SOCIETY OF ACTUARIES

September 2002, Issue No. 50

THE FINANCIAL REPORTER

THE NEWSLETTER OF THE LIFE INSURANCE COMPANY FINANCIAL REPORTING SECTION

PUBLISHED IN SCHAUMBURG, IL. BY THE SOCIETY OF ACTUARIES

Relationship of IRR to ROI on a Level Term Life Insurance Policy

by Wayne E. Stuenkel

One of the primary pricing measures for individual life insurance products is the internal rate of return (IRR) on a statutory basis. The (IRR) for a policy is a single interest rate that discounts all policy cash flows back to the issue date of the policy, such that the sum of discounted cash flows equals zero. Cash flow" include statutory income, taxes, required capital and imputed interest on required capital. An insurer will often require that products be priced to achieve a certain minimum IRR threshold.

Additionally, many companies report annual earnings on a GAAP basis. As a by-product of the preparation of GAAP income, an annual return on GAAP investment (ROI) at the line of business level or the product level can be calculated. A GAAP ROI calculation typically includes GAAP income plus imputed interest on required capital in the numerator, and required capital plus stat/GAAP differences (DAC, reserves, taxes) in the denominator.

A recurring question from those who look at product profitability concerns the relationship of lifetime IRR to annual ROI. Some observers (often including insurance company CEOs) expect that the annual ROI for a product should be equal in all years to the lifetime IRR for the product, assuming that product assumptions (lapse, mortality, interest rate, etc.) are met. However, in practice, annual ROI never seems to be equal to lifetime IRR, even if product assumptions are met.

Several excellent papers have been written that examine the relationship between lifetime statutory IRR and annual GAAP ROI. Especially notable in this regard are papers written by Brad Smith (TSA 39, pp. 257-293) and Bob Beal (*NAAJ* Volume 4, Number 4, pp. 1-11). However, neither of these papers specifically identified those product variables that cause annual ROI to vary from the lifetime IRR.

So that we could more fully understand the relationship between IRR and ROI, we constructed a term life insurance product. The product provides a level amount of insurance for 20 years, in exchange for equal annual premium payments for 20 years. At the end of 20 years, all policies lapse without value, while the product continues as a whole life product with a high guaranteed premium rate. There are no cash values or dividends. This product is generally consistent with products that are currently being sold; however, it is constructed for the purpose of demonstrating the relationship of IRR and ROI, and does not duplicate the products sold by our company or any other company.

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THE FINANCIAL REPORTER

Issue Number 50 • September 2002

Published by the Life Insurance Company
Financial Reporting Section
of the Society of Actuaries

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Articles Needed for the Reporter

Your ideas and contributions are a welcome addition to the content of this newsletter. All articles will include a byline to give you full credit for your effort. *The Financial Reporter* is pleased to publish articles in a second language if a translation is provided by the author. For those of you interested in working in further depth on *The Financial Reporter*, several associate editors are needed. For more information, please call Thomas Nace, editor, at (856) 663-8711.

The Financial Reporter is published quarterly as follows:

Publication Date	**Submission Deadline**
December 2002	Monday, October 21, 2002
March 2003	Monday, January 20, 2003
June 2003	Monday, April 21, 2003
September 2003	Monday, July 21, 2003

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Thank you for your help.

SOCIETY OF ACTUARIES

Letter From the Editor

by Thomas Nace

Welcome to Issue #50 of "The Financial Reporter." That's right — 50 issues! Fifty is a noteworthy milestone, whether you are talking about a person's age, the number of years married or employed or the number of issues of a newsletter. The first issue of "The Financial Reporter" was published in August, 1984 and here we are, still going strong.

One of the reasons for our longevity has been the quality of articles written by the many authors to have received bylines in these pages. With this issue in point, I dare say that the trend is continuing.

For example, our cover article has been written by Wayne Stuenkel; it addresses the differences between ROI and IRR on a term policy. So many times life insurance company management has questioned why the GAAP ROI (single year return on investment) is different from the pricing area's IRR. Actuaries have struggled to reconcile the difference. Wayne's article is very enlightening as it tackles this very issue.

Also included in this issue is an article that originally appeared in the Product Development Section newsletter and was authored by Mary Bahna-Nolan. The article addresses Guideline AXXX and performs an excellent analysis of the repercussions of the proposed guideline. I felt that the financial reporting actuaries would be very interested in Mary's analysis, and thus Mary agreed to have her article reprinted in "The Financial Reporter."

William Hines offers his thoughts on the issues involved in a sponsored closed-block demutualization. How is a sponsored demutualization different from a direct demutualization? How does the funding of the closed block impact the purchase price of the acquiring company? The answers to these and other intriguing questions can be found in William Hines' article.

Walt Rugland looks at the events surrounding a particular U.K. company's downfall and restriction to new business and the subsequent inquiry into the causes and possible remedies that might have prevented the shutdown. In particular, the hindsight view is taken with respect to the implications on the actuarial profession. The findings have an implication on the role of the appointed actuary in the United States and are relevant to most financial reporting actuaries.

Larry Warren deals with the topic of mortality projections and the appropriateness of the mortality table chosen. Specifically, he asks the question, "Should we still use the 1975-80 Select/Ultimate table?" In his paper, Larry shows that the result of using the 1975-80 Select/Ultimate table as opposed to the more modern 1990-95 Select/Ultimate table can be a significant understatement of future mortality, and hence, anticipated profits may prove to be illusory. Make sure to read his article to find out more.

Barry Shemin provides an insightful look into the recent trend toward the use of more and more reinsurance in our industry. The use of increased reinsurance has several potential impacts, including the concentration of risks different profit patterns between reinsured and non-reinsured business just to name a couple. See Barry's Section Chair article to discover the reasons behind these and other effects.

John Riley discusses the problems a nonprofit organization faces when trying to provide state -of-the-art education tools via the web, and specifically, how the Society may be able to address its members' needs for continuing education electronically in the future. See the article, "Distance Learning Up Close."

One final note — I would like to acknowledge the recruitment of a new editor, Jerry Enoch. Jerry has helped me put together this issue of "The Financial Reporter" and will be taking over as editor with issue 51. On that note, I would like to thank all of the authors who have contributed articles during my tenure as editor. It has been a pleasure to have work with you and I thank Barry Shemin, Mike Eckman and Mike McLauglin for the support they provided me as Section Chairs during this period.

Here's to another 50 issues! ❖

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We found that it is possible to construct a hypothetical product such that expected annual GAAP ROIs are level and equal to the lifetime statutory IRR.

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The product was constructed in a spreadsheet for ease of manipulation, and therefore includes several simplifying assumptions (annual premiums and expenses at the start of the policy year, death claims and lapses at the end of the policy year, etc.). The spreadsheet was used to calculate the lifetime statutory IRR and the annual GAAP ROI assuming that all experience emerges exactly as expected.

We found that it is possible to construct a hypothetical product such that expected annual GAAP ROIs are level and equal to the lifetime statutory IRR. The assumptions and methodologies for this product are shown in Appendix A.

However, some of the assumptions and methodologies that are necessary to produce expected level annual ROIs equal to a lifetime IRR are either actuarially unsound or outside of statutory and GAAP accounting conventions. The assumptions and methodologies that are necessary to produce level annual ROIs equal to lifetime IRR include:

- DAC interest rate equal to IRR rate
- No required capital based on assets, reserves or insurance inforce net of reserves
- No DAC tax
- Statutory reserves equal to GAAP reserves
- GAAP reserve mortality equal to pricing mortality
- GAAP reserve interest rate equal to pricing earned interest rate
- Lapse rate for GAAP reserves and DAC amortization equal to pricing lapse rate

In this article, we will refer to the variables above as the "slope-introducing variables," or SIVs.

It was interesting to observe which of the assumptions and methodologies, while changing the *level* of ROI and IRR, did not affect the *relationship* of ROI to IRR. These assumptions included:

- Premium rate per thousand and policy size
- Slope and level of mortality rates
- Lapse rates — both absolute level and pattern (so long as GAAP = pricing)
- Earned interest rate on required capital
- Tax rate
- Reinsurance (if the form is coinsurance)
- Commissions and expenses (both direct and ceded)
- Required capital based on direct premiums

To examine the effect of the SIVs, we constructed a hypothetical product that had a level ROI that was equal to IRR. (To produce a level ROI that was equal to IRR, the SIVs were set at a level that was either actuarially unsound or outside of accounting conventions.) We then changed each SIV individually to a setting that is typically found in practice and observed the effect of the change in the SIV on the relationship of ROI to IRR.

The different patterns of ROI that we observed when the SIVs were changed to more typical settings were as follows:

- "Positive sloping ROI," defined as ROIs that are lower than IRR in the early durations, then rise to be greater than IRR in later durations, was observed when (a) the DAC interest rate was set lower than the IRR rate, (b) GAAP reserve mortality was higher than pricing mortality or (c) GAAP reserve interest rate was less than pricing earned interest rate.
- "Negative sloping ROI," defined as ROIs that are greater than IRR in the early durations, then decline to be less than IRR in later durations, was observed when (a) DAC tax was used or (b) required capital based on reserves, assets or inforce net of reserves and reinsurance was used.
- The effect of statutory reserves on the slope of ROI depended on the statutory reserving method. Using reserves that are typical of XXX product designs (segmented reserves, no deficiencies) produces a negatively sloping ROI. Using reserves that were typical of pre-XXX product designs (mean reserve of 1/2 cx) produces a positively sloping ROI.

The largest effects on ROI slope arose from the DAC interest rate (positive slope), DAC tax (negative slope) and statutory reserve (both slopes) variables. When we combined all of the assumptions, we found that the product ROI had a generally positive slope for pre-XXX products, and a generally negative slope for XXX products. The slopes of both types of products would become more positive if the loading of GAAP reserve mortality over pricing mortality were increased, or if the reduction in the GAAP reserve interest rate from the pricing earned interest rate were increased. The IRRs and ROIs for the tested variables are displayed in Appendix B.

Based on our work, we believe that it is impossible in practice for the annual GAAP ROI for level term life insurance policies to be level and equal to IRR. Even if a company perfectly met

all of its pricing assumptions, we believe that certain assumptions and methodologies that are required either by accounting convention or by sound actuarial practice introduce a slope to the pattern of annual GAAP ROIs.

We would be interested to know whether other actuaries have performed similar calculations on other types of business. ❖

Appendix A

Illustrative Assumptions for Level Term Product

"Slope-introducing variables" are those *italicized* assumptions for which "typical" setting is different from "level ROI" setting

Variable	Setting for "Level ROI=IRR" *	"Typical" Setting
Premium rate	$0.80/M/year	Same
Earned interest rate	7.00%	Same
Tax rate	35.00%	Same
Lapse rate (pricing, GAAP)	12, 11, 10, 9, 8, 7, 6.....	Same
DAC tax rate	*0.00%*	*7.70% of net consideration*
Pricing mortality	45% of 1975-80 S&U	Same
Direct commission + expense	190% (1), 10% (2-10), 4% (11+)	Same
Reinsurance percentage	90%	Same
Reinsurance method	Coinsurance	Same
Reinsurance allowance	100% (1), 50% (2-10), 12% (11+)	Same
GAAP reserve interest rate	*Same as earned rate*	*95% of earned rate*
GAAP reserve mortality	*Same as pricing mortality*	*105% of pricing mortality*
GAAP reserve method	Net level	Same
Statutory reserve interest rate	*Same as GAAP rate*	*4.00%*
Statutory reserve mortality	*Same as GAAP mortality*	*100% of 1980 CSO*
Statutory reserve method	*Same as GAAP method*	*CRVM – segmented or unitary (minimum 1/2 cx mean reserve)*
RBC - % of direct premium	3.40%	Same
RBC - % of net reserves	*0.00%*	*2.76%*
RBC - % of net inforce	*0.000%*	*0.136%*
DAC interest rate	*Equal to IRR rate*	*7.00%*

** Variables that are not "slop-introducing variables" can be set at any level. Setting at a level different than shown will change the *level* of ROI and IRR, but not the *relationship* between ROI and IRR.

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Appendix B

Illustrative results for level term product

(1) Statutory Lifetime Internal Rate of Return

"Level ROI = IRR" Setting	"Typical" Setting (stat reserves = segmented)	"Typical" Setting (stat reserves = unitary)
19.1%	11.4%	15.3%

(2) Annual GAAP Return on Investment

Duration	"Level ROI = IRR" Setting	"Typical" Setting stat reserves = segmented)	"Typical" Setting (stat reserves = (unitary)
1	19.1%	13.1%	13.1%
2	19.1%	13.2%	13.2%
3	19.1%	12.1%	13.6%
4	19.1%	11.3%	14.0%
5	19.1%	10.8%	14.7%
6	19.1%	10.5%	16.1%
7	19.1%	10.3%	19.0%
8	19.1%	10.3%	26.4%
9	19.1%	10.3%	75.2%
10	19.1%	10.5%	Undefined
11	19.1%	10.3%	Undefined
12	19.1%	10.3%	Undefined
13	19.1%	10.2%	Undefined
14	19.1%	10.2%	Undefined
15	19.1%	10.3%	Undefined
16	19.1%	10.3%	Undefined
17	19.1%	10.4%	Undefined
18	19.1%	10.6%	60.2%
19	19.1%	10.9%	24.9%
20	19.1%	11.4%	16.2%

* "Undefined" means that numerator of ROI calculation is positive, but denominator is negative

Closed-Block Purchase Price Adjustment in a Sponsored Demutualization Transaction

by William Hines

A sponsored demutualization is a merger transaction whereby a stock insurance company acquires a mutual insurance company. The process is similar to a straight demutualization. During the merger process, the mutual company converts to a stock company. However, unlike a straight demutualization, no IPO is conducted. The acquiring company purchases the stock of the converted mutual company. The purchase price paid by the acquiring company is distributed to the policyholders of the former mutual company.

Merger agreements for sponsored demutualizations should include a purchase price adjustment for final funding of closed blocks. This is because the value of the closed-block business is almost always unknown at the time that the parties agree to the merger.

The value to an acquirer of the closed-block business is proportional to the excess of the closed-block liabilities over the assets allocated to the closed block (the closed block deficit).

The proportion depends on the spread between the after-tax investment income on assets backing the deficit and the discount rate used to value the company. It would be 100% if they were equal and is likely to be around 60% for a typical transaction in today's market.

The appropriate assumptions used to fund the closed block are subject to negotiation between the demutualizing company and the insurance regulator (and maybe other insurance regulators, especially if the company is licensed in NY) of their state of domicile. These negotiations are likely to reduce the amount of the deficit. A regulator has actually proposed closed-block assumptions that would have resulted in a zero deficit in a particular transaction.

The acquiring company is not a party to these negotiations which usually take place well after a merger agreement has been entered into.

As the value of the closed-block business is not known until well after the merger agreements have been signed, and it is likely that the value declines as a result of the negotiations with the insurance department, it is prudent to include a purchase price adjustment in the merger agreement to account for the difference between anticipated and actual closed-block funding.

What is a Sponsored Demutualization?

Many mutual companies have demutualized during the past five years and this process is fairly well established.

1. The mutual company converts to a stock company.
2. The stock company distributes the value of the mutual company, primarily in the form of shares of stock, to the former mutual company owners, the policyholders.
3. The stock company conducts an initial public offering (IPO).
4. The proceeds from the IPO are used to compensate policyholders who cannot receive stock, or whose distribution would be too small to warrant stock compensation, as well as general corporate purposes.

A sponsored demutualization is similar to a straight demutualization.

1. The mutual company converts to a stock company.
2. The acquiring company receives the stock of the converted mutual company in exchange for cash or stock of the acquiring company (the consideration).
3. The consideration is distributed to the policyholders of the converted mutual company. Thus, the converted mutual company becomes a stock subsidiary of the acquiring stock company.
4. There is no IPO as is common with straight demutualizations.

The sequence of events starts with the two parties agreeing to merge and drawing up a merger agreement that spells out, among other things, the purchase price and the steps that need to take place before the merger is

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executed. The single largest step is the conversion of the mutual company to a stock company, which requires regulatory approval. The purchase price reflects an estimated value of all business, including dividend-paying business, that would be subject to protections of a closed block.

The Closed Block

Dividend-paying policies are often afforded special protection when a company converts from a mutual form to a stock form of organization. This is because the interests of shareholders (e.g. higher profits) are not always the same as for policyholders (e.g. lower prices). To protect the reasonable dividend expectations of policyholders, a mechanism known as a closed block is often used.

A closed block comprises a defined group of policies and a defined set of assets. All cash flows arising from the closed block are exclusively committed to supporting the policies in the closed block. Thus, management can affect the timing of policyholder dividends, but not the total, interest-adjusted amount.

The difference between the initial assets and reserves is referred to as the closed-block deficit.

The amount of initial assets is determined such that the cash flows they generate together with the anticipated revenue from the closed-block business are reasonably expected to be sufficient to pay all policy benefits including dividends according to the current dividend scale if the funding assumptions are realized. Should actual experience vary from the funding assumptions, the dividend scale is changed accordingly.

The funding assumptions are set consistent with the experience underlying the current dividend scale. This results in the initial assets being lower than the statutory reserves as the reserve assumptions tend to be conservative relative to the experience underlying the current dividend scale, and the dividend scale normally includes a provision for amortizing acquisition expenses. The difference between the initial assets and reserves is referred to as the closed-block deficit. The deficit could be a substantial dollar amount depending on the size of the closed block. The size of deficit in major U.S. transactions has ranged between 15% and 35% of closed-block reserves.

The Value of a Closed Block to its Owner

If we consider the closed block as a typical block of participating insurance policies where there are special conditions that drive the dividends, we can determine a purchase price equal to the discounted, after-tax, distributable cash flow, assuming that assets equal to liabilities are transferred with the block.

Conceptually, there are three segments of assets associated with the closed block.

1. Assets in the closed block (less than the liabilities by the initial closed block deficit).
2. Assets needed to support the statutory liabilities transferred by the seller, equal to the closed-block deficit (thus 1. + 2. equals statutory liabilities).
3. Surplus needed to meet required capital targets.

No gain or loss is associated with assets in the first category as their investment income, including reinvestment income, is within the closed block and inures to the policyholders through the dividend mechanism.

Assets in the second category give rise to distributable free cash equal to the investment income, less tax on investment income, plus the decrease in required assets.

Assets in the third category give rise to distributable free cash equal to the interest earned on required surplus less tax on interest on required surplus plus reduction in required surplus.

As is typical of cost of capital calculations, the reduction at time zero is large and negative since it is equal to the required surplus put up by the buyer at time zero. Thus, the present value of distributable free cash on required surplus is negative (assuming the discount rate is higher than the after-tax earning rate).

The expenses required to maintain the closed block are an additional possible source of distributable free cash. These may not be funded for in the closed block and so are an obligation of the buyer, and the expenses less the income tax on the expenses is a negative stream of distributable profits. Some closed blocks are charged for expenses at a fixed rate. The difference between the actual expenses and the fixed expense charges, net of income tax, is a stream of distributable profits and could be positive or negative.

Ignoring cost of capital, the value of the closed block business depends on the size of the closed block deficit, the anticipated after-tax investment earnings rate on the assets backing the deficit,

and the discount rate. If the after-tax investment earnings rate is equal to the after-tax discount rate, then each dollar change in the size of the deficit will equate to a dollar change in value. If, as is more typical, the after-tax investment earnings rate is less than the discount rate, each dollar change in deficit will equate to less than one-dollar change in value. Using an 11% discount rate, a 4.55% after-tax (7% pre-tax) investment yield and a 7.5-year average duration of liabilities, each dollar change in closed block deficit would roughly equate to $0.60 change in value.

Closed-Block Funding

The appropriate assumptions used to fund the closed block are subject to negotiation between the demutualizing company and the insurance regulator of their state of domicile and possibly other jurisdictions as well. Because the merger has not yet taken place, the acquiring company is not a party to these negotiations. The conversion process, including regulatory approval of the closed block funding, is a prerequisite to the merger. However, the negotiations usually take place well after a merger agreement has been entered into. The negotiations are often lengthy and detailed. Business practicalities preclude parties from waiting for negotiations to be completed prior to agreeing on a purchase price. Therefore, a certain level of closed-block funding must be assumed in developing the purchase price. To the extent the funding subsequently changes, the value of the business to the owner of that business also changes.

Insurance regulators are concerned with protecting policyholders by providing adequate security that insurance companies will be able to make good on their promises to pay benefits and dividends. All other things being equal, a higher level of assets (and lower deficit) in the closed block leads to a higher level of security regarding future benefit and dividends payments. Thus, closed-block funding negotiations by and large reduce the amount of the deficit and thus the value of the closed block business.

Given the size of the closed blocks of the U.S. companies that have demutualized, it is easy to see how small changes in assumptions can lead to large changes in funding. Without a provision in the merger agreement to adjust the consideration paid to acquire the mutual company, additional closed-block funding will cause the acquiring company to pay more than they would have otherwise paid for the business had they known the approved level of funding.

Assuming full disclosure and adequate due diligence was performed, the acquirer and the mutual company agree on a price using the same set of assumptions with regard to anticipated funding of the closed block. A purchase price adjustment can be structured to maintain the fairness of the original price to both parties in the event that negotiations lead to a higher level of closed-block funding. A well-structured adjustment is one that is relatively simple, can be explained to all involved (management, lawyers, investment bankers and actuaries alike), and is fair to both parties involved. A fair adjustment formula would result in a purchase price that the parties would have reasonably arrived at if they both had known the approved level of funding.

Conclusion

Sponsored demutualization transactions have many similarities to straight demutualizations. Unlike other merger transactions, they pose an additional risk to the acquiring company because the final funding amount of any required closed block is not usually known at the time the merger agreement is signed. Because the value to the owner of the closed-block business is proportional to the closed-block deficit (the excess of the closed-block liabilities over the closed-block assets), it is recommended that the merger agreement include a purchase price adjustment for the final funding amount. ❖

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Regulators Respond to Industry "Innovation" Through Guideline AXXX

by Mary J. Bahna-Nolan

Editor's Note: the following article is reprinted with permission. It last ran in the January 2002 issue of Product Matters!

LHATF approved this regulation at the June NAIC meeting based on the May 1, 2002 draft which had minor changes from which this article was based.

It has been two years since XXX went into effect. Since that time, we have seen aggressiveness, creativity and innovation in product design, as well as some blatant attempts to skirt the regulation. The regulators of the NAIC's Life and Health Actuarial Task Force (LHATF) have responded to this "innovation" through Actuarial Guideline AXXX, the Application of the Valuation of Life Insurance Policies Model Regulation (AXXX). This guideline is still in draft form. It is expected that the NAIC will adopt AXXX at its next meeting this March. The purpose of the guideline is to provide direction as to the application of XXX to various product designs. It is not meant to address all possible designs, but rather to give guidance as to the intent of XXX. AXXX is broken into eight sections, with each section providing direction as how to apply XXX to a specific product design. While AXXX lacks full industry support, there is general support for the first seven sections. The eighth section specifically addresses universal life (UL) plans and is the area of much controversy. Each section is addressed below as well as some examples of product designs that fall under each section. The examples in the first six sections under AXXX tend to concentrate on premium rates, however, they are also applicable to premium loads and cost of insurance charges in universal life plans, which can (and have been) manipulated to provide a type of no-lapse or secondary guarantee.

The eighth section specifically addresses universal life (UL) plans and is the area of much controversy.

Section 1 - Increase Tied to an External Trigger

These plans provide that a carrier may only increase premium rates (or loads in a universal life plan) if a certain external event occurs, such as the Treasury rate dropping below a certain level. Since the insurer does not have the unrestricted right to increase premiums, AXXX requires that companies reserve these plans as if the premium were guaranteed for the full level-premium period.

Section 2 - Refund of Premium (Partially Guaranteed)

Carriers offering this type of product agree to refund the premium if the rates are increased during the projected level-premium period. These designs generally include a specified window of time for the policyholder to exercise the option/right for the refund and if the option is exercised, the policy is generally cancelled. For universal life plans, the option is generally only available if the increase would otherwise cause the policy to lapse.

Under these designs, the insurer's right to increase premiums is not unrestricted due to the requirement to provide additional benefits. AXXX states that companies must reserve for these types of policies over the entire level premium or secondary guarantee period.

Section 3 - Affiliated Company Guarantee

These policies have an initial guaranteed level premium. After the initial premium guarantee period, the policyowner is protected against future premium increases. This protection is provided by a second company through reinsurance, a second policy issued to the consumer or an agreement between the two companies. AXXX requires that the combined reserve of the direct writer and the second company be that which the direct writer would have held absent the second company and based on the entire level-premium period. The direct writing company may take reserve credits only if the agreement between it and the second company meets the requirements under the applicable reinsurance regulations.

Section 4 - Refund of Premium (Fully Guaranteed)

This design has high gross premiums, which are guaranteed. It also provides a cash value, dividend or premium refund after a certain period of time. The dividend or refund has the effect of creating a low "net guaranteed premium." In some designs,

the amount of the refund or available cash value has equaled the sum of premiums paid after a certain period.

AXXX will require that companies offering this type of design must use the net premiums (gross premium less amount of refund, dividend or cash value) in the reserve calculation.

There was some concern in the industry that coinsurance allowances under reinsurance treaties could be interpreted to fall under this category. AXXX treatment under this section is not intended to apply to coinsurance allowances under bonafide reinsurance agreements.

Section 5 - Re-entry Plans

These plans have an initial rate or no-lapse guarantee period. At the end of the initial rate guarantee period, the policyholder has the contractual right to re-enter to a second plan with no or little evidence of insurability. For some universal life plans, the right to re-enter occurs if the cash value falls below zero during the no-lapse guarantee period (rather than only at the end of the period) and is available only if the stipulated premiums have been paid. The new or substitute plan generally provides an additional level premium period at specified favorable rates.

AXXX will require that the initial re-entry periods and premiums be treated as a continuation of the initial guarantees. The original policy reserves are to be determined over the entire period; the reserves for the substitute policy are to be determined as if the coverage had been issued at the issue age and issue date of the original policy.

Section 6 - Level Net Reinsurance Premiums

This section addresses at least one "innovative" approach to reinsurance that several reinsurance providers used in their treaties to ultimately shorten a guarantee. Essentially, in a case where the direct writers' premiums are guaranteed for X number of years, the reinsurance treaty provides level premiums on a current scale for X years, but directly guarantees the premiums for a shorter number of years. If the reinsurer increases the premiums, it also agrees to increase the expense allowances such that the net payments for the direct writer remain unchanged.

The regulators' view is that "the additional 'expense allowance' has no relationship to the expenses actually incurred by the direct writer in administering the reinsured policies." Therefore, under AXXX, the reinsurer, in its

reserve calculation, needs to establish the reserve using an initial segment equal to the full level premium period and the valuation premiums should be level over that period.

With respect to term insurance, most of the innovative designs were put in place to try to mask a partially guaranteed plan as guaranteed, as evidenced by the first five sections of AXXX. The introduction of these innovative designs has slowed over the past year. This slowdown is most likely attributable to AXXX and the market's demand for fully guaranteed plans.

With respect to universal life plans, there has been little "innovation" in design in response to XXX. Most of the new UL plans that companies introduced in 2001 were similar in design to their pre-XXX counterparts, and included both secondary guarantees and catch-up provisions. There has, however, been an increase in the number of plans that incorporate shadow account designs.

Secondary guarantees are generally one of two forms, accumulation of premium or shadow account. Both designs are subject to AXXX and the area of controversy surrounding this guideline. The accumulation of premium designs provide that a policy will stay inforce, regardless of the underlying cash value of the policy, as long as specified premiums have been paid. Secondary guarantees of this form are already clearly addressed under XXX. Shadow account designs have become more prevalent over the past two

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years. These are similar to accumulation of premium designs. These plans generally allow a policy to stay inforce even if the calculated account value or cash surrender value becomes negative as long as the shadow account remains positive. The shadow account is generated in a manner similar to the account value, but uses charges and/or credits more favorable than the guarantees in the basic/underlying policy.

Catch-up provisions are also prevalent. These are basically added to accumulation of premium types of secondary guarantees. They allow a policyowner to reinstate a secondary guarantee or move from a shorter secondary guarantee to a longer one by paying the difference between the cumulative required or "no lapse" premiums and the actual premiums paid to date.

The final two sections of AXXX specifically address catch-up provisions (Section 7) and secondary guarantees (Section 8).

Section 7 - Premium "Catch-Up" Provisions

In general, this is the one area in which AXXX provides some relief over a strict reading of XXX. Regardless of whether or not the policyowner is meeting the premium requirements to keep a secondary guarantee inforce, reserves for plans that include "catch-up" provisions must be computed, assuming the longest guarantee period is met. However, it then allows companies to proportionately reduce the basic and deficiency reserve amounts by any "catch-up" amount required on the valuation date in order to maintain the guarantee, not to be reduced below zero.

Section 8 - Secondary Guarantee Requirements

AXXX addresses both the accumulation of premium and shadow account designs. Under the guideline, any amounts already paid by the valuation date which may reduce the amount of future premiums necessary to satisfy the secondary guarantee requirements need to be added to the reserve. The total amount is capped by the net single premium for the coverage on the valuation date. The latest draft, dated 12/6/01, does provide some additional relief for deficiency reserves and for surrender charges to be taken into consideration to reduce the amount of reserve.

This approach relies on actual premium payment history and some feel that incorporating the actual premium payments results in a modification to XXX and the UL Model Regulation. The UL Model Reg. calls for determination of premiums "at issue" and prepayments can not be determined at issue. If a policyholder prepays, all else being equal, his or her policy will have a higher cash surrender value than if it was paid annually. Since the obligation to keep the secondary guarantee in force requires less future premiums to be paid, AXXX requires that the company set up a higher reserve than if no prepayments had been made. This increased reserve is in addition to the "floor" established by the UL Model Reg. for highly funded policies.

This section lacks full industry support and is the area of much controversy. Some individuals feel that relying on actual premium payments is a modification to XXX and the UL Model Reg. in that it calls for determination of premiums "at issue" and prepayments cannot be determined at issue. As such, some feel that such a change can not be accommodated through a guideline, but rather would require revising the regulations. Additionally, incorporating any pre-funding may materially change the required reserves for even the most modest secondary guarantees. Many companies priced these guarantees with a "good-faith" interpretation of XXX and, in many cases, reserved for them in a method agreed upon with the regulators.

For all but Section 8, the effective date for AXXX will be retroactive to the date XXX became effective in a particular state. The retroactivity may have a negative impact to companies and reinsurance providers that offered products or "guarantees" covered under one of these sections, especially if they took an aggressive interpretation to reserving under XXX.

The calculation approach defined under Section 8 will require many companies to reprice UL products, at least with respect to prepayments. Additionally, it will take companies some time to modify their systems to generate the proposed reserves, which incorporate actual premium payments. As a result, most of Section 8 will not be retroactive; the proposed effective date is currently January 1, 2003. The first two steps in the calculation described in Section 8 will be retroactive. These basically clarify how to define "minimum gross premiums" and "specified premiums" in XXX, but ignore actual premium payment history. ❖

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Letter from the Chairperson

by Barry L. Shemin

The life insurance industry was founded to assume mortality risks from individuals and reduce them in the aggregate by pooling/diversification. This was the primary "value-added" of the industry. Yet, in the last decade, in the U. S. at least, direct writers have been ceding an increasing proportion of mortality risks to reinsurers, despite the slow growth of the life insurance market and the surfeit of capital in the industry.

What accounts for this trend? The initial impetus was probably provided by the NAIC Life Insurance Illustration Regulation. This regulation prohibited the use of mortality improvement assumptions in illustrations, but allowed the reflection of reinsurance in the self-support test. Although most reinsurers state that they do not explicitly assume mortality improvement in pricing, I believe the margins they require are reduced at least implicitly by the expectation of mortality improvement. The result is that more favorable illustrations are often produced if the mortality element of the illustrated product is reinsured.

Regulation XXX also increased the use of reinsurance. Reinsurers have a better set of tools to manage the additional XXX reserves than most direct writers, and are able to offer attractive terms to reduce the impact of these reserves.

Life insurance sales have been increasingly focused in upscale markets, especially for survivorship products, and the larger face amounts this entails (along with reduced numbers of policies being sold) creates additional nondiversification risk, which can be addressed by increased reinsurance.

The wave of demutualizations, has also contributed to the trend. The large mutual companies that were relatively unruffled by a quarterly mortality fluctuation have been replaced by public companies whose quarterly results are scrutinized for signs of an adverse mortality trend. Reinsurance helps these companies stabilize mortality experience.

Although the increasing use of reinsurance has by and large met the industry's needs, there are a couple of potential downsides. Perhaps foremost is that direct writers are relinquishing the favorable long-term impact of mortality improvement. Also of concern is the increasing concentration of the life reinsurance industry, creating uncertainty about the level of protection in the event of widespread adverse mortality experience.

WHAT ARE THE IMPLICATIONS OF THESE TRENDS FOR FINANCIAL REPORTING ACTUARIES?

One implication is that direct writing companies need a continuing process to examine their exposure to reinsurers and evaluate their financial condition. Each company needs to evaluate what level of concentration of exposure it is comfortable with, and conduct enough financial due diligence to alter its exposures if concerns arise.

Another potential concern is the interrelationship between mortality and expense assumptions used in pricing. It is not uncommon to use current unit expense levels in pricing, and the rationale for this may rely in part on the expectation that future mortality gains may offset expense inflation. If a significant part of the mortality risk for a particular product has been reinsured, this offset will not be realized.

On the more technical side, the mortality assumptions used for asset adequacy testing should be reviewed to see that reinsurance is properly reflected in any assumed mortality improvement.

Finally, there is the broader question of whether mortality improvement should be assumed for GAAP estimated gross margin projections under FAS 97 or benefit premiums under FAS 60. For FAS 97 products in particular, assuming improving mortality should produce a projection of increasing margins, and this would defer DAC amortization into the future, thereby improving the emergence of GAAP earnings. This approach would result in different earnings streams for products whose mortality risks are reinsured and those where the risks are retained, a difference which otherwise would not appear until many years in the future. ❖

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The Relationship of Mortality Projections and the Underlying Mortality Tables Used

by Larry Warren

The 1975-80 select and ultimate mortality table has served the actuarial profession very effectively over the decades. Scaling factors were updated and minor adjustments were made to keep this table current. All prototypes, however, need to be re-evaluated from time to time in order to ensure accuracy and appropriateness. Changes in lifestyles, medical advances, new underwriting requirements and risk classifications, etc. can affect mortality patterns and need to be recognized. **In this paper it will be shown that the result of using the 1975-80 select and ultimate table, as opposed to the more modern 1990-95 select and ultimate table, can result in a significant understatement of future mortality, meaning that anticipated profits may prove to be illusory.**

The development of mortality assumptions and projections typically takes into consideration company mortality experience, industry mortality experience or a combination of both.

Projecting future mortality has been referred to as an art, as well as a science. Mortality assumptions and projections are used in many different situations and for many different purposes, from calculating profit margins to demonstrating company solvency. Some examples include pricing new products, cash-flow testing, analysis of reinsurance costs (i.e. reinsurance premiums vs. future expected mortality), self-support testing (under the NAIC Model Illustration Regulation, under New York's Section 4228, etc.), reserve adequacy testing, valuing inforce blocks of business, etc.

The development of mortality assumptions and projections typically takes into consideration company mortality experience, industry mortality experience or a combination of both. The pricing actuary, in establishing a mortality assumption for developing new products, often begins with the mortality experience of recently issued policies of a particular type of product and makes some adjustments for possible changes in underwriting requirements, such as average face amount, persistency, or any other factor that may affect future mortality. The appropriate mortality experience, therefore, would be limited to the early durations of newer products, which would have most likely been issued using underwriting requirements and guidelines similar to what will be used in the near future.

The valuation actuary, in performing cash-flow testing, reserve adequacy testing, valuing an inforce block of business (possibly for sale or acquisition), etc., would begin with the mortality experience of policies issued over a longer time frame, perhaps 10 to 20 or more years, which would be more representative of the company's entire inforce business.

The reinsurance actuary, whether from the ceding company perspective (analyzing reinsurance quotes by comparing them with future expected mortality) or the assuming company perspective (developing a reinsurance quote that properly reflects future expected mortality), would be interested in mortality experience of recently issued policies in reinsuring new business and policies issued "many" years ago in reinsuring inforce business.

General Approach

We started with a simple model, using the assumption that $10,000,000 of face amount was issued each year for each issue age (25, 35, 45, and 55) and experiencing Linton "B" lapse rates (20%, 12%, 10%, 8.8%, 8%, etc.). We also formed a composite issue age by assuming the distribution of face amount by age was 15%, 35%, 35% and 15% for issue ages 25, 35, 45 and 55, respectively.

We used the model described above to calculate actual to expected mortality ratios for policies in particular durations (e.g. the first three or first five policy years). These ratios were calculated by assuming an arbitrary amount of death claims for actual mortality claims experience and applying the qx's of the 1975-80 and the 1990-95 select and ultimate mortality tables to these particular policies to obtain the expected mortality claims experience. Future mortality claims would be projected

over 20 years by applying the previously calculated actual to expected mortality ratios to the mortality table on which the actual/expected mortality ratio was based.

We used this model to calculate actual to expected mortality ratios (for each mortality table) for policies in their first three policy years. Next we calculated the 20-year present value of future claims for a single year of issue (representing new business), using the qx's of each mortality table separately. That is, the actual to expected mortality ratio obtained by using the 1975-80 mortality table was applied to the 1975-80 mortality table in calculating the 20 year present value of claims, and analogously for the 1990-95 mortality table. We then repeated this process using the first five policy years to see if the results would differ significantly. We also used this model to calculate actual to expected mortality ratios (for each mortality table) for inforce blocks represented by policies in later durations. We then similarly calculated the 20-year present value of future claims.

Results

It was shown that, where the actual to expected mortality ratios were based on mortality experience of the first three policy years, using the 1975-80 select and ultimate mortality table produces a present value of future claims (male composite) that is **13%** lower than what would be obtained by using the 1990-95 select and ultimate mortality table. This reduction varies significantly by issue age: 32% lower at issue age 25, and 14% lower, 22% lower, and 2% lower for issue ages 35, 45 and 55, respectively.

The results for females are similar, but the difference is smaller. The present value of future claims (female composite) is 10% lower when using the 1975-80 table, as opposed to using the more recent 1990-95 table.

Furthermore, our analysis showed that, even if the actual to expected mortality ratios were based on the mortality experience of the first five policy years, the relationships would be similar. It was also shown that the relationships are similar for inforce blocks, but the differences are smaller.

It became clear that the 1975-80 table generally produces mortality projections considerably lower than the more recent 1990-95 table. To help put the mortality differentials between these tables into perspective, we compared these differentials to the effect of assuming annual mortality improvements of 1.0% and 1.5%. We developed a simple model to calculate the reduction in the present value of future claims over 20 years based on a single year of issue (assuming Linton B lapses and a discount rate of 6%) resulting from 1.0% and 1.5% annual mortality improvement (reduction) factors for all 20 years. This analysis was done for ages 25 and 55, male and female, and both mortality tables (1975-80 and 1990-95). The results were that a 1.0% annual improvement factor over all 20 years (a somewhat aggressive assumption) produces a decrease in the present value of future claims ranging from 7% to 10%; while using a 1.5% annual improvement factor (a very aggressive assumption) produces a decrease ranging from 10% to 14%.

Observations and Conclusions

The relationship of mortality projections and the underlying mortality tables turns out to be quite

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significant. The majority of companies continue to use the 1975-80 select and ultimate mortality table. **In making the decision to utilize the 1975-80 select and ultimate mortality table, as opposed to the 1990-95 select and ultimate mortality table, the actuary may unwittingly be taking an aggressive posture when it comes to projecting future claims.** For example, our analysis showed that for many issue ages, the decrease in the present value of future claims resulting from using the 1975-80 select and ultimate table, as opposed to the 1990-95 select and ultimate table, is often greater than the decrease in the present value of future claims resulting from using aggressive mortality improvement factors.

This phenomenon results from the fact that the slope of the 1990-95 table is higher than that of the 1975-80 table (i.e. in the early years the ratio of the qx's of the 1990-95 table to the 1975-80 table are lower than they are in the later years.) Each of these tables was based on the Society of Actuaries Intercompany Mortality Study on Standard Ordinary issues in the USA. The 1990-95 table, in addition to being a much more recent table, was based on data where the total dollar amount of exposure was $4.1 trillion for males, and $1.6 trillion for females, more than double that of the earlier 1975-80 table, and hence should have greater credibility. It should be noted that the 1990-95 table was developed with selection factors for 25 years with an emphasis of fit over smoothness, while the 1975-80 table was developed with selection factors for 15 years with an emphasis of smoothness over fit.

Companies with relatively low average issue ages (e.g. issue ages 25 - 45) that are still using the 1975-80 select and ultimate mortality table should be especially careful in setting their mortality assumptions. If mortality is better reflected by the 1990-95 table, which is very likely, they run the risk of significantly understating future claims.

Some state regulations dealing with self-support testing and valuation (e.g. Regulation XXX) prohibit the use of mortality improvement factors prospectively. Since we have shown that using the 1975-80 mortality table is often similar to using the 1990-95 table with aggressive mortality improvement factors, state regulators may consider requiring the use of the 1990-95 mortality table.

Based on a recent survey conducted by Tillinghast-Towers Perrin (The 2000 Pricing Survey of Individual Life and Annuity Products) covering 22 mutual companies and 38 stock companies, very few companies include future mortality improvement when calculating expected mortality in product pricing. Therefore, since companies in general believe it prudent to not reflect future mortality improvement, it is especially important that they fully analyze their choice in selecting the underlying mortality table used in their profit studies and mortality projections. In addition, adjustments and modifications to existing tables may be necessary (e.g. there is an AIDS "hump" in young male middle duration mortality reflected in the 1990-95 mortality table which is probably inappropriate in today's climate of fluid-tested underwriting).

Many companies (direct writers, as well as reinsurers) have reduced profit margins in order to meet competition. Some may have even liberalized (lowered) their mortality assumptions to offset this reduction to profit margin, which increases the likelihood of adverse mortality deviations. In this business environment, the additional vulnerability caused by using a possibly inappropriate mortality table becomes particularly risky.

Mortality studies are becoming less and less rigorous because it is more difficult to get credible experience. This results from the fact that in recent years new underwriting requirements and many differentiated risk classifications have emerged (preferred, super-preferred, preferred-plus, etc). In this climate greater emphasis must therefore be placed on subjective judgment rather than stringent statistical techniques. As mentioned earlier, determining mortality assumptions and projecting mortality is an art, as well as a science. ❖

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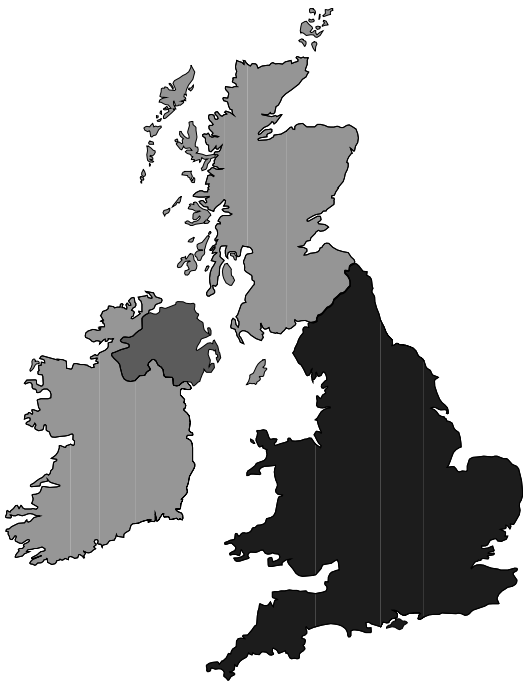
Lessons from the U.K.

by Walter S. Rugland



On December 21, 2000, the Faculty and Institute of Actuaries in the United Kingdom established a committee to investigate the events surrounding the closure to new business on December 8, 2000 of the UK's Equitable Life Assurance Society. The objective of the report was to determine whether there were any implications for the profession in the United Kingdom, particularly whether the standards of practice (i.e., the guidance notes that the Faculty and Institute provide to the profession) needed any amending, strengthening, extending or rewriting. A report has now been published and is discussed below, so that we can consider the implications for the profession in North America.

Background

To place events in context, the committee considered it necessary to reach some understanding of events at the Equitable since 1956. The earliest form of Guaranteed Annuity Rates (GAR) offered by the Equitable to its policyholders was a premium-based guarantee. This promised to a policyholder an annuity of X per annum from age 70, where X depended on the amount of premium paid and the age at which benefits began. But the form of GAR that eventually created problems for the Equitable was a different kind; it was based on a declared cash value of the policy (i.e. the benefit was illustrated as a cash amount, and the guarantee related to the terms on which this cash could be turned into an annuity). The transition from the premium-based guarantee to a guarantee related to an annuity option on an accumulated fund was a response to a succession of acts of parliament. These first allowed a part of the proceeds of a policy to be taken as a tax-free lump sum. Later they permitted the accumulated fund to be used to purchase a pension annuity from any provider, referred to as the 'open market option' or OMO. Until 1988, the Equitable continued to offer policyholders the option of making further investments in any year up to their retirement on terms that included these GARs.

The committee identified several critical events: the granting of premium-based guarantees and open-ended options from 1956; the introduction in 1971 of a tax-free lump sum as an alternative for part of the benefit; the high inflation rates and interest rates of the 1970s, leading to the increase in the guaranteed annuity rate; the introduction of terminal dividends in 1975; the introduction of OMOs in 1978, with the consequence that the Equitable then related the guarantee to the terms on which the cash value of the policy benefit could be turned into an annuity; further legislation in 1988 changing the format of pension policies, leading to the Equitable's no longer granting GARs on new policies and modifying the terminal dividend structure; interest rates first falling below the rate reflected in the GAR in 1993; and market annuity rates falling from 1998 onwards to a level significantly below the GAR.

The Equitable was unusual, if not unique, among U.K. mutual life insurance companies, in that it did not maintain an unassigned surplus. The philosophy on policy dividends that led to this position was that each generation of policyholders should get its own 'asset share', and neither inherit from the past nor give to the future. This philosophy had both supporters and detractors. In its evidence to the investigating treasury committee, the Equitable explained that each policyholder had a declared stake in the overall surplus and that the eventual benefits received in the form of annuity or cash value did, so far as possible, reflect the policyholder's notional share of surplus.

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This philosophy created participation that was seen to be higher than that declared by other life insurance companies. The larger dividends materially contributed to the effectiveness of the sales force in acquiring new business and, through the consequent high volumes, to the low costs of administration. This generated a momentum that boosted overall efficiency.

The absence of unassigned surplus meant that the company lacked a potentially valuable instrument to cope with unforeseen financial problems as compared with other mutual life insurance companies that had built up funds for such events.

A high proportion of Equitable's business was individual and group personal pension plans. These plans carried the GARs, and some contained the open-ended option to invest future sums in the plan on the same terms as applied to the original investment.

These plans carried the GARs, and some contained the open-ended option to invest future sums in the plan on the same terms as applied to the original investment.

In 1991, the Equitable combined roles of chief executive and appointed actuary. The roles remained combined until 1997 when there was a change of chief executive.

The Equitable adopted practices in a number of areas different from the practices generally adopted by other insurance companies at the time:

1. Using terminal dividend adjustments as the means for meeting the cost of guarantees.

2. Applying various technical assumptions that restrained increases in the value of the liabilities that would have reduced the distrib--utable surplus.

3. Reporting to policyowners on a different basis than other insurers.

Of these factors, there is not a single item, considered in isolation, that the appointed actuary or any other actuary need necessarily have changed. However, the unusual combination of the open-ended nature of the guarantees, the size of the GAR business in relation to the whole and the absence of unassigned surplus inherited from the past could well have been, and perhaps was, of concern to actuaries and to the Equitable board.

The Committee's Conclusions

The committee opines that the main reason for the readiness of the Equitable to be able to accept the risks was that its management had determined, after it had introduced the terminal dividend, that such a dividend provided the substantial flexibility required. In its view, this flexibility could permit adjustments to the company's liability day by day and policy by policy, even reflecting the decision each policyholder made about which annuity to purchase when the time came to convert the policy into an annuity. Unless circumstances arose which resulted in no terminal dividend payment, the Equitable believed it could rely on adjusting the level of terminal dividend so as to provide for the full cost of meeting the GARs.

The committee considered whether the course of events would have been changed if the work of the appointed actuary had been subject to independent peer review. An independent actuary, with appropriate knowledge of practice elsewhere, performing an external peer review might well have found grounds for challenging the Equitable's philosophy and practice. However, it is also possible that the response would have been considered satisfactory, but the exposure of the points of concern (if any) in peer review and their defense might have introduced additional caution into the process.

The committee concluded that an external peer review could possibly have made a difference in the course of events at the Equitable up to 1999, but not necessarily. In particular, it might have drawn attention to areas of significant differences with practice elsewhere. It stated its belief that an external peer review would have value and strengthen the effectiveness of the appointed actuary system. The appointed actuary might well benefit from talking to an actuary with relevant experience gained outside the organization. The committee recommended that the Faculty and Institute, in their current investigation into ways of monitoring compliance with professional standards, make an external peer review of the work of the appointed actuary a requirement.

It also suggested that presenting a financial condition report to the board might have opened up the subject of risk, and such a report would also be invaluable in an external peer review. It also recommended that the provision of an annual financial condition report be made mandatory.

It noted that present-day actuaries should recognize that guarantees and flexibility can both be expensive, and should examine carefully the scenarios that could cause them to be used by some policyholders in a way that has the effect of

reducing the returns available to the main body of policyholders. Where an actuary is giving an opinion on new contract terms, he or she should have full regard to the potential liability arising from whatever guarantees and flexibility are built into the terms of the policy. It recommended that valuation standards refer specifically to open-ended guarantees and their potential impact on the financial condition of a life insurance company.

In the committee's view, a present-day appointed actuary should carry out a risk appraisal for each new contract and periodically for the overall portfolio. That is not to say that a new contract has to be riskless, or even profitable, provided that the aggregate of the risks is manageable within the total size of the funds and that any built-in loss can be covered easily. The appointed actuary has a duty to investigate whether the premium rates for new contracts, on reasonable actuarial assumptions and allowing for the overall financial resources of the company, enable the company to meet its commitments.

The committee reviewed an illustration issued to a prospective policyholder in 1985. The Equitable illustration shows the policyholder what the capital value of the contract might be under certain assumptions about the dividends at the point of entering into pension status and purchasing an annuity. It also shows how much annuity could be purchased for that capital sum, first using the GAR, and then again using the then-current annuity rate. There is no suggestion that the size of that capital sum will differ according to whether the policyholder opts for the GAR or the current market annuity rate. The committee stated it is a management responsibility to ensure that information given to policyholders does not mislead them, and the appointed actuary shares in this responsibility. It recommended that the guidance notes make plain that the appointed actuary should require that there is a process for reviewing communications to policyholders and potential policyholders. The process should embrace: (1) stated principles that the illustrations and other literature must reflect, and (2) a consideration of how the policyholder who is not familiar with the constraints on a life insurance company might read them.

Denouement

When certain policyholders began to question the differential dividend issue through the U.K. pensions ombudsman, the Equitable acknowledged that its position was wholly dependent on its ability to determine, policy by policy, the amount of terminal dividend to be awarded at the point of entering into pension status and purchase of an annuity. The committee believed that since Equitable had the apparent acquiescence of the regulators, and legal advice, it must have considered its position as lawful and expected to have that view confirmed in the courts.

A unique judgement in the House of Lords, the U.K.'s Supreme Court, did not support the Equitable's interpretation of the powers of discretion available to directors. The Equitable therefore had to set aside sufficient provision to cover the possibility that a high proportion of policyholders would take advantage of the GARs and that many of those with contracts providing for the open-ended option to invest future sums qualifying for GARs might exercise that option to increase their investment. The Equitable then undertook to try to find a purchaser, and when that failed, stopped writing new business.

Conclusion

The committee did not find evidence to suggest that any appointed actuary of the Equitable failed to take account of the guidance that was current at the time the various decisions were made. It concluded that an accumulation and combination of decisions, actions and communications over a long period, and involving not only the appointed actuary but also the management and the board, made the Equitable vulnerable to the impact of adverse events. It also concluded that there are two clear lessons for those concerned with life insurance companies and other risk-bearing enterprises. The first is that it is not only individual risks that have to be taken into account but the chance of many risks arising simultaneously and compounding the liability. The second is that it is the cumulative and compounding effect of these risks that must be assessed in the context of the available unallocated capital.

In view of the Corley Committee's report recommendations, I sent a copy of the report to Don Cody, FSA 1939, a colleague in the structuring of the 1980 and 1990 standard valuation law amendments, and a prolific commentator on

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The Committee stated it is a management responsibility to ensure that information given to policyholders does not mislead them, and the Appointed Actuary shares in this responsibility.

valuation issues over several decades. Don thoughtfully provided some pertinent comments as follows:

Thanks for the opportunity for an 88-year-old actuary to comment on the Corley Report. I believe that this report is significant not only for British actuaries, but also for North American actuaries. It ought to be studied by all actuaries engaged in developing the valuation actuary matter.

It involves recommendations much like the guidance that we tried to install in the early days of the U.S. valuation actuary effort. Those early efforts, prior to 1980, proved to be politically incorrect.

The first thing that impressed me was this: the Corley Committee exhibited a gut feeling that there was actuarial responsibility for interdicting a debacle such as Equitable's. I am unaware of any SOA expression of institutional responsibility for any American or Canadian insolvencies.

I was struck by the importance of the C-4 risk, which I introduced years ago during a discussion at an SOA meeting, defining it rashly as risk of management stupidity. The definition was cleansed to something like "risks common to all businesses other than C-1, C-2 or C-3 risks." C-4 risk would commonly involve bad judgement by top management in exposing the company to insolvency from options whose costs were not foreseen. I suggest that the valuation actuary must have the responsibility for advising management of such potential costs.

Another salient point of the Corley Report was that an annual financial condition report of the actuary should be made mandatory in the guidance. I understand that such reports are mandatory in Canada. We have made great progress in defining the scope and mechanics of financial condition reports such as set forth in our dynamic rinancial condition analysis handbook and at our annual valuation actuary seminars. But we have not undertaken an ASOP for such reports nor have we attempted to make them mandatory in our guidance.

NAIC regulations have emerged for allocation of risk based capital, and for opinions as to adequacy of assets supporting reserves. While worthwhile, these are no substitute for a mandatory annual financial condition report to management and/or board. I suspect that these regulations would not prevent many insolvencies because they would not have caught major C-4 risks. They also encourage appointed actuaries to become mere journeymen whose objective is to meet regulatory tests, rather than to judge the solidity of the company as true professionals.

Twenty years ago, our initial belief was that the valuation actuary should do most of the things now recommended by the Corley Committee. This hope was not realized for such reasons as these:

- Management conviction that the actuary should not have such authority.
- Potential abuse of such reports by insurance departments and public.
- Unwillingness to base regulation on actuarial guidance.
- Unwillingness of company actuaries to aspire to such status.
- Need for appropriate education of actuaries and for research.

It is appropriate to review the validity of these objectives. Finally, I pondered deeply the Corley Committee recommendation to "make an external review of the work of the appointed actuary a requirement." It eventually became clear to me that this was a reasonable idea quite consistent with the thrust of their overall plan. It might even be regarded as a keystone in any adaptation of their approach by the SOA-AAA-NAIC. It would assure appropriate attention to the C-4 risk and to other important risks about which an inside actuary might be, or appear to be, prejudiced. Also, the inside actuary would be under scrutiny like other members of management and such independent audit could alleviate some of the objections listed in the above paragraph. It is notable that outside actuarial opinion is sought in mergers and demutualizations; the financial condition report seems no less important.

Apparently in Canada our initial convictions have been realized. In the U.S., the most evident response has been more and more regulation. However, we have made great strides in knowledge and education. Perhaps we now can say that we are ready to ask for trust in our ability to assume all the responsibilities of the Corley Report! I hope that you find my reactions constructive. ❖

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Distance Learning Up Close

by John Riley

How does a nonprofit organization create a robust, growing campus of online programs when development costs are out of sight and members are reluctant to pay even a modest sum for online training?

If you are thinking, "well, you can't," then you are not far from the truth. The SOA finds itself struggling to balance the sentiment to "get continuing education (CE) into cyberspace" where it is available to all at any time, against the reality that this goal is both expensive and time-consuming and does not always result in a high level of utilization by the membership.

There are ten programs currently on the SOA Virtual Campus. Most were created from live sessions at major meetings, which made them relatively inexpensive to produce. These have provided us with our own experience study as to whether members would be interested in paying for online programs on a "retail" basis. For the most part, they have not. In the last six months since seven programs were added to the campus, we have had less than 50 paying customers; the return on investment has been awful. It should be noted that the free program on "Tailoring Products for the Bancassurance Market" has done very well with over 200 people signing up for that within the same time span.

With apologies for elevating the financial side of things, the point must be made that money remains an excellent barometer for all things ,including continuing education. Nonprofits make a mistake if they expect online training to play by the same rules as live meetings and seminars. Absent some organization-wide commitment to sacrifice resources to it, online programming cannot flourish without using some creativity in how it is funded and without targeting the right audience.

The SOA has recently released two voluntary distance learning subscriptions for pension actuaries and candidates involved in the Professional Development program. In both cases, all the programs on the Virtual Campus are provided to the subscriber as part of the fee along with several audio tapes.

Early response to these programs has been very good, most likely due to the fact that both groups face a continuing education requirement.

In these cases, distance learning has a powerful appeal. The subscriptions provide credits (or units) more conveniently and at a far less cost than attendance at "live" events. Given the variety of audio tapes available, it also lets individuals fashion a very specific, relevant course of study. SOA Continuing Education is investigating the possibility of creating a program to assist actuaries who must meet the qualification requirements for signing prescribed statements of actuarial opinion. Distance learning might be a good option here for the six hours per year of individual study.

So, like many dot-com organizations who championed it, the bloom is off the computer-based training rose, but all is not lost. The fact that you can sit down at your computer and get credible continuing education at the touch of a finger means that distance learning is here to stay.

If and when the SOA mandates a continuing education requirement for all of its members, it will most certainly become an extremely important delivery method. Until then, I would love to chat about its virtues at one of our "live" programs. See you then! ❖

John Riley is managing director of Continuing Education at the Society office in Schaumburg, IL. He can be reached at jriley@soa.org.

Section Begins Four List Serves

by Jerry F. Enoch

On June 24, four list serves sponsored by the Financial Reporting Section became operational. A list serve is somewhat like a discussion forum. The difference is that on a list serve, every communication is sent as an e-mail to every member of the list serve. The objective of the section's list serves is to facilitate communication among members with similar interests, providing an easy method to get answers to questions or complex topics. The list serves may also provide a forum for discussing articles from "The Financial Reporter." The key to success of a list serve is widespread, collegial participation.

The four list serves sponsored by the section cover the topics of:

- Corporate and chief actuaries
- International accounting / fair value accounting
- U.S. GAAP current issues
- U.S. statutory current issues.

As examples, during the first week, the following topics were discussed on the statutory list serve:

- Accounting for participating business issued by stock companies
- Reporting of reserve changes resulting from changes in X-factors
- Actuarial opinions based on state of domicile
- Gross premium valuation
- Are states adopting the new AOMR?
- Where can practice notes be found on the Internet?

I have been impressed with the SOA's support of the list serves. It is easy to join or leave ("unjoin") a list serve. To join (unless the Web site changes), simply:

1. Go to *www.SOA.org.*
2. Click "List Serves" on the left side under "Resources."
3. Scroll slightly over half way down to find the four list serves sponsored by the Financial Reporting Section.
4. Click "Join" underneath a section you wish to join.
5. Provide the information requested (only your name, organization and e-mail address) and click "Submit."
6. You should then see confirmation that your submission was processed.

People who don't want to receive e-mails throughout the day can receive a daily digest. I have not tried this, but the process begins by joining a list serve and then sending an e-mail to the list serve manager (list-manager@list.soa.org) with "digest xxx" for the e-mail text, where xxx is the name of the list serve.

The SOA even provides concise, useful guidance for new list serve members at *http://www.soa.org/list/guidelines.html*. In closing, let me repeat that the key to success of a list serve is widespread, collegial participation. Please join a list serve today and participate! ❖

Did You Know...

- A listing of the 2002 seminars sponsored by the Financial Reporting Section can be found on the section web page. The sessions are:
  - Asset Liability Management – July 16-18
  - Basic GAAP – September 4
  - Advanced GAAP – September 5-6
  - Financial Reporting for Reinsurance – September 18
- A listing of the sessions at this year's Annual Meeting can be found on the Section Web Page
- The minutes from the section council meetings are available on the section web page
- You can access the section web page by going to *www.soa.org* and then clicking on Sections/Special Interests and then clicking on Life Insurance Company Financial Reporting

Find out more about these and other current topics on the section web page. Don't be a stranger. ❖

Treasurer's Report—2001

FINANCIAL REPORTING SECTION
SOCIETY OF ACTUARIES | FINANCIAL STATEMENT |
PERIOD ENDING DECEMBER 31, 2001
FUND BALANCE AS OF JANUARY 1, 2001 **$380,726**

INCOME:	**SEPTEMBER YTD**	**4TH QUARTER**	**DECEMBER YTD**
Dues	$36,790	$190	$36,980
Seminars	0	4,047	4,047
GAAP Book Sales	73,185	19,890	93,075
Newsletter	211	51	262
Monograph	60	0	60
Interest	9,272	3,208	12,480
	$119,518	**$27,386**	**$146,904**
EXPENSES:			
Travel	$968	$0	$968
Honorarium	5,000	0	5,000
Printing	6,810	3,316	10,126
Postage & Mailing	6,470	3,698	10,168
GAAP Book Expenses	34,812	14,519	49,331
Special Supplies	1,119	290	1,409
Functions	0	12,874	12,874
Conference Calls	149	32	181
Seminars	3,500	8,344	11,844
Research Projects	2,500	0	2,500
Course Development	8,750	0	8,750
Administrative Charge	18,560	0	18,560
	$88,638	**$43,073**	**$131,711**
FUND BALANCE	**$411,606**		**$395,919**

NOTE
Printing: Newsletter - 9/01
Postage & Mailing: Newsletter - 12/01 + common section expenses incl section election
GAAP Book Expenses: Printing + Royalities
Special Supplies - Speaker's gift + common section expenses
Functions: Council Meeting, Section Breakfast, Section Reception, common section expenses
Conference Call: 10/01 - New Orleans mtg.
Seminars: Losses Seminars #127 (cancelled), #138 and #140

This section has made the following financial commitments:

- Distribution of expense monograph - up to $20,000
- 1995 specialty guides -$5,000 (to date - paid $2,020)
- Wharton program on ALM - $35,000 .(to date - paid $8,750)
- Futurism section research on mortality at advanced ages $3,500 (to date - paid $2,500)

Journal of Actuarial Practice (JAP)
Call For Papers

The *Journal of Actuarial Practice* would like to solicit your help in recruiting technical papers. Papers may be on *any* subject related to actuarial science or insurance. Papers do not have to contain original ideas. Preference will be given to practical or pedagogical papers that explain some aspect of current actuarial practice.

As an international journal, *JAP* welcomes papers pertaining to actuarial practice outside North America. *JAP* also accepts technical papers, comments and book reviews. Papers may be submitted **via e-mail** in Microsoft Word, WordPerfect or LaTex format. All papers are subject to a peer referee (review) process. **Deadline for submission is November 30, 2002.** ❖

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