## DISCUSSIONS OF PAPERS PUBLISHED IN VOLUME LVI

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

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### DISCUSSION BY RUSSELL P. GODDARD

Anyone familiar with the insurance business must sense intuitively that there is something unreal about the two reports by Arthur D. Little, Inc. on the property and liability insurance industry. The first report, which will be called in this review, for brevity's sake, "Prices and Profits," said that the business was "underearning" and the second report, "Rates of Return," said that the industry's rate of return of 3.634% fell below the average interest rate paid by most savings banks.

Statements or implications like these raise more questions than they answer. How long has this been going on? What caused it? What will cure it? Is the industry in as bad shape as the passenger railroads? Does it need a government subsidy? How long can it go on? How long can an industry starve (i.e., underearn) without starving to death? Will it be only a question of time before the privately employed actuary and underwriter follow the same path as the farrier and the horologer?

Mr. Bailey has accurately put his finger on the cause of the confusion: it is the base to which the rates of return are related. He examines this base, known in the ADL reports as *D2*, and which will be called the "double denominator" in this review, and concludes that the measure involving it "produces a result useless to everyone" and that it is "biased in such a way that it will show the highest rate of return for an insurance company that does no insurance business."

I concur with Mr. Bailey's conclusions with respect to ADL's methods of calculating rates of return, and propose in this review to support these conclusions by another approach, and to attempt to point the way to an answer to one or two of the questions raised by the ADL reports. Since I

am primarily interested in determining rates of return to stockholders, I will refrain from comment on those parts of Mr. Bailey's paper which refer to lower premiums and increased loss payments which accrue for the benefit of policyholders.

With respect to the double denominator measure espoused by ADL, the preference for this device was explained in the Prices and Profits report (page 40):

> "Consider a steel mill. It is a tangible asset of bricks and steel. Should it be destroyed, society is less rich by the amount of assets that comprised the mill, no matter how these assets were financed. Should they have been financed by bonds rather than common stock, the loss of the economy would be equally great."

Throughout both reports there are many references to society or to social values. It is difficult to conceive of an arithmetical device which will measure an industry's contribution to society in terms which will be satisfactory to everyone, so possibly the best way to determine the relative usefulness of the new double-denominator measure would be to apply it to an actual case.

A typical insurance company during recent years might be fortunate enough to earn 6% on its invested assets. If it had what ADL refers to as a "50% levered portfolio" (i.e., a one-to-one ratio of reserves to net worth) and sustained a statutory underwriting loss of 1%, it would show a return on net worth of 11%. *(.06 + .06 − .01 = .11)* The rate of return determined by the ADL method would presumably be .055 since the denominator would consist of 1 for net worth and 1 for premiums.

Now another company with a more conservative investment portfolio might feel able to write a larger volume of premiums in proportion to its net worth. Suppose that it earned only 5% on its invested assets and had a premium volume of three times its net worth. It writes at the same rates as the first company and experiences the same underwriting loss, 1%. Its return on net worth is 17%,

$$\frac{.05 + 3 \times .05 + 3(-.01)}{1} = .17$$

but its rate of return under the double-denominator method is .0425,

$$\frac{.05 + 3 \times .05 + 3\,(-.01)}{1 + 3} = .0425$$

As a matter of arithmetic, it will be seen that the double-denominator rate of return is merely the rate of interest earned on invested assets modified by the ratio of underwriting profit to invested assets. It does not tell anyone anything that he wants to know, or in Mr. Bailey's words, "produces a result useless to everyone."

In the illustration above, the second company is obviously providing more revenue to its stockholders, and as for its value to society, it is writing three times as much insurance (and taking three times as much risk) as the first company, at the same rates. And yet on the double-denominator basis, which is invoked in the name of society, it receives a lower mark than the first company!

The ADL reports do not adequately explain why a special measure had to be devised to compare insurance with other industries. For these other industries, the rates of return were computed on net worth in the Prices and Profits report, and on "total assets less current liabilities" in the second report, with average rates of return of about 10% in each case. It would be virtually impossible for a single insurance company, much less an entire industry, to reach a 10% rate of return on the double-denominator basis.

The ADL reports do not answer the question, "How long has this been going on?" since they provide rates of return for only the 13 most recent years. The figures in the Rates of Return report were all taken from Best's Aggregates and Averages and it is a fairly simple job to extract comparable figures for a longer period. The method used in this review (See Exhibit) must be substantially the same as that used by ADL because during the 13 years covered by ADL, the results are very similar. Such differences as do exist may be due to the fact that ADL deducted "current taxes" whereas no attempt has been made to deduct them in the tabulations included here:

## STOCK COMPANIES

| Year | ADL N4/D1 | RPG Total Return on Net Worth | Difference |
|---|---|---|---|
| 1967 | 15.0 | 15.8 | 0.8 |
| 1966 | −5.7 | −3.1 | 2.6 |
| 1965 | 6.7 | 6.8 | 0.1 |
| 1964 | 9.9 | 10.0 | 0.1 |
| 1963 | 13.3 | 13.4 | 0.1 |
| 1962 | −3.5 | −1.8 | 1.7 |
| 1961 | 20.3 | 21.0 | 0.7 |
| 1960 | 5.7 | 6.6 | 0.9 |
| 1959 | 9.9 | 10.5 | 0.6 |
| 1958 | 21.6 | 21.5 | −0.1 |
| 1957 | −8.0 | −6.0 | 2.0 |
| 1956 | 4.3 | 5.0 | 0.7 |
| 1955 | 15.1 | 17.1 | 2.0 |

For convenience, the subtotals in the Exhibit are summarized here.

| Calendar Year | Total Return | Investment | Underwriting |
|---|---|---|---|
| 1966-68 | 8.7 | 8.9 | −0.2 |
| 1956-65 | 8.9 | 10.1 | −1.2 |
| 1946-55 | 14.3 | 10.8 | 3.5 |
| 1936-45 | 10.5 | 7.3 | 3.2 |
| 1926-35 | 8.1 | 6.7 | 1.4 |

In reviewing these figures, as well as the year-by-year figures in the Exhibit, it is of interest to keep in mind the following dates:

SEUA decision, June 5, 1944
McCarran Act passed March 9, 1941
McCarren Act effective June 30, 1948

The largest underwriting profit of any single year came in 1945, when it was 10.5% of net worth, or 9.5% of earned premiums. The best underwriting period was the eight-year stretch beginning in 1948, although the ten-year period ending in 1945 was almost as profitable. The underwriting results since 1955 should probably be interpreted in the light of the Stanford report, indicating the increased competition from the so-called direct writers, not yet fully met by expense reductions on the part of stock companies.

The Exhibit also gives some clue to the cause of the "apparent riskiness of the insurance industry" mentioned in the second ADL report. It should be noted that the biggest year-to-year fluctuations occur in investments rather than in underwriting. It must be granted that the widest fluctuations probably occur because of the inclusion of unrealized gains and losses and that many would disappear if a two-year moving average were used. Without studying the matter in depth, one may assume that the variations arise primarily from the stock market, rather than from bonds.

We conclude, along with Mr. Bailey, that the measure recommended in the ADL reports, the *N4/D2*, cannot possibly serve any useful purpose either in comparing one insurance company with another, in comparing records of a company at two periods of time, or in comparing the insurance industry with any other industry.

## EXHIBIT

### Returns on Net Worth*
### Including Realized and Unrealized Gains and Losses
### Data from Best's Aggregates and Averages
### Stock Companies Only

| *Calendar Year* | *Total Return* | *Investment* | *Underwriting* | *Calendar Year* | *Total Return* | *Investment* | *Underwriting* |
|---|---|---|---|---|---|---|---|
| 1968 | 12.9 | 14.1 | −1.2 | | | | |
| 1967 | 15.8 | 15.8 | 0.0 | | | | |
| 1966 | −3.1 | −3.8 | 0.7 | | | | |
| 1966-68 | 8.7 | 8.9 | −0.2 | | | | |
| 1965 | 6.8 | 9.6 | −2.8 | 1945 | 16.9 | 15.8 | 1.1 |
| 1964 | 10.0 | 12.4 | −2.4 | 1944 | 13.8 | 11.4 | 2.4 |
| 1963 | 13.4 | 15.0 | −1.6 | 1943 | 18.3 | 12.5 | 5.8 |
| 1962 | −1.8 | −1.8 | 0.0 | 1942 | 6.4 | 3.4 | 3.0 |
| 1961 | 21.0 | 20.8 | 0.2 | 1941 | 3.8 | 1.6 | 2.2 |
| 1960 | 6.6 | 6.0 | 0.6 | 1940 | 5.3 | 2.4 | 2.9 |
| 1959 | 10.5 | 9.8 | 0.7 | 1939 | 9.9 | 6.0 | 3.9 |
| 1958 | 21.5 | 22.5 | −1.0 | 1938 | 15.6 | 11.0 | 4.6 |
| 1957 | −6.0 | −1.9 | −4.1 | 1937 | −9.3 | −13.2 | 3.9 |
| 1956 | 5.0 | 6.5 | −1.5 | 1936 | 20.2 | 16.9 | 3.3 |
| 1956-65 | 8.9 | 10.1 | −1.2 | 1936-45 | 10.5 | 7.3 | 3.2 |
| 1955 | 17.1 | 14.0 | 3.1 | 1935 | 23.0 | 18.4 | 4.6 |
| 1954 | 28.5 | 22.9 | 5.6 | 1934 | 5.4 | 1.6 | 3.8 |
| 1953 | 10.0 | 4.5 | 5.5 | 1933 | 11.9 | 7.5 | 4.4 |
| 1952 | 13.1 | 9.8 | 3.3 | 1932 | −0.8 | −0.6 | −0.2 |
| 1951 | 10.9 | 10.6 | 0.3 | 1931 | 2.6 | 3.2 | −0.6 |
| 1950 | 17.0 | 12.9 | 4.1 | 1930 | −7.8 | −6.8 | −1.0 |
| 1949 | 23.6 | 13.1 | 10.5 | 1929 | 5.3 | 3.9 | 1.4 |
| 1948 | 9.9 | 4.3 | 5.6 | 1928 | 17.9 | 14.6 | 3.3 |
| 1947 | 1.8 | 3.2 | −1.4 | 1927 | 20.4 | 18.7 | 1.7 |
| 1946 | −4.8 | −0.3 | −4.5 | 1926 | 7.9 | 11.4 | −3.5 |
| 1946-55 | 14.3 | 10.8 | 3.5 | 1926-35 | 8.1 | 6.7 | 1.4 |

*Net worth is the sum of policyholders' surplus plus prepaid commissions and taxes.