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## RETURN ON INVESTMENT IN A RATE-REGULATED ENVIRONMENT

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How appropriate is Return on Investment pricing methodology in a rate-regulated environment? How is a fair rate of return determined? What is in store for the future for rate-regulated insurance, and how can it be affected?

1. Current rate-regulated environments
  - a. Direct rate regulation-mandated, rate approvals
  - b. Indirect rate regulation-claim regulation, expense limitations
2. Return on Investment in price setting
  - a. Concept
  - b. "Fair" return
3. Current use of ROI methodology
  - a. Casualty, health insurance, life insurance
4. Future rate regulation controls
  - a. Consumer activities
  - b. Social pressure
  - c. Regulatory pressure
5. How to affect the expansion of rate-regulated insurance
  - a. Professional involvement
  - b. Regulatory development

MR. GEORGE D. MORISON: I would like to begin by introducing the members of the panel. The first speaker will be Michael Johnson, Director of Research of the National Association of Insurance Commissioners. He will be followed by Ardian Gill, Vice President and Principal of Tillinghast Nelson & Warren. Mr. Johnson and Mr. Gill will talk about life insurance aspects of our subject. The third speaker will be Claus Metzner, Associate Actuary with Aetna Life & Casualty. Mr. Metzner and our final speaker, Irving Plotkin, Vice President of Arthur D. Little Company, will discuss property-casualty aspects of our topic.

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MR. MICHAEL JOHNSON: I want to begin my discussion this morning with a disclaimer. The views which I will express are my own. They do not represent the formal positions of the association for which I work. Although I have been an interested spectator, I have not been involved personally in the life insurance cost disclosure deliberations about which I will speak in a minute. This work has been carried on by a special task force to the National Association of Insurance Commissioners (NAIC) Life Insurance (C3) Subcommittee. The NAIC staff person principally responsible for these activities is Carolyn Cobb. However my boss, Jon Hanson, has taken considerable interest in the proceedings.

I have somewhat more expertise in the area of life insurance profitability. However, the principal work in this area also has been conducted by an NAIC committee: in this case, a task force to the NAIC Computer Applications (A3) Subcommittee, which is chaired by John Montgomery. This committee has been assisted by an industry advisory committee chaired by Don Ames of CNA.

The NAIC as an organization has been interested in the relationship between investment income and pricing in the Property and Liability Insurance industry since at least the end of the second World War. While a Deputy in the New York Insurance Department, Roy McCollough wrote a series of papers on the issue of whether or not investment income should be credited to policyholders. In 1970, the NAIC staff produced a monograph which went into the issue of investment income and fire and casualty insurer profitability to some considerable length. Simultaneous to the development of this monograph, my friend and colleague Dr. Plotkin was doing his seminal work in this area. The culmination of this spate of activity was the famous New Jersey rate decision of Commissioner Clifford in 1972.

As an outgrowth of the considerable interest in defining profitability and, in particular, the effect of investment income on profitability, the NAIC developed a series of measures of profitability. These numbers have been available since 1974. Recently there has been considerable interest in the effect of investment income on ratemaking in the states of Massachusetts, New Jersey, and Florida. Finally, to bring you up to date, in December 1980 the NAIC Executive Committee assigned a high priority to the development of recommendations on the use of investment income in ratemaking. This assignment has been referred to the new Personal Lines Property and Casualty Committee.

Since there is no direct rate regulation of most life insurance products, these products have not generated much interest in the effect of investment income on pricing. However, the NAIC has addressed this issue in two areas: life insurance cost disclosure and life insurance profitability.

The NAIC has been studying life insurance cost disclosure since the late 1960's. In 1973 and again in 1976 the NAIC adopted model life insurance solicitation regulations which included cost disclosure provisions. A new model life insurance cost disclosure regulation has been under consideration by the NAIC for the past year.

By training I am an economist and part of the belief structure that I carry with me is that markets will insure socially optimal risk/return relationships as long as there is competition. If this is the case, then there should be little concern about the appropriate treatment of investment

income in price determination because competitive pressures will force insurers to take appropriate note of investment income. However, for the spectrum of life insurance products, there is a difficulty with this assumption. To have competition, one must have reasonably well-informed consumers. If there is a lack of understanding of the price and/or the product, then it is difficult to argue that competition exists regardless of the other structural conditions. Furthermore, if there is suspicion that competition is not operating effectively, the regulator has a responsibility to monitor the situation. This in turn requires the collection of a variety of competitive indicators. This then is the unifying theme in efforts by the NAIC to develop a life insurance cost disclosure system and to compile profitability results for life insurance companies. Investment income obviously plays a key role in both of these issues. The work of the NAIC is in both instances preliminary. Neither the (C3) nor the (A3) task forces have come to any conclusion or made any recommendations which have been adopted by the NAIC.

As I see it, there are five life insurance cost disclosure issues dealing directly with the relationship between investment income and pricing. The first and only nontechnical issue deals with notice to consumers. Should there be a buyer's guide, should it be standardized, should it be mandated, and should consumers receive periodic updates on existing policies? The existing model regulation specifies a buyer's guide but the proposed regulation goes much further.

The next issue concerns a description of the relevant product. In any effort to describe the structure of an industry through empirical measurement, it is necessary to define the product. Consumers recognize that life insurance is a joint product by their purchase decisions. They buy some whole life, some term, and some investment. Insurers also recognize the joint nature of the product which they sell, since they have designed products which mix investment vehicles with basic mortality protection. A principal issue which the cost disclosure task force is currently facing is whether dissimilar policies should be compared. Specifically, should there be recognition of the investment income components of their purchase? Should ordinary life policies be compared with pure mortality policies?

Another issue which the task force is facing is how to assign a time value to money. You will recall that under the old net cost method, there was no discounting for time. Under the interest-adjusted method adopted in 1976, a 5% rate was arbitrarily assigned. This was an estimate of the after-tax yield on investments of similar liquidity and risk. Under the Linton Yield method, an implicit assumption is made that the time value of money is the current market value since this is the presumed return against which consumers will compare the Linton Yield. Finally, the probable cost index, which is currently under discussion, assumes that the appropriate discount factor is 8%. The rationale for selecting this value is the same as the rationale for selecting 5% under the interest-adjusted method.

Another issue is whether comparisons should be based on event-specific actions or group average assumptions. In 1974 the Society of Actuaries recommended the group average method. However the current adopted cost disclosure methods illustrate at 10 and 20 years and are thus event-specific.

The final issue concerns the illustration of dividends. Under the current

regulation an equivalent level annual dividend is computed and presumably used to show the effect of illustrated dividends in the cost of life insurance. Some have argued that the computation of this number allows for market abuses and unfair comparisons between participating and non-participating policies.

The NAIC became involved in developing life insurance profitability formulas in the mid-1970's. This effort was an outgrowth of the efforts to develop profitability figures for fire and casualty companies. It was felt that life insurance profitability measures would be useful as one of the indicators of competition, as part of an early warning system and, finally, to compare with other industries. This last reason was seen as a reasonable test since a number of critics contended that life insurance companies were earning unconscionable profits.

Surprisingly, there is no major controversy concerning the income figure that should be utilized in the ratio. Both the task force and its advisory committee feel that statutory income is an appropriate measure. The real issue concerns the appropriate denominator. Three bases have been suggested: revenues or earned revenues, assets and net worth, or capital and surplus. A revenue base has been suggested because it is akin to the return on sales. Any profit measured on sales gives the percentage mark-up with which most consumers are familiar. The difficulty with this particular measure is that revenues include investment income. This destroys the concept of return on sales. The life insurance product and the revenue derived therefrom are strongly inter-temporal. Therefore, a return on current sales probably is not an appropriate measure.

Some have suggested that the remedy to this problem is subtracting the increase in policy reserves from gross revenues. This is a concept akin to the concept of earned premiums in the fire and casualty industry. The critics of this suggestion have responded that the concept of earned revenues is not a concept which is well understood in the life insurance industry and its use will cause confusion. Furthermore, life insurance reserves are maintained on a number of different bases; as a consequence, consistent reporting is not possible.

The next suggested denominator is total assets. Assets are used as a base in public utilities. The hope is to measure the rate of return on the physical assets used by the operation. There are several difficulties with the use of assets. Should monetary assets be valued at market or should a statutory valuation be used? Furthermore, assets cannot be segmented by line of business so line-of-business reporting would be impossible. Finally, and I am quoting from a report of the industry advisory committee, "An insurance company holds many of its assets in a semi-fiduciary relationship. Therefore, a large portion of the earnings on its assets is credited to the policyholder and is not included in the gain from operation. This is true for insurance companies in general and for mutual companies in particular but it is not the case for most other industries. Thus relating profits to total assets distorts the measure of insurance companies' profitability and there is no simple way of overcoming this major deficiency."

The final commonly used denominator is net worth or, in this particular instance, statutory capital and surplus. This measure is the most commonly used basis of inter-industry comparisons. It measures the return on funds invested by the owners. However there are some potential difficulties.

Mutual companies do not have stockholders and thus ownership equity may not be an applicable concept. Second, numerous statutory adjustments would be necessary to create a comparable measure of net worth. This would be very confusing. Finally, net worth cannot be segregated by line of business.

You will note that throughout my talk I have given only issues and no conclusions. I have done this because the NAIC has yet to reach conclusions. However I suspect that several of these areas have no "correct" resolution. Different requirements may require conflicting results and thus compromise will be necessary.

I hope that I have shown that the relationship between investment income and pricing of life insurance products is a matter of current interest and scrutiny by the insurance regulatory community. I look forward to an interesting discussion and exchange of viewpoints.

MR. ARDIAN GILL: In 1959 there occurred a notable event in the annals of actuarial literature; a paper began with a scrap of poetry:

Weave a circle round him thrice  
and close your eyes in holy dread  
For he on honeydew hath fed  
and drunk the milk of paradise.

This is the way Jim Anderson began his paper on the pricing of non-participating life insurance, a paper that settled the denominator referred to by Mike Johnson, and settled the numerator too.

The numerator is the profits on the policy being priced. The denominator is the initial strain of setting up the contract, essentially the acquisition costs and the reserve. The discount rate at which the present value of the book profits equals the present value of the investment is the return on investment.

Mr. Johnson's remarks are, of course, related to the aggregate determination of the rate of return in a going concern when experience has changed and where policies are in varying states of maturity. That is a more complicated question, the answer to which is in a paper by Sam Turner on the Valuation of Life Companies (TSA 1978). In Turner's paper the process is the same: a number of representative policies are selected and a model company is built. Each of these policies is subjected to the procedure of discounting book profits to the point of valuation. The resulting sum produces the investment which will provide a rate of return equal to the discount rate.

The problem isn't measurement of the Return on Investment (ROI), it is getting an appropriate return in a highly competitive over-regulated environment. When interest rates were at 5% we used to price products and companies to yield 15%. Now interest rates are at 18% and we price to yield 10 or 12%. It makes no sense for the cost of capital to exceed ROI.

A company cannot grow at a rate greater than its ROI. The industry is building in negative growth (note the decline in the number of policies in force; note the decline in real asset growth, net of policy loans).

These are parlous times for ROI in life insurance; where are the problems?

They stem at least in part from subtle rate regulations, as I will describe,

Let us consider the whole life product. It was designed by Elizur Wright in the last century. It assumed that net level premium reserves could be accumulated in a logical and systematic way for 96 years (at least on the American Experience table). Inherent was the assumption that interest rates would behave.

Thus we had the Standard Valuation Laws. The maximum valuation interest rate at this time for all practical purposes is 4.5%.

The mechanism has worked very well; the only major modification for a century was introduction of CRVM and other preliminary term methods.

### Cash Values

So long as you are reserving, said the legislators, you are accumulating funds. When a policyholder terminates who has contributed to those funds, he forfeits them; this had given rise to the auctioning of policies in England, which some considered to be speculation in human life. Since the law abhors a forfeiture as nature abhors a vacuum, we have the Standard Nonforfeiture Laws. They too are designed for interest rates that behave themselves.

It is one thing to set reserves at a level which assumes a stable interest rate because assets and liabilities tend to march along together, or the insurer can match them so they do a reasonable job of it, even if interest rates are not stable, so long as the funds are not withdrawable. Once funds are withdrawable, the insurer's assets must be convertible to cash; matching has little to do with asset selection. Insurers are at the mercy of the guaranteed surrender value because, in effect, every life policy guarantees that the policyholder can cash out at book.

It is true that there are surrender charges, but these are designed to recapture acquisition costs, not to provide for asset depreciation. The only way to immunize against the threat of book value cash out is to remain in cash - money market instruments, etc: short term investments backing long term guarantees. If you find that uncomfortable, think of the alternative: long on investments, short on guarantees - exactly the position of life and annuity companies today.

But a policyholder does not need to resort to surrender - he can borrow his cash value at rates of 5%, 6%, or 8%. Last week I visited a client whose increase in policy loans equaled 96% of the increase in policy reserves.

It does not take much imagination to see that when an insurer's cash flow is inadequate to these demands, the insurer is on the way to insolvency, let alone a poor ROI. And you can also see that if all the insurer's assets are in policy loans, the interest rate is fixed and non-competitive with other savings vehicles. In fact, the policy loan arbitrage - borrowing at 8% and investing at 15% - makes minimum deposit, or fully borrowed out policies, a "best buy" for upper bracket clients.

This implies a limited growth rate and an asset shell. There are companies approaching that condition. Either they are having their policies replaced or doing it themselves through the medium of loans. The companies' return

on investment on such minimum deposit policies has a very steep curve; because the early cash values are high, the investment in the policy is high (no preliminary term methods here!). Since it earns only the loan rate on the investment, its ROI is necessarily limited and risky because of rising lapse rates.

I will mention one other severe problem with permanent insurance and then examine the defenses. This problem is the throughput of interest income on the investment element of the policy. This is largely a tax problem. Because of the 1959 income tax law, a company cannot put through to the policyholder an interest rate that, for all practical purposes, exceeds 7%. The equation is that when the insurer's investment rate equals the reserve rate plus 10%, the insurer is fully taxed on that investment income. The reserve rate (maximum) is 4.5% so if interest rates are 14% the insurer can pay out a little over 7%.

This means that life policies compare unfavorably with alternative investments in this high interest rate environment. It means that companies cannot sell against other investment media. The FTC report on life insurance calculated a rate of return by a method that was flawed in two major respects, but its impact will not disappear. In stating the average return as 1.3% they raised doubts about the value of life insurance investments and, at the same time, made it possible to compare life insurance with other investment vehicles - most methods compare life insurance with life insurance. This means that - even without high front end loads which confiscate a big chunk of the savings portion - life companies cannot sell their product.

If companies cannot sell their product, then they cannot support their distribution systems. This fact is manifest - most companies have stopped trying to build agency forces and are trying to live off everyone else's. At this point the question of ROI disappears, and is replaced with a question of survival.

What are the survival mechanisms?

For the book value cash out problem two solutions come to mind:

1. Go short on investments. This approach does not help the existing book. Long term lapses are rising at an alarming rate as companies without a stake in permanent insurance seek to replace other companies' policies; ironically, with that other company's own agents. (If there is no competition because of an uninformed consumer, somebody better keep an eye on the referee.)
2. Shift the risk to the consumer. This is an excellent device but not possible with current laws requiring guarantees, except for variable products (e.g. Variable Life) -- then the product becomes a security, with attendant SEC problems.

Neither of the above approaches (going short or going variable) solves the investment rate throughput problem; they can solve the loan problem.

One other approach which does not solve but avoids the throughput problem is to reduce the investment portion and write permanent insurance at a very low rate, say \$7 per \$1000 at age 35 (as Manulife does in Canada). This

approach encounters another regulatory problem: deficiency reserves. These are an investment in the contract, they enter the denominator and the ROI will be reduced thereby.

Are there legislative solutions on the horizon? It seems unlikely:

- Dynamic interest rates in new model laws will not provide a solution - they will have an impact only on deficiency reserves and they are at least 5 years away.
- Dynamic loan rates will not solve the problems - they are not equivalent to money market rates, they do not move fast enough, and they do not eliminate the arbitrage.
- Legislative solutions to regulation by taxation are a long way off and inadequate in any case.

There is one solution that shows promise; it goes by various names, most commonly Universal Life. This product separates the investment element and credits a current rate of return on it. The separation raised the prospect of the fund being an annuity which would make it taxable to the insured's estate; a favorable tax ruling on that question has been received. But there remains the question of whether interest credited in excess of the 4.5% guaranteed rate is a dividend, in which case the company will not be able to deduct it fully for tax purposes. Most mature companies are Phase I, or taxable investment income companies, who have to form subsidiaries to write this product.

Because of the nature of this product (it looks like a deposit less a load) regulators have been making noises about regulating the total rates, or the rate of return. In short, having made it impossible to achieve a reasonable ROI by conventional means, they now propose to attack the unconventional solution. In addition, Universal life does not solve the cash out problem.

I recently read a paper by Mr. Charles Peters of the American Council of Life Insurance (ACLI) on the question of rate regulation in which he sets forth the arguments against rate regulation in life insurance. Now Chuck is a nice guy and did not mention that we already have such regulation in the form of:

Tax laws,  
Fixed Valuation interest rates,  
Guaranteed nonforfeiture benefits,  
Required loans at limited rates,  
Deficiency Reserves, and  
Securities regulations.

The only solution that cuts through all the problems is the British system of non-guaranteed values, no required loans, and full freedom to invest in what we call separate accounts (and they call links) without security regulations. The British income tax on Income less Expense would be helpful also. The only way we will get any portions of such a system is to repeal the McCarran Act and replace the current state regulation.

Accident and Health Insurance is regulated directly on the rates; the ROI is consistently negative. One company after another has **stopped** writing



individual medical care; individual disability income will be abandoned next except by a few specialty writers. The question life companies must ask themselves is, "will the same thing happen to the life insurance product?"

We've indeed woven the circle around us thrice.

MR. CLAUS S. METZNER: After that discussion it seems that the rate regulation practiced on the casualty-property side of the business is benign. My part of this presentation is to give you a very brief overview of the rating laws which affect casualty-property insurance and how these laws are applied. If you will keep in mind that the property-casualty product is generally a one year term policy and thus is subject to semiannual or annual price review and adjustment, you will see why rate regulation is a continuous battle rather than a long-term battle, as it is in life insurance.

The current rate laws are of three basic types. Under Prior Approval laws, rates must be approved by the regulator before they can be placed into effect. File and Use laws give the regulator the opportunity to review the rates before the insurer starts applying them; the regulator may disapprove the rates if he finds they are excessive, inadequate, or unfairly discriminatory (most regulators today do not invoke the inadequacy provision). Use and File rating laws allow the insurer to start using the rates and then file them; the regulator has the right to review the rates after they are in effect, and the regulator may request additional support or disapprove the rates at that time. In addition to rates, policy forms are also subject to regulation and, of course, there are indirect forms of regulation such as those dealing with unfair claim settlement practices.

Generally speaking, commercial coverages for large risks, and exotic coverages, are substantially unregulated. The policyholders tend to be large and they can fend for themselves, so there is not much need for regulation. Where the market consists of knowledgeable buyers and knowledgeable sellers with equal economic importance, or clout, only minimal regulation is required. This is consistent with the theory that regulation ought to be applied where there is no competition, to achieve the same result that competition would achieve. Among the high visibility lines such as personal auto insurance, where buyers are not as knowledgeable and where everyone must purchase coverage, many voting people are concerned about the price; therefore, more regulation is imposed. Workers' Compensation, another essential line of insurance that is state mandated and requires adherence by insurers to manual rates, is also very tightly regulated.

In reviewing filed rates the regulator considers not only the final rate but also each of the basic cost components: loss components and expense components. In the area of expense components, rate of return regulation might address the profit margin; Irv Plotkin will be talking about this topic. I will confine my discussion to other expenses and to losses.

On the loss side the actuaries begin with losses that have been reported and project them to incorporate due allowance for incurred but not reported (IBNR) losses, i.e., those that we do not know about at the end of our given experience period. The loss costs are then projected into the future because many of the things that casualty insurance pays for are of a service nature: we promise to repair your car; we promise to indemnify you for the costs incurred by someone else whom you may hit; we promise to repair or

replace your home, if it is damaged by fire. Some of these promises are subject to maximum limits; sometimes, as in Workers' Compensation, where we promise to relieve the employer of the liability to continue disability payments and medical payments for a lifetime (if necessary), there is no maximum amount limitation.

Thus, property-casualty loss costs are subject to inflation, in contrast to life insurance where the amount of loss under a policy generally is fixed at the inception of the contract. In addition to inflation risks, the final value of a liability claim may not be known until years after the claim is first reported. Thus, the regulator may question the actuary's projection methods for incorporation of IBNR and for the ultimate determination of the cost of each claim.

The regulator is also likely to evaluate trend factors - the assumed rate of inflation in the loss cost. This is an area of great controversy with regard to both the trend in the dollar value of the costs and the trend in the claim frequencies. For example, much discussion has **focused** on whether the significant increases in the cost of gasoline over the last few years have reduced mileage driven and automobile accident frequencies. Whether such an effect has occurred in any given state is always subject to some debate; a certain adversary position is generally maintained by insurers and regulators.

The expense loadings in casualty insurance traditionally have been included as a percentage of the base loss cost. In the past few years, more regulators have expressed an interest in flat expense loadings, similar to policy fees; this change reflects the belief that even though loss costs may vary widely between insureds (the loss costs of the teenage driver might be three to four times those of the senior citizen), some administrative expenses do not. It should be noted in this example that the flattened expense loadings are probably justified in that they probably are a more accurate method of assessing expenses. However, in the absence of regulatory pressure, competitive pressure probably would have slowed the introduction of this change.

In addition to the loss and expense provisions in the rates that the regulator can influence directly, we also have indirect regulation, as in constraints on the manner in which companies settle claims. Generally speaking, companies have a duty to settle claims promptly and fairly; however, "promptly" and "fairly" are somewhat nebulous concepts dependent on an individual's perspective. In liability coverages the insurer must investigate the nature of the liability itself, and the true value of the liability; a great deal of judgment is involved. To the extent that the regulator forces faster claims payments, and the judgments are made more quickly to resolve any disputes between the claimant and the insurance company, there is an impact on the cost because of the risk that the insurer is paying some claims before all the facts are in, and would not pay the same amount if all the facts were known. On the property side, some companies have introduced claims settlement programs. (For instance, rather than repair the claimant's car, which is the service specified in the contract, the insurer would pay today the decrease in the car's value and pay any additional amounts actually spent on repairs at the time these amounts were incurred. This is a way of lowering costs because many people do not bother to have their cars repaired.) There has been some difficulty in getting these types of claims programs approved even though the approval of the programs would lower the otherwise indicated rates, because some regulators believe such programs are not in accordance with the contract.

Another form of indirect rate regulation is through the control of the residual market rates for those risks who are basically uninsurable. The nature of casualty insurance lines is such that there are uninsurable risks, who nonetheless must be offered insurance. (One cannot legislate that everyone must have automobile insurance without providing a mechanism to insure bad drivers whose licenses are still valid.) If the regulator sets a residual market price that is too low, it is very difficult for a company to price adequately its own book of business because the residual market rate is an effective upper limit on what an insurer can charge. For example, there is a lot of discussion now about Workers' Compensation rates becoming competitive; there is also a very large residual market in Workers' Compensation, due to the nature of the costs involved. It is quite possible that some regulators would set residual market rates at such a low level that a company charging adequate prices for its own book of business would have rates higher than the residual market rates, and thus lose virtually all its business.

Another area of indirect rate regulation is the limitation of classification criteria and other controls of rate relativities. If the regulator forbids the use of some classification criteria which indicate cost differentials, rate differentials will be eliminated in a segment of the insured public. In casualty insurance, for example, some states require automobile insurers to charge young male insureds the same rates as young female insureds, even though young males tend to have more frequent and more severe accidents. The immediate result of this constraint is that no company wants to insure the young males; thus they are insured in the residual market and subject to the regulator's control of that rate. In an attempt to limit classification criteria and to prevent companies from avoiding the constraints, regulation on top of regulation must be instituted. For example, Massachusetts has a very complex system with various credits and charges for various underwriting decisions; the net result of the system is that nearly half of the private passenger policyholders are in the assigned risk pool. That is not a very desirable situation because it discourages competition. It also is not a good form of regulation because it creates market dislocations.

With regard to future rate regulation, I suspect that the direct form of rate regulation on the loss cost and expense costs will be reduced; there seems to be a drive by the NAIC to allow companies to compete and set rates in the marketplace. On the indirect side, the regulation of classification of individual risks will be much more prevalent due to consumer and other social pressures on the regulators. It is also quite likely that claims practices will be more tightly controlled in the future than in the past. The so-called market conduct compliance audits will test whether companies are abiding by the allowed underwriting criteria. These forms of indirect rate regulation are going to be difficult to live with because they put the burden upon the companies to show compliance with the regulations. The result of the indirect regulations could be the same as direct rate regulation: inadequate prices for a fairly large segment of the market.

DR. IRVING H. PLOTKIN: Anyone in the audience who really wants to understand rate of return and its impact on the rates insurers may charge, at least in the property-casualty industry and maybe in the future in the life insurance industry, ought to look at three documents. The first is a compendium of papers published by the Casualty Actuarial Society in 1979, called "Total Return Due a Property Casualty Insurance Company". This document contains at least thirty papers discussing all aspects of the pro-

blem; some of them are fanciful, some of them are practical and useful. If you want to see how this theoretical topic influences, at least on the property side, what can be sold and how much can be charged for it, read Professor William's just-released report to the New York State Insurance Department dealing with the measurement and return of excess profits in New York State automobile insurance. It is based, by state requirement, on a rate-of-return-on-net-worth standard. Professor Williams says that an average 18% return on net worth is a reasonable earning on automobile insurance and that any return in excess of 22%, on a six-year moving average basis, should be returned to the policyholders. The derivation of those numbers, the measurement of the numbers, and the risk adjustment that produces the 18 and 22% figures are an interesting study. Not only is it a fairly good paper but it also demonstrates that we are not talking strictly about theoretical constructs or accounting effects but, at least for property insurance, something that influences the quantity of goods and services transacted. The third document to which I would call your attention demonstrates that there is no method, no matter how well enshrined in economic reasoning, that politicians cannot use to their own advantage. I refer to the decision just handed down in the Minnesota Workers' Compensation rate case which has been pending for two years. A principal component of the decision is the very misleading announcement by the regulator that it is reasonable to expect an 18% rate of return from the Workers' Compensation rates which he has approved and that such a return is clearly adequate for the compensation insurers.

I would like to review, very quickly, some of the fundamentals of rate of return regulations as they have evolved rather rapidly since 1967, when Arthur D. Little Company published its report saying that the rate of return was the way to review the profit of any activity; insurance is one of those activities, and the capital markets in the economy review insurance in terms of its rate of return despite the best efforts of the professionals working within the industry and their management. Insurers are subject to the discipline of the capital markets - even the mutual companies have learned this lesson, which is the reason mutual companies establish stock companies.

The insurance operating profit for any insurance company is the underwriting profit plus the investment earnings on funds supplied by policyholders (an after-tax basis can be used). It is sometimes difficult to measure these items with precision, but conceptually they are not difficult. Adding investment income on the net worth, net worth being those dollars which are currently in the company which still would be available for investment if the company stopped writing insurance (this is the closed-end mutual fund aspect of the insurance company), produces the total net profit or net income of the insurer. One problem is that most financial reports combine the investment income on policyholder-supplied funds and investment income on surplus, showing only total investment income, and thereby obscuring very critical information. Clearly, if the insurance operating profit is expected to be negative in the long run there is no reason to be in the insurance business; management could produce a greater total net profit by operating as a closed-end investment fund. (I have avoided a non-realistic case where the writing of insurance lowers the total risk and, therefore, would allow a negative insurance operating profit.)

You will note that I have referred to the expected value of the profit. It was pointed out explicitly in the previous talk, and implicitly in the prior ones, that underwriting profit is what you can really earn; it is not the

5% target allowance often built into property-casualty rates for convenience the 5% is more often not earned than earned. (This might be attributable, for example, to the regulator's not accepting the trend factor recommended by the insurance company's actuary.) Or it is earned except the sign is negative rather than positive! I did a study in Texas by recasting history to determine what would have been earned had the regulator allowed the rates requested by the industry rather than what the Department's actuary had recommended. Based on the study, I gave the regulator's actuaries a "D minus" but gave industry's actuaries a "D" because they too would have produced negative profits.

The components of total net profit can be expressed as rates of return by dividing by net worth; I do not mean merely the statutory surplus shown in the Commissioner's Annual Statements, which is a liquidating value and thus a highly conservative, gross understatement of the economic going-concern value of the company. Dividing each of the components of profit by net worth produces: the rate of return from underwriting, and the rate of return from investing policyholder-supplied funds; the sum of these two equals the insurance operating rate of return. A necessary condition for economic viability of an insurance company is clearly that the insurance operating return be expected to be greater than zero, since the insurance operations subject the surplus to another layer of risk—the vicissitudes of the insurance business and the claims it can make on the net worth. In fact, the expected value of the operating rate of return not only has to be greater than zero, but the expected value has to be greater than some beta which is a function of the risk added by the insurance business, and also compensates for the tax loss (the first dollar of insurance written subjects all investment earnings to taxation; these earnings would be absolutely free of taxation in a closed-end mutual fund). The beta has to make up for the tax loss, or tax protection that the insurer loses on earnings on surplus and the beta has to reflect the riskiness of insurance. Unfortunately, it is very difficult to determine an appropriate level of beta; the approach used in the Williams Report, and many other reports, is to determine the total rate of return (total net profit divided by net worth); this return must be a function of the risks of the insurance operations and of the risks from the investment of surplus. This is what is meant by using total rate of return to determine whether the implicit profitability of the total insurance business, or of any one product, is correct. Clearly there are many measurement problems and many difficulties quantifying the risk even when the measurement problems are solved.

Turning to historical insurance company profits, Table I shows a net underwriting profit that is not quite uniformly zero, but is consistently far away from the 5% which is the usual target. Most often this shortfall is attributable to underestimates of inflation by economists and actuaries. One of the greatest insults to the intelligence of the insurance buying public was perpetrated by Massachusetts Commissioner James Stone, with his Harvard degree, saying that a - 4% target profit is reasonable since it approximates the realized historical profit. People in Massachusetts still believe that illogic.

Table I also indicates the historical magnitude of the other sources of income; the second one is the investment income from policyholder-supplied funds, and the next one is the investment earnings on stockholder-supplied funds, as a proportion of premium. You will note that the necessary condition for staying in insurance—not even the sufficient condition but the

necessary condition -is violated in at least two years out of the ten years reported in Table I, where the sum of underwriting income and investment income from the policyholder-supplied funds was negative. One wonders, in doing a total analysis, whether the return in the other years was sufficiently positive. Table II displays the total after-tax returns by year, related to the asset base and to the equity base. (This is not the statutory surplus, but rather is the equity as measured on an economic-going concern basis.) The equity return or the asset return may be compared to alternative investments in the economy, with appropriate adjustments for relative risk (particularly on equity returns because of the high leverage and great volatility). This comparison would show the property-casualty industry to be a rather poor investment, although less so in recent years than in former years; I do not know how much of the apparent improvement is an inflation effect. However, the industry is still behind the eight-ball as the regulators argue that the high levels of investment income caused by inflation (which has also caused the high levels of underwriting losses) should be taken into account, but only on the investment income side, as a credit against otherwise-needed actuarial rates.

Table III displays operating results for a single state by line of insurance. In Workers' Compensation the target underwriting profit was +2½%; in the other lines it was +5%. In general, the actual profit was of the same magnitude as the target, but with a negative sign! For Homeowners, which shows a positive profit, inclusion of two more years of data would show a profit of -4% rather than +4.79%; this volatility is due to the periodic wind-related catastrophes, the losses of which are included in the rate-making process on a 30 year averaging basis.

In conclusion, beware the demagogues who look at pieces of data and tell you how well the industry is doing or how the investment income can be used.

MR. NATHAN F. JONES: Ardian, your discussion of de facto rate regulation for life and health insurance seems to have been developed primarily in terms of Ordinary life insurance. You mentioned individual health and annuities. Group coverages are now an extremely important portion of the industry; group coverages have played a major part in the development of some insurers. Do you have any comments on group coverages?

MR. GILL: I have performed an analysis of group health returns for the industry and major companies over the past decade. The average return, measured as a percentage of premium, is very close to zero; the return in 1980 was worse. Group health prospects are grim at the moment. Utilization rates increased markedly last year and the potential cutbacks in Medicare under the Reagan administration introduce an element of uncertainty.

With regard to group pensions, the returns will be poor until interest rates decline.

Group life experience continues to be good; however, the competitive market effectively prevents insurers from writing new life coverage by itself. The current rate war threatens to undermine the profitability of this coverage as well.

MR. JONES: For the important financial effect on insurers, one has to consider particularly relatively large group cases - at least 100 lives or more; for these it is essential to consider group life and accident and health together.

MR. GILL: My analysis of group accident and health was after the appropriate transfers resulting from the combination of life coverage and accident and health coverage for experience purposes; however, I agree that it is necessary to consider life and accident and health together. It is also important to consider the increasing number of Administrative Services Only plans, which have low but stable profit margins.

MR. ARTHUR LEVENGLICK: Ardian, with regard to Anderson's book gain methodology, I am often faced with the task of comparing on a marginal cost basis the potential profitability of two decisions, assuming that the amount of fixed expense is independent of the decision. In that situation I often find that there is no investment in the contract because the expenses plus the reserve plus any death benefits in the first year are less than the premium. In the absence of any investment in the contract, how can the Anderson method be modified to give a meaningful result?

MR. GILL: I suggest you compare the discounted value of the profit stream to the discounted value of the premium stream in each case.

MR. METZNER: On a different topic, I would like to point out the difference between selecting a target rate of return and achieving that return. Regulation by return on investment implicitly assumes that the loss and expense costs have been fairly projected to the period for which coverage is being afforded. To the extent that these costs are projected inadequately, the target return will not be realized. In addition, competition or regulatory forces may dictate using expense and loss provisions below the appropriate levels.

A recent study indicated that, over the long run, underwriting profitability in regulated states has not been significantly different than profitability in non-regulated states. However, responsiveness to cost changes is much more rapid in non-regulated states, so that the market operates more smoothly in these states and fewer insureds are in the residual market.

MR. GILL: It has been suggested that regulators are not concerned about rate inadequacy, in spite of the fact that their primary mission is protecting against insolvency. Would you comment on this, Mike?

MR. JOHNSON: I disagree with the statement that regulators are not concerned about rate adequacy. I can cite a recent Virginia decision which disapproved a rate because of predatory pricing. In drafting the new model open rating law, considerable scrutiny was directed at the possibility of predatory pricing and destructive competition.

In many jurisdictions, regulators carefully review possible inadequacy of rates being used by a company which is approaching a financially troubled situation.

MR. METZNER: Regulatory concern about insolvencies has been alleviated somewhat by the existence of Guarantee Funds, financed by solvent companies. While there may be special attention directed to companies on the brink of insolvency, there is no evidence that regulatory concern with solvency has improved rate adequacy for the vast majority of insurers.

TABLE I  
 CONSOLIDATED FINANCIAL RESULTS (PRE-TAX)  
 AS A PER CENT OF NET EARNED PREMIUMS  
 COUNTRYWIDE - ALL LINES  
 1970-1979

Year	(1) Net Earned Premiums (\$000)	(2) Net Underwriting Gain or Loss* %	(3) Investment Income from Policyholder Funds %	(4) Investment Income from Stockholder Funds %	(5) Net Investment Income Earned (3)+(4) %	(6) Net Realized and Unrealized Capital Gains or Losses %	(7) Total Other Income %	(8) Grand Total (2)+(5)+(6)+(7) %
1970	17,453,546	-1.57	4.07	2.48	6.55	- 1.40	-0.14	3.44
1971	19,807,246	2.03	4.09	2.63	6.72	4.81	-0.13	13.43
1972	21,977,188	2.51	3.83	2.65	6.48	8.05	-0.06	16.98
1973	23,978,419	-0.16	4.20	2.43	6.63	-10.63	-0.02	- 4.18
1974	25,421,300	-6.44	5.39	2.36	7.75	-15.69	-0.05	-14.43
1975	28,294,987	-9.20	5.39	2.69	8.08	7.80	-0.04	6.64
1976	33,076,275	-4.53	5.53	2.60	8.13	5.30	-0.06	8.84
1977	38,730,519	0.76	6.01	2.63	8.64	- 1.89	-0.04	7.47
1978	43,592,930	1.65	6.46	2.79	9.25	- 0.09	-0.07	10.74
1979	47,779,484	-1.70	6.93	3.12	10.05	3.46	-0.06	11.75
Total	300,161,894	-1.63	5.48	2.72	8.20	0.26	-0.06	6.77

\*After Policyholder Dividends

Based upon A.M. Best's 1980 study of stock property/casualty companies operating in Texas.



TABLE II  
 RATES OF POST-TAX TOTAL RETURN\*  
 COUNTRYWIDE RESULTS

<u>Year</u>	<u>Return on Assets</u>	<u>Return on Equity</u>
1970	1.68	4.26
1971	5.99	15.01
1972	6.85	16.87
1973	-1.98	- 5.15
1974	-4.13	-11.54
1975	4.02	11.60
1976	4.19	12.62
1977	4.19	13.51
1978	5.14	17.02
1979	5.41	17.32
Total	3.44	10.02

\* Includes All Underwriting Income and Investment Earnings.

Based upon A.M. Best's 1980 study of property/casualty companies financial results.

TABLE III  
 TEXAS  
 PRE-TAX INSURANCE OPERATING RESULTS BY LINE  
 AS A PER CENT OF EARNED PREMIUM  
 1972-1979

<u>Line</u>	<u>Underwriting Income*</u>	<u>Investment Income**</u>	<u>Insurance Operating Income</u>
Homeowners and Farm & Ranchowners	4.79	3.04	7.83
Workers' Compensation	-5.01	7.43	2.42
Private Passenger Auto Liability	-3.90	5.65	1.75
Private Passenger Auto Physical Damage	-9.89	1.94	-7.95
All Lines	-4.13	5.36	1.23

\*Texas page 14 results.

\*\*From policyholder-supplied funds, as reported in IEE.