RECORD OF SOCIETY OF ACTUARIES
1980 VOL. 6 NO. 4

PROFIT STANDARDS AND SURPLUS OBJECTIVES IN THE DESIGN OF INDIVIDUAL PRODUCTS

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1. Discussion of internal rate of return, average yearly profit, return on equity, measurement of trend in GAAP earnings, other measures.

   a. Which are appropriate under what conditions?

   b. How do practices reflect current economic conditions?

   c. What standards are used in rates for life insurance (term vs. permanent), annuities, and health insurance?

   d. Are any of the above criteria applicable to mutual companies?

2. The rates and design of individual products for both mutual and stock companies.

MR. HENRY B. RAMSEY, JR.: This is a time of great change for our industry and a time of particular challenge for the financial management of life insurance companies. These are volatile economic times. There are extensive pressures on our traditional products. We feel pressed more than ever by governmental intervention. We are going through a period of extensive growth in qualified pension and individual investment products. Continuing inflation results in apparent rapid growth which puts a severe squeeze on surplus margins. At the same time, rapid cost escalation puts pressure of profits.

These conditions have caused a great deal of activity in the actuarial community to cope with those important financial aspects of our business most affected by these pressures.

In addition, modern management techniques demand greater accountability for the subdivisions of our business and there is a need for a more thorough accounting and actuarial analysis of these sub-businesses.

The pressure on the actuary to design his products carefully as to surplus emergence is obvious.

This morning we will hear from three able spokesmen, each a Senior Actuary of a major life insurance company. We have representatives from two United States stock companies and one Canadian mutual company.

MR. STEPHEN D. BICKEL:

1. Description of American General Group.

   The American General Corporation is a holding company which owns 13 life insurance companies, 11 of which are located in the U.S. The corporations are kept separate for a variety of regulatory, tax, or marketing

reasons. However, for the most part they operate with common ratebooks, policy forms, and field compensation. The 11 U.S. corporations are managed through 8 regional offices, each of which is headed by a chief operating officer. The life companies produce about 2/3 of the earnings of the American General Corporation, with most of the balance being generated by property and casualty companies.

2. ROE, ROI, Earnings Growth.

The overall corporate objectives are to maintain reasonable rates of earnings growth, dividend growth, and return on equity. Return on GAAP equity has exceeded 15% in most years since converting to GAAP. Dividend payout has been 1/4 to 1/3 of GAAP earnings, and dividends have historically grown at a 10% compounded rate.

3. Planning System, Dividend Policy, Investment Income Allocation.

The overall corporate objectives are related to the individual subsidiaries through a planning system. Each subsidiary develops an annual plan which compares its performance to that of its most natural competitors. The planned performance for the following year is monitored quarterly with respect to a number of key performance factors, of which the most important are GAAP earnings growth and ROE.

Return on equity is considered to be of lesser importance for management purposes than earnings growth, since surplus is affected by a number of factors which are outside of the control of the chief operating officer. These include fluctuation in market values of securities, allocation of dividend requirements to the subsidiaries, and investment decision of a corporate nature, such as directing one subsidiary to purchase another subsidiary.

Dividend allocations to the subsidiaries are based on GAAP earnings, limited by Phase III tax consideration, legal restrictions, or statutory considerations. Because of these considerations only half of the companies are normally asked to declare dividends. The payout from these companies is typically 40 to 50% of GAAP earnings.

We think it is desirable to allocate dividends in proportion to GAAP earnings to maintain equity among chief operating officers, since the immediate effect of paying a dividend is to reduce the next years earnings growth. It is also desirable to exclude the smaller, faster-growing companies from dividend requirements until their statutory surplus ratios approach that of the larger subsidiaries.

4. Surplus Objectives In Our Company.

The title of this concurrent session speaks of Profit Standards and Surplus Objectives. It is intended to imply that stock companies have profit standards and mutual companies have surplus objectives.

As a stock company actuary, I am concerned with surplus objectives as well as profit standards. To me profit standards affect the inflow to surplus (after all policyholder payments, including dividends). Surplus objectives would apply to the outflow from surplus, by identifying the amount we should retain rather than distribute to shareholders. We have not yet established formal objectives of statutory surplus ratios

depending on type of business, etc. Our general objective is to let the faster-growing companies accumulate to the surplus ratio of the larger companies before paying dividends. One line of thinking is that the statutory surplus ratio of the insurance subsidiaries and the GAAP surplus ratio of the holding company could both be the same %. This result could be obtained if the holding company had borrowed money equal to the GAAP adjustments.

This raises the question of what "surplus" the objectives should be related to - statutory, GAAP, or something based on prospective gross premium reserves such as purchase accounting GAAP reserves, or retrospective asset shares. If statutory, should it consider MSVR and deficiency reserves, and should it be different for foreign subsidiaries with differing statutory requirements?

We do not have a precise standard at this time. If we had a formal standard, we would probably distribute any excess over the minimum standard of surplus requirements. "Surplus" is not a good investment for a stockholder of a US company because of the heavy tax on investment income. It can only earn about 5% after tax and if too much surplus accumulates, it will adversely affect the earnings growth and probably the market value of the company.

Since converting to GAAP in 1972 we have been relating pricing objectives to GAAP earnings growth. The excess of gross premiums over GAAP valuation premiums was fairly consistent over the years on the old business, so it seemed natural to attempt to maintain the same margins on new business. Under our present standards, assumptions for mortality, interest, and lapses are the same as or consistent with those appropriate for GAAP valuation, including provision for adverse deviation. Expense assumptions are adjusted to cover non-deferrable acquisition and overhead expenses. Premiums are calculated to produce an average annual profit expressed as a % of premium. The success of the system could be monitored by analyzing the progression of GAAP gains by line and source.

5. Current Economic Condition.

In some of our subsidiaries we have been monitoring Ordinary Life GAAP gains by source. The results prove fairly dramatically how wrong all the actuarial assumptions are. Mortality has improved in most years, but the GAAP mortality gains is a relatively small figure. GAAP tabular cost is roughly half of statutory. Expense and lapse experience has deteriorated, eating into the loading profit. Interest gains are substantial, much above the expected, covering up the other problems very nicely until this year, when the credit crunch reduced cash flows available for new investments.

These results demonstrate that our control over future profits is limited, particularly regarding long-term nonpar business. Thus we can't report with confidence whether or not our pricing standards have produced the desired result.

6. Applications

a. Turning to specific products, one profit objective for nonpar permanent plans is expressed as a percentage of premium. Actually we

express the standard as a desired competitive position, but not less than the minimum.

b. For term, we apply the same standard as a percentage of premium. In theory I suppose a greater margin should be applied, but we have not done so.

c. For par business we apply a smaller profit standard, because of the sharing of risk by the policyholder. We price the new par business using current experience, without provision for adverse deviation, and we adjust the dividend factors on old business to be consistent with the new business.

I hope you will notice that this procedure maintains equity between old and new business without referring to the earnings on par business. In many of our companies we do not maintain a separation of accounts between par and nonpar business. Such a separation is not necessary to maintain equity within the meaning of the Academy's proposals on Dividend Distribution methods.

d. Indeterminant Premium.

For the past year we have been selling a nonpar policy with indeterminant "guaranteed renewable" type premiums. Gross premium assumptions are based on current experience, without provision for adverse deviations. Profit objectives are the same as for other nonpar plans. We consider the policy to be "nonpar" because rates are guaranteed in advance for three years at a time and past experience will not be considered in establishing each new rate.

e. Immediate and Deferral Annuities.

In pricing single premium annuities we do not use any profit loading as a percentage of premiums, but rather rely on some provision for adverse deviation in the interest assumption as our source of profit. Interest assumptions are on a "new money" basis, and mortality assumptions for immediate annuities provide for some future improvements.

f. Individual Health.

Our current objective is to get this line of business into the black. Out stated profit objective is a percent of premiums plus investment income, but we are not doing well in either respect.

In summary, profit standards very definitely affect our pricing of new business, but surplus objectives do not.

MR. CHRISTOPHER S. MOORE: Any insurance company, whether it's a mutual or stock company, has to make sure its surplus is adequate to permit it to engage in the business of taking risks. How this is done is a matter for each individual company to decide, but having a specific surplus policy in effect can help a company to operate its marketing divisions more effectively.

A company can define its surplus policy, and put a specific value on the cost of maintaining surplus, just as it puts values on the cost of mortality, lapse, policy loans and other expenses of operation. In this way, the

company's marketing actuaries or other marketing officers can use the bottom line profit or loss of their operations as their measure of success or failure. A company's corporate needs for surplus will already have been accounted for in the development of that bottom line.

Until recently, my own company had not provided for any explicit contribution to surplus from its various products and policyholders. It was only when we took a close look at our surplus requirements, that we realized the need for more explicit surplus objectives. This review coincided with a period of particularly rapid changes in economic conditions, which helped to underline the need for a specific policy.

While our own surplus policy is still in process of development, you may be interested in the way in which we are relating surplus objectives to product pricing and design.

1. DETERMINATION OF SURPLUS CONTRIBUTION RATES

To begin with, we used the formula $R = \frac{e}{g-i}$ where R is the required target surplus ratio, e is the surplus contribution charge, g is the growth rate of liabilities and i is the net earnings rate on surplus funds. This formula has already been discussed in some detail in Robin Leckie's recent paper, so I don't intend to spend any time discussing it today.

Our target surplus ratios are established after looking at different scenarios for: investment fluctuations, mortality improvements (particularly concerning improvements in annuity mortality), regulatory restrictions on U.S. policy loan provisions, availability of dividend scale reductions on participating insurance business, the extent to which our annuity business has been immunized, etc.

Periodically, a set of expected long-term growth rates is produced for 10 different product/territory classifications. These growth rates are established after discussion with marketing divisions and examination of their plans for growth, historical patterns and economic forecasts.

Investment earnings rates are agreed upon, using reasonable long term gross interest rates reduced by the effect of income tax. So far, we have used rate differing by territory only.

Initially, we assumed that our surplus maintenance contributions would be incorporated into the pricing process on an explicit basis, so no other margins were included in premium assumptions for this purpose. The initial contribution rates that resulted are shown in the following table, for two specific territories A and B.

RATES OF SURPLUS CONTRIBUTIONS

	PAR INSURANCE		NON-PAR INSURANCE		INDIVIDUAL ANNUITIES	
	A	B	A	B	A	B
Target Growth Rate (% of liabilities)	10%	10%	6 1/2%	6 1/2%	10%	10%

Target Surplus Ratio (% of liabilities)	5%	7 1/2%	15%	23%	5%	5%
Earnings Rate on Surplus (% of Fund)	5%	4 1/2%	5%	4 1/2%	5%	4 1/2%
Surplus Contribution (% of liabilities)	.25%	.41%	.23%	.46%	.25%	.27%

For purposes of illustration, we illustrated target growth rates, surplus ratios and surplus contribution rates as percentages of liabilities. The final formula that was adopted was quite closely related to the illustrated percentages, and was expressed as a percentage reduction in interest rates assumed in premium calculations.

2. IMPLICATIONS FOR MARKETING AREAS

One might expect that the marketing areas of a life insurance company would be somewhat insulated against the effects of a company's surplus maintenance policy. As I mentioned earlier, however, a company's surplus policy will be of importance to the marketing areas for a number of reasons:

i) The policy can help marketing officers gain a better understanding of the implications of rates of new business growth built into their plans. They will inevitably realize that their input on projected growth rates directly affects the level of surplus charges that must be built into their premium rates.

ii) There is interest in monitoring actual to expected assumptions during a given period, in order that surplus contributions, premium rates or projected growth rates can be revised as needed.

iii) A surplus policy can highlight the effect of "windfall" profits, such as profits arising from old non-participating policies, which are available for specific purposes.

iv) The concept will gain increased acceptance throughout a company, especially if internal profit and loss statements are prepared with a bottom line that is net of surplus contributions. In other words, surplus requirements become just like other operating factors in the effect on bottom line profit or loss.

3. SPECIAL CONSIDERATIONS

In developing our surplus policy, we have had to deal with a number of special considerations in order to produce some practical guidelines. I would like to spend a few minutes discussing our thoughts on some of these particular problems.

i) Differences by Product Line: Assumptions concerning such factors as asset margins, interest rates, expense loadings, lapse and mortality rates, and growth assumptions will naturally differ from one product

line to another. These differences will produce surplus target needs and pricing factors that vary from one product line to another. For example, between one-half and two-thirds of our surplus requirements on non-par insurance resulted from interest, expense and lapse factors, whereas these factors made little or no contribution to our surplus requirements for annuities or for participating insurance. As another example, the effect of policy loans was substantial for U.S. non-participating insurance business, but had a relatively small impact on our surplus requirements for Canada and other territories.

In order to simplify pricing requirements, these differences can be minimized by applying the company's surplus policy among broad plan groupings, perhaps even as few as 3 or 4 lines throughout the company. Regardless of how broad the plan groupings are, it is important to continually monitor the various growth objectives and performance by product line, in order to validate the pricing charges used.

ii) Policy Loans: Here, problems can arise when the policyholders exercise their loan privileges to a significant degree, and the policy loan rates are unreasonably low compared to market investment rates. In the United States, this problem has been particularly acute, where interest rates have risen well beyond the legally permitted policy loan rate maximum. The problem is more serious for non participating lines, whereas the effect can be tempered somewhat through dividend scales for participating business.

It is not difficult to visualize scenarios that would result in inadequate surplus for a particular line as a result of inadequate policy loan interest rates, particularly for U.S. non-participating business, where the amount of interest earnings available to offset rising expenses is limited.

iii) Participating vs Non-participating business: To some extent, the surplus needs of participating business can be handled through reductions in the dividend scale. In our case, we made the assumption that one-half of the current dividend scale could be used to handle adverse experience, and then priced to a target surplus that could handle the balance of any deterioration in experience.

iv) Competitive Influences: Theoretically desirable surplus targets may well be too expensive to support with the competitive premium rates that are needed to achieve desirable growth targets. As a result, some adjustments may be needed in growth target or surplus target ratios in order that products remain saleable.

v) Excess Growth Rates: On the other hand, when actual growth of liabilities exceeds the growth rate assumed in the pricing, then surplus must receive a portion of earnings beyond the regular charges implied in the premiums. Under these circumstances, some additional earnings may be derived from higher investment earnings on surplus than originally assumed in calculating surplus contribution rates. Otherwise additional earnings would have to come from other sources such as mortality, lapse, premium rate increases, dividend reductions, etc.

It may be difficult to change surplus targets for existing business where surplus contribution rates have already been set, without unduly limiting the growth in liabilities, in particular the level of new business. Some compromise would be required in order to have consistent and realistic goals for surplus targets, contribution rates and growth rates for new and existing business.

vi) **Management of results:** In some cases, it will be difficult to convert the theoretical factors, R, g, e into indicators that can be worked with by the manager of a particular line or lines of business, in formulating any longer-range plans. These managers would be expected to incorporate any surplus contribution rates or surplus targets into their business plans in a form that would be consistent with their regular reporting. For example, growth would normally be expressed in terms of new premiums or new first year commissions, rather than increase in liabilities.

These are just a few of the special considerations that must be taken into account when converting a theoretical surplus policy into a practical program for maintaining surplus. For mutual companies, who have not been quite as familiar with these issues in the past as stock companies have been, these types of considerations can have considerable impact on operations.

MR. DAVID M. MORDORSKI: At Occidental we have two general goals from our parent corporation. The first is expressed as an X% GAAP Return on Equity. The second is a desire to have GAAP Earnings increase by Y% per year. These goals are expressed in terms of the entire company and the entire individual line of business. The road from these general goals which are expressed in terms of the entire line of business and GAAP Return on Equity to specific plan goals, which may be expressed in terms of IRR, or profit as a percent of premium, or a certain profit per thousand, can be long and difficult.

You should also recognize that GAAP Earnings may not be a good individual cell profit measure. Clearly excess statutory surplus earns a very poor return after taxes. Also, there are severe limits on what you can do with GAAP Earnings which are being held as statutory reserves.

In making the transition from the line objectives to individual policy objectives, our primary tool is a model of both inforce and new business. For new business we model 10-12 major plan types for a period of 20-30 years. We examine GAAP Return on Equity and the GAAP Earnings projection which result from the model. In running the model, we look at five scenarios to test sensitivity. We use an optimistic scenario, a most likely scenario, and a pessimistic scenario. On both the optimistic and pessimistic scenarios, we test with both an increasing interest and inflation assumption and a decreasing interest and inflation assumption. Most of the major assumptions for the optimistic, most likely, and pessimistic scenarios are derived using a delphi technique with a large group of people in our Home Office.

Looking at the results of the model, we adjust parameters until we achieve a satisfactory overall picture in regard to statutory IRR, GAAP Return on Equity, and GAAP Earnings progression. The primary parameters which we are adjusting are sales objectives; competitive posture, including premium levels and benefits provided; and overhead expenses, the major one being agency development costs.

Once we have this satisfactory overall picture, we then set percent of premium profit goals for each major plan group contained in our model. These percent of premium goals are based on real dollar ratios. That is, they are real dollar earnings divided by real premium dollars received over the life of the contract, with items being discounted at a satisfactory real rate of return. They are based on statutory earnings using the most likely set of assumptions. Thus, when we go to price a specific plan, we use the percent of premium goal for that specific plan group established from our model.

The other subject I would like to briefly address is how surplus objectives affect our pricing. We have established required surplus targets for each line of business within Occidental. These required surplus targets are established on a formula basis, such that the company should be able to withstand a catastrophe of a defined magnitude over a specified period of time.

This formula is then translated to the pricing cell level where it is expressed as a certain percentage and per thousand increase in mortality, and a certain percentage loss in assets at risk, less the earnings and some of the policyholder dividends which would normally be available over the period of time the catastrophe is assumed to take place. This required surplus is then deducted from normal statutory earnings in determining the "earnings" which we use in our profit measures. On that basis we are recognizing a specific level of surplus which must be maintained for each piece of business on the books.

MR. RAMSEY: I might add some comments with regard to Penn Mutual's work in this area. I hope that you noted that the basic considerations in the pricing structure were not much different between the mutual company and the stock companies. As I see it, the primary differences between mutual and stock companies from a financial analysis standpoint are essentially two:

(1) There are no stock ownership interests and consequently no determination of distributable earnings to such interests.

(2) Most contracts are in a participating form where the primary distinguishing characteristic is a regular review and adjustment for the pricing factors (e.g., revision of the policyholder dividend scales) and thus pricing assumptions are normally based on essentially current experience.

As far as I can tell, determination of a proper return for capital provided by participating policyholders differs very little from determination of a proper return for capital provided by stockholders.

As to techniques, our approach is probably closest to the one described by Dave Mordorski of Occidental. We look at the internal rate of return calculated on a modified "Anderson book profit" type calculation (modified to the extent that the surplus requirement of the product is treated as a reserve requirement). We make several calculations, both with and without provision for non-marginal expenses. We make a set of calculations based on a specific rate of return on capital invested in the product and look at the residual income generated by charging such a rate and the percentage of premium contribution that that represents.

Unlike Kit Moore, our focus on the choice of rates has been more to the value of capital under current money conditions than directly to the rate of growth which we hope to sustain. We believe this is possible because we expect that

our rates of growth will bear some fairly direct relationship to the return on capital expected at that time. We are very sensitive to the relationship between return on capital and the growth rate of the business as has been so clearly described by Kit Moore's associate Robin Leckie in his recent paper.

MR. DONALD D. CODY: I have been hoping to hear what companies are doing about the risk that Mr. Bladen emphasized yesterday which the Committee on Valuation refers to as C-3 risk. Namely, what provisions are you making for investment type contracts or for ordinary life insurance contracts in the event they ever turn really short? What are you putting aside against this "upside" risk?

As actuaries we have a good understanding of how we should provide for downside risk. In other words, for our companies as a whole, our liabilities over the years have been long compared with our assets and hence the risk that we are familiar with comes from falling interest rates where we can't support our required interest and reserves. This can be handled rather understandably by the technique that the NAIC will be suggesting, I hope, in the dynamic valuation bases and as Charles Trowbridge pointed out in attachment 3 to the Society of Actuaries Committee on Valuation Report you can take an average of current new money rates and some low rate like 4% or 3% and get something that makes sense. This doesn't work on the upside. It doesn't work especially on contracts that have short liabilities like GICs and deferred annuities. There your risk is disintermediation. This could either be by forced sale of public bonds to get cash or can be recognized as borrowing from your liability long lines to support the demands of the liability short lines. This means that you are borrowing inside the company and the effect if you are running your company on an IYM basis for real understanding that you'll never get rid of. The format of the formula if you're looking at a prospective basis is still the present value of benefits minus the present value of reserves but the interest charge against your higher earnings comes in the form of loss of interest due to the fact you made loans or sold securities. Those of us who have been working in this field have seen no way to define this in a clear manner. It probably could be done only by scenarios in which you could scare yourself to death depending on how you viewed the near future where you would have a danger of hitting spikes of high new money rates wherein the money will run out or worse you get into a situation of an on-going plateau of high money rates and you may lose all of your life insurance values as well. This is a very real and very imminent danger and it's probably the problem that we should be addressing seriously in considering how much surplus we need.

MR. RAMSEY: I'd like to relate the question to the topic we have today which is the relationship between surplus requirements and the pricing process. Any product with a guaranteed surrender value has a potential disintermediation problem - if this risk results in holding surplus for that purpose, the cost of maintaining that surplus needs to be reflected in the pricing calculations. A question in regard to these products is have you judged a reasonable surplus provision and attempted to measure that surplus provision necessary to deal with the disintermediation problem and thus reflected that in the pricing process.

MR. JOHN C. MAYNARD: Another way of looking at the question that he was pointing to was to ask the question whether your surplus requirements which you've been building into your pricing and you've been keeping track of on your testing by line of business and other categories whether it does look after the future with regard to the risk of interest rates changing and the exposure to losses which that brings.

MR. MOORE: We have spent considerable time in looking at the investment risk involved in our various products. We have a heavy concentration of new money products in our company and so we were very concerned with this issue some years ago. We adopted the immunization theory approach. We don't match our assets and liabilities exactly but we do keep a close watch on our relationship of assets and liabilities in those new money products by product line and by territory so this fitted very well into our development of surplus targets as well. Of course, having taken this approach for new money products, the investment risk in our view was reduced considerably on those products. We took the approach similar to what David was talking about in terms of looking at a pessimistic scenario and projecting a model of our remaining business in that pessimistic scenario as well as a most likely scenario and we introduce some additional surplus requirements for our business that was not being operated within this immunized approach.

MR. MORDORSKI: I did mention that we do scenario testing and I'd like to also mention that increasing interest rates are not necessarily optimistic so when testing in this scenario we do reflect the fact that if interest rates are going to go up we are going to be getting some policy loans. In establishing those required surplus targets, we did look at the disintermediation scenario so those are all things that we've looked at and are attempting to provide for but there certainly isn't a magic answer. I would think that companies that are coming up with the new money type products and going without long term surrender charges in backing up those assets with long term investments are pretty dangerously exposed and we don't have any of those sort of products. I'm not sure that there is any way to protect yourself totally in those situations. I suggest not coming up with those kind of products unless you are going to use short term investments.

MR. BICKEL: We are attacking the problem through investment policies and policy design. I don't think you can charge enough to cover these possible problems. We had an experience several years ago where we were attempting to match assets and liabilities where we were selling a single premium deferred annuity with a five year interest guarantee so we thought we'd be real smart and we'd invest all the money in five year paper and actually went out and negotiated private placements of notes of five year maturities. When we had the credit crunch this spring and most of that business only had one year to go, there was substantial disintermediation and an asset loss with just a change in interest rates that occurred the first part of the year. We thought we were pretty well immunized but it did not turn out that way.

MR. RAMSEY: The question I worry about is a massiver surrender of individual products. Have any of you found a way of trying to cope with that aspect in this pricing consideration? Have you in your pessimistic scenario put in some very heavy surrender rates?

MR. MORDORSKI: We definitely built in with the increasing interest scenario a deterioration of lapse rates on permanent insurance.

MR. MOORE: I should clarify that many of the new money products we have are immediate annuities so we don't have this problem of disintermediation. This whole issue is of concern to us on some of our lines and I quite frankly don't think that our surplus contributions are adequate to cover the extreme cases of replacement risk. We have taken that into account though and we've put in what we feel is a reasonably pessimistic view on those product lines.

MR. BRIAN WOOD: Can the panel justify a GAAP profit standard when such a standard is not directly related either to the amount of risk accepted by the company or to the level of capital utilized?

MR. MORDORSKI: A parent company is going to be interested in GAAP earnings. Personally, I don't feel that GAAP earnings are necessarily the best standard for a stock company. We look at statutory return on investment for a block of new business. We don't necessarily get the same return on all of the blocks of business. I think I mentioned that we test ten or twelve major plan blocks. There can be different returns on those major plan blocks within the model and those are related to the risk because we are testing with five scenarios on each of those major plan blocks and so we look at the variation by scenario for each of the major plan blocks and a plan block which showed a lot more variation or sensitivity to deviations would have a higher profit objective than one that showed little fluctuation. So through the use of the model and the different scenarios, we are relating our profit objectives to both capital requirements and sensitivity to changes in assumptions.

MR. RAMSEY: I would think that there are two elements which are brought up by what Dave says. The surplus requirements certainly reflect the degree of risk to some extent and also the basic experience assumptions in the pricing process should also take the risk into account. If GAAP calculations recognize the cost of surplus, the projected GAAP earnings should have taken into account both the risk and the capital requirement.

MR. ROBERT E. DEGEETER: Dave, what kind of specific range of objectives do you have as a percentage of premium for permanent business vs term and on your return on invested surplus?

MR. MORDORSKI: In general we look at percent of premium both before and after overhead. We are generally seeing a little higher percent of premium profits on term than on permanent but I just don't feel I'm at liberty to disclose the actual numbers that we are getting as a percent of premium or the return on investment numbers that we are generating out of our models.

AUDIENCE COMMENT: Do you have specific minimums?

MR. MORDORSKI: It will vary tremendously by age. Competition is a very big factor. We try to always keep our after overhead percent of premium numbers for all ages in positive territory and certainly of course for an aggregate plan we want that to be well into positive territory.

MR. BICKEL: We do have a specific minimum for an entire plan, not at every age.

MR. JOHN F HOOK: Could you explain how you quantify the equity or the capital investment in a particular product or line?

MR. MORDORSKI: I mentioned that we have required surplus targets. The GAAP equity in our model would be the statutory surplus plus the whole GAAP adjustment. For example, taking a look at a new business block we are looking at the statutory required surplus plus any statutory loss in the first year.

MR. PETER F. CHAPMAN: First, have you included either explicitly of implicitly as an expense the amortization of your acquisition expenses and second, in what time frame is the desired surplus to liability ratio to be accumulated?

MR. MOORE: The answer to the first question is yes in our management information or GAAP statement. Now on the other issue of the surplus target, the target surplus ratios that we used are intended to be long term objectives that we're aiming towards. Our present surplus ratios are quite different in some cases from those targets. Of course, we're just not going to reach those rates in the near future but it does give us a direction that we're trying to aim towards. As I said we didn't have any specific objectives for surplus before several years ago and it was only when we began to use our internal management statements for profit and loss measurement that we realized that we had to somehow take account of surplus requirements. Otherwise, we were looking at statements and marketing people were looking at statements that hadn't had any specific charge taken out for surplus growth. That is why I made that point at the beginning of my comments. I really feel that it is a most important step to take in getting the attention of marketing divisions focused on the bottom line of their financial statements. I didn't mention during my comments either that everything I've talked about was on a GAAP basis. When I talked about surplus I was talking about GAAP surplus as well. We're trying to get our statements in a more useable form for marketing divisions.

MR. RAMSEY: Robin Leckie's paper deals with the relationship between the amount of long-term surplus and these provisions.

MR. ALAN E. MORSON: Dave, I have a question in connection with your forecasting of overhead expenses. I think you said after you do your scenarios you forecast your overhead in one lump. How do you come to grips with the level of productivity several years hence in connection with overhead expenses? Do you have targets?

MR. MORDORSKI: Yes we do. When starting off, we know our current price level. We know our current sales objectives and we have a five year budget of our overhead expenses and that's where we are starting from. I guess I exaggerate a little bit. In the long run all expenses are marginal and there is some degree to which your overhead expenses can go up with your production going up. Clerical help in branch offices, for example, can go up if your production goes up. That is not much of a factor, however. In fact we can look at that budget where we've got say five years out, look at the growth rates, project those out for twenty years based on the growth rates we've got budgeted over five, and with production going up say ten percent a year it's surprising how stable that overhead growth has been and continues to be in actuality. So we feel fairly comfortable in just saying overhead is going to grow at 10% a year and that's not very dependent on changes in production unless we're going to get the changes in production from agency expansion. If we're going to do that through opening up additional branch offices or financing of additional agents, then we'd build in those additional financing costs or build in the costs for new offices.

MR. MAYNARD: Are your operational objectives consistent with your pricing assumptions (for example, do expense budgets reflect a new business cost appropriate for the volume of new business based on pricing assumptions) and do you have an effective monitoring system?

MR. MORDORSKI: Management by objectives is worked at pretty hard at Occidental so that when we do this model and project some sales goals, the sales goals will tie in with our management by objectives goals. If we were projecting for our profit plan ten percent a year premium growth, that is built into the agency's line sales objectives.

Generally, I think we do a pretty good job of establishing standards and monitoring it now. As to the initial expense question, we have a budget which each of the areas of the company is tied into. We are monitoring to make certain that our expense factors reflect those actual figures and that the actual budgeted expense figures in our profit plan are tied into expense factors in the pricing. We produce a mortality report which is based on expected mortality used in pricing and the underwriters were looking at early duration mortality measuring and the underwriters mortality report that measures the actual mortality compared to what was put into the pricing and the same thing on lapses. I think we did a pretty good job of monitoring it.

MR. BICKEL: We should reach the point that we can tell the Underwriting Department that their budget will be dollars per thousand of new business plus so much per policy. We are not there yet but we are getting close and that in our budgeting process we make each department head quantify the output that he is generating and express his budget in those terms. In fact, it is just one more step to translate this into the pricing assumptions and establish goals for them.

MR. MOORE: We have in the past been concentrating on actual to expected indicators of mortality, lapse, expense, policy loans, and that's the full extent of our monitoring performance to plan in the various divisions. What we are doing now is we are trying to tie it together in a complete financial statement so that each of the divisions does take a bottom line approach. Perhaps more like what has been going on in the stock companies for some years.

MR. J. LYNN PEABODY: Much of the work that I do is with small and medium size companies, both stock companies and mutuals. In the past few years the profit standards and pricing objectives have changed considerably. In fact in the past six months or one year. Have you people had changes in your surplus standards and profit objectives in the past few years and if so do they reflect the greater risk that's involved which would possibly imply higher surplus standards or do they reflect the competition that you're facing and in fact realistically imply lower profit standards and lower surplus objectives?

MR. MORDORSKI: Anyone who has looked at the marketplace would realize that we have taken lower profit standards over the last few years. There is just no question about it. The profit margins on life insurance, at least those that I've been seeing, have been headed downward.

MR. BICKEL: In our case, we haven't intentionally cut our profit margins.

MR. DONALD SONDERGELD: I would just like to briefly describe what we do at the Hartford and then ask a question on profitability. We currently use Best's surplus objectives for large companies as our surplus objectives by line of business. We know those aren't right and we are struggling with trying to refine our determination of what the right benchmark surplus standards should be by line of business. However, we are consistent with our earnings reporting on a GAAP basis. We reallocate our benchmark surplus to line of business each year based upon what we think the line of business needs are for the year. In a corporate line of business, it's the balancing item. Our major profit objective is the internal rate of return which is on a statutory basis and the internal rate of return is calculated I believe as Mr. Ramsey has indicated including provision for benchmark surplus and we do it on an after tax basis. You can mathematically relate internal rate of return to the return on equity or the return on total capital. The return on equity

then turns out to be a weighted average of the return on your benchmark surplus and the return on your GAAP adjustments. However, this will be an unlevel rate of return. If your internal rate of return on a statutory basis was 15%, it's very likely going to be an unlevel basis. It might start out low and then be high and we find that an interesting set of numbers to calculate. The question I have is on profitability. For example, these aren't the right numbers but they are ballpark. If you have a 15% internal rate of return on individual insurance and a 25% internal rate of return on group insurance and the numbers are in this relationship so that your GAAP adjustment say in the first year might be a hundred dollars on individual and your benchmark surplus might be five dollars wherein group insurance you might have a very small GAAP adjustment of say five dollars and maybe a benchmark surplus of a hundred dollars. How do you determine that the 15% and the 25% are in the right relationships?

MR. MORDORSKI: We deal in real dollar rates of return so they are quite a bit different than what you are talking about because we have netted out the inflation and made some assumptions about real dollar rates of return on our investments. But in looking at the model again we're looking for each of the major plan groups. I mentioned that our profits could vary for each of those major plan groups and would vary depending on the sensitivity of the profits to changes in assumptions across the scenarios that we run. So we would want a higher rate of return for a particular plan group that showed greater sensitivity to the changes in assumptions. If you are using ROI, of course, you've got your capital requirement built in, so you can just require a higher ROI on those plan categories that have greater fluctuation with changes in assumptions. Also you have to look at the marketplace. We have those major plan groups and know what our plan is doing in the marketplace. Now at a given price, we can say upping the premium we're going to get less in that cell and lowering the premium of course we'll get more. Looking at the relative amounts of risks and returns that the market is allowing us to get, we can then say we feel we're not getting as much in non-par permanent or whatever, and we're not getting as much return as we'd like for the risk that we're taking. Require a little bit more return and recognize that we are going to get less sales in that cell.

MR. SONDERGELD: I think maybe I stated my question too quickly. Let's say you know the right amount of surplus you need for a product. Suppose Product A has higher surplus needs than Product B and Product A gives you a bigger return on equity than Product B. Then how do you know how much bigger the return on equity should be?

MR. RAMSEY: I would define equity in this instance as being the sum of the amounts of capital needed to invest in the product. This includes the surplus requirement and the strain so it is the combination of those two things combined. If you are calculating your rate of return based on your investment in the product, it is going to reflect both of those things.

MR. MORDORSKI: If you have a higher capital requirement, you're just demanding a certain return on the investment. By building required surplus into the pricing cell level, it automatically is reflecting the additional surplus needs, the additional investment, in that product. Why should you get a 25% rate on investment in group insurance and 15% on individual unless you feel group is more risky. So the only variation for ROI would be a measure of risk then, your investment being measured right at the pricing cell level.

MR. THOMAS K GROSS: Dave, you have used the term real dollar several times. Are you talking in terms of something like 1967 dollars discounted for consumer price index or statutory vs. GAAP. What do you mean when you say real dollar?

MR. MORDORSKI: I'm talking constant dollars. If we're pricing a plan and projecting a 9 1/2% interest rate and a 7% inflation rate I'm talking about a real return of 2 1/2% and I'm talking about adjusting everything for the inflation that is assumed in our projection.

MR. BERNARD RABINOWITZ: The first question is for Steve and the question is in measuring GAAP profits by line of business. You said that each line starts out with zero surplus. How do you determine if profits are adequate to recover investment in new business? The second one is for Dave and Dave you mentioned that you studied projected earnings using various assumptions as to investment income and inflation. The question is do you vary your new business projection to be consistent with those assumptions as to future rates of interest and inflation?

MR. BICKEL: I guess the answer to that is we don't look at it that hard. We're focusing on the GAAP earnings growth which is a function of both profitability and sales and if the GAAP earnings are there then eventually the statutory surplus will be recovered. We do in the asset share work look at the statutory result too. We calculate an internal rate of return but it is not part of the pricing formula.

One other comment I wanted to make was to recognize that we have a number of companies, operating with the same ratebook all with different surplus ratios. To our point of view the price we charge the policyholder should be independent of how much surplus we choose to leave in that particular company. And that is a little different from what the other fellows are doing.

MR. RAMSEY: As I hear the other panelists, I don't think it is different. Pricing is based on "required surplus" not existing surplus. It is the recognition of the "cost" of the statutory capital investment including "required surplus" that is the new element in recent discussions on pricing.

MR. MORDORSKI: Steve, you're talking about depending on the surplus in the company. No, that's not what we are doing really. I'm tempted to say the surplus in thecompany is independent of the required surplus, but of course it's not. If you are operating under ideal conditions the two are equal but I think it was Don Sondergeld that mentioned how the corporate account is the balancing item. You have the required surplus for each line of business and that is that line's surplus, the corporate account being the balancing item. If the corporate account is sitting there with positive surplus as a balancing item, it's earning a terrible rate of return. An after tax return of somewhere around 4%. Our parent folks up in San Francisco can find a better use for that money. So that is an indication of what we should dividend out. As for your question on the varying of assumptions by scenarios, yes we do keep them consistent. So that if, for example, we're looking at a permanent plan of insurance and it's the optimistic increasing interest rate scenario, we would have increasing inflation rates in there. We'd have higher policy loan utilization built in. We'd have higher lapse rates built in on the optimistic. Then we'd probably have a slightly increasing real rate of return whereas on a pessimistic increasing interest we have a decreasing real rate of return and we try to make sure our assumptions are consistent throughout.

MR. RABINOWITZ: Do you reflect the inflation rates in your average projected size policies?

MR. MORDORSKI: Because of the technique we are doing where we create a model and then roll it over for future issues, grow that into perpetuation, run it out twenty or thirty years on the new issues, I would have to say no we're not reflecting that element of change. We're reflecting the change in the assumptions on the business after it is issued but for new issues in that respect it is an inconsistent model. We are trying to get a picture of what the results are on the business that we're issuing today so in that respect we're producing a bit of an inconsistent model.

MR. RABINOWITZ: I have one more question and that is that you talked about setting different surplus requirements by line of business. And the way you set these surplus requirements was to look at possible catastrophes. Aren't you double counting in that you are assuming that all of our catastrophes will hit at once.

MR. MORDORSKI: In fact we have a formula which takes into account the mortality risk and it is something like the square root of the square on the mortality plus the square on the investment risk times 1.1. But we're not reflecting the offset we could get, for example, from the pension line of business, if we had a mortality catastrophe. So you can say to that extent we have more surplus than we need.

MR. RABINOWITZ: We have a lot of health business and it seems inconsistent to assume that everybody's going to be hit by an accident and be sick for a long time all at the same time.

MR. ALAN H. FRASER: In the presentation this morning, we've seen an apparent similarity in the approach to surplus setting between the mutual and stock companies. I am wondering if the differences in the approaches between these two types of offices are not rather greater than they appeared. For a mutual company, the only requirement for surplus is to provide a sort of contingency reserve to protect the policyholders against future deterioration in the company's experience and possibly for the future expansion of the company. A stock company obviously requires surplus for the same purpose but must be under at least as great a pressure to produce a surplus for the sake of paying dividends to the stockholders. I am wondering whether the panelists from the stock companies would like to tell us whether in setting the surplus targets they distinguish between the surplus which is required for paying dividends to stockholders and that which is to be reserved for the policyholders.

MR. MORDORSKI: We do keep track of policyholder surplus. We do establish "take" rates for par products. In our pricing we say a certain percentage of the profits are going to go to policyholders, a certain percentage to stockholders and then monitor that plan to keep us at that percentage over the lifetime of that business.

MR. RAMSEY: It seems to me there may be some confusion between surplus and earnings. Earnings are needed to build surplus and to provide income to shareholders. I think the response has to relate to the pricing element which is where it all comes together. I doubt if a company holds surplus just to pay dividends to stockholders as such.

MR. BICKEL: The reason for wanting to have surplus standards would be for the purpose of determining what was a reasonable dividend to the stockholder. That would be the advantage of having them. We would not translate that necessarily into the pricing process.

MR. MORDORSKI: If I could make one other comment. We do keep separate par and non-par surplus accounts. Our par surplus account has been running negative for a while. If effect, the stockholders are financing the surplus for the par policyholders and that of course is one of the arguments why we say the stockholders are entitled to a return on that business. Par business written in stock companies and mutual companies have many differences, one of them being you don't need a par surplus in a stock company if you are willing to have your stockholders supply that surplus. It could be a long topic if we were to get going on that.