Finally, it should be noted that some writers in the field of capital budgeting have moved away from internal rates of return, and started to explore external ones. For a stock company, the external return is the one that a stockholder receives, which is normally his dividend plus the appreciation in the value of the stock. So as if there aren't enough problems with the internal return, actuaries may soon have to turn their attention to the ticker tape.

AUTHOR'S REVIEW OF DISCUSSIONS

I greatly appreciate the detailed reviews of my paper. They produced a number of interesting questions, some of which may merit additional discussion.

Professor Ferrari points out that during the liquidation of the insurer's assets, the book values of bond portfolios and equities in unearned premiums may not be realized. This, according to him, would reduce the assets of the investments fund and raise the critical ratio. I am not fully in accord with his reasoning. Granted that the book value of bonds is not a market value as they consist of largely fictional values depending on the purchase price of the bond, its due date, and its face value. It is very likely that these values are overstated due to the fact that bond prices have been falling for some years. It follows that the insurers' surplus is overstated and what is much more important, their actual earnings have been overstated. The exact figures are not available. However, if we consider the average drop in bond prices as shown by the various indices and apply it to the bond portfolios, then it would be apparent that this would make the comparison worse for the insurers.

One can also speculate that the equity in unearned premium reserve is overstated. This will happen in the following circumstances:

(1) If the insurer abandons his insurance operations by means of policy cancellations. Professor Ferrari seems to assume that this will be the actual course of action. In reality, there are some more rational alternatives available.

(2) If the book of business is of such a poor quality that the prospective loss ratios would wipe out at least a part of the equity. This alternative means that in our comparison we again overstated the earnings of the insurers.

Another important point arises when Ferrari discusses the possibility of variation in risk-return for the insurer, the fund, or both, as he confuses the risk to the investment portfolio and the risk to owners' capital. In case of the investment fund, these two risks are nearly equal, as, except for cash, the investment portfolio is equal to owners' capital. In the case of insurer, the risk to owners' capital is much greater due to the fact that the same capital supports a much larger investment portfolio and a volatile, largely unprofitable insurance operation. To obtain a valid comparison, it is the risk to owners' capital which is important and this is why the fund may undertake riskier investment with higher expected returns before it reaches the insurer's level of risk to owners' capital. Ferrari asserts that the insurer can raise the critical loss ratio by making riskier investments. However, this would only happen if we arbitrarily forced the fund to make much safer investments than the insurer, e.g., we may easily come to a *conclusion* that the critical loss and expense ratio is 150% if we assume that the assets of the insurer are invested in foreign mining stocks and warrants, while the fund is forced to invest in the bluest of blue chips.

It should be realized that in most comparisons of this nature there are always some factors and imponderables which it is impossible to evaluate with precision. Therefore, the final result should be regarded as an estimate and, as such, it is subject to a margin of error. Various people will have to make up their own minds whether my estimate is optimistic or pessimistic. My impression is that the reviewers searched diligently for factors which would make my estimate pessimistic. Mr. MacGinnitie even assumed that the investment fund would be organized in a manner which would maximize its income tax liability. On the other hand, they were unable to find a single factor which would operate in a different direction. Some of these factors are as follows:

(a) The assumption that the investment fund performs in line with the broad stock market averages is very conservative.

(b) The insurers were given credit for the unrealized capital gains on common stocks but were not penalized for the unrealized capital losses on their bond portfolios.

(c) The stockholders' equity in the investment fund operation is exposed to a smaller risk than under the insurance operation. Hence, the investment fund would be justified to increase its earnings by making riskier investments.

(d) I examined the profitability of the conversion from an insurer to an

> investment fund because it was the easiest and the most obvious choice. This does not mean that this was the most profitable choice. Some of the new entrepreneurs moving into the insurance industry are blessed with a tremendous amount of imagination and set for themselves high profitability standards. They are unlikely to be impressed with my earnings of projection of 11.9% (before federal taxes) for the investment fund.

In view of these considerations, it would appear that MacGinnitie may have been a little too eager to pronounce as not proved the proposition that the profits in the casualty and property insurance industry are inadequate. While sympathizing with his position, I would like to point out that it does not really matter whether we in the insurance industry accept or reject such a proposition. What really matters is whether we can prove, beyond all reasonable doubt, to the investment market that the insurance industry is earning a satisfactory rate of profit.