

VPM's
DR VN BRIMS, Thane
Programme: PGDM (2019-21)
PGDM Trimester V Examination January 2020

Subject	Fixed Income Securities (FIS)		
Roll No.		Marks	60 Marks
Total No. of Questions	7	Duration	3 Hours
Total No. of printed pages	3	Date	04.02.2020

Note: Q1 is compulsory and solve any FOUR from the remaining SIX questions.

Q1) 20 Marks (Compulsory)

You are the treasury officer of Digi Bank plc. having headquarters in London, UK. You are currently having a review meeting for the economic outlook in the upcoming year. After some basic discussions, the next point that the members are discussing is based on Interest rate movements.

You are of the opinion that the interest rates in the economy are going to reduce. Hence you advise the members to convert at least some portion of bank's liabilities to floating rates using Interest Rate Swap. The members agree to your proposition and suggest that we must approach 'Merrill Lynch' our business partner to act as an intermediary in the swap.

You immediately call your contact Mr. David at 'Merrill Lynch' who mentions that they will be happy to be the intermediary party in the transaction, however they will take 0.5% out of the total gain from the swap. You along with all the members agree to this condition. Mr. David also specifies that he already has a client which is in requirement of fixed interest rates but that client is a much smaller bank compared to Digi Bank. He gives the following additional information regarding swap terms.

Bank	Fixed Rate	Floating Rate	Preference
Digi Bank	8%	L + 1%	Floating
Mini Bank	13%	L + 3%	Fixed

You convey your regards to Mr. David and tell him that you will get back to him once you have finalized about the design of the swap. You ask your members for suggestions on the swap terms.

- 1) Mr. Denver questions 'what if we create a swap such that the balance gain is equally shared between both the parties' how would that look?
- 2) Ms. Samantha suggests that because we are a dominating party, the swap should be in such a way that the balance gain is shared between Digi & Mini in the ratio of 2:1.
- 3) Mr. Martin asks 'what if we decide to have a swap such that the effective cost to our bank comes as L - 1.5%, how will the swap look like'?
- 4) Mrs. Knight asks 'if we have liabilities worth GBP100 mn what is the value of gain per annum in all the above three scenarios.

You being an expert are being asked to solve all the 4 queries.

Attempt Any FOUR from the Remaining SIX Questions

Q2) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) A Bond with 3 years maturity Rs. 5,000 FV Bond, which pays coupon @ 12% semiannually. The bond will be redeemed @ premium of 5% at the end of 3 yrs. Similar Bonds in the market are presently yielding 8%. Find out the intrinsic value. If CMP is 5,500 advise whether the bond should be purchased or not.
- b) Find out the IV of the Bond from the following information and give investment advice.
 Face Value = 1,000, Coupon Rate = 12%

Maturity = 5 yrs, Credit rating = AA, Market Price = 94% of face value

Presently the yield available in market are shown below.

AAA Spread off 2% over treasury

AA Spread off 1% over AAA

A Spread off 3% over AA

BBB Spread off 2% over A

5 year treasuries are presently yielding 9%.

- c) Face Value= Rs. 1,000, Coupon Rate= 12% p.a., Yield =8% p.a., Redeemable after 5 years at par. What will be the intrinsic value of the bond?

Q3) Any one from (a) or (b) ————— (10x1) = 10 Marks

a) What are the types of Bond based on

- i) Issuer
- ii) Coupon Type
- iii) Embedded Options
- iv) Credit Risk

b) What are the different types of Risk in Fixed Income Investments?

Q4) Any one from (a) or (b) ————— (10x1) = 10 Marks

a) Write a short note on

- i) CDS
- ii) CDO.

b) Write whether the following statements are True or False (Just write True or False; don't rewrite the entire sentence)

- i) Bond Prices and Yields are directly proportional
- ii) Fixed Coupon Bonds will be preferred as an investment if Interest Rates are going to increase
- iii) Effective Duration is used for Plain Vanilla Bonds
- iv) OAS stands for Optimum Average Spread
- v) Convexity is always beneficial for the investor
- vi) If yields are positive, Modified Duration will always be lower than Macaulay Duration
- vii) Zero coupon bonds are always issued at premium
- viii) Boot-Strapping is a technique to calculate Spot Rates from Par Rates
- ix) Investment Grade securities have higher yield as compared to Junk Bonds
- x) Special Purpose Vehicle is an entity created to isolate financial risk

Q5) Any one from (a) or (b) or (c) ————— (5x2) = 10 Marks

a) A Bond is currently trading at Rs. 900. It has a face value of ₹ 1000 and coupon rate of 10%. It is redeemable at par after 5 years. The bond was issued with an option that issuer can call the bonds (redeem) after 3 years at the premium of 5%. Find its YTM and Yield to call?

b) 10%, 1000 Face value , 4 yrs bond presently trading at 1,200 and is redeemable at a premium of 10% at the end of 4 yrs. Income tax rate is 30% and Capital Gain tax is 20%. Calculate After-tax YTM.

c) 1000 Face Value bond presently trading at 800 and is redeemable at a premium of 10% at the end of 2 yrs. The bond pays semi-annual coupon. Calculate YTM. Calculate BEY and EAY

Q6) Any one from (a) or (b) ————— (10x1) = 10 Marks

a) i)

Fred Ltd. issued 8% coupon bond redeemable in 5 years. Face value is Rs.1,000.

Calculate Key Rate Durations

Year	Spot Yields
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1	7 %
2	7.5 %
3	7.8 %
4	7.9%
5	8%

Calculate Key Rate Durations

ii) Suppose the yield-to-maturity is expected to increase by 10 bps tomorrow, from 2.95% to 2.85%. A bond has an annual (modified) duration of 24.500 and annual convexity of 775. What is the percentage price gain from this rise in interest rate?

b) Big Ltd. issued 10% semi-annual coupon bond redeemable in 2 years. Face value is Rs.1,000 and the current YTM is 12% p.a. Calculate Mac Duration, Modified Duration & effective duration of the bond.

Q7) Any two from (a) or (b) ————— (10x1) = 10 Marks

a) i) Explain what different types of Interest Rate options are.

ii) If 2 months interest rate is 12% p.a. and 6 months interest is 14% p.a. What is the rate of FRA (2x6)?

b) If 1 year spot rate is 5%p.a. 2 year spot rate is 6% p.a and 3 year spot rate is 7% p.a. Then calculate forward rates:

i) 1 year forward 2 years from now

ii) 2 years forward 1 year from now