

## DISCUSSIONS OF PAPERS PUBLISHED IN VOLUME LV

THE CAPITAL INVESTMENT MARKET AND  
THE INSURANCE INDUSTRY

R. J. BALCAREK

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## DISCUSSION BY J. ROBERT FERRARI

The primary purpose of the Balcarek paper is to determine a critical combined loss and expense ratio (which he calculates to be 101.4) above which it becomes more profitable to abandon insurance operations and become solely an investment fund. The methodology employed is a comparative analysis between a hypothetical insurer with annual operating results equal to an average of the 1964-66 experience of stock insurers licensed in New York and a hypothetical investment fund that the insurer ostensibly could become if it so desired.

Balcarek contends that the conversion from insurance operations to investment fund operations will be accompanied by a reduction of nearly 50 percent of invested assets, or, more specifically, his Table 3 shows an assumed reduction of about 44 percent from \$22,277,398,000 to \$12,558,496,000. The reader has no way of testing this assumption, however, because sufficient details of the hypothetical liquidation are not presented. Some interesting questions about the liquidation process that might have been considered are: How will bond sales affect the market and at what level of bond prices are the insurer's bonds relinquished? Doesn't liquidation force the insurer to realize capital losses on bonds that would not be realized if the bonds were held to maturity? How sensitive is the critical combined loss and expense ratio to interest rate changes and their effect on market prices of bonds? What portion of the equity in the unearned premium reserve will be returned upon policy cancellations?

Consider, for example, an alternative assumption that assets dropped exactly 50 percent as a result of liquidating the insurance operation. Such a development would leave only \$10,839,218,000 available for common stock in the investment fund and with this assumption the critical ratio is raised to about 103. This example demonstrates the sensitivity of the critical ratio to the liquidation value assumption.

Balcarek suggests another variable that will affect the critical ratio when he contends that by assuming the investment fund takes riskier and hence more profitable (expected profits?) investments the critical ratio will be *lowered*. But, if this is true, then it follows that the insurer also can *raise* the critical ratio by taking riskier investments<sup>1</sup> with higher expected returns. In fact, by varying the risk-return assumptions for the insurer, the fund, or both, it is possible to generate a set of critical ratios that will be a function of risk (or expected return) and no one ratio is relevant unless it is possible to specify the desired risk/expected-return balance for either the fund or the insurer. As a matter of fact, Balcarek's analysis can easily be reversed by specifying an expected adjusted underwriting profit or loss and then calculating a critical investment return. This might be a more sensible approach but Balcarek does not discuss this alternative nor the advantages of one over the other.

The critical ratio also is a function of the rate of return that is assumed for common stock. His critical ratio of 101.4 is based on an assumed total rate of return (dividends plus appreciation) of about 12.16 percent on common stock. If an assumption of 10 percent is used,<sup>2</sup> the critical ratio works out to 101.8 and at 8 percent the critical ratio is approximately 102.2. While an assumed expected return of 8 percent would appear low in today's investment environment, the choice of a conservative figure is one way of recognizing that liquidation is not a costless or riskless matter because by so doing an insurer will be giving up the market position, consumer and agent loyalties, and corporate organization it took years to build. In economics these considerations are called entry and exit problems and invariably the analysis forces a distinction between short-run and long-run conditions before a decision to enter or exit an industry can be made. Balcarek places primary emphasis on the short-run. In any event, the critical ratio appears to be relatively insensitive to changes in the expected return assumption relative to changes in other assumptions. (See Table 1)

Balcarek's model would have been much more revealing had he applied it to individual companies rather than aggregate operating results of stock companies licensed in New York. The critical ratio of 101.4 may not be appropriate for any one company even if one accepts his set of assumptions.

<sup>1</sup> The exact nature of the riskier investments Balcarek has in mind is not described in his paper.

<sup>2</sup> That is, a 10 percent return is assumed on the common stock held either by the insurance company or the investment fund shown in Table 3 of the Balcarek paper.

However, he concludes from his analysis that, since the average aggregate underwriting loss for insurers in New York State exceeds the critical ratio, a *majority* of insurers have exceeded the critical ratio. Presumably, he refers to the fact that the aggregate combined ratio of the New York companies from 1964-1966 is  $101.45 \left( 1 + \frac{156,405}{10,804,797} \right)$  according to the data in his Table 3. But, since the 101.45 is, in effect, a weighted average of individual company results, it does not follow that a *majority* of insurers had a ratio greater than 101.40 until we are told something about the dispersion of individual companies by profitability and size around the average.

In addition to Balcarek's failure to show the effect of varying the assumptions concerning liquidated value and return on common stock, he also fails to test any possibilities other than remaining in the insurance business and operating as in the past, or liquidating and becoming an investment fund. It is likely, however, that an insurer that has exceeded Balcarek's critical ratio will not be so anxious to dissolve that it will not first look for ways of improving its operations as an insurance company. One that is suggested immediately by Balcarek's model is to increase an insurer's holding in common stock since this should raise its critical ratio. Balcarek's investment fund, on which his ratio of 101.4 is based, is created by the insurer's original holding of common stock and by disposing of \$2,000,481,000 of bonds yielding 3.55 percent and placing these proceeds in common stock returning 12.16 percent. If we assume that the insurer, without liquidating, could dispose of these bonds and invest the proceeds in common stocks,<sup>3</sup> the calculations show a critical ratio of 103.

Taking just the three variables discussed in this review, it is possible to construct a set of critical ratios based on varied assumptions. For example, consider the following set of assumptions (in each case Balcarek's assumption is first):

Liquidation Value	1. \$12,558,496,000 (\$12,259,015,000 in common stock fund)
(Value of Investment Fund)	2. \$11,138,699,000 (\$10,839,218,000 in common stock fund)

<sup>3</sup> Regulatory and internal constraints may prevent this action but it would make sense to exert pressure to change regulatory and internal restrictions if the only other alternate was liquidation.

Insurers Investment in Common Stock	1. \$10,258,534,000
	2. \$12,259,015,000
Expected Return on Common Stock (dividends plus appreciation)	1. 12.16%
	2. 10.00%
	3. 8.00%

The critical ratios on the basis of these assumptions are shown in Table 1 of this review. Neither the variables nor the assumed values for them are exhaustive but the results in Table 1 range from 101.4 to 105.0 indicating that there is no one critical ratio for the industry or a company but a set of ratios based on underlying assumptions and not necessarily restricted to those employed in this review. Balcarek did not explore this form of sensitivity analysis which would have greatly improved his paper and discouraged possible misinterpretation of his results.

TABLE 1  
*Critical Ratios of Adjusted  
Underwriting Results to Earned Premiums*

	Insurers' Investment in Common Stock <sup>a</sup>					
	\$10,258,534			\$12,259,015		
	Expected Return			Expected Return		
Liquidation Value <sup>a</sup>	12.16%	10 %	8%	12.16%	10 %	8%
\$12,558,496	101.4 <sup>b</sup>	101.8	102.2	103.3	103.3	103.3
\$11,138,699	103.2	103.4	103.7	105.0	104.7	104.4

<sup>a</sup> 000 omitted.

<sup>b</sup> Balcarek's critical ratio.

#### DISCUSSION BY W. J. MACGINNITIE

Mr. Balcarek has made another contribution to the growing literature on the relationship between investment income and underwriting results. There are many ways of looking at this relationship, and Balcarek's may prove useful to some actuaries in analyzing the profitability of a company or companies over time.