

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Trends in Corporate Bond Quality

Volume Author/Editor: Thomas R. Atkinson, assisted by Elizabeth T. Simpson

Volume Publisher: UMI

Volume ISBN: 0-870-14148-1

Volume URL: <http://www.nber.org/books/atki67-1>

Publication Date: 1967

Chapter Title: LIEN POSITION AND MARKET RATING

Chapter Author: Thomas R. Atkinson

Chapter URL: <http://www.nber.org/chapters/c1506>

Chapter pages in book: (p. 66 - 75)

## VI

# LIEN POSITION AND MARKET RATING

Two indicators of credit quality have been found to be associated with the ultimate success or failure of bond investments, namely, agency ratings and earnings coverage. This chapter considers two other quality indicators of corporate bonds: lien position and market rating. Lien position refers to whether or not the debt is secured; market rating, to how the market itself rates the bond.

### *Lien Position*

A principal lesson of the 1930's to the bond investor was that the presence of specific security or the manner in which a debt obligation was secured had little to do with whether or not it ultimately went to default. Indeed, Hickman's study of the period from 1900 to 1943 showed that security was inversely related to earnings; that is, companies with low earnings coverage offered a greater proportion of secured issues. Thus, earnings and the security provision could be considered substitutes to a degree.<sup>1</sup>

In much of the period Hickman was analyzing, unsecured and junior obligations suffered relatively fewer defaults than did senior and secured obligations, because only strong corporations were able to finance with debentures, except in periods of excessive optimism.<sup>2</sup> Among defaulting bonds, however, security and rank of claims had a large bearing on the loss rate. For example, while 18.8 per cent of large secured issues went into default (compared with 13.6 per cent unsecured), the loss rate was only 8.0 per cent (compared with 16.6 per cent unsecured).<sup>3</sup> When both the possibility of default and of loss resulting from default are considered, the difference between large secured and unsecured issues is not great. On all large issues (non-defaulted plus defaulted), 5.4 per cent was realized on secured and

<sup>1</sup> See W. Braddock Hickman, *Corporate Bond Quality and Investor Experience*, Princeton for NBER, 1958, p. 392 ff.

<sup>2</sup> *Ibid.*, pp. 447 ff.

<sup>3</sup> *Ibid.*, Tables 93 and 97, pp. 448 and 462.

TABLE 27

*Lien Position of Public and Direct Offerings 1944-65*  
(percentage of offerings secured and unsecured)

Period of Offerings	Secured	Unsecured
1900-03	95.7	4.3
1904-07	77.8	22.2
1908-11	82.0	18.0
1912-15	77.6	22.4
1916-19	81.6	18.4
1920-23	72.7	27.3
1924-27	71.6	28.4
1928-31	55.4	44.6
1932-35	80.4	19.6
1936-39	67.5	32.5
1940-43	67.4	32.6
1944-47	56.9	43.1
1948-51	47.1	52.9
1952-55	41.2	58.8
1956-59	41.3	58.7
1960-63	37.6	62.4
1964-65	36.2	63.8

Source: 1900-43: Hickman, *Corporate Bond Quality and Investor Experience*, Table 91, p. 437; 1944-65: tabulations from Table D-1.

5.3 per cent on unsecured obligations.<sup>4</sup> Hickman concluded that while protection of both earnings and assets was generally rewarded by lower defaults, large institutional investors could substitute earnings coverage for lien position and obtain a high average realized yield.<sup>5</sup>

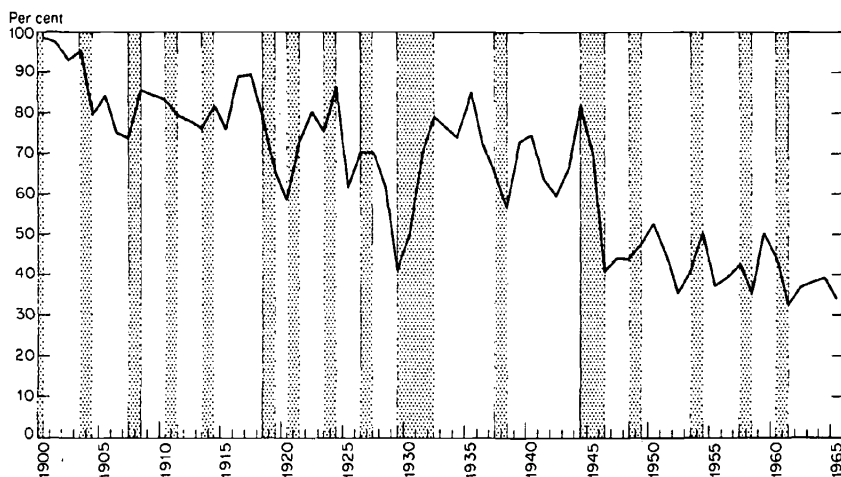
Table 27 shows that there has been a much lower proportion of secured offerings in the postwar period than prevailed in the prewar period, particularly the decade immediately prior to the war. For the 1900-43 period, about 73 per cent of the bond offerings were secured. In contrast, the postwar average is about 42 per cent of offerings secured.

<sup>4</sup> *Ibid.*, Table 98, p. 466.

<sup>5</sup> *Ibid.*, p. 469.

CHART 11

Proportion of Offerings Secured, 1900-65



Source: Computed from Hickman, *Statistical Measures of Corporate Bond Financing*, Table 85, and Table D-1 of this study.

Note: Shaded areas represent business contractions; unshaded areas, expansions.

Hickman found that the proportion of unsecured obligations to total bond offerings rose toward the end of the 1920's, mainly because of financing by holding companies with no mortgageable assets.<sup>6</sup> While there has been no comparable holding-company movement in the postwar period, it may be worthwhile to study the trend of secured versus unsecured issues, if only to determine whether the tolerance of the market for unsecured offerings may be a symptom of deterioration in credit quality.

Chart 11 indicates that in the prewar period business recoveries often were characterized by a declining proportion of offerings that bore specific security. The most notable example was the fall, prior to the 1929 turning point, in percentage of offerings secured. In the postwar period a slight tendency continued for recoveries to show a falling proportion of secured offerings. However, the long secular downdrift from 1900 to 1929 was no longer present in the postwar period; the proportion of secured offerings leveled off at 40 per cent in 1946.

<sup>6</sup> *Ibid.*, pp. 435, 449.

Hickman found that lien position at offering had little to do with the risk of occurrence of default; in fact, the reverse seemed to be the case sometimes, since weak corporations could only finance by offering secured issues. Instead, past differences in ability to meet charges seemed to have the greatest relation to incidence of default. On the other hand, the security of the bond became important in determining the amount of the loss when and if the bond went into default.<sup>7</sup>

### *Market Rating*

A measure of risk in corporate bonds is afforded by the evaluation placed upon them by investors. Presumably, a bond which the market judges to have a minimum risk will be bid up to the point where its yield equals the "pure" cost of long-term money plus an amount sufficient only to cover the most remote chance of loss from default. Similarly, a bond judged by the market to have a high degree of risk should afford additional return beyond the pure cost of long-term funds, this additional compensation being a measure of the market appraisal of the chances of possible loss.

Hickman points out that risks on low-grade bonds were apparently overcompensated in the 1900-43 period, so that an investor able to diversify sufficiently received more than enough from the higher yields on low-quality bonds to compensate for losses incurred. He suggests that the observed facts are consistent with two hypotheses: First, the yield on a bond consists of three elements—the pure cost of money, a risk premium sufficient on the average to compensate for losses, and a reward for bearing risk. Second, although the institutions which have dominated the market in recent years can diversify adequately, they generally choose high-grade bonds because of public regulation and to avoid the embarrassment of large holdings of defaulted bonds. Promised yields on low-grade bonds are thereby more than sufficient to offset default losses.<sup>8</sup>

Of course, Hickman found that the degree of overcompensation for losses varied with the quality of the bond. For example, whereas bonds with the highest agency rating promised 4.5 per cent, their realized yield was actually 5.1 per cent. Only in the subinvestment-grade bonds

<sup>7</sup> *Ibid.*, Table 97, p. 462.

<sup>8</sup> *Ibid.*, pp. 15-16 and 322-324.

TABLE 28

*Life-Span Default Rates, Yields and Loss Rates for Bonds  
Classified by Agency Rating, 1900-43*  
(per cent)

Agency Rating	Default Rate	Promised Yield	Realized Yield	Loss Rate
I	5.9	4.5	5.1	-0.6
II	6.0	4.6	5.0	-0.4
III	13.4	4.9	5.0	-0.1
IV	19.1	5.4	5.7	-0.3
V-IX	42.4	9.5	8.6	0.9
No rating	28.6	4.8	4.6	0.2
Total	17.3	5.3	5.4	-0.1

Source: Hickman, *Corporate Bond Quality and Investor Experience*, Table 1, p. 10.

was there a reduction from promised yield as a result of losses. Table 28 summarizes these findings.

Hickman's findings that yields on less than prime-quality bonds greatly overcompensate for the calculation of risks involved has recently been re-examined with the aim of eliminating the effect of calls and high terminal valuations in 1944, a low interest rate year, from realized yields. Table 29 shows that the modified loss rate (difference between promised and modified realized yield) is much greater for lower grades vis-à-vis high-grade bonds. Promised yields, as reflected in the "market rating" placed on bonds, hence measure bond quality.

Many factors not related to quality also affect the promised yield, among them term to maturity. Bonds convertible into common stock offer something more than the promised return on comparable non-convertible bonds, and therefore command yields often not fully commensurate with the risk of default. Particularly in times of optimism, convertible bonds may be valued as common stock. Similarly, variations in call features can affect the prospect of the bond's life and, therefore, the potentiality of the holder's realizing a capital gain with changes in interest rates. (All of this would affect investors' appraisals.) The size of the issue and the volume of outstanding debt of the particular firm

TABLE 29

*Yield Experience on Corporate Bonds as Determined by Hickman and as Modified by Fraine and Mills, Distributed by Agency Rating, 1900-43*  
(per cent)

Agency Rating	Promised Yield	Realized Yield	
		Unmodified (Hickman)	Modified (Fraine and Mills)
I	4.5	5.1	4.3
II	4.5	5.1	4.3
III	4.9	5.0	4.3
IV	5.4	5.8	4.5
V	6.3	4.1	3.5
VI-IX	7.6	4.7	3.7
All rated bonds	5.0	5.1	4.3

Source: Harold G. Fraine and Robert H. Mills, "Effect of Defaults and Credit Deterioration on Yields of Corporate Bonds," *Journal of Finance*, September 1961, p. 431.

or industry can affect investors' appraisals. Their normal diversification requirements may make particular issues more or less attractive than others. Thus, utility bonds often have a larger yield than equally good industrial bonds simply because institutional investors have heavy portfolios of utility issues which, during most of the postwar period, have been in ample supply.

In periods of high interest rates, bonds with low coupons sell at a deep discount from par, but often are priced to yield less than bonds selling nearer to par, because investors prefer capital gains rather than current yield and expect the interest rate cycle to reverse. Also, an active sinking fund may contribute to yield differences not commensurate with quality by creating a shortage in the particular issue.

Despite the difficulties in considering the spread from prime bonds as a measure of quality, there are good reasons to treat this measure with some respect. Valuation of bonds requires a considerable body of techniques that have been developed over many years. Unlike stocks—where growth-of-earnings possibilities, dividends, and liquidat-

ing value intrude into the valuation formula—bond valuation, apart from the strict mathematical relationships, is heavily influenced by the one major event that can occur to the instrument, namely, default. Consequently, slight gradations in price and therefore yield reflect market estimates of, among other things, bond quality.

The means used here to determine the yield on best-grade corporate bonds was developed by Durand.<sup>9</sup> It includes plotting yields against maturity for a large number of high-grade bonds. A line is drawn representing the lower margin of yields for the sample, disregarding a few issues with very low yields because of extraneous influences. After determining the schedule of yields for each maturity, a measure of the market rating for any given issue may be obtained by subtracting the appropriate basic yield from the issue's yield. Generally, in this study, Hickman's practice of classifying bonds with yields at offering of less than 1 per cent above the basic corporate bond yield as high grade is followed. Those selling at 1 per cent or more above the basic yield are considered substandard risks.

Another difficulty with a measure of market rating representing the difference between prime bonds and a specified bond is that at different periods "the market" has valued the same quality bonds differently. This is most commonly seen in the so-called confidence index familiar to stock investors. The measure, the ratio of Aaa to Baa bond yields, is shown in Chart 12. While it is affected by Hickman's finding that the agencies during the period 1914-43 "rated bonds up in expansions and down in contractions,"<sup>10</sup> most of its movement is a change in public valuation of different grades of bonds. As a result, the ratio varied from .54 in 1932 to .92 in 1965. The reduction in difference in Aaa and Baa yields (curve moving up) is one aspect of the finding that market ratings have improved over the period since 1919. It does not explain the 1954-60 dip and recovery.

Because of the multiplicity of yields necessary for serial bonds, yields, and therefore market ratings, were computed only for straight bonds in the early period. In the postwar data, practically all direct placements had some form of repayment arrangement similar to, if not exactly the same, as that of serial bonds.

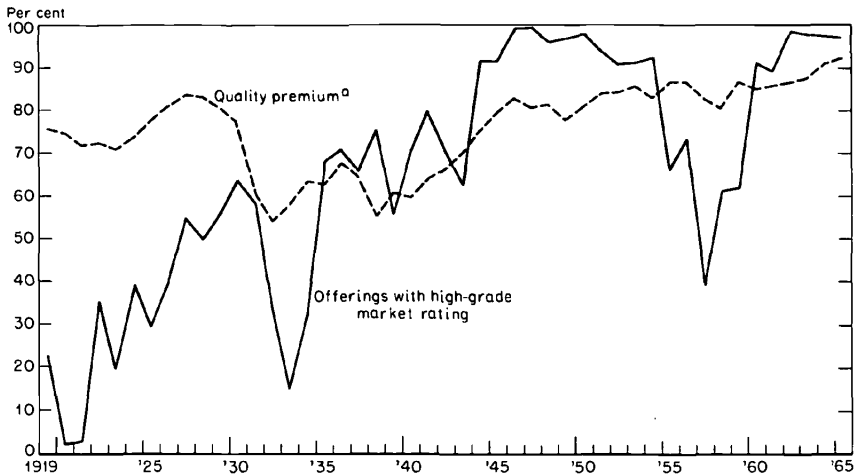
Table 30 shows that the early postwar period improved substantially

<sup>9</sup> David Durand, *Basic Yields of Corporate Bonds, 1900-1942*, New York, National Bureau of Economic Research, 1942.

<sup>10</sup> *Corporate Bond Quality*, pp. 173 f.

CHART 12

Percentage of Offerings with High-Grade Market Ratings Related to Changes in Quality Premium, 1919-65<sup>a</sup>



Source: Based on Hickman, *Statistical Measures of Corporate Bond Financing*, Table 70, p. 113; Table E-1 of this study; and Moody's bond yields by rating groups. (All corporate bonds, annual averages from blue section of Moody's *Industrial Manual*.)

<sup>a</sup> Ratio of yields on Aaa bonds to those on Baa bonds, annual averages of monthly indexes.

over the prewar period in the percentage of par amount of bond offerings rated by the market as high grade, i.e., with a yield less than 1 per cent above that of the basic yield in the year offered. There was some deterioration in the late fifties, and quality by this measure was about back to that of the period 1928-31. Then it rose again and was higher in 1964-65 than in any of the four-year periods. The percentage of bonds rated high grade would differ somewhat if, instead of constant differential (1 per cent), a constant ratio of differential to basic rate were used, but there would still be a larger proportion of high grades in all postwar years except 1956-59 than in years before 1944.

Hickman, using outstandings and "net upgradings," found little cyclical behavior in the market rating. In the postwar period, virtually no discernible cyclical behavior is present for public offerings. While the whole period is sharply dominated by the 1954-57 dip and subsequent recovery in the new-issue volume rated as high grade (offering

TABLE 30

*Percentage Distribution of Par Amount of Straight Corporate Bond Offerings Among High and Low Market Ratings at Offering, Four-Year Periods, 1900-65*

Period of Offerings	High Grade	Low Grade
1900-03	43.1	56.9
1904-07	41.9	58.1
1908-11	42.9	57.1
1912-15	43.5	56.5
1916-19	23.2	76.8
1920-23	16.3	83.7
1924-27	43.0	57.0
1928-31	56.8	43.2
1932-35	51.5	48.5
1936-39	67.2	32.8
1940-43	72.3	27.7
1944-47	95.2	4.8
1948-51	96.1	3.9
1952-55	85.3	14.7
1956-59	57.2	42.8
1960-63	94.1	5.9
1964-65 <sup>a</sup>	97.3	2.7

Source: 1900-43; based on Hickman, *Corporate Bond Quality and Investor Experience*, Table 54, p. 298; 1944-65: based on Table E-1.

Note: High-grade issues are those with offering yields less than 100 basis points in excess of the basic yield. Beginning in 1944 only public offerings are included. Based on rated bonds only.

<sup>a</sup>Two-year period.

yield less than one percentage point above basic yield), there is a very modest tendency for a greater proportion of issues to be rated good in recession years than in the previous peak years. In general, however, the cyclical performance of the market rating is subordinate to obviously stronger secular movements.

The market rating probably has lost much of the efficiency as a quality indicator that it exhibited in the earlier Hickman period because such a great proportion of the dollar volume of bond issues now escapes the market process, even though market alternatives are not without influence. It has been particularly poor in the postwar period because of the rise of convertible issues. The market rating is a generally poor indicator of quality since it is affected by many influences not related to quality. Nevertheless, the results of our market rating analysis corroborates other indications that in the postwar period quality is better than prewar. The search for earnings in the last several years, however, has driven down yields on even poorer-quality bonds (as measured by other criteria), so that it is likely spurious indications of the recent trend in quality are obtained from the use of the market rating.