

# KASNEB

## CIFA PART III SECTION 5

### FIXED INCOME INVESTMENT ANALYSIS

#### PILOT PAPER

September 2015.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

#### QUESTION ONE

(a) Bond securities are usually quoted in price, yield or spread over an underlying benchmark bond.

**Required:**

Briefly explain the following terms as used in bond pricing.

- (i) Bond quoted price. (2 marks)
  - (ii) Bond quoted yield. (2 marks)
  - (iii) Bond quoted spread. (2 marks)
  - (iv) Underlying benchmark bond. (2 marks)
- (b) Wealth Maximisers, a fund management firm has not previously included Consumer Price Index (CPI) linked government bonds in its bond fund portfolio. However, as a bond analyst, you wish to recommend that such bonds should be included because prices on the CPI-linked government bonds experienced a much greater decline during last year's financial market upheavals than prices for ordinary government bonds.

**Required:**

Briefly explain three reasons why CPI-linked government bonds are beneficial to both investors and the government.

(6 marks)

(c) Harun Mong'are, aged 32 years has Sh.4,000,000 to invest in fixed-income securities. He has invested in various types of bonds for 10 years and considers himself to be an aggressive investor. He is in the 28% marginal income tax bracket. His primary goal is capital appreciation, income is a secondary consideration.

Harun Mong'are's financial planner has presented the following securities and their after tax yields:

1. 15-year BB rated, non-callable corporate bonds trading near par with a yield of 11.8%.
2. 20-year, A rated, discount, public purpose callable general obligation country bond with a taxable equivalent yield of 12.2%.
3. 10-year, A rated, premium, callable, sinking fund corporate bonds with a yield of 9.5%.
4. Treasury bill with a yield of 8.0%.

**Required:**

Evaluate each of the above securities and recommend which security would be appropriate for Harun Mong'are.

(6 marks)

(Total: 20 marks)

#### QUESTION TWO

A bond dealer on the Paa Securities Exchange (PSE) has provided the following information on a portfolio of fixed income securities:

Par value (Sh.)	Market price (Sh.)	Coupon (%)	Modified duration	Effective duration	Effective convexity
2 million	100	6.5	8	8	154
3 million	93	5.5	6	1	50
1 million	95	7.0	8.5	8.5	130
4 million	103	8.0	9	5	-70

**Required:**

- (i) The effective duration for the portfolio. (4 marks)
- (ii) The price value of a basis point for the portfolio. (3 marks)
- (iii) The bond(s) that are likely to have no embedded options. (2 marks)
- (iv) The bond(s) that are likely to be callable. (2 marks)
- (v) The bond(s) that are likely to be puttable. (2 marks)
- (vi) The approximate price change for the 7% bond if its yield to maturity increases by 25 basis points. (3 marks)
- (vii) Outline why two bond dealers might differ in their estimates of a portfolio's effective duration. (2 marks)
- (viii) Explain why the portfolio's effective duration might be an inadequate measure of interest rate risk for a bond portfolio even if we assume the bond effective durations are correct. (2 marks)

**(Total: 20 marks)****QUESTION THREE**

- (a) Assume that you are a senior credit analyst in a credit rating agency. You have been appointed by your organisation to make a presentation to the Kenya Bankers Association members on the roles played by credit rating agencies in credit risk management.

**Required:**

- (i) Explain the credit related risks affecting corporate bonds. (4 marks)
  - (ii) Describe the ranking of corporate debt in terms of seniority and explain the potential violation of the priority of claims in bankruptcy proceedings. (4 marks)
  - (iii) Distinguish between corporate issuer credit rating and issue credit rating and describe the rating agency practice agencies. (4 marks)
  - (iv) Explain the inherent risks from relying on ratings from credit rating agencies. (4 marks)
- (b) The following data relates to two high yield firms in the same industry:

	Sh. (million)	
	A	B
Cash	200.00	100.00
Interest expense	80.00	40.00
EBITDA	170.00	85.00
Secured bank debt	1,000.00	250.00
Senior unsecured debt	400.00	100.00
Convertible bonds	100.00	400.00

**Required:**

- (i) Calculate the total leverage through each level of debt for both firms. (1 mark)
- (ii) Calculate the net leverage for both firms. (1 mark)
- (iii) Comment on the firm that is more attractive to an unsecured debt investor. (2 marks)

**(Total: 20 marks)****QUESTION FOUR**

- (a) You are the manager of a portfolio consisting of three bonds in equal par amounts of Sh.1,000,000 each. The first table shows the market value of the bonds and their durations (the price includes accrued interest). The second table contains the market value of the bonds and their durations one year later.

Initial values				
Security	Price (Sh.)	Market value (Sh.)	Duration	Shilling duration
Bond No.1	106.110	1,060,531	5.909	?
Bond No.2	98.200	981,686	3.691	?
Bond No.3	109.140	1,090,797	5.843	?
Portfolio shilling duration =				?

After 1 year				
Security	Price (Sh.)	Market value (Sh.)	Duration	Shilling duration
Bond No.1	104.240	1,042,043	5.177	?
Bond No.2	98.084	980,461	2.817	?
Bond No.3	106.931	1,068,319	5.125	?
Portfolio shilling duration =				?

As a manager, you wish to maintain the portfolio shilling duration at the initial level by rebalancing the portfolio. You choose to rebalance using the existing security proportions of one third each.

**Required:**

- (i) Shilling duration of each of the bonds. (10 marks)
  - (ii) The rebalancing ration necessary for the rebalancing. (5 marks)
  - (iii) Cash required for the rebalancing. (5 marks)
- (Total: 20 marks)**

**QUESTION FIVE**

- (a) (i) Explain the dominant type of structure in the investment-grade credit market. (2 marks)
  - (ii) Suggest three strategic portfolio implications of the dominant structure in (a) (i) above. (6 marks)
  - (iii) Explain the dominant structure in the high yield corporate bond market and why it is usually not the same structure as discussed in (a) (i) above. (2 marks)
- (b) The managers of Reliable Life Insurance Ltd. are considering hiring a consultant to advice them on portfolio immunisation. The following are some of the statements that were made during the interview presentations:
1. A great thing about immunisation is that it is a set and forget strategy. That is, once you have immunised your portfolio, there is no subsequent work to be done.
  2. The immunisation target rate of return is less than yield to maturity.
  3. If a portfolio is immunised against a change in the market yield at a given horizon by matching portfolio duration to horizon, the portfolio faces no risk except for default risk.
  4. The liquidity of securities used to construct an immunised portfolio is irrelevant.
  5. In general, the entire portfolio does not have to be turned over to rebalance an immunised portfolio. Further, rebalancing need not be done on a daily basis.

**Required:**

- (i) Argue the case against each of the above statements. (5 marks)
- (ii) Comment on the validity of each of the above statements. (5 marks)

**(Total: 20 marks)**

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