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Another foray into the backwaters of the market

*This time, it's income bonds with interrupted interest payments—
but with market efficiency*

John J. McConnell and Gary G. Schlarbaum

In this paper we present evidence on the risks and returns available to investors in a distinct class of financially distressed securities — “income” or “contingent interest” bonds on which interest payments have been suspended. This study is a logical sequel to earlier ones that have examined the investment performance of various classes of financially distressed securities.

Most recently, in this Journal, Stevenson and Rozeff [20] dipped into the backwaters of the securities market to examine the risks and returns of preferred stocks with arrearages to determine whether capital market participants properly price this rather obscure class of securities. The authors contended that theirs is an especially severe test of the efficient market model, since security analysts and large institutional investors typically shun these securities. As they state, their evidence is important, because “if, indeed, efficiency exists in financially distressed securities which are the backwaters of our securities markets, this finding would strongly suggest that the more actively traded and research securities (including second tier stocks) are also efficiently priced” [20, p. 31]. It is in a similar vein that we undertake the present study.

EARLIER STUDIES

Since Stevenson and Rozeff provide a thorough synopsis of previous studies in this area (including a discussion of their deficiencies), a lengthy review here would be gratuitous. Suffice it to say that the results of these studies, which include examinations of defaulted bonds (Hickman [14]), “flat” bonds (Baskin and Crooch [6]), stocks of bankrupt railroads (Altman [1]), and bonds of bankrupt railroads (Warner [22]),

seem to contradict the notion that the securities of financially distressed firms represent inferior investment opportunities. Indeed, there is some evidence (Hickman [14]) that such securities provide above normal returns. As Stevenson and Rozeff note, however, only Warner’s paper and their own adequately adjust for risk. In contrast to Hickman, both of these studies conclude that the particular classes of financially distressed securities that they examined did not provide abnormally high (or low) returns after proper allowance for risk.

BRIEF HISTORY OF INCOME BONDS

“Income” or “contingent interest” bonds have an especially interesting (or, perhaps, more accurately, notorious) history. They first appeared in the late 1800’s in conjunction with the reorganization of bankrupt railroads. Since that time, they have been issued relatively infrequently by U.S. corporations, despite repeated admonishments in the financial press urging firms to avail themselves of the unique benefits of this security (Bierman and Brown [7]; Barnes [4] [5]; and Halford [13]). The traditional reluctance of firms to make extensive use of the income bond as a financing instrument has been attributed to the unsavory events that surrounded its inception.

As early as 1912, Arthur Dewing [10, p. 397] stated:

“Income bonds . . . present a puzzling chapter in railway finance marked by economic blunders and court litigations. It is now happily drawing to a close, as few income bonds have been issued in recent years.”

More recently Benjamin Graham [12, p. 51] states:

"Income bonds should be used by corporations more extensively than they are. Their avoidance apparently arises from a mere accident of economic history — namely, that they were first employed in quantity in connection with railroad reorganizations, and hence they have been associated from the start with financial weakness and poor investment status."

In 1955, Robbins [17] published the results of a comprehensive survey of the attitudes of professional portfolio managers toward income bonds. In general, he found professional managers to be extremely reluctant to consider these securities for inclusion in their portfolios. Among those managers interviewed, university administrators were the least receptive to income bonds, while the respondents from insurance companies were the most willing to consider them; even the latter group expressed reservations about the merits of this particular class of securities.

In 1974, Robbins [18] published the results of an update of his earlier survey. He found that the attitudes of professional investors toward income bonds had changed little over the intervening 20 years. Indeed, he was mildly astonished at ". . . the surprising number of financial officers in the new survey who had never heard of income bonds . . ." [18, p. 10]. His results indicate that income bonds represent a good candidate for dipping once again into the backwaters of the market; they also suggest that a short description of the characteristics of this class of securities would be worthwhile.

CHARACTERISTICS OF INCOME BONDS

As is the case with most generic categories of securities, firms may issue a wide variety of income bonds. The various types are distinguished one from another by the specific rights conferred upon the security holder and by the specific responsibilities assumed by the issuing corporation. For example, income bonds may or may not be convertible into common stocks; they may or may not contain sinking fund provisions; they may or may not be callable; they may or may not be subordinated to other classes of debt securities; omitted interest payments may or may not be cumulative, and so on. Thus, corporate managers literally may choose from an infinite array of covenants when designing an income bond issue.

The one feature that distinguishes income bonds as a class from other debt instruments is that the payment of coupon interest is contingent upon the issuer's reported accounting earnings. If sufficient accounting earnings are available after deduction of operating expenses, allowable fixed asset deprecia-

tion, and interest payments with a prior claim on income, then the interest due on the income bonds *must* be paid. If, however, reported earnings after deduction of the various allowed expenses are not sufficient to cover contingent interest payments, the corporation may omit them with no change in the ownership structure of the firm.

Thus, when a contingent interest payment is omitted, the bond technically is not in default, and bondholders obtain no additional control over the firm (except for the possible future claim to accumulated interest). In contrast, when an interest payment is omitted on a fixed-interest bond, it is considered to be in default, and the bondholders may force the firm into bankruptcy.

In terms of the technicalities of their periodic cash payments, income bonds are similar to preferred and common stocks, in that interest payments are "declared" by the board of directors. As a consequence, unlike other corporate bonds, income bonds trade "flat," or without accrued interest.

DATA

An exhaustive search of Moody's *Manuals* [2][15] [21], Standard and Poor's *Bond Guide* [20], the *Bank and Quotation Record* [3], and the *Commercial and Financial Chronicle* [9] yielded a total of 53 income bonds that were publicly traded over the period December 1956 through December 1976. Of these, 23 omitted at least one interest payment over this period.

We collected month-end prices for each of the bonds from the *Bank and Quotation Record*, the *Commercial and Financial Chronicle*, and Standard Poor's *Bond Guide*. Interest payment histories were obtained from Moody's *Manuals*.¹

The 23 bonds represent 29 separate interest payment interruptions, because payments on four of the bonds were subject to multiple interruptions. An interruption was considered to begin on the first day of the first full month following the issuer's failure to make a contingent interest payment and to end on the first day of the first full month following the resumption of interest payments. Thus, during the period of the interruption, the income bond paid no interest (until the last month).

INVESTMENT STRATEGIES AND PORTFOLIO EVALUATION

In a fashion similar to Stevenson and Rozeff, we considered two investment strategies involving income bonds that have temporarily suspended interest payments. The first involves forming monthly

1. Footnotes appear at the end of the article.

portfolios of all income bonds that have interrupted interest payments. The returns generated represent a consistent policy of buying and holding income bonds when they are not paying interest. The second strategy involves annual portfolio rebalancing. In January of each year the investor purchases equal dollar amounts of all income bonds that have interrupted interest payments and holds them until year-end or until the first full month after interest payments are resumed, whichever occurs first. The appropriate measurement interval for performance evaluation with the first strategy is one month; with the second it is one year.

The two-factor model proposed by Black [8] and Fama and MacBeth [11] serves as the benchmark for portfolio evaluation. It can be expressed as:

$$E(\bar{R}_j) = E(\bar{R}_n) + \beta_j [E(\bar{R}_m) - E(\bar{R}_n)],$$

where

- $E(\bar{R}_j)$ = expected return on security on portfolio j,
- $E(\bar{R}_n)$ = expected return on the minimum variance portfolio that has zero covariance with the market,
- β_j = covariance of R_j with R_m divided by the variance of R_m , and
- $E(\bar{R}_m)$ = expected market return.

For each month of the sample period, we computed the return for an equally-weighted portfolio of income bonds formed according to investment strategy 1. The β_j of this portfolio is then estimated by regressing its returns against those on the market portfolio (as represented by the CRSP value-weighted index) using all available monthly data. We derived the parameters of the security market for each month by using the procedure of Fama and MacBeth [11]. Given these data, we were able to estimate, for each month, the abnormal return on the portfolio of income bonds.

The question here is whether the capital market is properly pricing income bonds that have interrupted interest payments. If so, then returns generated by various investment strategies should be neither abnormally high nor abnormally low. The measure of performance used herein to make that judgment is the simple average of the time-series of abnormal returns. A standard t-statistic is used to test for statistical significance.

EMPIRICAL RESULTS

A summary of returns generated by the policy of forming monthly portfolios of all income bonds not paying interest (policy 1) appears in Table 1.

The average monthly rate of return realized over the sample period with this policy was .0048. This corresponds to an average annual rate of 5.76%. The appropriate benchmark is the average *expected* return computed with the estimated portfolio betas and the realized security-market lines. It was .0066 per month or 7.92% per year. Hence, the average *abnormal* monthly return was -.0018. The implication is that the returns provided by this investment strategy were too low by 2.16% per year on average. As the last column of the table indicates, however, this number is not significantly different from zero at the usual levels of confidence. Thus, these results (perhaps to the chagrin of those contrarians that expound the virtues of "junk" bonds and of those pundits that label income bonds inferior investments) are consistent with the efficient market model.

Table 2 reflects another perspective on the performance of our bond sample. Here we show summary statistics on the returns earned over the period 1961 through 1975 with income bonds under strategy 1, along with the comparable results for preferred stocks with arrearages as presented by Stevenson and Rozeff [20, p. 33].

TABLE 1
Risk-Adjusted Performance of Income Bonds
Not Paying Interest 1956-1976

	Average Return		Standard Deviation		Average Abnormal Return		t-value
	Monthly	Annual	Monthly	Annual	Monthly	Annual	
Policy 1	.0048	5.76%	.0797	96%	-.0018	-2.16%	-0.38

TABLE 2
Performance of Income Bonds Not Paying Interest
and Preferreds with Arrearages 1961-1975

	Average Return		Standard Deviation		Average Abnormal Return		t-value
	Monthly	Annual	Monthly	Annual	Monthly	Annual	
Income Bonds	.0102	12.24%	.0815	98%	.0042	5.04%	0.74
Preferreds	.0037	4.44%	.0787	94%	-.0037	-4.44%	-1.00

As the first two columns of the table show, the mean monthly and annual returns on income bonds not paying interest were approximately three times as great as the comparable statistics for preferreds with arrears. After adjustment for risk, these numbers translate into positive annual abnormal returns of 5.04% and -4.44%, respectively, for the two sample groups. While the average abnormal return on each of the security classes is not significantly different from zero, the difference between the two measures (which is about 9.5% per annum) does verge upon statistical significance. These results suggest (at least over the period 1961-1975) that those investors who wished to make the voyage to the backwaters of the market would have fared better doing so on a raft of income bonds that have interrupted interest payments than with preferred stock in arrears.

Table 3 provides a look at the performance of our bond sample from yet another vantage point. Here

provide a comparison of returns achieved by investing in financially distressed securities with returns from alternative investment possibilities.

A second purpose is to demonstrate the substantial variation in annual returns earned with strategy 2. The lowest annual return earned with our bond sample was -45.2% and the highest was +46.6%. This compares with ranges of -28.9% to +84.9% for preferreds with arrearages, -24.8% to +36.9% for the S&P 500 stocks, -10.2% to +27.9% for income bonds that were current in their interest payments, and -3.5% to +18.6% for Aaa corporate bonds.

As might be expected, these results indicate that the behavior of income bonds with interrupted interest payments is more similar to that of preferreds with arrearages than to any of the other classes of securities considered. Indeed, the range of their returns is substantially greater than that of a diversified

TABLE 3
Summary of Annual Returns from Common Stocks,
Bonds, Preferreds in Arrears, and Income Bonds Not Paying Interest

Year	Annual Returns				
	Income Bonds Not Paying Interest*	Preferreds with Arrears*	S&P 500	Income Bonds Paying Interest	Aaa Bonds
1961	-13.9% (8)	1.6% (16)	29.3%	7.2% (42)	3.6%
1962	18.2 (12)	-8.8 (26)	-9.3	9.4 (39)	7.7
1963	35.9 (12)	12.6 (27)	21.6	13.9 (39)	2.1
1964	46.6 (9)	23.3 (25)	16.2	12.7 (42)	4.5
1965	27.7 (8)	16.0 (23)	12.3	5.2 (43)	-0.3
1966	-22.9 (8)	-4.5 (19)	-7.9	-7.7 (43)	-3.5
1967	-7.3 (7)	41.1 (19)	20.4	0.7 (46)	-3.4
1968	-0.1 (7)	29.6 (17)	14.9	4.5 (45)	1.5
1969	-32.6 (10)	-28.9 (9)	-11.3	-10.2 (42)	1.7
1970	-45.2 (11)	-21.3 (4)	2.6	-3.1 (39)	12.2
1971	37.5 (15)	36.6 (8)	13.2	19.9 (32)	10.2
1972	2.1 (15)	4.6 (17)	21.3	10.0 (32)	5.9
1973	17.8 (13)	-18.0 (17)	-16.2	1.1 (34)	2.6
1974	-14.7 (13)	23.9 (14)	-24.8	-4.5 (34)	-1.9
1975	37.1 (11)	84.9 (12)	36.9	13.5 (36)	9.1
1976	15.0 (12)	—	23.8	27.9 (35)	18.6

* Number in parentheses indicates number of securities in annual portfolio.

we present annual returns earned with investment policy 2, along with comparable annual returns for the S&P 500 stocks, high grade corporate bonds, income bonds on which interest payments were currently being made, and preferreds with arrearages (taken from Stevenson's and Rozeff's Table 3 [20, p. 34]).² Although these returns are not risk-adjusted, this method of tabulating returns is a familiar one used in many studies of portfolio performance.

REWARDS, RISKS, AND A MORAL

One purpose for presenting these results is to

portfolio of common stocks, or of a portfolio of income bonds current in their interest payments. In this regard, an ancillary observation is that the direction of the year-to-year swings in annual returns on income bonds current in their interest payments are similar to those of Aaa corporate bonds, but of greater amplitude. This is consistent with a priori expectations of the relative riskiness of the two classes of securities.

One moral that may be derived from this study is that those institutional portfolios managers that have shunned income bonds as an inferior investment may wish to rethink their position. Although invest-

ments in superior portfolios. diversification certainly su

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The sample contingent in payments du

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ments in income bonds are unlikely to provide superior performance, they may add a dimension of diversification not currently present in institutional portfolios. In an age of "market funds" and optimal diversification strategies, this added element of diversification may merit consideration. Our results would certainly support such a decision.

¹ A more detailed discussion of the way in which the data were gathered is contained in [16].

² The sample of income bonds includes all publicly-traded contingent interest bonds that were current in their interest payments during each of the relevant years.

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