# A REVIEW OF THE LITTLE REPORT ON RATES OF RETURN IN THE PROPERTY AND LIABILITY INSURANCE INDUSTRY

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On July 30, 1969 a report by Arthur D. Little, Inc. entitled "Rates of Return in the Property and Liability Insurance Industry" was released by the National Association of Independent Insurers who had commissioned the report. This report represents an extension and widening of the profitability analysis contained in Arthur D. Little's November, 1967 report, "Prices and Profits in the Property and Liability Insurance Industry," which was commissioned by the American Insurance Association. Both reports compute the profit ratio for the insurance industry by the following formula:

$$\frac{\text{Net income}}{\text{Net worth} + \text{Reserves for unearned premiums and unpaid losses}}$$

The result, in the most recent report, is 3.6% which compares unfavorably with the average of 10.7% for 55 other industries.

The profit formula used for the other industries was:

$$\frac{\text{Net income} + \text{Fixed charges}}{\text{Net worth} + \text{Long term debt}}$$

This formula recognizes that there are two kinds of investors: owners, and lenders. The lenders receive the fixed charges as the return on their investment:

$$\frac{\text{Fixed charges}}{\text{Long term debt}}$$

The owners receive the net income for their return:

$$\frac{\text{Net income}}{\text{Net worth}}$$

The net income is what is left over from total income after paying the fixed charges. The combined return for both kinds of investors is obtained by dividing the sum of their returns by the sum of their investments:

$$\frac{\text{Net income} + \text{Fixed charges}}{\text{Net worth} + \text{Long term debt}}$$

This is a reasonable measure of the rate of return for an industry because both the owners' and the lenders' investments are usually invested in the enterprise in the form of plant, equipment, and supplies.

The insurance industry is difficult to compare with other industries because the investment in plant, equipment, and supplies is a small portion of an insurance company's total assets. The remaining assets are usually securities which represent investments in other industries but are held by the insurance company to back up its liabilities and to provide a surplus necessary to safeguard the stability and solvency of the insurance company against unforeseen calamities.

If all the insurance company's assets were obtained from owners or lenders, the rate of return could be measured by the same formula used for other industries. But usually a large portion of an insurance company's assets are derived, not from owners or lenders, but from customers who pay for services and indemnities long in advance of the actual time of delivery or payment. As a result, the typical insurance company has a large sum of liabilities which are backed up by an equal sum of assets which were derived from the policyholders.

Before we can decide what is the proper formula to measure the rate of return for the insurance industry we must first answer several questions presented to us by the unusual financial structure of the insurance industry.

The first question involves the assets derived from the policyholders and held by the insurance company: are they invested in the insurance enterprise, or not? If they are, then we must answer the next question: what return do the policyholders receive for the funds they advance to the insurance company and how should we include that return in the profit formula?

The ADL report has answered the first question: yes, the funds derived from the policyholders, represented by the reserves for unearned premiums and unpaid losses, are invested in the insurance enterprise and therefore such funds should be. included in the measurement of the rate of return. The ADL report has answered the next question by putting nothing into its profit formula to represent the return to the policyholders on the funds they advanced. The ADL report uses the formula:

$$\frac{\text{Net income} + 0}{\text{Net worth} + \text{Reserves for unearned premiums and unpaid losses}}$$

In effect, then, the ADL report assumes that the policyholders receive no

return on the funds they advance. The investment returns on the assets derived from the policyholders are not received by the policyholders. They are received by the owners and are included in net income.

We will review the question later as to whether the funds derived from the policyholders are invested in the insurance enterprise. Assuming for the moment that they are, we wish to review the return to policyholders on such funds and how the return should be included in the profit formula.

The policyholders do receive a return on the funds they advance to an insurance company. They receive several returns. One return is lower rates. It is customary to give policyholders a discount if they pay premiums, for example, three years in advance instead of one year. In the case of perpetual insurance, the discount for advance payment is 100% because, instead of a premium, there is only a deposit, 100% of which is customarily returned to the policyholder when the policy is cancelled. For advancing a perpetual deposit the policyholder receives a return equal to the full cost of the insurance for the time the insurance company holds the deposit. The ADL report excluded insurance companies that specialize in perpetual insurance. It is obvious that the assumption of no return to the policyholders for the funds advanced by them would be inappropriate for perpetual insurance. But the same assumption is also inappropriate, to a smaller degree, for all insurance companies that collect premiums in advance. Although in many cases there is no specific discount for the advance payment of premiums, the price of insurance is lower than it would be if premiums were customarily paid at the end of the policy term or at the middle of the policy term.

Another return to the policyholders comes from allowing the insurance company to hold the amount of an unpaid loss from the date the loss occurs until the date it is paid. This is the time value of deferred loss payments. On some losses where specified benefits are to be paid at specified intervals, such as weekly disability payments under workmen's compensation or accident and health coverages, the claimant has a choice of receiving the full payment in the future or of receiving a discounted payment immediately. The return that the claimant receives on the funds retained by the insurance company as a reserve for his claim is the difference between the present and future values of the claim. Other types of claims where the amount of the benefit is unspecified, such as automobile bodily injury claims, also have a time value although it is not specified. Claim adjusters know that delay in settling bodily injury liability claims is costly.

The fact that rates are lower because of the investment income on reserves is acknowledged by ratemakers. An example is the following quotation 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."

An insured, then, receives two returns on the funds he advances to an insurance company: lower premiums for the advance payment of premiums plus the time value of claims for the time interval between occurrence and payment of claims. These two returns correspond to the reserves for unearned premiums and unpaid losses. Both of these returns are deducted from the net income of the insurance company just like fixed charges on long term debt are deducted from the net income of an industrial corporation. One return reduces premiums, the other increases losses. Together they reduce underwriting income. They are offset by the investment income from the assets that back up the reserves for unearned premiums and unpaid losses. An insurance company that is only breaking even on underwriting results may actually be earning a profit close to the standard profit allowances in the rates when the investment income is added in to offset the two returns paid to the policyholders on the funds they advance.

But if the two returns paid to the policyholders on the reserves for unearned premiums and unpaid losses are deducted from net income, then they should be added back in when calculating the total rate of return for the insurance industry. The owners of the insurance company receive a return of:

$$\frac{\text{Net income}}{\text{Net worth}}$$

The policyholders receive a return of:

$$\frac{\text{Lower premiums and increased loss payments}}{\text{Reserves for unearned premiums and unpaid losses}}$$

The combined rate of return would be:

$$\frac{\text{Net income} + \text{Lower premiums and increased loss payments}}{\text{Net worth} + \text{Reserves for unearned premiums and unpaid losses}}$$

The ADL report assumed in its calculation of the rate of return that the "lower premiums and increased loss payments" was equal to zero. Consequently, the rate of return obtained is understated. Perhaps ADL omitted it because it is difficult to measure. If we estimate the return to policyholders by assuming it equals the difference between the actual underwriting results realized over the years used in the ADL report and the expected underwriting profits built into the rates, which are typically an underwriting profit of 5%, the amount added to the profit formula would be enough to raise the average profit from ADL's 3.6% to about 7%.

If the return to policyholders on the funds they advance is impractical to measure, it is certainly not reasonable to assume it equals zero. The only realistic alternative to measuring the return to policyholders and including it in the profit formula is to exclude both the return to policyholders and the reserves for unearned premiums and unpaid losses from the calculation of the rate of return.

This brings us back to the question of whether the reserves for unearned premiums and unpaid losses should be included in the calculation of the rate of return in the first place. Are the funds advanced by policyholders invested in the insurance enterprise?

The policyholders do not intend to invest in the insurance company when they pay their premiums. They pay premiums in advance because of the savings they receive. They are trying to buy insurance in the most economical and practical way available. The fact that some policies receive dividends which are paid at the end of the policy period out of the profits earned by the insurance company does not alter the basic fact that the policyholders are trying to transfer risk to the insurance company, not assume risks from the insurance company. Dividends to policyholders are considered to be part of the pricing mechanism for insurance, not an investor's return for assuming risk. The true price for insurance can only be

estimated before the coverage is provided. After the coverage is provided, the original estimate of the price is corrected by means of the dividend. If the policyholders thought there was any risk of the solvency of the insurance company, they would buy their insurance elsewhere. An investor, by way of contrast, knowingly assumes some of the risks of the enterprise, and his rate of return is proportional to the degree of risk he assumes.

Neither does the insurance company invest the funds it derives from policyholders in the insurance enterprise. It invests them in other enterprises — in government bonds, corporate bonds, mortgages, and stocks. Such assets receive a return from the enterprises they are invested in and are included in the calculation of the rate of return for those enterprises. To require them to earn another return in the insurance enterprise overlooks the fact that they are only pledged to secure the promises and obligations of the insurer, not invested in the insurer. The same asset cannot be invested in two enterprises at the same time. Any profit formula which assumes that certain assets are invested twice and must earn a double rate of return will understate the actual rate of return.

The funds derived from policyholders are similar to deposits in a bank. Bank deposits are not considered to be invested in the bank. They are invested by the bank and the bank pays a return to the depositors either in interest on savings accounts or services on checking accounts. Deposits are omitted from the calculation of the rate of return for the banking industry. Likewise the reserves for unearned premiums and unpaid losses are not invested in the insurance company. They are invested by the insurance company and the policyholders receive a return on their funds. Since they are not invested in the insurance company but only advanced or deposited with the insurance company, they should not be included in the measurement of the rate of return on the insurance enterprise. To include them produces a result useless to everyone. It does not measure the rate of return to the policyholders, or to the owners, or the rate of return on the total assets invested in the insurance enterprise.

If we omit the funds derived from policyholders and the return paid to the policyholders, we obtain the following profit formula:

$$\frac{\text{Net income}}{\text{Net worth}}$$

Using this formula the ADL report obtained average returns of:

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| Stock | 8.3% |
| Mutual | 9.2% |
| Total industry | 8.4% |

The rate of return for stock insurers can be expected to increase as some of the unused or inefficiently used capital is withdrawn by holding companies. Stock insurers have an average capitalization, including the equity in the unearned premium reserve, about equal to their annual sales, whereas mutual insurers are capitalized at about ⅔ of annual sales.

What would happen to an insurance company's profit and loss statement if it operated without any funds advanced by policyholders? Suppose it collected premiums continuously as they were earned, or collected them at the middle of the policy term. It would have to raise its rates slightly in order to offset the absence of investment income realized by competing insurance companies who collect premiums in advance. Its net income would be decreased by an offsetting amount. Suppose also that the insurance company paid losses at discounted values immediately when they occurred either directly to the policyholder or to an aggregate trust fund which would receive the amount of the discounted losses, invest the amounts, and use the investment income to pay the full amount of the losses as they became payable. Again, the insurance company's net income would be unaffected, but its losses would be reduced, thereby increasing its underwriting profit, and its investment profit would be reduced by an offsetting amount. Such an insurance company would have no reserves for unearned premiums or unpaid losses. Its rate of return calculated by the formula used by the ADL report would be higher than the rate of return for a competing insurance company that collected annual premiums in advance and still higher than the rate of return for a competing insurance company that collected three-year premiums in advance.

Consequently the rate of return calculated by the ADL formula is biased against the insurer that maintains larger proportions of reserves for unearned premiums and unpaid losses in relation to its net worth. The larger the proportion of reserves, the lower the rate of return. The ADL formula is biased in such a way that it will show the highest rate of return for an insurance company that does no insurance business! It will produce the lowest rate of return for insurance companies that use their resources most

efficiently by maintaining the highest leverage of premiums and reserves to net worth.

Since part of the return on the reserves is paid out to the policyholders and since the ADL formula excludes the part that is paid to the policyholders from the calculation of the rate of return, it is virtually impossible for any insurance company to overcome the bias built into the ADL profit formula regardless of how profitable its insurance operations may be.

One way to remove this bias is to remove the reserves for unearned premiums and unpaid losses from the formula, which brings us once again to the formula:

$$\frac{\text{Net income}}{\text{Net worth}}$$

The effect of this bias is evident in the most recent ADL report in the comparison of the average rates of return for stock, mutual, and reciprocal insurers. Mutuals and reciprocals have larger proportions of reserves for unearned premiums and unpaid losses than stock insurers do. Consequently it is to be expected that the formula used by the ADL report,

$$\frac{\text{Net income}}{\text{Net worth} + \text{Reserves for unearned premiums and unpaid losses}},$$

will produce a lower rate of return for mutuals and reciprocals, which it does.

If the rates of return calculated by the ADL formula are biased so that they are not even comparable within the insurance industry, they are certainly not comparable with other industries.

The ADL report has not given proper recognition to the return to policyholders for the funds advanced by them to insurance companies. It also improperly treats the funds derived from policyholders as if they were invested in the insurance enterprise. As a result of these assumptions, the ADL report develops rates of return for insurance companies which are biased against insurance companies that do more insurance business than average, are not comparable with other industries, and are substantially understated.