Corporate Bond
Portfolio
Management

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LEC
To Thomas George Crabbe

FJF
To my wife, Donna,
and my children, Karly, Patricia, and Francesco
About the Authors

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Preface

The purpose of this book is to present the essential elements of corporate bond portfolio management. We develop a framework to assess the key risks in the corporate bond market, such as credit risk, interest rate risk, and redemption risk. Also, along with covering the key features of corporate bonds, we discuss trading, yield curve, and sector strategies.

We have grouped the 18 chapters in this book into four major sections:

Section I: An Introduction to Corporate Bonds
Section II: Corporate Bond Valuation and Price Dynamics
Section III: Corporate Credit Risk
Section IV: Redemption Analysis

The material in those four sections gives portfolio managers the state-of-the-art analytical tools to enhance returns and control risk.

Several of the chapters in this book draw from research Leland Crabbe conducted while at the Federal Reserve Board in Washington D.C. in the early 1990s, next at Merrill Lynch in the mid-1990s, and more recently at Credit Suisse Asset Management. In particular, we would like to acknowledge permission granted by Merrill to use substantial portions of selected published research that he prepared when he was employed as an analyst at that firm. Specifically, the following material, all published and copyrighted by Merrill Lynch, Pierce, Fenner & Smith, was used in this book:


“An Introduction to Spread Curve Strategies” (November 7, 1996). This piece is the basis of Chapter 9.

“A Framework for Corporate Bond Strategy” (September 16, 1994). This piece is the core of Chapter 13.

“Corporate Yield Volatility — Part 1” (December 12, 1994). Portions of this material appear in Chapter 7.

“Corporate Yield Volatility — Part 2” (June 5, 1995). This material was used in the preparation of Chapter 17.

“The Putable Bond Market: Structure, Historical Experience, and Strategies” co-authored with Panos Nikoulis, former Analyst at Merrill Lynch (December 1997). A few sections of this material are used in Chapter 18.
We also wish to acknowledge that parts of Chapters 2 and 15 draw from material coauthored by Richard Wilson and Frank J. Fabozzi that was published in *Corporate Bonds: Structures & Analysis* (Frank J. Fabozzi Associates).

We thank Professor Edward Altman for allowing us to use some tables from his research on corporate bond defaults and recoveries and Standard & Poor's for allowing us to use the transition matrix in Chapter 11.

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Leland E. Crabbe  
Frank J. Fabozzi
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Chapter 1

Introduction

The idea that investors demand higher returns for higher risks is the cornerstone of portfolio management. That idea is also a central tenet of corporate bond portfolio management, and it is a recurring theme in this book. Corporate bonds are exposed to a variety of risks, including interest rate risk, credit risk, liquidity risk, industry risk, cyclical risk, and company-specific event risk. As compensation for these and other risks, investors demand that corporate bond portfolios have higher expected returns than bond portfolios with lower risks.

The purpose of this book is to present the essential elements of corporate bond portfolio management. Before embarking on our analysis of the returns and risks of corporate bonds, we begin with a description of the bonds themselves. An important characteristic of a corporate bond is its credit rating. By convention, corporate bonds are rated investment-grade by the major rating agencies, while bonds rated below investment-grade are considered high-yield or “junk” bonds. In Chapter 2, we describe the key features of a corporate bond indenture, such as the bond’s security, seniority, maturity, and coupon rate.

Modifications to the features of corporate bonds occur occasionally, as a result of tinkering by corporate borrowers and investment bankers. Most of the modifications have short lives, however, and most corporate bonds have standardized features. Nevertheless, the market has permanently adopted a few innovations that are highly desired by both investors and corporate borrowers. For example, as discussed in Chapter 3, medium-term notes and structured notes have greater flexibility than traditional corporate bonds, which makes them more attractive for issuers and investors. Structured notes, which have nontraditional coupon formulas, give investors the opportunity to obtain securities with desirable risk characteristics. Convertible bonds, which give investors the option to convert into common stock, also fill an important role in the financial markets. In Chapter 4, we analyze the features, valuation, and investment characteristics of convertible bonds.

A solid understanding of valuation and interest rate risk measurement is a prerequisite for making informed judgments about bond portfolio risks and returns. For option-free corporate bonds, valuation is fairly straightforward. In Chapter 5, we present the valuation framework, as well as various measures of corporate bond yields and spreads. The yield spread is defined as the difference between the corporate bond yield and the yield on a benchmark security, usually a Treasury bond with the same maturity. In a portfolio context, the portfolio’s yield spread measures the portfolio’s excess yield over a benchmark, such as a corporate bond index or an investment-grade aggregate index.
2 Introduction

One of the first lessons in fixed income is the distinction between a bond’s yield and its return: because markets fluctuate, yields can differ substantially from subsequent returns. The risk that yields will differ from returns is called interest rate risk. In Chapter 6, we review the most important measures of interest rate risk; namely, duration, convexity, yield curve risk, and spread duration. Interest rate risk exists because yields are volatile. By definition, volatility in corporate bond yields can be traced either to volatility in the yield spread or to volatility in the benchmark’s yield. However, as discussed in Chapter 7, the conventional measure of yield volatility is defined in terms of the percentage change in yields, not as the absolute change in yields. As a consequence of that definition, corporate bond yield volatility is not the same as spread volatility, and corporate yields often exhibit less measured volatility than Treasury yields.

Just as the corporate yield consists of the benchmark yield plus the yield spread, the return on a corporate portfolio can likewise be separated into two categories: the return due to the Treasury or benchmark index, plus the excess return above the benchmark. In practice, most corporate bond portfolio managers monitor yield spreads and strive to earn high excess returns, as portfolio decisions about Treasury market yields and expected returns are farmed out to a Treasury portfolio manager.

Returns are difficult to forecast in all markets, including the corporate bond market. The process of estimating the expected excess return begins with the corporate bond yield spread. The realized excess return generally differs from the spread, however, as a consequence of spread volatility. In Chapter 8, we derive some useful formulas that reveal the relation between spreads and excess returns. For example, over a one-year horizon, the excess return is approximately equal to the spread minus the change in the spread times the end-of-period duration. In addition to anticipating the direction of corporate spreads, portfolio managers also evaluate the opportunities along the corporate bond yield curve. In Chapter 9, we present several strategies that allow investors to take a view on the slope of the corporate spread curve, such as box trades.

Understanding the fundamental factors that drive corporate spreads is at the heart of corporate bond portfolio management. At the macro level, the fundamentals of the corporate sector are usually closely linked to the fundamentals of the overall economy. In Chapter 10, we show that corporate spreads have exhibited a reasonably consistent pattern over past economic business cycles, reflecting the strong correlation between the economy and corporate profits. In addition to business cycle strategies, the chapter also discusses strategies for rotating across industry sectors.

Over long investment horizons, a corporate bond portfolio’s excess return will usually be less than the portfolio’s spread. Investors should expect the return to be less than the spread because the spread embodies several components that will subtract from returns. Exhibit 1 illustrates the major components of a portfolio’s yield spread. The first component of the spread is credit risk. As explained in Chapter 11, credit risk is the risk of deterioration in a borrower’s financial or operating condition. The most extreme form of credit risk is default, in which the
borrower fails to make timely payments of interest or principal. For investment-grade corporate bonds, defaults occur infrequently. Nevertheless, as discussed in Chapter 12, credit risk remains the major concern for corporate bond portfolio managers because deteriorating fundamentals expose investors to increased risk of spread widening, along with downgrades of credit ratings. In Chapter 13, we present a framework for measuring expected excess returns based on credit rating transition probabilities. The analysis in that chapter shows that the migration of a portfolio’s credit quality generally results in credit losses. As a consequence of those credit losses, some of the spread in a portfolio slips away, reducing the portfolio’s return.

Seniority is another component of a portfolio’s spread. Corporations frequently issue fixed-income obligations with different priorities in the corporate capital structure, such as bank loans, senior notes, subordinated notes, capital securities, and preferred stock. In the event of bankruptcy, investors who hold senior securities have first claim on the company’s assets, while holders of subordinated securities have a weaker claim. Consequently, subordinated securities should trade with wider spreads to compensate for their risk of greater loss in the event of default. In Chapter 14, we present a method for valuing subordinated securities, with a particular focus on capital securities, which are deeply subordinated.

Exhibit 1: Components of the Corporate Portfolio Yield Spread

<table>
<thead>
<tr>
<th>Excess Return</th>
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<tbody>
<tr>
<td>Trading Costs</td>
</tr>
<tr>
<td>Optionality</td>
</tr>
<tr>
<td>Seniority</td>
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<tr>
<td>Credit Risk</td>
</tr>
</tbody>
</table>
Optionality is a third component of the portfolio spread. As described in Chapter 15, corporate bonds often include embedded put, call, or sinking fund provisions that allow for early redemption before maturity. The value of those redemption options is reflected in the corporate spread. For example, a corporation’s callable bonds will trade at wider spreads than its noncallable bonds at the same maturity because investors demand compensation for the risk of early redemption. As interest rates evolve over time, the value of redemption options will fluctuate, causing significant deviations between the portfolio spread and the subsequent excess return. Chapter 16 presents an analytical framework for valuing embedded options, and Chapter 17 examines how option values are affected by credit risk. In Chapter 18, we turn to the valuation of putable bonds, and we describe how putable bonds can be used in portfolio strategies.

Trading costs are another component of the corporate spread. Because trading is costly, the act of trading can eat into the portfolio spread and reduce the portfolio return. Of course, the goal of active trading is to improve portfolio returns, but that benefit of trading must be weighed against the cost. In Chapter 8, we show that trading costs depend on portfolio turnover, duration, and the bid-ask spread. We also discuss the mechanics of the secondary market, and we explore the factors that cause liquidity to vary over time and across different borrowers.

In summary, corporate bond portfolio management is a process of balancing risks and expected returns. The major risks center around the credit quality of the corporate borrower, the structure of the bonds, and the liquidity in the market. The objective of portfolio managers is not to avoid taking risk, for without risk there is little prospect of earning high returns. Rather, the job of portfolio managers is to determine whether they are being paid adequately to take risk, and to position their portfolios accordingly.
Section I

An Introduction to Corporate Bonds
Chapter 2

Features of Corporate Bonds

In this chapter we describe the features of corporate bonds. Specifically, we look at the provisions contained in bond indentures, secured bonds and unsecured bonds, and interest payments. Another important feature of corporate bonds are provisions that may be available to issuers for allowing them to retire debt before maturity and provisions that may be available to bondholders granting them the right to alter the maturity of an issue. Understanding the nuances of these early redemption features is critical for corporate bond portfolio management. We review these features in the chapter but provide more detailed coverage in Chapter 16.

Bond Indentures

The buyer of a bond in a secondary market transaction becomes a party to the contract even though he or she was not, so to speak, present at its creation. Yet many investors are not too familiar with the terms and features of the obligations they purchase. They know the coupon rate and maturity, but they often are unaware of many of the issue’s other terms, especially those that can affect the value of their investment. In most cases—and as long as the company stays out of trouble—much of this additional information may be unnecessary and thus considered superfluous by some. But this knowledge can become valuable during times of financial distress when the company is involved in merger or takeover activity. It is especially important when interest rates drop because the issue may be vulnerable to premature or unexpected redemption. Knowledge is power, and the informed corporate bond investor has a better chance of avoiding costly mistakes.

While prospectuses may provide most of the needed information, the indenture is the more important document. The indenture sets forth in great detail the promises of the issuer. Here we look at what indentures of corporate debt issues contain. For corporate debt securities to be publicly sold they must (with some permitted exceptions) be issued in conformity with the Trust Indenture Act of 1939. This act requires that debt issues subject to regulation by the Securities and Exchange Commission (SEC) have a trustee. Also, the trustee’s duties and powers must be spelled out in the indenture.

Some corporate debt issues are issued under a blanket or open-ended indenture; for others a new indenture must be written each time a new series of debt is sold. A blanket indenture is often used by electric utility companies and other issuers of general mortgage bonds, but it is also found in unsecured debt.
The initial or basic indenture may have been entered into 30 or more years ago, but as each new series of debt is created, a supplemental indenture is written. For instance, the original indenture for Baltimore Gas and Electric Company is dated February 1, 1919, but it has been supplemented and amended many times since then due to new financings.

Another example of an open-ended industrial debenture issue is found in the Eastman Kodak Company debt prospectus dated March 23, 1988 and supplemented October 21, 1988, which says that “the Indenture does not limit the aggregate principal amount of debentures, notes or other evidences of indebtedness (‘Debt Securities’) which may be issued thereunder and provides that Debt Securities may be issued from time to time in one or more series.”

While the promises of the issuer and the rights of the bondholders are set forth in great detail in the bond’s indenture, bondholders would have great difficulty in determining from time to time whether the issuer was keeping all the promises made in the indenture. This problem is resolved for the most part by bringing in a trustee as a third party to the contract. The indenture is made out to the trustee as a representative of the interests of the bondholders; that is, a trustee acts in a fiduciary capacity for bondholders.

Covenants

As part of the indenture there are certain limitations and restrictions on the borrower’s activities. These provisions are called covenants. Some covenants are common to all indentures, such as (1) to pay interest, principal, and premium, if any, on a timely basis; (2) to maintain an office or agency where the securities may be transferred or exchanged and where notices may be served upon the company with respect to the securities and the indenture; (3) to pay all taxes and other claims when due unless contested in good faith; (4) to maintain all properties used and useful in the borrower’s business in good condition and working order; (5) to maintain adequate insurance on its properties (some indentures may not have insurance provisions since proper insurance is routine business practice); (6) to submit periodic certificates to the trustee stating whether the debtor is in compliance with the loan agreement; and (7) to maintain its corporate existence. These are often called affirmative covenants since they call upon the debtor to make promises to do certain things.

Negative covenants are those that require the borrower not to take certain actions. These are usually negotiated between the borrower and the lender or their agents. Setting the right balance between the two parties can be a rather difficult undertaking at times. In public debt transactions, the investing institutions normally leave the negotiating to the investment bankers, although they will often be asked their opinion on certain terms and features. Unfortunately, most public bond buyers are unaware of these covenants at the time of purchase and may never learn of them throughout the life of the debt. Borrowers want the least restrictive loan agreement available, while lenders should want the most restrictive, consistent with sound business practices. But lenders should not try to
restrain borrowers from accepted business activities and conduct. A company
might be willing to include additional restrictions (up to a point) if it can get a
lower interest rate on the loan. When companies seek to weaken restrictions in
their favor, they are often willing to pay more interest or give other considera-

There is an infinite variety of restrictive covenants that can be placed on
borrowers, depending on the type of debt issue, the economics of the industry and
the nature of the business, and the lenders’ desires. Some of the more common
restrictive covenants include various limitations on the company’s ability to incur
debt, since unrestricted borrowing can lead a company and its debtholders to ruin.
Thus, debt restrictions may include limits on the absolute dollar amount of debt
that may be outstanding or may require a ratio test—for example, debt may be
limited to no more than 60% of total capitalization or that it cannot exceed a cer-
tain percentage of net tangible assets. An example is Jim Walter Corporation’s
indenture for its 9½% Debentures due April 1, 2016. This indenture restricts
senior indebtedness to no more than the sum of 80% of net installment notes
receivable and 50% of the adjusted consolidated net tangible assets. The inden-
ture for The May Department Stores Company 7.95% Debentures due 2002 pro-
hibits the company from issuing senior-funded debt unless consolidated net
tangible assets are at least 200% of such debt. More recent May Company inden-
tures have dropped this provision.

There may be an interest or fixed-charge coverage test, of which there are
two types. One, a maintenance test, requires the borrower’s ratio of earnings avail-
able for interest or fixed charges to be at least a certain minimum figure on each
required reporting date (such as quarterly or annually) for a certain preceding
period. The other type, a debt incurrence test, only comes into play when the com-
pany wishes to do additional borrowing. In order to take on additional debt, the
required interest or fixed-charge coverage figure adjusted for the new debt must be
at a certain minimum level for the required period prior to the financing. Incurrence
tests are generally considered less stringent than maintenance provisions.
There could also be cash flow tests or requirements and working capital mainte-
nance provisions. The prospectus for Federated Department Stores, Inc.’s deben-
tures dated November 4, 1988, has a large section devoted to debt limitations. One
of the provisions allows net new debt issuance if the consolidated coverage ratio of
earnings before interest, taxes, and depreciation to interest expense (all as defined)
is at least 1.35 to 1 through November 1, 1989, 1.45 to 1 through November 1,
1990, 1.50 to 1 through November 1, 1991, and at least 1.60 to 1 thereafter.

Some indentures may prohibit subsidiaries from borrowing from all other
companies except the parent. Indentures often classify subsidiaries as restricted
or unrestricted. Restricted subsidiaries are those considered to be consolidated for
financial test purposes; unrestricted subsidiaries (often foreign and certain spe-
cial-purpose companies) are those excluded from the covenants governing the
parent. Often, subsidiaries are classified as unrestricted in order to allow them to
finance themselves through outside sources of funds.
Limitations on dividend payments and stock repurchases may be included in indentures. Often, cash dividend payments will be limited to a certain percentage of net income earned after a specific date (often the issuance date of the debt and called the “peg date”) plus a fixed amount. Sometimes the dividend formula might allow the inclusion of the net proceeds from the sale of common stock sold after the peg date. In other cases, the dividend restriction might be so worded as to prohibit the declaration and payment of cash dividends if tangible net worth (or other measures, such as consolidated quick assets) declines below a certain amount. There are usually no restrictions on the payment of stock dividends. In addition to dividend restrictions, there are often restrictions on a company’s repurchase of its common stock if such purchase might cause a violation or deficiency in the dividend determination formulae. Some holding company indentures might limit the right of the company to pay dividends in the common stock of its subsidiaries.

A covenant may place restrictions on the disposition and the sale and lease-back of certain property. In some cases, the proceeds of asset sales totaling more than a certain amount must be used to repay debt. This is seldom found in indentures for unsecured debt, but at times some investors may have wished they had such a protective clause. At other times, a provision of this type might allow a company to retire high coupon debt in a lower interest rate environment, thus causing bondholders a loss of value. It might be better to have such a provision where the company would have the right to reinvest the proceeds of asset sales in new plant and equipment rather than retiring debt, or to at least give the debtholder the option of tendering bonds. Some indentures restrict the investments that a corporation may make in other companies, through either the purchase of stock or loans and advances.

Finally, there may be an absence of restrictive covenants. The shelf registration prospectus of TransAmerica Finance Corporation dated March 30, 1994, forthrightly says:

The indentures do not contain any provision which will restrict the Company in any way from paying dividends or making other distribution on its capital stock or purchasing or redeeming any of its capital stock, or from incurring, assuming or becoming liable upon Senior Indebtedness or Subordinated Indebtedness or any other type of debt or other obligations. The indentures do not contain any financial ratios or specified levels of net worth or liquidity to which the Company must adhere. In addition, the Subordinated Indenture does not restrict the Company from creating liens on its property for any purpose. In addition, the Indentures do not contain any provisions which would require the Company to repurchase or redeem or otherwise modify the terms of any of its Debt Securities upon a change of control or other events involving the Company which may adversely effect the creditworthiness of the Debt Securities.
SECURED AND UNSECURED BONDS

A corporation can issue either secured bonds or unsecured bonds. We discuss each type as follows.

Secured Bonds

By a secured bond it is meant that there is some form of collateral that is pledged to ensure repayment of the issuer’s obligation. The various types of secured bonds are described as follows.

Utility Mortgage Bonds

Debt secured by real property such as plant and equipment is called mortgage debt. The largest issuers of mortgage debt are the electric utility companies. Other utilities, such as telephone companies and gas pipeline and distribution firms, have also used mortgage debt as sources of capital but generally to a lesser extent than electrics.

Most electric utility bond indentures do not limit the total amount of bonds that may be issued. This is called an open-ended mortgage. The mortgage generally is a first lien on the company’s real estate, fixed property, and franchises, subject to certain exceptions or permitted encumbrances owned at the time of the execution of the indenture or its supplement. The after-acquired property clause also subjects to the mortgage property acquired by the company after the filing of the original or supplemental indenture.

Property that is excepted from the lien of the mortgage may include nuclear fuel (it is often financed separately through other secured loans); cash, securities, and other similar items and current assets; automobiles, trucks, tractors, and other vehicles; inventories and fuel supplies; office furniture and leaseholds; property and merchandise held for resale in the normal course of business; receivables, contracts, leases, and operating agreements; and timber, minerals, mineral rights, and royalties. Permitted encumbrances might include liens for taxes and governmental assessments, judgments, easements and leases, certain prior liens, minor defects, irregularities and deficiencies in titles of properties, and rights-of-way that do not materially impair the use of the property.

To provide for proper maintenance of the property and replacement of worn-out plant, maintenance fund, maintenance and replacement fund, or renewal and replacement fund provisions are placed in indentures. These clauses stipulate that the issuer spend a certain amount of money for these purposes, usually as a percentage of operating revenues or based on a percentage of the depreciable property or amount of bonds outstanding. These requirements usually can be satisfied by certifying that the specified amount of expenditures has been made for maintenance and repairs to the property or by gross property additions. They can also be satisfied by depositing cash or outstanding mortgage bonds with the trustee; the deposited cash can be used for property additions, repairs, and maintenance or in some cases—to the concern of holders of high-coupon debt—the redemption of bonds.
Another provision for bondholder security is the *release and substitution of property clause*. If the company releases property from the mortgage lien (such as through a sale of a plant or other property that may have become obsolete or no longer necessary for use in the business, or through the state’s power of eminent domain), it must substitute other property or cash and securities to be held by the trustee, usually in an amount equal to the released property’s fair value. It may use the proceeds or cash held by the trustee to retire outstanding bonded debt. Certainly, a bondholder would not let go of the mortgaged property without substitution of satisfactory new collateral or adjustment in the amount of the debt because the bondholder should want to maintain the value of the security behind the bond. In some cases the company may waive the right to issue additional bonds.

Although the typical electric utility mortgage does not limit the total amount of bonds that may be issued, certain issuance tests or bases usually have to be satisfied before the company can sell more bonds. New bonds are often restricted to no more than 60% to 66% of the value of net bondable property. This generally is the lower of the fair value or cost of property additions, after adjustments and deductions for property that had previously been used for the authentication and issuance of previous bond issues, retirements of bondable property or the release of property, and any outstanding prior liens. Bonds may also be issued in exchange or substitution for outstanding bonds, previously retired bonds, and bonds otherwise acquired. Bonds may also be issued in an amount equal to the amount of cash deposited with the trustee.

A further earnings test found often in utility indentures requires interest charges to be covered by pretax income available for interest charges of at least two times. The Connecticut Light and Power Company prospectus for its 6¹⁄₈% First and Refunding Mortgage Bonds, Series B due February 1, 2004, states:

> . . . the Company may not issue additional bonds under the B Provisions unless its net earnings, as defined and as computed without deducting income taxes, for 12 consecutive calendar months during the period of 15 consecutive calendar months immediately preceding the first day of the month in which the application to the Trustee for authentication of additional bonds is made were at least twice the annual interest charges on all the Company’s outstanding bonds, including the proposed additional bonds, and any outstanding prior lien obligations.

Mortgage bonds go by many different names. The most common of the senior lien issues are *first mortgage bonds*. Other names used are *first refunding mortgage bonds, first and refunding mortgage bonds*, and *first and general mortgage bonds*.

There are instances (excluding prior lien bonds as mentioned previously) when a company might have two or more layers of mortgage debt outstanding
with different priorities. This situation usually occurs because the company cannot issue additional first mortgage debt (or the equivalent) under the existing indentures. Often this secondary debt level is called general and refunding mortgage bonds (G&R). In reality, this is mostly second mortgage debt.

As stated earlier, electric companies utilize mortgage debt more than other utilities. However, other utilities, such as telephone and gas companies, also have mortgage debt. Gas pipeline companies also use mortgage debt. Here, again, the issuance tests are similar to those for the electric issues, as are the mortgage liens. However, the pipeline companies may have an additional clause subjecting certain gas purchase and sale contracts to the mortgage lien.

**Other Mortgage Bonds**

Nonutility companies do not offer much mortgage debt nowadays; the preferred form of debt financing is unsecured. In the past, railroad operating companies were frequent issuers of mortgage debt. In many cases, a wide variety of secured debt might be found in a company’s capitalization. One issue may have a first lien on a certain portion of the right of way and a second mortgage on another portion of the trackage, as well as a lien on the railroad’s equipment, subject to the prior lien of existing equipment obligations. Certain railroad properties are not subject to such a lien. Railroad mortgages are often much more complex and confusing to bond investors than other types of mortgage debt.

In the broad classification of industrial companies, only a few have first mortgage bonds outstanding. While electric utility mortgage bonds generally have a lien on practically all of the company’s property, industrial companies that issue mortgage debt have more limited liens. Mortgages may also contain maintenance and repair provisions, earnings tests for the issuance of additional debt, release and substitution of property clauses, and limited after-acquired property provisions. In some cases, shares of subsidiaries might also be pledged as part of the lien.

Some mortgage bonds are secured by a lien on a specific property rather than on most of a company’s property, as in the case of an electric utility. For example, Humana Inc. sold a number of small issues of first mortgage bonds secured by liens on specific hospital properties. Although technically mortgage bonds, the basic security is centered on Humana’s continued profitable operations. Because the security is specific rather than general, investors are apt to view these bonds as less worthy or of a somewhat lower ranking than fully secured or general lien issues. As the prospectuses say, the bonds are general obligations of Humana Inc. and also secured by the first mortgage.

**Other Secured Bonds**

Corporate bonds can be secured by many different assets. For example, an issue can be secured by a first priority lien on substantially all of the issuer’s real property, machinery, and equipment, and by a second priority lien on its inventory, accounts receivables, and intangibles.
Collateral trust debentures, bonds, and notes are secured by financial assets such as cash, receivables, other notes, debentures or bonds, and not by real property. Collateral trust notes and debentures have been issued by companies engaged in vehicle leasing, such as RLC Corporation, Leaseway Transportation Corporation, and Ryder System, Inc. The proceeds from these offerings were advanced to various subsidiaries in exchange for their unsecured promissory notes, which, in turn, were pledged with the trustees as security for the parent company debt. These pledged notes may later become secured by liens or other claims on vehicles. Protective covenants for these collateralized issues may include limitations on the equipment debt of subsidiaries, on the consolidated debt of the issuer and its subsidiaries, on dividend payments by the issuer and the subsidiaries, and on the creation of liens and purchase money mortgages, among other things.

The eligible collateral is held by a trustee and periodically marked to market to ensure that the market value has a liquidation value in excess of the amount needed to repay the entire outstanding bonds and accrued interest. If the collateral is insufficient, the issuer must, within several days, bring the value of the collateral up to the required amount. If the issuer is unable to do so, the trustee would then sell collateral and redeem bonds. Another collateralized structure allows for the defeasance or “mandatory collateral substitution,” which provides the bondholder assurance that the same interest payments will be received until maturity. Instead of redeeming the bonds with the proceeds of the collateral sale, the proceeds are used to purchase a portfolio of U.S. government securities in such an amount that the cash flow is sufficient to meet the principal and interest payments on the mortgage-backed bond. Because of the structure of these issues, the rating agencies have assigned triple-A ratings to them. The rating is based on the strength of the collateral and the issues’ structure, not on the issuers’ credit standing.

**Equipment Trust Financing: Railroads**

Railroads and airlines have financed much of their rolling stock and aircraft with secured debt. The securities go by various names such as equipment trust certificates (ETCs) in the case of railroads, and secured equipment certificates, guaranteed loan certificates, and loan certificates in the case of airlines. We look at railroad equipment trust financing first for two reasons: (1) the financing of railway equipment under the format in general public use today goes back to the late nineteenth century and (2) it has had a superb record of safety of principal and timely payment of interest, more traditionally known as dividends. Railroads probably constitute the largest and oldest group of issuers of secured equipment financing.

Probably the earliest instance in U.S. financial history in which a company bought equipment under a conditional sales agreement (CSA) was in 1845 when the Schuylkill Navigation Company purchased some barges. Over the years secured equipment financing proved to be an attractive way for railroads—both good and bad credits—to raise the capital necessary to finance rolling stock. Various types of instruments were devised—equipment bonds (known as the New York
Plan), conditional sales agreements (also known as the New York CSA), lease arrangements, and the Philadelphia Plan equipment trust certificate. The New York Plan equipment bond has not been used since the 1930s. The Philadelphia Plan ETC is the form used for most, if not all, public financings in today’s market.

The ratings for ETCs are higher than on the same company’s mortgage debt or other public debt securities. This is due primarily to the collateral value of the equipment, its superior standing in bankruptcy compared with other claims, and the instrument’s generally self-liquidating nature. The railroad’s actual credit worthiness may mean less for some equipment trust investors than for investors in other rail securities or, for that matter, other corporate paper. However, that is not to say that financial analysis of the issuer should be ignored.

Equipment trust certificates are issued under agreement that provides a trust for the benefit of the investors. Each certificate represents an interest in the trust equal to its principal amount and bears the railroad’s unconditional guarantee of prompt payment, when due, of the principal and dividends (the term dividends is used because the payments represent income from a trust and not interest on a loan). The trustee holds the title to the equipment, which, when the certificates are retired, passes to, or vests in, the railroad. But the railroad has all other ownership rights. It can take the depreciation and can utilize any tax benefits on the subject equipment. The railroad agrees to pay the trustee sufficient rental for the principal payments and the dividends due on the certificates, together with expenses of the trust and certain other charges. The railroad uses the equipment in its normal operations and is required to maintain it in good operating order and repair (at its own expense). If the equipment is destroyed, lost, or becomes worn out or unsuitable for use (i.e., suffers a “casualty occurrence”), the company must substitute the fair market value of that equipment in the form of either cash or additional equipment. Cash may be used to acquire additional equipment unless the agreement states otherwise. The trust equipment is usually clearly marked that it is not the railroad’s property.

Immediately after the issuance of an ETC, the railroad has an equity interest in the equipment that provides a margin of safety for the investor. Normally, the ETC investor finances no more than 80% of the cost of the equipment and the railroad the remaining 20%. Although modern equipment is longer-lived than that of many years ago, while there are exceptions, the ETC’s length of maturity is still generally the standard 15 years.

The structure of the financing usually provides for periodic retirement of the outstanding certificates. The most common form of ETC is the serial variety. It is usually issued in 15 equal maturities, each one coming due annually in years 1 through 15.

The standing of railroad or common carrier equipment trust certificates in bankruptcy is of vital importance to the investor. Because the equipment is needed for operations, the bankrupt railroad’s management will more than likely reaffirm the lease of the equipment because, without rolling stock, it is out of business. Cases of disaffirmation of equipment obligations are rare indeed. But if
equipment debt were to be disaffirmed, the trustee could repossess and then try to release or sell the equipment to others. Any deficiency due the equipment debt-holders would still be an unsecured claim against the bankrupt railway company. Standard gauge, non-specialized equipment should not be difficult to release to another railroad.

The Bankruptcy Reform Act of 1978 provides specifically that railroads be reorganized, not liquidated, and subchapter IV of Chapter 11 grants them special treatment and protection. One important feature found in Section 77(j) of the preceding Bankruptcy Act was carried over to the new law. Section 1168 states that Section 362 (the automatic stay provision) and Section 363 (the use, sale, or lease of property section) are not applicable in railroad bankruptcies. It protects the rights of the equipment lenders while giving the trustee the chance to cure any defaults. Railroad bankruptcies usually do not occur overnight but creep up gradually as the result of steady deterioration over the years. New equipment financing capability becomes restrained. The outstanding equipment debt at the time of bankruptcy often is not substantial and usually has a good equity cushion built in. Equipment debt of noncommon carriers such as private car leasing lines does not enjoy this special protection under the Bankruptcy Act.

During the twentieth century, losses have been rare and delayed payments of dividends and principal only slightly less so.

**Airline Equipment Debt**

Airline equipment debt has some of the special status that is held by railroad equipment trust certificates. Of course, it is much more recent, having developed since the end of World War II. Many airlines have had to resort to secured equipment financing, especially since the early 1970s. Like railroad equipment obligations, certain equipment debt of certified airlines, under Section 1110 of the Bankruptcy Reform Act of 1978, is not subject to Sections 362 and 363 of the Act, namely the automatic stay and the power of the court to prohibit the repossession of the equipment. The creditor must be a lessor, a conditional vendor, or hold a purchase money security interest with respect to the aircraft and related equipment. The secured equipment must be new, not used. Of course, it gives the airline 60 days in which to decide to cancel the lease or debt and to return the equipment to the trustee. If the reorganization trustee decides to reaffirm the lease in order to continue using the equipment, it must perform or assume the debtor’s obligations, which become due or payable after that date, and cure all existing defaults other than those resulting solely from the financial condition, bankruptcy, insolvency, or reorganization of the airline. Payments resume including those that were due during the delayed period. Thus, the creditor will get either the payments due according to the terms of the contract or the equipment.

The equipment is an important factor. If the airplanes are of recent vintage, well maintained, fuel efficient, and relatively economical to operate, it is more likely that a company in distress and seeking to reorganize would assume the equipment...
lease. On the other hand, if the outlook for reorganization appears dim from the outset and the airplanes are older and less economical, the airline could very well disaffirm the lease. In this case, releasing the aircraft or selling it at rents and prices sufficient to continue the original payments and terms to the security holders might be difficult. Of course, the resale market for aircraft is on a plane-by-plane basis and highly subject to supply and demand factors. Multimillion-dollar airplanes have a somewhat more limited market than do boxcars and hopper cars worth only $30,000.

In the event of a loss or destruction of the equipment, the company may substitute similar equipment of equal value and in as good operating condition and repair and as airworthy as that which was lost or destroyed. It also has the option to redeem the outstanding certificates with the insurance proceeds.

An important point to consider is the equity owner. If the airline runs into financial difficulty and fails to make the required payments, the owner may step in and make the rental payment in order to protect its investment. The carrier’s failure to make a basic rental payment within the stipulated grace period is an act of default but is cured if the owner makes payment. Thus, a strong owner lends support to the financing, and a weak one little.

Do not be misled by the title of the issue just because the words secured or equipment trust appear. Investors should look at the collateral and its estimated value based on the studies of recognized appraisers compared with the amount of equipment debt outstanding. Is the equipment new or used? Do the creditors benefit from Section 1110 of the Bankruptcy Reform Act? As the equipment is a depreciable item and subject to wear, tear, and obsolescence, a sinking fund starting within several years of the initial offering date should be provided if the debt is not issued in serial form. Of course, the ownership of the aircraft is important as just noted. Obviously, one must review the obligor’s financial statements because the investor’s first line of defense depends on the airline’s ability to service the lease rental payments.

Enhanced Equipment Trust Certificates (EETCs) also draw on the strength of Section 1100, as well as credit enhancements to reduce risk to investors. EETCs combine features of corporate bonds and asset-backed securities. Like corporate bonds and ETCs, the credit risk of EETCs is linked to the corporate borrower, namely, the airline. Like asset-backed securities, EETCs are issued in several tranches with different credit ratings and substantial overcollateralization. As a result of those structural enhancements, EETCs afford investors with a cushion of protection and liquidity support, which also results in tighter yield spreads and higher credit ratings than unsecured debt of the same airline.

**Unsecured Bonds**

We have discussed many of the features common to secured debt. Take away the collateral and we have unsecured debt. Unsecured debt, like secured debt, comes in several different layers or levels of claim against the corporation’s assets. But in the case of unsecured debt, the nomenclature attached to the debt issues sounds less substantial. For example, “general and refunding mortgage bonds” may
sound more important than “subordinated debentures,” even though both are basically second claims on the corporate body.

Subordination of the debt instrument might not be apparent from the issue’s name. This is often the case with bank and bank-related securities. Chase Manhattan Bank (National Association) had issues with the term “Capital Notes.” It did not sound like a subordinated debt instrument to most inexperienced investors unfamiliar with the jargon of the debt world. Yet capital notes are junior securities. We analyze subordination in greater detail in Chapter 14.

Some debt issuers have other companies guarantee their loans. This is normally done when a subsidiary issues debt and the investors want the added protection of a third-party guarantee. The use of guarantees makes it easier and more convenient to finance special projects and affiliates, although guarantees are extended to operating company debt. There are also other types of third-party credit enhancements. Some captive finance subsidiaries of industrial companies enter into agreements requiring them to maintain fixed charge coverage at such a level so that the securities meet the eligibility standards for investment by insurance companies under New York State law. The required coverage levels are maintained by adjusting the prices at which the finance company buys its receivables from the parent company or through special payments from the parent company. These supplemental income maintenance agreements, while usually not part of indentures, are important considerations for bond buyers.

Another credit enhancing feature is the letter of credit (LOC) issued by a bank. An LOC requires the bank to make payments to the trustee when requested so that monies will be available for the bond issuer to meet its interest and principal payments when due. Thus the credit of the bank under the LOC is substituted for that of the debt issuer. Insurance companies also lend their credit standing to corporate debt, both new issues and outstanding secondary market issues.

While a guarantee or other type of credit enhancement may add some measure of protection to a bondholder, caution should not be thrown to the wind. In effect, one’s job may even become more complex because an analysis of both the issuer and the guarantor should be performed. In many cases, only the latter is needed if the issuer is merely a financing conduit without any operations of its own. However, if both concerns are operating companies, it may very well be necessary to analyze both because the timely payment of principal and interest ultimately will depend on the stronger party. A downgrade of the enhancer’s claims-paying ability reduces the value of the bonds.

**Negative Pledge Clause**

One of the important protective provisions for unsecured debtholders is the *negative pledge clause*. This provision, found in most senior unsecured debt issues and a few subordinated issues, prohibits a company from creating or assuming any lien to secure a debt issue without equally securing the subject debt issue(s) (with certain exceptions). Designed to prevent other creditors from obtaining a senior