Volume Title: Trends in Corporate Bond Quality

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Volume Publisher: NBER

Volume ISBN: 0-870-14148-1

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

Publication Date: 1967

Chapter Title: Earnings Coverage

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Chapter URL: http://www.nber.org/chapters/c1505

Chapter pages in book: (p. 58 - 65)

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EARNINGS COVERAGE

Of prime importance in the quality of a corporate bond is the ability of the issuing firm to pay interest charges on the debt out of income produced. Thus, the level, trend, and stability of corporate income in relation to interest and other fixed charges are basic to the assignment of ratings by the rating agencies. In practice, the means of measuring this characteristic has been the so-called earnings coverage, or ratio of earnings to fixed charges. Such a ratio averaged for a period of a few years prior to issue gives an impression of the level of possible income relative to debt charges, though not of trend and stability of earnings.

Hickman found that whereas 17 per cent of all large issues in the period from 1900 to 1943 defaulted at some time before 1944, 35 per cent of those with average earnings of less than the *pro forma* fixed charges in the five years preceding offering went to default. In contrast, only 2 per cent (of the par amount of bond issues) with past earnings equal to three or more times *pro forma* fixed charges went to default.[1]

Hickman's estimates were obtained by dividing the average earnings of the issuing corporation for the five years preceding offering by the fixed charges in the year following offering. Because of inadequate data in the early manuals, all taxes including income taxes were deducted from earnings (i.e., the ratios were after tax). Included as fixed charges were all interest on funded and unfunded debt, rentals and amortization of debt discount, and preferred dividends of subsidiaries.

Moody's *Bond Survey,* the source of the postwar data on public offerings, contains single-year before-tax ratios for years preceding offering based on *pro forma* charges at offering. The denominator usually includes only interest on debt with one year or longer to maturity; but when rents or other fixed charges are larger, two sets of ratios are shown, one for interest only and one for interest and other charges. In this study the latter ratios were used when published. Annual ratios for the five years preceding offering were averaged.

To make the two series comparable, Hickman's data were converted

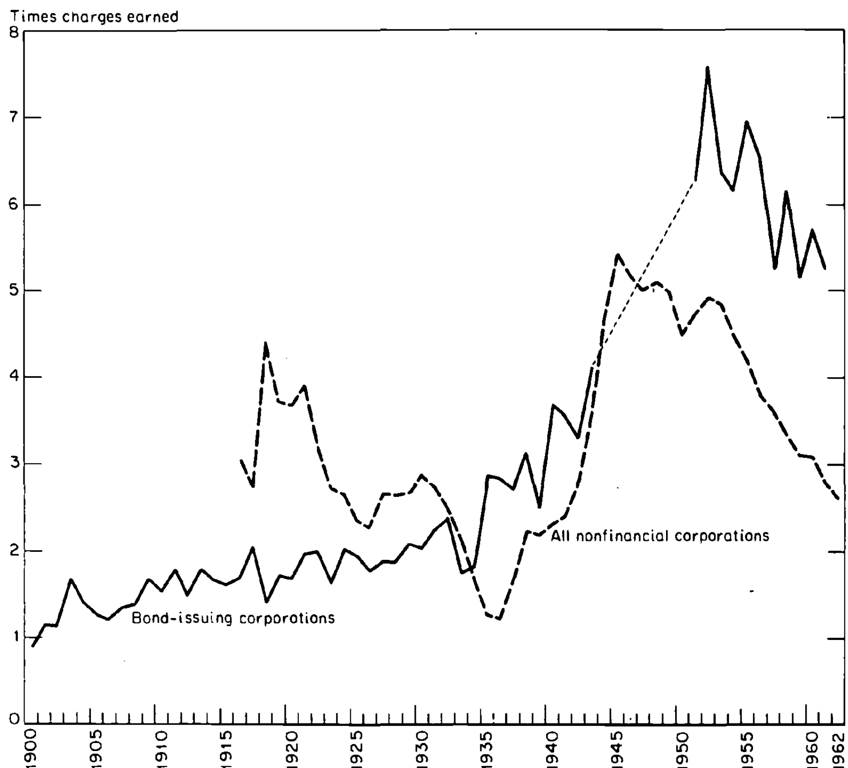
[1] See W. Braddock Hickman, *Corporate Bond Quality and Investor Experience,* Princeton for NBER, 1958, Table 1, p. 10.

to a before-tax basis by a series of factors compiled from *Statistics of Income* data for nonfinancial corporations. The difference between before- and after-tax ratios only becomes visible in 1918.

Inclusion of fixed charges other than interest as a part of the annual expense necessary to be covered by earnings is particularly important in the postwar period, when many companies found it advantageous from a tax viewpoint to lease facilities. In effect, they exchanged an interest charge for a rent charge.

CHART 9

Times Charges Earned Before Taxes, Bond-Issuing Corporations Compared with All U.S. Nonfinancial Corporations, 1900–62



Source: Bond-issuing corporations: Chart 1; all nonfinancial corporations: computed from *Statistics of Income*. For comparison with bond-issuing corporations compiled net income plus interest and rent paid averaged for five years preceding date plotted divided by interest and rent paid in year following date plotted. See Hickman, *Corporate Bond Quality and Investor Experience*, p. 395.

Following the plan of previous chapters, the long-term trend of the times-charges-earned ratio will be analyzed over four-year periods and then for each year to discover the influence of the business cycle. Our source of postwar direct placements did not include fixed-charge coverage, but we were able to combine Cohan's direct placement data for the years 1951–61 with our public offerings data in certain tables and charts. The data in Chart 9, for example, include direct placements for all years shown, but have a gap for the years 1944–50 and 1962–65.

Hickman's data include cash and noncash offerings, whereas the postwar data include only cash offerings. Since in the postwar period the mean ratios would be distorted by extreme values, the charts and

TABLE 23

Median Times-Charges-Earned Ratio Before Taxes, Public Offerings, Four-Year Periods of Offerings, 1900-65

Year	Ratio
1900-03	1.3
1904-07	1.3
1908-11	1.5
1912-15	1.7
1916-19	1.6
1920-23	1.7
1924-27	2.0
1928-31	2.1
1932-35	2.6
1936-39	2.6
1940-43	3.5
1944-47	6.5
1948-51	4.8
1952-55	5.5
1956-59	5.6
1960-63	5.2
1964-65[a]	3.9

Source: 1900-43 (straight offerings): computed from Hickman, *Statistical Measures*, Table 79, p. 125, less special tabulations on direct offerings converted to before-tax basis (see chart 1, note 3); 1944-65 (straight and serial offerings): computed from Table C-1.

[a]The period 1964-65 covers only two years.

TABLE 24

Median Times-Charges-Earned Ratio Before Taxes, Public Offerings, Annually, 1944-65

Year	Ratio	Year	Ratio
1944	5.3	1955	6.3
1945	6.3	1956	6.6
1946	8.1	1957	5.6
1947	5.9	1958	5.7
1948	5.7	1959	4.9
1949	4.5	1960	5.1
1950	4.5	1961	5.3
1951	4.3	1962	5.2
1952	4.9	1963	5.0
1953	5.5	1964	4.1
1954	5.0	1965	3.8

Source: Computed from Table C-1.

all tables on earnings coverage except Table 25 are in terms of medians.

Table 23 shows a practically continuous rise in earnings coverage of public offerings from 1900–03 to 1944–47, then a decline to approximately the level of 1940–43. Chart 9, which presents combined public and direct offerings, suggests that there was a smooth, slightly upward trend from the turn of the century through the early forties. Data are not available for 1944–50, but those for 1951–61 show a slight downward trend. The peak may have occurred in the omitted period or in 1952. For public offerings only (Table 24), the peak occurred in 1946.

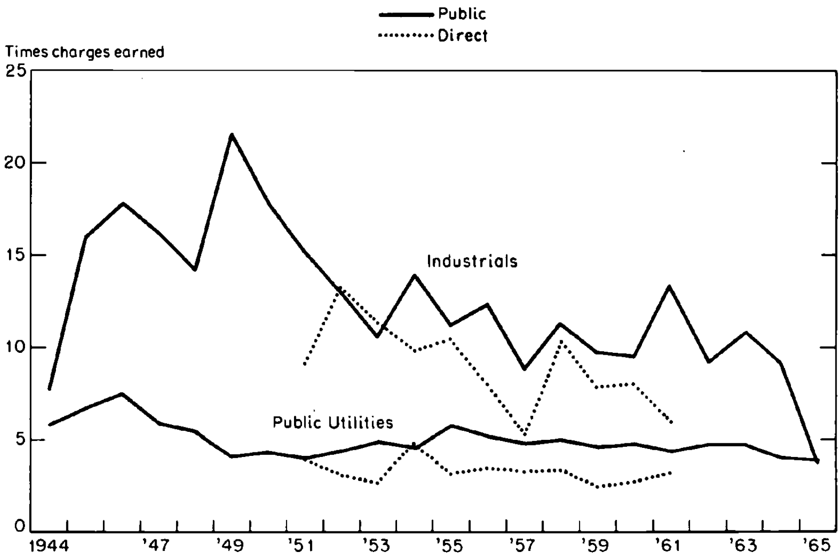
The dip in the earnings coverage ratio for corporations with new offerings in the 1950's agrees with the downward trend in the ratio for all nonfinancial business computed from *Statistics of Income* data and also shown in Chart 9. Since the early 1950's generally, bond-issuing corporations seem to have held their earnings coverage better than all nonfinancial corporations.

Hickman has pointed out that there is a slight tendency for the market to accept bonds of lower quality, as measured by the times-charges-earned ratio, in peak years of the business cycle.[2] Such a

[2] *Ibid.*, p. 409.

CHART 10

Earnings Coverage of Public and Direct Offerings Before Taxes, by Industrial Group, 1944–65



Source: Special tabulations of NBER. Data on direct offerings are from Chart 4.

tendency does not seem to have existed in the postwar period. The times-charges-earned ratio for all publicly offered corporate bonds fell from 1946–48 and from 1958–60. In 1949–53 the ratio fell and then rose; in 1954–57 it rose and then fell.

More significantly, the times-charges-earned ratio showed a broad gradual improvement over the course of the 1920's,[3] notwithstanding the cyclical action noted above. As Hickman pointed out, this was "largely a statistical mirage" caused by changes in the industrial mix. "The all-industries averages of the computed times-charges-earned ratios drifted upward as rail bonds declined in importance in total bond offerings and as more information became available for utilities and industrials." [4] The chart therefore gives no indication of whether or not the 1920's witnessed a general deterioration in quality of bond offerings. It also raises the question of how much comfort can be derived from the improvement in the times-charges-earned ratio in

[3] See Chart 9.
[4] See *ibid.*, p. 390.

case a severe test arises in the form of a major depression. In the postwar period, data were available for the majority of bond offerings, and Chart 10 shows the ratios for public offerings separately for industrial and public utility corporations. (Railroad offerings have been omitted since few were issued in that period.) The trend is downward for both industry groups. This agrees with Chart 8, which shows an increasing trend in the proportion of public offerings rated subinvestment quality.

Direct Placements—The "Slippage" Problem

Most of the data on postwar earnings coverage up to this point have referred solely to public offerings. It may be argued, however, that, with the expansion of direct placements in the postwar period, analysis of any quality measure for public offerings alone may miss a "slippage"

TABLE 25

Percentage Distribution of Public and Direct Offerings by Earnings Coverage Classes, 1900-43

Times-Charges-Earned Classes[a]	Public Offerings	Direct Offerings
Negative	1.6	–
0.0–0.9	10.4	2.1
1.0–1.4	22.3	5.5
1.5–1.9	19.1	12.9
2.0–2.4	12.7	11.8
2.5–2.9	9.9	14.2
3.0–3.9	11.1	19.3
4.0–4.9	5.8	12.5
5.0–5.9	2.6	6.7
6.0 and over	4.4	15.1
Total	99.9	100.1
Median	1.9	3.2

Source: From data compiled by Corporate Bond Research Project, on file at NBER; and Hickman, *Statistical Measures of Corporate Bond Financing*, Table 79, p. 125.

Note: Offerings for which times-charges-earned could not be computed have been omitted from this table.

[a]After taxes.

of bonds of a particular quality category out of the public offering market and into the direct placement field. Obviously, it could be concluded that no quality deterioration of public offerings had taken place, while significant deterioration actually had occurred in the total bond population as a large volume of poor-quality bonds were offered outside of public channels in the form of direct placements. Table 25 compares, for 1900–43, earnings coverage ratios for public offerings and for direct offerings. For that entire period, public offerings were covered approximately twice and direct offerings about three times in terms of earnings over fixed charges. This suggests that the quality of direct placements was better than public offerings in the period prior to this study.

What has happened to earnings coverage of direct placements versus public offerings in the postwar period? From Avery Cohan's sample of direct placements held by selected lending institutions, principally life insurance companies, it is possible to obtain medians of the times-charges-earned ratio. Chart 10 and Table 26 show that in the postwar period direct placements had appreciably lower earnings coverage than public offerings in the same industry groups. The development of direct placements may have provided a slippage of poor-quality bonds into this less easily observed category. It is interesting to note that, for the two postwar groups of years analyzable from Cohan's data, both public and direct placement offerings declined in earnings coverage ratios (except for the publicly placed utilities).

TABLE 26

Comparison of Times Charges Earned Before Taxes for Public Offerings and a Sample of Direct Placements, 1951-61
(medians)

Period of Offerings	Direct Placements[a]		Public Offerings[b]	
	Industrials	Utilities	Industrials	Utilities
1951-55	9.7	3.1	12.0	4.5
1956-61	7.5	2.9	10.9	4.7

[a]Computed in terms of par amount of offerings from data of Avery Cohan.

[b]Computed from Moody's *Bond Survey*.

Earnings coverage is measured by the number of times interest and other fixed charges are covered by the income of the bond-issuing corporation. While this concept is basic to bond analysis and there is a considerable correlation between bond defaults and low earnings coverage ratios, the aggregate measure for all bond-issuing corporations has not been useful in foretelling periods of high defaults. For example, the 1920's saw generally rising earnings coverage for bond-issuing corporations, and the median times-charges-earned continued to rise through World War II and into the early postwar years.

Coverage for the publicly offered bonds which could be analyzed reached a peak in 1946, receded, recovered in 1955–56, and has drifted gently downward since. The level of earnings coverage for bond-issuing corporations still remains close to the prewar highs, and there is no reason to believe the secular drift toward higher earnings coverage has ceased.

For the years available since the mid-thirties, bond-issuing corporations as a group have shown greater earnings coverage than all nonfinancial corporations. These findings suggest that the "quality problem" in corporate indebtedness is largely one of non-bond-issuing smaller corporations. By implication it would also seem to be a problem of banks, since this is the principal source of external business funds not supplied through bond issues. As for the relation of earnings coverage to business cycles, the modest inverse conformity that Hickman found for the prewar period has not reappeared since the war.

The evidence indicates that postwar earnings coverage of direct offerings is poorer than that of public offerings; but when all industry groups are combined, the large proportion of industrials among direct offerings camouflages this fact. This suggests that some poorer-quality bonds were simply disappearing by taking the form of directly placed issues and, as a result, that observation of public offerings alone is misleading. In addition, for the two groups of postwar years for which comparison of earnings coverage for public and direct bonds has been possible, the quality deterioration of direct placements of industrial bonds is relatively greater. Even so, earnings coverage of direct placements in the postwar period is extremely high compared with historical standards.