

## Free Questions for 8006 by dumpssheet

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## Question 1

Question Type: MultipleChoice

The price of an interest rate cap is determined by:

1. The period to which the cap relates
II. Volatility of the underlying interest rate
III. The exercise or the strike rate
IV. The risk free rate

## Options:

A-I, II, III and IV
B- I, II and III
C- II, III and IV
D- I, II and IV

## Answer:

## Explanation:

The price of an interest rate cap is affected by all of the listed choices except the risk free rate. The risk free rate does not come into play in the pricing of caps, and therefore Choice 'b' is the correct answer.

## Question 2

Question Type: MultipleChoice

Which of the following are true:

1. A interest rate cap is effectively a call option on an underlying interest rate
II. The premium on a cap is determined by the volatility of the underlying rate
III. A collar is more expensive than a cap or a floor
IV. A floor is effectively a put option on an underlying interest rate

Options:
A-I, II, III and IV
B- I, II and III
C- III and IV
D- I, II and IV

## Answer:

D

## Explanation:

Interest rate caps are effectively call options on an underlying interest rate that protect the buyer of the cap against a rise in interest rates over the agreed exercise rate. As with options, the premium on the cap depends upon the volatility of the underlying rates as one of its variables. A floor is the exact opposite of a cap, ie it is effectively a put option on an underlying interest rate that protects the buyer of the floor against a fall in interest rates below the agreed exercise rate.

A cap protects a borrower against a rise in interest rates beyond a point, and a floor protects a lender against a fall in interest rates below a point.

A collar is a combination of a long cap and a short floor, the idea being that the premium due on the cap is offset partly by the premium earned on the short floor position. Therefore a collar is less expensive than a cap or a floor.

## Question 3

Question Type: MultipleChoice

An investor in mortgage backed securities can hedge his/her prepayment risk using which of the following?

1. Long swaption
II. Short cap
III. Short callable bonds
IV. Long fixed/floating swap

## Options:

A- II and III
B-I and III
C-II and IV
D-I and IV

## Answer:

## Explanation:

Mortgage backed securities carry prepayment risk as borrowers tend to prepay mortgages when rates fall, and substitute it with newer cheaper mortgages. This creates the issue of 'negative convexity' for mortgages, ie, they lose value when rates rise, but do not gain in value when rates fall.

Prepayment risk can be offset by instruments that also carry negative convexity. A swaption is an option to borrow in the future at an agreed rate, which may be fixed or floating. An option to borrow in the future paying floating and receiving fixed guards against losses when rates fall, as the option can be exercised for a profit when rates are declining and the mortgage portfolio is being prepaid. A callable bond is very similar to an MBS in that the issuer can call it back when rates fall. Thus a long position in an MBS can be offset by a short position in a callable bond. Thus I and III are valid choices.

A cap allows exchanging fixed for floating when interest rates rise above an agreed rate. A long cap position allows borrowing at a fixed rate in exchange for floating, and a short cap implies receiving fixed and paying floating when rates go above the strike rate. Prepayment risk arises from falling interest rates, therefore a short cap will not protect against such a risk as falling interest rates would mean that no payments would be exchanged. Thus II does not help hedge against the risk in question.

A long position in a fixed for floating swap would require paying fixed and receiving floating when rates are falling. This would just make the problem from prepayments worse as the position would pay fixed and receive a falling rate. Thus IV is not an appropriate way to hedge prepayment risk.

## Question 4

Question Type: MultipleChoice

A borrower pays a floating rate on a loan and wishes to convert it to a position where a fixed rate is paid. Which of the following can be used to accomplish this objective?

1. A short position in a fixed rate bond and a long position in an FRN
II. An long position in an interest rate collar and long an FRN
III. A short position in a fixed rate bond and a short position in an FRN
IV. An interest rate swap where the investor pays the fixed rate

## Options:

A- None of the above
B-I and IV
C- I, II and IV
D- II and III
A short position in a fixed rate bond and a long position in an FRN has the effect of paying fixed and receiving floating. The floating received offsets the floating payment on the borrowing, leaving the borrower with just a fixed rate outflow. Therefore the combination identified in statement I can be used to achieve the objective of paying fixed.
A collar is equivalent to a long position in an interest rate cap combined with a short position in an interest rate floor. This has the effect
of setting a range within which the investor's borrowing rate will vary. In the case where the cap and floor rates are the same, the combination of a collar and a long FRN effectively produces an outcome where the holder of such positions pays a fixed rate. Therefore, an interest rate collar can be used to convert the fixed payment to a floating rate payment. [Example: Assume current interest rate is $3 \%$, and therefore the borrower has a liability of $3 \%$ on the FRN. Assume that the borrower now buys a collar at the strike rate of $4 \%$. Now the borrower receives $0 \%(=\operatorname{Max}(3 \%-4 \%, 0))$ on the cap part of the collar, and pays $1 \%$ on the floor part of the collar (=Max( $4 \%-3 \%$, $0)$ ). The net borrowing cost therefore is $3 \%$ paid on the FRN plus $1 \%$ paid on the collar, equal to $4 \%$. Now if interest rates rise to say $6 \%$, the borrower pays $6 \%$ on the FRN, and receives $2 \%$ from the collar (=Max $(6 \%-4 \%, 0)-\operatorname{Max}(4 \%-6 \%, 0)$ ), creating a net cost of $6 \%$ $2 \%=4 \%$.
A collar is often issued with an FRN to convert floating flows to fixed. Therefore combination II is an acceptable choice.
A short position in a fixed rate bond and a short position in an FRN produces a cash flow that does not produce a net fixed cash outflow when combined with the borrowing. Therefore statement III is not a valid combination.
An interest rate swap where the investor pays fixed and receives floating, when combined with a floating payment on an FRN leaves a net fixed payment, Therefore statement IV is a valid way to achieve the borrower's objective.

## Answer:

C

## Question 5

Question Type: MultipleChoice

Which of the following statements is true for a Credit Linked Note (CLN)?

## Options:

A- The CLN will yield the risk free rate
B- If a credit default occurs, the investors will get their full money back
C - The investor in the note is the protection buyer
D- The investor in the note is the protection seller

## Answer:

D

## Explanation:

A CLN is a form of a funded credit derivative. The investors in the note are the protection sellers, and receive the CDS premiums in addition to any risk free rate on their investment. If a default occurs, the money put up by the investors in the CLN is used to make good the party that has brought the protection.

Therefore if a default occurs, the investors in a CLN do not receive their entire investment back, but only what remains after fullfilling their obligations on the credit protection, plus any premiums that might have been earned. In return for this risk, the CLN yields the risk free rate plus the CDS premiums. Only Choice 'd' is correct, all other options are incorrect.

## Question 6

Question Type: MultipleChoice

A bank holding a basket of credit sensitive securities transfers these to a special purpose vehicle (SPV), which sells notes based on these securities to third party investors. Which of the following terms best describes this arrangement?

## Options:

A- n-th to default swap
B- A credit default swap purchase
C- A synthetic CDO creation
D- A collateralized debt obligation issuance
A traditional collateralized debt obligation (CDO) involves the complete transfer of securities to an SPV, which then issues notes or securities to investors. Therefore Choice ' $d$ ' is the correct answer.
A synthetic CDO achieves the same result as a traditional CDO, but uses credit derivatives to synthetically create the same economic effect as a traditional CDO.

A credit default swap is a derivative instrument that pays in the event of the occurrence of agreed credit events. The arrangement described in the question is not a credit default swap purchase. n-th to default swap arrangements are similar to CDSs, but on a portfolio with the first ' $n$ ' losses being covered by the swap.

## Answer:

## Question 7

Question Type: MultipleChoice

Which of the following statements are true:

1. A total return swap (TRS) helps gain an exposure without having to fund a long position
II. A short position in a corporate bond can be covered using a repo
III. A total return swap (TRS) is useful to eliminate counterparty risk
IV. A bank borrowing funds using a repo continues to hold the underlying assets on its balance sheet

## Options:

A- I, II, III and IV
B- I, III and IV
C- III and IV
D- I, II and IV

## Answer:

## D

## Explanation:

A total return swap allows an investor or a financial institution to gain exposure to an asset or a portfolio without actually having to go long in those positions. The counterparty provides the return from the exposure and receives LIBOR plus a spread in exchange. Effectively, the counterparty has funded the investor's position for a fixed interest rate, therefore a TRS is essentially a funding arrangement. However, the structure of a TRS may also have other consequences that are relevant for tax and accounting - the assets under a TRS are not held on the balance sheet of the investor receiving the total return. Statement I is correct as the TRS helps gain an exposure without having to fund the position with cash.

Repos are useful for shorting corporate bonds. The investor desirous of shorting a corporate bond would sell the bond in the market, and immediately borrow the bond from someone else using a repo to deliver to the party he has sold the bond to. Repos are used extensively to cover short bond positions, and therefore statement II is correct.

Statement III is not correct as counterparty risk continues to exist with a TRS. The counterparty may fail to provide the agreed returns, and the risk exists.

Statement IV is correct as the bank that borrows funds using a repo continues to hold the underlying assets on its balance sheet. Therefore Choice 'd' is the correct answer.

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