

Question Paper

Fixed Income Securities: Analysis and Valuation (CFA620): January 2009

Section A : Basic Concepts (30 Marks)

- This section consists of questions with serial number 1 - 30.
- Answer all questions.
- Each question carries one mark.
- Maximum time for answering Section A is 30 Minutes.

1. Consider the following information pertaining to five bonds:

[<Answer>](#)

Bond	Maturity (years)	Coupon rate (%)	Frequency of coupon payment	Yield to maturity (%)
A	10	12.5	2	12.5
B	10	12.5	4	12.5
C	10	—	—	12.5
D	10	12.5	2	10.5
E	8	12.5	2	12.5

The sequence of bonds in ascending order of their duration is

- (a) A, B, C, D, E
 (b) A, B, D, E, C
 (c) E, D, B, A, C
 (d) E, D, C, A, B
 (e) E, B, A, D, C.
2. Mr. Raj purchased a 182 day T-bill at a price of Rs.98.62 each. If on maturity, the annualized yield available to him is 6.38%, investment period of Mr. Raj is approximately
- (a) 64 days
 (b) 80 days
 (c) 95 days
 (d) 101 days
 (e) 182 days.

[<Answer>](#)

3. Which of the following statements are **true** pertaining to convertible bond?
- I. It is a corporate bond with a call option to buy common stock of the issuer.
 II. It may have a lower cost of capital in comparison to non-convertible bonds with same characteristics.
 III. If the market price of the stock is such that the straight value is considerably higher than the conversion value, the convertible bond is referred to as busted convertible.
 IV. Arbitrage opportunities could arise in case convertible bond is sold for a price less than its minimum price.
- (a) Both (I) and (II) above
 (b) Both (III) and (IV) above
 (c) (I), (II) and (III) above
 (d) (I), (II) and (IV) above
 (e) All (I), (II), (III) and (IV) above.

[<Answer>](#)

4. Yankee bonds are

[<Answer>](#)

- (a) Bonds issued by non-Japanese borrowers in the Japanese domestic markets
 (b) Privately placed bonds issued in the Japanese market
 (c) Sterling denominated bonds issued in the Japanese market
 (d) Dollar denominated foreign bonds raised in the UK domestic securities market
 (e) Dollar denominated bonds issued in the US domestic markets by non-US companies.

5. Which of the following statements is **not true** pertaining to different variants of Tax-Backed Debt Obligations? [<Answer>](#)
- (a) General Obligation Debt are backed by the credit and taxing power of the issuing jurisdiction
 - (b) Appropriation-Backed Obligations are backed up with the appropriation of funds from the state general tax revenue
 - (c) Debt obligations supported by Public Credit Enhancement Programs can be made legally enforceable, if the state or a federal agency guarantees the issue
 - (d) Owing to the dual nature of the revenue sources, Appropriation-Backed Obligations are also known as double-barreled in security
 - (e) Lease-Backed Debt is a type of Appropriation-Backed Obligation.
6. Mr. Singh is planning to borrow Rs.950,000 via a repurchase agreement. The overnight repo rate is 9% and the 30-day term repo rate is 9.5%. The interest to be paid by Mr. Singh on his borrowings, if he borrows for 1 day, is [<Answer>](#)
- (a) Rs.222.50
 - (b) Rs.227.25
 - (c) Rs.237.50
 - (d) Rs.242.50
 - (e) Rs.250.00.
7. Which of the following statements is/are **true** pertaining to theories of term structure of interest rates? [<Answer>](#)
- I. As per Pure Expectation Theory, a rising term structure reflects an expectation that the future short-term rates would rise.
 - II. As per Market Segmentation Theory, the yield curve shape depends not only on future interest rates expectation but also on risk premium paid to induce the market participants to shift from their preferred habitat.
 - III. As per Market Segmentation Theory, the shape of the yield curve is determined by the supply of and demand for securities within each maturity sector.
 - IV. As per Liquidity Theory, an upward sloping yield curve may reflect an expectation among investors that there will be a rise in the future interest rates or it may remain unchanged or even fall.
- (a) Only (IV) above
 - (b) Both (I) and (III) above
 - (c) (I), (II) and (III) above
 - (d) (I), (III) and (IV) above
 - (e) All (I), (II), (III) and (IV) above.
8. On January 1, 2009, the quoted price of an 11% coupon paying bond of face value Rs.1,000 was Rs.953.53. The coupon is payable semi-annually on March 1 and September 1. The actual cash price of the bond on January 1, 2009 was [<Answer>](#)
- (a) Rs.935.20
 - (b) Rs.953.53
 - (c) Rs.971.86
 - (d) Rs.986.23
 - (e) Rs.990.20.
9. Which of the following statements is/are **true** pertaining to differences between the zero-volatility spread and the normal spread? [<Answer>](#)
- I. Unlike normal spread, zero-volatility spread is a spread of one point on the treasury yield curve.
 - II. Larger the maturity of the security, greater is the difference between the two measures.
 - III. The shape of the treasury spot rate curve also determines the magnitude of difference between both the spreads.
- (a) Only (I) above
 - (b) Only (III) above
 - (c) Both (I) and (II) above
 - (d) Both (II) and (III) above
 - (e) All (I), (II) and (III) above.

10. The market rate of interest on 2 year bond is 9.85% while the rate on 1 year bond is 9.40%. It is assumed that Liquidity Premium Theory holds good. If the forward rate on 1 year bond after 1 year from now has to be 9.98% as per Pure Expectation Theory, the liquidity premium to induce the investor to hold 2 year bond is [<Answer>](#)

- (a) 0.74%
- (b) 0.64%
- (c) 0.52%
- (d) 0.45%
- (e) 0.32%.

11. Which of the following statements is/are **true** pertaining to determination of coupon rate for different types of bonds? [<Answer>](#)

- I. In case of ratchet bond, once the coupon rate is adjusted down, it cannot be readjusted northward if the reference rate increases afterward.
- II. The coupon rate in case of extendible reset bonds is based on the margin required by the market at the reset date for the security to trade at par value.
- III. In stepped spread floaters, the coupon rate is a fixed rate plus the difference between the two reference rates.

- (a) Only (I) above
- (b) Only (III) above
- (c) Both (I) and (II) above
- (d) Both (II) and (III) above
- (e) All (I), (II) and (III) above.

12. Vishaka Industries Ltd. recently issued 8 year bonds of face value Rs.1,000 each. As per the bond indenture, the bonds are callable after 4 years at 10% premium to its face value. If the current market price of the bond is Rs.995, and yield to call is approximately 14.69%, the annual coupon rate being offered by such bond is approximately [<Answer>](#)

- (a) 10.42%
- (b) 11.23%
- (c) 12.50%
- (d) 13.80%
- (e) 14.28%.

13. Consider the following coupon curve of prices for pass-through securities of a particular issuer: [<Answer>](#)

Coupon (%)	Price (Rs.)
7	94.00
8	97.06
9	99.50
10	102.60
11	105.25
12	106.19

According to Douglas Breeden, the estimated duration based on the coupon curve for the 9% coupon pass-through is

- (a) 1.99
- (b) 2.78
- (c) 3.06
- (d) 4.32
- (e) 5.75.

14. WPIL Industries has recently issued 12.5%, AA rated bond with a maturity of 7 years. The bond indenture contains a provision for “poison put” that requires the issuer to redeem the bond at par in the case of a corporate takeover, a merger, or anti-takeover measure that would dissipate significant corporate assets. An investor who purchases this bond is protected from [<Answer>](#)

- (a) Liquidity risk
- (b) Call risk
- (c) Event risk
- (d) Reinvestment risk
- (e) Put risk.

15. On January 1, 2009, Mr. Amit purchased AA rated bond issued by Jagson Ltd., at its par value of Rs.100. The coupon rate of 12% is payable annually. The reinvestment rate for one year at the first coupon date is 11% and at the second coupon date is 13%. Mr. Amit targets to earn 14% annualized total return on his investment, for three years ending on January 01, 2012. For Mr. Amit, to meet his targeted return, the bond should sell on January 1, 2012, approximately at a price of [<Answer>](#)
- (a) Rs.107.54
 - (b) Rs.110.25
 - (c) Rs.112.23
 - (d) Rs.114.00
 - (e) Rs.148.15.
16. On January 15, 2005, Kreps Industries has issued 11% convertible bonds of face value Rs.1,000 each. Each bond is convertible into 8 equity shares of the company after four years. If on January 15, 2009, the market price of each convertible bond is Rs.1,175 and the premium over conversion value offered by such bond is 16.67%, the market price of the equity share of the company is [<Answer>](#)
- (a) Rs.146.87
 - (b) Rs.132.56
 - (c) Rs.125.89
 - (d) Rs.117.64
 - (e) Rs.110.08.
17. Mr. Gaurav, a retail investor is planning to choose between 2 year and 3 year maturity bonds, with yields to maturity (YTM) of 11% and 12.5% respectively. The annual coupon payment on both the bonds is 12.5%. If his investment horizon is one year and he strongly believes that the yield curve will be flat at 12.5% at the end of the year, the appropriate investment strategy would be [<Answer>](#)
- (a) To invest in 2-year bond, as it requires a low initial outflow and provides comparatively the same rate of coupon
 - (b) To invest in 2-year bond, since holding period return on bond is comparatively more at 13.2%
 - (c) To invest in 3-year bond, as it always provides a holding period return of more than 12.5%
 - (d) To invest in 3-year bond, since holding period return on bond is comparatively more at 12.5%
 - (e) Not to invest in any of the bonds, as yield curve is expected to be flat for one year.
18. Third-party guarantees, a form of external credit enhancement for asset-backed securities, protect against losses up to a particular fixed level. Such external credit enhancement technique is available in the form of [<Answer>](#)
- I. Corporate guarantee.
 - II. Letter of credit.
 - III. Senior structures.
 - IV. Bond insurance.
- (a) Both (I) and (II) above
 - (b) Both (III) and (IV) above
 - (c) (I), (II) and (III) above
 - (d) (I), (II) and (IV) above
 - (e) (II), (III) and (IV) above.
19. Which of the following strategies would provide a better return, if a sharp increase in the market interest rate is anticipated? [<Answer>](#)
- (a) Shift towards low rated bonds with high coupon rates
 - (b) Shift towards short-term bonds with high coupon rates
 - (c) Shift towards short-term bonds with low coupon rates
 - (d) Shift towards long-term bonds with high coupon rates
 - (e) Shift towards long-term bonds with low coupon rates.

20. There are certain risks inherent in mortgage pass-through securities which make them unattractive for the financial institutions as investment vehicles. These risks includes [<Answer>](#)

- I. Prepayment risk.
 - II. Reinvestment risk.
 - III. Extension risk.
- (a) Only (I) above
 - (b) Only (III) above
 - (c) Both (I) and (II) above
 - (d) Both (I) and (III) above
 - (e) All (I), (II) and (III) above.

21. [<Answer>](#)

A non-callable bond has a convexity measure of 94. If interest rates move from 10% to 11.5%, convexity

adjustment to percentage price change will be

- (a) 2.115%
- (b) 1.851%
- (c) 1.775%
- (d) -2.115%
- (e) -1.851%.

22. US-based credit rating agency 'FITCH' has appraised the risk associated with the 'Bonds' of a company and opined that it is 'speculative'. The rating given by 'FITCH' to the bonds is [<Answer>](#)

- (a) B
- (b) CCC
- (c) C
- (d) DDD
- (e) D.

23. Which of the following statements is/are **true** with respect to interest rate anticipation strategy? [<Answer>](#)

- I. If the portfolio manager forecasts that the curvature of the term structure changes its level of concavity, he must make sure that the managed portfolio is less exposed to the butterfly factor than the benchmark.
 - II. If the portfolio manager forecasts that the slope of the term structure will be steeper or flatter, in that case the exposure of the managed portfolio to the twist factor must be higher when compared to the benchmark.
 - III. If the portfolio manager forecasts a downward parallel shift in the term structure, he must ensure whether the managed portfolio is exposed more to the shift factor rather than benchmark.
- (a) Only (I) above
 - (b) Only (II) above
 - (c) Both (I) and (III) above
 - (d) Both (II) and (III) above
 - (e) All (I), (II) and (III) above.

24. In which of the following non-traditional mortgage schemes, the lender agrees to charge a very low level of interest on the funds and in turn the borrower agrees to share a part of increase in the property value with the lender? [<Answer>](#)

- (a) Adjustable Rate Mortgage
- (b) Buy Down Loans
- (c) Graduated Payment Mortgage
- (d) Pledged-Account Mortgage
- (e) Share-Appreciation Mortgage.

25. When interest rates increase, the duration of a 10 year bond selling at a discount [<Answer>](#)

- (a) Increases
- (b) Decreases
- (c) Decreases first, then increases
- (d) Increases first, then decrease
- (e) Remains the same.

26. The following data pertains to the structure of an asset-backed security transaction:

[<Answer>](#)

Particulars	Rs. in million
Senior tranche	1,125
Subordinate tranche A	150
Subordinate tranche B	50

The value of the collateral for the structure is Rs.1350 million. Subordinate tranche B is the first loss tranche. The amount of the loss for tranche B, if losses due to default over the life of the structure totals to Rs.75 million, is

- (a) Rs.75 million
- (b) Rs.50 million
- (c) Rs.25 million
- (d) Rs.10 million
- (e) Nil.

27. Which of the following statements is/are **true** with respect to credit rating in case of debt instruments?

[<Answer>](#)

- I. The rating of commercial papers and fixed deposits is optional.
- II. Credit rating is compulsory in case of non-convertible debentures (NCDs) with a maturity of more than 18 months.
- III. Credit rating is compulsory for fully convertible debentures (FCDs), if conversion is made after 18 months.

- (a) Only (I) above
- (b) Both (I) and (II) above
- (c) Both (I) and (III) above
- (d) Both (II) and (III) above
- (e) All (I), (II) and (III) above.

28. Mr. Dipesh has approached HDFC for a home loan of Rs.5,000,000. The terms of the loan provide for Loan-to-Value (LTV) ratio of 80% and interest on amount borrowed is payable @15% p.a. compounded monthly. If the tenure of the loan is 18 years, the EMI payable by him is approximately

[<Answer>](#)

- (a) Rs.49,817
- (b) Rs.53,668
- (c) Rs.59,452
- (d) Rs.67,087
- (e) Rs.71,236.

29. Mr. Akash, the portfolio manager of a pension fund has identified the following obligations towards his clients:

[<Answer>](#)

At the end of the year	Obligations (Rs.)
2	125,000
5	185,000
6	295,000

Assume that the yield Mr. Akash wants to by investing in a zero purchase the zero coupon bond with the maturity of

curve is flat at 12.5%. If immunize the obligations coupon bond, he must

- (a) 5.896 years
- (b) 5.012 years
- (c) 4.565 years
- (d) 4.000 years
- (e) 3.361 years.

30. Goetz India Ltd. recently issued 15-year bond of face value Rs.1,000 each. Each bond carries a coupon rate of 12.5% payable annually. If the current market price of the bond is Rs.967.69 when yield to maturity (YTM) is 13% p.a., the current yield is

[<Answer>](#)

- (a) 13.05%
- (b) 12.92%
- (c) 12.25%
- (d) 11.98%
- (e) 11.64%.

END OF SECTION A

**Fixed Income Securities: Analysis and Valuation (CFA620):
January 2009**

Section B : Problems/Caselet (50 Marks)

- This section consists of questions with serial number 1 – 5.
- Answer all questions.
- Marks are indicated against each question.
- Detailed workings/explanations should form part of your answer.
- Do not spend more than 110 - 120 minutes on Section B.

1. Mr. Vivek just bought 11% coupon paying bonds issued by IRFC, at a market price of Rs.970.50 each. The face value of the bond is Rs.1,000 each and pays coupon annually. The bond will be redeemed after 4 years from now at a premium of 5.5%. He wants to analyze the performance of the bond for different holding periods of 1, 2, 3 and 4 years.

[<Answer>](#)

You are **required** to calculate:

- a. The interest on interest at reinvestment rates of 8.5% and 12.5% for different holding periods. (6 marks)
- b. The expected market prices for different holding periods at the reinvestment rates of 8.5% and 12.5%. (4 marks)
- c. The total cash inflows from bond, classifying both interest on interest and capital gain, for different holding periods at the reinvestment rates of 8.5% and 12.5%. (2 marks)

2. Mr. Anil, a portfolio manager of a pension fund estimates that there will be annual cash outflows of Rs.125,000 for a period of five years, the first payment of which will commence from the end of first year. The cost of debt for similar liabilities in the market is 11%.

[<Answer>](#)

Mr. Anil is contemplating of immunizing the payments by investing in the following two bonds:

Bond	Particulars
VCK Bond	A 12.5% annual coupon paying bond of face value Rs.1000, maturing after 3 years, redeemable at par value and currently trading at Rs.988.19.
ICICI Deep Discount Bond	A bond of face value Rs.5,000 with a remaining maturity of 5 years and currently trading at Rs.2,713.80.

You are **required** to determine the proportions of funds to be invested by Mr. Anil in the VCK Bond and ICICI Deep Discount Bond such that his liabilities are immunized.

(10 marks)

3. On January 1, 2009, Max India Ltd. (MIL) issued partly convertible debentures (PCDs) of face value Rs.200 each. The debenture consists of two parts-A and B. Part A has face value of Rs.100 and will be converted into two equity shares of the company at a premium of Rs.40 each. The conversion will take place on January 1, 2010. Part B with a face value of Rs.100 will be redeemed in two equal installments of Rs.60 each at the end of the years 2012 and 2013 respectively. The coupon rate on the debenture is 12% p.a. Currently, the debenture is trading at a price of Rs.205.

[<Answer>](#)

For the year ending December 31, 2008, the company has declared an equity dividend per share of Rs.2.10 on its earning per share of Rs.6. Moreover, it is expected that the company will be able to sustain its current annual growth rate (8 marks)

of 11.7% in future.

In view of the current uncertainty prevailing in the capital market, the required rate of return by an investor on such PCDs can be expected to be around 13% p.a. At the end of December 2013, equity shares are expected to trade at a price of Rs.76.98 each.

You are **required** to compute the intrinsic value of the PCD using the estimates given above and suggest whether it is worth investing or not.

Caselet

Read the caselet carefully and answer the following questions:

4. As discussed in the caselet, although both Mortgage-Backed Securities and Covered Bonds are a potential source of long-term funding for residential mortgage loans, U.S. Treasury believes that Covered Bonds can complement other sources of financing for a wide range of high quality assets, and help depository institutions strengthen their balance sheets by diversifying their funding sources. In this context, compare Covered Bonds with Mortgage-Backed Securities.

[<Answer>](#)

(10 marks)

5. In light of the current crisis involving residential mortgages, investors are understandably reluctant to go anywhere near something that could represent more of the same risk as the subprime mortgage derivative investments. In this context, discuss whether Covered Bonds can be looked upon as either a new solution or an old danger.

[<Answer>](#)

(10 marks)

At a time when Fannie Mae and Freddie Mac are in serious financial difficulties, the Federal Deposit Insurance Corporation (FDIC) and the Treasury Department both have indicated that Covered Bonds-concept imported from Prussia might be an important new way to finance mortgages in the United States. Covered Bonds are used extensively and successfully in Europe, but only very rarely in the United States. In a covered Bond transaction, a bank sells bonds that are backed by a pool of mortgages that the bank continues to hold on its balance sheet. The bank is obligated on the bonds and must replace defaulted mortgages in the pool with performing mortgages, so that the bondholders are covered by both the bank's liability and the collateral represented by the mortgages. This double protection should enable the bank to get and maintain an AAA rating on the bonds and very low cost financing for the mortgages. In addition, the fact that the bank has a continuing obligation to replace defaulted mortgages will require more careful underwriting in mortgage lending. All of this sounds like a promising form of competition for the much criticized securitization financing system that has been dominated for many years by Fannie Mae and Freddie Mac. Treasury Secretary, Henry M. Paulson Jr. hopes Covered Bonds will spark "private-label securitization" that in turn would take pressure off the government sponsored enterprises now "funding more than 70 percent of residential mortgages during these months of market stress." Regulators, banks and brokerages are of the view that Covered Bonds will take off because they offer skittish investors more security, and struggling banks more money to lend. With Covered Bonds, banks don't package and sell off mortgages. Instead, the assets stay on the bank's books and banks must pay investors from their own cash flow. But unlike traditional bonds issued by the banks, these are backed exclusively by mortgages. The mortgages may have a loan-to-value ratio of 80%, and a loan that is not paid for 60 days must be replaced by another. In the event of a bank failure, investors have access to the underlying mortgages for repayment. For now, the FDIC has stipulated that a bank's issuance of covered bonds may be no more than 4% of its total debt.

While hopes are high that a robust U.S. Covered Bond market could jump-start the overall credit markets, many fixed-income investors are withholding judgment and wondering whether it's the right time for banking companies to take on an additional level of debt, especially when credit quality is tanking and

more banks collapsing. “Right now the market is too spooked,” said Mirko Mikelic, senior portfolio manager at Fifth Third Asset Management. “It’s probably not a good time to bring out a new product, when people are extremely risk-averse. We are expecting a lot more write-downs from banks, a lot more efforts to raise capital. In general, it’s a good concept; it may get some traction, but people have to digest it.” “It just begs the question: How strong is the credit quality of the underlying bank?” said Jeff Houston, portfolio manager at American Century Investments. “What position is the bank going to be in to secure these assets or stand behind these assets if I need to make a claim on their credit quality?” It also raises the question of who ultimately foots the bill, Mr. Houston added. “If the banks aren’t in a position to honor that guarantee, well, guess who’s behind the banks? The federal government and the FDIC. Behind them? The taxpayer.” Still, that’s always the case when it comes to banks, said Christopher Whalen, co-founder of Institutional Risk Analytics, a unit of Lord Whalen. He views covered bonds as a big improvement in the “evolution” of structured finance, post-credit crisis. “At least we are now being a little bit more honest with ourselves when it comes to securitizations, instead of dealing with this ridiculous fiction that they are really sales,” Mr. Whalen said. Market participants cite the lack of a regulatory framework until now as the major reason Covered Bonds have not done well in the U.S. They have been issued for hundreds of years in Europe, and governments there have promulgated the rules surrounding them. In U.S., securitizing mortgages and moving them off the books has proved more attractive. Given the appeal of more transparency and more security, most fixed-income investors can’t help but be intrigued. But they will be waiting to evaluate price, yield and spread.

END OF CASELET

END OF SECTION B

Section C : Applied Theory (20 Marks)

- This section consists of questions with serial number 6 - 7.
- Answer all questions.
- Marks are indicated against each question.
- Do not spend more than 25 -30 minutes on Section C.

6. “The Central Bank is a nation’s principal authority responsible for the monetary policy of the country.” Appraise the given statement with the various policy tools through which the Central Bank operates the monetary policy of the country.

[<Answer>](#)

(10 marks)

7. High-yield bonds are issued by organizations that do not qualify for “investment-grade” ratings by any of the leading credit rating agencies. In this regard, discuss the various aspects to be analyzed at the time of rating high-yield corporate bonds.

[<Answer>](#)

(10 marks)

END OF SECTION C

END OF QUESTION PAPER

Suggested Answers

Fixed Income Securities: Analysis and Valuation (CFA620): January 2009

Section A : Basic Concepts

- | | Answer | Reason | |
|----|---------------|--|-------------------------------|
| 1. | E | <p>Duration of bond E is lesser than duration of any other bond as its term to maturity is the least.</p> <p>Duration and YTM are inversely related and larger the coupon rate smaller the duration of bond. Duration of bond C is 10 years as the bond is zero coupon bond. the duration of this bond is the highest.</p> <p>Now remains three bonds: A, B and D.</p> <p>An increase in the frequency of the coupon payment decreases the duration therefore although coupon and YTM are same for the bond A and B because of higher frequency of payment duration will be lower for the bond B.</p> <p>Also there exists an inverse relationship between bond's duration and its yield to maturity. Duration of bond D will be more then duration of bond A as YTM of A is higher although coupon rates are equal.</p> <p>Hence ascending order of duration = E, B, A, D, C.</p> | < TOP > |
| 2. | B | <p>Yield is calculated as $\frac{F - P}{P} \times \frac{365}{d}$</p> <p>Putting the values, Yield is calculated as $\frac{100 - 98.62}{98.62} \times \frac{365}{d} = 0.0638$</p> <p>or, d = 80 days.</p> | < TOP > |
| 3. | E | <p>All the given statements are true.</p> <ul style="list-style-type: none"> • It is a corporate bond with a call option to buy common stock of the issuer. • Since the investor is getting the conversion privilege, he/she will accept a lower coupon rate for a convertible bond compared with an identical non-convertible bond. Thus, we can conclude that convertible bond may have a lower cost of capital in comparison to non-convertible bonds with same characteristics. • The market price of the stock decides the investment characteristics of a convertible bond. When the stock price is low, the straight value is considerably higher than the conversion value. Then, the bond will sell just like a straight bond. The convertible bond in such cases is referred to as a bond equivalent or a busted convertible. • Arbitrage opportunities could arise in case such bond is sold for a price less than its minimum price. | < TOP > |
| 4. | E | Yankee bonds are dollar denominated bonds issued in the US domestic markets by non-US companies. | < TOP > |
| 5. | D | <p>General Obligation Debt is a municipal security secured by the taxing and borrowing power of the municipality issuing it. In fact, they are backed by the credit and taxing power of the issuing jurisdiction rather than the revenue it receives from a given project in hand. This is the feature which influences the investor to invest in these securities.</p> <p>In addition to above back up, certain identified fees, grants and special charges also secure some of the general obligation securities. These are the amounts, which provide additional revenue to the State outside the purview of the general fund. Due to this dual nature of the revenue sources, these securities are also known as double barreled security.</p> <p>Hence option (d) is not true.</p> <p>All the other options are correct.</p> | < TOP > |

6. C As the fund is borrowed for 1 day, the applicable repo rate is 9%. [< TOP >](#)
 Cost of funds = (Rs.950,000×0.09×1/360) = Rs.237.50.
7. D As per Preferred Habitat theory, the yield curve shape depends not only on future interest rates expectation but also on risk premium paid to induce the market participants to shift from their preferred habitat. Hence statement (II) is not true. [< TOP >](#)
 All other statements are true.
8. E Actual cash price = Quoted price + accrued interest [< TOP >](#)
 Computation of accrued interest :
 Accrued interest = $1,000 \times 0.11 \times 4/12 = \text{Rs.}36.67$
 Therefore, actual cash price of the bond is = Rs.953.53+ Rs.36.67 = Rs.990.20.
9. D Unlike normal spread, zero-volatility spread is not a spread of one point on the Treasury yield curve. [< TOP >](#)
 Hence statement (I) is not true.
 All the other options are correct.
10. E Assuming pure expectations theory hold good, two years interest rate, $r_{0,2}$ will be calculated from following expressions. [< TOP >](#)
 $(1 + r_{0,2})^2 = (1 + r_{0,1}) (1 + f_{1,2})$
 Or, $(1.0985)^2 = (1.0940) (1 + f_{1,2})$
 $\Rightarrow f_{1,2} = 10.30\%$
 Hence liquidity premium
 $= 10.30\% - 9.98\% = 0.32\%$.
11. C In dual indexed floaters the coupon rate is a fixed rate plus the difference between two reference rates. [< TOP >](#)
 Stepped spread floaters have a provision to change the quoted margin at certain intervals over a floater's life. The quoted margin could either step to a higher level or a lower level.
 Hence statement (III) is not true.
 All the other statements are true.
12. C Let annual coupon payment be x. [< TOP >](#)
 $995 = x \text{ PVIFA}(14.69\%, 4) + 1100 \text{ PVIF}(14.69\%, 4)$
 $995 = 2.873x + 0.578 \times 1100$
 or, $x = \text{Rs.}125(\text{approx})$
 Coupon rate = $125/1000 = 0.125 = 12.5\%$.
13. B To compute the coupon curve duration, the assumption is that if the yield declines by 100 basis points, the price of the 9% coupon pass-through will increase to the price of the current 10% coupon pass-through. Thus, the price will increase from Rs.99.50 to Rs.102.60. Similarly, if the increase by 100 basis points, the assumption is that the price of the 9% coupon pass-through will decline to the price of the 8% coupon pass-through. Thus, the price will decline from Rs.99.50 to Rs.97.06. using the duration formulas, the corresponding values are: [< TOP >](#)
 $P_0 = 99.50$
 $P_+ = 97.06$
 $P_- = 102.60$
 $\Delta y = 0.01$

$$\frac{102.60 - 97.06}{2 \times 99.50 \times 0.01} = 2.78.$$
 The estimated duration based on the coupon curve is then:
14. C Corporate Takeover/Restructurings-This is a form of event risk where the takeovers and restructurings may affect a part or entire industrial sector of the bond market. Bond markets may suffer as a result of withdrawal of the bond market participants from the market. [< TOP >](#)

15. A Initial Investment = Rs.100 [< TOP >](#)
 Total Proceeds = Coupon income + Interest on Interest + Capital gain or loss
 Coupon income received = Rs. (12×3) = Rs.36
 Interest on interest earned = $12(1.11)(1.13) + 12(1.13) - 24 = \text{Rs.}4.6116$.
 Let the total proceed received be X
 Required rate of return = 14%

$$\left(\frac{X}{100}\right)^{\frac{1}{3}} - 1 = 0.14$$
 or, X = Rs. 148.1544
 Required selling price = Rs. 148.1544 - Rs.36 - Rs.4.6116 = Rs.107.5428.
16. C [< TOP >](#)

$$\text{Premium over conversion value} = \frac{\text{Bond price} - \text{Conversion value}}{\text{Conversion value}}$$
 Where conversion value = Current market price of the stock × Conversion rate
 Let the market price of each equity share be Rs.x.

$$\text{Therefore, Premium over conversion value} = 0.1667 = \frac{1175 - 8x}{8x}$$
 Solving for x, we get x= Rs.125.89.
17. D [< TOP >](#)
 Mr. Gaurav is planning to choose between 2 year and 3 year maturity bonds which yield 11% and 12.5% respectively. The annual coupon payment on both the bonds is 12.5%. He strongly believe that at year end, the yield curve will be flat at 12.5%.
 Let the face of value of the bonds be Rs.1000
 Current price of two year bond = $125 \text{ PVIFA}(11\%, 2) + 1000 \text{ PVIF}(11\%, 2) = \text{Rs.}1025.69$
 Current price of three year bond = Rs.1000 as its YTM is equal to coupon rate.
 Price of two year bond after 1 year Rs.1000 as its YTM is equal to coupon rate
 Price of three year bond after 1 year Rs.1000 as its YTM is equal to coupon rate
 Return on two year bond = $[(1000 - 1025.69) + 125] / 1025.69 = 135.19 / 974.81 = 9.68\%$.
 Return on three year bond = $[(1000 - 1000) + 125] / 1000 = 12.50\%$.
 Therefore, he should invest in 3-year bond, since holding period return on bond is comparatively more at 12.5%
18. D [< TOP >](#)
 Third-party guarantees is available in the form of
- Corporate guarantee.
 - Letter of credit.
 - Bond insurance.
19. B [< TOP >](#)
 If a major increase in market interest rate is anticipated, buying a short-term bond with high coupon rated bond will be ideal because change in the value of the bond is minimum because of lower duration of short term and high coupon bond.
20. E [< TOP >](#)
 All the given statements represents the risk associated with investment in mortgage pass-through securities:
- The owner of mortgage pass through securities does not know the timing and amount of cash flows as these depend on the actual payments and prepayments. This exposes one to prepayment risk.
 - In case interest rates fall, the borrower will be inclined to prepay the loan and refinance the debt at a lower rate, resulting in an adverse impact to the security holders in the sense that the cash flows have to be reinvested at lower rates.
 - In case mortgage rates increases, the prepayments will decline and this may lengthen the timing of actual cash flows.

21. A Convexity adjustment = Convexity measure $\times (\Delta y)^2 \times 100$ [< TOP >](#)
 $= 94 \times (0.015)^2 \times 100$
 $= 2.115\%$.

22. A Fitch ratings to debt instruments are as follows: [< TOP >](#)

Prime or exceptional quality	AAA
Very high quality	AA
high quality	AA-
Strong payment capacity	A-
Adequate payment capacity	BBB
Last rating in 'investment grade'	BBB-
Uncertainty but likely to fulfill obligations	BB
Speculative	B
Highly Speculative	CCC, CC
Junk-in default or currently vulnerable to default	DDD
In default-recovery unlikely	DD
In default-almost valueless	D

23. D Active bond management depends on an economic scenario in order to forecast the movements of yield curve. [< TOP >](#)

A portfolio manager skillfully builds a portfolio with risk exposures that are consistent with his prediction of movements with regard to term structure:

- If he forecasts that the curvature of the term structure changes its level of concavity, then he must make sure that the managed portfolio is more exposed to the butterfly factor than the benchmark.
- If he forecasts that the slope of the term structure will be steeper or flatter, then in that case the exposure of the managed portfolio to the twist factor must be higher when compared to the benchmark ($Z_{tP} > Z_{tB}$).
- If the portfolio manager forecasts a downward parallel shift in the term structure, he must ensure whether the managed portfolio is exposed more to the shift factor rather than benchmark ($ZS_P > ZS_B$).

Hence statements (II) and (III) are true.

24. E The borrower pays a very low interest on the funds but shares a part of the increase in the property value with the lender when the property is sold or the loan matures in Share Appreciation Mortgage. [< TOP >](#)

25. B The higher the yield on a bond the lower the price volatility (duration) will be. When interest rates increase the price of the bond will decrease and the yield will increase because the current yield = (annual cash coupon payment)/(bond price). As the bond price decreases, the yield increases and the price volatility (duration) will decrease. [< TOP >](#)

26. B The amount of overcollateralization is the difference between the value of the collateral, Rs.1350 million, and the par value for all the tranches, Rs. (1125+150+50) =1325 million. In this structure, it is Rs.25 million. [< TOP >](#)
 If the losses total Rs.75 million, then out of this, the loss of Rs.25 million is absorbed by overcollateralization. Remaining Rs.50 million is totally absorbed by subordinate tranche B.

27. D The rating of commercial papers and fixed deposits is compulsory. [< TOP >](#)
 All the other statements are true.

28. B Amount sanctioned is = Rs.5,000,000 $\times$ 0.80= Rs.4,000,000 [< TOP >](#)

$$EMI = \frac{4,000,000}{PVIFA(1.25\%, 216)} = Rs.53,667.63 = Rs.53,668.$$

29. C The duration of his liabilities is shown as follows:

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Years	Cash outflows	PV of cash flows @ 12.5%	n × PV of cash flows
2	125,000	98,765.43	197,530.86
5	185,000	102,661.86	513,309.30
6	295,000	145,514.70	873,088.20
		$\Sigma = 346,941.99$	$\Sigma = 1,583,928.36$

Duration of liabilities = $1,583,928.36 / 346,941.99 = 4.565$ years.

Since, Mr. Akash wants to immunize using a single zero coupon bond, maturity of the bond (equals duration in case of zero coupon bonds) should be 4.565 years.

30. B Current Yield = (coupon income/current market price) × 100 = $(125/967.69) \times 100 = 12.92\%$. [< TOP >](#)

Fixed Income Securities: Analysis and Valuation (CFA620): January 2009

Section B : Problems/Caselet

1. a.

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Reinvestment rate	Holding Period (Years)			
	1	2	3	4
8.5%	$110 \times \text{FVIFA}_{(8.5\%, 1)} - (110 \times 1)$	$110 \times \text{FVIFA}_{(8.5\%, 2)} - (110 \times 2)$	$110 \times \text{FVIFA}_{(8.5\%, 3)} - (110 \times 3)$	$110 \times \text{FVIFA}_{(8.5\%, 4)} - (110 \times 4)$
	= 0	= 9.35	= 28.84	= 59.35
12.5%	$110 \times \text{FVIFA}_{(12.5\%, 1)} - (110 \times 1)$	$110 \times \text{FVIFA}_{(12.5\%, 2)} - (110 \times 2)$	$110 \times \text{FVIFA}_{(12.5\%, 3)} - (110 \times 3)$	$110 \times \text{FVIFA}_{(12.5\%, 4)} - (110 \times 4)$
	= 0	= 13.75	= 42.97	= 89.60

b. Market price and capital gains @ 8.5%

Particulars	Holding Period (Years)			
At reinvestment rate of 8.5%	1	2	3	4
1. Purchase price (Rs.)	970.50	970.50	970.50	970.50
2. Market price at the end of the holding period (Rs.)	$110 \times \text{PVIFA}_{(8.5\%, 3)} + 1055 \times \text{PVIF}_{(8.5\%, 3)}$	$110 \times \text{PVIFA}_{(8.5\%, 2)} + 1055 \times \text{PVIF}_{(8.5\%, 2)}$	$110 \times \text{PVIFA}_{(8.5\%, 1)} + 1055 \times \text{PVIF}_{(8.5\%, 1)}$	$110 \times 0 + 1055$
	=1106.91	=1091.00	=1073.73	=1055.00

Market price and capital gains @ 12.5%

Particulars	Holding Period (Years)			
At reinvestment rate of 12.5%	1	2	3	4
1. Purchase price (Rs.)	970.50	970.50	970.50	970.50
2. Market price at the end of the holding period (Rs.)	$110 \times \text{PVIFA}_{(12.5\%, 3)} + 1055 \times \text{PVIF}_{(12.5\%, 3)}$	$110 \times \text{PVIFA}_{(12.5\%, 2)} + 1055 \times \text{PVIF}_{(12.5\%, 2)}$	$110 \times \text{PVIFA}_{(12.5\%, 1)} + 1055 \times \text{PVIF}_{(12.5\%, 1)}$	$110 \times 0 + 1055$
	= 1002.91	= 1018.27	= 1035.56	=1055.00

c. Total Cash flows

		Holding Period (Years)			
Reinvestment rate		1	2	3	4
8.5% (YTM)	Coupon income (Rs.)	110	220	330	440
	Interest on interest (Rs.)	0	9.35	28.84	59.35
	Capital gains = (Market price - Purchase price) (Rs.)	136.41	120.50	103.23	84.50
	Total cash flows (Rs.)	246.41	349.85	462.07	583.85
12.5% (YTM)	Coupon income (Rs.)	110	220	330	440
	Interest on interest (Rs.)	0	13.75	42.97	89.60

	Capital gains = (Market price - Purchase price) (Rs.)	32.41	47.77	65.06	84.50
	Total cash flows (Rs.)	142.41	281.52	438.03	614.10

2. Duration of outflows:

Duration can be calculated for the following liability as under:

YTM = 11%

Year	Cash outflow (Rs.)	PV of cash outflow @ 11% (Rs.)	(Rs.)
(1)	(2)	(3)	(1)*(3)
1	125,000	112,612.61	112,612.6
2	125,000	101,452.80	202,905.6
3	125,000	91,398.92	274,196.8
4	125,000	82,341.37	329,365.5
5	125,000	74,181.42	370,907.1
		$\Sigma = 461,987.12$	$\Sigma = 1,289,987.60$

Therefore, Duration = $1,289,987.60 / 461,987.12 = 2.79$ years

Duration of Inflows:

VCK bond:

Firstly, we have to calculate the YTM for the bond

$$988.19 = 125 \text{ PVIFA}(3, i) + 1000 \text{ PVIF}(3, i)$$

By trial and error, we get $i = 13\%$

Year	Cash inflow (Rs.)	PV of cash flow @13% (Rs.)	(Rs.)
(1)	(2)	(3)	(1)*(3)
1	125	110.62	110.62
2	125	97.89	195.78
3	1000+125	779.68	2,339.04
		$\Sigma = 988.19$	$\Sigma = 2,645.44$

Therefore, Duration = $2,645.44 / 988.19 = 2.68$ years (approx)

ICICI Deep Discount Bond:

Duration for ICICI Deep Discount Bond will be same as its maturity as it is a zero coupon bond.

Therefore, duration of ICICI Deep Discount Bond is 5 years.

Now, to immunize the payments, duration of asset = duration of liabilities.

Let proportion of funds to be invested in VCK bond be $x\%$.

therefore, the duration of asset = $x \times 2.68 + 5 \times (1 - x)$

As duration of asset = duration of liabilities

$$x \times 2.68 + 5 \times (1 - x) = 2.79$$

Therefore, $x = 0.9526$

Proportion of funds to be invested in VCK bond = 95.26% and ICICI Deep Discount Bond = $(1 - 0.9526) = 4.74\%$.

3. PV (Part A) = PV(coupon interest received + equity dividend received + proceed received from sale of shares)

Period	Cash inflow	Total inflow (Rs.)
December, 2009	Interest = 100×0.12	12.00
December, 2010	Dividend = $2 [2.1 \times 1.117^2]$	5.24
December, 2011	Dividend = $2 [2.1 \times 1.117^3]$	5.85
December, 2012	Dividend = $2 [2.1 \times 1.117^4]$	6.54
December, 2013	Dividend = $2 [2.1 \times 1.117^5] = \text{Rs. } 7.30$	161.26

Sale = 2 x 76.98 = Rs.153.96

$$\text{Present value of Part A @ 13\%} = \frac{12}{(1.13)} + \frac{5.24}{(1.13)^2} + \frac{5.85}{(1.13)^3} + \frac{6.54}{(1.13)^4} + \frac{161.26}{(1.13)^5}$$

$$= \text{Rs. 110.31}$$

PV (Part B) = PV (coupon income received + redemption amount received)

$$= 100 \times 0.12 \text{ PVIFA}(13\%,4) + 60 \text{ PVIF}(13\%,4) + (50 \times 0.12 + 60) \text{ PVIF}(13\%,5)$$

$$= 12 \times 2.97 + 60 \times 0.613 + 66 \times 0.543$$

$$= \text{Rs.108.258}$$

Intrinsic value of the bond = PV (Part A + Part B) = Rs. (110.31 + 108.258) = Rs. 218.568.

Since the intrinsic value of the PCD is more than its current market price, the investor can make investment in such debentures.

4. Comparison with Mortgage-Backed Securities:

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A Covered Bond is a debt instrument secured by a perfected security interest in a specific pool of collateral ("Cover Pool"). A Covered Bond provides funding to a depository institution ("issuer") that retains a Cover Pool of residential mortgage assets and related credit risk on its balance sheet.

Although both mortgage-backed securities ("MBS") and Covered Bonds are a potential source of long-term funding for residential mortgage loans, there are several essential differences between Covered Bonds and MBS that make each attractive to different types of investors:

- Mortgages that secure a Covered Bond remain on the issuer's balance sheet, unlike MBS where mortgages are packaged and sold to investors.
- The cash flow from the mortgages and credit enhancements in MBS are generally the only source of principal and interest payments to the MBS investors. In a Covered Bond, principal and interest are paid by the issuer's cash flows, while the mortgages in the Cover Pool only serve as collateral for investors.
- The collateral underlying Covered Bonds is dynamic and nonperforming (or prepaying) assets within the Cover Pool must be substituted with performing mortgages. Mortgages underlying MBS are static and remain in each MBS until maturity.
- In the case of an issuer default, Covered Bonds are structured to avoid prepayment prior to the date of maturity. This is accomplished through swap agreements and deposit agreements (e.g., guaranteed investment contracts). MBS investors, in contrast, are exposed to prepayment risk in the case of a mortgage default or prepayment.
- In the event that the Covered Bonds do accelerate and repay investors at an amount less than the principal and accrued interest, investors retain an unsecured claim on the issuer. MBS investors generally do not retain any claim on the issuer in the event of repayment at an amount less than the principal and interest owed.
- In general, holders of mortgage bonds do have a preferential claim on the collateral and the proceeds arising from it. Loan-to-value (LTV) ratios, prudent property valuation rules (e.g.) mortgage lending value), and the trustees or the cover asset monitors acting in the interest of the covered bondholders reinforce the safety of the covered bond in most countries. The described attractive risk/return features of the covered bond allows lenders to obtain funds in capital markets at a reduced borrowing cost (with respect to other wholesale sources) enabling them to provide medium- or long-term finance for housing, non-residential property or urban development at a more convenient and stable rate of interest for the borrower.

Thus from an issuer's perspective, these instruments have become an attractive funding source and a tool for asset liability management; from the investor's perspective, covered bonds enjoy a favorable risk-return profile and a very liquid market.

5. Covered Bonds are mortgages and loans backed by government securities. Because of the backing

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by high value assets, they are considered safe and receive excellent credit ratings. They allow financial institutions to refinance their extension of mortgage credit. Covered Bonds have the potential to stimulate mortgage financing, increase risk standards, and strengthen U.S. financial institutions. The Treasury's guidelines exclude riskier types of mortgages that contributed to the crisis of the past year, including loans made without documenting the borrower's income and those involving higher debt compared with property value. Covered Bonds also offer more protection to

investors than asset-backed securities, because the issuer retains the credit risk, rather than securitizing it away, and must also keep the cover pool up to snuff by replacing non performing loans with performing ones. For extra safety, the pool contains more collateral than the value of the bond. The attraction to the policy makers in America is obvious. However, given the uncertainty prevailing in the market, promoting the merits of a new mortgage-backed debt instrument is not the easiest sell at the moment. Issuers might find that other sources of funding are cheaper. There also remains a substantial room for poor underwriting. Lenders may make mistakes in evaluating capacity to repay and borrowers' financial conditions change. So these eligible mortgage pools could still contain loans that turn out to be losses. And given the real estate market, some properties may continue to decline in value. Moreover, keeping mortgages on the books, rather than securitizing them, means that the banks have to deal with the prepayment risk when mortgage borrowers refinance their policies and fail to generate the expected return. Strict criteria on what assets can be used in the cover pool are necessary to reassure investors, but will many mortgage loans out in the cold. Thus, it can be concluded that covered bonds won't be another source of "imprudent investments." We can't stand another innovation that solves one problem (just like subprime mortgages were intended to solve the problem of no access to home ownership for those with less than stellar credit) but lands us in a bigger mess. If covered bonds catch on, they will magnify the losses the Federal Deposit Insurance Corp. suffers in the case of bank failures, thus exposing taxpayers to the risk of more big bailouts. To put it bluntly, covered bonds wouldn't reduce risk as much as transfer it from bond buyers to the U.S. taxpayer. Paulson sees covered bonds as a new funding source for mortgages at a time when investors are backing away from the radioactive mortgage-backed securities market. On the top of it, low ceiling prevents covered bonds from making a meaningful contribution to mortgage availability. If covered bonds catch on, there will be political pressure to increase that ratio, allowing more bank assets to be encumbered, and thus beyond the FDIC's reach. Promoting covered bonds is really a way to compartmentalize and shift risk to the FDIC and uninsured depositors.

Section C: Applied Theory

6. The Central Bank is a nation's principal monetary authority responsible for the monetary [<TOP>](#) policy of the country. Its primary responsibility is to maintain the stability of the national currency and money supply. It also controls subsidized-loan interest rates and acts as a lender of last resort (bail out) to the banking sector during the times of financial crisis.

As part of its duty, it strives to fix and maintain the interest rates with an objective to tackle inflation in the country. It controls various types of short-term interest rates, which have a direct impact on the stock and bond markets as well as mortgage and other interest rate markets.

Policy Tools

Following are the interest rate policy tools that a central bank can use for implementing the monetary policy:

Open Market Operations: Through open market operations, the Central Bank directly influences money supply in an economy. Whenever it buys securities, it exchanges money for them and thereby raises the level of money supply. On the contrary, selling securities lowers the money supply levels.

To carry out open market operations, the Central bank holds foreign exchange reserves usually in the form of government bonds and official gold reserves.

The open market operations show their impact on the official or mandated exchange rates. Some of these exchange rates are managed, some of them are market-based (free float), and most of them fall in between 'managed float' or 'dirty float'.

Bank Reserve Requirement: The Central Bank is empowered to determine the reserve requirements for commercial and other banks. As per the requirements, a percentage of liabilities is held as cash or deposited with the central bank or with any specified agency. The percentage limits are set based on the money supply in the market.

This statutory requirement was introduced in the 19th century with an objective to reduce the risk of the banks from overextending themselves, and from suffering bank runs that could lead to knock-on effects on other banks.

Changing bank reserve requirements is an interest rate policy, which the central bank seldom uses.

Discount Rate: Bank rate, also referred to as discount rate, is the rate of interest, a central bank charges on loans and advances that it extends to commercial banks and other financial intermediaries. Changes in the bank rate are often used by central banks to control money supply. Increasing the discount rate would make the cost of funds more expensive for banks. Similarly, decrease in interest rates would lower the cost of funds to banks.

Apart from the above policy, the central bank can also persuade bankers to look into how they are supplying credit to businesses and consumers

7. High-yield bonds are issued by organizations that do not qualify for "investment-grade" ratings by [<TOP>](#) any one of the leading credit rating agencies - Moody Investors Service, Standard & Poor's Ratings Services and Fitch Ratings. Credit rating agencies evaluate issuers and assign ratings based on their opinions of the issuer's ability to pay interest and principal as scheduled. Those issuers with a greater risk of default - not paying interest or principal in a timely manner - are rated below investment grade. These issuers must pay a higher interest rate to attract investors to buy their bonds and compensate them for the risks associated with investing in organizations of lower credit quality.

While analyzing a high-yield bond, analysts should study about the debt structure, corporate structure and covenant.

- A. **Analysis of Debt Structure:** Debt structure of a high-yield issuer mainly includes bank debt, brokers loans or bridge loans, reset loans, senior debt, senior subordinate debt and subordinate debt.

First, let us look into bank loan. High-yield issuer would rely more on bank loans because its low credit rating would make it a less attractive investment for creditors. Therefore, bank loan constitutes a major part of a firm's debt. The bank debt, which is short-term and secured debts, would give the holders priority over other debt holders on the assets of the firm. When a firm is heavily financed by bank debt, floating interest rates may pose severe cash flow problems to the issuer. One more issue to be considered is how the issuer would pay back the bank loan. There are usually three options available for the issuer, (i). Repayment from operating cash flow (ii). Refinancing and (iii) Sale of assets. Analysts must be careful in examining the source of payment as any discrepancies would affect the ability of the issuer to repay the debt.

When a high-yield issuer turns to broker loans or reset loan for financing, it is of concern to the bond holders. As the coupon rate of the reset note would be changed periodically (so that the security would trade at a price premium above the par value), an analyst should carefully examine the impact of rising interest rates as it could lead to higher borrowing cost.

While analyzing debt structure of a high-yield issuer, the analyst should also look into the fact, whether the issuer has any deferred coupon bonds. A deferred coupon bond, such as a zero coupon bond, is a debt instrument that pays no interest until a date specified in the future. A deferred interest payment implies that the future cash flows would be affected by this obligation. Analysts should carefully examine the effect of this obligation while analyzing a high yield corporate bond.

- B. **Analysis of Corporate Structure:** When high-yield issuers have a holding company structure, an analyst should also look into the operation of the subsidiaries. The analyst should understand the corporate structure of the firm so as to understand the effect of cash flow between the subsidiaries and the parent company. Understanding this is important to analyze the sources of finance for the parent company to pay its creditors. Examining the debt structure of the subsidiary helps the analyst in finding out how much the subsidiaries would be able to contribute to the parent company in paying off its creditors.
- C. **Analysis of Covenants:** An analyst should go for a detailed analysis of the covenants in the bond indenture as it provides insight into the company's strategy. Any loopholes in covenants provide clues about the intentions of the management.
- D. **Equity Analysis Approach:** Analysis of a high-yield bond from an equity analyst's perspective is strongly recommended by some portfolio managers. As per Stephen Esser - Using an equity approach, or at least considering the hybrid nature of high-yield If analysts think about whether they would want to buy a particular high-yield company's stock and what will happen to the future equity value of that company, they

have a useful approach because, as equity values go up, so does the equity cushion beneath the company's debt. All else being equal, the bonds then become better credits and should go up in value relative to competing bond investments.

- E. **Default Rates on High Yield Securities:** There is a difference between *default rate* and *loss rate*. Default rate is the proportion of companies defaulting per year. But not all companies that default go bankrupt. The *recovery rate* is the proportion of defaulting companies that do not eventually go bankrupt. High yield securities are considered to have speculative characteristics. They may have a greater risk of default or may already be in default because of the issuer's low creditworthiness. The default rate on high yield securities is likely to be higher during economic recessions or periods of high interest rates.

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