It is time, I believe, that we stopped trying to define the ultimate, academic measure of insurance profitability and concentrate instead on finding solutions for the industry's basic problems. For example, the simultaneous effect of capital levels on capacity, return, and solvency is an important and uninvestigated area. I sincerely hope that the Fellows of the Casualty Actuarial Society will be in the forefront of those who offer constructive and realistic solutions to this country's nettlesome insurance problems.

AUTHOR'S REPLY TO DISCUSSION

Definition of the Problem

In a review of the Arthur D. Little Report on Rates of Return in the Property and Liability Insurance Industry which was presented to the Casualty Actuarial Society November 16, 1969 at Atlanta, Georgia, I showed that the ADL formula omitted a substantial part of the total return for the insurance industry and that the rate of return, 3.6%, produced by the formula was therefore substantially understated.

In a lengthy reply, which was twice as long as my review, Dr. Irving H. Plotkin of Arthur D. Little, Inc., only skirted the fundamental issue raised by my paper and did not answer it. Dr. Plotkin raised various issues such as whether insurance rates should be reduced by the direct inclusion of investment income in ratemaking formulas used to justify rate filings, the question of ownership of assets and incomes of insurers, the problems of comparisons of returns on net worth, and the withdrawal of assets from insurers by holding companies. He concludes with the sweeping statement, "It is time, I believe, that we stopped trying to define the ultimate, academic measure of insurance profitability and concentrate instead on finding solutions for the industry's basic problems."

The ADL reports were presented as among the most comprehensive, scholarly attempts ever undertaken to define and measure insurance profitability. ADL restricted itself entirely to the measurement and analysis of the facts and refrained from proposing how the situation ought to be corrected. But now that there is some doubt about the validity of ADL's methodology and formulas, Dr. Plotkin wants to get away from the nitty gritty of defining the problem and instead wants to assume that we all know what the problem is. However, ADL continues to publicize its 3.6% figure.

Defining a problem is half of its solution. A faulty definition only makes

the problem more serious. With the credibility gap that already exists in the public's view of insurance accounting, an incomplete measure of insurance profits which is widely publicized by a segment of the industry in an effort to gain short term benefits in certain political disputes may have long range detrimental effects on both the insurance industry and its regulators.

Insurance Accounting Methods

The fact that ADL had to devise its own original profit formula and had to make various adjustments to the net income and the net worth for the insurance industry reveals a fundamental deficiency in the statutory accounting methods used by the insurance industry. No one uses the results reported in the NAIC convention annual statement for insurers, except the state insurance regulators. Others "adjust" the results: IRS, ADL, Best's, the stock market analysts, and even the insurers themselves when they report to stockholders.

The unfortunate consequence of a generally unaccepted accounting method is that results are adjusted in different ways. The diversity in methods of adjustment reduces the credibility of the results. The lack of agreement on accounting methods for insurance companies casts a cloud of doubt over all the methods.

So when ADL devises a new method that shows the insurance industry is "underearning," those who want to believe such a conclusion do, and everyone else is skeptical. Likewise, when some other analyst uses a different method that shows the insurance industry is "overearning," those who want to believe such a conclusion do, and everyone else is skeptical. That both conclusions have been drawn at the same time for the insurance industry points most forcefully to the need for a generally accepted accounting method for the insurance industry.

It is certainly premature for Dr. Plotkin to assume that we all know and agree what the problem is. Furthermore, the ADL reports have not helped us define the problem because they used a profit formula that substantially understates the rate of return for the insurance industry.

Comparisons of Financial and Industrial Industries

The ADL reports compare the property and liability insurance industry with many other industries, both industrial and financial. Industrial industries obtain virtually all their investable assets from owners and lenders. Some

financial industries, like life insurers, property and liability insurers, banks, and other savings institutions, are different from industrial industries because they obtain large amounts of investable assets from customers who are neither owners nor lenders. Policyholders pay premiums in advance of the time of receipt of benefits for life insurance and property and liability insurance. Banks and other savings institutions receive deposits from depositors.

All the financial industries that obtain investable assets from their customers are alike in that they pay a return to their customers for the funds advanced by the customers. A bank provides checking and other services at no charge or at charges that are lower than the cost of the services in recognition of the investment income on the deposits.

A life insurer sells life insurance at a net price, after dividends to policyholders, that recognizes the investment income on the reserves. Similarly a property and liability insurer sells insurance at a net price, after dividends to policyholders, that recognizes the investment income on the reserves. The precise amount of return to the customer of a bank, a life insurer, or a property and liability insurer is difficult to measure because it is not specified in the contract with the customer. It is an inseparable part of a package deal and can therefore only be estimated.

The ADL reports devised a special profit formula for property and liability insurers to recognize the investable assets obtained from policyholders. The ADL formula added the assets obtained from policyholders to the denominator of the profit formula but did not add anything to the numerator. It failed to recognize the return that the policyholders receive on the funds they provide, and it thereby understated the total return on total investable assets.

Dr. Plotkin contends that the policyholders of property and liability insurers do not receive any return on the investable funds which the insurers obtain from the policyholders. This is contradicted by the rate plans in use in every state which allow discounts for the prepayment of premiums. It is contradicted by the practice of insurance managements, both stock and mutual, which is to reflect, in their pricing decisions, investment income on the reserves. This practice is indicated in the statement by Mr. Harold E. Curry, Senior Vice President of State Farm Mutual Automobile Insurance Company, which appeared in the September 1969 issue of *The Journal of Risk and Insurance,* page 452, in the article "Investment Income in Fire and Casualty Rate Making":

> "In this planning, whether it be for a company that promulgates its own rates or a group decision among companies which act in concert in making rates, the anticipated contribution toward the total financial needs to be derived from investment income is always considered and, to the extent that investment income, regardless of its source, fulfills these total needs, the burden on the other potential sources of financing is diminished, and vice versa. Thus, it becomes unmistakably clear that investment income is considered in fire and casualty rate making."

Dr. Plotkin's position is contradicted by the ADL reports themselves which contend that insurance prices should be influenced by the total return of the insurer including the investment return on the reserves. Of course, in this case, ADL urges that insurance prices should not be further reduced because the total return including investment income on the reserves is already too low.

A property and liability insurer pays a return to its policyholders on the investable assets obtained from the policyholders just as certainly as a life insurer does and just as certainly as a bank pays its depositors a return on demand deposits. The only difference is a difference of degree because life insurers and banks have more assets obtained from customers in proportion to net worth than property and liability insurers.

Dr. Plotkin contends that the ADL formula measures each industry's profitability by the "totality of non-imputed income generated by the total of its investable assets." It is true that the customers of every industry receive a benefit from the products they buy from the industry. Such benefits, or return, are properly excluded from the profit formula for each industry. The customers of the insurance industry receive very substantial benefits from the insurance they purchase. And they will receive those benefits whether they pay for their insurance in advance or otherwise. Such benefits should not be included in the profit formula for the insurance industry or any other industry. But when the customers also become suppliers of investable assets and when those investable assets are included in the profit formula, then the additional financial return which the suppliers of funds receive for supplying those funds should also be included. It is this financial return to the policyholders, which they receive, not for buying insurance, but for paying for it in advance, that the ADL formula has improperly omitted.

Comparisons with Banks and Life Insurers

Dr. Plotkin in his reply agrees that bank deposits should be treated the same as policyholder reserves in measuring profits. However, the ADL reports did not include deposits in measuring the return for banks. All comparisons of property and liability insurers with banks were made by ADL on the basis of return on net worth, excluding unrealized capital gains, which makes insurers appear less profitable than banks because insurers, unlike banks, have substantial amounts of unrealized capital gains. In all comparisons where investable assets obtained from customers were included in the formula, banks were always omitted from the comparison. In fact, whenever ADL uses a profit formula which includes investable assets obtained from customers, it compares property and liability insurance, a financial industry that obtains more than half its investable assets from customers, only with industries that do not obtain any investable assets from customers. It has never applied its formula, which includes investable assets obtained from customers, to compare the results for the property and liability insurance industry with the other financial industries that are the most comparable in that they also obtain investable assets from customers. If such a comparison were made, it would show a lower return for banking and life insurance than for property and liability insurance because banks and life insurers obtain a higher proportion, about 90%, of their investable assets from customers, compared to about 50% for property and liability insurers.

In the table on page 160, the return for property and liability insurers is compared to the returns for banks and life insurers. All the returns are calculated by the formula ADL advocated for property and liability insurers. The numerator is net income after taxes plus all capital gains (except unrealized capital gains for banks, which are relatively insignificant and are not available) plus all interest paid to lenders, depositors, and policyholders. The denominator is net worth plus long-term debt plus investable assets obtained from customers. For property and liability insurers investable assets obtained from customers are reserves for unearned premiums, unpaid losses, and unpaid loss adjustment expenses. For banks they are total deposits. For life insurers they are policy reserves and policy dividend accumulations.

Source of Data

The data for property and liability insurers were developed by Arthur D. Little, Inc., from Best's Aggregates and Averages and include insurers of

Average Rates of Return (Percent) Using ADL Formula

Year	Property and Liability Insurers	Banks	Life Insurers
1955	5.586	.932	1.188
1956	−1.610	1.002	.668
1957	2.764	1.218	.550
1958	4.303	1.387	1.352
1959	5.273	1.355	.962
1960	− .750	1.614	.694
1961	9.359	1.680	1.507
1962	2.983	1.847	.471
1963	4.495	1.985	1.201
1964	9.032	2.067	1.076
1965	−2.513	2.257	1.114
1966	1.951	2.491	.334
1967	6.803	2.685	1.224
1968		2.854	1.161
1955-1965	4.015	1.577	.980
1955-1967	3.634	1.732	.949
1955-1968		1.812	.964

all types except perpetual fire insurers, encompassing 1,197 insurers in 1967. The data for banks were obtained from the Federal Reserve Bulletin and represent the totals for all insured commercial banks, encompassing 13,488 banks in 1968. The data for life insurers were obtained from the Institute of Life Insurance, and include 1,775 U.S. life insurance companies in 1968.

Inferences Drawn from Statistical Findings

The ADL report commented that the return of 3.6% for property and liability insurers was less than the interest rate paid by most savings banks during the same period. Applying to banks the same "all inclusive definition of income" formula advocated by ADL reveals that banks themselves earned less on total investable assets than the interest rate paid by most of the same banks on savings accounts during the same period. For life insurers it reveals that "total return" on total investable assets, about 1%, is much less than the investment return on invested assets which has averaged about

4% for the life insurance industry over the interval 1955-1968. These results are an indication that the ADL formula omits a substantial part of the total return from all three of these financial industries.

If we assume that the ADL formula does indeed include the total return on the total investable assets for financial industries then we are forced into some startling conclusions.

The property and liability insurance industry is doing twice as well as the banking industry and four times as well as the life insurance industry, or alternatively, the life insurance industry is doing only one quarter as well as the property and liability insurance industry, and the banking industry is doing only half as well.

The property and liability insurers, with regulated prices, have earned four times as much as life insurers have earned with unregulated prices. Has price regulation protected the property and liability insurers from ruinous competition? If so, perhaps the way to raise the rate of return for all insurers is to increase price regulation, even for life insurers, and to further eliminate price competition!

These results for the life insurance industry indicate that resources are being over-applied to life insurance, and that society would be better off if assets were taken away from the life insurance industry and applied to other economic endeavors. If the $200,000,000,000 of assets invested in the life insurance industry were all invested in other industries earning an average of 10.7% instead of only 1.0% in the life insurance industry, society would gain by about $20,000,000,000 each year. Such an amount would have a substantial impact on our national economy. If we wanted to, we could find validation of this theoretical implication in the present occurrences in the life insurance industry. Although it is hard to point to direct capital outflow, for the industry still is growing, there are occurrences we could construe as strong signs of capital unrest. The formation of over 350 holding companies on the part of insurance companies, the spreading out into mutual funds, and the purchasing of credit card companies by certain insurance companies could all be construed as signs of dissatisfaction with the present return allowed by the economics and competitive price structure of the life insurance industry. If ADL can draw such an inference for the property and liability insurance industry based on a return of 3.6%, how much stronger the inference must be for an industry earning only 1%!

The net return for the life insurance industry, 1%, is much less than the investment return on invested assets, which has averaged about 4% for the life insurance industry over the interval 1955-1968. This shows that life insurers are losing money on insurance and making it up on investments. Life insurers are using investment income to subsidize their underwriting operations. The same, of course, is true for property and liability insurers, although to a lesser degree. It is clear that life insurers are not and never have earned a 5% underwriting profit. Instead they have been forced by the fiercely competitive market for life insurance to anticipate the investment income they expect to earn on policyholder reserves and to reduce their prices to levels that produce underwriting losses that dip deeply into their investment income. If investment income were excluded, life insurers would show an underwriting loss of about 20% of premiums. If an underwriting profit of 5% is reasonable for the property and liability insurance industry, it should be just as reasonable for the life insurance industry. The fact that the total rate of return on investable assets in the life insurance industry is only 1.0% is ample evidence that the life insurance industry is underearning and that the price of life insurance should be increased enough to raise the rate of return to a level comparable to other industries, namely, 10.7%. To achieve this, life insurers would have to earn an underwriting profit of more than 5%, after taxes, in addition to their entire investment income.

Does it all sound ridiculous? Certainly it does. The error in the ADL formula becomes obvious when it is applied to an industry like banking or life insurance where the amount of investable assets obtained from customers is about 10 times net worth. It is not quite so obvious when it is applied to the property and liability insurance industry where the investable assets obtained from customers is only 1 or 1½ times net worth.

Conclusion

I think it is clear that the profit formula used by the ADL reports for the insurance industry has a serious flaw in it. It excludes a substantial element of return from the total return. Consequently it produces rates of return which are substantially understated, which are not comparable with other industries, and which are not even comparable from one insurer to another.