

## DISCUSSION BY MARTIN BONDY

Professor Ferrari's paper is a thought-provoking one and well worth the reading. However, as is the case with treatises presenting basic concepts, its chief value lies not in its immediate applicability to the solution of problems but in the broad idea it suggests.

It should be clear that the assumptions and constraints set forth in the hypothetical example given in the paper bear almost no relation to reality. In fact, the author has as much as said so in his qualifying comments.

Let us go through some of the more outstanding examples of instances where his model or solutions are not realistic in terms of the insurance world in which we live.

## THE ASSUMPTIONS

*1. Variability of Results (Risk)*

"The return on each individual line is assumed to be a statistical random variable with a symmetrical probability distribution."

While many lines of business may behave in this way, we can easily think of several that do not. Some of these are extended coverage and crop hail, which are seriously affected by weather catastrophes, and bonding, which may suffer extraordinary fluctuations due to economic conditions.

*2. Expected Value (Return)*

One wonders whether the inherent profitability of a line is a static condition. I believe not. Clearly the course of time changes the expected return. Political considerations impose and release pressures. Competition always attacks profitable places (if there are any) and makes them less profitable. Perhaps more important, the increase or decrease in a company's volume in a selected line will have a substantial effect on results.

*3. Table 1*

To label the historical results as expectations is to stretch a point quite far. This becomes fairly obvious when we attribute to surety an expected profit margin of 25.61 and a minimum possible of 6.75. (Frankly, I am more than a little envious of the company which regards its expectation in the burglary line as + 7.58.)

Furthermore, such a table denies the efficacy of underwriting. I have

become enough of a believer in the past few years to rebel against resignation to an expected loss in certain lines of business based upon past results. We *can* affect our results even within a line of business. To defeatedly accept a loss year after year would make us similar to the famous gambler "Nick the Greek" in the apochryphal story. When his friend approached him and asked him why he got hooked into a crooked card game, he replied that he knew it was fixed but, "It was the only game in town."

## THE CONCLUSIONS

### 1. *Impossibilities*

The application of the author's technique leads him toward a solution which includes increases in fire and auto bodily injury and decreases in extended coverage and auto property damage. The nature of the business forbids such combinations. In order to prevent such a solution he may use one of two approaches. First, he may add constraints which do not permit complementary lines to move in opposite directions. More simply, he may treat complementary lines (such as auto BI and auto PD) in tandem.

### 2. *Efficacy of Diversification*

The author states:

"Intuitively, diversification of insurance, for example, by line and geography, seems desirable for the responsible operation of a property-liability insurance business . . . . ."

I am not certain that one can make such a sweeping statement. Some of us may be more painfully aware than others of instances where diversification has changed a company from a successful specialist into a floundering, uncoordinated mess. There is much to be said for specialization in underwriting and claims handling.

Similarly, geographical diversification, with all its obvious advantages, is not an unmixed blessing. It may go hand in hand with loss of control, the forerunner of poor underwriting results.

### 3. *The Chosen Path*

Probably inherent in the above criticism is the lack of a road map which will take the hypothetical company from its present position to the desired one. If a change in portfolios is desired, it must be achieved slowly lest the process of arriving at the goal change the nature of the goal. Gradual changes toward the target will disturb the assumptions (and therefore the

efficacy of the solution) less than precipitate rushes toward what will turn out to be a mirage.

Sometimes, too, there just ain't no way to get from here to there.

#### A FINAL WORD

Although I have indicated my disaffection for the example and for the method as it is presently constituted, it still seems to me that the basic approach, as a way of thinking, has a certain appeal. It may indeed be a foundation for an approach which will work. Professor Ferrari is to be commended for presenting his idea despite, I am sure, his knowledge that his example was subject to much criticism. If we focus upon that central concept, we will have extracted the kernel which I feel sure the author has wished to impart.

#### DISCUSSION BY ROBERT A. RENNIE\*

Professor Ferrari's paper sets forth an interesting application of the Markowitz investment model to the problems of portfolio diversification among a number of lines of property-liability insurance. Apart from certain theoretical difficulties noted below, the paper makes several practical contributions. It helps to eliminate the confusion in property-liability insurance over the concepts of risk and return. The expected return of a line is defined in terms of the future profitability of that line. Risk, on the other hand, is a function of the variability around the expected return. Certainly, insurers have tended in the past to concentrate more on precise measures of return than on exact measures of risk.

The paper also shows, at least by inference, how significant the optimal diversification of lines of insurance can be to operating results and to the risk borne by a property-liability insurer. Too often in the past, management has permitted its relative product mix to follow the course of least resistance as dictated by its marketing demands.

At the theoretical level, Professor Ferrari faced a dilemma. His analysis assumed that historical risk-return trends would continue in the near future. The data in his example were based on a linear extrapolation of the recent combined loss and expense ratios of a large company.

The justification for using combined loss and expense ratios and variances over some past period is, of course, that past performance is believed to be

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\* Mr. Rennie, who is Vice President — Planning, Finance, and Systems of the Nationwide Insurance Company, was a guest reviewer of Professor Ferrari's paper.