

## ANSWERS TO END OF CHAPTER QUESTIONS

### QUESTIONS

1. Answer the below questions.

(a) What are the corporate bond classifications used by bond information services?

Corporate bonds are classified by the type of issuer. The four general classifications used by bond information services are (i) utilities, (ii) transportations, (iii) industrials, and (iv) banks and finance companies. Finer breakdowns are often made to create more homogeneous groupings. For example, utilities are subdivided into electric power companies, gas distribution companies, water companies, and communication companies. Transportations are divided further into airlines, railroads, and trucking companies. Industrials are the catchall class and the most heterogeneous of the groupings with respect to investment characteristics. Industrials include all kinds of manufacturing, merchandising, and service companies.

(b) How are corporate bonds treated in the Lehman Brothers U.S. Aggregate Bond Index?

At one time, in the bond market indexes, there was a corporate bond sector. Today, corporate bonds are included in the credit sector of the major bond indexes such as the Lehman Brothers U.S. Aggregate Bond Index. Within the credit sector, corporate bonds are categorized into industrial, utility, and finance subsectors.

2. Answer the below questions.

(a) What is meant by a make-whole premium provision?

Instead of a specified fixed premium that must be paid by the issuer if the bond is called, a bond may have a make-whole premium provision, also called a yield-maintenance premium provision. The provision specifies a formula for determining the premium that the issuer must pay to call an issue and is such that the amount of the premium, when added to the principal amount and reinvested at the redemption date in U.S. Treasury securities having the same remaining life, would provide a yield equal to the original yield. The premium plus the principal at which the issue is called is referred to as the make-whole redemption price.

(b) What is the purpose of this provision?

The purpose of the make-whole premium is to protect the yield of those investors who purchased the issue at issuance.

3. Answer the below questions.

(a) What is the difference between refunding protection and call protection?

Unlike call protection, refunding protection prevents redemption only from certain sources, namely the proceeds of other debt issues sold at a lower cost of money. The holder is protected only if interest rates decline and the borrower can obtain lower-cost money to pay off the debt.

(b) Which protection provides the investor with greater protection that the bonds will be acquired by the issuer prior to the stated maturity date?

Call protection is much more absolute than refunding protection. Although there may be certain exceptions to absolute or complete call protection in some cases (such as sinking funds and the redemption of debt under certain mandatory provisions), it still provides greater assurance against premature and unwanted redemption than does refunding protection.

4. Answer the below questions.

(a) What is a bullet bond?

Beginning in early 1986 a number of industrial companies issued long-term debt with extended call protection, not refunding protection. In Wall Street, these noncallable-for-life issues are referred to as bullet bonds.

(b) Can a bullet bond be redeemed prior to the stated maturity date?

Some bullet bonds are noncallable for the issue's life as the prospectus expressly prohibits redemption prior to maturity. Other issues carry limited call protection and can be called after a period of time.

5. Answer the below questions.

(a) What is a sinking fund requirement in a bond issue?

Corporate bond indentures may require the issuer to retire a specified portion of an issue each year. This is referred to as a sinking fund requirement. This kind of provision for repayment of corporate debt may be designed to liquidate all of a bond issue by the maturity date, or it may be arranged to pay only a part of the total by the end of the term. If only a part is paid, the remainder is called a balloon maturity.

Generally, the issuer may satisfy the sinking fund requirement by either (i) making a cash payment of the face amount of the bonds to be retired to the corporate trustee, who then calls the bonds for redemption using a lottery, or (ii) delivering to the trustee bonds purchased in the open market that have a total face value equal to the amount that must be retired.

(b) "A sinking fund provision in a bond issue benefits the investor." Do you agree with this statement?

The sinking fund provision does not give investors complete call protection because debt is being retired periodically. This could be disadvantageous if interest rates fall. However, the purpose of the sinking fund provision is to reduce credit risk. This is advantageous to investors because it lowers the probability of investors not eventually receiving their interest and principal payments. Thus, it boils down to the investor's preference. Would one prefer to lock in the current rate for a long period of time and risk a higher default probability or would one prefer a safer course of action which calls for a shorter term investment horizon but eliminates a longer term bankruptcy possibility?

6. Who are the companies that assign ratings to debt obligations?

A number of nationally recognized rating companies perform credit analysis and issue their conclusions in the form of ratings. The three commercial rating companies are Moody's Investors

Service, Standard & Poor's Corporation, and Fitch Ratings.

While some large institutional investors and many investment banking firms have their own credit analysis departments, most institutional bond investors and individual investors rely primarily on the nationally recognized rating companies to perform their credit analysis.

7. What is the difference between a fallen angel and an original-issue high-yield bond?

In brief, a fallen angel is a bond with the same low rating as an original-issue high-yield bond. However, unlike the original-issue high-yield bond, the fallen angel once had a higher bond rating before it was downgraded. More details are given below.

High-yield bonds, commonly called junk bonds, are issues with quality ratings below triple B. Bond issues in this sector of the market may have been rated investment grade at the time of issuance and have been downgraded subsequently to non-investment grade, or they may have been rated non-investment grade at the time of issuance, called original-issue high-yield bonds. Bonds that have been downgraded fall into two groups: (i) issues that have been downgraded because the issuer voluntarily significantly increased their debt as a result of a leveraged buyout or a recapitalization, and (ii) issues that have been downgraded for other reasons most likely financial distress problems. The latter issues are commonly referred to as "fallen angels."

8. Answer the below questions.

(a) What is event risk?

Event risk refers to the possibility of an event occurring that will lead investors to doubt the ability of an issuer to make interest and principal payments. Event risk can occur because of (i) a natural or industrial accident or some regulatory change, or (ii) a takeover or corporate restructuring. Event risk can have spillover effects on other firms. A nuclear accident, for example, will affect all utilities producing nuclear power.

(b) Give two examples of event risk.

The first type of event risk is a natural or industrial accident or regulatory change. Examples of this type are a change in the accounting treatment of loan losses for commercial banks or cancellation of nuclear plants by public utilities.

An example of the second type of event risk is the 1988 takeover of RJR Nabisco through a financing technique known as a leveraged buyout (LBO). The new company took on a substantial amount of debt incurred to finance the acquisition of the firm causing its bond quality rating to be reduced. The yield spread to a benchmark Treasury increased from about 100 basis points to 350 basis points.

9. "A floating-rate note and an extendable reset bond both have coupon rates readjusted periodically. Therefore, they are basically the same instrument." Do you agree with this statement?

As discussed below, there are differences between a floating-rate note and an extendable reset bond due to the manner in which they are adjusted.

In late 1987, a junk bond came to market with a structure allowing the issuer to reset the coupon rate so that the bond will trade at a predetermined price. The coupon rate may reset annually or

13. Indicate why you agree or disagree with the following statement: "Investing in the junk bond market offers the opportunity to realize superior investment returns compared with other debt instruments and common stock."

Any market, be it the junk bond market or U.S. Treasury market or the stock market, should be priced by investors to give a return commensurate with the amount of risk embodied in the security. Thus, in the long-run, superior returns should be no more likely to be generated in the junk bond market as opposed to any market. More details are provided below as to what an investor who enters the junk bond market might expect.

There have been several studies of the risk and return in the high-yield bond market. Historically, the promised yields offered on high yield bonds have been substantial. However, are the high returns justified by the higher potential default rate for high-yield corporate bonds? This important question has been investigated extensively. In looking at the total return of the high-yield corporate bond sector, no studies seems to suggest that investing in high-yield corporate bonds offer superior returns. Rather, the findings are consistent with the notion that greater returns come only with greater risk. That is, in the long run, high-yield corporate bonds have outperformed both investment grade corporate bonds and Treasuries but have been outperformed by common stock. Therefore, any claim of superior or inferior performance by advocates and critics of this sector of the bond market must be taken with the greatest caution.

14. What is meant by a default loss rate and how is it computed?

The default loss rate attempts to measure the sum of the default loss of principal and the default loss of coupon. It is a better measure of loss than simply looking at default rates where most of the research on the high-yield-bond sector focuses. From an investment perspective, default rates by themselves are not of paramount significance: It is perfectly possible for a portfolio of high-yield bonds to suffer defaults and to outperform Treasuries at the same time, provided that the yield spread of the portfolio is sufficiently high to offset the losses from default. Furthermore, because holders of defaulted bonds typically recover a portion of the par amount of their investment, the default loss rate is lower than the default rate. Therefore, focusing exclusively on default rates merely highlights the worst possible outcome that a diversified portfolio of high-yield bonds would suffer, assuming that all defaulted bonds would be totally worthless.

The methodology for computing the default loss rate, developed by Edward Altman, is as follows. First, the default loss of principal is computed by multiplying the default rate for the year by the average loss of principal. The average loss of principal is computed by first determining the recovery per \$100 of par value. The recovery per \$100 of par value uses the weighted average price of all issues after default. The difference between par value of \$100 and the recovery of principal is the default loss of principal. Next the default loss of coupon is computed. This is found by multiplying the default rate by the weighted average coupon rate divided by 2 (because the coupon payments are semiannual). The default loss rate is then the sum of the default loss of principal and the default loss of coupon.

15. What is the significance of a secured position if the absolute priority rule is typically not followed in a reorganization?

A corporate debt obligation can be secured or unsecured. In the case of a liquidation, proceeds from a bankruptcy are distributed to creditors based on the absolute priority rule where senior claimants are paid first. For example, debtholders are paid before stockholders. However, in the