

# Aversion to Loss in Sale of Bonds in the Life Insurance Industry

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## ABSTRACT

This research tests the contention that life insurer bond portfolio managers have an aversion to selling a bond which results in an accounting loss even though such a loss is irrelevant to the decision. A secondary purpose is to determine the reason(s) for the aversion, if aversion exists.

Evidence substantiates aversion. A possible reason was the effect that such a loss has on the bond portfolio manager's personal risk position. A bond portfolio manager seems unwilling to sell a bond at a loss because he or she may perceive such action to be detrimental to others' perception of his or her job performance.

"The noble act of losing face may someday save the human race."

—Author Unknown

When sale of a bond results in an accounting loss, such loss may be accompanied by loss of face on the part of the bond portfolio manager. Recently, various individuals and groups have given attention to this phenomenon and have examined its effects (Bankers Trust Company, 1974, Heiskel, 1974; and Homer and Leibowitz, 1972). They have speculated how a bond portfolio manager's awareness of an accounting loss (or gain) affects his or her "sell decision." The contention of Homer and Leibowitz is that a bond portfolio manager will not sell currently owned bonds if an accounting loss will be incurred on the sale. As a result, they theorize that many bond portfolios that include issues with large losses in book values are frozen and are thereby preventing the insurers from realizing large risk-free capital gains in principal and interest.

Capital gains occur in "bond swaps" which are defined as a bond purchase using proceeds obtained from the sale of a currently owned bond as the purchase price. The substitution swap is an example of one type of bond swap. This particular type of swap is the most elementary of all bond swaps. In this swap, the bond now held (hereinafter called the "H" bond) and the bond to be purchased (hereinafter called the "P" bond) are perfect substitutes for each other in all pertinent characteristics—maturity, coupon, quality, call features, marketability, sinking fund and so on. The only difference is in the market price of the bonds.

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An example of this type of bond swap is as follows: Assume that the "H" bond held by the portfolio manager is a 40-year Aa Utility bond with a coupon rate of 6 percent. The bond is priced at par so the coupon rate and yield-to-maturity are equal. A similar "P" bond is available (Aa 40-year Utility bond with a coupon rate of 6 percent) except that it is priced to yield 6.10 percent to maturity. The portfolio manager can sell the "H" bond and purchase the "P" bond for a possible gain of ten basis points in yield. Transient factors inherent in the marketplace cause temporary price discrepancies to occur between bonds of equal value, thus affording the alert portfolio manager the opportunity for a favorable swap.

Homer and Leibowitz contend that if the sale of the "H" bond results in an accounting loss because its current market price is below its annual statement value, the bond portfolio manager will hesitate to enter into the swap. It is their contention that such decision behavior is irrational because an accounting loss or gain on a bond sale is not realized loss or gain but only a paper loss or gain. This observation is true of a bond sale for the same reason that a gain or loss on the sale of a fixed asset is irrelevant to a capital budgeting replacement decision. Gain or loss is the arithmetic difference between the irrelevant book value (amortized cost), and the relevant disposal value. Consequently, accounting gain or loss is irrelevant to the decision (Horngren, 1972).

### Purpose of This Research

The primary purpose of this research is to test empirically the contention that bond portfolio managers in the life insurance industry have an aversion to selling a bond which results in an accounting loss, even though such a loss is irrelevant to the decision process. If such an aversion to loss is found, it then would dictate that additional research be undertaken to attempt to determine the reason or reasons a bond portfolio manager may have such an aversion to recognize an accounting loss on the sale of a bond. Two possible reasons for this aversion, if such an aversion exists, were tested empirically.

One possible reason for this aversion is the influence that such a loss may have on the published financial statements of the bond portfolio manager's firm. An accounting loss will either decrease the overall profit of the firm or increase the overall loss of the firm. Consequently, such an accounting loss could be construed by the portfolio manager to be relevant to the decision process.

A second possible reason for this aversion to recognize an accounting loss is the influence that such a loss may have on the personal risk position of a bond portfolio manager. A bond portfolio manager may be unwilling to sell a bond at a loss because he or she may perceive such action to be detrimental to others' perception of his or her job performance.

### Previous Research

Previous research in this subject area was undertaken by Lawrence C. Jones (1968) in conjunction with a much larger study. Jones attempted to explain the reluctance of insurers to sell government bonds during the

post-accord period of the 1950's. One of the reasons used to explain this reluctance was stated to be:

As market prices of Governments decline, more investors find that sales out of their Government securities portfolio can be made only at prices below original cost or book value. Reluctance to realize capital losses on Governments restrain them from further sales. (Jones, 1968)

To test this hypothesis, Jones interviewed twelve portfolio managers. These managers were asked to give their reactions to the question of taking capital losses on government bond sales. Eleven respondents said that the losses did deter bond sales. The lone dissenter rejected this view. The eleven managers were willing to sell bonds at a loss as long as alternative investments were sufficiently attractive. A key consideration was the period of time needed to recover the loss.<sup>1</sup>

### Research Design

Life Insurance was chosen as the industry for empirical research because life insurers not only have a large bond portfolio but also because bonds play a major role in their investment policy. The selection of life insurers to be sampled was drawn from *Best's Insurance Reports—Life/Health, 1974*. A sample of 250 randomly selected insurers was chosen from the 1,853 insurers listed in *Best's*. A questionnaire was sent to the bond portfolio managers of the 250 selected insurers.

### Questionnaire Design and Procedure

The basic questionnaire used in this research is presented in the Appendix to this paper. The bond portfolio manager, using certain qualifying assumptions, was asked to choose one of three bonds, "A," "B," or "C," that he or she would sell. The qualifying assumptions were the characteristics of the bonds and the conditions present at the time of the sale.

The coupon rate of interest was the only manipulative variable in the decision as to which bond to sell. In order to test the influence an accounting loss has on a bond portfolio manager's actions, the current price relationships were altered to make bond "C" the most desirable bond to sell. This alteration was accomplished by making the assumption that bond "C's" current market price was higher than a pure-yield determined price. Actions of a bond sinking fund agent were assumed to have caused this temporary market aberration. The assumption also was made that this temporary market aberration would correct itself shortly and bond "C's" market price would again be in line with the prices of bonds "A" and "B."

The questionnaire was pretested by a series of interviews with life insurer bond portfolio managers and by interviews with finance professors who have an interest in bond portfolio management. All persons interviewed agreed that bond "C" was the desirable bond to sell, given the

<sup>1</sup> Homer and Leibowitz' (1972) research indicated that the length of time to recapture an accounting loss is completely irrelevant to the decision to sell a bond. Their contention is that this type of computation is a highly artificial product of an accounting system which misstates the status of a portfolio.

assumptions in the questionnaire and disregarding the irrelevant gain or loss on the disposal.

The questionnaire was sent to a group of 50 life insurers chosen randomly from the original sample of 250 life insurers. Henceforth, this group which received the original questionnaire will be referred to as group one.

A slight change in the original questionnaire was made to test the possible reasons that bond portfolio managers may have an aversion to accepting an accounting loss. The remaining 200 life insurers in the sample were subdivided into four groups with an additional condition labeled "D" inserted in the questionnaire. These additional "D" conditions were:

Group 2: Your overall firm profit is expected to be *up* substantially from last year's profit.

Group 3: Your overall firm profit is expected to be *down* substantially from last year's profit.

Group 4: You have sustained substantial realized capital *gains* this year which have not been offset by realized capital *losses*.

Group 5: You have sustained substantial realized capital *losses* this year which have not been offset by realized capital *gains*.

The expectation was that managers in all groups would choose bond "C" if they did not have an aversion to the recognition of an accounting loss. If managers chose bond "A" or "B," this choice was interpreted as (1) an aversion to recognizing an accounting loss and (2) an indication that acceptance of such a loss did have an impact on their decision process.

A comparison of the responses of groups two and three could determine if the effect of recognizing an accounting loss on the published financial statement was a reason for the aversion to recognize such a loss. If recognizing an accounting loss was a reason for the aversion, the assumption was that group two would be willing to accept an accounting loss while group three would not accept such a loss.

If the personal risk situation of the portfolio manager was a reason for the aversion, the responses of groups four and five would be different. Group four would be willing to accept the accounting loss, while group five would be unwilling to accept it.

## Findings

The following table summarizes the responses to the questionnaire:

TABLE 1  
RESPONSES TO QUESTIONNAIRE

Type of Questionnaire Group	Responses		Responses		Responses		Total Number	%	Response Rate
	A Number	%	B Number	%	C Number	%			
1 (Nothing)	12	60.0	2	10.0	6	30.0	20	100	40%
2 (Profits UP)	13	56.5	1	4.3	9	39.2	23	100	46
3 (Profits Down)	15	62.5	3	12.5	6	25.0	24	100	48
4 (Gains)	3	13.6	3	13.6	16	72.8	22	100	44
5 (Losses)	22	78.6	2	7.1	4	14.3	28	100	56
	<u>65</u>	<u>55.6</u>	<u>11</u>	<u>9.4</u>	<u>41</u>	<u>35.0</u>	<u>117</u>	<u>100</u>	<u>47%</u>

## *Effect of Loss on Bond Sale Decision*

Upon examination of the responses to the questionnaires, it appears that life insurance bond portfolio managers do have an aversion to recognizing an accounting loss on the sale of a bond. In total, the choice of bond "C" was overwhelmingly rejected by the bond portfolio managers. Only 35 percent of the respondents would sell bond "C" even though this bond was assumed to be preferable to the sale of bonds "A" or "B." This rejection of bond "C" lends evidence to the Homer and Leibowitz contention that a bond portfolio manager will not sell a currently owned bond if an accounting loss must be incurred on the bond.

Among the subgroups, only members of group four did not overwhelmingly reject the sale of bond "C." In this group, the loss on the sale of bond "C" was irrelevant to about 73 percent of the portfolio managers. Of interest are the results obtained after eliminating the responses of members of group four. The responses of members of groups one, two, three, and five indicate even more overwhelming opposition to the sale of bond "C." Of this group, 62 respondents (65.3 percent) chose bond "A," 8 respondents (8.4 percent) chose bond "B," and only 25 respondents (26.3 percent) chose bond "C."

## *Influence of Loss on Published Statements*

The influence that an accounting loss has on the published financial statements does not appear to be a reason for the bond portfolio managers aversion to recognizing an accounting loss. The expectation was that if recognition of an accounting loss was a reason for the aversion, then members of group two, who were told that their firm's overall profits were expected to be up substantially from last year, would have sold bond "C." Conversely, it was expected that members of group three, who were told their firm's overall profits were expected to be down substantially from last year, would choose bond "A." Table 2 gives the responses of members of these two groups:

TABLE 2  
RESPONSES OF MEMBERS OF GROUP TWO AND GROUP THREE

	<i>Responses</i>					
	<i>A</i>		<i>B</i>		<i>C</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Group 2 (Profits Up)	13	56.5	1	4.3	9	39.2
Group 3 (Profits Down)	15	62.5	3	12.5	6	25.0

Little difference exists between the responses of members of group two and those of group three.<sup>2</sup> Consequently, evidence is presented that recognition of an accounting loss on the published financial statements may not be a reason for a bond portfolio manager's aversion to recognizing an accounting loss on the sale of a bond.

<sup>2</sup> A Kolmogorov-Smirnov two sample test (Siegel, 1956) confirmed no statistical significant difference at the .01 level.

If the influence of an accounting loss on a manager's risk position was a reason for their aversion to recognizing a loss, it was expected that members of group four, who were told that they had substantial previous net realized gains, would choose to sell bond "C." Conversely, members of group five, who were told they had net realized capital losses, would be expected to choose bond "A." Table 3 gives the responses of members of these two groups:

TABLE 3  
RESPONSES OF MEMBERS OF GROUP FOUR AND GROUP FIVE

	<i>Responses</i>					
	<i>A</i> Number	%	<i>B</i> Number	%	<i>C</i> Number	%
Group 4 (Gains)	3	13.6	3	13.6	16	72.8
Group 5 (Losses)	22	78.6	2	7.1	4	14.3

A significant difference appears between the responses of members of group four and those of group five.<sup>3</sup> It appears that the responses of group four members are the reverse of those of group five members. If gains had been previously recorded, the bond portfolio managers were willing to sell bond "C" even though the sale entailed the recognition of an accounting loss. Conversely, if losses had been previously recorded, the managers adamantly were opposed to selling bond "C" in favor of selling bond "A." It seems that the bond portfolio manager's risk position may be a valid reason for the aversion to recognizing an accounting loss on the sale of a bond.

It appears that a life insurer bond portfolio manager may perceive the recognition of an accounting loss as a negative feedback in terms of the evaluation of his or her job performance. He or she seems willing to accept the loss if previous transactions have resulted in the recording of sufficient gains to offset such a loss. He or she seems unwilling to accept the loss if previous losses have been recorded which have not been offset by recognized gains.

The responses of group four members also lend evidence that the respondents to the questionnaire did recognize bond "C" as the desirable bond to sell. More than 72 percent of the group four respondents chose bond "C" over bonds "A" and "B."

### Summary

The primary purpose of this research is to examine the contention that life insurance bond portfolio managers have an aversion to recognizing an accounting loss on the sale of a bond. Homer and Leibowitz appear to be correct in their assumption that bond portfolio managers will not swap bonds where an accounting loss must be incurred on the sale of the bond

<sup>3</sup> A Kolmogorov-Smirnov two sample test (Siegel, 1956) confirmed a statistically significant difference in the responses at the .01 level.

swapped, even though such a loss is irrelevant in rational sell decisions.

A secondary purpose of this research was to determine the possible reason or reasons to explain why a life insurance bond portfolio manager has this aversion, if such an aversion exists. One explanatory reason tested was the influence that an accounting loss has on the firm's overall profit. The contention is that as a loss would lower profits or increase losses, the portfolio manager would have an aversion to recognizing such a loss. Analysis of the responses lends evidence toward discounting this contention as a reason for the aversion to recognizing an accounting loss.

Another reason for this aversion is the influence of an accounting loss in the personal risk situation of the life insurance portfolio manager. An accounting loss may be perceived to have a negative effect on the portfolio manager's job evaluation. This research lends evidence that the perception of the portfolio manager's own risk situation is a possible reason for the aversion. Portfolio managers seemed more willing to sell a bond at a loss if previous gains had been recorded. Conversely, if losses had been previously recorded, the sale of a bond which would increase the loss did not seem acceptable.

Further research is needed to examine methods of overcoming a bond portfolio manager's aversion to the recognition of an accounting loss on the sale of a bond. Future research could be centered on two possible methods of overcoming this aversion. First, research could be undertaken to evaluate alternative methods of valuing bonds, such as market value or the cost-transfer method, and the influence of these alternative valuation methods on the portfolio manager's decision process. Second, a fertile area for future research would be alternative methods of evaluating a bond portfolio manager's performance in order that acceptance of a loss would not be perceived by the portfolio manager as detrimental to his or her performance evaluation.

## *Appendix*

### *Questionnaire Sent to Bond Portfolio Managers*

You, as a portfolio manager, are forced to liquidate a portion of your bond portfolio. Your choice is limited to the following three bonds which have these characteristics:

- (a) Each bond represents a substantial portion of your portfolio in comparison to your other bond holdings.
- (b) The bonds are similar in all aspects (i.e., call provisions, remaining life, quality, etc.), except for a difference in the coupon rate of interest.
- (c) The total amount of cash to be received from the sale of each holding would be the same.
- (d) Bonds "A" and "B" may be private placements or actively traded bonds, but in either case you have found a buyer willing to pay the current market price as shown.
- (e) Bond "C" is actively traded by bond dealers.

The following conditions are present at the time of the sale:

- (a) This transaction is the last bond transaction that will occur during your company's fiscal year.

- (b) The sale of any of these bonds will not pose a threat to the legal solvency of your company.
- (c) The tax consequences of the transaction are to be disregarded in making your decision.

Given the above conditions, please make a choice of which bond you would sell as your firm's bond portfolio manager. Please mark your choice on the enclosed postcard.

	Amortized Cost	Current Market Price <sup>o</sup>	Previous Market Price <sup>o</sup>
Bond "A"	100	105	105
Bond "B"	100	100	100
Bond "C"	100	65	60

<sup>o</sup> A yield differential test, recently administered by you, properly accounted for the difference in the previous prices of the bonds. The difference between the previous market price of bond "C" and the current market price of the bond is attributable to actions of the bond sinking fund agent. It is expected that shortly bond "C" will restore itself to its previous relationship with bond "A" and bond "B."

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