of the merger. The details of each company's projection are shown in the computer-prepared reports that are attached as Tables A2, A3, and A4 for Company R, Company S, and Company RS, respectively.

TABLE A1

RESULTS OF PROJECTION ILLUSTRATING SYNERGY OF MERGER

(Amounts in $1,000 Units)

Tenth-Year Results	Company R (1)	Company S (2)	Total of Company R plus Company S (3)	Company RS (4)	Synergy of Merger [(4)—(3)] (5)	Percentage Improvement [(5) ÷ (3)] (6)
Present value of future profits (discounted at 5%)	$ 16,834	$ 156,787	$ 173,621	$ 201,303	$ 27,682	15.9%
Production (new business)	180,000	1,060,000	1,240,000	1,580,000	340,000	27.4
Insurance in force	1,821,000	8,448,000	10,269,000	11,432,000	1,163,000	11.3
Reserves	255,262	1,091,971	1,347,233	1,423,646	76,413	5.7
Gain and loss:						
Premiums	$ 51,172	$ 224,575	$ 275,747	$ 305,086	$ 29,339	10.6%
Interest on reserves	11,997	50,543	62,540	65,815	3,275	5.2
Total income	$ 63,169	$ 275,118	$ 338,287	$ 370,901	$ 32,614	9.6%
Deaths	$ 9,879	$ 39,213	$ 49,092	$ 51,368	$ 2,276	4.6%
Surrenders	9,849	26,115	35,964	37,946	1,982	5.5
Commissions	9,534	26,184	35,718	39,034	3,316	9.3
Expenses and taxes	3,905	21,565	25,470	27,805	2,335	9.2
Increase in reserve	18,565	110,875	129,440	147,809	18,369	14.2
Dividends	10,555	48,821	59,376	63,395	4,019	6.8
Total deductions	$ 62,287	$ 272,773	$ 335,060	$ 367,357	$ 32,297	9.6%
Profit	$ 882	$ 2,345	$ 3,227	$ 3,544	$ 317	9.8%

TABLE A2

OVER-ALL PROJECTION OF EXISTING BUSINESS AND FUTURE ISSUES—LIFE RETIRING MUTUAL LIFE INSURANCE COMPANY

YEAR n	PROFIT	PROFIT COMPONENTS								
		Premium	Interest on Reserve	Increase in Reserve	Agency Expense		Other Expense	Deaths	Surrenders	Dividends
					Commissions	Other				
0										
1	1,004	35,406	4,596	15,027	7,197	1,902	911	3,838	5,125	4,998
2	1,007	36,834	5,338	15,404	7,297	1,939	946	4,327	5,669	5,582
3	912	38,516	6,099	15,781	7,667	2,053	988	4,858	6,181	6,175
4	934	40,118	6,880	16,242	7,823	2,095	1,028	5,436	6,671	6,770
5	847	41,940	7,683	16,660	8,233	2,213	1,074	6,065	7,153	7,377
6	868	43,657	8,507	17,135	8,410	2,258	1,118	6,749	7,631	7,996
7	789	45,571	9,352	17,520	8,825	2,378	1,166	7,479	8,143	8,624
8	828	47,362	10,217	17,923	9,002	2,425	1,213	8,246	8,685	9,257
9	752	49,334	11,099	18,234	9,432	2,547	1,263	9,047	9,256	9,902
10	883	51,172	11,997	18,564	9,534	2,595	1,311	9,879	9,849	10,554

YEAR n	PRODUCTION ASSUMPTION	PRESENT VALUE OF FUTURE PROFITS AT n DISCOUNTED AT:		UNITS IN FORCE AT DURATION $n-\frac{1}{2}$	RESERVE AT END	INSURANCE IN FORCE
		5%	6%			
0		12,557	11,928	1,200	86,771	1,199,996
1	140	12,741	12,089	1,251	101,798	1,251,319
2	140	12,925	12,250	1,303	117,202	1,302,771
3	150	13,238	12,539	1,363	132,983	1,363,295
4	150	13,542	12,819	1,421	149,225	1,421,087
5	160	13,977	13,228	1,487	165,885	1,486,727
6	160	14,413	13,639	1,549	183,020	1,548,796
7	170	14,979	14,180	1,618	200,540	1,617,970
8	170	15,537	14,716	1,683	218,463	1,682,890
9	180	16,233	15,388	1,754	236,698	1,754,392
10	180	16,834	15,970	1,821	255,262	1,821,243

TABLE A3

OVER-ALL PROJECTION OF EXISTING BUSINESS AND FUTURE ISSUES—LIFE SURVIVING MUTUAL LIFE INSURANCE COMPANY

YEAR n	PROFIT	PROFIT COMPONENTS								
		Premium	Interest on Reserve	Increase in Reserve	Agency Expense		Other Expense	Deaths	Surrenders	Dividends
					Commissions	Other				
0										
1	960	100,484	15,610	53,229	12,982	7,696	2,569	11,220	9,620	17,818
2	1,053	110,577	18,327	58,203	14,080	8,319	2,826	13,065	10,920	20,437
3	1,118	121,549	21,296	63,577	15,227	9,071	3,108	15,216	12,322	23,208
4	1,259	133,345	24,535	69,251	16,442	9,837	3,411	17,691	13,832	26,156
5	1,486	145,919	28,058	75,199	17,698	10,615	3,735	20,484	15,461	29,299
6	1,599	159,501	31,880	81,569	19,140	11,524	4,085	23,594	17,220	32,649
7	1,813	174,025	36,021	88,234	20,658	12,449	4,461	27,017	19,160	36,255
8	1,948	189,710	40,498	95,355	22,372	13,507	4,866	30,749	21,286	40,125
9	2,198	206,489	45,331	102,854	24,171	14,584	5,301	34,809	23,600	44,304
10	2,347	224,576	50,543	110,875	26,183	15,796	5,769	39,213	26,115	48,821

YEAR n	PRODUCTION ASSUMPTION	PRESENT VALUE OF FUTURE PROFITS AT n DISCOUNTED AT:		UNITS IN FORCE AT DURATION $n-\frac{1}{2}$	RESERVE AT END	INSURANCE IN FORCE
		5%	6%			
0		67,744	64,074	3,400	293,625	3,399,985
1	530	74,039	69,989	3,758	346,853	3,757,633
2	570	80,790	76,346	4,138	405,057	4,138,248
3	620	88,108	83,248	4,552	468,633	4,552,138
4	670	95,952	90,656	4,997	537,884	4,997,264
5	720	104,276	98,523	5,472	613,084	5,472,107
6	780	113,284	107,046	5,985	694,652	5,985,292
7	840	122,926	116,175	6,534	782,886	6,534,441
8	910	133,382	126,080	7,128	878,241	7,127,835
9	980	144,596	136,707	7,763	981,096	7,762,947
10	1,060	156,786	148,265	8,448	1,091,971	8,447,865

TABLE A4

OVER-ALL PROJECTION OF EXISTING BUSINESS AND FUTURE ISSUES—LIFE COMBINED MUTUAL LIFE INSURANCE COMPANY

YEAR n	PROFIT	PROFIT COMPONENTS								
		Premium	Interest on Reserve	Increase in Reserve	Agency Expense		Other Expense	Deaths	Surrenders	Dividends
					Commissions	Other				
0										
1	2,207	135,671	20,260	70,489	18,645	8,613	3,475	15,064	14,745	22,693
2	2,147	147,817	23,833	76,018	20,237	9,466	3,783	17,128	16,588	25,984
3	2,414	161,264	27,692	82,269	21,626	10,344	4,128	20,174	18,511	29,492
4	2,563	176,181	31,874	89,212	23,309	11,341	4,511	23,330	20,561	33,228
5	2,683	192,728	36,412	96,897	25,252	12,460	4,937	26,898	22,766	37,249
6	2,698	211,060	41,345	105,377	27,555	13,702	5,410	30,898	25,166	41,600
7	2,830	231,319	46,709	114,635	30,020	15,071	5,933	35,336	27,867	46,338
8	3,007	253,649	52,547	124,750	32,757	16,569	6,510	40,210	30,885	51,509
9	3,234	278,192	58,900	135,789	35,773	18,199	7,145	45,544	34,236	57,173
10	3,544	305,086	65,815	147,809	39,034	19,964	7,841	51,368	37,945	63,396

YEAR n	PRODUCTION ASSUMPTION	PRESENT VALUE OF FUTURE PROFITS AT n DISCOUNTED AT:		UNITS IN FORCE AT DURATION $n-\frac{1}{2}$	RESERVE AT END	INSURANCE IN FORCE
		5%	6%			
0		80,300	76,001	4,600	380,400	4,599,955
1	670	87,769	83,037	5,009	450,890	5,008,925
2	740	96,147	90,950	5,471	526,907	5,471,263
3	810	105,157	99,469	5,982	609,177	5,982,162
4	890	115,033	108,817	6,548	698,389	6,548,226
5	980	125,944	119,153	7,176	795,287	7,175,650
6	1,080	138,139	130,721	7,870	900,663	7,870,388
7	1,190	151,657	143,551	8,638	1,015,298	8,637,951
8	1,310	166,613	157,754	9,484	1,140,047	9,483,834
9	1,440	183,128	173,442	10,413	1,275,836	10,413,435
10	1,580	201,303	190,709	11,432	1,423,646	11,432,005

APPENDIX B

ILLUSTRATIVE TAX CALCULATIONS SHOWING IMPACT OF MERGER

(Amounts in $1,000 Units)

	Taxes Increase after Merger			Taxes Decrease after Merger		
	R	S	RS	R	S	RS
Taxable investment income:						
1. Fully taxable income	4,300	4,200	8,500	4,300	4,200	8,500
2. Tax-exempt income	100	100	200	100	100	200
3. Short-term capital gains	0	300	300	0	300	300
4. Total investment income = (1) + (2) + (3)	4,400	4,600	9,000	4,400	4,600	9,000
5. Mean assets	105,263	110,000	215,263	110,000	110,000	220,000
6. Current earnings rate = (4) ÷ (5)	4.18%	4.18%	4.18%	4.00%	4.18%	4.09%
7. Five-year average earnings rate	4.00%	4.00%	4.00%	4.20%	4.00%	4.10%
8. Adjusted reserves rate = lesser of (6) and (7)	4.00%	4.00%	4.00%	4.00%	4.00%	4.09%
9. Life insurance reserves (nonpension)	80,000	80,000	160,000	80,000	80,000	160,000
10. Average tabular interest rate	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
11. Adjusted life insurance reserves = (9) [1 + 10(10) − 10(8)]	68,000	68,000	136,000	68,000	68,000	134,560
12. Reserve interest allowance = (8) × (11)	2,720	2,720	5,440	2,720	2,720	5,504
13. Pension reserves	10,000	10,000	20,000	10,000	10,000	20,000
14. Pension reserve interest allowance = (6) × (13)	418	418	836	400	418	818
15. Interest paid	305	305	610	305	305	610
16. Policy and contract liability requirement = (12) + (14) + (15)	3,443	3,443	6,886	3,425	3,443	6,932
17. Company share = 1 − [(16) ÷ (4)]	21.75%	25.15%	23.49%	22.16%	25.15%	22.98%
18. Company share of taxable interest and short-term capital gains = (17)[(1) + (3)]	935	1,132	2,067	953	1,132	2,022
19. Small business deduction [10% of (4), but ≤ 25]	25	25	25	25	25	25
20. Long-term capital gains	500	600	1,100	500	600	1,100
21. Taxable investment income = (18) − (19) + (20)	1,410	1,707	3,142	1,428	1,707	3,097
	3,117			3,135		
Gain from operations:						
22. Gain from operations before taxes and dividends	3,000	5,000	8,000	3,000	5,000	8,000
23. Long-term capital gains	500	600	1,100	500	600	1,100
24. Short-term capital gains	0	300	300	0	300	300
25. Tabular interest on nonpension reserves = (9) × (10)	2,000	2,000	4,000	2,000	2,000	4,000
26. Tabular interest on pension reserves	300	300	600	300	300	600
27. Required interest = (25) + (26) + (15)	2,605	2,605	5,210	2,605	2,605	5,210
28. Phase 2 company share = 1 − [(27) ÷ (4)]	40.80%	43.37%	42.11%	40.80%	43.37%	42.11%
29. Company share of tax-exempt income = (2) × (28)	41	43	84	41	43	84
30. Gain from operations before special deductions = (22) + (23) + (24) − (29) − (19)	3,434	5,832	9,291	3,434	5,832	9,291
31. Aggregate limit on deductions = (30) − (21) + 250	2,274	4,375	6,399	2,256	4,375	6,444
32. Dividends to policyholders before limitation	2,800	4,800	7,600	1,600	4,800	6,400
33. 2% of group premiums before limitation	40	40	40	80	40	80
34. Special deductions [(32) + (33)] subject to limitation (31)	2,274	4,375	6,399	1,640	4,375	6,444
35. Taxable gain from operations = (30) − (34)	1,160	1,457	2,892	1,794	1,457	2,847
	2,617			3,251		
Tax calculation:						
36. Smaller of (21) and (35)	1,160	1,457	2,892	1,428	1,457	2,847
37. One-half of positive excess of (35) over (21)	0	0	0	183	0	0
38. Tax = 48% of [(36) + (37)] − 6.5	550	693	1,382	767	693	1,360
39. Less reduced tax on long-term capital gains = 18% of (23)	90	108	198	90	108	198
40. Net tax on alternate basis	460	585	1,184	677	585	1,162
	1,045			1,262		

APPENDIX C

ILLUSTRATIVE RISK-TAKING CALCULATIONS

Tables C1 and C2 below were prepared on the assumption of 100,000 lives and 200,000 lives exposed to mortality as defined by the 1958 CSO Table, with distributions by age and amount as shown in the accompanying tabulation.

Amount of Insurance	Age 25	Age 35	Age 45	Age 55	Age 65	All Ages
$ 2,000	1.00%	2.00%	1.25%	0.50%	0.25%	5.00%
3,500	2.00	4.00	2.50	1.00	0.50	10.00
6,000	4.00	8.00	5.00	2.00	1.00	20.00
15,000	7.00	14.00	8.75	3.50	1.75	35.00
30,000	3.00	6.00	3.75	1.50	0.75	15.00
60,000	2.00	4.00	2.50	1.00	0.50	10.00
100,000	1.00	2.00	1.25	0.50	0.25	5.00
Total	20.00%	40.00%	25.00%	10.00%	5.00%	100.00%

Models assume coverage for one year, with a stationary population throughout the year. Interest has not been used in this calculation. "Amounts" involved are assumed to be the *amounts at risk.*

Additional refinements that could be introduced are the following:

1. The distributions by amount and age can be expanded to individual amounts (to nearest dollar) and individual ages. This permits testing the effect of changes in individual policy retention amounts.
2. The model can be run for longer periods to determine the surplus necessary to avoid ruin over longer periods of time.
3. The accuracy of the stop-loss premium and required surplus can be improved by redefining the size of the amount bands. The major limitation on the refinement in size is the increased cost.

TABLE C1*

100,000 LIVES

Amount	Frequency	Cumulative	Net Stop-Loss Premium
7,801,194	.00000000000119	.00000000000322	4,776,405
7,839,920	.00000000000193	.00000000000515	4,737,679
7,879,158	.00000000000300	.00000000000815	4,698,441
12,514,573	.02007558392857	.48349491110292	340,722
12,553,716	.02024634355749	.50374125466041	320,504
12,593,825	.02113883335009	.52488008801050	300,600
13,025,991	.01693980876332	.73062245528316	137,041
13,065,157	.01590338570765	.74652584099081	126,491
13,104,384	.01586957074862	.76239541173943	116,548
13,536,419	.00918723847853	.89553371043083	42,597
13,575,729	*.00856636148954*	*.90410007192036*	*38,491*
13,614,860	.00801955355845	.91211962547881	34,738
13,811,800	.00581792803280	.94508234591340	20,210
13,851,373	*.00506824884157*	*.95015059475497*	18,037
13,890,012	.00473238864621	.95488298340118	16,111
14,007,790	.00385022521070	.96712891116558	11,302
14,047,549	*.00332072579250*	*.97044963695808*	*9,995*
14,086,318	.00306124534277	.97351088230085	8,849
14,400,547	.00136018758821	.98976180035693	3,102
14,439,813	*.00122778100263*	*.99098958135956*	2,700
14,479,085	.00108832888857	.99207791024813	2,346
14,518,574	.00098541115454	.99306332140267	2,033
14,558,057	*.00086065192494*	*.99392397332760*	*1,760*
14,597,315	.00076681437586	.99469078770346	1,521
15,029,572	.00017882768048	.99893435128656	272
15,068,816	*.00015443869339*	*.99908878997995*	231
15,108,136	.00013432322243	.99922311320238	195

Mean from table = 12,577,600; standard deviation from table = 773,644.

* The entries are excerpts from a complete computer-produced table. However, only those entries (and two adjacent entries) used in the illustrations are shown (in italics), in an attempt to eliminate unnecessary volume.

TABLE C2*

200,000 LIVES

Amount	Frequency	Cumulative	Net Stop-Loss Premium
18,178,599	.00000000000149	.00000000000386	6,976,600
18,229,387	.00000000000133	.00000000000519	6,925,811
18,268,821	.00000000000176	.00000000000695	6,886,377
.	.	.	.
.	.	.	.
.	.	.	.
25,088,902	.02445414653574	.49225118159854	469,925
25,142,045	.01426594523233	.50651712683087	442,942
25,181,186	.01435014172936	.52086726856023	423,626
.	.	.	.
.	.	.	.
.	.	.	.
26,096,204	.00967914459858	.81072025527051	120,804
26,149,235	.01584537708825	.82656563235876	110,766
26,202,496	.00885213561028	.83541776796904	101,529
.	.	.	.
.	.	.	.
.	.	.	.
26,516,671	.00650307380757	.89554773143308	58,578
26,561,668	.00796435940299	*.90351209083607*	53,878
26,606,832	.00582928043465	.90934137127072	49,520
.	.	.	.
.	.	.	.
.	.	.	.
26,932,802	.00594417301142	.94895641430596	25,926
26,983,800	.00403101142770	*.95298742573366*	23,323
27,027,307	.00330723708766	.95629466282132	21,277
27,072,113	.00399438958852	.96028905240984	19,319
27,117,469	.00288237889879	.96317143130863	17,518
27,156,723	.00269856914296	.96587000045158	*16,073*
27,209,561	.00422813184600	.97009813229758	14,269
.	.	.	.
.	.	.	.
.	.	.	.
27,706,637	.00099734882003	.98942262201043	4,370
27,759,403	.00152881271374	*.99095143472417*	3,812
27,812,929	.00080071551173	.99175215023590	3,328
.	.	.	.
.	.	.	.
.	.	.	.
28,087,857	.00043984569557	.99581322326231	1,594
28,132,519	.00051178901823	.99632501228054	*1,407*
28,177,971	.00035846814101	.99668348042155	1,240
.	.	.	.
.	.	.	.
.	.	.	.
28,598,471	.00012455768115	.99895509646434	359
28,637,745	.00011250565308	*.99906760211742*	318
28,682,484	.00012896425481	.99919656637223	277
.	.	.	.
.	.	.	.
.	.	.	.
29,094,768	.00005238690206	.99977934829228	72
29,148,456	.00002627172433	.99980562001660	*61*
29,192,768	.00002908839417	.99983470841077	51

Mean from table = 25,155,200; standard deviation from table = 1,093,975.

* The entries are excerpts from a complete computer-produced table. However, only those entries (and two adjacent entries) used in the illustrations are shown (in italics), in an attempt to eliminate unnecessary volume.

DISCUSSION OF PRECEDING PAPER

L. TIMOTHY GILES:

The many stimulating concepts of corporate planning presented in this paper suggest that mutual companies might benefit handsomely even by merely pretending to merge. It would also behoove stock companies to apply the discipline of merger planning to their operations. This actuarial paper is a rarity in that it is of direct interest to nonactuaries.

Section II(B)—"Providing Insurance at Minimal Net Cost"—covers rather briefly a subject that is treated more thoroughly in at least two other papers in the *Transactions*: Peter L. J. Ryall, "Analysis of the Rapidly Expanding Company" (*TSA*, XV, 113) and Charles L. Trowbridge, "Theory of Surplus in a Mutual Insurance Organization" (*TSA*, XIX, 216). The necessity for mutual policyholders to contribute funds for financing new business offsets at least partially the payment of dividends to stockholders by nonparticipating policyholders. It is virtually impossible to prove which cost is minimal.

A priori, other financial endeavors of a mutual nature such as credit unions, electric co-operatives, and banks generally have limited success because consumers are rarely capitalists; the money for expansion to efficient size just is not there.

A posteriori, the authors, on the surface, seem to have a point. There are net cost comparisons that show mutual life insurance to have the lowest prospective net cost. Of course, a proper comparison should not mix participating with nonparticipating, because the former must project better since it is not guaranteed.

Limiting the comparison to participating insurance written by stock companies also often shows the mutuals to have lower costs. This might be explained as follows:

1. Widespread statutory regulations which limit the distribution of participating insurance earnings to stockholders to 10 per cent of predividend income (about 2 per cent of premium) result in a profit margin much lower than that on nonparticipating business. Stock company management is thereby tempted to de-emphasize the participating portfolio.
2. The actuary, in developing a participating product for a stock company, need only allow for minimal surplus above that required for the stockholders' cut. The surplus of the entire company can support the participating line. This is the benefit the participating policyholders receive for the payment to

stockholders, but it is ironical that high premium scales provide bigger stockholder payments than low premium scales, whereas the risk of surplus depletion is smaller for the high premium scales.

But this planning for only minimal surplus is against the actuary's nature. He may also be uncomfortable in projecting high and nondeclining interest rates (you can always cut the dividend if the interest is not realized), a practice that is clearly anathema in his nonparticipating ratemaking.

3. In fact, interest rates may be a key factor in these cost comparisons. High interest rates enable mutual companies to finance a greater volume of new business via interest earned on surplus.
4. Many mutual companies probably have excess surplus today and hence have little need for projecting a contribution to surplus. Their diversification activities support this point. This means that earlier generations of policyholders overpaid.
5. There would seem to be little pressure for increasing dividends on in-force business to reflect fully the improved conditions, such as higher interest rates. True, it is necessary to liberalize scales to some extent when other companies do so, but there is little in the way of competition after the sale. The policyholder does not benefit by surrendering and starting over with another company. This phenomenon provides another source for financing new business, which in turn encourages liberal dividend projections on new sales.

ROBERT MERRITT:

This paper is most stimulating reading, since, by presenting for consideration a totally unfamiliar situation, it forces review of basic actuarial concepts concerning surplus, expense allocation, and the like, in a new and different light. I have only one small question, which may very well arise from a misunderstanding. In Section IV(C)(3) on "Dividend Distribution," we find the statement that "it would not be proper to require different ultimate contributions (per unit) to the permanent surplus of Company RS from each of the other two companies." But, if the surplus objectives of Companies R and S before merger have been such as to require different unit contributions to surplus, and if there is, as the authors state just above, "no reason why the merger should force a change in dividend formulas," then how can the ultimate unit contributions to surplus come out the same?

LOUIS GARFIN:

Let me lift the veil of mystery from the introduction to this paper by quoting from a press release dated June 18, 1969. It said, "Pacific Mutual Life, Los Angeles, and Fidelity Mutual Life, Philadelphia, announced today that the companies have terminated merger discussions. The

companies first announced that they would study merger possibilities last November 25." During the course of that study, in which the authors and I (among others) were involved, it became distressingly clear that very little had been published on the subject of merger of mutual life companies. In fact, knowledgeable actuaries advised me at the time that such a merger was not possible. (It turned out that in that instance, at least, they were right.)

Howard Kayton and Bob Tookey have therefore performed a fine service, for which I am personally grateful, in bringing together in this paper many of the principles, problems, and techniques relative to the merger of well-established, healthy mutual companies.

The proposed Pacific Mutual–Fidelity Mutual merger failed to take place, in my opinion, not because of any inherent impossibility in principle or practicality but because of what the authors call "human reasons." On the basis of this experience, I should like to emphasize three key points and then elaborate a little on some of the details.

1. Initial agreement on the basic approach and philosophy of the merger is particularly important in the case of mutual companies.
2. There must be real conviction on both sides that the merger is advantageous for all concerned.
3. While the actuarial and administrative problems are complex, the most difficult hurdles may well be those which must be overcome first. For example: which will be the surviving company, what will be its name, who will be the members of the Board of Directors, and who will be the key officers?

By the nature of a mutual company, the directors serve on the board essentially as a public service. They are typically public spirited businessmen strongly identified with their local community and proud of the company which they serve. Merger means that one of the companies, the "retiring company," will lose its identity as a separate corporation, and for the directors of that company this is hard to accept. Since a merger offers no financial incentive for the directors, they must be satisfied that what they are doing is in the best interests of the company, its policyholder members, and the community.

The result is that, for a merger of mutual companies to be achievable, there must be a strong potential for advantage to the policyholders of both companies, and it must be possible to document it. Moreover, the sale has to be made not only to the directors but to the key officers of both companies who have to make the merger work and to the regulatory authorities who have to approve it.

The second section of the paper, on the "Unique Attributes of Mutual Life Insurance Companies," may seem academic to some readers, but

I believe that the "revolving fund of surplus" concept described in Section II(B) is fundamental to the notions of fair and equitable treatment described later.

It is interesting to note the different contexts in which this same concept has surfaced recently. In presentations made to the American Institute of Certified Public Accountants dealing with the accounting for participating insurance under the forthcoming audit guide, it was described as the "entity surplus" approach, recognizing that certain funds held by mutual companies may not be associated with particular classes of policyholders.

California Insurance Commissioner Richards D. Barger made some related points in a statement to the National Association of Insurance Commissioners last June on the question, "Should SEC Regulate Variable Life?" He first described the kinship of variable life insurance to "traditional participating life insurance." He went on to say:

> I think we all should be quite cognizant of the impact which the application of the federal securities laws might have on insurance regulation. For example, the Investment Company Act of 1940 is premised on the concept that a purchaser of a mutual fund acquires a pro rata share of the fund assets. This, of course, has never been true in life insurance and would not be true under the proposed variable life insurance contracts. The policyholder is not an owner of the fund. His rights and the insurer's obligations are contractual. The distribution of any interest he may have is based upon altogether different legal principles. The entire assets of the insurer stand behind its obligations on all policies.

If these "legal principles" as quoted by Commissioner Barger are not assumed, quite a different notion of fair and equitable treatment may be developed. It is easy, by analogy with a stock company, to reason that existing policyholders at the time of the merger "own" the merging companies and are entitled to a full distribution of their "equity" in the existing surplus of their company. An extension of this logic would call for the distribution to include interest on the equity "invested" in the merged company. This reasoning views the merger as equivalent to a liquidation of the predecessor companies.

A similar result might be obtained by converting the mutual to a stock company and distributing the stock to the policyholders at some point in time, as is permitted under the laws of a number of states. (This has considerable appeal in itself, as evidenced by currently active moves to permit federal mutual savings and loan associations to convert to state chartered stock companies.) Acquisition of the stock by a merger partner would then permit distribution in cash to policyholders/stockholders of the disappearing company.

These philosophies are foreign to the approaches developed in the paper and, it appears to me, to the basic notion of mutuality which is assumed. However, they cannot be ignored. The main point is that the parties to a proposed merger must approach it from the same philosophical point of view, or it will surely be impossible to reach agreement on what constitutes fair and equitable treatment.

Our studies during the course of our merger effort in 1969 convinced us that the synergistic benefits of merger as described in the paper can be very real and of considerable magnitude. However, they are neither automatic nor inevitable, even for companies with an ideal "fit." Some of the preliminary agreements reached would actually have inhibited certain possible savings but were considered necessary compromises. Even so, the remaining available benefits were estimated to more than justify the cost and effort of achieving them. In an era of large-scale computers and competitive diversification, increased size, composite strengths, and potential economies appear to offer real potential.

It is interesting, but perhaps not surprising, that marketing and expense savings benefits may be available in areas where the merging companies are complementary as well as where they overlap, both geographically and by product lines. These possibilities are covered in Sections III(B)(1) and III(B)(2) of the paper.

One of the complications in the merger of mutual companies is the absence of the easy option available to stock companies of continuing operations as separate corporate entities until the details of smooth consolidation are worked out. In the merger of mutual companies a single successor company is created immediately upon consummation of the merger. A possible approach which might minimize the transitional problems would be a variant of the fund approaches described by Kayton and Tookey. For example, the merged Company RS might have two new individual life business funds, at least initially, permitting virtual continuation of the distinct predecessor operations with adequate reflection of differences in practice and experience to justify the differences in product lines. Two policy series, patterned after those of the predecessor companies, would be administered, one series from each office, according to its lineage. The two existing agency organizations would be maintained separately with headquarters in the respective offices subject to superimposed co-ordination. Agency contracts would be amended to permit agencies to sell all products of the merged company. All this would require insurance department approvals, of course. If it would facilitate such approvals, a time limit might be imposed on this phase of operations. As stated in the paper, with regard to the possibility of

additional funds, "this will complicate the practical aspects but will create no additional conceptual problems."

In the discussion of "The Concept of Equity in Company RS," Kayton and Tookey refer briefly to "the possibility of a suit on the part of dissenting policyowners." This could be one of the sticky actuarial and legal problems involved in a merger of mutual life companies. A number of states have laws on the subject, of varying degrees of vagueness and ambiguity. There appears to be no uniformity among them, and many states have no statutory provisions on the subject at all. Pennsylvania, as an example, has a provision which refers to appraisal of the "share or shares of said stockholders or the interest of such members (dissenters who petitioned the court) in the company at the full market value thereof without regard to any appreciation or depreciation in consequence of said merger or consolidation." One might hope that the "interest of such members" might be limited to cash values and any termination dividends, or unearned premiums, but "three disinterested persons" would be appointed by the court to "estimate and appraise the damages, if any, done to such stockholder or member by said merger consolidation." In this kind of environment it is obviously prudent to "have the facility for demonstrating the relative positions of policyowners in Companies R, S, and RS," as suggested in the paper.

Finally, at the risk of repetition, I think that the "Summary of Fair and Equitable Treatment of Policyowners" (Sec. IV[D]) is particularly pertinent to the approaches described in the paper. I would hope that it might become required reading for all principal parties considering such mergers of mutual companies, because it deals with basic issues which should be resolved very early in the game. It assumes implicitly that the purpose of the merger is the continuation of the operations of the two merging companies in a new, enlarged, and improved framework, and *not* the liquidation of either. I agree with the authors that such mergers are possible, that they may be very advantageous, and that we may see some in the 1970's.

C. F. B. RICHARDSON:

This very timely and able paper draws attention to the most important subject of the very difficult problems faced today by the smaller mutual companies. Although they may differ in several aspects, they are, of course, the same types of problems faced in any country by a small company trying to compete with giant corporations in a mechanized, computerized, and totally sophisticated business and social environment. In our business the problems of the small mutual company are even

greater than those of the typical small industrial manufacturing corporation, which may well have a product with unique aspects or may have some unusual features connected with its corporate history or its sales outlets. This gives it an advantage not present in the case of a mutual life insurance company, whose products can hardly be unique and which, in addition, must try to compete with the giants.

This paper deals mainly with certain important technical aspects of the subject. It indicates that for nontechnical reasons the desired merger was not consummated. I will try to cover the more general and practical considerations, which do not form the main subject of this paper but which are really the governing factors. I had occasion to assemble the important considerations several years ago when I made a strong effort to convince a number of smaller mutual companies to consider merger seriously in order to remain competitive with the giants. These considerations are described in this discussion. It is a great pity that these rather obvious arguments, which make merger of one or more smaller companies so clearly desirable, proved not to be persuasive to their managements, largely for selfish or otherwise shortsighted reasons.

Growth is vital for any life insurance company today if it is to conduct its operations in the most efficient manner on the most economical basis. The rapid advances in mechanization with consequent impact on operating costs have placed a premium on size because of the considerable expenses of extensive mechanization. In these days of intense competition for manpower and business it is often difficult to secure an adequate rate of growth at a reasonable cost. Growth must be achieved in order to secure the economies that result both in the area of operating costs and in that of management of the company's investment portfolio. It is becoming more difficult for the smaller company to compete with the "giants" in dividends and net costs.

The major problems in securing growth are the expansion of existing agencies and the development of new agencies at a reasonable cost. Competition for manpower must be overcome, and the financial burden of the cost of development must be financed by the company's surplus. There are limitations on the extent to which surplus funds can be used to finance growth; as a result, the rate of growth is generally only moderate. This situation presents the greatest obstacle to a satisfactory growth rate of a small- to medium-sized mutual company.

Reasons for Growth

The economic justification for growth is the reduction in cost of insurance to the policyowner. This may result from greater investment

yield due to a more productive job in managing the investment portfolio of the company or a lowering of costs resulting from a more efficient operation of the home office and field organizations. A small- to moderate-sized mutual life insurance company has difficulty in utilizing maximum investment opportunities and in adopting the most modern and powerful methods of cost reduction.

Some of the advantages to be gained by a substantial increase in size are the following:

1. *Investment operations.*—The ability to invest in larger units reduces the cost of acquisition and of maintenance—especially of private placement investments. Larger funds make possible greater diversification, better spread of risk, and greater profits. This is especially true in a common stock portfolio. In the mortgage area a larger portfolio clearly enables a company to achieve a broader geographic distribution; the economics of the mortgage banking business are such that the small account becomes unprofitable. Therefore, the smaller company is limited in the number of mortgage loan correspondents it can employ. The result is to limit the number of geographic areas that can be covered. Some borrowers do not want lenders of less than $1,000,000. Thus the small company finds it difficult to participate in the best loans on a national basis.
2. *Risk cost.*—The larger the company, the greater the spread of risk, reducing the impact of fluctuations in experience and producing greater stability in cost.

   A larger company may be able to offer broader underwriting facilities, and, through greater retentions on individual risks, the considerable cost of reinsurance can be reduced.

   A company with a larger territorial operation can secure a greater diversification as to types of risks and markets. Its dependence on any particular market, geographical or otherwise, will be reduced, and a greater stability of production will result in better predictability of performance.
3. *Home office personnel.*—It is obviously easier for a large company to attract and hold first-class personnel. They can pay more. This is particularly true in the technical and sales areas and in the higher echelons of all departments. Furthermore, the large company can afford the luxury of highly trained specialized or staff personnel, whereas the small company cannot. Therefore, certain things are bound to be done better in the larger company. Also more of the specialized functions receive proper attention in a large operation.

   Smaller companies have a certain disadvantage in competition for employees. The number of job opportunities is more limited, and a smaller company may overpay for a particular job because of this limitation. This may result in higher unit costs for a smaller company during any particular period of time.
4. *Automation.*—It seems clear that in the future the single most important

problem in our industry will be the control of operating costs. Therefore, those companies that can control or reduce their unit costs, while at the same time expanding at a satisfactory rate, will clearly maintain or improve their competitive position. Likewise, those that fail to do so will lose ground. One of the important factors, although not the only one, affecting unit cost is the efficiency with which procedures in our business become automated. A smaller company simply cannot afford or justify the more powerful electronic data processing systems now available and therefore cannot, to the extent possible for the large companies, reduce its unit costs or prevent them from increasing through automation. Although a company may be thoroughly automated, it may have considered and rejected many phases of automation, because at the present rate of growth it will be many years before the company becomes large enough to adopt them economically.

5. *Advertising.*—In the case of a small company it is not feasible to spend enough money on advertising to make any substantial impact on the insuring public, whereas this can be done in a large operation. This is especially true of television advertising, which only the giants can afford. The sales promotion area is another example of an operation which must be more expensive relatively for a small than for a large company if an attempt is made to provide the sales force with adequate tools. Clearly the unit cost of larger quantities is lower, and the larger company can afford more highly specialized personnel to run both the advertising and sales promotion areas.
6. *Product.*—Most small companies attempt to match the giants in the matter of variety and completeness of portfolio. The cost of a new ratebook is a very major item for a small company, whereas it is minor in the case of a giant company. It is therefore more difficult and much more expensive for the small company to make the rather frequent changes that seem to be necessary in order to remain competitive in today's dynamic market. Here again, the specialized personnel already mentioned are an important factor.
7. *Research.*—The small company, especially in the area of actuarial studies, has to rely to a great extent on research performed by the large companies. It cannot afford, nor does it have adequate data to justify, the major studies that should be made before certain decisions are taken. The result is that it runs the risk of taking chances that the larger companies can avoid.
8. *Agency operations.*—Mere size of the sales operation obviously brings many advantages. Growth for any particular company may be a matter of internal or external development. Expansion into new territory or the intensive cultivation of existing territory may be required. For a smaller company which wants to expand its territory, the process is extremely expensive and takes years to accomplish.

   Recruiting sales personnel, agents, supervisors, and general agents is much more difficult for the small company than for the large ones. The small average size of agency in a small company is itself a considerable handicap. The general agent usually cannot look forward to nearly as large an income

as is likely in a large company. It is difficult to operate small agencies at as low a unit cost as large ones. In many cases it is necessary for the general agent to devote considerable time to personal production, not only to increase his income but also to reduce overhead costs. This, in turn, makes it more difficult for him to expand the number of sales outlets. It is much more difficult for a small company to develop its own management personnel, simply because there are fewer people to choose from. It is, therefore, necessary in most cases to lure those people away from other companies, with all the problems and additional costs that this involves.

Problems of Consolidation

Although merger has been common among stock life insurance companies, it has not been utilized by mutual life insurance companies except in very infrequent cases. The following are some of the reasons why this has been so:

1. There is a natural reluctance on the part of any company to lose an identity which has been established over a long period of years—it is almost like deserting an ideal or selling one's birthright.
2. Directors, officers, and employees prefer not to face disruption in their lives, loss of jobs, or loss of prestige.
3. The geographical area in which a company is located naturally does not want to lose an industry or a payroll.
4. There is the possibility of legal difficulties. Legislation, aside from insurance department approval, might be necessary to effectuate a corporate merger.
5. There is no centralized ownership with clear incentive to effectuate a merger. In the case of stock life insurance companies the economic value to stock owners resulting from a merger is clear. Although the same economic reasons exist for a merger of mutual life insurance companies, gains to policyowners that will result are not as clearly evident as in the case of a stock life insurance company, where the market value of the stock may be immediately affected or cash dividends increased.

I am convinced that in due time, perhaps in less prosperous times, when the managements of these smaller companies are less opulent and less complacent, these most desirable mergers, or perhaps something less than corporate merger, may come about.

It seems likely that the changes in state laws which permit holding companies, even for mutual companies, and the "basket" investment provisions in the laws of some states, may allow mutual companies to do some of the things that are now possible for stock companies, such as diversification into allied activities and even the acquisition and possible future mutualization of stock companies, if they could be acquired at a reasonable price relative to the interests of the policyholders of the

mutual company. Unless the mutuals can engage in such activities in a practical and profitable way, it is even possible to conceive of a mutual company changing to a stock company corporate structure in order to achieve a more feasible and potentially profitable future for both its policyholders and its stockholders.

There is another possible approach to the problem, short of merger, which has not so far been used. This plan would involve setting up a nonprofit corporation or association which would be controlled by the member companies and which additional companies might be permitted to join if all of the original member companies agreed. The precise form of the corporation is not too important, but it might be expected to operate somewhat as follows:

The corporation would be incorporated to furnish research and services for its members. Each of the participating companies would be a member. The corporation would have a board of directors elected by the member companies. The bylaws could provide that an equal number of directors, say one or two, would come from each member company. A contract would be entered into specifying the services and research to be performed by the corporation and the extent to which its services and research activities would be binding upon the member companies. Additional services and research activities could be added from time to time by amendments to the contract. The contract would also specify how the operations of the corporation would be financed, including the times at which payment would be made by the member companies to the corporation. The initial funds necessary to get the corporation under way could be provided by subordinated loans made by the member companies. The contract might take the form of an agreement to which the corporation and all of the member companies would be parties, or it might take the form of separate agreements between the corporation and each member company.

The expenses of the corporation would be divided between the member companies on the basis of a formula. One possible formula would be as follows:

1. Fifty per cent of the expenses would be divided in proportion to total ordinary premium income minus single premiums, plus 20 per cent of group premiums, plus 50 per cent of health premiums.
2. The other 50 per cent would be divided in proprotion to net investment income minus federal income taxes.

The corporation should have a name that would tend to give the group of member companies a national image, even though there would

be no change whatever in the independence of the member companies. A name such as United Mutual Life Insurance Companies, Inc., is an example of what we have in mind.

The objectives of the organization might be summarized as follows:

1. To provide all member companies, each of which would be quite independent, with the advantages of a common national image of very substantial size and power.
2. To give each of the member companies the advantages that flow from both a national and a local image, but without the disadvantages of superimposed central control.
3. To achieve, in an unhurried fashion, many of the advantages to the policyholders, the agency organizations, and the officers and employees of the smaller, separate, independent member companies that would be obtained by the outright merger route, but without the objectionable features which that method of consolidation would entail.
4. To obtain the enormous advantages of greater aggregate size and consequent power in many phases of our business that would accrue by close co-operation, pooling of resources, and concentration of effort. These advantages would become especially evident in the areas of distribution of product, standardization of product, planning and procedures, specialized personnel facilities available to all, co-operation in promotion and advertising, pooling of investment facilities, and eventually the great economies attainable from a common, powerful, electronic data processing system serving all member companies.
5. To eliminate uneconomic, expensive, and wasteful operations in all member companies through pooling of effort and co-operation in the common interest.
6. To overcome present geographic limitations of sales coverage and services, through development of reciprocal action by member companies, thereby conserving existing business and obtaining good new business from present customers who have moved into areas not served by a particular company.
7. To provide facilities for each member company to write group life, group health, group annuity, and individual health insurance, if they are not now in those fields, by enabling their sales forces to place such business in one of the member companies which would specialize in certain of those operations (possibly different companies in different geographical areas). The consequent expertness, economy of operation, and stronger competitive position would benefit all member companies.

The most important feature of this type of association is that the member companies would in large measure, although not completely, attain the enormous advantages, without the disadvantages, that arise from greater size. They would retain their individuality, they could

continue their sales operations without change or disturbance, they could concentrate sales efforts in the areas where they are now strong, and there would be no dislocation or removal of existing operations which would eventually result from any form of merger.

(AUTHORS' REVIEW OF DISCUSSION)

HOWARD H. KAYTON AND ROBERT C. TOOKEY:

The authors would like to express their appreciation to Messrs. Garfin, Giles, Merritt, and Richardson for having presented their discussions.

Mr. Giles's reference to Section II(B) is a point well taken. Our attempt to be completely comprehensive could not be met in a single paper. Also, his reference to two previous papers reminds us that we were remiss in not including a bibliography. To correct this, we acknowledge the panel discussion that was held at the annual meeting in 1971 and which is referred to on pages D445 ff. in Volume XXIII of the *Transactions*. In particular, Mr. MacGregor's presentation includes a reference to seven articles which explore the philosophy of mutual life insurance companies.

Mr. Giles's comments relating to the comparison between mutual and stock companies raises several points which appear to be more critical of mutual life insurance company management than of the mutual insurance concept itself. It would seem that a proper comparison of mutuals and stocks to be valid, should compare similar levels of management competency.

Mr. Merritt raises a question which is addressed to the basic concept of a mutual company. If the permanent contribution to surplus is viewed as being retained by the company to ensure continued growth and well-being (as indicated in the conclusion to the paper), there is no reason why one body of policyholders should contribute at a different rate than another, since they will both benefit to the same extent from future growth. Our statement that "there is no reason why the merger should force a change in dividend formulas" was not intended to preclude such a change. It was included only to indicate that the merger itself would not necessitate a change in dividend formula.

Messrs. Garfin and Richardson have also been involved in merger attempts. Consequently, their comments regarding the practical problems are welcome additions. Mr. Garfin's exploration of the nature of the surplus of the mutual company serves to underscore a fundamental difference which is often overlooked when one considers mutuals

as analogous to stock companies, with policyowners being substituted for shareholders.

Both discussions offer an alternative approach to full merger—Mr. Garfin's temporary continuation of two separate new business funds and Mr. Richardson's service bureau approach. Both of these represent practical compromises to the formidable problem of having the merged company ready for new business on the day following the merger. However, it is questionable whether some of the advantages claimed by Mr. Richardson in this excerpt from his original proposal might actually develop—for example, the continuation of each individual company's individuality simultaneously with the attainment of the benefits of economies from standardization.

Mr. Garfin's discussion of dissenters' rights illustrates one additional legal problem which must be considered. It should not be taken lightly in this era of spurious class actions for fun and profit.