FRM Markets & Products
Fabozzi, Chapter 12: Corporate Bonds
(This was chapter 13 in 2012)

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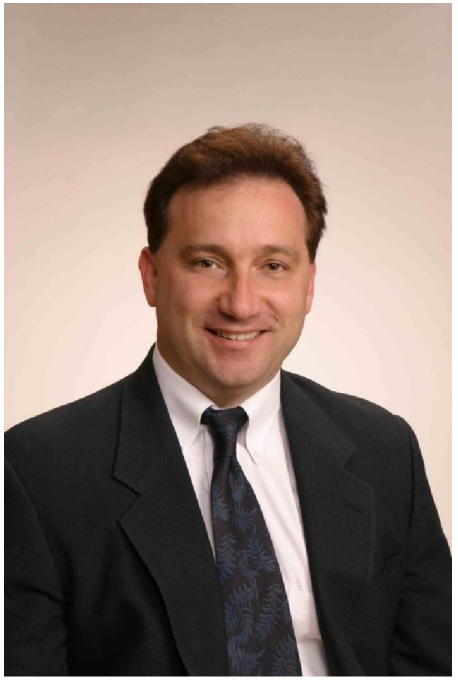

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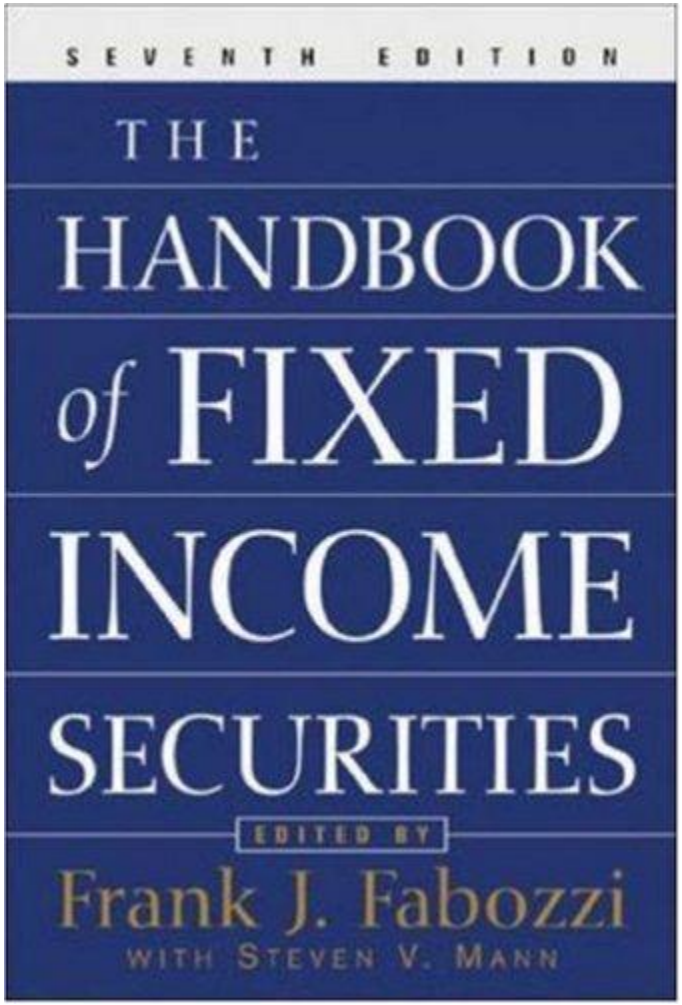


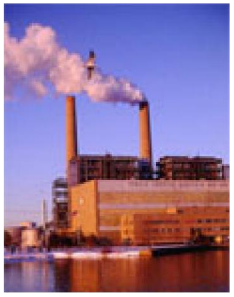
Fabozzi, Chapter 13: Corporate Bonds

Describe a bond indenture and explain the role of the corporate trustee.

- **Bond indenture**
  - Contract contains corporate bond issuer promises and investors' rights
  - Made out to corporate trustee, who represents bondholders' interests
- **Corporate trustee**
  - Third party to the contract. Acts in **fiduciary capacity** for investors
  - Is a bank or trust company with a corporate trust department and officers who are experts in performing trustee functions
  - Authenticate the bonds issued
  - Watchdog for the bondholders: ensures that issuer complies with all the covenants of the indenture.
    - These covenants are many and technical, and they must be watched during the entire period that a bond issue is outstanding.

Corporate bonds

- The five broad categories of corporate bonds sold in the United States based on the type of issuer are
  - Public utilities,
  - Transportations,
  - Industrials,
  - Banks and finance companies; and
  - International or Yankee issues.





Explain a bond's maturity date and how it impacts bond retirements.

- Bond's maturity: date on which the issuer's obligation to satisfy the terms of the indenture is fulfilled.
  - Principal is repaid with any premium and accrued interest that may be due.
  - However, many issues can be retired prior to maturity.

Describe the main types of interest payment classifications.

- The three main interest payment classifications of domestically issued corporate bonds are
  - Straight-coupon bonds,
  - Zero-coupon bonds, and
  - Floating-rate, or variable-rate, bonds.

Describe zero-coupon bonds.

- Zero-coupon bonds: bonds without coupons or an interest rate. Zero-coupon bonds pay only the principal portion at some future date.
- Zero-coupon bonds are issued at discounts to par; the difference is the return to the bondholder.
  - The difference between the face amount and the offering price when first issued is called the original-issue discount (OID).
  - The rate of return depends on the amount of the discount and the period over which it accretes

Describe the relationship between original-issue-discount and reinvestment risk.

- Zero coupon bond
  - Eliminates reinvestment risk because there is no coupon to reinvest
  - Beneficial in declining-interest-rate markets, but not when interest rates are rising.
- Investors tend to find zeros less attractive in lower-interest-rate markets
  - Compounding is not as meaningful as when rates are higher.
  - Also, lower the rates are, the more likely it is that they will rise again, making a zero-coupon investment worth less in the eyes of potential holders.

Describe the treatment of zeroes in bankruptcy.

- In bankruptcy, zero-coupon bond creditor claim **original offering price plus accrued and unpaid interest**
  - but not the principal amount of $1,000.
- Zero-coupon bonds are sold at (deep) discounts: liability of the issuer at maturity may be substantial.
  - There are no sinking funds on most of these issues.
- The potentially large balloon repayment creates a cause for concern among investors. Thus it is most important to invest in higher-quality issues so as

Describe the various security types relevant for corporate bonds, including mortgage bonds.

Corporate bonds

- Mortgage bond
- Collateral Trust Bonds
- Equipment Trust Certificates
- Debenture Bonds
- Subordinated and Convertible Debentures
- Guaranteed Bonds

… mortgage bonds.

- A mortgage bond **grants bondholders a first-mortgage lien on substantially all its properties**.
  - Issuer is able to borrow at a lower interest rate than unsecured debt
- A lien is a legal right to sell mortgaged property to satisfy unpaid obligations to bondholders.
  - Foreclosure and sale of mortgaged property are **not typical**. In default, typically a financial reorganization; provisions made for settlement of the debt to bondholders
  - But mortgage lien gives bondholders **a very strong bargaining position** relative to other creditors in determining the terms of a reorganization.

… collateral trust bonds.

- When companies cannot pledge fixed assets or other real property, instead they **pledge securities of other companies**
  - To satisfy the desire of bondholders for security, they pledge stocks, notes, bonds, or whatever other kinds of obligations they own
    - If they are holding companies, the other companies may be their subsidiaries.
  - These assets are termed collateral (or personal property), and bonds secured by such assets are collateral trust bonds.

… equipment trust certificates.

- Although railroads have issued the largest amount of equipment trust certificates, airlines also have used this form of financing. The legal arrangement is one that vests legal title to railway equipment in a trustee, which is better from the standpoint of investors than a first-mortgage lien on property. A railway company orders some cars and locomotives from a manufacturer. When the job is finished, the manufacturer transfers the legal title to the equipment to a trustee. The trustee leases it to the railroad that ordered it and at the same time sells equipment trust certificates (ETCs) in an amount equal to a large percentage of the purchase price, normally 80%. Money from sale of certificates is paid to the manufacturer.

.. including debenture bonds (including subordinated and convertible debentures).

- Unsecured bonds are called debentures.
  - With the exception of the utilities and structured products, nearly all other corporate bonds issued are unsecured
  - Debenture bondholders **do have the claim of general creditors** on all assets of the issuer not pledged specifically to secure other debt

.. including debenture bonds (including subordinated and convertible debentures).

- Subordinated debenture bonds: issue ranks after secured debt, after debenture bonds, and often after some general creditors in its claim on assets and earnings. Owners of this bond "stand last in line".
- Because subordinated debentures are weaker in their claim on assets, issuers must offer a higher rate of interest…
- … unless they also offer some special inducement to buy the bonds.
  - The inducement can be an **option to convert bonds** into stock of the issuer at the discretion of bondholders.
  - This conversion privilege also may be included in the provisions of debentures that are not subordinated.
  - The bonds may be convertible into the common stock of a corporation other than that of the issuer. Such issues are called **exchangeable bonds**. There are also issues indexed to a commodity's price or its cash equivalent at the time of maturity or redemption.

… including guaranteed bonds.

- Guaranteed bonds: a corporation may guarantee the bonds of another corporation.
  - The guarantee, however, does not mean that these obligations are free of default risk.
  - The safety of a guaranteed bond depends on the financial capability of the guarantor to satisfy the terms of the guarantee, as well as the financial capability of the issuer.
  - The terms of the guarantee may call for the guarantor to guarantee the payment of interest and/or principal repayment

Describe the mechanisms by which corporate bonds can be retired before maturity, including call provisions.

Retiring bonds before maturity

- Call and refunding provisions
  - Fixed-price call provision
  - Make-whole call provision
- Sinking-fund provision
- Maintenance and replacement funds
- Redemption through sale of assets
- Tender offers

… including call provisions

- Call provision
  - Fixed price
    - Bond issuer has the option to buy back some or all of the bond issue prior to maturity at a fixed price ("call price").
    - Call prices generally start at a substantial premium over par and decline toward par over time; in the final years of a bond's life, the call price is usually par
  - Make-whole
    - Call price is calculated as the present value of the bond's remaining cash flows subject to a floor price equal to par value. The discount rate used to determine the present value is the yield on a comparable-maturity

… including call provisions

- Call provision: Corporate bonds that contains an **embedded option** that gives the issuer the right to buy the bonds back at a fixed price prior to maturity
  - Either in whole or in part prior to maturity.
- The ability to retire debt before its scheduled maturity date is a valuable option for which bondholders will demand compensation ex-ante.
- Ceteris paribus, bondholders will pay a lower price for a callable bond than an otherwise identical option-free (i.e., straight) bond.
  - The difference between the price of an option-free bond and the callable bond is the value of the embedded call option

Describe the mechanisms by which corporate bonds can be retired before maturity, including sinking-fund provisions.

- Sinking-fund
  - Money applied periodically to redemption of bonds before maturity.
  - Two advantages from the bondholder's perspective.
    - Default risk is reduced
    - If bond prices decline as a result of an increase in interest rates, price support may be provided by the issuer or its fiscal agent because it must enter the market on the buy side in order to satisfy the sinking-fund requirement.
    - Disadvantage is the bonds may be called at the special sinking-fund call price at a time when interest rates are lower than

… including maintenance and replacement funds.

- Maintenance and replacement fund (M&R) provisions first appeared in bond indentures of electric utilities subject to regulation by the Securities and Exchange Commission (SEC) under the Public Holding Company Act of 1940. It remained in the indentures even when most of the utilities were no longer subject to regulation under the act. The original motivation for their inclusion is straightforward. Property is subject to economic depreciation, and the replacement fund ostensibly helps to maintain the integrity of the property securing the bonds. An M&R differs from a sinking fund in that the M&R only helps to maintain the value of the security backing the debt, whereas a sinking fund is designed to improve the security backing the debt. Although it is more complex, it is similar in spirit to a provision in a home mortgage requiring the homeowner to maintain the home in good repair.

… including tender offers.

- Tender offer
  - At any time a firm may execute a tender offer and announce its desire to buy back specified debt issues.
  - Firms employ tender offers to eliminate restrictive covenants or to refund debt.
  - Usually the tender offer is for “any and all” of the targeted issue, but it also can be for afixed dollar amount that is less than the outstanding face value.
  - An offering circular is sent to the bondholders of record stating the price the firm is willing to pay and the window of time during which bondholders can sell their bonds back to the firm.

Describe, and differentiate between credit default risk and credit spread risk.

- Credit default risk
  - Any bond investment carries with it the uncertainty as to whether the issuer will make timely payments of interest and principal as prescribed by the bond's indenture.
  - The risk that a bond issuer will be unable to meet its financial obligations.

Describe, and differentiate between credit default risk and credit spread risk.

- The credit spread is the difference between a corporate bond's yield and the yield on a comparable-maturity benchmark Treasury security.
- What explains the difference?
  - The difference in yields is due primarily to the corporate bond's exposure to credit risk. **But not only this!**
  - The risk profile of corporate bonds differs from Treasuries on other dimensions; corporate bonds are less liquid and may have embedded options.
- Credit-spread risk is the risk of financial loss **resulting from changes in the level of credit spreads** used in the marking-to-market of a fixed income product. Credit spreads driven by:
  - **Macroeconomic forces** include such things as the level and slope of the Treasury yield curve, the business cycle, and consumer confidence
  - **Issue-specific factors** include the corporation's financial position and the future prospects of the firm and its industry.

Describe event risk and what may cause it in corporate bonds.

- Risk that a transaction (or corporate event) will devalue bondholder's position
  - Restructurings, recapitalizations, mergers, acquisition, leveraged buyouts, and share repurchases often cause substantial **changes in a corporation's capital structure**, greatly increased leverage and decreased equity.
  - Event risk has caused some companies to include other special debt-retirement features in their indentures.
    - An example is the maintenance of net worth clause included in the indentures of some lower-rated bond issues.

Define high-yield bonds …

- High-yield bonds are those rated below investment grade by the ratings agencies.
  - Also known as junk bonds.
- Types
  - Original Issuers
  - Fallen Angels
  - Restructurings and Leverage Buyouts

.. and some of the payment features peculiar to high yield bonds.

- Three types of deferred-coupon structures:
  1. Deferred-interest bonds,
  2. Step-up bonds, and
  3. Payment-in-kind bonds.

Define and differentiate between an issuer default rate and a dollar default rate.

- **Issuer default rate**
  - Number of issuers that default divided by total number of issuers
  - Gives no recognition to amount defaulted nor amount of issuance
- **Dollar default rate**
  - Par value of all defaulted bonds divided by total par value of bonds outstanding during the year (Altman uses this method)
- *Average annual default rate*
  - Cumulative $ value of all defaulted bonds ÷ Cumulative $ value of all issuance × by weighted average number of years outstanding
- *Cumulate default rate*
  - Cumulative $ value of all defaulted bonds ÷ Cumulative $ value of all issuance

Define recovery rates and describe the relationship between recovery rates and seniority.

- Measuring the amount recovered is non-trivial
  - The final distribution to claimants may consist of cash and securities.
  - Often it is difficult to track what was received and then determine the present value of any noncash payments received.
- Moody's uses the trading price at the time of default as a proxy for the amount recovered.
  - The recovery rate is the trading price at that time divided by the par value.
  - Moody's found that the recovery rate was 38% for all bonds.
  - While default rates are the same regardless of the level of seniority, recovery rates differ. **The study found that the higher the level of seniority, the greater is the recovery rate.**