premiums written (countrywide) and "Y", general expense ratio, the following coefficients of correlation were determined:

r i j—where "i" represents type of company and "j", line of insurance:

Type of Company	Line of Insurance
1—Stock	1—Fire
2—Mutual	2—Extended Coverage
	3—Homeowners
	4—Workmen's Compensation
	5—General Liability
	6—Automobile BI Liability

The 12 coefficients of correlation calculated are:

r 11 = —.116
r 21 = —.217

r 12 = —.071
r 22 = —.133

r 13 = —.178
r 23 = —.271

r 14 = —.074
r 24 = —.198

r 15 = —.025
r 25 = —.050

r 16 = —.531
r 26 = —.639

It is to be noted that all the coefficients of correlation are negative, indicating that for all lines of insurance and types of company, the larger the company the smaller the ratio of general expense to premiums. However, only for Automobile BI are the coefficents of any size.

Other items of expense, such as taxes, commissions, are directly related to premiums and, therefore, it would not be expected that the ratio of these expenses to premiums would vary by size of company. Loss adjustment expense ratios, which are directly related to losses, and loss ratios themselves, would not necessarily vary by size of company. Therefore, on reflection, perhaps it is not too surprising after all that Mr. Simon arrived at his conclusion.

DISCUSSION BY CHARLES C. HEWITT, JR.

Mr. Simon has been a leading contributor to our Proceedings both in quantity and quality. It is, therefore, with some regret that I report that, in this reviewer's opinion, his recent work entitled "Size, Strength and Profit" falls considerably short of his other current and earlier efforts. I hasten to assure Mr. Simon's reading public that a conclusion to the effect that the author is slipping is unwarranted. In this paper Mr. Simon has tackled the unhappy job of "unscrewing the inscrutable." "Roy" comes out second best only because of his selection of topic and not for lack of ability or effort.

In this instance the "inscrutable" consists of two major questions. One, can we define what is meant by the terms "size," "strength" and "profit" as they apply to non-life insurers? Two, can we measure each of these three terms?

With mathematical instincts, Mr. Simon tackles the second question as being the juicier of the two. He selects the following measures:

1. Size—net written premiums.
2. Strength—ratio of policyholders' surplus to net written premiums.
3. Profit (Ratio)—Unity less the sum of:
   a. loss & loss adjustment expense ratio (to earned)
   b. underwriting expense ratio (to written)
   c. policyholder dividend ratio (to earned)

Still begging the question of definitions, the author then adapts the semantics of his conclusions to fit his chosen measures of size, strength and profit.

To be fair, had I been the prime mover, I might have done almost exactly the same thing. However, as a reviewer with critical responsibilities, I cannot accept such convenient definitions of terms without further analysis.

As respects SIZE:—net written premiums measure both "sales activity" and "amount at risk." Does Mr. Simon mean that the biggest company is the one with the most sales or the one with the most at risk? Or neither? What about assets? Liabilities? Surplus? Numbers of personnel? Square feet of office space? Number of blank forms on hand, or on order? "He's being ridiculous?" you say. But am I? You see until we define "size," *no* measure of "size" has significance. The author defines size by *one* measure and leaves the meaning to be inferred by the reader. Even his *one* measure contains at least two distinct inferences (sales activity and amount at risk); the reader of this review may supply others.

As respects company STRENGTH:—I feel Mr. Simon has hardly scratched the surface either by definition or by selection of measure. The ratio of surplus to net written premiums is a good first estimate, but no more. There are a multitude of measures of company strength, most of them interrelated. One Boston writer, now glorified in song by our own lyricist, Matt Rodermund, has written a whole book on the subject.[1] I suggest that each of you who works for a company ask each one of the following persons what he feels constitutes company strength—your:

1. President
2. Chief Underwriter
3. Chief Claims Attorney
4. Investment Head
5. Controller
6. Agency Supervisor
7. Personnel Director

And I'm prepared to suggest that each answer will be right. You would then (I trust) conclude, as I do, that company strength is no more capable of definition than of measurement.

Superficially, PROFIT is easy to define and to measure. The trouble is that Mr. Simon doesn't really mean "profit." He's talking about "efficiency"—at least he starts out with "efficiency," but by the end of the paper the word "efficiency" is gone and all that's left is, as with the Cheshire cat, the grin. Thus the real problem is to define and to measure efficiency, and I'm not about

[1] "*Fundamentals of Fire and Casualty Strength*"—*Roger Kenney.*

to tackle that one in a review. Now the efficiency of separate functions within a particular company may be measured, if the goals are clearly established; but to have *one* over-all measure for all functions applicable to companies with differing goals is asking too much.

Just so I'm not accused of being naive, let's agree that profit is a common goal. Parenthetically, most of you might prefer to qualify this goal so as to make it read, "Profit with reasonable stability." My real question, however, is "Does underwriting profit constitute a proper measure of success?"

> Company A's primary interest is the production and protection of funds for the use of its investment department.
>
> Company B has an affiliated profitable agency plant for which it must provide a market.
>
> Company C is founded by one or more non-insurance principals to reduce insurance purchasing costs.

Is any single measure going to bespeak the efficiency of these and other insurers? I think not.

Mr. Simon's immediate predecessors in this area are Messrs. Hedges and Harwayne (citations may be found in the original paper). All were undoubtedly motivated by a common desire to cast light into a dark, or at best cloudy, area. I am sorry to report that each author with naught but honest intentions gives us results that are inconclusive at best. To the extent that some persons may have been misled by the earlier works, Mr. Simon's paper does serve as a thought-provoking counterbalance.

AUTHOR'S REVIEW OF DISCUSSIONS

It is a pleasure, indeed, to find such a lively interest taken in this paper. This did not come as a complete surprise, because it was recognized that this subject could not help but be controversial.

"The size of a company is much less important in determining its profit ratio than is the quality of its management," read the opening sentence of the news release on this paper last May. "Small, strong companies are just as prevalent as large, strong companies. At the same time, there are weak companies of all sizes," it went on. This fairly well summarizes the principal themes of the paper. The statistical aspects of the paper lend credence to these statements and tend to refute their counterparts which would be that (1) big companies are profitable companies because they are big and (2) small companies have to be protected from the competitive aspects of free enterprise because they are weak.

If we would all agree that we would not use the words "size", "strength" and "profit" because they lack precise meaning, then I would be satisfied. But since this is not the case and we do use the words in sentences similar to those you have just read, I have given them specific definitions in the paper and then measured them. Since they are usually compared—one with the other—I measured their relationship. Thus, to the person who will agree that the terms have no meaning, I will say, "We cannot argue." But to the one who uses these terms, I say "Please read my paper carefully."

It is interesting to note that Roger Kenney has referred to this paper in his column in the *United States Investor* for July 30, 1962. On page 31 he quotes